

Guide to Applying the Enterprise SPICE Model



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1. Executive Overview

Enterprise **SPICE** [1] is a model to evaluate and improve business processes in an efficient manner, regardless of the size of the organization. It is based on standards that are internationally established and recognized. It addresses organizations that provide products and services, develop, produce, distribute and operate them, regardless of the industry. Enterprise **SPICE** integrates and harmonizes existing business standards to provide a single process model that addresses broad enterprise processes.

Enterprise **SPICE** is a meaningful addition to an ISO 9001 certification. The ISO certificate shows that you operate a comprehensive management system according to ISO 9001. With Enterprise **SPICE** you can measure the capability either of all your processes, or only of the one which is particularly business critical for your organization. After appropriate training, you can conduct internal assessments by yourself. However, to achieve an official result, the assessment must be conducted by an accredited assessor. Enterprise **SPICE** includes six levels of capability. Based on the characteristics of your processes the level of capability is determined by the assessor. Base practices and generic practices play an important role for orientation. After an initial ISO 9001 certification most organizations are at a level 2 or 3.

Enterprise **SPICE** and ISO 15504 [2] provide an efficient and effective mechanism for developing, assessing and improving processes deployed across a typical, large or small, enterprise.

The benefits of using Enterprise **SPICE** are

- Cost reduction via concentration on one model/process standard for training, improvement, assessment, simultaneous ratings/certification
- Consistency/Integrity via usage of one single best practice model especially in situations where processes are newly designed or reengineered
- Simplification in audit and assessment situations
- Enterprise **SPICE** special aspects
 - Functional safety requirements are embedded
 - Process systems such as based on ISO 9001 can be improved and operated in an efficient and effective way
 - Previous investments of the enterprise in ISO 9000, **SPICE**, CobIT, ISO 20000, ... are safeguarded
 - Consistent use of enterprise wide goals and strategies across all functions of the enterprise is supported

The SPICE User Group endorsed the initiative to establish an Enterprise Integrated Standards-Based model (Enterprise **SPICE**) for use with the international standard ISO/IEC 15504 (**SPICE**) [2]

Enterprise **SPICE** is an innovative approach bringing together codified standards and the ISO/IEC 15504 assessment framework to serve the customer for whom these standards are intended – the enterprise in its pursuit of performance excellence.

1.1 Purpose

This guide should help an Enterprise **SPICE** user to find the right solution when using the Enterprise **SPICE** model. Especially for start-up with Enterprise **SPICE** you will find hints and advice.

1.2 Scope & Audience

All stakeholders of process design, process assessment and process improvement should read this Enterprise **SPICE** application guide. All parties in an organization that are interested in establishing a business process management culture, should read this guide.

1.3 Overview

This guide helps you to find out what you can do and how you can do it with Enterprise **SPICE**. We discuss using Enterprise **SPICE** for business process development or enhancement, and using Enterprise **SPICE** for assessment and improvement. For further information, please see [1], [2], [3] and [4].

1.4 How to get started with Enterprise SPICE

When you start with Enterprise SPICE the following steps and hints are very helpful:

- define your process improvement goals
- find sponsors
- make a plan
- make estimation of effort and cost
- calculate the cost/benefit of your Enterprise **SPICE** project
- use a process improvement approach such as that described in section 3.4, or IDEAL or DMAIC for your improvement activities

Ask yourself carefully:

- Which business process do you improve first?
- What process will bring you the greatest benefit if you improve it or design it with Enterprise **SPICE**?

2. Using Enterprise SPICE for Business Process Development or Enhancement

The processes and practices in Enterprise **SPICE** can be used to help develop a new process for your business or to help enhance and improve an existing business process. Enterprise **SPICE** is intended for application in organizations wishing to address strategic and tactical issues (e.g., public responsibility, strategic direction, or enterprise architecture), operational issues (e.g., task management, or mechanism selection), and for organizations wishing to do both. A project can use the model to improve, as can a small organizational unit operating as a project, a large organizational unit comprising several units, or an overall enterprise. It depends on the scope you choose for your improvement efforts.

2.1 Understanding your business processes

A first step is to describe your current processes, within your chosen scope. This process description, or business process model, is different from an organizational structure or “org chart” since processes often operate across departments and process steps are typically carried out by business workers in various business units. These responsibilities can be defined once the process is understood.

The development of the business process description, often called business process modeling, should be performed by a team comprising a business analyst and appropriate stakeholders/business partners. This process action team works to elicit the current process typically in a workshop environment. Initially a high level process model would be developed, and then high level process steps broken down into increasingly lower levels of detail until the process is considered reasonably complete, and understood by the stakeholders. Inputs and outputs and responsibilities may be added.

2.2 Comparing your business processes to Enterprise **SPICE**

A next step is to locate the parts of your business process that map to Enterprise **SPICE** processes. The processes of Enterprise **SPICE** may not map one-to-one with the processes used in the organization. This is not required nor expected by the model. An organizational/business process description may span more than one Enterprise **SPICE** process, or several organizational/business process descriptions together may address a single Enterprise **SPICE** process. And the name of your business process may not be the same name used for that process in the Enterprise **SPICE** model. For example, you may have a Strategic Planning business process that maps to the Enterprise **SPICE** process called Enterprise Governance. (See Appendix C for a list of Enterprise **SPICE** processes.)

However, locating the parts of the organizational/business process that map to Enterprise **SPICE** processes enables use of the model to guide improvement. If gaps are identified between the current organizational/business process and the practices in the model, then this indicates an area for potential improvement. Also, if you are not currently performing a particular business process but have determined you need to carry it out, then Enterprise **SPICE** can help you develop that new process for your business. It provides typical practices that might be carried out and typical work products that might be inputs and outputs of your new business process.

2.3 Using Enterprise **SPICE** for new process development

A common misconception is that a process description in a model such as Enterprise **SPICE** defines a specific process. Enterprise **SPICE** provides guidance for organizations to define their own processes and then improve them over time. The base practices in Enterprise **SPICE** describe fundamental activities that would be expected to be performed as part of a process to achieve the process purpose and outcomes. However, the practices are described at an abstract level, identifying “what” should be done without specifying “how” or by “whom” these activities must be performed. The basic philosophy is to provide guidance for enterprises to create, develop and improve processes that are most effective and most efficient for them.

Role assignment, organizational structure, and organizational work products need to be added to the content of the Enterprise **SPICE** processes to come up with a performable and sustainable process design. In an organization's context these factors will be regarded, combined with guidance from Enterprise **SPICE** practices that produce sound organizational processes with the potential for improvement.

The processes of Enterprise **SPICE** contain groups of practices which, when taken together, achieve a common purpose. However, the groupings do not imply that all base practices of a process are necessarily performed by a single individual or role. All base practices are written in verb-object format (i.e., without a specific subject) to minimize the perception that a particular base practice “belongs to” a particular role. This is one way in which the syntax of the model supports its use across a wide spectrum of organizational contexts.

As the business process model is being developed, there will likely be common processes that often include support processes like human resources, accounting, common marketing groups and so on, which may well have their own departments, while the high-level processes may well operate across departments.

Every enterprise has its own particular culture, terminology, and communication style. Since Enterprise **SPICE** uses generic terminology, it is expected that its concepts will be translated by all enterprises into their own language and culture.

Lastly, since not all Enterprise **SPICE** processes may be relevant or essential in a particular enterprise context, selected processes of the model may be used, as applicable. The expectation is that enterprises will improve those processes that are most critical to their business needs.

3. Using Enterprise **SPICE** to Support Assessment and Process Improvement

3.1 Major Usage

There are three major ways that Enterprise **SPICE** can be used:

- Internal process improvement – performing internal assessments to understand the enterprise’s or organization’s or project’s process capability for improvement purposes
- Independent capability evaluation – performing external evaluations/assessments to determine an enterprise’s process capability for partnering or supplier qualification, or for general benchmarking purposes
- Process definition – using the process information in the model as a guide or roadmap when an enterprise/organization/project needs to define its own processes, whether these are new processes or existing processes yet not documented. This was discussed in section 2.

3.2 Assessment Purpose

Assessments are typically performed:

- To focus, motivate, direct, and/or launch improvement within the enterprise, organization or project
- As a diagnostic to determine status compared to a model or standard, or to track progress
- To form a baseline or benchmark of actual practice vs. best in practice represented in the process model

An assessment will compare the assessed entity to a standard or model (i.e. Enterprise **SPICE**), and will identify strengths and weaknesses in the assessed entity’s processes. Assessment findings are used by the assessed organizational unit to develop process improvement action plans.

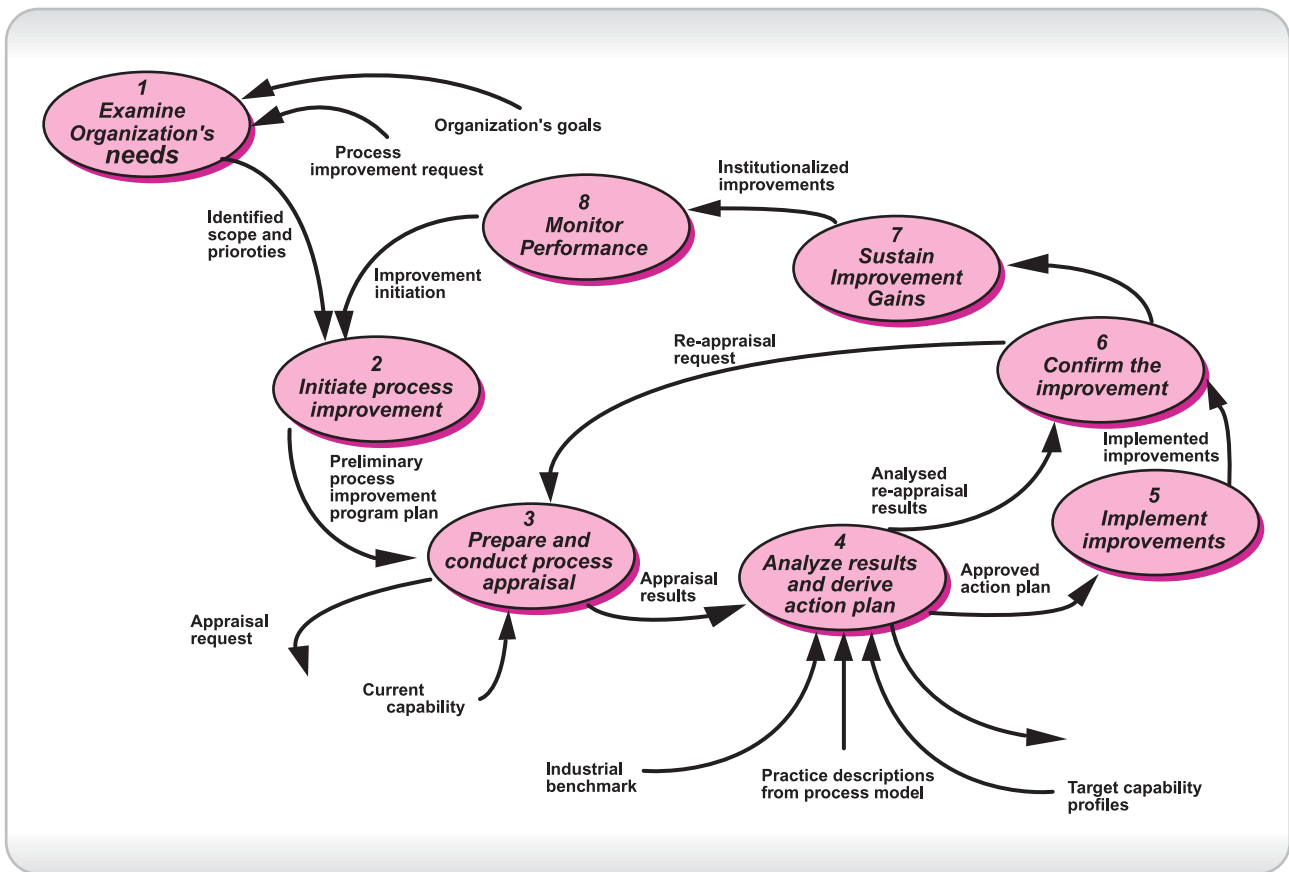
Refer to ISO/IEC 15504 [2] for further information on assessment concepts.

3.3 Assessment Method

It is not required that any particular assessment method is used with Enterprise **SPICE**. However, it is highly recommended that the method used is conformant with ISO/IEC 15504-2 requirements. When combined with an ISO/IEC 15504-2 conformant process assessment model, this would form a basis for conducting reliable and consistent assessments of process capability and allow for reporting of results using a common rating scale. In this way, organizations can benchmark their Enterprise **SPICE** assessment results against other organizations. Capability levels provide a path for increasing the capability of performed processes and institutionalizing improvements. The assessment method measures process capability.

3.4 Planning an Improvement Effort

All process improvement initiatives go through a similar implementation cycle. The following approach is broadly used in **SPICE** improvement efforts (ref [2], [3])



1. Examine organization's needs

Purpose: Ensure process improvement is aligned with organization's needs
Output: Quantitative process improvement goals tied to organization's business plan

2. Initiate process improvement

Purpose: Ensure plan is laid out and infrastructure is in place
Outputs: Preliminary program plan; charters; empowerment letters; resources; strategy

3. Prepare and conduct appraisal

Purpose: Determine current situation in relation to desired state
Output: Appraisal results, gaps, measurements

4. Analyze results and derive action plan

Purpose: Decide on improvements and plan accordingly
Outputs: Quantitative improvement targets; action plan, integrated with revised program plan; commitment to undertake planned improvements

5. Implement improvements

Purpose: Carry out projects to improve processes
Outputs: Project plans; improved processes; measures; process definitions, checklists, lessons learned, tailoring guidelines, training materials, sample documents

6. Confirm improvement

Purpose: Confirm improvement achieves goals and organization is ready for widespread use

Output: Reappraisal results (on specific processes); measures; validated results

7. Sustain improvement gains

Purpose: Institutionalize and monitor the improvement

Output: Deployment plan; improved process assets entered into process asset library/repository; widespread training on improved process; coaching and monitoring; measures

8. Monitor performance

Purpose: Ensure program and projects remain appropriate; improve process improvement process

Output: Further improvement initiatives; lessons learned

3.5 Critical Success Factors

The following factors are a consolidation of numerous publications and reports identifying main factors that influence process improvement success. A planned process improvement effort should consider these factors:

- **Support, commitment and involvement**

- visible support and commitment from senior management
- middle management support and commitment
- sustained commitment
- grass roots support and involvement; technical staff involved

- **Showing measurable, observable results**

- observable results backed with data to keep effort visible, sustain interest and motivation
- process improvement measured, results made visible

- **Process improvement management**

- effort must be planned, managed
- senior management actively monitors progress
- adequate staff time/resources dedicated
- clear assignment of responsibility
- process group staffed by highly respected people

- **Goals and Alignment**

- clearly stated, communicated, well understood process improvement goals; shared values and goals
- process improvement serves business interests; aligns with the business
- sustained focus and follow through; no constant shifting of priorities

- **Knowledge**

- having ability, skills, knowledge

- sufficient education about process and process improvement
- for managers, learn enough to manage it

- **Culture**

- open communication; teamwork; mutual trust
- respect for the individual; investment in people
- quality orientation, customer focus; continuous learning
- NOT: belief that PI gets in the way of real work; NOT: cynicism from previous unsuccessful PI efforts

Try to adjust and manage all success factors (above) in such a way that they are in a success state.

3.6 Risks

The following risks need to be recognized, and mitigated as necessary, when pursuing any process improvement initiative:

- Insufficient senior management commitment; shifting priorities, disillusionment
- Middle management resistance; lack of confidence in methods or management; overriding pressure for performance
- Lack of motivation for process improvement
- Inadequate resources dedicated to improvement
- Lack of follow through on improvement efforts; lack of sustained focus
- Inappropriate improvement goals

Do regularly a risk assessment and control your mitigation measures for your process improvement project.

3.7 Process Improvement Goals

Any process improvement effort should be constructed to support business objectives. The enterprise determines its needs and goals, determines process improvement directions and identifies improvement actions and priorities.

When using a model like Enterprise **SPICE** to guide improvement, several tools are provided.

- The processes provide good or best practice guidance for performing business processes.
- Several processes focus on process improvement itself.
- Establishing and achieving measurable objectives tied to business needs is emphasized throughout.

3.8 Enterprise SPICE Guidance

The following Enterprise **SPICE** processes are particularly helpful in carrying out process improvement:

- Enterprise Governance – for establishing high level goals and objectives (including those pertaining to process improvement) and aligning them across the enterprise
- Project Management – for managing the overall process improvement effort, and the efforts of improvement teams
- Quality Assurance and Management – for checking compliance and identifying improvement opportunities
- Measurement and Analysis – for establishing, collecting, and analyzing measures relative to goals
- Process Definition – for establishing and communicating process assets
- Process Improvement – for more information on typical process improvement steps and activities

4. Top 10 Tips for Success

- 1 Focus on achieving quick creation of value in early pilot projects to establish credibility for Business Process Management (BPM)
- 2 Create a Business Process Factory with an appropriate repository of process knowledge to enable an efficient “process of process management”
- 3 Keep process design methods and other standards simple – as much formal structure as necessary, as little as possible
- 4 Pay attention to the degree of freedom appropriate to a process during design – some processes must be tightly structured; others may need to be flexible and allow individual creativity
- 5 Design simple BPM governance processes, communicate them, and add detail when problems arise
- 6 Start process design with reference models, and then adapt them to your business
- 7 Build in flexibility by adjusting business architecture and software infrastructure improvements to increase service levels
- 8 Encourage suggestions from business (as opposed to IT) about process improvements and follow up to make sure everyone knows their ideas have been heard, e.g., using a repository-based approach

9

Set specific goals for innovation and the related processes, so people have a target for their initial efforts

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Use collaboration and social media technology, aka Enterprise 2.0, to support process steps that have a large degree of freedom supporting the overall agility of an organization

5. Appendix

A. Glossary

| Term | Description |
|-------------------|---|
| Acquirer(s) | Organization or stakeholder that engages with another enterprise or business unit to purchase goods or services, which may be consumed by the purchasing organization or used to produce its own goods or services. The terms buyer, user, or customer may be applied to the acquirer. |
| Business | An ongoing enterprise, which is usually legally recognized, organized to produce products or services to some stakeholder or customer base. Three general categories can be used to catalog such enterprises: Government, For-profit companies or corporations, and Non-profit organizations |
| Change Management | A process used to ensure changes to selected items are controlled so as to enable the availability of accurate baseline and configuration information. Also, a process wherein an enterprise, or some organizational sub-component, engages in an effort to create, modify, or terminate elements of its vision, mission, performance goals, strategy, organizational alignment, processes etc. |
| Components | Constituent sub-elements of an architecture, goods or services to solve an enterprise's needs, and key essentials of an organization's products or services |
| Enterprise | The overall organizational entity, such as a corporation with various dependent or semi-autonomous corporate units, a governmental department with a mixture of operating administrations, or any large or small entity that provides products or services to its customers. |

| Term | Description |
|-------------|--|
| Environment | In general, environment refers to the external conditions surrounding an enterprise. This may include, but is not limited to, social, physical, psychological, and digital milieus. Further, such conditions may also exist within an enterprise with regard to its individual components. |
| Goal(s) | A goal refers to enterprise level measurable performance objectives/targets against which actual results can be compared. Additionally, a goal can be stipulated in an enterprise strategic plan that is congruent with the organization's vision and structure. |
| Investment | An enterprise's choice of means to use resources, financial and/or other organizational assets, to align with and achieve goals and objectives established by the enterprise. |
| Knowledge | Accumulated experience and information possessed by individual employees or an enterprise. |
| Product(s) | Specific, tangible output from an enterprise that is intended for its customers/stakeholders. |
| Resource(s) | Enterprise assets in any form, human, physical, financial, etc. |
| Result(s) | Performance outcomes |
| Service(s) | The mechanism of delivering value to customers or stakeholders. This may include intangible or tangible outcomes, but ensures customer needs are met. |

B. References

[1] Enterprise **SPICE**®, An Integrated Model for Enterprise-wide Assessment and Improvement, Technical Report – Issue 1, The Enterprise **SPICE** Project Team, September 2010. © The **SPICE** User Group 2010. Available for free download at www.enterprisespice.com.

[2] ISO/IEC 15504 Information technology — Process assessment, also known as **SPICE** (Software Process Improvement and Capability Determination), is a set of technical standards documents for process improvement.

[3] ISO/IEC PDTR 33014, Information Technology – Process assessment – Guide for process improvement, 2012 – (to be published)

[4] Federal Aviation Administration Integrated Capability Maturity Model Appraisal Method v 2.0, 2006

C. Enterprise SPICE Process Dimension – Structure

Governance/Management Category (9 processes)

Enterprise Governance
Investment Management
Human Resource Management
Enterprise Architecture
Business Relationship Management
Supplier Agreement Management
Tendering
Project Management
Risk Management

Life Cycle Category (8 processes)

Needs
Requirements
Deployment and Disposal
Design
Integration
Design Implementation
Operation and Support
Evaluation

Support Category (11 processes)

Alternatives Analysis
Measurement and Analysis
Quality Assurance and Management
Change and Configuration Management
Information Management
Knowledge Management
Training
Research and Innovation
Work Environment
Process Definition
Process Improvement

Special Aps (1)

Safety and Security