Guide to Applying the Enterprise SPICE Model

Prepared by: W. Daschner, L. Ibrahim, W. Henschelchen and E. Wallmüller
2.2 Comparing your business processes to Enterprise SPICE

- Understanding your business processes
- Comparing your business processes to Enterprise SPICE
- Using Enterprise SPICE for new process development

3.1 Major Usage
3.2 Assessment Purpose
3.3 Assessment Method
3.4 Planning an Improvement Effort
3.5 Critical Success Factors
3.6 Risks
3.7 Process Improvement Goals
3.8 Enterprise SPICE Guidance

4. Top 10 Tips for Success

5. Appendix
   A. Glossary
   B. References
   C. Enterprise SPICE Process Dimension – Structure
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.

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

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.


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
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:
3.5 Critical Success Factors

- having ability, skills, knowledge
- sustained focus and follow through; no constant shifting of priorities
- process improvement serves business interests; aligns with the business

Goals and Alignment

- clear assignment of responsibility
- adequate staff time/resources dedicated
- senior management actively monitors progress
- effort must be planned, managed

Process improvement management

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

• Showing measurable, observable results

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

3.6 Risks

Consider these factors:

- quality orientation, customer focus; continuous learning
- open communication; teamwork; mutual trust
• Culture

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

3.7 Major Usage

The following Enterprise SPICE Guidance

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

Any process improvement effort should be constructed to support business objectives. The enterprise determines its needs and goals, determines process improvement directions and identifies the efforts of improvement teams. Inappropriate improvement goals, lack of follow through on improvement efforts, lack of sustained focus and inadequate resources dedicated to improvement will identify strengths and weaknesses in the assessed entity’s processes. Assessment findings are used to provide feedback to organizations, management, and process improvement leaders and contribute to decision making on improvement actions.

3.8 Enterprise SPICE Guidance

Assessment and Process Improvement

• As a diagnostic to determine status compared to a model or standard, or to track progress over time
• Independent capability evaluation – performing external evaluations/assessments to evaluate the enterprise’s or organization’s or project’s process capability for improvement purposes
• Internal process improvement – performing internal assessments to understand the process, to identify improvement opportunities, to plan and implement improvement initiatives

All process improvement initiatives go through a similar implementation cycle. The following steps and activities

1. Establishing and achieving measurable objectives tied to business needs is emphasized. The processes provide good or best practice guidance for performing business processes.
2. The processes are essential to the enterprise. If the enterprise cannot achieve objective numbers, it will not survive.
3. The processes are a key component of your success. Improvements in other areas will not be sustained without continuous improvement in processes.
4. The processes are well planned, constructed, and managed. Improving the processes will improve the performance of the enterprise.
5. The processes are well understood. People are clear about their responsibilities, roles, and accountabilities. The processes are well-communicated. The enterprise is well coached and trained.
6. The processes are well supported and sustained. The enterprise ensures that the processes are in line with business processes and strategies.
7. The processes are well executed. The enterprise is sure that the processes are well executed, whether they are manual or automated. The enterprise is committed to process improvement.
8. The processes are well-enforced. The enterprise is sure that the processes are well-enforced, whether they are manual or automated. The enterprise is committed to process improvement.

3.1 Major Usage

Using Enterprise SPICE to Support

SPICE is highly recommended that the method used is conformant with ISO/IEC 15504-2 requirements. It is not required that any particular assessment method is used with Enterprise SPICE, but the method must be consistent with the overall purpose and scope of the assessment.

3.2 Assessment Purpose

3.3 Assessment Method

An assessment will compare the assessed entity to a standard or model (i.e. Enterprise SPICE), and when combined with an ISO/IEC 15504-2 conformant process assessment model, this would form a complete process assessment model.

3.4 Planning an Improvement Effort

3.5 Critical Success Factors

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

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

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquirer(s)</td>
<td>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.</td>
</tr>
<tr>
<td>Business</td>
<td>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</td>
</tr>
<tr>
<td>Change Management</td>
<td>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.</td>
</tr>
<tr>
<td>Components</td>
<td>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</td>
</tr>
<tr>
<td>Enterprise</td>
<td>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.</td>
</tr>
</tbody>
</table>
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


[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.


C. Enterprise SPICE Process Dimension – Structure

<table>
<thead>
<tr>
<th>Governance/Management Category (9 processes)</th>
<th>Special Aps (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise Governance</td>
<td></td>
</tr>
<tr>
<td>Investment Management</td>
<td></td>
</tr>
<tr>
<td>Human Resource Management</td>
<td></td>
</tr>
<tr>
<td>Enterprise Architecture</td>
<td></td>
</tr>
<tr>
<td>Business Relationship Management</td>
<td></td>
</tr>
<tr>
<td>Supplier Agreement Management</td>
<td></td>
</tr>
<tr>
<td>Tendering</td>
<td></td>
</tr>
<tr>
<td>Project Management</td>
<td></td>
</tr>
<tr>
<td>Risk Management</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Life Cycle Category (8 processes)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs</td>
<td></td>
</tr>
<tr>
<td>Requirements</td>
<td></td>
</tr>
<tr>
<td>Deployment and Disposal</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td></td>
</tr>
<tr>
<td>Integration</td>
<td></td>
</tr>
<tr>
<td>Design Implementation</td>
<td></td>
</tr>
<tr>
<td>Operation and Support</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support Category (11 processes)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternatives Analysis</td>
<td></td>
</tr>
<tr>
<td>Measurement and Analysis</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance and Management</td>
<td></td>
</tr>
<tr>
<td>Change and Configuration Management</td>
<td></td>
</tr>
<tr>
<td>Information Management</td>
<td></td>
</tr>
<tr>
<td>Knowledge Management</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
</tr>
<tr>
<td>Research and Innovation</td>
<td></td>
</tr>
<tr>
<td>Work Environment</td>
<td></td>
</tr>
<tr>
<td>Process Definition</td>
<td></td>
</tr>
<tr>
<td>Process Improvement</td>
<td></td>
</tr>
</tbody>
</table>