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COLLEGE OF ENGINEERING
AND COMPUTER SCIENCE

Advanced Software Process

The IDEAL Model

Software Process Improvement Model

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Contents

- The IDEAL^{SM} Model

Objectives

- This document has been prepared mainly for the students in Software Engineering class:
  - Who want to learn CMM/CMMI
  - Who want to understand and improve their capability to develop software effectively
  - Who want to understand the key practices that are part of effective processes for developing or maintaining software, and to identify the key practices that are needed to achieve the next maturity level in the CMMI
  - Who want to identify the risks of having a particular organization perform the work of a contract
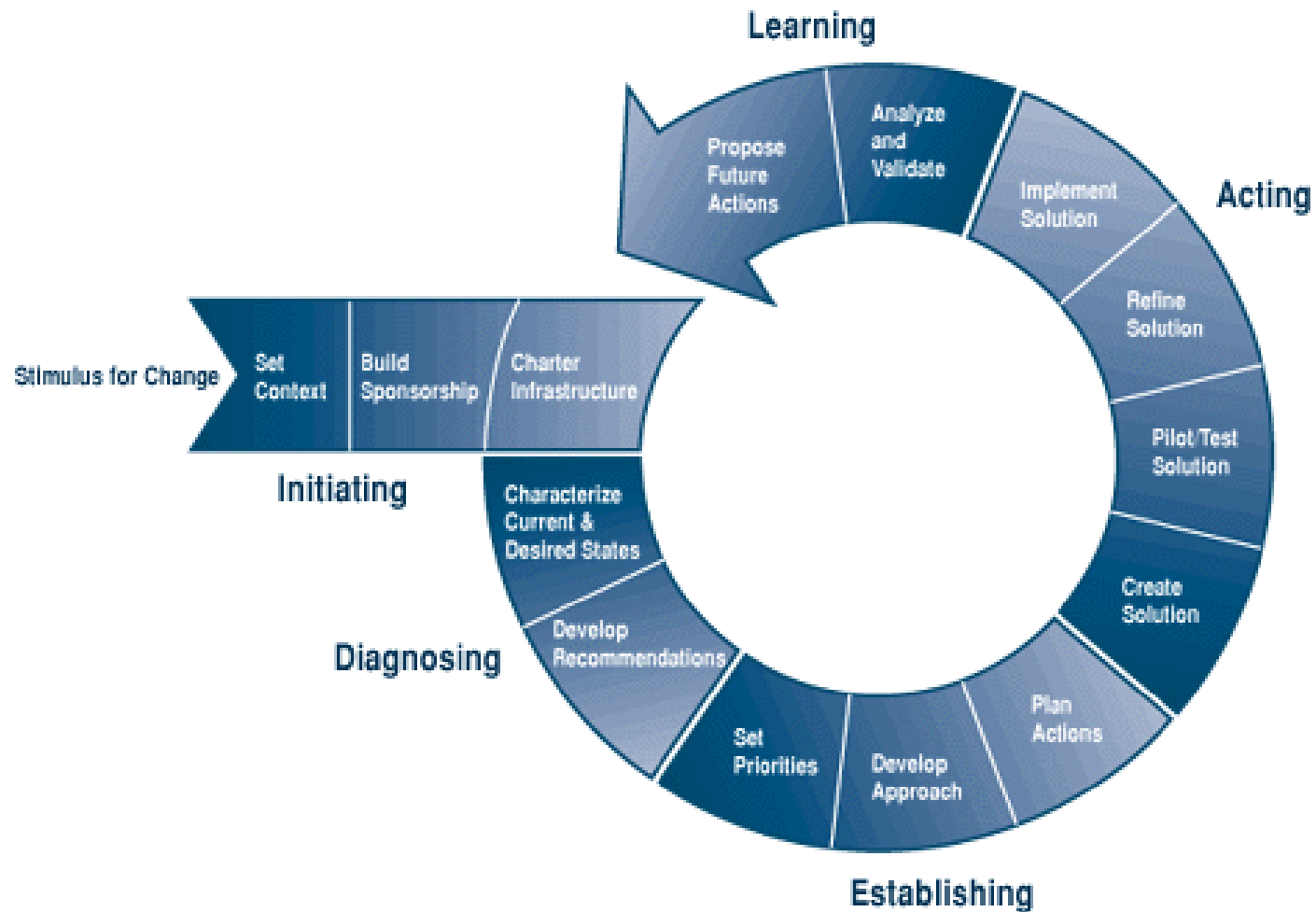
The IDEAL^{SM} Model

- Initiating

- Diagnosing

- Establishing

- Acting

- Learning

The IDEAL^{SM} Model

- Initiating, Diagnosing, Establishing, Acting & Learning

- The IDEAL^{SM} model is an organizational improvement model that serves as a roadmap for initiating, planning, and implementing improvement actions.

- The IDEAL^{SM} model is named for the five phases it describes: initiating, diagnosing, establishing, acting, and learning.

The IDEAL^{SM} Model

The IDEAL^{SM} Model

- The IDEAL model forms an infrastructure to guide organizations in planning and implementing an effective SW process improvement program.

- The IDEAL model is the founding strategy employed in delivering many SEI services.

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The IDEAL^{SM} Model

- Organizations that follow the IDEAL approach to SW process improvement (SPI) can effectively integrate SEI technologies, courses, workshops, and services into a comprehensive method for managing and improving their overall capacity.
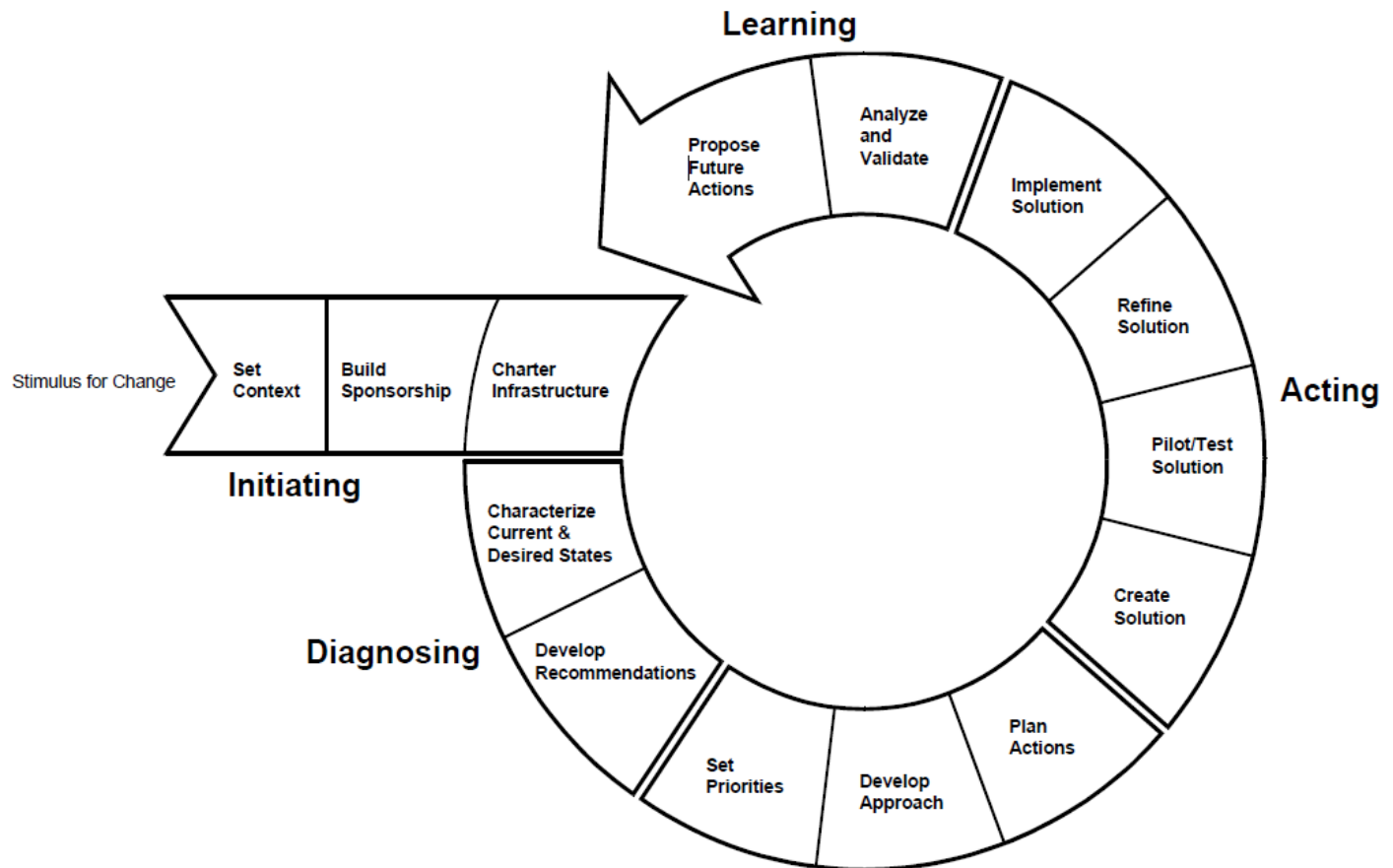
The IDEAL^{SM} Model

- The explosion of technological development has led organizations to adopt new technologies at an increasing rate.

- The IDEAL Model provides an effective approach to adopting improved SE processes, methods, and tools.

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The IDEAL^{SM} Model

- The IDEAL model consists of five phases:
  - Initiating
    - Laying the groundwork for a successful improvement effort
  - Diagnosing
    - Determining where you are relative to where you want to be
  - Establishing
    - Planning the specifics of how you will reach your destination
  - Acting
    - Doing the work according to the plan
  - Learning
    - Learning from the experience and improving your ability to adopt new technologies in the future

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The IDEAL^{SM} Model

Each of the five phases is made up of several activities.

The IDEAL^{SM} Model

- The Initiating Phase
  - Stimulus for change
  - Set context
  - Build sponsorship
  - Charter infrastructure
  - KEY
    - Business reasons, business goals, scope, …
    - CMMI
      - Continuous Representation (Capability Level) or Staged Representation (Maturity Level)
      - Body of Knowledge (SW Eng, Sys Eng, IPPD, Supplier Sourcing)

The IDEAL^{SM} Model

- The Diagnosing Phase
  - Characterize current and desired status
  - Develop recommendations
  - KEY
    - CMMI Appraisal (SCAMPI: Class A, B, C)
    - CL or ML
    - Process Areas (PAs)
    - Goals
    - Practices

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The IDEAL^{SM} Model

- The Establishing Phase
  - Set priorities
  - Develop approach
  - Plan actions
  - KEY
    - PAs/Goals/Practices

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The IDEAL^{SM} Model

- **The Acting Phase**
  - Create solution
  - Pilot/test solution
  - Refine solution
  - Implement solution
  - KEY
    - PAs/Goals/Practices

The IDEAL^{SM} Model

- **The Learning Phase**
  - Analyze and validate
  - Propose future actions
  - KEY
    - CMMI Appraisal (SCAMPI: Class A, B, C)
    - Business reasons and goals

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Interpretation Issues Encountered and How Addressed

- Artifacts
  - CMMI Typical Work Products
- Terminology
  - Glossary
- Training and Resources
  - Methods, tools and technologies
- Management issues
  - Support and resources
  - Estimation, plan, measurement, …
  - Process, process, process, …
    - SPI team

Key Activities That Were Necessary To Implement CMMI

- Identify the current practices (SCAMPI B/C)

- Find problems and solutions (CMMI)

- Implement a pilot solution

- Evaluation

- Implement all

- Assessment (SCAMPI A/B/C)

- Learn and iterate

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