Maximizing Benefits through Simultaneous Compliance with Multiple Process Models

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Dr. Richard Bechtold

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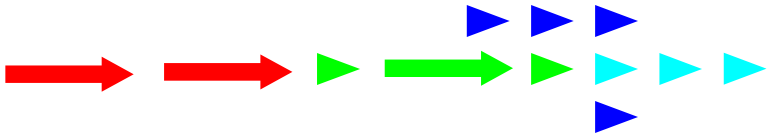

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Why is a Multi-Model Mindset Important?

- The “perfect” reference model does not, and never will, exist
- Fortunately, there are a wide variety of usable and valuable models covering a vast amount of disciplines, priorities, and perspectives
- However, different models often convey dramatically different—and sometimes outright conflicting—views of what should and should not happen

What is a Model?

- Generally, models are abstractions of something of interest
- Models deliberately de-emphasize aspects of reality that are not important in order to increase the emphasis and clarity of items or aspects that are deemed most important
- George Box: "All models are wrong, but the interesting question is how wrong do they have to be before they are no longer useful?"

Example Reference Models

- CMMI-DEV
- CMMI-SVC
- ISO 9000
- AS 9100
- ITIL
- CMMI-ACQ
- ISO 15504
- ISO 20000
- Six Sigma
- Malcolm Baldrige

Example Reference Models

- CMMI-DEV
  - Capability Maturity Model Integration (CMMI) for systems and software development
  - Can be (and routinely and successfully has been) used by service organizations, but with additional interpretation required
- CMMI-SVC
  - Similar to CMMI-DEV, but with emphases on service development, delivery, and continuity perspectives

Example Reference Models

- ISO 9000
  - Family of quality management standards focusing on satisfying the needs of customers and/or stakeholders
  - Over 1 million organizations, world-wide, are independently certified as ISO 9001 compliant
- AS 9100
  - Fully incorporates ISO 9000 while adding additional requirements associated with quality and safety

Example Reference Models

- ITIL
  - Information Technology Infrastructure Library
  - Focuses on IT services and provides descriptions of IT-related best practices
- CMMI-ACQ
  - Shares 16 “core” process areas with both CMMI-DEV and CMMI-SVC, but nevertheless is focused on acquisition-related best practices

Example Reference Models

- ISO/IEC 15504
  - Software Process Improvement Capability dEtermination (SPICE)
  - International framework for process assessment
- ISO 20000
  - International standard for IT service management including service delivery, relationships, control, and resolution processes

Example Reference Models

- Six Sigma
  - Business management strategy used in a variety of industry sectors
  - Seeks to improve the quality of process outputs by removing causes of defects and reducing variation
- Malcolm Baldrige
  - National quality award recognizing U.S. organizations for performance excellence

Multi-Model Compliance Challenges

- Inconsistent Redundancy
- Overt Model Conflicts
- Multi-Model Implementation Integration

rbechtold@abridge-tech.com

Inconsistent Redundancy

- Depending on your areas of interest, you'll normally find substantial and even extensive overlap between reference models
- Regrettably, the overlapping areas often contain different and sometimes surprisingly competitive perspectives

Overt Model Conflicts

- Different models often are developed to support significantly different objectives
  - Profitability
  - Workplace safety
- Hence, some reference models send you in one direction, while others send you in virtually the opposite direction
  - Translation: this equates to lots of effort and little or no progress

Multi-Model Implementation Integration

- Clearly the easiest solution to the multi-model problem is to select a single “best” model for implementation

REALLY??

- *Here’s the essential principle:* You are *already* implementing multiple models, and you are *already* subject to these issues

Multi-Model Implementation Integration

- Key question 1: Are you aware that you are already subject to the challenge of multi-model implementations?
- Key question 2: Are you addressing this challenge:
  - (a) intentionally
  - (b) by instinct
  - (c) by accident
  - (d) not at all

The Absolutely Most Important Models

- The two most vital models for any organization are
  - Your Mission Model
  - Your Business Model
- Both these models exist, regardless of whether or not
  - They are documented and visible
  - They are commonly understood
  - Anyone has any reasonably complete sense of what these models are

Your Mission Model

- How do you justify your existence to customers and recipient entities?
- What is “benefit received” from their perspectives?
- How do you deliver value sustainably?

Your Business Model

- How do you justify your existence to your sponsoring, management, and oversight entities?
- What is “benefit received” from their perspectives?
- How do you demonstrate return on investment sustainably?

Models and Rules

- Compliance, performance, quality, and other reference models typically convey rules and related guidance
  - Inclusive elements – things that need to exist or actions to be performed
  - Exclusive elements – things that need to be eliminated or actions to be avoided
- Additionally, the above elements often are communicated at different levels of importance

Models and Rules

- Nearly all models can be interpreted (and simplified) in terms of
  - Required Elements (inclusive, high)
  - Recommended Elements (inclusive, medium)
  - Suggested Elements (inclusive, low)
  - Optional Elements (exclusive, low)
  - Restricted Elements (exclusive, medium)
  - Prohibited Elements (exclusive, high)

Required Elements

- Required elements within a model are elements that must be satisfied in order to assert capability and/or compliance
- There are no exemptions or waivers from required elements
- However, required elements may or may not be applicable depending on organizational context or circumstances

Recommended Elements

- Recommended elements of a model are elements that are normally expected to be done, but are not required
- Consider recommended elements to be similar to required elements, but you can ask for permission to obtain a waiver or exemption
- Recommended elements are known or predicted to be useful to most organizations in most contexts

Suggested Elements

- Suggested elements in a model are elements that are normally done, but the choice is yours
- You decide whether or not suggested elements will yield value under your circumstances and within your context
- There is no need to obtain waivers or exemptions related to suggested elements

Optional Elements

- Optional elements in a model are elements that are normally *not* done, but the choice is yours
- You decide whether or not optional elements might introduce risks under your circumstances and within your context
- There is no need to obtain waivers or exemptions related to performing or allowing optional elements

Restricted Elements

- Restricted elements of a model are elements that are normally *not* done, or allowed to occur, but which are not prohibited
- Consider restricted elements to be similar to prohibited elements, but you can ask for permission to obtain a waiver or exemption from the restriction
- Restricted elements are known or predicted to be excessively high risk to most organizations in most contexts

Prohibited Elements

- Prohibited elements within a model are elements that must be avoided or eliminated in order to assert capability and/or compliance
- There are no exemptions or waivers that will allow prohibited elements
- However, prohibited elements may or may not be applicable depending on context or circumstances

Rule Conflict Resolution

- When resolving conflicts between two or more models
  - A required element always prevails over optional or restricted elements (waiver needed, but typically just a formality)
  - A prohibited element always prevails over recommended or suggested elements (again, waiver needed)

Rule Conflict Resolution

- When resolving conflicts between two or more models [cont.]
  - A recommended element always prevails over optional elements
  - A restricted element always prevails over suggested elements

Rule Conflict Resolution

- When resolving conflicts between two or more models
  - Conflict resolutions between suggested elements (normally done, or true) and optional elements (normally avoided, or false) are completely within your discretion: do whatever you think is best

Rule Conflict Resolution

- The only irreconcilable conflict is between required elements and prohibited elements
- If this occurs, reconsider and potentially improve
  - Your mission model
  - Your business model

Rule Conflict Resolution

- Alternatively, re-evaluate
  - The external reference model(s)
  - Your interpretation of the reference model(s)
  - Your intended use of the reference model(s)
- In extreme situations, subset and rename the conflicting model
  - “Hmmm, BLLH might work...”

Seeking the Maximum Feasible Region

- When designing and implementing internal mission and business models, minimize (but do *not* eliminate)
  - Required elements
  - Prohibited elements
- Primarily allocate guidance to suggested and optional elements
- Be cautious establishing rules relating to recommended and restricted elements

Top 7 Principles for Multi-Model Implementation

1. Value Maximum Freedom
2. Value Visibility of Internal Models
3. Distill Survival Priorities
4. Rank Order Relevant Models
5. Resolve Conflicts
6. Include the “Best” Two External Models
7. Value Integration

1. Value Maximum Freedom

- Minimize or avoid self-imposed requirements and prohibitions
  - For example, keep policy statements sparse
- Be intentional and lean with regard to recommendations and restrictions
  - For example, periodically and regularly simplify procedures and work instructions
- Communicate the majority of your really good ideas as supplemental guidance in the form of suggestions and options
  - For example: forms, templates, training material, etc.

2. Value
Visibility of Internal Models

- As described in this presentation, for any given organizational entity
  - A mission model always exists
  - A business model always exists
- It is hard enough to improve what you *can* see—it is extremely difficult to improve what you *can't* see

3. Distill Survival Priorities

- Describe internal models using the six categories of rule elements
  - Inclusive: Required, recommended, suggested
  - Exclusive: Optional, restricted, prohibited
- Then, to the greatest extent possible, relax or demote constraints, and minimize extremes
- If not necessary for survival, avoid requirements and prohibitions

4. Rank Order Relevant Models

- Consider all models as “a potential source of good ideas”
- Take at least some time to do your own homework—misperceptions are everywhere
  - “Once we achieve CMMI Maturity Level 2, we are done with process improvement.”
- Rank order models by: (a) probability of beneficial impact, (b) likely cost of adoption (c) likely ease of adoption, and (d) probability of successful adoption

5. Resolve Conflicts & Set Priorities

- Translate external models in terms of the six categories of rule elements
- Identify potentially irreconcilable conflicts
  - If found, reconsider your interpretation
  - Otherwise, reconsider relevancy and usefulness of the source model
- Generally look for minimally conflicting models
- If you truly understand your mission, then ensure your internal models prevail

6. Include the "Best" Two External Models

- A single external reference point tends to become hypnotic
- Hence, select at least two relevant and valuable external models
  - There are a *lot* of choices; surely a couple of models exist that qualify as "a potential source of good ideas"
- The "best" model is invariably a function of your organizational context and circumstances—either or both of which will change over time

7. Value Integration

- Models convey a variety of rules that can be interpreted and classified
- You can view problems, risks, issues, etc., as individual points to be addressed
- Alternatively, you can view such challenges as systemic
- And you can view your solutions—including multi-model adoption—as likewise systemic

Why the Multi-Model Mindset is Critical

- Counter-intuitively, thinking multi-model directly motivates
  - Identifying organizational priorities
  - Visualizing mission purpose
  - Visualizing business purpose
  - Minimizing constraints
  - Maximizing freedom for innovation
  - Enhanced organizational agility

Summary of Key Points

- Models exist, regardless of whether they are visible or commonly understood
- Whenever you are implementing *any* model, you are *always* implementing multiple models
- For mission success, models can (and really, must) be used to maximize freedom and innovation, *but in a manner that is both safe and reliable*

Contact Information

Dr. Richard Bechtold

President; Senior Consultant

Abridge Technology; Ashburn, VA, USA

(USA)703.729.6085

rbechtold@rbechtold.com

www.rbechtold.com

Biographical Highlights

Dr. Bechtold is a senior consultant for Abridge Technology, a Virginia-based company he founded in 1996. ***Abridge Technology is an SEI Partner*** and is authorized to provide SEI licensed training and appraisal services. Dr. Bechtold is an SEI Certified Lead Appraiser for both CMMI-DEV and CMMI-SVC. He is also a Certified Instructor for both. Dr. Bechtold provides consulting, training, and support services in the areas of project management, process improvement, process definition, measurement, and risk management. Dr. Bechtold has assisted government and industry with implementing the Software CMM since 1992, the Acquisition CMM since 1996, and the CMMI since 2000. Dr. Bechtold's expertise spans organizations of all types and sizes, from multi-billion dollar companies and agencies to organizations with less than 20 personnel.