Enterprise SPICE: Improving Process Capability across the Enterprise – An Update

Dr. Linda Ibrahim
Federal Aviation Administration
International Project Leader, Enterprise SPICE

Presented at DC SPIN
4 June 2008
Background – the Problem

Some Questions:

• Suppose you want/need to improve performance across your enterprise
  – There are many improvement models, standards, approaches
  – Each might help with part of the business
  – Using several separately can be expensive, confusing, ineffective

• How can an enterprise reap benefits of knowledge in a bewildering variety of standards, models and approaches?

• How can this be done efficiently and effectively?
A Proposed Solution

Integration and Harmonization:
We propose that various models, standards, approaches be integrated and harmonized into a single enterprise model …called 

**Enterprise SPICE**

This presentation:
• describes this proposed solution as being implemented by the Enterprise SPICE project of our international SPICE (ISO/IEC 15504) community.
Context: Process Standards

Evolution of process standards and models

Forming:
• Inception
  – CMM for Software (late 80s); ISO 9000 (1987); ITIL (late 80s), Baldrige award (1987); ISO/IEC joint technical committee (1988); **SPICE (early 90s)**; COSO (1992); ISO/IEC 12207 (1995); CobiT (1996)
• Proliferation
  – The movement to codify process knowledge has exploded
  – immense collection of knowledge and guidance
  – 100s of models and frameworks to address particular disciplines or business needs
Context: Process Standards (cont’d)

Storming:

• Confusion
  – model content overlap
  – different structures and terminology
  – “model wars”, politics, competition

(Some) Norming:

• Integration and harmonization efforts
  – **iCMM**: FAA integrated CMMs, several ISO standards, Baldrige and others into integrated capability maturity model (iCMM)
  – **CMMI**: CMM Integration (CMMI) integrated CMMs into discipline specific constellations
  – **Safety and Security**: iCMM and CMMI stakeholders collaborated in safety and security extensions for use with both models
  – **Lifecycle standards**: ISO systems and software lifecycle standards builders seeking to harmonize their efforts
Context: Our customers

Enterprises are to varying degrees adopting standards and improving performance, BUT they:
• Have a broad range of business objectives
• Perform many functions and disciplines; a system of processes
• Likely need to address compliance with multiple standards/models

What’s your business?
• Are you engaged in strategic management, investment management, human resource management, marketing? …
• Do you need to comply with environmental standards, quality management standards, CMM levels, certification requirements?

For the enterprise
• Confusion and expense from multiple isolated standards/models
• Abundance of disconnected models/standards may impede adoption of any improvement efforts at all
Context: ISO/IEC 15504

SPICE ISO/IEC 15504: sets international requirements for process assessment models and assessment methods

Guidance for model developers
- We need to encourage codification of good/best practice in many disciplines and domains
- BUT we need to be consistent in how we present this knowledge
- SPICE provides this guidance
SPICE Requirements

Standards and Models

The Enterprise
ENTERPRISE SPICE
What is SPICE?

ISO/IEC 15504 – *Information Technology – Process Assessment (SPICE)* is the international standard setting requirements for:
- assessment methods, and for
- models used for assessing process capability

SPICE stands for **S**oftware **P**rocess **I**mprovement and **C**apability d**E**termination
- Originally ISO/IEC 15504 was a software-specific standard
- Its scope has been broadened to address any disciplines
- But the name stuck!
Sample SPICE Products

ISO/IEC 15504 Part 2 – this contains the international requirements for process assessments, process reference models, and process assessment models

Samples of compliant SPICE models include:

• **ISO/IEC 15504 Part 5** – a process assessment model based on ISO/IEC 12207: Software life cycle processes


• **Automotive SPICE** – a sector-specific process assessment model used by the automotive industry
What is Enterprise SPICE?

Need and Request

- The process community recognized the need for an integrated standards-based enterprise model and requested an international activity to develop such a model.

Endorsement: The SPICE User Group endorsed the initiative to establish an Enterprise Integrated Standards-Based model (Enterprise SPICE) for use with international standard ISO/IEC 15504 (SPICE).

Background

- **SPICE2006**: Enterprise SPICE was first proposed and discussed at the SPICE2006 conference in Luxembourg*
- **SPICE2007**: Enterprise SPICE was formally launched at the SPICE2007 conference in Seoul, Korea

Enterprise SPICE Objectives

Enterprise SPICE will:

- integrate and harmonize existing standards as determined by project stakeholders to provide a single process model that addresses broad enterprise processes.

- provide an efficient effective mechanism for assessing and improving processes deployed across a typical, large or small, enterprise.
Benefits to Stakeholders

• **Single Unified Model:** no need to use many separate standards/models

• **Pick and Choose:** select areas relevant to the business

• **Authoritative and Robust:** from widely recognized standards and sources, with mapping to sources

• **Comprehensive:** broad, expanding, range of disciplines

• **Synergized:** each source contributes important perspectives

• **Reduced Costs:** for training, improvement, assessment, simultaneous ratings/certification vs. one model

• **Enhanced Effectiveness:** via integrated guidance across the enterprise

• **Certification:** certification services from accredited bodies
Approach

**General approach** to realizing Enterprise SPICE:
- foundation of Governance and Oversight structure
- formulation of project team and plan
- developing and deploying the work products

**Baseline:** Enterprise SPICE is not starting from scratch, but has as major input:
- Federal Aviation Administration's (FAA) integrated Capability Maturity Model (iCMM) plus extensions, and
- will consider/analyze related standards integration efforts in establishing initial baseline model.

**Evolution** of Enterprise SPICE is under guidance and oversight of collaborators and stakeholders.
Project Structure

Sponsorship
- Executive Sponsor - SPICE User Group
- SPICE User Group Sponsor – Alec Dorling

Project Leadership
- International Project Leader – Linda Ibrahim

Advisory Board
- Governance and Oversight

Project Team
- Project Management
- Author team (core and extended)
- Architecture team
- Assessment team
- Reviewers
Call for Participation

Participants: To date, 87 experts have volunteered for various teams and roles; a truly world-class team

Geographical view: Enterprise SPICE participants are from 27 countries as follows:
- Australia (1), Austria (1), Brazil (6), Canada (4), Chile (1), Colombia (2), Finland (2), France (2), Germany (12), Hong Kong (1), Hungary (2), India (4), Italy (3), Lithuania (1), Luxembourg (1), Netherlands (1), New Zealand (1), Portugal (3), Romania (1), Russia (1), Singapore (1), South Africa (1), Spain (3), Sweden (2), Turkey (1), United Kingdom (4), United States (25)

Call for participation is still open and can be found at:
www.enterprisespice.com
Kick-off and Chat

Project Kick-off Meetings: late October 2007

• How should we establish advisory board - qualifications, criteria, etc?
• What criteria should we use to select disciplines and sources?
• What disciplines and sources should we consider?
Advisory Board

Advisory Board Selected: December 2007
  – Candidates provided position statements

Launch: Advisory Board initial meeting January 2008

Charter: charter and operating/ decision making procedures established

Advisory Board Purpose:
  – responsible for governance of Enterprise SPICE project
  – advocates and supports Enterprise SPICE initiative
  – provides advice, direction, and decision-making regarding work in the Enterprise SPICE project

Advisory Board Members:
  François Coallier (Canada), Alec Dorling (Sweden), Victoria Hailey (Canada), Kirk Holmes (United States), Linda Ibrahim Co-Chair (United States), Fred Kaminski (Germany), Winifred Menezes Co-Chair (Canada), Antanas Mitasiunas (Lithuania), Renato Vasques (Brazil), Curt Wells (United States)
First Technical Decisions

**Scope:** We needed to decide Enterprise SPICE scope, for initial and subsequent releases.

**Formal Survey eliciting stakeholder requirements**

*January 2008*

- Requested inputs on choice of disciplines and sources for Enterprise SPICE releases
  - **Criteria for discipline selection:** priority, relevance, need, maturity of standards, compliance requirements
  - **Criteria for sources:** major, essential, widely-recognized process standards/models/documents; 2-5 for given discipline; publicly available

*(Note: Enterprise SPICE models are not industry or sector specific, but address disciplines performed across a typical enterprise)*
Scope determination

Advisory Board Analysis and Decisions

– analyzed survey results
– prioritized disciplines using weighted criteria
– conducted preliminary research on disciplines and sources
– determined discipline scope
Discipline Scope - Baseline

Baseline Disciplines: The following disciplines are addressed in iCMM and included in initial release

- **Enterprise management** (i.e. governance, leadership, strategic processes, enterprise performance excellence, public responsibility)
- **Full lifecycle engineering** (for products and services)
- Acquisition
- Quality Management Systems
- Safety and Security
- **General management** (i.e., management of project, operations, suppliers, risk, teams)
- **Core supporting disciplines** (i.e., configuration management, quality assurance, information management, measurement, training, work environment, decision making, process management, innovation)
Additional disciplines

First Release: disciplines additionally in first release:

- Service Management
- Human Resource Management
- Knowledge Management
- Financial/Investment Management
- Environment

Disciplines On Hold: pending further availability of qualified source material

- Supply chain management; marketing, sales, business development; collaboration; asset/facilities management; health
- Will be covered only to extent selected source material already addresses parts of these disciplines
Source Material - Baseline

Initial Source Documents: source documents addressed in iCMM are sources for initial release. (NOTE: latest version of source to be used.)

ISO Standards, for quality, engineering, acquisition, management, core, enterprise management:
• ISO 9001:2000; ISO/IEC 12207 (ISO/IEC 15504-5); ISO/IEC 15288 (ISO/IEC 15504-6); ISO/IEC 15504

Performance excellence criteria, for enterprise management, acquisition, core:
• Malcolm Baldrige National Quality Award

Capability Models, for engineering, acquisition, management, core:
• EIA 731; CMMI; SA-CMM; SW-CMM; SE-CMM

Safety Sources:
• MIL-STD-882C; MIL-STD-882D; IEC 61508; DEF STAN 00-56

Security Sources:
• ISO 17799; ISO 15408; ISO/IEC 21827 (SSE-CMM); NIST 800-30
Additional Source Material

Service Management:
• ITIL v3; ISO/IEC 20000; Parts of CobiT (need to generalize beyond IT services)

Human Resource Management:
• People-CMM; (Several existing sources address Human Resource Management practices e.g., Baldrige, 15504-5, 15504-6)

Knowledge Management:
• eSCM-SP v2, selected parts; (Several existing sources address knowledge management practices (e.g., Baldrige, 15504-5, 15504-6); ITIL v3 also has KM process)

Financial/Investment Management:
• Parts of CobiT; ITIM; Parts of ITIL v3; Parts of ISO/IEC 20000 (Several existing sources address investment-related practices (e.g., Baldrige, 15504-5, 15504-6, ISO 9001))

Environment:
• ISO 14000, plus other references
Next steps

Author Guidelines
• Developed

Process architecture being established
• Describes what an enterprise does
• Aligns, structures subject matter and sources into related groupings
• Identifies processes in each grouping, and sources for each process

Then:
• Authors will synthesize, integrate, and harmonize the sources for each process; develop process reference model and process assessment model
• Stakeholders will review
• Assessors will trial the model
• Enterprise SPICE will be published
Project Plan Outline

Project stages
- Stage 1: Initial release in phases: PRM, PAM, Trial, Publish
- Stage 2: Training and Deployment
- Stage 3: Subsequent releases

Stage 1 Initial Release – Outline of tasks and schedule targets
- Determine Scope (Advisory Board) ~ May 2008
- Establish Architecture (Architecture Team) ~ June 2008
- Develop Author Guidelines (Architecture Team) ~ May 2008
- Develop *Process Reference Model (authors and buddies) ~ Sept 2008
- Develop *Process Assessment Model (authors and buddies) (can be concurrent with PRM) ~ Nov 2008
- Conduct Process Assessment Trials (Assessment Team) ~ Jan 2009
- *Review, revise PAM based on assessment results (authors)
- Publish ~ April 2009

* Major deliverables undergo peer review/revise, stakeholder review/revise, and Advisory Board approval
Enterprise SPICE challenges

Enterprise SPICE offers many benefits to stakeholders, but there are also challenges:

For model developers:
• Will owners of standards/models recognize value of integration?
• Will developers in new disciplines embrace SPICE guidelines; will they participate in Enterprise SPICE?
• Will auditors/assessors/appraisers collaborate by granting certifications and ratings via a single event vs. a single model?

For the enterprise:
• Is enterprise leadership ready to drive improvement across the enterprise?
• Is organizational culture ready for enterprise processes?

For SPICE:
• How will future evolution of 15504 impact SPICE initiatives?
Enterprise SPICE Vision

**Enterprise SPICE** is the way to bring about collaboration, integration and harmonization

– Across models, assessors, practitioners, enterprise processes

**Enterprise SPICE** is the way to bring value to our customers

– to alleviate the multiple standards problem enterprises face

**Enterprise SPICE** will provide:

– an internationally endorsed, integrated standards-based model
– an efficient effective way to assess and improve processes across an enterprise
– an evolving model to capture best practice guidance in an expanding range of disciplines to meet enterprise needs
Context revisited

Process Standards - Evolution

– We’ve formed, stormed, and done a little norming
– Let’s continue norming, and
– I’m convinced we will soon be highly performing

The future of integrated process improvement starts now.
SPICE
Requirements

Standards
and Models

The Enterprise
Join us!

If you are interested in participating, please visit

www.enterprisespice.com
Questions, comments?

Contact information:
Linda.ibrahim@faa.gov