# IT Services Qualification Center and Capability Models

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# Presentation Overview

- Background
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  - Capability Models
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  - Status of Model development
- Appraisal Methods
  - Appraisal principles
  - Benefits to Participants
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# What is the IT$^{sqc}$?

**Information Technology Services Qualification Center** is part of Carnegie Mellon University's (CMU's) Institute for Software Research International (ISRI) in the School of Computer Science.

**Mission**: to address the emerging need for capability models and qualification methods for organizations involved in the evolving Internet economy.

**Capability models:** being developed to enable organizations to appraise and improve their practices to provide consistently high quality services in the Internet economy.

**Frameworks**: to enable organizations to establish and manage continually improving relationships between clients and suppliers.

**Three areas:** (1) eServices Capability Model ( e$^{scm}$), (2) eSecurity, and (3) eCommerce Capability Development Model (**e$^{cdm}$**).

# IT$^{sqc}$ and CMU

**President**

**Provost**

| Graduate School of Industrial Administration | School of Computer Science | Heinz School of Public Policy and Management | Software Engineering Institute |
|---|---|---|---|
| Center for Digital Information and Commerce | **Institute for Software Research, International (ISRI)** | CIO Institute | Capability Maturity Modeling |
| eCommerce Institute | **IT Services Qualification Center** | | Carnegie Mellon Institute for Survivable Systems |

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# Models and Qualification Methods
# Research Questions

## eServices

- What are the key capabilities for successful outsourcing?
- Can one model apply to a broad set of market segments?
- What are the most effective qualification / appraisal method(s)?

## eSecurity

- What are effective survivability practices that protect against: (1) denial of service, (2) privacy invasion, (3) virus detection, and (4) content protection ?
- What form(s) of appraisal are most effective for determining survivability ?

## eCommerce

- What are key business and technical capabilities to effectively execute operations including: Computer Security, Data Interchange, Data Mining, Search Engines and Intelligent Agents, Databases, Electronic Payment Systems, Technical understanding of the Internet, Mass Personalization, Middleware, Mobile eCommerce, Multimedia, Networks, Transaction Processing, Web Architecture and Web Programming, Legal and Taxation issues.

# What is eSCM?

**Capability model for IT-enabled services (ITES) that:**

- Provides a tool for clients to evaluate ITES providers
  - Consistently
  - Comparatively
- Contains a set of essential and desirable practices for ITES providers
- Promotes continuous improvement in client - provider relationships
- Encourages ITES provider to be Innovative
- Provides risk mitigating information to the client about the capabilities of ITES providers

# eSCM Business Case

IT-enabled services sector emergence

- Expected annual growth in outsourcing is 25% (1)
- Will exceed $500 billion by 2004 (2)
- Will grow 15 fold by 2008 (3)
- Will exceed 1 trillion dollars in next 20 years (3)

Sources: (1) Dun and Bradstreet report, 2000, (2) Goldman Sachs Asian Technology Report, 2000, (3) Mckinsey and Co., 1999

# Need for eSCM

## Existing models and standards limitations

Reviewed ISO 9001, SW-CMM, People CMM,

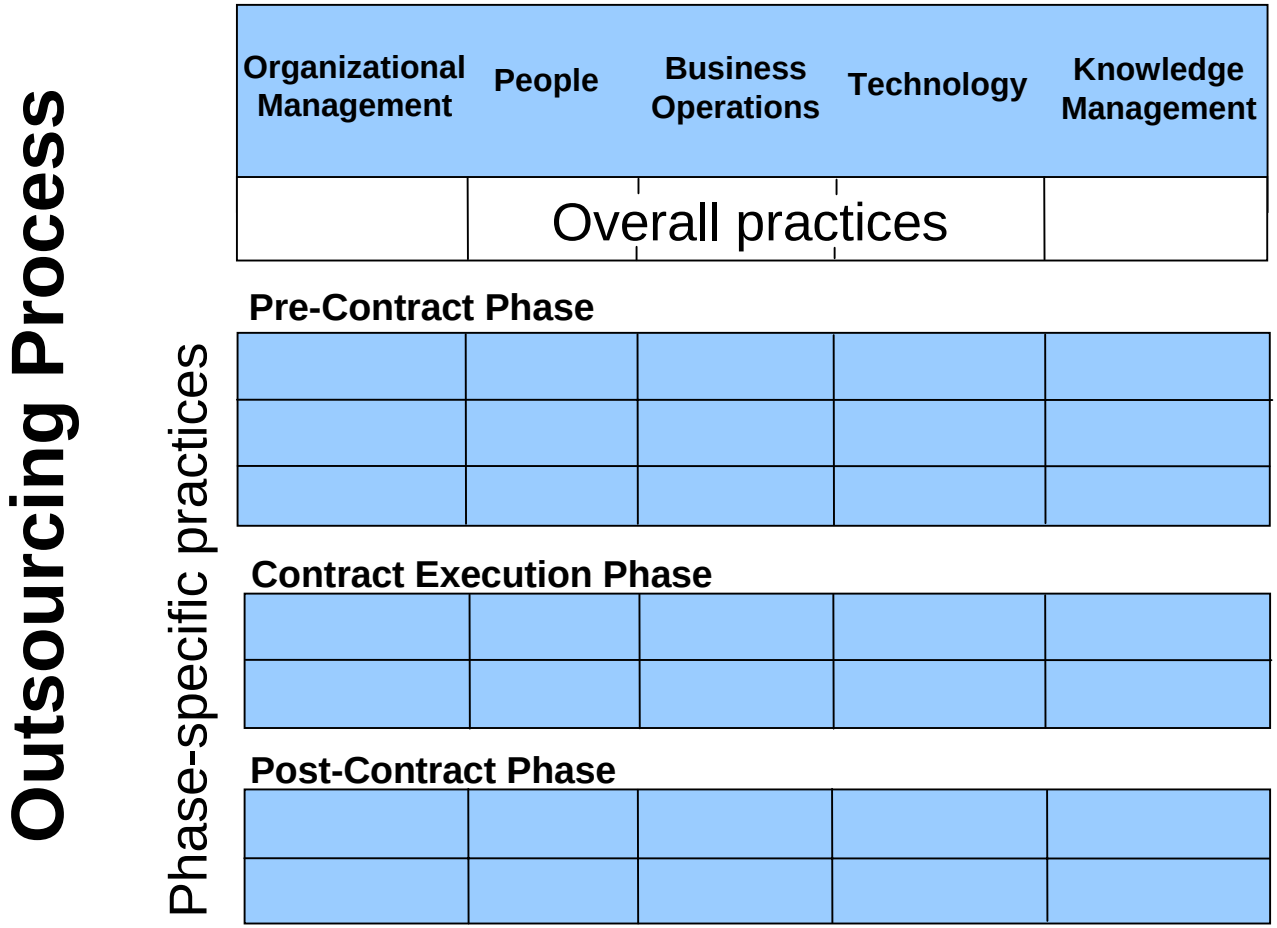
Malcolm Baldrige National Quality Award

These quality models :

- Do not address the entire outsourcing process
- Do not readily provide methods to appraise capabilities and provide guidance for improvement in ITES
- Emphasize a level of structure that is either too flexible or too rigid

# eSCM Framework

## Organizational Elements




**eSCM framework** has two dimensions:

- Organizational Elements
- Phases of Outsourcing

**eSCM practices** are defined for each Organization Element as:

- Overall or
- Phase-specific

# eSCM- Technical Advisory Board Members

**Chair- Raj Reddy, School of Computer Science (SCS), CMU**

**Members**

- Bill Curtis- Teraquest Metrics
- Betty Deimel- Gateway Associates
- Ron Radice- Software Technology Transition
- Mark Paulk- Senior Member of the Technical Staff- SEI
- William (Bill) McEvily- Graduate School of Industrial Administration
- Prahbuu Sinha - Satyam Computer Systems, Ltd.
- K. Thiagarajan- Satyam Institute of E-business

**Ex –officio**

- Jane Siegel- SCS, CMU

# eSecurity Efforts

In collaboration with CMU's Center for Survivable Systems initiatives include:

- Building on Network Survivability and OCTAVE$^{sm}$ methods to extend modeling and appraisal approaches.

- Identifying and addressing educational and training needs of the corporate and government sectors.

- Supporting creation of research repositories and use of advanced data mining techniques to improve rate of learning and capability improvement.

# e-Commerce Capability Development Model ( $e^{cdm}$ )

Development of a framework in collaboration with The Boeing Company and SEI to:

- Identify key issues associated with e-Commerce
- Identify skills, knowledge, and technological infrastructure needed to implement successful e-Commerce strategies
- Set priorities for immediate actions based on area of interest: Project, Business unit, Enterprise, or Inter-Enterprise level.
- Manage changes in a systematic way using three critical success factors of e-Commerce (Velocity, Adaptability, and Quality).

# Purpose of $e^{cdm}$ Development Effort

**Go beyond today's business model to new frontier, where business and technology are fully integrated.**

# To Ensure Success of $e^{cdm}$ Effort

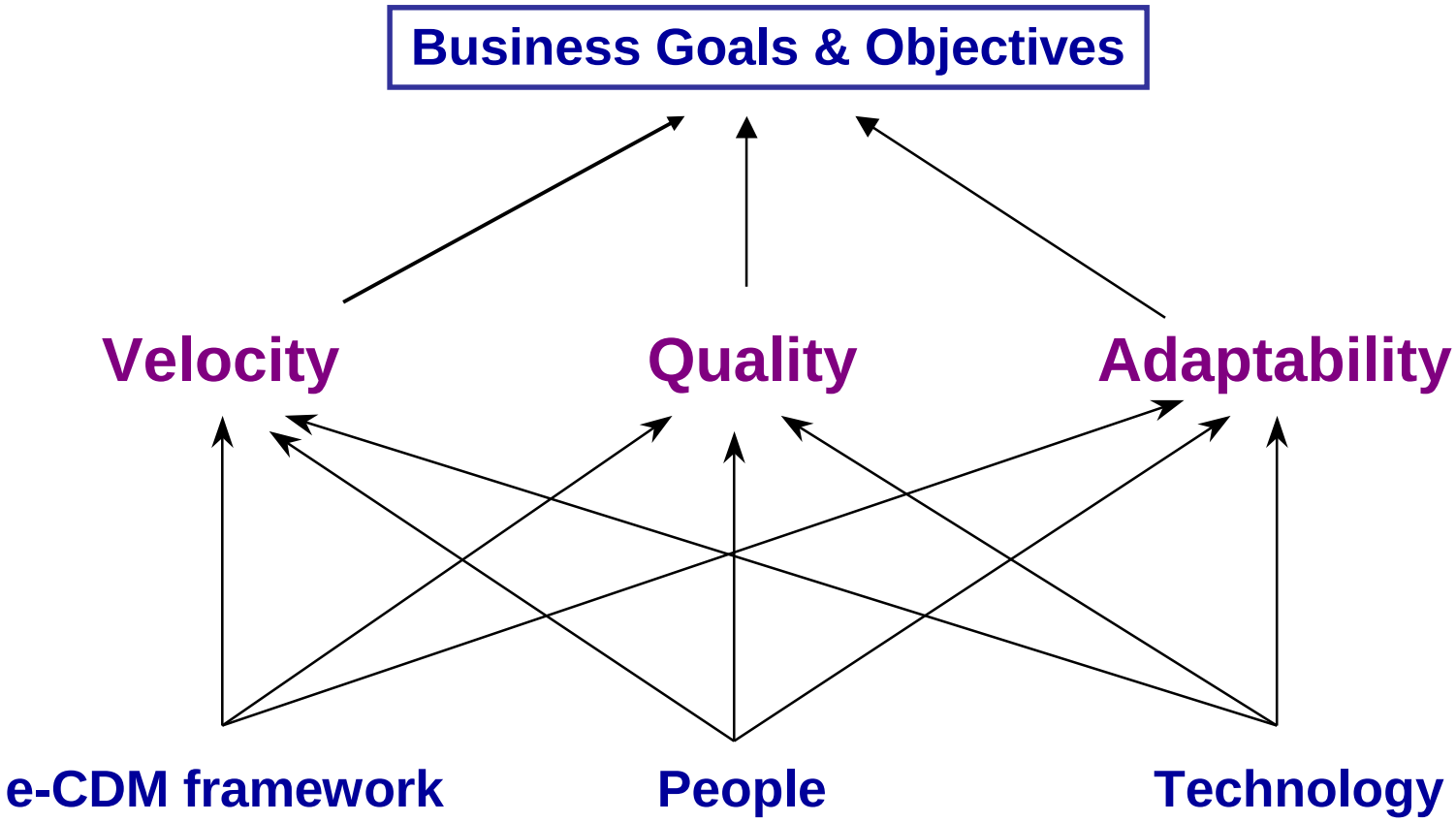
Establish new vision—formulate new business strategy to meet the needs of the market without excessive costs, time, organization, disruption, or loss of performance.

Redesign core business processes and organization infrastructure to align with new vision and strategy.

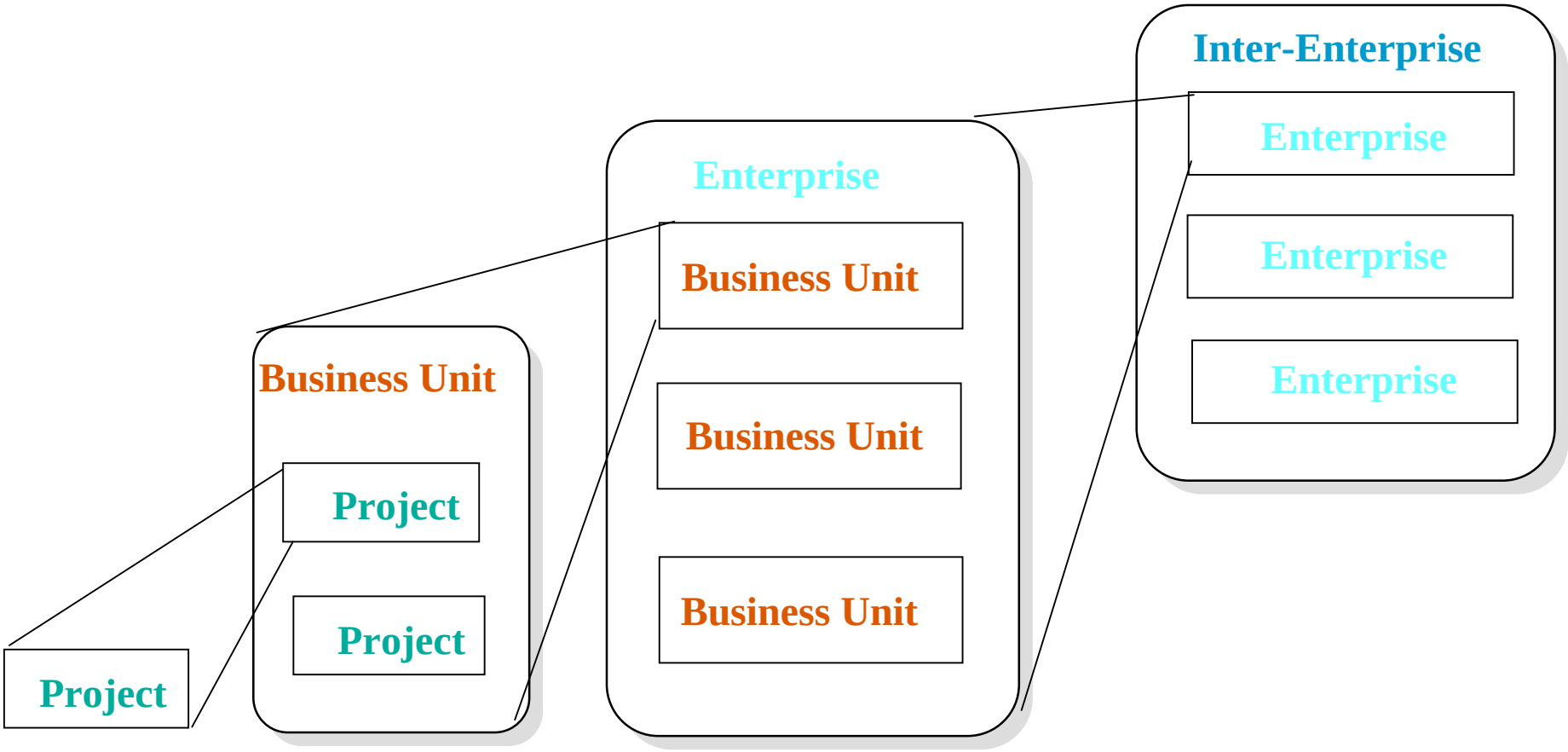
Adopt a framework that supports change and innovation to achieve the new vision, goals, and objectives.

Select a new generation of eCommerce leaders from existing pool of change agents since eCommerce is about change and continuously improving the business.

# Successful Implementation of e-cdm

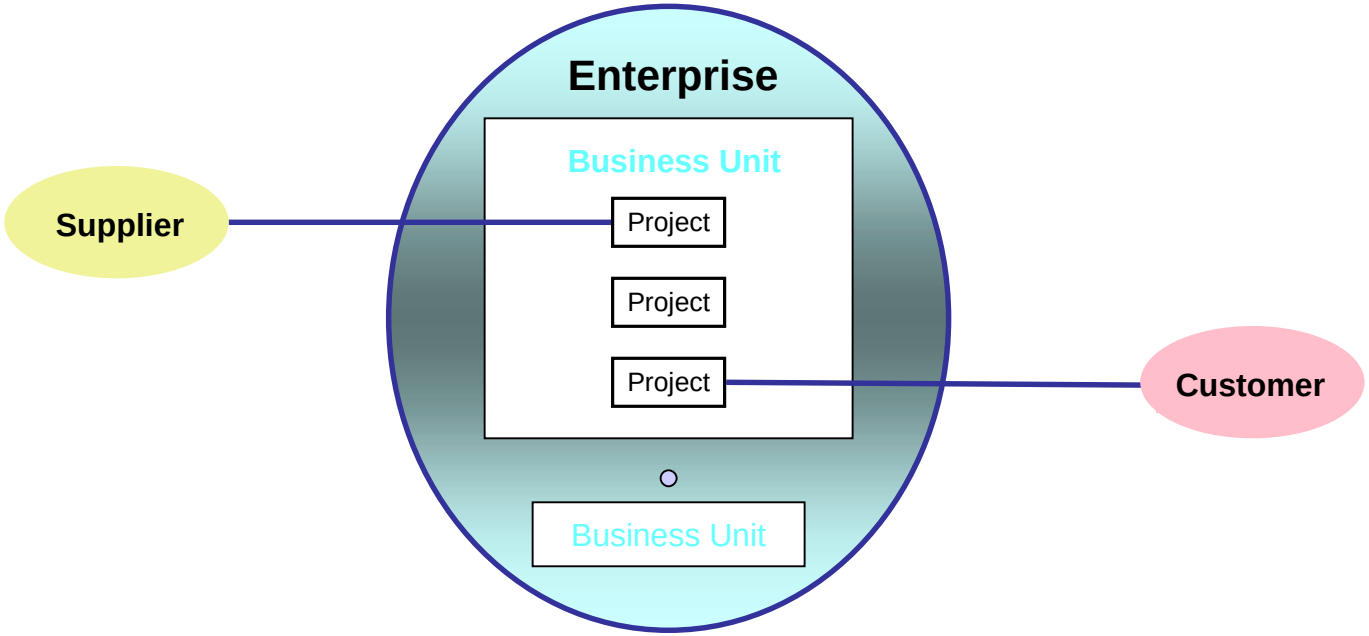


# The eCommerce Capability Development Model Structure



# Project Capability

The objective of project focus is to develop the capability to deploy eCommerce projects, within a business unit, with velocity and reliability.



# Project Key Capability Areas

**eCommerce Strategy Formulation (B)**

**eCommerce Requirement Engineering (B,P)**

**eCommerce Planning (M)**

**Applications Development and Deployment (T)**

**Access and Integrity Management (T)**

**e-Commerce Management (M)**

**Vendor Management (B,M,P)**

**Project Focus**

# Appraisal methods

## Purposes of Appraisals

- Support clients in IT partner or provider selection
- Initiate and define a roadmap for continuous self improvement in partner or provider organizations.

## Types of Appraisals being developed

- In-depth
- Limited scope / Quick look
- External (audit) team or internal (self improvement) team

# Appraisals

- Determine organizational capabilities
  - Piloting of in-depth approach underway now for outsourcing model
- Appraisal teams trained by CMU will conduct appraisal:
  - An experienced leader
  - Domain expert(s)
  - Team members with expertise in Quality Appraisals
- Appraisals are based on the organization's capability data:
  - Responses to capability questionnaires & document review
  - Interviews with managers and employees
  - Review and findings about a sample of key projects/efforts
- Results reported to all participants and to $IT^{sqc}$ repository

# Appraisal Benefits

## For Sponsoring Clients:

- Provide improved, comparable basis for selection of IT partners or service providers

## For IT-Enabled Partners or Service Providers:

- Provide the organization with a structured framework for periodic examination of status and improvement areas.
- Help to focus the improvement efforts and demonstrate management commitment.
- Build a foundation for sustained improvement of capabilities.
- Understand the organization's capabilities with respect to the rest of community and industry.

# CMU Courses (forthcoming)

## Introductory Content:

- Outsourcing
- eCommerce
- eServices Capability Model
- eCommerce Capability Development Model

## Method Courses:

- $e^{scm}$ and $e^{cdm}$ Appraisal Methods
- Lead appraiser training

# Opportunities for Community Involvement

## Partnerships

- Associate partners - sponsor and receive use of single model and appraisal method
- Founding partner of Center - gain unlimited use of all work
- Encourage partners to send colleagues to work at CMU as Visiting Industrial Scholars on the development team(s)

## Pilot site option

- Participate in appraisal method field testing - early look at model and capabilities

## Reviewers

- Technical review of model(s) and appraisal methods to ensure that we get important feedback from community

# CIO Feedback

We need your perspective about:

- The usefulness and correctness of each model
- Prioritization of appraisal methods
- Method features (duration, cost, etc.)
- Ethical standards

# Contact for Information

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