Comparing the eSCM-SP v2 and Six Sigma

A comparison between the eSourcing Capability Model for Service Providers v2 and Six Sigma

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Abstract
The eSourcing Capability Model for Service Providers (eSCM-SP) is a best practices model developed to provide IT-enabled sourcing service providers with a reference model and capability determination methods to improve their capability to consistently deliver high-quality services in the networked economy. Six Sigma is a business-focused approach to performance excellence based on quality management and statistical insight. Both of these frameworks apply principles of good management, process improvement, and quality management in their respective domains. Although there are differences in approach, scope, and focus, there is significant overlap between the two. This report contains overviews of the eSCM and Six Sigma and a discussion of their conceptual relationships.

Contributors
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Table of Contents

1. Introduction

Since the birth of the modern industrial economy at the beginning of the twentieth century, there have been ongoing efforts to systematically improve the productivity of organizations and the quality of the products and services they deliver. From Taylor's work on scientific management to Shewart's statistical process control and, more recently, to the work of quality experts such as Deming, Juran, and Crosby, there has been an evolution in the understanding of how people, process, and technology interact to affect quality, customer satisfaction, productivity, and efficiency in doing work [March, 1996]. The appreciation and understanding of the importance of a best-practice approach to process and quality management has widened beyond the initial focus on manufacturing systems and assembly line environments to include service organizations, and systems design and development. The eSourcing Capability Model for Service Providers (eSCM-SP) v2 [Hyder, 2004a] is one of the most recent in a long line of frameworks aimed at improving the capability of organizations in developing and delivering products and services.

Information and communication technologies (IT) have been crucial in transforming the value chains of modern industrial organizations by providing access to a larger set of customers, partners, and suppliers than was earlier possible. Several new business models, products, and services have been made viable, from conception to realization, by the facilities and functions provided by IT systems. Such benefits allow IT-led organizations to make large capital investments in the development and extension of their in-house IT capabilities.

However, not all organizations have enjoyed the same returns with respect to their IT assets and investments [Roach, 1991], leading them to reconsider the need to develop and maintain their own extensive IT capabilities and resources. In several of these instances, organizations found it advantageous to outsource certain functions and processes, and focus and reallocate their assets on core competencies and business strategies.

This increased reliance on external service providers requires due diligence on the part of organizations that outsource their IT and business processes. Service providers, in turn, are required to sufficiently demonstrate that they can be capable and dependable business partners committed to a lasting and beneficial relationship with their customers. The eSCM-SP is specifically targeted at internal and external providers of IT-enabled services, to introduce best practice into the sourcing and delivery of those services.

A number of models and standards exist that are focused on quality or IT-related topics. These frameworks have a variety of issuing bodies, scopes, architectures, and rating methods:

- general Total Quality Management (TQM) philosophies, such as those of Deming [Deming 1986, Deming 1994], Juran [Juran 1992], and Crosby [Crosby 1979];
- performance excellence strategies such as Six Sigma® [Harry 2000];
- the criteria for quality awards such as the the Malcolm Baldrige National Quality Award in the United States [Baldrige];

- quality and process management standards such as:
  - ISO 9001 (Quality Management Systems—Requirements) [ISO 2000a]
  - Control Objectives for Information and related Technology (COBIT®) [ITGI 2000]
  - ISO/IEC 12207 (Software life cycle processes) [ISO 2002a]
  - ISO/IEC 15288 (System life cycle processes) [ISO 2002b]
  - ISO/IEC 15504 (Software process assessment) [ISO 2003]
  - BS 7799-2: 2002 (Information security management systems—specification with guidance for use) [BSI 2002a], ISO/IEC 17799 (Code of Practice for Information Security Management) [ISO 2002c], and ISO/IEC 27001 (Information Management Security Systems) [ISO 2005a]
  - BS 15000 (IT service management) [BSI 2002b] and ISO 20000 (Service Management [ISO 2005c]
  - COPC-2000® (Customer operations performance center) [COPC 2000]
- process improvement models such as:
  - the Capability Maturity Model® (CMM®) for Software [Paulk 1995a]
  - the People CMM® [Curtis 2001]
  - CMM IntegrationSM (CMMI®) [Chrissis 2003]

Two major strategies for improving performance can be identified, based on general improvement principles and best practices. A principle-based strategy, such as Deming's Fourteen Points, applies sweeping principles on process improvement and quality. The principles are generally stated and can be applied in almost any context, although they were typically derived in a manufacturing environment. A consequence of the generality of principle-based strategies is that those using them need to be highly skilled in quality management, process definition, change management, negotiation, and other areas to apply the strategy effectively.

A framework-based strategy specifies best practices that have been demonstrated to add value in a particular context. A framework-based strategy uses models and standards as frameworks to identify what processes and systems should be implemented in a successful organization. Frameworks describe what to do, but do not usually prescribe how to do it. Improvement based on the eSCM-SP is an example of a framework-based strategy. Certification in some framework-based strategies, including ISO 9001 and BS 15000 (ISO 20000), is binary; an organization is either compliant with the standard or not. Models such as the eSCM-SP and Software CMM measure organizations or processes using a form of ordinal scale (e.g., Capability Levels or Maturity Levels). Frameworks typically do not specify performance levels for specific tasks (e.g., 5500 transactions per quarter). Framework-based strategies provide more guidance to the user than principle-based strategies, but both require skilled personnel to implement effectively.

These two strategies can be complementary, and both lead to a measurement-based strategy, where the service provider's processes and systems are measured and compared to objectives set by management in order to identify which ones need to be improved. Measurement trends are used to confirm and quantify improvements. Framework-based strategies naturally evolve toward measurement-based strategies tailored to the business needs of the organization as the foundational capabilities described by the framework are successfully put in place. By focusing on its business objectives, an organization can leverage its existing work on other improvement initiatives, allowing it to develop an integrated improvement strategy. Understanding the relationships between the eSCM-SP and other related models and standards can help the organization to complement or supplement its eSCM-SP implementation strategy.

This report is part of a series that analyzes the common ground between the requirements of the eSCM-SP and those of some of these frameworks. The reports in this series are intended to help organizations make efficient use of their resources and existing investments in capability improvement. The differences between the requirements of the eSCM-SP and those of another framework are highlighted as opportunities for improvement or value-addition. This report focuses on the relationship between the eSCM-SP and Six Sigma. Reports with detailed comparisons are available for ISO 9001 [Guha 2005], CMMI [Paulk 2005b], the Software CMM [Paulk 2005a], BS 15000 / ISO 20000 [Iqbal 2004], COBIT [Iqbal 2005], and COPC [Guha 2005a]. Other comparisons are under development for the Six Sigma People CMM, BS 7799 / ISO 17799 (ISO 27001), and SS 507 (Singapore standard for business continuity / disaster recovery). Six Sigma can also be compared with other frameworks, such as CMMI [Siviy 2005] and lean methods [Nave 2005].

As can be readily observed, service providers have an abundance of resources to aid them in quality and process improvement. Perhaps more daunting is the observation that clients may impose a variety of these models and standards on their service providers. Even if each of these models and standards provides a significant value-added increment to an organization's capability, the diversity of emphases and perspectives could be counter-productive.

This report focuses on the relationships between the eSCM-SP and Six Sigma. The primary audience for this report is organizations that are already using Six Sigma and are considering adopting the eSCM-SP. These two frameworks are complementary. In some instances, existing work will need to be broadened in scope to address the business and technology areas in the eSCM-SP. In other instances, existing work may need to be deepened to adequately address providing IT-enabled services. This paper may also be useful to evaluators who may be investigating an organization using Six Sigma, who wish to better understand the implications for eSCM-SP Practices.

2. An Overview of the eSourcing Capability Model for Service Providers

Competitive pressure, the need to access world-class capabilities, and a desire to share risks are among the primary drivers for organizations to delegate their IT-intensive business activities to external service providers [Hyder, 2004a]. The tremendous growth in the sourcing of IT-enabled services, in particular, has been enabled by the rapid evolution and expansion of the global telecommunications infrastructure. The business processes being outsourced range from routine and non-critical tasks, which are resource intensive and operational, to strategic processes that directly impact revenue growth and profitability. The eSourcing Capability Model for Service Providers (eSCM-SP) v2 has been developed by a consortium led by Carnegie Mellon University's Information Technology Services Qualification Center (ITSqc) with the following purposes:

1. Give service providers guidance that will help them improve their capability across the sourcing life-cycle.
2. Provide clients with an objective means of evaluating the capability of service providers.
3. Offer service providers a standard to use when differentiating themselves from competitors.

Released in April 2004, the eSCM-SP v2 is composed of 84 Practices, which can be thought of as the "best practices" associated with successful sourcing relationships. Each Practice is distributed along three dimensions: Sourcing Life-cycle, Capability Area, and Capability Level.

The first dimension, Sourcing Life-cycle, is divided into Ongoing, Initiation, Delivery, and Completion. Ongoing Practices span the entire Sourcing Life-cycle, while Initiation, Delivery, and Completion occur in specific phases of that Life-cycle. During Initiation the organization negotiates with the client, agrees on requirements, designs the service that will be provided, and deploys (transitions) that service. Initiation may also include transfer of personnel, technology infrastructure, and intellectual property. During Delivery the organization provides service according to the agreed-upon commitments. During Completion the organization transfers resources, and the responsibility for service delivery, back to the client, or to the client's designee.

The second dimension of the eSCM-SP, Capability Areas, provides logical groupings of Practices to help users better remember and intellectually manage the content of the Model. These groupings allow service providers to build or demonstrate capabilities in each critical sourcing function. The ten Capability Areas are Knowledge Management, People Management, Performance Management, Relationship Management, Technology Management, Threat Management, Contracting, Service Design & Deployment, Service Delivery, and Service Transfer.

The third dimension of the eSCM-SP is Capability Levels. The five Capability Levels of the eSCM-SP describe an improvement path that clients should expect service providers to travel.

At Capability Level 1, a service provider is able to provide services but has not implemented all of the Level 2 Practices, and may be at a higher risk of failure.

At Capability Level 2, a service provider is able to consistently meet requirements, and has implemented, at a minimum, all the Level 2 Practices.

At Capability Level 3, a service provider is able to deliver services according to stated requirements, even if the required services differ significantly from the provider's experience, and has, at a minimum, implemented all the Level 2 and 3 Practices.

At Capability Level 4, a service provider is able to continuously innovate to add statistically and practically significant value to the services they provide. To achieve Level 4 the service provider has successfully implemented all of the eSCM-SP Practices.

At Capability Level 5, a service provider has demonstrated measurable, sustained, and consistent performance excellence and improvement by effectively implementing all of the Level 2, 3, and 4 Practices for two or more consecutive Certification Evaluations covering a period of at least two years. There are no additional Practices to be implemented at Level 5.

Appendix A provides further detail on the rationale and structure of the eSCM-SP, as well as the Capability Determination Methods associated with it.

3. An Overview of Six Sigma

Six Sigma can be described as any of the following [Pande 2002]:

1. A statistical measure of performance of a process or product. Six Sigma improvement efforts make extensive use of measures and statistics but these are not a holistic representation of Six Sigma.
2. A goal that reaches near perfection. Six Sigma processes perform at a statistically derived target of 3.4 defects for every million process activities or opportunities. The term "Six Sigma" itself refers to this number.
3. A system of management to achieve long-lasting business leadership. Six Sigma organizations, such as General Electric or Motorola, have established Six Sigma as a culture of quality in product and service delivery to achieve customer satisfaction.

Six Sigma can also be characterized as a system of management that applies statistical measurement to benchmark and achieve near-perfect performance goals for manufacturing and service companies alike. It allows companies to drastically improve their bottom line by designing and monitoring everyday business activities in ways that minimize waste while increasing customer satisfaction [Harry 2000]. The Six Sigma philosophy is to improve customer satisfaction through defect elimination and prevention and thereby increase business profitability. A crucial distinction between Six Sigma and other improvement philosophies is an explicit preoccupation with business results [Gack 2003].

Six Sigma can be characterized as focusing on reducing variation, just as lean thinking can be characterized as focusing on removing waste [Nave 2002]. Focus does not imply, however, that other aspects of Total Quality Management are ignored.

3.1. Three Styles of Six Sigma

The themes in Six Sigma are represented in an improvement model that is a common framework for all process improvement initiatives in a Six Sigma organization. There are three complementary styles of Six Sigma improvement: process management, DMAIC (Define–Measure–Analyze–Improve–Control), and Design for Six Sigma (DFSS) [Ginn 2004]. Process management deals with managing existing processes. DMAIC is based on the original PDCA (Plan–Do–Check–Act) cycle developed by Deming for improving existing processes. Process design / re-design initiatives often use Design for Six Sigma, which is based on the premise that most quality defects have their root in the design of the process itself; process improvement of a process with a faulty design cannot deliver dramatic results. DFSS is used for designing new processes, products, and services.

Harrington points out that, while the basic concept behind Six Sigma is reducing variation, most Six Sigma projects actually focus on improving the efficiency and effectiveness of processes [Harrington 2005]. This is the process management style of Six Sigma, which is much akin to process redesign and reengineering. Process management

tends to address the "low hanging fruit" of improvement and does not rely on the more sophisticated tools intrinsic to DMAIC and DFSS.

3.2. Employee Participation

The key roles in Six Sigma projects are a) Executive Leaders, b) Champions, c) Master Black Belts, d) Black Belts, and e) Green Belts. Executive Leaders are tasked with communicating the Six Sigma way of doing business and consistently reinforcing the organizational support for improvement projects. Champions work closely with project teams to manage critical elements and to work as bridges between the projects and top management. Their role is to make organizational resources available to the project team in a timely manner, as well as to report project progress back to management.

Master Black Belts are the mentors, coaches and guides in a Six Sigma initiative. Master Black Belts are experts in Six Sigma tools and methods. They support selecting the right improvement projects, ongoing project management, and ensuring that Six Sigma tools are being correctly applied.

Black Belts are the team leaders for improvement projects and lead the team through the DMAIC cycle. Green Belts assist Black Belts in specific functional areas. They help the Black Belt identify Six Sigma improvement opportunities and then work on Six Sigma projects part-time. Their knowledge of Six Sigma methods is used to ensure that the company culture is aligned with Six Sigma as a way of life. Black Belts are typically certified within a year of achieving Black Belt status. Certification means that they implement at least two Six Sigma projects with bottom-line benefits that are certified by the organizational controller.

The key to employee participation is to roll-out Six Sigma training across all levels in the organization. A Six Sigma culture is successfully established by having a clear training plan. When a Six Sigma initiative is begun the ratio of Black Belts to Green Belts is typically 1:3. By the end of the second year, the number of Green Belts should be at least 10% of the population. In many cases, all employees of an organization are trained as Green Belts. Training involves hands-on work on projects and is conducted not only by external trainers but also by Black Belts within the organization.

3.3. Key Concepts in Six Sigma

The key concepts of Six Sigma are represented by six themes [Pande 2000]:

1. genuine focus on the customer
2. data- and fact-driven management
3. process focus, management, and improvement
4. proactive management
5. boundaryless collaboration
6. drive for perfection; tolerance for failure

3.3.1. Customer Focus

In Six Sigma, quality is defined as a state in which value entitlement is realized for the customer and the provider in every aspect of the business relationship. "Entitlement" means that companies have a rightful expectation to produce high-quality products or deliver high-quality services at the highest possible profits. Customers have a rightful expectation to buy high-quality products and services at the lowest possible costs [Harry 2000].

3.3.2. Fact-Driven Management

The Cost of Poor Quality is a key measure in Six Sigma. It measures the costs to the company that arise when quality is not an intrinsic part of designing and producing a product or service. The main components of the Cost of Poor Quality are a) the cost of external failures in the field, such as the cost of servicing problems and warranty costs; b) internal failure costs, such as rework or scrap costs during development but prior to the failure being discovered in the field by the customer; c) appraisal costs, such as the costs out of inspections and testing; and d) prevention costs, such as training and process improvement activities.

The six key areas to address when improving the Cost of Poor Quality have been identified as:

a) basic organizational capabilities

b) process variation in production of the product or delivery of the service

c) process variation in administrative processes

d) process documentation and design

e) quality of specifications demanded of suppliers

f) lack of quality suppliers / partners

3.3.3. Process Focus

Six Sigma focuses on process improvements that add value for the customer and the company. Quality improvement projects using Six Sigma are chosen as a result of customer feedback, which is captured as the Voice of the Customer. Customers identify what characteristics of a product or service are critical to their satisfaction with the product / service, and the focus of the Six Sigma project is to achieve a performance target for that Critical-to-Quality (CTQ) characteristic. Various tools such as "Checksheets" and "Scorecards" as described below are used to identify CTQs and to track performance against expectations.

3.3.4. Proactive Management

Six Sigma emphasizes that management proactively identify and solve problems in the process using specific problem identification and resolution tools. The focus is on prevention of defects rather than on the correction of defects. In fact, extra processes in place for post-facto defect identification and remedy are counted towards the overall Cost of Poor Quality. Over a period of time, the management of Six Sigma organizations builds systems for re-enforcement and control of ongoing projects and establishes the basic infrastructure for continued success. Some of the guidelines for continued success are to establish

communication plans, to grow Black Belt and Green Belt populations in the organization, and to establish a common measurement system for monitoring success in current projects, as well as to ensure that new projects are being initiated.

3.3.5. Boundaryless Collaboration

Six Sigma methodology is focused on improving all operations in a process. Often a CTQ characteristic of the product traces back to many different business operations. By keeping the quality imitative focused on the customer, Six Sigma encourages collaboration across the various operations involved in the process of delivery.

3.3.6. Drive for Perfection; Tolerance for Failure

The sigma (σ) levels in Six Sigma organizations provide ever-challenging targets for the capability of the organization. Six Sigma levels do not equate to zero-defects in the process. Process variations over large repetitions of the process are factored into the ultimate objective of 3.4 defects per million opportunities. All sigma levels are adjusted by 1.5σ on both sides to account for tool wear; Six Sigma level processes are therefore statistically 4.5σ. Six Sigma encourages a striving for perfection, while recognizing that process variation is inevitable.

Capability levels are frequently categorized as a) at least 3σ; b) 3σ to 4.7σ; c) 4.8σ to 6σ. Most companies are at least 3σ since this is the threshold at which it is possible for them to remain profitable. Companies in the 4σ to 4.7σ range are working at industry averages.

Companies can usually move from 3σ to 4σ within a year of deploying Six Sigma initiatives and from 4σ to 4.7σ within another year. The move from 4.8σ to higher levels is typically slower and requires more significant effort. The benefits from 3σ to 4.7σ are usually in terms of cost savings. After 4.7σ, the cost savings are not as dramatic, but companies create superior products and services that help them gain market share.

While the financial benefits of progressing from 3σ to 4σ to 4.7σ to Six Sigma can be characterized as exponential, companies can achieve a sigma level as high as 4.7σ without large capital outlays. At the same time, the closer companies come to achieving Six Sigma, the more demanding the improvements become. At 4.8σ, companies typically have to redesign their processes to reap significant benefits. This is done through Design for Six Sigma.

3.4. DMAIC

Six Sigma emphasizes a "problem-solving" focus. The application of Six Sigma to business problems is conducted using the DMAIC problem solving process: Define, Measure, Analyze, Improve, and Control. Six Sigma teams from across the business organization use DMAIC to establish a common understanding of how to define a problem and how to solve it by process improvement / re-design.

A Six Sigma project team uses DMAIC but the team's lifecycle is divided into six phases:

1. identifying and selecting the appropriate improvement project
2. forming the team
3. developing the charter

4. training the team
5. doing DMAIC and implementing the solution
6. handing off the solution

The DMAIC process can be described as follows:

Define (D)
The "define" phase is when a Project Charter is created. The Charter addresses key questions of what the project focus will be, what business opportunity or problem are we trying to address and what will be the boundaries of this project. A formal charter document is created and signed off by project sponsors. Key Six Sigma tools used in this stage are the Voice of the Customer mapping and Critical to Quality attributes.

Measure (M)
The "measure" stage is an essential bridge between the Define stage and the Analyze stage. The main goals of this stage are to gather data and information that validates the problem or opportunity and to begin gathering data and information that will help to analyze the root causes of the problem. This data is used to baseline the problem and to institute benchmarks. Some key Six Sigma tools used in this stage are Process Mapping, the XY matrix, and Measurement Systems Analysis.

Analyze (A)
The main deliverable of the "analyze" stage is to identify the root cause of the problem. The Six Sigma team digs deeply into the process and identifies which of the inputs into the process cause the most variation in the process output. The primary types of inputs analyzed are Methods, Materials, Machines, Measures, Environment and People. Hypotheses are formed as to the root cause, and these hypotheses are tested by collecting and analyzing data. Some key Six Sigma tools used in this stage are Hypothesis Testing, Failure Mode and Effects Analysis (FMEA), and Fishbone Diagrams.

Improve (I)
In the "improve" stage, the Six Sigma team recommends one or more solutions to address the problem. The indicator of success in this stage is the creativity and innovativeness of the solution, as well as its acceptance and implementation. The key Six Sigma tool used in this stage is Brainstorming.

Control (C)
The "control" stage has two main goals: to hand off redesigned / improved processes to process teams and to put in place few measures that will either signal continued health of the process or alert to problems. The success of the control stage depends on the skills of the Six Sigma team in persuading process owners to carry out change and their skills in identifying a few key metrics while putting in place a feasible measurement processes. The key Six Sigma tool used in this stage is the Control Plan.

3.5. Design for Six Sigma

Design for Six Sigma defines processes that create products and services that are designed from the beginning (or reconfigured) in such a way that they produce Six Sigma quality goods and services [Harry, 2000]. Many studies have shown that a large portion (almost 70%) of the Cost of Poor Quality for a product or service is a result of poor product / service design. Process tweaking and minor process changes during the improve phase of the DMAIC can take a process to the 4.8 σ level, but moving from 4.8 σ to Six Sigma requires redesign and optimization of processes using Design for Six Sigma. A key principle in DFSS is to evaluate and make use of established industry best practices and processes for the process that is being redesigned.

Where process improvement is implemented using the DMAIC cycle, DFSS may be implemented using many different models. Some of the popular ones include:

- DMADV – Define, Measure, Analyze, Design, and Verify
- DMADOV – Design, Measure, Analyze, Design, Optimize, and Verify
- DCCDI – Design, Customer, Concept, Design, and Implement
- IDOV – Identify, Design, Optimize, and Validate

3.6. Six Sigma Tools

Six Sigma organizations use well-established management, analytical and statistical tools to structure and analyze problems. These tools are described briefly [Pande, 2000] below.

Affinity diagramming to group of ideas or options into categories to synthesize and evaluate.

Brainstorming to come up with a list of options for a task or a solution.

Cause-and-effect (fishbone) diagram to brainstorm possible causes of a problem (or effect), and it puts the possible causes into groups, or affinities; causes that lead to other causes are linked as in a structure tree.

Charts and graphs include common types such as Pareto charts, histograms, scatter (correlation diagrams).

Checksheets and spreadsheets are forms used to collect and to organize data.

Flowchart (process map) to show details of a process, including tasks and procedures, alternative paths, decision points, and rework loops.

Force field diagram shows the relationship between factors that help promote a change and those that oppose or create resistance to it. Like stakeholder analysis, the force field is used to develop plans to build support for a critical change.

High level process map (SIPOC diagram) used to show major activities, or subprocesses, in a business process. SIPOC is an acronym for Supplier, Input, Process, Output, and Customer.

Measurement systems analysis covers a variety of methods used to make sure that measures are accurate and reliable, e.g., Gauge R&R.

Multi-voting to narrow down a list of ideas or options.

Operational definitions to establish a common vocabulary of how to interpret data or events in a process so that data can be gathered consistently.

Process flow analysis process flow analysis is useful for scrutinizing the process for redundancies, unclear hand-offs, unnecessary decision points, and so on

Sampling to have an efficient means of gathering measurement data.

Stakeholder analysis identifies the people and groups that need to be considered, their likely views on the project or solution, and approaches to gaining their input and / or support.

Structure tree (tree diagram) to tie major customer needs, such as good value, to more specific requirements, such as low installation cost, low maintenance cost, and so on.

Voice of the Customer methods are the broad array of techniques that help an organization collect external customer input, assess and prioritize requirements, and provide ongoing feedback to the organization.

4. Conceptual Relationship Between eSCM-SP and Six Sigma

4.1. A High Level Mapping

The Capability Levels in the eSCM-SP model can be conceptually compared to sigma levels in terms of what they mean for overall organizational business capabilities, learning and innovation.

Table 1
Sigma levels compared to Capability Levels

At least 3σ	Capability Level 2	Performing to meet client requirements, staying in business
3σ to 4.7σ	Capability Level 3	Controlling process improvement through measurement
4.7σ to 6σ	Capability Levels 4 & 5	Enhancing through innovation in processes and sustaining excellence through process redesign

4.1.1. Value Entitlement

Both Six Sigma and eSCM-SP models have a holistic purpose of providing value to the service provider as well as to the client. The eSCM-SP model, in addition, seeks to provide customer organizations with an objective means for evaluating the capability of sourcing service providers. The eSCM Practice for establishing and implementing Organizational objectives (prf04) provides for setting the organizational objectives that will result in success for all participants in the sourcing relationship while prf01 (Engagement objectives) sets the direction for the functional, team and department objectives and communication of the same to the client.

4.1.2. Critical to Quality and Voice of the Customer

The practice of identifying Critical to Quality elements is employed in the eSCM-SP model in various sub-practices. For example, sdd05 (Service design) expects the definition of process specifications for the delivery of the service as well as definition of quality specifications to monitor the quality of the service delivered.

Similarly, the practice of capturing the Voice of the Customer can be employed extensively in cnt06 (Gather requirements), where procedures are established for gathering a clients requirements from a process / deliverable and also in rel08 (Value creation), where the purpose is to create value for the client by identifying and prioritizing opportunities to extend even greater business value than what is currently being provided through the service delivery processes.

4.1.3. Cost of Poor Quality

The Cost of Poor Quality is used across Capability Levels in eSCM-SP but it is the aim of each higher level to make this measurement more tangible. At Level 2, the Cost of Poor Quality is usually a qualitative assessment of lost contracts and customer complaints. At Level 3, the organization implements mechanisms to define and measure the Cost of Poor Quality quantitatively. The statistical controls over Cost of Poor Quality are in place by Level 4 when an organization begins to address Cost of Poor Quality through innovation and puts in place processes that reduce this cost in a sustainable manner.

4.1.4. DMAIC and Design for Six Sigma

The DMAIC model can be used to solve process quality problems for all practices. However, the DFSS framework may be applied more effectively for implementing processes where there are none currently or for taking the process from Capability Level 3 to Capability Level 4.

DFSS models may be used to identify and measure industry benchmarks for the process being designed and for designing the process and implementing quality verification. For example, DFSS models can be used in prf08 (Capability baselines) to compare current quality of service with statistically significant capability baselines from comparable industry. Similarly, sdd05 (Service design), based on service specifications, sdd04 (Service specification), will benefit from DFSS methods.

DFSS models will also be valuable in implementing elements of the eSCM-SP model such as Knowledge Management initiatives that are new to the organization.

4.1.5. Intent and Primary Objectives

The long term goal for a Six Sigma organization is to integrate and standardize company wide system improvements at every level in order to raise the overall sigma performance. The intent of the eSCM-SP is to a) provide IT-enabled sourcing service providers with a set of best practices that will help them to improve their capabilities across the sourcing process b) provide clients with an objective means for evaluating the capability of sourcing service providers.

Organizations that have begun adopting Six Sigma led performance improvements will find that they have an edge in implementing eSCM-SP best practices. Six Sigma resources can be effectively used to implement the elements of the eSCM-SP across the organization. The following table shows how:

Table 2
Using DMAIC for eSCM-SP implementations

Define tools	The *"What?"* of eSCM-SP elements. Examples: organization objectives, value creation opportunities, gather requirements / contracting
Measure tools	The *"How much?"* of eSCM-SP elements. Examples: capability baselines, knowledge system, training effectiveness, verify programs, performance appraisal, measure / verify commitments, service delivery tracking
Analyze tools	The *"Why?"* of eSCM-SP elements. The tools used here will help define the baseline specifications and improvements that are required
Improve tools	The *"How?"* of eSCM-SP elements. Examples: performance improvements, programs to achieve objectives, service planning & delivery, protect intellectual property
Control tools	These tools can enable an organization to move to Capability Level 5 by making all improvements sustainable. Examples: client feedback, version / change control, reward program

4.2. Lean Six Sigma

Many companies integrate their Six Sigma programs with Lean methods. The Lean emphasis on removing waste is complementary to the Six Sigma focus on decreasing variation.

Womack and Jones summarize Lean thinking in five principles [Womack 1996]:

- precisely specify value by specific product
- identify the value stream for each product
- make value flow without interruptions
- let the customer pull value from the producer
- pursue perfection

They characterize the steps in a process in one of three ways from a value perspective. Some steps unambiguously create value. Some steps create no value but are unavoidable with current technologies and production assets. Some steps create no value and are immediately avoidable. The objective of Lean is to immediately remove the non-value-added, avoidable steps and to minimize the non-value-add, unavoidable steps.

With respect to services, George reports that the cost of services are inflated by 30-80% waste – that is, the processes are riddled with activities that add no value from the perspective of the customer [George 2003]. Service processes are slow because there is far too much "work-in-process" (WIP), often the result of unnecessary complexity in the service/product offering.

George points out that Six Sigma focuses on process quality tools and does not have the process speed tools, while Lean does not possess the tools to bring a process under statistical control. Lean can benefit from Six Sigma's recognition of the impact of variation. In turn, Six Sigma quality is approached much faster if Lean eliminates non-value-added steps. Six Sigma prescribes eliminating variation first, and, only if that's not possible, then redesigning the process using Design for Six Sigma.

Adopting an integrated Lean Six Sigma strategy leverages these two different perspectives. The Lean perspective addresses efficiency and cycle time by removing non-value-added activities, while the Six Sigma perspective addresses quality and predictability by minimizing variation in the value-added activities.

From an eSCM-SP perspective, an organization implementing Lean Six Sigma is implicitly setting improvement objectives as part of the organizational objectives in prf04 for reducing both cycle time (removing waste) and defects (minimizing variation). The use of Quality Function Deployment [Womack 1996] in standardizing work supports a prioritized set of improvement actions that balances conflicting objectives, which is described in prf07 (Achieve organizational objectives) as creating a business case for the improvement programs.

4.3. Challenges to Leveraging Six Sigma

Six Sigma works to improve all operations within a process rather than all processes within an operation. The eSCM-SP framework is an organization-wide process improvement model. This conceptual difference between how the two are applied in an organization presents challenges in applying Six Sigma methodologies to improve eSCM-SP capability levels or in applying eSCM-SP best practices to benchmark processes that are being targeted for higher Sigma levels. However, with the correct perspective, both methodologies can work well together. For example, service planning and delivery practices in the eSCM-SP can be identified as one of the operations for purposes of process improvement to the next sigma level of the contract execution process.

The approach for process improvement is different for the two methodologies. Six Sigma uses statistical tools to benchmark existing processes and to strive for near-zero levels of defects. The eSCM-SP model is a repository of existing benchmark practices for use by both service providers and clients. Whereas the eSCM-SP model addresses the question of "What should we be doing?" the Six Sigma model addresses the question of "How well are we doing what we should be doing?" In this sense again, the two models are complementary to each other.

Six Sigma is a generic tool that can be used to improve the quality of an organizations' product or service delivery. The eSCM-SP was designed keeping in mind the unique requirements of IT-enabled sourcing providers. The implications of this difference are that Six Sigma concepts appropriately modified for service delivery (rather than for product delivery) can be selectively applied to operations as described in the eSCM-SP framework to improve the capability level of the specific operation.

5. Conclusions and Implications

The eSCM-SP and Six Sigma can be complementary. While the perspective of a best practices model is more focused than a principle-based framework, the underlying objectives are the same: to improve capability. The eSCM-SP can structure a service provider's initial improvement efforts in process management more efficiently than Six Sigma, while Six Sigma provides sophisticated and powerful tools for improvement once the process foundations are in place. The full power of Six Sigma is not used when doing basic process definition and management work, but once that foundation is in place, the Six Sigma tool kit contains the powerful tools and techniques needed to implement the higher-level Practices in the eSCM-SP.

A service provider may therefore initiate improvement work using best practice frameworks such as the eSCM-SP. The more advanced practices in the framework, such as capability baselines in the eSCM-SP, are not usually described in detail. Leveraging enterprise-level assets from a Six Sigma program is an effective and efficient way of achieving the synergy conceptually desired for integrating multiple improvement initiatives.

Similarly, service providers whose organizational structures and tools are Six Sigma ready may be more effective than others in successfully rolling out the best practices described in the eSCM-SP. A Six Sigma program serves as an excellent integrator of projects that are designed to help the organization meet eSCM-SP requirements.

Regardless of whether an organization is leveraging an existing Six Sigma capability when deploying the best practices for service providers described in the eSCM-SP or adopting Six Sigma tools and techniques to implement the more sophisticated Practices in the Model, building on the synergy between these complementary approaches to quality management and process improvement is a proactive strategy for achieving performance excellence. Both approaches have much to offer organizations when appropriately implemented.

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Appendix A: Description of the eSCM-SP v2

This section provides a detailed description of the eSourcing Capability Model for Service Providers (eSCM-SP) v2 [Hyder 2004a, Hyder 2004b].

A.1. Rationale Behind Development of the eSCM-SP

IT-enabled sourcing, or eSourcing, uses information technology as a key component of service delivery or as an enabler for delivering services. It is often provided remotely, using telecommunication or data networks. These services currently range from routine and non-critical tasks that are resource intensive and operational in nature to strategic processes that directly impact revenues.

IT-enabled services are being sourced at a rapid rate. The evolution of the Internet and the global telecommunications infrastructure has provided client organizations with a choice of service providers located anywhere in the world. Simultaneously, competitive pressures have driven organizations to find the most cost-effective way to get the IT-enabled services they need while maintaining or improving their quality of service.

Sourcing failures are largely related to a core set of critical issues affecting sourcing relationships. Based on literature review [Kumar 2001] and interviews with eSourcing service providers and clients, issues critical for successful eSourcing have been identified. These include developing and sustaining stakeholder relationships, building and keeping a competent workforce, defining and delivering quality service, assessing and managing threats (e.g., disasters, invasion of networks), remaining competitive through innovation and improvement, and managing transitions of resources and services.

The combination of high growth and significant failures in eSourcing highlights a growing need: clients and service providers both need to be able to address the critical issues in sourcing in order to increase their probability of success. Individually and as a whole, existing frameworks do not address all of the critical issues in eSourcing. Also, many of these frameworks do not readily provide methods to assess the capabilities of IT-enabled service providers to establish, manage, and improve relationships with clients.

A.2. Structure of the eSCM-SP v2

Released in April 2004, the eSCM-SP v2 is composed of 84 Practices, which can be thought of as "best practices" associated with successful sourcing relationships. Each Practice is assigned a value along three dimensions: Sourcing Life-cycle, Capability Area, and Capability Level.

Each of the 84 Practices in the eSCM-SP contains information about a sourcing best practice. This information includes a statement summarizing the best practice, a description of the best practice, a list of activities needing to be performed, and supplemental information that helps clarify those activities. For more information on the structure of the 84 Practices, see *The eSourcing Capability Model for Service Providers (eSCM-SP) v2, Part 2: Practice Details* [Hyder 2004b].

A.2.1. Sourcing Life-cycle

Although most quality models focus only on delivery capabilities, in eSourcing there are also critical issues associated with initiation and completion of an engagement. The first dimension of the eSCM-SP highlights where in the Sourcing Life-cycle each Practice is most relevant. The Sourcing Life-cycle is divided into Ongoing, Initiation, Delivery, and Completion. Ongoing Practices span the entire Sourcing Life-cycle, while Initiation, Delivery, and Completion Practices occur in specific phases of that Life-cycle.

Ongoing Practices represent management functions that need to be performed during the entire Sourcing Life-cycle. In order to meet the intent of these Practices, it is important to perform them across the whole life-cycle; an organization that only performs an Ongoing Practice during Delivery is not meeting the intent of the Practice. Initiation Practices focus on the capabilities needed to effectively prepare for service delivery. These Practices are concerned with gathering requirements, negotiating, contracting, and designing and deploying the service, including transferring the necessary resources. Delivery Practices focus on service delivery capabilities, including the ongoing management of service delivery, verification that commitments are being met, and management of the finances associated with the service provision. Completion Practices focus on the capabilities needed to effectively close down an engagement at the end of the Sourcing Life-cycle. They mainly include the transfer of resources to the client, or to a third party, from the service provider.

A.2.2. Capability Areas

Delivery of eSourcing occurs through a series of interdependent functions that enables service providers to effectively deliver service. The second dimension of the eSCM-SP, Capability Areas, provides logical groupings of Practices to help users better remember and intellectually manage the content of the Model. These groupings allow service providers to build or demonstrate capabilities in each critical sourcing function, addressing all of the critical sourcing issues discussed above.

All of the Ongoing Practices are contained within six of the ten Capability Areas: Knowledge Management, People Management, Performance Management, Relationship Management, Technology Management, and Threat Management. The other four Capability Areas are temporal and are typically associated with a single phase of the Sourcing Life-cycle: Initiation, Delivery, or Completion. The exception is Service Transfer, which includes both Initiation and Completion Practices. In addition to Service Transfer, these temporal Capability Areas are Contracting, Service Design & Deployment, and Service Delivery.

The Knowledge Management Practices focus on managing information and knowledge systems so that personnel have easy access to the knowledge they need to effectively perform their work. This Capability Area addresses the critical issues of capturing and using knowledge, and measuring and analyzing reasons for termination.

The People Management Practices focus on managing and motivating personnel to effectively deliver services. They address understanding the organization's needs for personnel and skills, filling those needs, and encouraging the appropriate behaviors to effectively deliver service. This Capability Area addresses the critical issues of establishing

and maintaining an effective work environment, building and maintaining competencies, and managing employee satisfaction, motivation, and retention.

The Performance Management Practices focus on managing the organization's performance to ensure that the client's requirements are being met, that the organization is continually learning from its experience, and that the organization is continually improving across engagements. These Practices address the effective capture, analysis, and use of data, including data on the organization's capabilities relative to its competitors. This Capability Area primarily addresses the critical issues of maintaining competitive advantage, innovating, building flexibility, and increasing responsiveness. It also addresses monitoring and controlling activities to consistently meet service delivery commitments.

The Relationship Management Practices focus on actively managing relationships with stakeholders, including the client, as well as suppliers and partners who are integral to the delivery of services to the client. Relationship Management primarily addresses the critical issues of managing stakeholder expectations, establishing and maintaining trust and ensuring the effectiveness of interactions with stakeholders, managing supplier and partner relationships, managing the cultural differences between stakeholders, and monitoring and managing the client's and end-users' satisfaction. This Capability Area also addresses innovating, building flexibility, increasing responsiveness, establishing well-defined contracts with stakeholders, and maintaining a competitive advantage.

The Technology Management Practices focus on managing the availability and adequacy of the technology infrastructure used to support the delivery of the services. Their focus covers controlling the existing technology, managing changes to that technology, and appropriately integrating the technology infrastructure with the client, suppliers, and partners to effectively deliver service. This Capability Area addresses the critical issue of managing rapid technological shifts and maintaining technology availability, reliability, accessibility, and security. It also addresses innovating, building flexibility, and increasing responsiveness.

The Threat Management Practices focus on identifying and actively managing threats to the organization's ability to meet its objectives and the requirements of the client. They focus on active risk management, paying particular attention to the risks associated with security, confidentiality, infrastructure, and disasters that may disrupt service or fail to meet the requirements of the client. This Capability Area addresses the critical issues of managing clients' security, and ensuring compliance with statutory and regulatory requirements. It also addresses maintaining the continuity of service delivery, managing rapid technological shifts, and maintaining the availability, reliability, accessibility, and security of the technology.

The Contracting Practices focus on effectively managing the process of gathering client requirements, analyzing them, and negotiating a formal agreement that describes how the service provider will meet those requirements. A critical component of contracting is understanding the client's expectations and needs, and agreeing with the client on how the organization will meet those requirements. All Contracting Practices are in Initiation. This

Capability Area addresses the critical issues of translating implicit and explicit needs into the defined requirements, and establishing well-defined contracts with stakeholders.

The Service Design & Deployment Practices focus on translating the client's requirements and the contract language of what will be provided into a detailed design for how it will be provided, and on effectively deploying that design. This Capability Area is closely related to the Contracting Capability Area. All Service Design & Deployment Practices are in Initiation. This Capability Area addresses the critical issue of reviewing service design and deployment to ensure adequate coverage of the requirements. It also addresses developing procedures for monitoring and controlling activities to consistently meet service delivery commitments.

The Service Delivery Practices focus on the continued delivery of services according to commitments made to clients and based on service designs. They include planning and tracking of the service delivery activities. The Service Delivery Practices are the only ones in Delivery. This Capability Area addresses the critical issues of monitoring and controlling activities to consistently meet service delivery commitments, and maintaining continuity of service delivery. It also addresses establishing well-defined contracts with stakeholders, and maintaining a competitive advantage.

The Service Transfer Practices focus on transferring resources between service providers and clients or other service providers. In Initiation the resources are transferred to the organization as it takes responsibility for service delivery. This transfer may include people, processes, technology, and knowledge needed to effectively perform that service delivery. In Completion the organization transfers resources to the new service provider (either the client or an external service provider) in a manner that ensures continued service to the client during the transfer period. This Capability Area addresses the critical issues of smoothly transferring services and resources, and capturing and transferring the knowledge gained during the engagement to the client during contract completion. It also addresses maintaining continuity of service delivery.

A.2.3. Capability Levels

The third dimension in the eSCM-SP is Capability Levels. The five Capability Levels of the eSCM-SP describe an improvement path that clients should expect service providers to travel. This path starts from a desire to provide eSourcing services, and continues to the highest level, demonstrating an ability to sustain excellence.

The capabilities of Level 1 service providers vary widely. Some may have almost none of the eSCM-SP Practices implemented. These providers are very likely to be a high risk to work with because they often promise more than they deliver. Other service providers may have many of the eSCM-SP Practices implemented, including some Practices at Capability Levels 3 and 4. Because these service providers have not fully implemented all of the Capability Level 2 Practices, they may meet many of the client's needs successfully, but there will still be a risk of failure in areas where they have not implemented the necessary eSCM-SP Practices.

Service providers at Capability Level 2 have formalized procedures for capturing requirements and delivering the services according to commitments made to clients and other stakeholders. These providers are able to deliver specific services according to stated

client expectations, given that the services do not significantly vary from the provider's experiences. At Capability Level 2 the service provider is able to systematically capture and understand requirements, design and deploy services to meet the requirements, and successfully deliver the services according to agreed-upon service levels.

The infrastructure (e.g., work environment, training, technology, and information) is in place to support consistent performance of work that meets the service provider's commitments. Level 2 service providers have implemented all of the Capability Level 2 Practices and can demonstrate their effective usage.

Service providers at Capability Level 3 are able to deliver services according to stated requirements, even if the required services differ significantly from the providers' experience. At Level 3 the service provider is able to manage its performance across the organization, understand targeted market services and their varying requirements (including specific cultural attributes), identify and manage risks across engagements, and design and deliver services based on established procedures. The service provider supports this capability through sharing and using knowledge gained from previous engagements, objectively measuring and rewarding personnel performance, and monitoring and controlling technology infrastructure. Having established systems for forming and managing client relationships, providers at Capability Level 3 continuously aim to improve the services delivered. Improvements are reactive and are typically generated from the defined measurement and verification activities. The Level 3 service provider demonstrates measurable improvement with respect to organizational objectives. Organizational learning improves performance across engagements. Level 3 providers have effectively implemented all of the Level 2 and 3 Practices.

Service providers at Capability Level 4 are able to continuously innovate to add statistically and practically significant value to the services they provide to their clients and other stakeholders. At Capability Level 4 the service provider is able to customize its approach and service for clients and prospective clients, understand client perceptions, and predict its performance based on previous experiences. The service provider supports this capability through systematically evaluating and incorporating technology advances and setting performance goals from a comparative analysis of its current performance as well as from internal and external benchmarks. Level 4 providers systematically plan, implement, and control their own improvement, typically generating these plans from their own performance benchmarks. They have effectively implemented all of the Capability Level 2, 3, and 4 Practices.

Service providers at Capability Level 5 have demonstrated measurable, sustained, and consistent performance excellence and improvement by effectively implementing all of the Capability Level 2, 3, and 4 practices for two or more consecutive Certification Evaluations covering a period of at least two years. There are no additional Practices required to reach Capability Level 5; effective, continued, implementation of all the eSCM-SP Practices in a rapidly changing environment shows an ability to sustain excellence throughout the organization over time.

A.2.4. Practices

The Practices are listed in Table 4 with the Practice Identifier, the Sourcing Life Cycle (o, i, d, c), the Capability Level (2, 3, 4), and a short description.

Table 3
eSCM-SP Capability Determination Methods

Knowledge Management (knw)
knw01 o4: Share knowledge
knw02 o2: Provide required information
knw03 o3: Knowledge system
knw04 o3: Process assets
knw05 o3: Engagement knowledge
knw06 o3: Reuse
knw07 o2: Version & change control
knw08 o2: Resource consumption
People Management (ppl)
ppl01 o4: Encourage innovation
ppl02 o3: Participation in decisions
ppl03 o2: Work environment
ppl04 o2: Assign responsibilities
ppl05 o3: Define roles
ppl06 o3: Workforce competencies
ppl07 o3: Plan & deliver training
ppl08 o2: Personnel competencies
ppl09 o3: Performance feedback
ppl10 o3: Career development
ppl11 o3: Rewards
Performance Management (prf)
prf01 o2: Engagement objectives
prf02 o2: Verify processes
prf03 o2: Adequate resources
prf04 o3: Organizational objectives
prf05 o3: Review organizational performance
prf06 o3: Make improvements
prf07 o4: Achieve organizational objectives
prf08 o4: Capability baselines
prf09 o4: Benchmark
prf10 o4: Prevent potential problems
prf11 o4: Deploy innovations
Relationship Management (rel)
rel01 o2: Client interactions
rel02 o2: Select suppliers & partners
rel03 o2: Manage suppliers & partners
rel04 o3: Cultural fit
rel05 o3: Stakeholder information
rel06 o3: Client relationships
rel07 o3: Supplier & partner relationships
rel08 o4: Value creation
Technology Management (tch)
tch01 o2: Acquire technology
tch02 o2: Technology licenses
tch03 o2: Control technology
tch04 o2: Technology integration
tch05 o3: Optimize technology
tch06 o4: Proactively introduce technology

Threat Management (thr)
thr01 o2: Risk management
thr02 o2: Engagement risk
thr03 o3: Risk across engagements
thr04 o2: Security
thr05 o2: Intellectual property
thr06 o2: Statutory & regulatory compliance
thr07 o2: Disaster recovery
Contracting (cnt)
cnt01 i3: Negotiations
cnt02 i2: Pricing
cnt03 i2: Confirm existing conditions
cnt04 i3: Market information
cnt05 i2: Plan negotiations
cnt06 i2: Gather requirements
cnt07 i2: Review requirements
cnt08 i2: Respond to the requirements
cnt09 i2: Contract roles
cnt10 i2: Create contracts
cnt11 i2: Amend contracts
Service Design & Deployment (sdd)
sdd01 i2: Communicate requirements
sdd02 i3: Design & deploy services
sdd03 i2: Plan design & deployment
sdd04 i2: Service specification
sdd05 i2: Service design
sdd06 i2: Design feedback
sdd07 i3: Verify design
sdd08 i2: Deploy service
Service Delivery (del)
del01 d2: Plan service delivery
del02 d2: Train clients
del03 d2: Deliver service
del04 d2: Verify service commitments
del05 d2: Correct problems
del06 d3: Prevent known problems
del07 d2: Service modifications
del08 d2: Financial management
Service Transfer (tfr)
tfr01 i2: Resources transferred in
tfr02 i2: Personnel transferred in
tfr03 c3: Service continuity
tfr04 c2: Resources transferred out
tfr05 c2: Personnel transferred out
tfr06 c4: Knowledge transferred out

A.3. Capability Determination Methods

ITSqc provides four methods that can be used to assess the capabilities of service providers relative to the eSCM-SP Capability Levels. The four Capability Determination Methods systematically analyze evidence of the provider's implementation of the eSCM-SP v2 Practices to determine what Capability Level their organization has achieved [Hyder 2004a]. The Capability Determination may be of interest to, or required by, current or prospective clients of the service provider within a sourcing selection process. In this context, the Methods provide a consistent way for clients to evaluate their existing service providers or to compare two or more prospective providers. The knowledge from such an eSCM-SP Capability Determination may be used by clients to assess the risks and benefits of selecting a given service provider. Capability Determination may also be sponsored by service providers with the objective of evaluating their current capabilities and defining targets for self-improvement. In this context, the organization may or may not seek formal certification at an eSCM-SP Capability Level.

The four Capability Determination methods that are available from ITSqc are (1) Full Evaluation, (2) Full Self-appraisal, (3) Mini Evaluation, and (4) Mini Self-appraisal. The five major differences among these methods are (1) their purpose and outcome, (2) who does them, (3) who leads them, (4) who sponsors them, and (5) the number of eSCM-SP Practices that are analyzed (i.e., the model scope). Table 4 summarizes the four Methods.

Table 4
eSCM-SP Capability Determination Methods

		Evaluation	Self-appraisal
FULL	**Purpose**	For certification	To prepare for a Full Evaluation or launch or validate an improvement effort. No certification.
	Team	External, trained & authorized by Carnegie Mellon University	Internal, external, or combination
	Lead evaluator	Required	Strongly Recommended
	Sponsor	Client or service provider	Service provider
	Model scope	All eSCM-SP Practices	All eSCM-SP Practices
MINI	**Purpose**	To prepare for a Full Evaluation or as part of a provider selection process. No certification.	To launch or validate an improvement effort . No certification.
	Team	External, trained & authorized by Carnegie Mellon University	Internal, external, or combination
	Lead evaluator	Required	Recommended
	Sponsor	Client or service provider	Service provider
	Model scope	Subset of eSCM-SP Practices	Subset of eSCM-SP Practices

Only the Full Evaluation leads to an ITSqc certification. It is a third-party external evaluation of a service provider's capability. It is based on evidence of the provider's implementation of all the Practices in the eSCM-SP, and is sponsored by the service provider or by its client(s). Members of the evaluation team must be trained by Carnegie Mellon

University and must be authorized to perform external evaluations of service providers. An authorized Lead Evaluator must head the evaluation effort. The evaluation data is rigorously reviewed by a certification board at Carnegie Mellon University and, when warranted, results in certification by Carnegie Mellon of the provider's capability. Organizations can be certified as compliant to the eSCM-SP at Capability Levels 2, 3, 4, or 5.