Comparing the eSCM-SP v2 and ISO 9001:2000

A comparison between the eSourcing Capability Model for Service Providers v2 and ISO 9001:2000 (Quality Management Systems—Requirements)

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Abstract

The eSourcing Capability Model for Service Providers (eSCM-SP), a best
practices model, gives providers of IT-enabled services a reference
model and capability determination methods that they can employ
in order to develop and improve their capability to consistently
deliver high-quality services. ISO 9001 specifies the requirements for
a quality-management system. This is a general-purpose standard
applicable to all types of business.

The main conceptual differences between ISO 9001 and the eSCM-SP
are applicability and structure. The eSCM-SP provides a five-level
capability improvement framework for the providers of IT-enabled
services. It addresses specific requirements of IT-enabled sourcing
engagements.

ISO 9001 defines requirements in very generic terms applicable to all
types of industry. Because if its generic nature, it does not explicitly
address some specific issues related to IT-enabled sourcing.

This report provides a brief discussion of how the two are conceptually
related, and a detailed mapping between the Practices of the eSCM-SP
v2 and the clauses of ISO 9001:2000.

Contributors

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Preface

This technical report is written for organizations that have already invested in compliance with ISO 9001 and are now considering adoption of the eSourcing Capability Model for Service Providers (eSCM-SP). The report will be helpful to organizations that have adopted the eSCM-SP and are considering investments in ISO 9001.

When an organization adopts a new framework for capability improvement, it must consider whether the framework requires abandoning or drastically changing practices or processes already in place. Specifically, organizations need to know the extent to which existing practices, processes, or systems count toward compliance with the new framework. While, in general, most frameworks have common ideas and principles, there are differences between them with respect to approach, focus, and emphasis.

The purpose of this report is to help organizations map their implementation of the requirements of ISO 9001 to those of the eSCM-SP's Practices. The requirements of ISO 9001 and the eSCM-SP are complementary and supplementary to each other. This report highlights areas where there is a significant degree of overlap between the requirements of the two frameworks, and areas where the requirements of one are out of the other's scope.

Section 1 of this report provides an overview of various frameworks for improving quality and process capabilities. Sections 2 and 3 provide brief overviews of the eSCM-SP and ISO 9001:2000 Standard, respectively. Section 4 compares the requirements of the eSCM-SP v2 [Hyder 2004a] and ISO 9001 [ISO 2000a]. It includes a discussion of the challenges in mapping the requirements across the two frameworks. Section 5 provides the conclusions of this report. Appendices A and B provide more details on the eSCM-SP and ISO 9001, respectively. Appendix C provides a mapping of the eSCM-SP to ISO 9001, organized by eSCM-SP Practice. Appendix D provides a mapping of ISO 9001 to the eSCM-SP, organized by ISO 9001 clause.

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) [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.

There are two major strategies for improving performance: framework-based and measurement-based. The eSCM-SP has features of both. A framework-based strategy uses models and standards as frameworks to identify what processes and systems should be implemented in a successful organization. Improvement based on the eSCM-SP is an example of this strategy. Certification in some framework-based strategies, including ISO 9001 and BS 15000, is binary; an organization is either compliant with the standard or not. Models such as the eSCM-SP measure organizations or processes using a form of ordinal scale (e.g., Maturity Levels or Capability Levels). Assessments using a framework identify

what to do, but do not usually describe how to do it. Frameworks typically do not specify performance levels for specific tasks (e.g., 5500 transactions per quarter).

The second strategy is measurement-based. 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. Other frameworks used by the organization may impact the improvement actions based on the eSCM-SP. By focusing on its business objectives, the 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.

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 following:

  - the Deming Prize in Japan [Deming]

  - the Malcolm Baldrige National Quality Award in the United States [Baldrige]

  - the European Quality Award [EQA]

  - the Rajiv Gandhi National Quality Award in India [RGNQA]

  - the Brazilian National Quality Award [PNQ]

- Standards such as the following:

  - 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 1998]

  - BS 7799-2: 2002 (information security management systems—specification with guidance for use) [BSI 2002b]

  - BS 15000 (IT service management) [BSI 2002a]

  - Customer Operations Performance Center (COPC®) [COPC 2000]

‣ Process improvement models such as the following:

  ‣ the Capability Maturity Model® (CMM®) for Software [Paulk 1995]

  ‣ the Systems Engineering CMM® [Bate 1995]

  ‣ the Software Acquisition CMM® [Cooper 2002]

  ‣ the People CMM® [Curtis 2001]

  ‣ CMM Integration℠ (CMMI®) [Chrissis 2003]

This report is part of a series that analyzes the common ground between the requirements of the eSCM-SP and those of some of the frameworks identified earlier in this report. The reports in this series are intended to help organizations make efficient use of their resources and existing investments in capability improvement. The differences or gaps 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 ISO 9001.

Some of the frameworks identified (e.g., Six Sigma, the Baldrige Award, and EQA) are sufficiently abstract that their relationship to the eSCM-SP can be briefly described in the introductory report for this series [Paulk forthcoming]. For other frameworks, a fairly detailed mapping is both possible and appropriate. While an overview is contained in the introductory report, separate reports with detailed comparisons are available or under development for ISO 9001 (this report) [Guha 2005], CMMI [Paulk, forthcoming a], the Software CMM [Paulk, forthcoming b], the People CMM [Hefley, forthcoming a], BS 15000 [Iqbal 2004], COBIT [Iqbal, forthcoming], COPC [Guha, forthcoming], and ISO 17799 [Hefley, forthcoming b].

2. An Overview of the eSCM-SP

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 [ibid.]. 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 [ibid.]:

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 delivers 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, Service Transfer, Contracting, Service Design & Deployment, and Service Delivery.

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 Determinations Methods associated with it.

3. An Overview of ISO 9001

ISO 9001 was developed by the International Organization for Standardization (ISO®). In an effort to develop a general-purpose standard for quality management systems, ISO formed technical committee ISO/TC 176 (Quality Management & Quality Assurance) in 1979. The first version of the ISO 9000 family of standards was released in 1987 and was based on BS 5750. The standard was revised in 1994 and restructured and revised in 2000. In the 2000 release, three standards (9001, 9002, and 9003) were merged into 9001 and renamed, "Quality Management Systems—Requirements."

ISO 9001 specifies the requirements for a quality management system (QMS) that can be used for internal use, certification, or contractual purposes. It focuses on the effectiveness of the QMS and is applicable to any type of organization, regardless of type, size, or product provided.

ISO 9001:2000 adopts a process approach, which emphasizes measuring process performance and effectiveness, and continuously improving the processes based on objective measurement. It follows Deming's concept of the Plan-Do-Check-Act (PDCA) cycle for continuous improvement of the QMS. It is also based on the following eight quality principles: customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, and mutually-beneficial supplier relationships. Although the requirements of the standard have been stated in terms of products, the provision of services is included in the standard's definition of a product.

Requirements are stated in ISO 9001:2000 in the form of clauses. There are 51 clauses divided into the following five major sections:

▸ Quality management system

▸ Management responsibility

▸ Resource management

▸ Product realization

▸ Measurement, analysis, and improvement

To be certified, an organization must demonstrate that it conforms to the requirements of all the applicable clauses of the standard.

The requirements stated in ISO 9001 are often at a high level. ISO provides separate guidance documents to help interpret the standard for specific sectors, for example, ISO/IEC 90003:2004 [ISO 2004]. These guidelines are used to interpret the requirements of the ISO 9001 standard, not for certification. Certificates are always issued against the ISO 9001 standard.

ISO 9004:2004 [ISO 2000b] offers guidance for improving the effectiveness of a QMS beyond the requirements stated in ISO 9001. However, this guideline is not required for ISO 9001 certification, so they are not considered in this comparison.

Appendix B describes ISO 9001 in more detail.

4. Comparing the eSCM-SP and ISO 9001

The eSCM for Service Providers (eSCM-SP) provides a set of "best practices" for capability improvement of the providers of IT-enabled services. It addresses specific issues related to IT-enabled sourcing services. It is applicable to all types of IT-enabled sourcing business.

ISO 9001 is a generic standard for quality management systems applicable to all types of business. Table 1 shows a high-level comparison between the two frameworks.

Table 1
High-level comparison between the eSCM-SP and ISO 9001:2000

	eSCM-SP v2	ISO 9001:2000
Audience	Service providers of IT-enabled sourcing services.	Providers of all types of products, including services.
Purpose	Building and improving service providers' capabilities to meet customer needs throughout the sourcing life-cycle.	Providing requirements for effectively applying a QMS to consistently meet customer needs and applicable regulatory requirements.
Size	84 Practices in 10 Capability Areas.	51 clauses.
Coverage	10 Capability Areas 4 Sourcing Life-cycle phases • Ongoing • Initiation • Delivery • Completion 5 Levels	5 clauses in quality management system 11 clauses in management responsibility 5 clauses in resource management 20 clauses in product realization 10 clauses in measurement, analysis, and improvement.
Recognition	Certification by Carnegie Mellon University at one of four Capability Levels (Levels 2, 3, 4, and 5). Certification is valid for a period of two years.	Certification is by third party registration bodies that are accredited by national bodies. Continuing assessments are required to maintain certification.
URL	itsqc.cs.cmu.edu/escm	www.iso.org

4.1. High-level Comparison

The eSCM-SP and ISO 9001 both promote process improvement. There are overlaps between ISO clauses and the Practices in the eSCM-SP Capability Areas of People Management, Performance Management, Service Design & Deployment, and Service Delivery, although there are differences in scope and objective in the two frameworks. Despite the differences, these two frameworks complement and supplement each other.

The main conceptual differences between ISO 9001 and the eSCM-SP are their structure and scope. The eSCM-SP's structure features five levels of capability improvement for providers of IT-enabled services. Its scope addresses specific issues related to capability improvement in sourcing relationships. It addresses the full sourcing life-cycle, including the initiation and completion phases. It also addresses the functions critical in providing IT-enabled services (e.g., knowledge management, relationship management, and technology management). The Practices in the Model are logically grouped into 10 Capability Areas, and organized according to the Sourcing Life-cycle. The Model can be used for self-improvement or for certification by Carnegie Mellon University.

ISO 9001:2000 has a flat structure of 51 clauses, which are organized around an organization's quality management system. This structure does not provide a means to differentiate capabilities between organizations certified under ISO 9001.

Each clause's requirements are defined in generic terms in order to be applicable to all organizations, regardless of type, size, or the product or service they provide. Because of its generic nature, the standard does not explicitly address some specific issues related to the provision of IT-enabled services.

4.2. Coverage of eSCM-SP Requirements by ISO 9001

This section provides a brief overview of the extent to which the ISO 9001 standard addresses the requirements of the eSCM-SP, organized by Capability Area. This is not a discussion of the relative merits of using the eSCM-SP over ISO 9001. It must be noted that the discussion in this section is strictly from the perspective of applying the ISO 9001 standard in a sourcing scenario. If an organization is certified under ISO 9001 and plans to adopt the eSCM-SP, this discussion will indicate to what extent the existing QMS can be leveraged. Again, it is just an indication, and not a precise measure of coverage. It is understood that the depth and breadth of QMS (using ISO 9001) depend on the actual policies and procedures documented by the organization, and they are expected to vary considerably. Hence, a detailed assessment of a QMS with reference to the eSCM-SP is required to ascertain actual coverage.

It should also be noted that some organizations that are certified in ISO 9001 (e.g, those that have adopted the quality principles of ISO 9004) will have a higher degree of compliance.

Each Practice was compared to the corresponding clause in ISO 9001. This Practice-level comparison was then given a label: "addressed," "partially addressed," or "not addressed." Values were assigned to each label (1, 0.67, or 0, respectively), and the average of the Practice values provide a comparison value at the Capability Area level ("completely covered," "largely covered," and "partially covered"). These averages are plotted in the figures 1 and 2 in this section.

"Completely covered" means that the average coverage for the Capability Area is at least 0.8. "Largely covered" means that the greater part of the Capability Area is covered from the appropriate perspective; the average coverage of all Practices in the Capability Area was greater than 0.67. "Partially covered" means that a significant portion of the Capability Area is covered, but some requirements may not be explicitly covered. This corresponds to an average coverage of less than 0.67. Subjective judgment is involved in deciding how well requirements at different levels of abstraction and with different scopes and targets correspond. In addition, specific implementations may go beyond the requirements of either framework.

Figure 1 shows that organizations using ISO 9001 will have a significant advantage in initiating an eSCM-SP-based improvement program. As one might expect, however, there

are unique contributions of the eSCM-SP that will add value to an improvement or quality initiative. The score for each Capability Area is the average score for the Practices, as detailed in Appendix C.
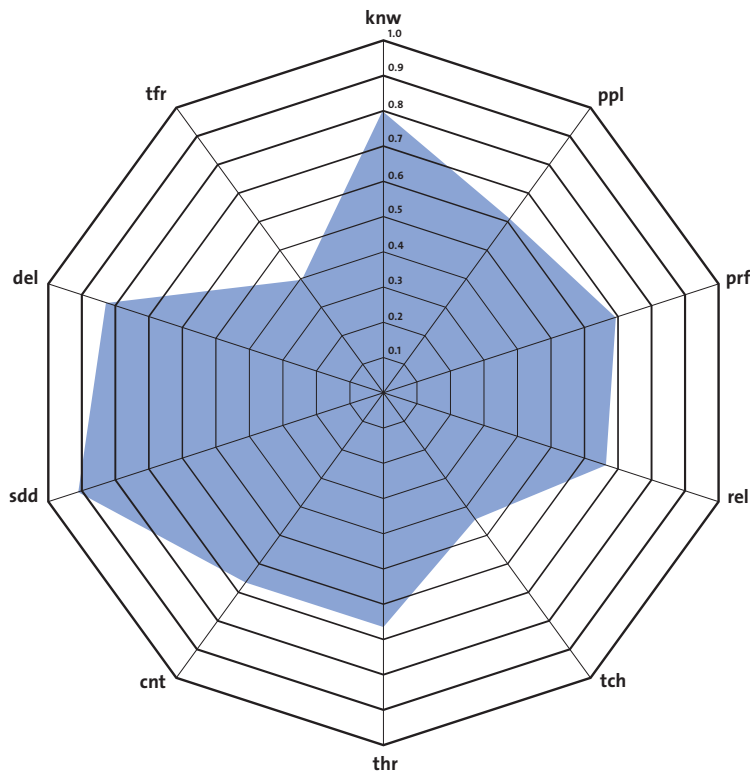
Knowledge Management (knw)

ISO 9001 largely addresses the requirements of this Capability Area. While no clause in ISO 9001 addresses knowledge management explicitly, the Capability Area is largely covered through multiple ISO 9001 clauses. ISO 9001 addresses knowledge management aspects through establishing a documented quality system, applying an appropriate level of control on documents and records, and sharing information through internal communication. Some requirements of the eSCM-SP are partially addressed in ISO 9001. These are establishing a policy for knowledge sharing, establishing a formal knowledge management system, establishing process assets (including tailoring guideline), establishing a measurement repository, and re-using work products.

People Management (ppl)

The requirements of the People Management Capability Area are largely addressed by the human resources clause of ISO 9001. ISO 9001 satisfies the basic people management Practices of the eSCM-SP such as defining roles, assigning responsibilities, identifying workforce competencies, and providing training. However, the eSCM-SP defines some higher-capability Practices that are either not explicitly addressed or only partially addressed by ISO 9001 areas such as encouraging innovation and entrepreneurship,

encouraging employee participation in decision making, encouraging career development, and providing rewards and recognitions.

Performance Management (prf)

The requirements of the Performance Management Capability Area are largely addressed in ISO 9001 through management commitment, management reviews, internal audits, process monitoring, continual improvement, and resource management. These Practices are required for engagement-level and organization-level performance management as defined in the eSCM-SP. The eSCM-SP defines some higher-capability Practices, which are either not explicitly addressed or only partially addressed in ISO 9001 areas such as undertaking improvement programs, establishing capability baselines, and benchmarking and deploying innovation.

Relationship Management (rel)

ISO 9001 largely addresses the requirements of this Capability Area. Customer-relationship management aspects are mostly met through the customer communication and customer satisfaction clauses of ISO 9001. Relationship management with suppliers and partners, however, is only partially addressed. ISO 9001 addresses the purchases function through the purchasing clauses, which include supplier evaluation, selection, and verification of a supplied product. It does not focus on relationship management with suppliers and partners. The eSCM-SP also defines additional requirements on value creation and identifying cultural fit, which are either not explicitly addressed or only partially addressed in ISO 9001.

Technology Management (tch)

This Capability Area is only partially covered in ISO 9001. Although the infrastructure clause of ISO 9001 defines the requirements of providing and maintaining the required infrastructure to deliver service, it does not explicitly address the critical elements of technology management, which includes proactively adopting new technology, optimizing performance of technology infrastructure, and technology integration.

Threat Management (thr)

ISO 9001 largely addresses the requirements of this Capability Area. Threat management is covered by eSCM-SP Practices on risk management, disaster recovery, security, compliance to statutory and regulatory requirements, and protection of intellectual properties. ISO 9001 clauses address the requirements for protecting intellectual property and complying with statutory and regulatory requirements. Although ISO 9001 does not explicitly specify requirements for risk management, these requirements are implied in planning (in clauses 5.4 and 7.1). The eSCM-SP defines additional requirements on risk management, security, and disaster recovery that are either not explicitly addressed or only partially addressed in ISO 9001.

Contracting (cnt)

ISO 9001 largely addresses the aspects of this Capability Area covering the gathering of customer requirements and reviewing of requirements. Negotiation with customers is addressed in the customer communication clause. Additionally, the eSCM-SP addresses issues related to contract creation and amendment, pricing, and conducting due diligence. These issues are either not explicitly addressed or only partially addressed in ISO 9001.

Service Design & Deployment (sdd)

The ISO 9001 standard satisfies the requirements of this Capability Area. In fact, ISO 9001 provides maximum coverage in this area. The design and development section of ISO 9001 directly maps to this Capability Area. ISO 9001 addresses planning for design, identifying the inputs required for design, service design, and design verification.

Service Delivery (del)

ISO 9001 satisfies the requirements of this Capability Area. This area provides the second highest coverage. ISO 9001 addresses planning for service delivery, monitoring and measurement of product, and corrective and preventive action. It partially addresses actual service delivery requirements, and financial management is outside ISO 9001's scope.

Service Transfer (tfr)

ISO 9001 partially addresses the requirements of this Capability Area. Service transfer to and from the customer or another service provider is an activity typical to a sourcing engagement. It involves taking physical resources and people from the customer (or another service provider) and transferring those resources back after completion of the engagement. Knowledge transfer and maintaining service continuity are critical components of service transfer. ISO 9001 addresses the use of customer's property in product realization, but it does not address all the facets of service transfer covered by the eSCM-SP.

The mappings in Appendix C show in detail how the requirements of a given Practice in the eSCM-SP may be satisfied, completely or partially, by the requirements of one or more clauses of ISO 9001.

4.3. Coverage of ISO 9001 Requirements by the eSCM-SP

As seen in Figure 2, the eSCM-SP Practices satisfy most of the requirements of ISO 9001 clauses in the areas of Quality Management System, Resource Management, Product Realization, and Measurement Analysis and Improvement. The eSCM-SP largely covers the requirements of Management Responsibility. The ISO 9001 clauses that are not explicitly covered in the eSCM-SP are Quality Policy (5.3), Quality management system planning (5.4.2), Design and development validation (7.3.6), Validation of process (7.5.2), Preservation of product (7.5.5), and Control of monitoring and measuring devices (7.6). The score for each section of ISO 9001 is the average score for the clauses, as detailed in Appendix D.
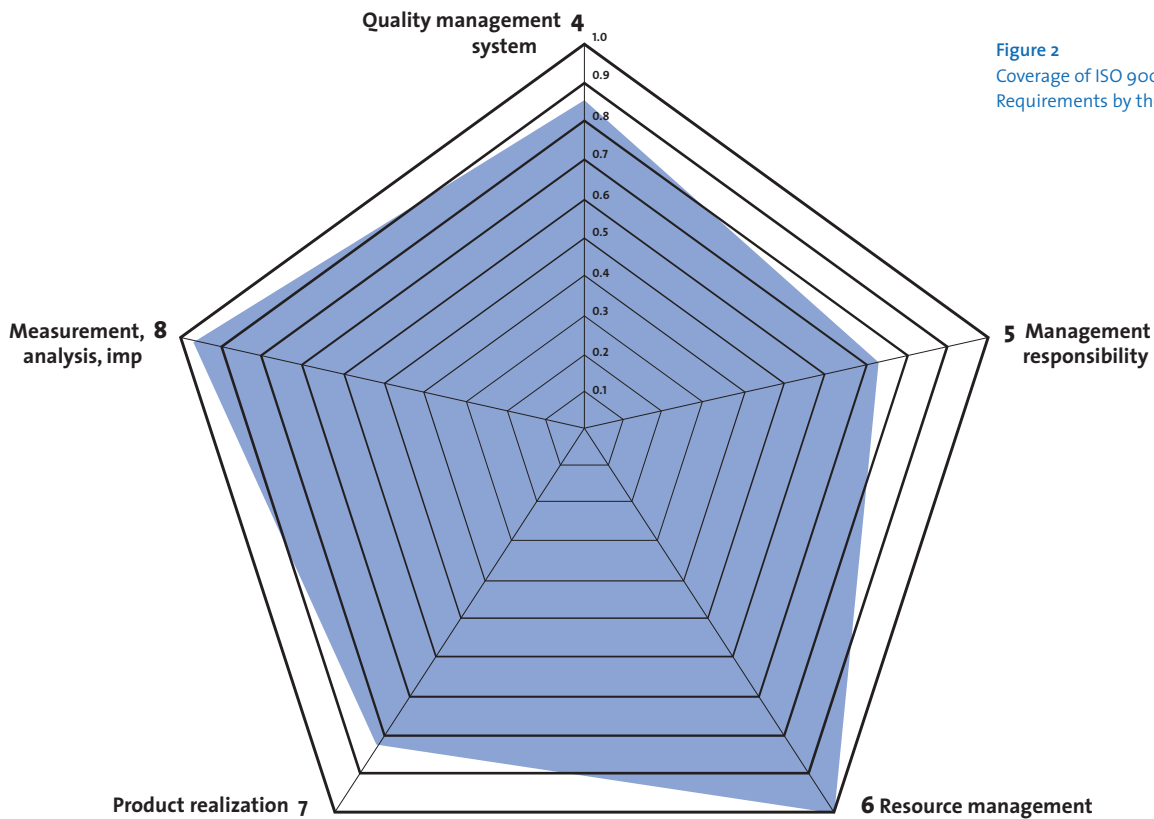
4.4. Challenges to Mapping

Although the discussion in the previous section showed a significant overlap between the eSCM-SP and ISO 9001, there are several challenges in mapping between these two frameworks. These descriptions do not materially impact the ability of an organization currently using the ISO 9001 to migrate to the eSCM-SP, or to use both.

4.4.1. Differences in Scope, Emphasis, and Level of Detail

In many instances the level of detail accorded to a particular issue differs significantly between the eSCM-SP and ISO 9001. In most of these instances the two frameworks differ based on scope, emphasis, and level of detail.

Scope

The requirements of one framework will often fall outside the scope of others. For example, ISO 9001 emphasizes the issues that are critical for establishing, maintaining, and demonstrating conformance to a quality management system (QMS). On the other hand, the eSCM-SP emphasizes issues that are critical to providers of IT-enabled services.

Emphasis

Frameworks tend to emphasize the issues that are important to achieve their primary objectives. This emphasis is normally underscored by the formal specification of requirements related to such issues. Requirements might not be specified for issues that

are not of primary focus. ISO 9001 is a standard that applies to the QMS for any business category, therefore its requirements are not specific to any particular business. The eSCM-SP, in contrast, was developed specifically to support providers of IT-enabled services, so it emphasizes requirements for that specific business. One means of emphasis is for a requirement to be given its own address (i.e., clause or Practice) within a framework, as opposed to being distributed over several addresses.

A framework might specify an issue as a requirement, or the issue might be implied, understood, or subsumed by its specified requirements. For example, there is no separate clause on risk management in ISO 9001, but it is considered to be a part of the planning process. The eSCM-SP includes three Practices on risk management since it considers it to be critical to sucessful IT-enabled sourcing engagements.

Level of Detail
ISO 9001 focuses on the essential requirements for QMS, but does not provide implementation details or guidelines. The eSCM-SP, on the other hand, supplements its requirements with rationales, examples, and guidelines. Furthermore, for a given issue the eSCM-SP may define requirements at multiple levels of capability, thereby defining a path for improvement. Because of this difference in the level of detail used to describe requirements, it should not be implied that an ISO 9001 requirement is less important than an equivalent eSCM-SP requirement.

An additional challenge emerges from the fact that the terminologies used in ISO 9001 are more aligned with a product manufacturing environment. This environment is associated with the production of tangible goods, and tends to rely on defined timelines and definite end dates. On the other hand, the terminologies used in the eSCM-SP are more aligned with IT-enabled service environments. Services are generally intangible and are provided over an ongoing time period. This involves the delivery of processes, physical environments, infrastructure, technology, and personnel. For example, ISO 9001 addresses the preservation of products and the calibration of measuring devices. These are more appropriate in a typical product manufacturing environment, but are not very relevant to a service environment.

Finally, many eSCM-SP Practices are analogous to ISO 9001 clauses without being identical. For example, eSCM-SP Practices that address version and change control conceptually map to the product identification and traceability clause in ISO 9001, although the intent of that clause is to uniquely identify a product and maintain traceability with related components of the product. It implies some form of version control in order to establish traceability.

4.4.2. Difference in Structure
There are major differences between the structures of the eSCM-SP and the ISO 9001. Practices in the eSCM-SP are distributed in three of the five Capability Levels, ten Capability Areas, and four segments of the Sourcing Life-cycle. Each eSCM-SP Practice contains a set of Required Activities, each of which must be implemented to satisfy the Practice. Individual Activities by themselves do not represent a unit of implementation. Many higher-level

Practices build on lower-level Practices. In a few instances, ISO 9001 clauses address issues that span Capability Levels (e.g., Practices on risk management). Appendix A provides a more detailed description of the eSCM-SP.

ISO 9001 provides a flat structure of clauses and sub clauses. In order to be certified, an organization must demonstrate compliance with all the applicable clauses and sub clauses. For the purpose of mapping, ISO 9001 clauses are considered to be equivalent to eSCM-SP Practices, but the relationship is not so simple. There are instances where requirements in ISO 9001 clauses or sub clauses are addressed by an Activity or set of Activities and Sub-activities in an eSCM-SP Practice. The situation becomes more complex when those Activities are distributed among multiple eSCM-SP Practices. This is also true in the case of reverse mappings from the eSCM-SP to ISO 9001. Appendix B provides more details about ISO 9001.

5. Conclusions

The eSCM-SP and ISO 9001 are similar in many ways. They both encourage continuous improvement and emphasize a documented quality system. There is substantial overlap in the areas of service design and deployment, service delivery, performance management, knowledge management, and people management. An organization can benefit from both ISO 9001 and the eSCM-SP. However, neither should be construed as a prerequisite to the other. An organization will decide to use both or migrate from one to the other based primarily on its business needs.

Besides all the differences in the scope and purpose of the two frameworks, they are complementary to each other. There are quite a few eSCM-SP Practices that are supplemental to ISO 9001 clauses, and vice versa. For example, eSCM-SP Practices on people management and technology management are supplementary to the resource management clause of ISO 9001. Similarly, the eSCM-SP Practice on process assets can easily build on the process management principles specified by ISO 9001. A need for documented policies, procedures, and guidelines is emphasized in both ISO 9001 and the eSCM-SP. Implementation of the eSCM-SP Practices or ISO 9001 clauses should be aligned with the organization's business objectives, not with the structure of any quality system framework. ISO 9001 is helpful in defining the structure of the quality system documentation and enabling effective process management. The internal auditing clause of ISO 9001 is supplementary to the process verification Practice of the eSCM-SP.

If an organization has already invested in ISO 9001 and is in the business of providing IT-enabled services, the eSCM-SP will certainly help to improve its overall capabilities.

If an organization is migrating to eSCM-SP, it does not have to discard its existing system, but can rather build on the foundation laid by the ISO 9001. The QMS it established following ISO 9001 will satisfy many of the eSCM-SP's requirements (Section 4.2 and Appendix C address this coverage). ISO 9001 helps an organization to establish a management commitment, create a customer focus, define a structure of QMS documentation, and institutionalize a measurement, analysis and continuous improvement process. Having these in place makes adoption of any other quality model easier.

If the service provider is part of a large organization involved in different businesses, there could be a business need for the organization to maintain ISO 9001 certification and also to adopt the eSCM-SP. In such cases, a comprehensive QMS can be developed that addresses the requirements of both ISO 9001 and the eSCM-SP by following the detailed mappings provided in Appendices C and D. Maintaining both will not be an overwhelming proposition for the service providers.

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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.

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 the nature of 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 Practices 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 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 transition 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 the Initiation phase. 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.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 exercise based on 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 conducts 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 2 summarizes the four Methods.

Table 2
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 eSCM-SP compliant at Capability Levels 2, 3, 4, or 5.

Appendix B: Description of ISO 9001

This section provides more detailed description of the ISO 9001:2000 standard.

B.1. ISO 9001:2000

This international standard adopts Deming's Plan-Do-Check-Act (PDCA) approach for continuous process improvement, and is based on the eight quality principles: customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, and mutually-beneficial supplier relationships.
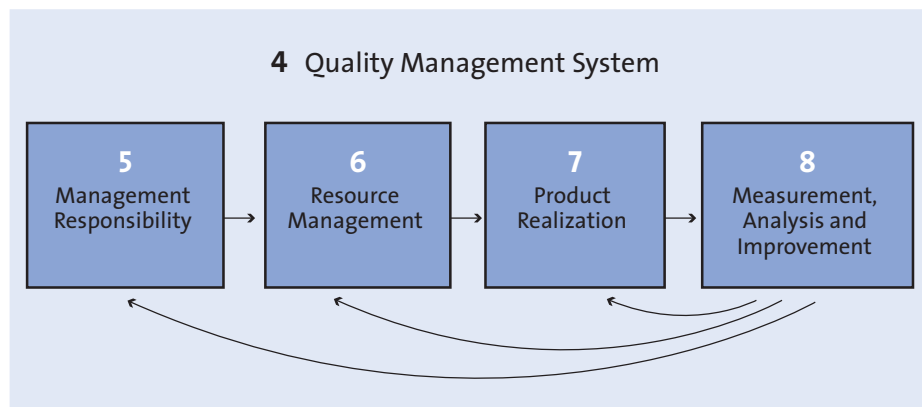
Figure 3
Structure of ISO 9001

The advantage of this approach is the ongoing control over the individual processes within the system. Figure 3 shows the basic building blocks of ISO 9001.

The key features of the ISO 9001 standard include the following:

▸ Customer focus

▸ Documented quality management system

▸ Management commitment

▸ Measurement of process and product quality

▸ Continuous improvement

The requirements stated in ISO 9001 are often at a high level. ISO provides separate guidance documents to help interpret the standard for specific sectors [ISO 2004].

ISO 9004-2: 1991 [ISO 1991a] provides guidelines for implementing ISO 9001 for services. Although this document was withdrawn in 2001, some parts of it are still helpful for understanding service characteristics, the service quality loop, and service management.

The 51 major clauses and sub-clauses of sections 4 through 8 address ISO 9001's quality management system requirements.

Table 3
Summary of ISO 9001:2000 Clauses

	Clauses	Subclauses

4	**Quality management system**	**4.1** General requirements
		4.2 Documentation requirements
		    4.2.1 General
		    4.2.2 Quality manual
		    4.2.3 Control of documents
		    4.2.4 Control of records

5	**Management responsibility**	**5.1** Management commitment
		5.2 Customer focus
		5.3 Quality policy
		5.4 Planning
		    5.4.1 Quality objectives
		    5.4.2 Quality management system planning
		
		5.5 Responsibility, authority and communication
		    5.5.1 Responsibility and authority
		    5.5.2 Management representative
		    5.5.3 Internal communication
		
		5.6 Management review
		    5.6.1 General
		    5.6.2 Review input
		    5.6.3 Review output

6	**Resource management**	**6.1** Provision of resources
		6.2 Human resources
		    6.2.1 General
		    6.2.2 Competence, awareness and training
		
		6.3 Infrastructure
		6.4 Work environment

7	**Product realization**	**7.1** Planning of product realization
		7.2 Customer-related processes
		    7.2.1 Determination of requirements related to the product
		    7.2.2 Review of requirements related to product
		    7.2.3 Customer communication
		
		7.3 Design and development
		    7.3.1 Design and development planning
		    7.3.2 Design and development inputs
		    7.3.3 Design and development outputs
		    7.3.4 Design and development review
		    7.3.5 Design and development verification
		    7.3.6 Design and development validation
		    7.3.7 Control of design and development changes
		
		7.4 Purchasing
		    7.4.1 Purchasing process
		    7.4.2 Purchasing information
		    7.4.3 Verification of purchased product
		
		7.5 Production and service provision
		    7.5.1 Control of production and service provision
		    7.5.2 Validation of processes for production and service provision
		    7.5.3 Identification and traceability
		    7.5.4 Customer property
		    7.5.5 Preservation of product
		
		7.6 Control of monitoring and measuring devices

	Clauses	Subclauses

8	**Measurement, analysis and improvement**	**8.1** General
		8.2 Monitoring and measurement
		    8.2.1 Customer satisfaction
		    8.2.2 Internal audit
		    8.2.3 Monitoring and measurement of processes
		    8.2.4 Monitoring and measurement of product
		
		8.3 Control of nonconforming product
		8.4 Analysis of data
		8.5 Improvement
		    8.5.1 Continual improvement
		    8.5.2 Corrective action
		    8.5.3 Preventive action

B.1.1. Quality Management System (4)

This is the complete quality system (the outer box of figure 3). This section states the basic requirements for establishing the quality management system, including the identification of the basic processes required for the organizations, their interrelationships, the resources required for those processes, and measurement and analysis requirement for control. Senior management is required to define the organization's quality policy and quality objectives, which are documented in a quality policy manual. The documented quality system includes policies, procedures, and work aids. Control of quality system documents and quality records are major requirement of this section.

B.1.2. Management Responsibility (5)

The commitment of senior management is of paramount importance in order to establish a quality management system, which includes the establishment of the organization's focus on the customer, the creation of a quality policy and objectives, the definition of roles, responsibilities, and authorities, the provision of adequate resources and periodically reviewing effectiveness of the quality system. The planning for the quality system starts with management responsibility. Senior management appoints a manager to act as "Management Representative." This person is a direct report to top management and oversees the implementation of the quality system. This is a unique concept of ISO 9001.

B.1.3. Resource Management (6)

Providing adequate resources is identified as the responsibility of senior management. These includes human resources, infrastructure, and work environment.

B.1.4. Product Realization (7)

This section defines the requirements related to the complete life-cycle of product development activities. It includes planning for product realization, requirement gathering, contract review, and design and development. This section also defines the requirements for production-related activities like purchasing, calibration of production equipment, product identification and traceability, protection of customer-supplied items, and preservation of products.

    If the organization is not involved in design activities, then the clauses related to design are not applicable.

B.1.5. Measurement, Analysis, and Improvement (8)

This section defines the requirements for measurement, analysis, and continuous improvements. Measurement of customer satisfaction is specifically addressed as a separate clause in ISO 9001. In addition, the organization needs to identify other appropriate attributes with which to measure process and product quality. Conducting periodic internal audits by trained auditors is a key requirement of this standard. Organizations are encouraged to use statistical methods for data analysis and to demonstrate continuous improvement through root cause analysis, and corrective and preventive actions.

B.2. ISO 9001:2000 Certification

An organization seeking ISO 9001 certification approaches a certification/registration[1] agency operating in its country. The certification agency conducts third party audits using qualified lead auditors[2] and auditors. If the organization demonstrates adequate compliance with the requirements of the standard during the audit, the certification agency issues the organization an ISO 9001 certificate, which is valid for a period of three years. During this period the certification agency conducts periodic surveillance audits. The certification may be revoked if major non-compliances are observed during surveillance audits.
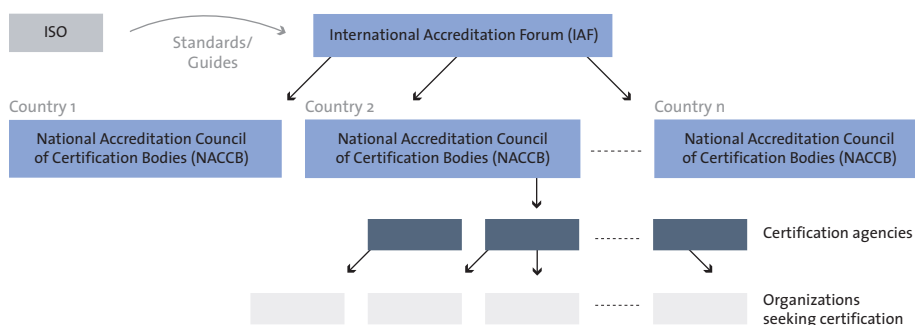
Figure 4:
Governance Structure of ISO 9001 Certification

Note that the certification process is not managed by ISO. The governance structure of the ISO 9001 certification process is shown in figure 4. A National Accreditation Council of Certification Bodies (NACCB) is established in many countries to manage its country's certification process. The NACCB authorizes certification agencies to conduct certification audits and issue ISO 9001 certificates. Some examples of NACCBs are United Kingdom Accreditation Services in UK, and ANSI-RAB in USA. Qualification requirements for the certification bodies are defined in the ISO/IEC guide 62. NACCB follows a defined evaluation process to authorize a certification agency. Once authorized, NACCB periodically monitors the work of the certification agencies to ensure quality.

The International Accreditation Forum, Inc. (IAF) coordinates accreditation activities worldwide to harmonize the accreditation process. IAF membership is open to the accreditation agencies (NACCBs) and other organizations involved in administering certification activities.

1 The word "certification" and "registration" are used interchangeably and they both mean the same thing in the context of ISO 9001 certification. One term is preferred over the other depending on the country. Likewise, the bodies that issue ISO 9001 or ISO 14001 [ISO 1996] certificates are referred to in some countries as "certification bodies" and in others as "registration bodies" or "registrars."

2 The requirements for qualification as an auditor are defined in guideline ISO 10011-2:1991 [ISO 1991b].

Appendix C: Detailed Mapping of eSCM-SP v2 Requirements in ISO 9001

In support of the high-level comparison provided in section 4.2, this section provides a detailed mapping of eSCM-SP Practices with the clauses of the ISO 9001:2000 standard. The objective of this comparison is to demonstrate the extent of coverage of eSCM-SP requirements by the ISO 9001:2000 standard. This is only an indicative comparison based on the requirements of the two frameworks. This comparison should be used as a guideline, not as a rule.

The table is organized according to the Capability Areas of the eSCM-SP.

The following symbols are used to show coverage of eSCM-SP requirements by ISO 9001:

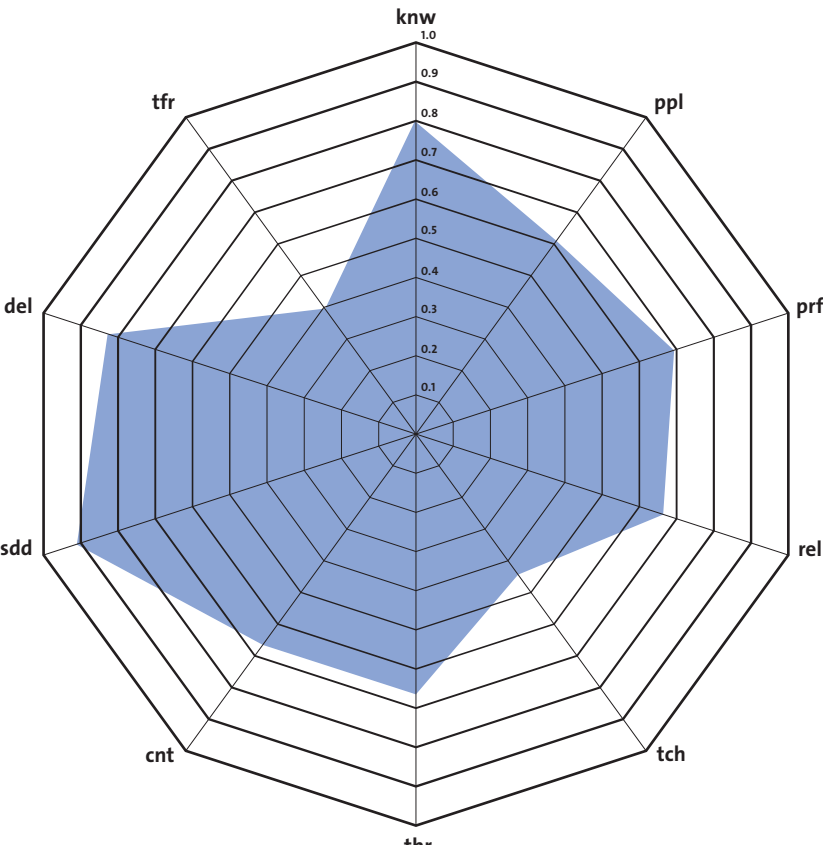| Symbol	Interpretation
●	The eSCM-SP Practice is addressed in the ISO 9001.
○	The eSCM-SP Practice is only partially addressed in the ISO 9001
Ø	The eSCM-SP Practice is not explicitly addressed in the ISO 9001 (to any significant degree).

Figure 5
(For reference; identical to Figure 1)
Coverage of eSCM-SP v2 Requirements by ISO 9001:2000

C.1. Mapping Tables by Capability Area

Knowledge Management (knw)

eSCM-SP Practice	Relation	ISO 9001 Clauses	Comments
knw01: Share knowledge	O	5.5.3: Internal communication 5.3: Quality policy 6.2.2: Competence, awareness & training	ISO does not explicitly specify a policy for this purpose. However, by assigning responsibility to top management, a similar intent is conveyed. The eSCM-SP Practice covers a much broader scope by addressing stake holders' involvement, incentives for knowledge sharing, etc.
knw02: Provide required information	●	4.1: Quality system - general requirements 4.2.3: Control of documents 4.2.4: Control of records	Information control and dissemination is achieved through control of documentation and records in ISO 9001 and through communication processes established by senior management.
knw03: Knowledge system	O	4.2: Documentation requirements	Establishment of a knowledge system is not explicitly required by ISO 9001. This Practice is partially addressed by the need to identify the QMS processes and their interactions and to establish a documented quality system.
knw04: Process assets	O	4.1: Quality system - general requirements 4.2: Documentation requirements	The intent of these ISO 9001 clauses is similar to this Practice. However, the eSCM-SP Practice covers a much broader scope by including a measurement repository and a tailoring guideline.
knw05: Engagement knowledge	●	8.4: Analysis of data	Both the eSCM-SP and ISO 9001 cover similar scope.
knw06: Reuse	O	7.3.2: Design & development input 7.5.1: Control of production and service provision	Reuse of work products is addressed in these clauses of ISO 9001. However, the eSCM-SP Practice covers a broader scope by including guidelines for reuse and establishing a repository of reusable components.
knw07: Version & change control	●	7.5.3: Identification & traceability	Version change control is achieved through product identification and traceability in ISO 9001.
knw08: Resource consumption	O	8.2.3: Monitoring & measurement 8.4: Analysis of data	It is implied that effort data is collected as part of process performance measure and analyzed in 8.4. However, the eSCM-SP Practice covers a broader scope by addressing the use of analysis results for predictive purposes (e.g., estimation).

People Management (ppl)

eSCM-SP Practice	Relation	ISO 9001 Clauses	Comments
ppl01: Encourage innovation	Ø		A policy for encouraging innovation and entrepreneurship is not addressed in ISO 9001.
ppl02: Participation in decisions	O	6.2.1: Human resource - general	Employee participation in decision making is not explicitly addressed in ISO 9001. However, a motivated workforce is considered to be an important element of a quality system. The eSCM-SP Practice covers a broader scope by including feedback mechanisms and modes of employee involvement.
ppl03: Work environment	O	6.3: Infrastructure 6.4: Work environment	The eSCM-SP Practice covers a broader scope by including corporate culture, dispute handling, and escalation methods under work environment.
ppl04: Assign responsibilities	●	6.2.1: Human resource - general	While personnel are required to be competent, the assignment of roles to specific individuals based on competency is an implied requirement of ISO 9001.
ppl05: Define roles	●	5.5.1: Responsibility & authority	This institutionalization Practice is analogous to clause 5.5 of ISO 9001. Both practices cover equivalent scope. ISO clause 5.5.2 defines an additional requirement to appoint a Management Representative.
ppl06: Workforce competencies	●	6.2.2: Competence, awareness and training	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
ppl07: Plan & deliver training	O	6.2.2: Competence, awareness and training	Training requirements are stated in greater detail in the eSCM-SP Practice. This includes an explicit requirement of training plans, defining training objectives and outcomes, training for career development, and project specific needs.
ppl08: Personnel competencies	●	6.2.2: Competence, awareness and training	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.

eSCM-SP Practice	Relation	ISO 9001 Clauses	Comments
ppl09: Performance feedback	O	6.2.2: Competence, awareness & training	Performance appraisal is not explicitly addressed in ISO 9001. However, it is implicitly stated in this clause. The eSCM-SP Practice defines a more detailed requirement.
ppl10: Career development	Ø	6.2.1: Human resource - general	Career planning is not explicitly addressed in ISO 9001.
ppl11: Rewards	Ø	6.2.2: Competence, awareness & training	Reward and recognition is not explicitly addressed in ISO 9001.

Performance Management (prf)

eSCM-SP Practice	Relation	ISO 9001 Clauses	Comments
prf01: Engagement objectives	●	5.4.1: Quality objectives 7.1(a): Planning of product realization	The intent of this Practice is to set direction, create customer focus, and set performance expectations for service. Quality objective as defined in ISO 9001 sets this focus at the engagement level and covers a similar scope.
prf02: Verify processes	●	8.2.2: Internal audits 8.2.3: Monitoring & measurement of process	Both ISO-9001 and the eSCM-SP Practice covers a similar scope.
prf03: Adequate resources	●	4.1(d): Quality system - general requirements 5.1(e): Management commitment 6.1: Provision of resource 6.3: Infrastructure	The need for providing adequate resources is emphasized in several clauses of the ISO 9001 standard. This is one of the basic requirements of a quality system, and linked with achieving customer satisfaction. This is explicitly defined as an indication of senior management's commitment.
prf04: Organizational objectives	O	5.1: Management commitment 5.4.1: Quality objectives 4.2.1: General	The intent of this Practice is to set business goals, create customer focus, and set performance expectations through measurable objectives. The intent of "Quality objectives" in ISO 9001 is narrower in scope than the business goals of an organization. However, business goals could be a driver for setting quality objectives.
prf05: Review organizational performance	●	5.6: Management review	Both the eSCM-SP and ISO 9001 cover a similar scope.
prf06: Make improvements	●	5.6.3: Review output 8.4: Analysis of data 8.5.1: Continual improvement	ISO 9001 and the eSCM-SP define the need for identifying improvement opportunities based on performance reviews. The organization shall continually improve the effectiveness of its quality management system through its quality policy, quality objectives, internal audit results, analysis of data, corrective and preventive actions, and management review. Section 8.4 provides data and analysis to evaluate where continual improvements can be made. Both the eSCM-SP and ISO 9001 cover a similar scope.
prf07: Achieve organizational objectives	O	8.5.1: Continual improvement	ISO 9001 promotes continuous improvement following the PDCA cycle, which is analogous to the intent of prf06. The intent of prf07 is that an organization will undertake special programs to improve its process or deploy technology innovation.
prf08: Capability baselines	O	8.2.3: Monitoring & measurement	The requirement for establishing a capability baseline is not explicitly mentioned in ISO 9001, though clause 8.2.3 indicates "ability of the processes to achieve planned results." The ability of process is used with the same intent as "capability baseline." The eSCM-SP emphasizes the use of baselines for predictive purposes (i.e., service provision). The trends expected as part of the data analysis and performance review within ISO 9001 have more to do with seeing how performance has changed since the last checkpoint.
prf09: Benchmark	Ø		Benchmarking is not explicitly addressed in ISO 9001.
prf10: Prevent potential problems	O	8.5.3: Preventive action	The eSCM-SP Practice covers a broader scope by including programs to take preventive actions on potential problems.
prf11: Deploy innovations	Ø		Deployment of innovation is not explicitly addressed in ISO 9001.

Relationship Management (rel)

eSCM-SP Practice	Relation	ISO 9001 Clauses	Comments
rel01: Client interactions	●	7.2.3: Customer communication	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
rel02: Select suppliers & partners	O	7.4.1: Purchasing process 7.4.2: Purchasing information	The eSCM-SP Practice covers a broader scope by mentioning partners in the Practice.
rel03: Manage suppliers & partners	O	7.4.1: Purchasing process 7.4.3: Verification of purchased products 8.4(d): Analysis of data	The ISO 9001 clauses address the principles behind the type and extent of supplier control to be applied, through verification of purchased product and tracking of the supplier's performance. The eSCM-SP Practice covers a broader scope by including relationship management.
rel04: Cultural fit	O	7.2.1: Determination of requirements	The need for achieving cultural fit is not explicitly stated in ISO 9001. It is one aspect of an unstated requirement. The eSCM-SP Practice provides more emphasis on this aspect.
rel05: Stakeholder information	●	7.2.3: Customer communication 8.2.1: Customer satisfaction	Both the eSCM-SP and ISO 9001 recognize this aspect.
rel06: Client relationships	O	5.2: Customer focus 7.2.3: Customer communication	This eSCM-SP Practice explicitly addresses customer relationship management and covers a broader scope than customer communication in ISO 9001.
rel07: Supplier & partner relationships	O	7.4: Purchasing	The eSCM-SP explicitly addresses relationship management with suppliers and partners and covers a broader scope than purchase function in ISO 9001.
rel08: Value creation	Ø		There is no direct analog of this eSCM-SP Practice in ISO 9001. ISO 9001 focuses on continuous process improvement and enhancing customer satisfaction through quality improvement. Increasing the business value for the customer is not explicitly addressed in ISO 9001.

Technology Management (tch)

eSCM-SP Practice	Relation	ISO 9001 Clauses	Comments
tch01: Acquire technology	O	6.3: Infrastructure	Deployment and upgrading of technology is covered under "Infrastructure" in ISO 9001. This eSCM-SP Practice defines more detailed requirements by including the evaluation of alternate solutions, deployment plans, and contingency planning.
tch02: Technology licenses	O	7.2.1: Determination of requirements	The licensing issue is covered under compliance in ISO 9001. This Practice defines requirements in more detail by including technology license management.
tch03: Control technology	O	6.3: Infrastructure	Managing changes to the technology infrastructure is an implied requirement under "maintenance of infrastructure." The eSCM-SP Practice defines requirements in more detail by including documented methods for tracking changes, and the establishment of an inventory of technology infrastructure.
tch04: Technology integration	O	6.3: Infrastructure	Managing integration of technology infrastructure is an implied requirement under "maintenance of infrastructure." The eSCM-SP Practice defines requirements in more detail by including plans for technology integration, plans for technology separation, etc.
tch05: Optimize technology	O	8.5: Improvement	Control of production and service provisioning ensures the availability of adequate technology infrastructure. Optimization of performance is considered to be a part of continuous improvement in ISO 9001. However, the eSCM-SP Practice defines requirements in more detail.
tch06: Proactively introduce technology	Ø		Proactively identifying and introducing technology is not explicitly addressed in ISO 9001.

Threat Management (thr)

eSCM-SP Practice	Relation	ISO 9001 Clauses	Comments
thr01: Risk management	O	4.2.2: Quality Manual	Risk management is an implied requirement of ISO 9001. Policy for risk management is documented in the quality manual (although there is no explicit mention about it). The eSCM-SP Practice covers broader scope by including the identification of potential risks, the calculation of risk exposure, etc.
thr02: Engagement risk	O	7.1: Planning of product realization	Risk management is an implied requirement of ISO 9001. The eSCM-SP Practice covers a broader scope by explicitly addressing risk exposure assessments, the prioritization of risk, etc.
thr03: Risks across engagements	O	5.4: Planning 5.6: Management Reviews	Risk management is an implied requirement of ISO 9001. Organization-level risk management is done as part of planning and management reviews. This eSCM-SP Practice covers a broader scope by explicitly addressing risk exposure assessments and the prioritization of risk for the portfolio of engagements.
thr04: Security	O	5.1: Management commitment 5.2: Customer focus	A procedure for security is not explicitly addressed in ISO 9001. However, security is an implied service characteristic. The eSCM-SP Practice covers a broader scope by explicitly defining requirements for access control, data security, physical security, privacy, etc.
thr05: Intellectual property	●	7.5.4: Customer property	Intellectual property is considered as customer property in ISO 9001. Both frameworks cover a similar scope.
thr06: Statutory & regulatory compliance	●	5.1(a): Management commitment 7.2.1(c): Determination of requirements	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
thr07: Disaster recovery	Ø		A disaster recovery procedure is not directly addressed in ISO 9001.

Contracting (cnt)

eSCM-SP Practice	Relation	ISO 9001 Clauses	
cnt01: Negotiations	O	7.2.3: Customer communication	Negotiation is part of customer communication. The eSCM-SP Practice defines requirements in more detail by requiring a guideline on this subject.
cnt02: Pricing	Ø		Pricing is not explicitly addressed in ISO 9001, although it may be considered as one of the requirements of the product/service.
cnt03: Confirm existing conditions	O	7.2.2: Review of requirements	Confirming existing conditions is addressed in this ISO 9001 clause, however, the eSCM-SP Practice defines requirements in more detail for conducting due diligence.
cnt04: Market information	O	7.2.1: Determination of requirements	This ISO clause partially addresses this intent.
cnt05: Plan negotiations	O	7.2.3: Customer communication	Negotiation is part of customer communication. The eSCM-SP Practice defines requirements in more detail by addressing formal planning and tracking of the negotiation process.
cnt06: Gather requirements	●	7.2.1: Determination of requirements	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
cnt07: Review requirements	●	7.2.2: Review of requirements	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
cnt08: Respond to the requirements	O	7.2.3(b): Customer communication	The eSCM-SP Practice defines requirements in more detail by including prospective clients.
cnt09: Contract roles	O	5.5.1: Responsibility & authority	The requirement for defining roles and responsibilities for the organization is mentioned in ISO 9001. Defining the same for the customer is not mentioned in ISO 9001.
cnt10: Create contracts	O	5.2: Customer focus 7.2: Customer related process	ISO 9001 clauses are more focused on requirement gathering and review. Contract creation is an implied requirement. This is analogous to cnt06 and cnt07. The eSCM-SP Practices explicitly state the requirements of a documented procedure to create a contract.
cnt11: Amend contracts	O	5.2: Customer focus 7.2: Customer related process	The ISO 9001 clauses are more focused on requirement gathering and review. Contract creation and amendment is an implied requirement. This is analogues to cnt06 and cnt07. The eSCM-SP Practices explicitly state the requirements of a documented procedure to amend contracts.

Service Design and Development (sdd)

eSCM-SP Practice	Relation	ISO 9001 Clauses	Comments
sdd01: Communicate requirements	●	7.1: Planning of product realization 7.2.2: Review of requirements 7.3.2: Design & development input	Requirements gathered from the client are used as input for design. Separate functional teams are not explicitly addressed in ISO 9001. The need for a documented procedure is implied in ISO 9001.
sdd02: Design & deploy services	●	7.3: Design & development	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
sdd03: Plan design & deployment	●	7.3.1: Design & development planning	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
sdd04: Service specification	●	7.3.3: Design & development output	Service specification is part of the design output of ISO 9001.
sdd05: Service design	●	7.3.2: Design & development input 7.3.3: Design & development output	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
sdd06: Design feedback	○	7.3.4: Design & development review	ISO 9001 addresses verification and validation of the design. These are performed against the requirements defined by the customer, though a review that directly involves the customer is not explicitly required.
sdd07: Verify design	●	7.3.5: Design & development verification	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
sdd08: Deploy service	●	7: Product realization	Within ISO 9001, the requirements in 7 referring to products apply equally to service deployment.

Service Delivery (del)

eSCM-SP Practice	Relation	ISO 9001 Clauses	Comments
del01: Plan service delivery	●	7.5.1: Control of product & service provision	Both the eSCM-SP and ISO 9001 cover a similar scope.
del02: Train clients	●	7.2.1: Determination of requirements	Although the training of end users and clients is not specifically mentioned in ISO 9001, it is obvious that the service provider will meet this requirement under the provision of this ISO 9001 clause in similar details.
del03: Deliver service	○	7.3.7: Control of design & development changes 7.5.1: Control of product & service provision 8.2.3: Monitoring & measurement	Control of the service delivery is done through the control of processes in ISO 9001. The eSCM-SP Practice explicitly addresses service delivery provisions and defines requirements in more detail.
del04: Verify service commitments	●	8.1: Measurement & analysis - general 8.2.4: Monitoring & measurement of product	Both the eSCM-SP and ISO 9001 cover a similar scope.
del05: Correct problems	●	8.5.2: Corrective actions	The scope of this Practice is limited to the correction of service delivery problems. The corrective action clause of ISO 9001 is linked with continuous improvement and applicable to the entire business operation of the organization.
del06: Prevent known problems	●	8.5.3: Preventive actions	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
del07: Service modifications	●	7.3.7: Design & development review	Service modification is equivalent to design change in ISO 9001.
del08: Financial management	∅		Financial management is not explicitly addressed in ISO 9001.

Service Transfer (tfr)

eSCM-SP Practice	Relation	ISO 9001 Clauses	
tfr01: Resources transferred in	●	7.5.4: Customer property	Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
tfr02: Personnel transferred in	Ø		The transfer of people from the client to the service provider is not addressed in ISO 9001.
tfr03: Service continuity	O	7.5.1: Control of product & service provision	Service continuity is an implied post-delivery activity as stated in 7.5.1f. The eSCM-SP Practice defines requirements in more detail by including service continuity planning and client sign-off.
tfr04: Resources transferred out	O	7.5.4: Customer property	Handing over resources after contract completion is an implied requirement of this ISO 9001 clause. The eSCM-SP Practice covers a much broader scope by requiring a resource transfer plan, service continuity management during transfer, etc.
tfr05: Personnel transferred out	Ø		The transfer of people from the service provider to the client is not addressed in ISO 9001.
tfr06: Knowledge transferred out	Ø		Knowledge transfered out to customers at the end of engagements is not explicitly addressed in ISO 9001.

Appendix D: Detailed Mapping of ISO 9001 Requirements in the eSCM-SP v2

This section provides a detailed reverse mapping of ISO 9001:2000 clauses with respect to the Practices of the eSCM-SP. The objective of this comparison is to determine the extent to which the ISO 9001:2000 requirements are covered by the eSCM-SP. This is only an indication, not an exact assessment. It should not be used as a rule to assess compliance.

The table is organized according to the clauses of ISO 9001:2000.

The following symbols are used to show coverage of the ISO 9001 requirements by the eSCM-SP.

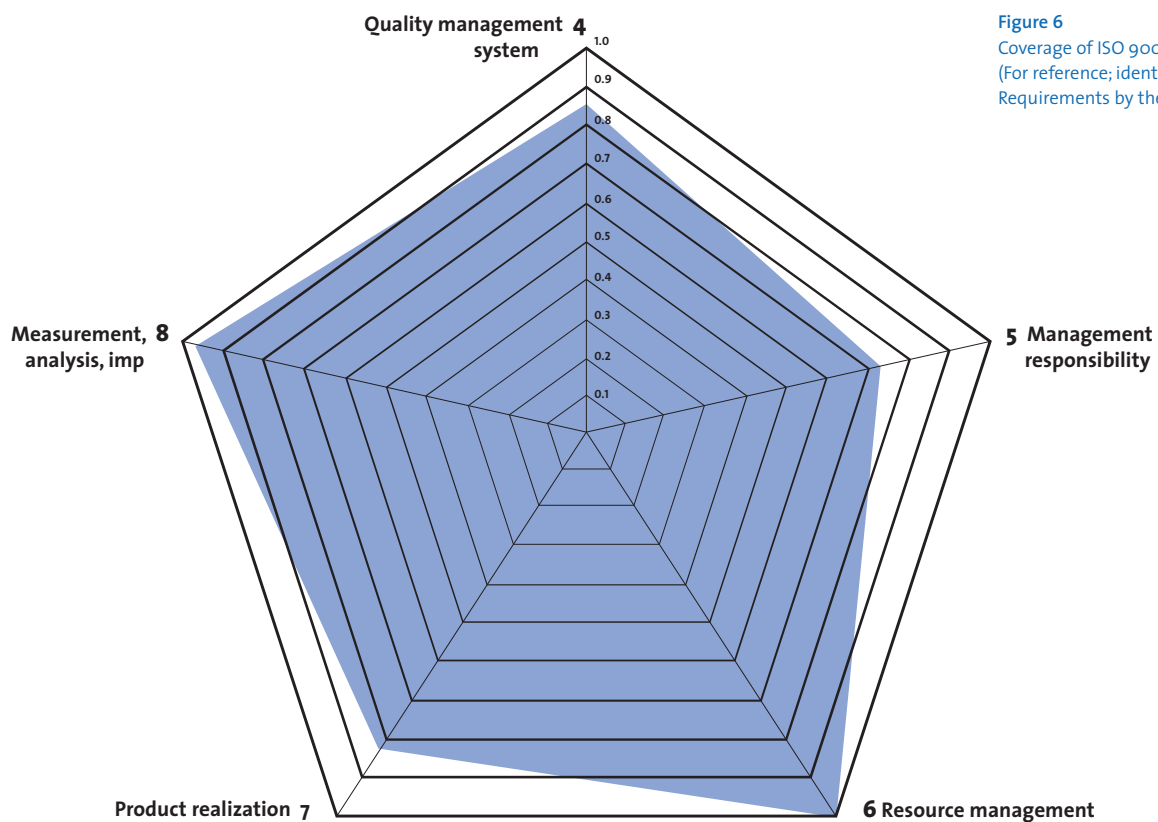| Symbol	Interpretation
●	The ISO 9001 clause is addressed in the eSCM-SP.
O	The ISO 9001 clause is only partially addressed in the eSCM-SP
Ø	The ISO 9001 clause is not explicitly addressed in the eSCM-SP (to any significant degree).

Figure 6
Coverage of ISO 9001:2000
(For reference; identical to Figure 2)
Requirements by the eSCM-SP v2

D.1. Mapping Tables by Clause

Quality Management System (4)

ISO 9001:2000	Relation	eSCM-SP Practices	Comments
4.1: Quality system—General requirements	O	knw04: Process assets	The need for establishing a documented quality management system is defined in several eSCM-SP Practices. However, ISO 9001 lays more emphasizes on this aspect by adopting a system approach and defining it as an overarching system.
4.2.1: Documentation requirements—General	●		The need to establish a documented quality management system (policy, procedure, records/artifacts) is defined throughout the eSCM-SP. Both frameworks cover a similar scope.
4.2.2: Quality manual	O		The need for a quality manual is not explicitly mentioned in the eSCM-SP, although there are a few practices which expect the organization to define its policy for those activities. ISO 9001 provides much more emphasis on the organization's policy, and its scope covers the entire quality management system.
4.2.3: Control of documents	●	knw04: Process assets knw02: Provide required information	The eSCM-SP Practices cover a similar scope.
4.2.4: Control of records	●	knw04: Process assets knw02: Provide required information	The scope of these knowledge management Practices include control of records, and cover a similar scope.

Management Responsibility (5)

ISO 9001:2000	Relation	eSCM-SP Practices	Comments
5.1: Management commitment	●	prf04: Organizational objectives prf03: Adequate resource	Commitment by senior management is addressed through multiple Practices in the eSCM-SP. These two Practices covers a similar intent as 5.1.
5.2: Customer focus	●	rel06: Client relationship	There are a number of customer-facing Practices in the eSCM-SP that address customer focus.
5.3: Quality policy	Ø		The need for defining a quality policy is not specifically addressed in the eSCM-SP, although there are a few Practices that expect the organization to define its policy for those activities. A quality policy as defined in ISO 9001 is analogous to a vision statement related to quality management.
5.4.1: Quality objectives	●	prf01: Engagement objective prf04: Organizational objectives	The intent of these Practices is to set business goals, create customer focus, and set performance expectations through measurable objectives. The intent of "quality objectives" in ISO 9001 is to set the organization's objectives related to Quality.
5.4.2: Quality management system planning	Ø		The need for establishing a top-level plan for quality management is not explicitly addressed in the eSCM-SP.
5.5.1: Responsibility & authority	●	ppl05: Define roles	Both ISO 9001 and eSCM-SP Practices cover a similar scope.
5.5.2: Management representative	O		While eSCM-SP Practice ppl05 requires the assignment of roles and responsibilities, the requirement of a management representative is not explicitly addressed in the eSCM-SP.
5.5.3: Internal communication	●	knw01: Share knowledge knw02: Provide required information	Several eSCM-SP Practices collectively address a similar scope.
5.6.1: Management review—General	●	prf05: Review organizational performance	Both ISO 9001 and the eSCM-SP cover a similar scope.
5.6.2: Review input	●	prf05: Review organizational performance	Both ISO 9001 and the eSCM-SP cover a similar scope.
5.6.3: Review output	●	prf06: Make improvements	Both ISO 9001 and the eSCM-SP cover a similar scope.

Resource Management (6)

ISO 9001:2000	Relation	Corresponding Practices in the eSCM-SP	Comments
6.1: Provision of resources	●	prf03: Adequate resource	Both ISO 9001 and the eSCM-SP cover a similar scope.
6.2.1: General	●	ppl04: Assign responsibilities ppl06: Workforce competencies ppl07: Plan & deliver training ppl08: Personnel competencies	The intent of this ISO 9001 clause is addressed through these people management Practices of the eSCM-SP.
6.2.2: Competence, awareness and training	●	ppl04: Assign responsibilities ppl06: Workforce competencies ppl07: Plan & deliver training ppl08: Personnel competencies	The intent of this ISO 9001 clause is addressed through these people management Practices of the eSCM-SP.
6.3: Infrastructure	●	prf03: Adequate resource ppl03: Work environment tch01: Acquire technology	The intent of this ISO 9001 clause is addressed through these Practices of eSCM-SP.
6.4: Work environment	●	ppl03: Work environment	This eSCM-SP Practice includes corporate culture, dispute handling, and escalation methods under the work environment.

Product Realization (7)

ISO 9001:2000	Relation	Corresponding Practices in the eSCM-SP	Comments
7.1: Planning of product realization	●	prf01: Engagement objectives sdd01: Communicate requirements	The intent of this ISO 9001 clause is addressed through these people management Practices of the eSCM-SP.
7.2.1: Determination of requirements	●	cnt06: Gather requirements	Both ISO 9001 and the eSCM-SP Practices cover a similar scope.
7.2.2: Review of requirements	●	cnt07: Review requirements	Both ISO 9001 and the eSCM-SP cover a similar scope.
7.2.3: Customer communication	●	rel01: Review requirements rel05: Stakeholder information	Both the eSCM-SP and ISO 9001 provide an equivalent coverage on this aspect.
7.3.1: Design and development planning	●	sdd03: Plan design & deployment	Both the eSCM-SP and ISO 9001 provide an equivalent coverage on this aspect.
7.3.2: Design and development input	●	sdd04: Service specification	Both ISO and the eSCM-SP cover a similar scope.
7.3.3: Design and development output	●	sdd05: Service design	Both ISO and the eSCM-SP cover a similar scope.
7.3.4: Design and development review	O	sdd06: Design feedback	Involving the customer in the design review is not explicitly addressed in ISO 9001.
7.3.5: Design and development verification	●	sdd07: Verify design	Both ISO and the eSCM-SP cover a similar scope.
7.3.6: Design and development validation	Ø		Design and development validation is not explicitly addressed in the eSCM-SP.
7.3.7: Design and development review	●	del07: Service modifications	Service modification is equivalent to design change in ISO 9001.
7.4.1: Purchasing process	●	rel02: Select suppliers & partners	Subcontracting is covered under purchasing in ISO 9001. Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
7.4.2: Purchasing information	●	rel02: Select suppliers & partners	Subcontracting is covered under purchasing in ISO 9001. Both the eSCM-SP and ISO 9001 provide equivalent coverage on this aspect.
7.4.3: Verification of purchased products	●	rel03: Manage suppliers & partners	Both ISO 9001 and the eSCM-SP cover a similar scope.
7.5.1: Control of product and service provision	●	del01: Plan service delivery	Both ISO 9001 and the eSCM-SP cover a similar scope.
7.5.2: Validation of process	Ø		Validation of process is not explicitly addressed in the eSCM-SP.

ISO 9001:2000	Relation	Corresponding Practices in the eSCM-SP	Comments
7.5.3: Identification and traceability	●	knw07: Version & change control	Version change control is achieved through product identification and traceability in ISO 9001.
7.5.4: Customer property	●	thr06: Intellectual property tfr01: Resource transfer in	Both ISO and the eSCM-SP cover a similar scope.
7.5.5: Preservation of product	Ø		Preservation of products is not explicitly addressed in the eSCM-SP.
7.6: Control of monitoring and measuring devices	Ø		Calibration of measuring equipment is not explicitly addressed in the eSCM-SP.

Measurement, Analysis and Improvement (8)

ISO 9001:2000	Relation	Corresponding Practices in the eSCM-SP	Comments
8.1: Measurement & analysis—General	●	prf02: Verify process del04: Verify service commitments	Both ISO and the eSCM-SP cover a similar scope.
8.2.1: Customer satisfaction	●	del05: Correct problems	Both ISO and the eSCM-SP cover a similar scope.
8.2.2: Internal audits	●	prf02: Verify process	Both ISO and the eSCM-SP cover a similar scope.
8.2.3: Monitoring and measurement	●	prf02: Verify process	Both ISO and the eSCM-SP cover a similar scope.
8.2.4: Monitoring and measurement of product	●	del04: Verify service commitments	Both ISO and the eSCM-SP cover a similar scope.
8.3: Control of non-conforming product	●	del05: Correct problems	Correction of service delivery problems in the eSCM-SP addresses this requirement of ISO 9001.
8.4: Analysis of data	●	prf05: Review organizational performance knw05: Engagement knowledge knw08: Resource consumption	Data analysis is addressed in multiple eSCM-SP Practices. Both ISO 9001 and the eSCM-SP cover a similar scope.
8.5.1: Continual improvement	●	prf06: Make improvements prf07: Achieve organizational objective	Both ISO 9001 and the eSCM-SP promote continuous improvement. The eSCM-SP Practice covers a greater scope by including "Improvement program."
8.5.2: Corrective actions	O	del05: Correct problems	Scope of the eSCM-SP Practice is limited to the correction of service delivery problems. The corrective action clause of ISO is linked with continuous improvement and applicable to the entire business operation of the organization.
8.5.3: Preventive actions	●	del06: Prevent known problems	Both ISO and the eSCM-SP cover a similar scope.