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Certifying Software Organizations

The TSP Symposium
September 22, 2008

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Agenda

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Certification Methods

Certification Strategy

The Certification Profile

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Background

Mexican national objective: become the world's highest quality software supplier by 2013.

The Mexican strategy
- Established Prosoft initiative
- Formed partnership with
    - Federal and state governments
    - Tec de Monterrey University
    - SEI
- Using TSP to guide and certify the work
- Using TSP to accelerate CMMI introduction

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Certification Purpose

Software development has long been troubled.
- 20% of projects cancelled
- 35% challenged
- 45% successful

In acquiring software, organizations must select suppliers.
- This requires evaluations.
- Few organizations have the skills, time, or money to make competent evaluations.
- Certification by a creditable organization could fill this need.

TSP Certification Objectives

Prosoft needs certification to verify that organizations they support are using TSP properly.

To do this, a certification method must meet the following criteria.
- By publicly available
- Have a defined certification scope
- Accurately reflect organization capability
- Objectively evaluate organization performance
- Comprehensively portray strengths and weaknesses
- Be economically practical for small organizations

Certification Methods

Certification can be performed in three ways.
- Certification of individuals
- Certification of processes
- Certification of products

Each method has strengths and weaknesses.

Certifying Individuals

What: Individuals are certified as meeting defined criteria for
 • skill
 • knowledge
 • experience

How: Usually through testing, references, and experience

Advantages
 • Clearly defined scope and criteria
 • Easily and economically administered

Disadvantages
 • No assurance individuals will use certified practices
 • No assurance the practices will produce desired results

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Certifying Processes

What: An organization's process is certified as meeting defined capability criteria.
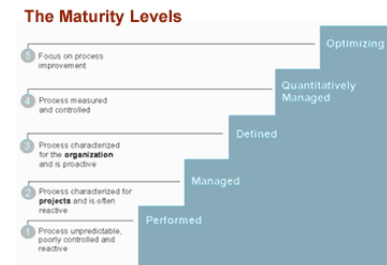
How: Usually through an organizational assessment.

Advantages
- Clearly defined scope and criteria
- Enables implementation and technology flexibility

Disadvantages
- No assurance the process will be properly used
- No assurance the process will produce the desired results.
- Comprehensive assessments are expensive.

Certifying Products

What: Specific products are certified as meeting defined criteria.
- Function
- Performance
- Quality

Advantages: Directly addresses user's specific needs.

Disadvantages
- Only available after the fact
- Must rely on testing
- Can be expensive and time consuming

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TSP Certification Strategy

The TSP Organization Certification strategy uses a combination of all three certification methods.

Certifies team members: Ensures that they know
- proper methods
- how to gather and use data

Validates the process: Verifies that
- an effective process was used
- the defined process was faithfully followed

Verifies product quality: Checks that
- quality products were produced
- customers were satisfied with the results

Using TSP Data

The extensive data produced by the TSP means that TSP organization certification can be
- accurate
- objective
- repeatable

The TSP data can also produce certification profiles.

Making these profiles available will
- enable customers to make comparative evaluations
- facilitate organizational process management
- motivate continuous improvement

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The Certification Profile - 1

The Profile is a visual display of numeric scores.

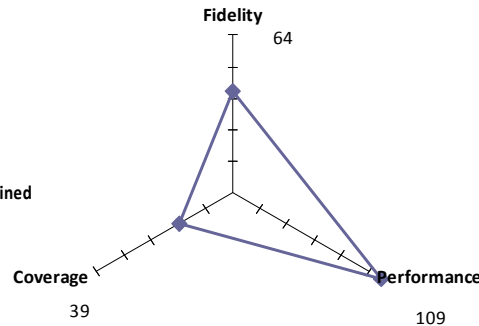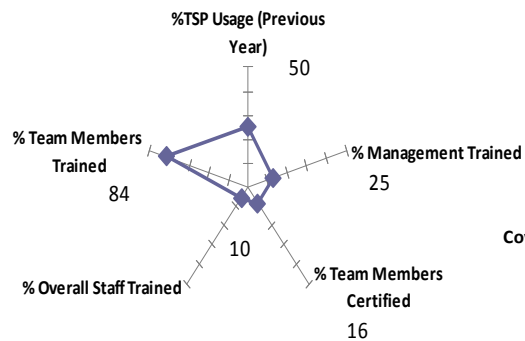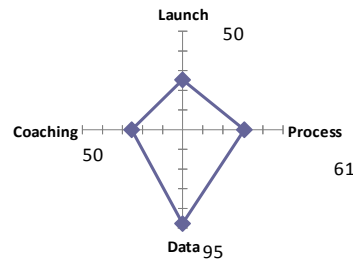It provides a comprehensive picture of organizational performance.

It is a
- product of the certification process
- scorecard that characterizes organizational capability

The Certification Profile - 2

An organization's certification profile has three components.
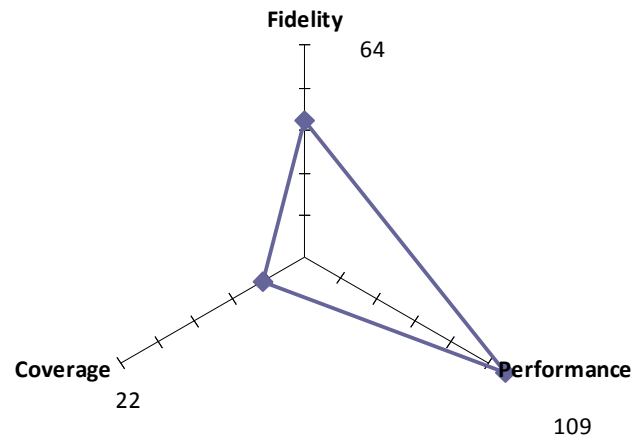- Performance
- Fidelity
- Coverage
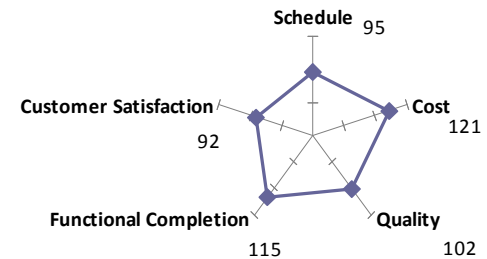
The Profile Components

Performance: How the projects performed
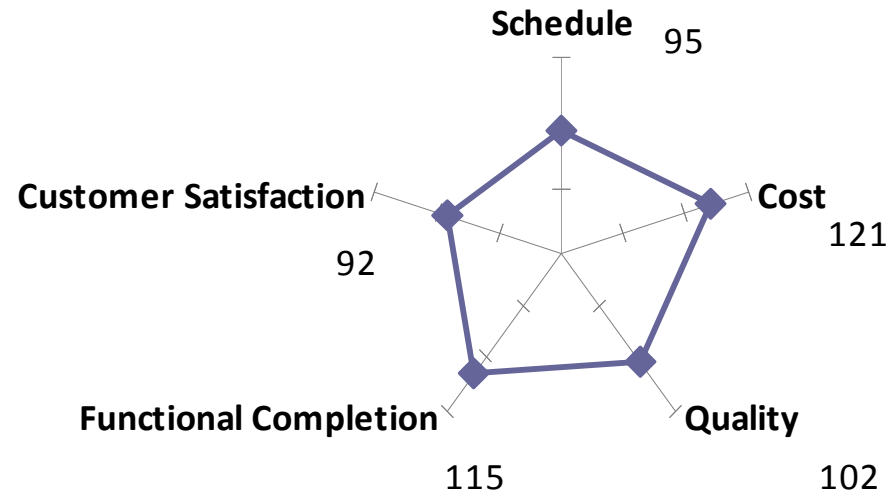
Fidelity: How faithfully the TSP process was used

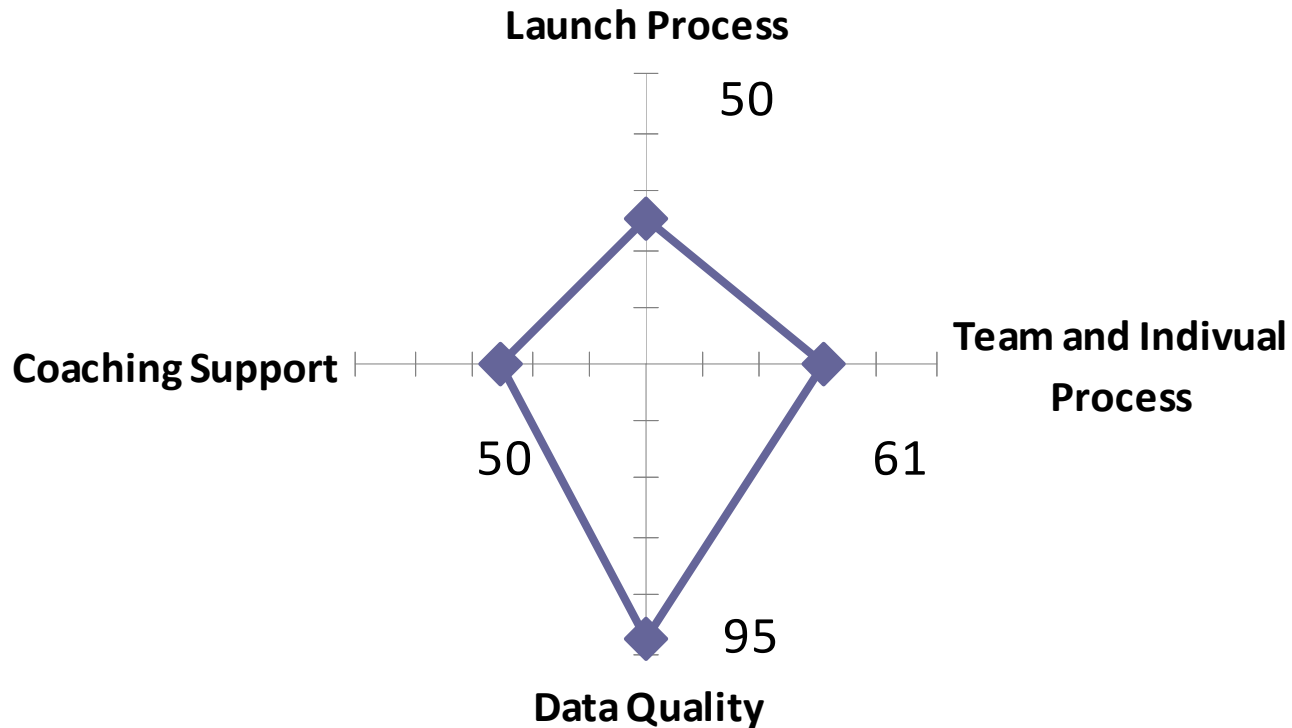Coverage: How widely the TSP was used

The Performance Profile

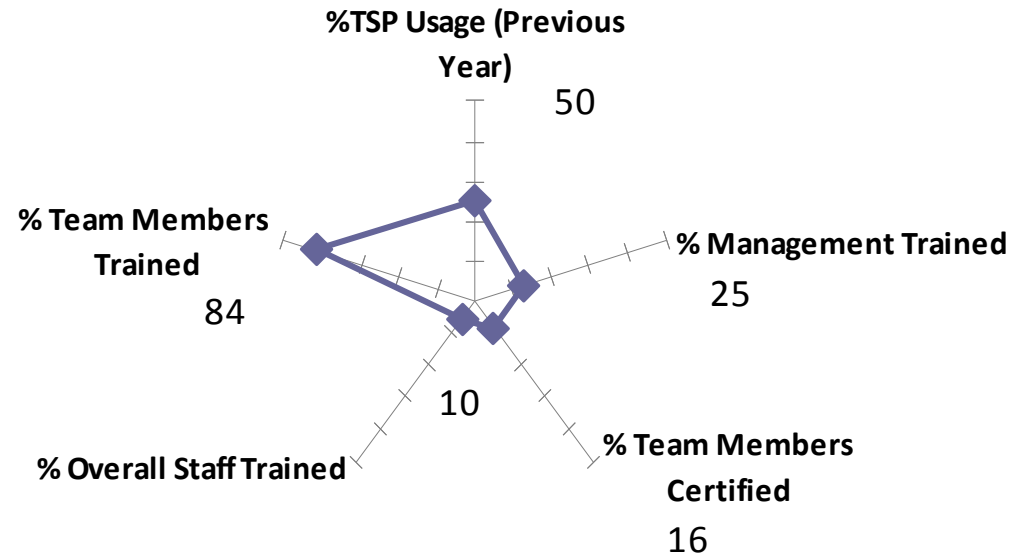Actual product and project performance results

The TSP Fidelity Profile

The projects' ability to obtain consistent results

Launch Process

50

Team and Indivual Process

Coaching Support

61

50

95

Data Quality

![Carnegie Mellon Software Engineering Institute]

The Coverage Profile

Institutionalization of TSP

%TSP Usage (Previous Year)

50

% Management Trained

25

% Team Members Trained

84

% Team Members Certified

16

% Overall Staff Trained

10

17

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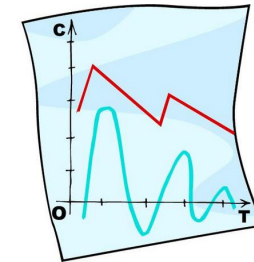**Software Engineering Institute**

Data Needed

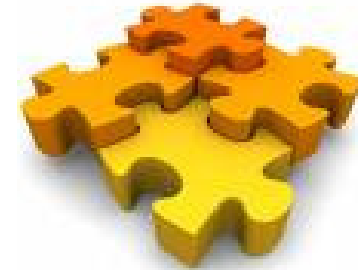Most of the data is from TSP projects and reports.
- Launch workbook and report
  - Baseline plan schedule, resource, product
  - Planning parameters
- Final consolidated workbook
  - Product delivered
  - Size
  - defect
  - effort
  - schedule

Other data includes
- Training records
- Customer satisfaction surveys

Building the Profile

An organization requests a TSP Organization Certification.

The organization collects data for the evaluation.

A qualified evaluator
- is selected by the SEI or other certification authority
- reviews the data
- completes the worksheets
- combines the data using specified algorithms

Benefits

Benefits for the certified organization
  • Differentiation in the market
    - Commitment to quality
    - Credible history of both capability and performance
  • Demonstrates management commitment

Benefits for the customer
  • Assurance that organization has history of performance
  • Assurance of repeatable capability
  • Ability to compare suppliers

TSP Certification Status

A preliminary certification method has been defined.

The method has been piloted with one organization and adjustments made.

Additional pilots are planned prior to general use.

Training, tool support, and the certification infrastructure have yet to be defined and developed.

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Conclusions

The TSP certification method promises to help identify superior software organizations.

The certification profiles will enable informed evaluations of organizational capability.

The profiles should motivate continuous process improvement.

If there is sufficient interest, the method will be made more widely available after initial testing and use in Mexico.

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For More Information

Visit the PSP or TSP web sites
    http://www.sei.cmu.edu/psp/
    http://www.sei.cmu.edu/tsp/

Contact a PSP transition partner
http://www.sei.cmu.edu/collaborating/partners/trans.part.psp.html

Contact SEI customer relations
  Software Engineering Institute, Carnegie Mellon University
  Pittsburgh, PA 15213-3890
  Phone, voice mail, and on-demand FAX: 412/268-5800
  E-mail: customer-relations@sei.cmu.edu

See the book
  Winning With Software: an Executive Strategy, by Watts
  Humphrey, Addison-Wesley, 2002