CMMI for Services: The Strategic Landscape for IT

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itSMF USA: Pittsburgh Local Interest Group

**Software Engineering Institute** | **Carnegie Mellon**

Topics

- Your expectations

- Overview of CMMI for Services (CMMI-SVC)

- Combined approaches and models for improvement

- The patterns for using multiple models in mixed service and development environments, emphasizing development

- Look at service process areas

CMMI for Services: The Strategic Landscape for IT Forrester, 2012

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Putting All the Pieces Together

CMMI for Services: The Strategic
Landscape for IT
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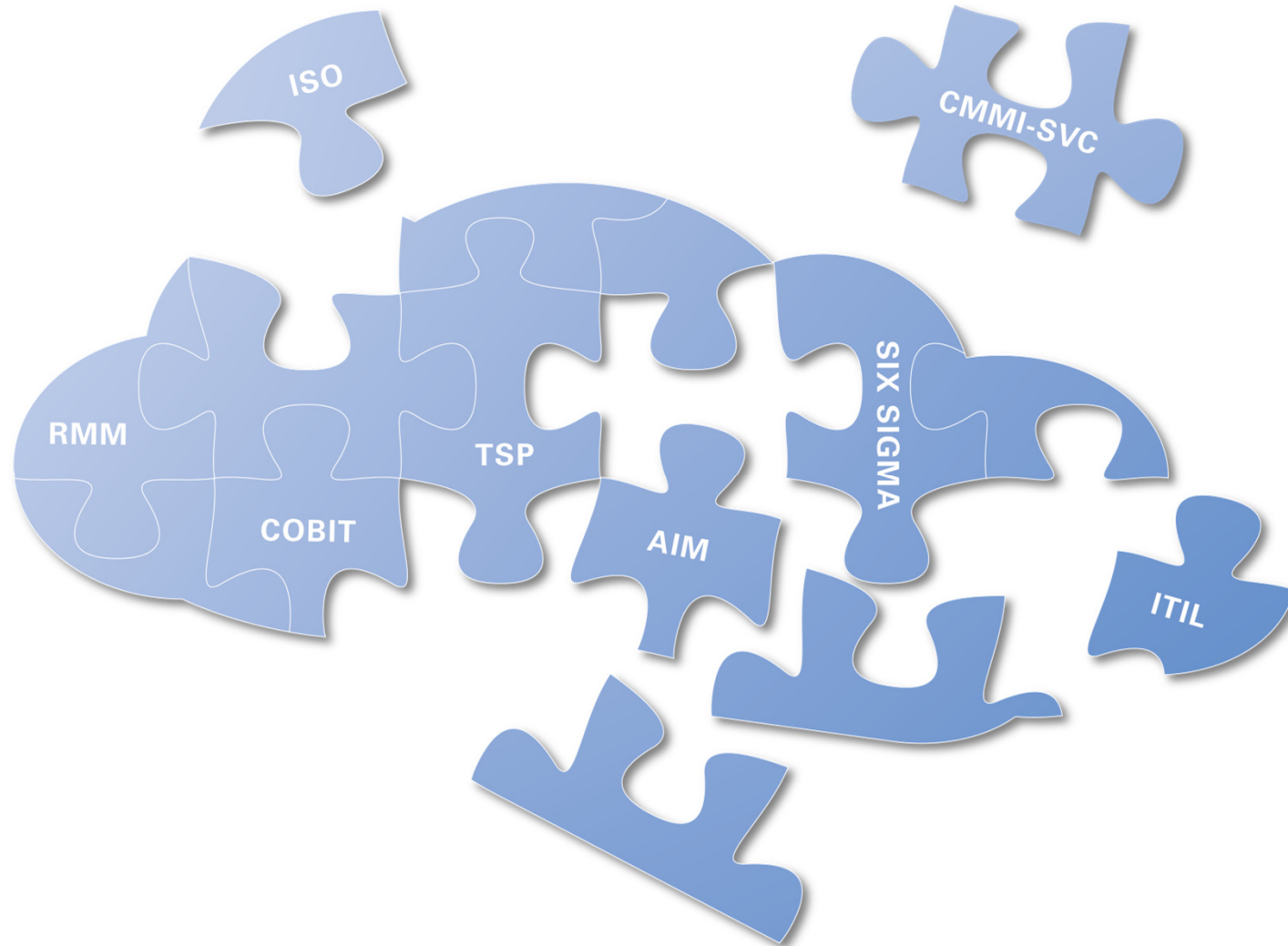
CMMI-SVC is a Perfect Fit
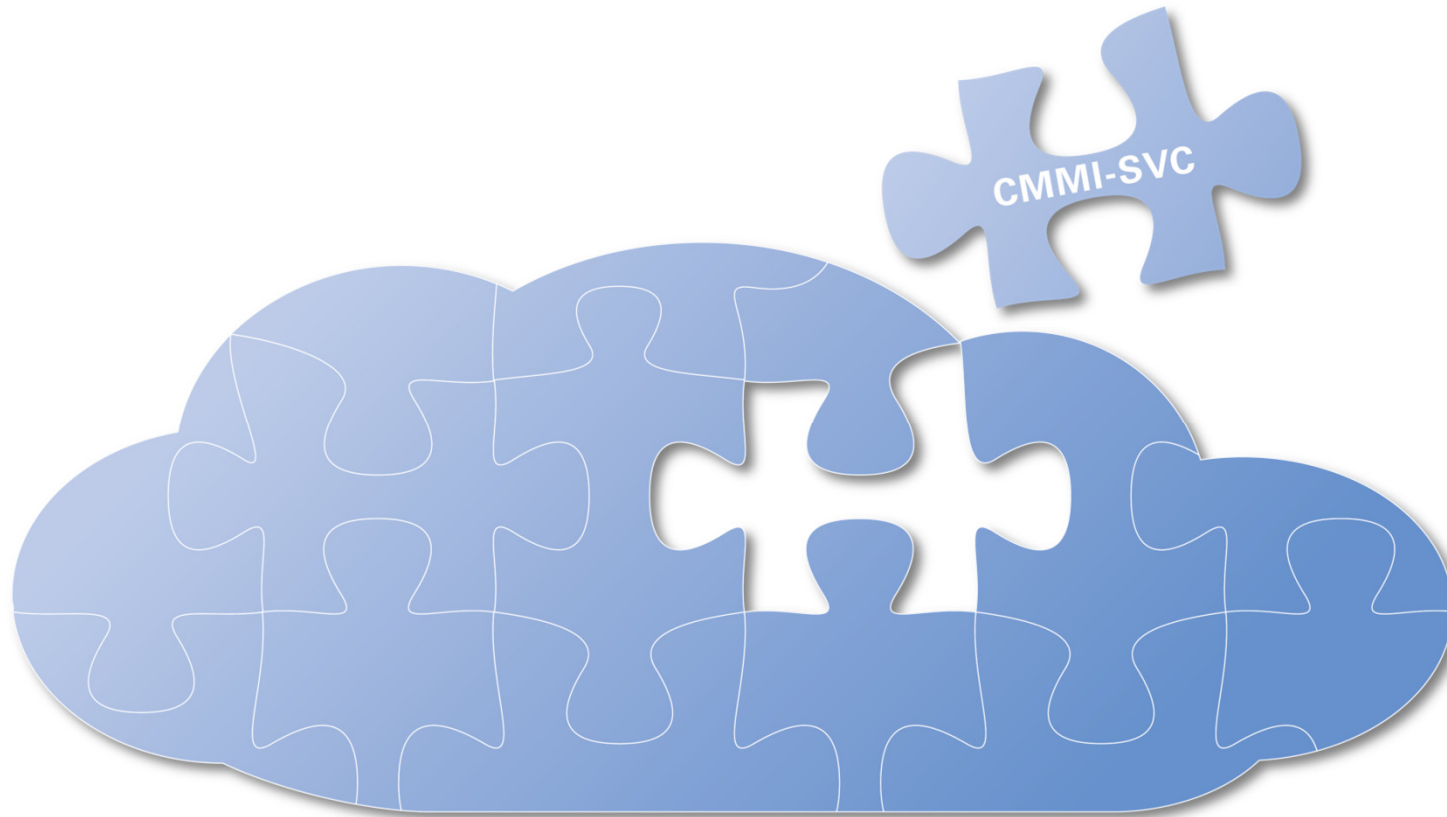
The CMMI Models

The CMMI Product Suite currently has three models relevant to improvement in a particular area of interest.

Development (CMMI-DEV)

- build stuff
- tangible, storable products made to specification in a lifecycle

Acquisition (CMMI-ACQ)

- buy stuff
- specify, solicit, select, contract, procure, accept, transition to consumer

Services (CMMI-SVC)

- do stuff
- intangible, non-storable products delivered via a service system based on explicit or implicit service requests
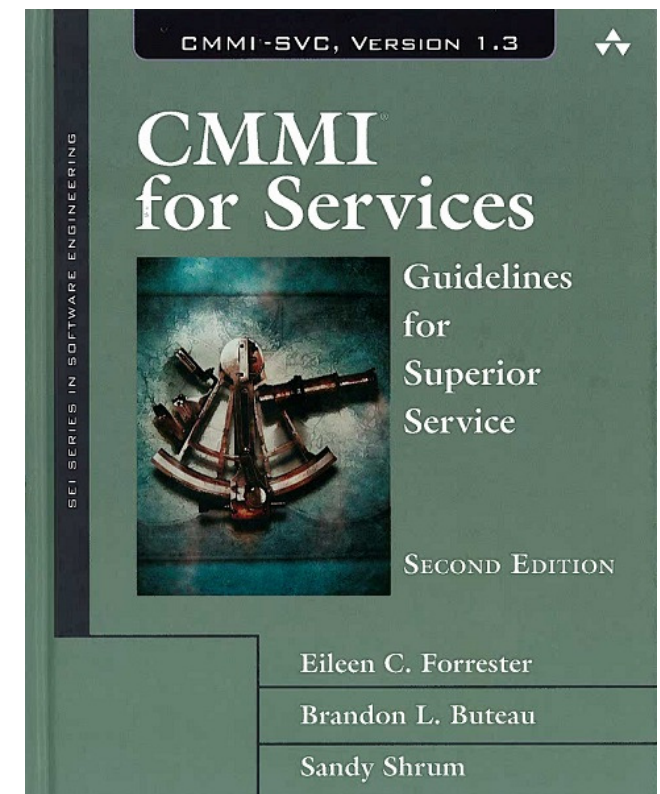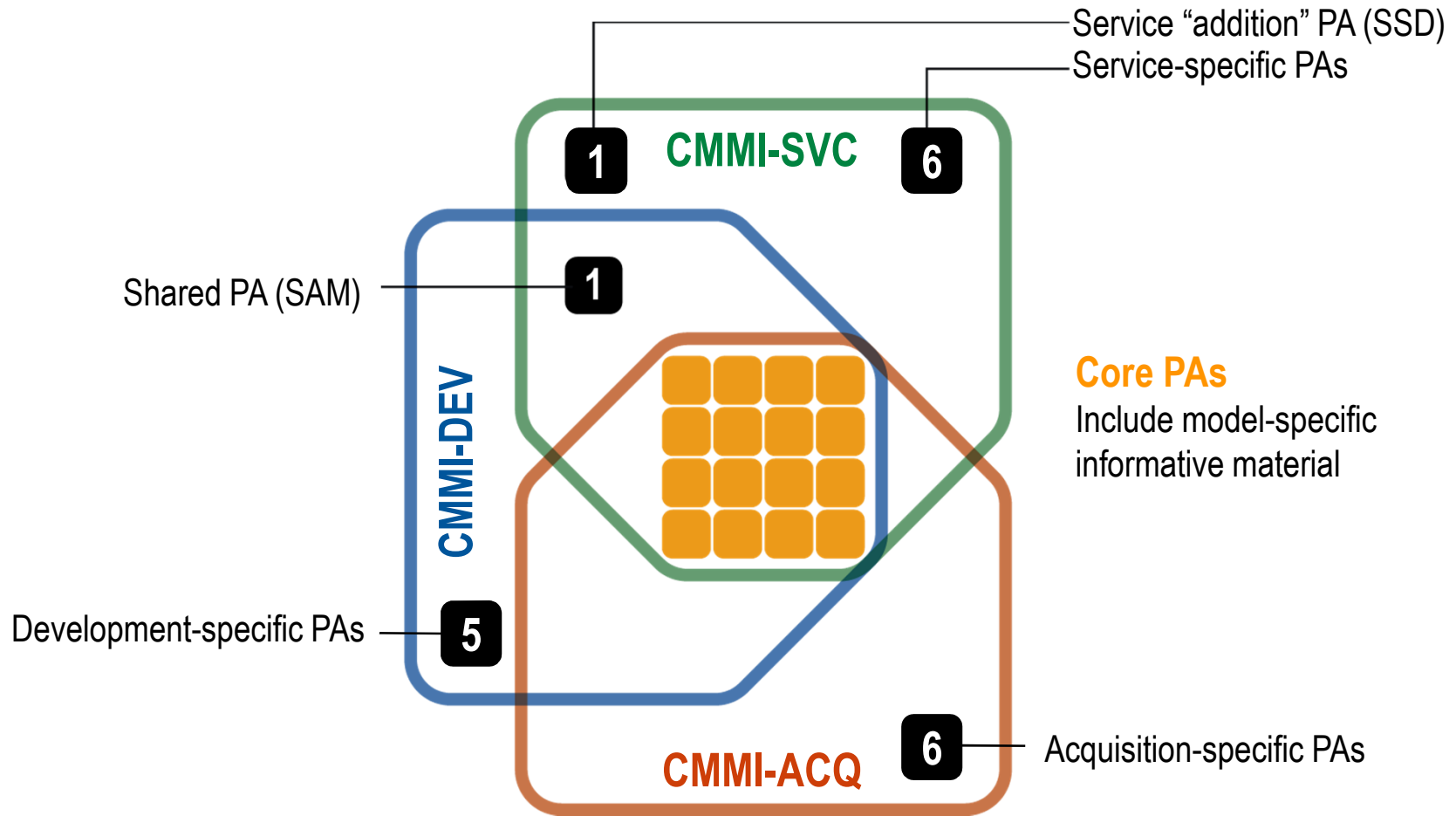
What is the CMMI for Services?

CMMI-SVC guides all types of service providers to establish, manage, and improve services to meet business goals.
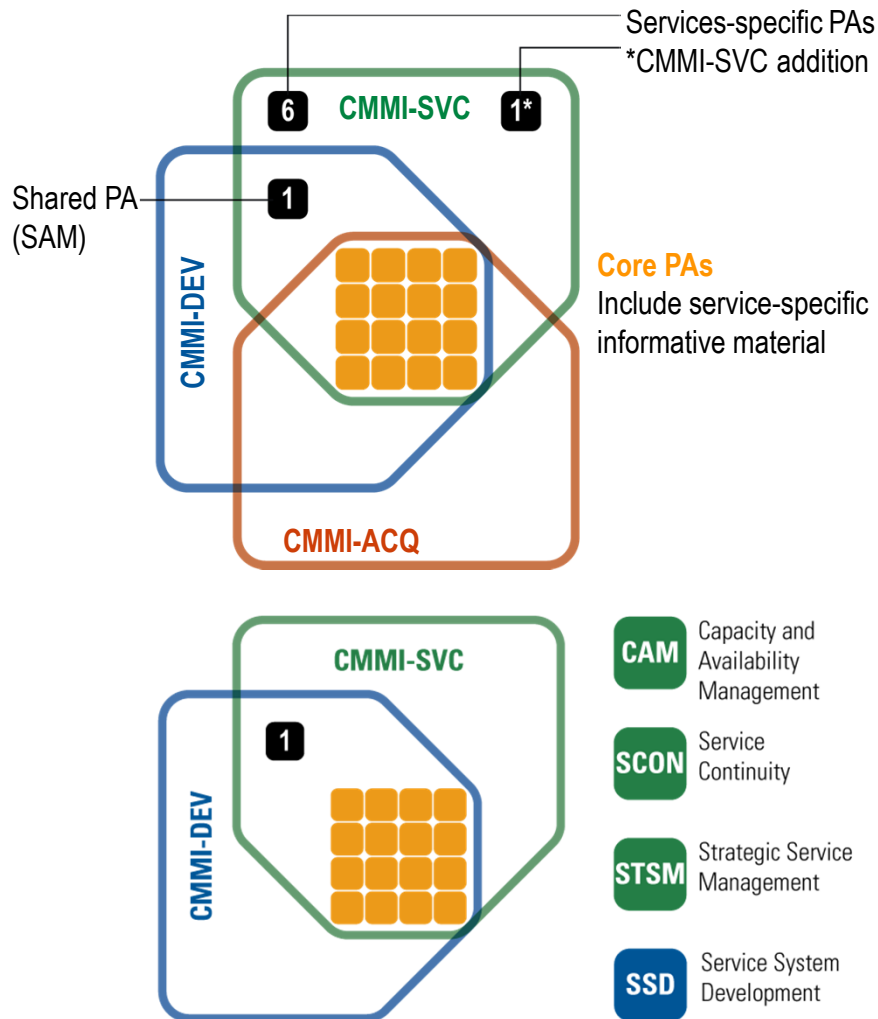
Like every CMMI model, CMMI-SVC

- helps to set process improvement goals and priorities, provide guidance for quality processes, and provide a point of reference for appraising current processes

- can be applied internally or externally

- works well with other frameworks

- represents the consensus of thousands of practitioners about the essential elements of service delivery

- can be used in whole or in part

Relationships Among CMMI Models

Service "addition" PA (SSD)

Service-specific PAs

CMMI-SVC

1

6

Shared PA (SAM)

1

CMMI-DEV

Core PAs
Include model-specific
informative material

Development-specific PAs

5

CMMI-ACQ

6

Acquisition-specific PAs

A Quick Look at CMMI-SVC

Services-specific PAs
*CMMI-SVC addition

6 CMMI-SVC **1***

Shared PA (SAM)

1

CMMI-DEV

Core PAs
Include service-specific informative material

CMMI-ACQ

CMMI-SVC

1

CMMI-DEV

CAM Capacity and Availability Management	**IRP** Incident Resolution & Prevention
SCON Service Continuity	**SD** Service Delivery
STSM Strategic Service Management	**SST** Service System Transition
SSD Service System Development	

Define, and Establish, and Deliver Services
SD REQM WP SSD

Monitor and Control Service and Work Products
CAM WMC CM

Ensure Service Mission Success
IRP RSKM SCON SST

Make Work Explicit and Measurable
MA OPP QWM CAR OPM

Manage Decisions, Suppliers, and Standard Services
SAM DAR STSM

Create a Culture to Sustain Service Excellence
PPQA OPD IWM OT OPF

Differences in PAs and Categories

CMMI-SVC PAs by Category

Process Management

OPD OPF OPM OPP OT

Project and Work Management

CAM IWM REQM RSKM QWM

SCON SAM WMC WP

Support

CAR CM DAR MA PPQA

Service Establishment and Delivery

IRP SD SSD SSM SST

CMMI-DEV PAs by Category

Process Management

OPD OPF OPM OPP OT

Project Management

IPM REQM RSKM QPM

SAM PMC PP

Support

CAR CM DAR MA PPQA

Engineering

PI RD TS VAL VER

CMMI-SVC Service PAs in Plain Language

Capacity and Availability Management (CAM):

making sure you have enough of the resources you need to deliver services and that they are available when needed—at an appropriate cost

Incident Resolution and Prevention (IRP):

handling what goes wrong—and preventing it from going wrong ahead of time if you can

Service Continuity Management (SCON):

being ready to recover from a disaster and get back to delivering your service

Service Delivery (SD):

setting up agreements, taking care of service requests, and operating the service system

Service System Development (SSD):

making sure you have everything you need to deliver the service, including people, processes, consumables, and equipment

Service System Transition (SST):

getting new systems in place, changing existing systems, and retiring obsolete systems, all while making sure nothing goes terribly wrong with service

Strategic Service Management (STSM):

deciding what services you should be providing, making them standard, and letting people know about them

Why is the CMMI-SVC needed?

Service providers deserve a consistent benchmark as a basis for process improvement that is appropriate to the work they do and is based on a proven approach.

- Demand for process improvement in services is likely to grow: services constitute more than 80% of the U.S. and global economy.

- CMMI-SVC addresses the needs of a wide range of service types by focusing on common processes.

- Many existing models are designed for specific services or industries.

- Other existing models do not provide a clear improvement path.

- Poor customer service costs companies $338 billion annually

- Services constitute more than 54% of what the US DoD acquires.

- SEI stakeholders approached us requesting a model for services.

* FY 2006 data is from "DoD throws light on how it buys services [GCN 2006]." GAO data is from GAO report GAO-07-20.

Why Service at the SEI?

What types of services does CMMI-SVC cover?

Sample Use Cases by Industry - 1

Industry	Percentage
internet, computer systems, data processing and other related…	20%
sales, marketing, management science, and technical consulting	11.8%
software	8.6%
arts, entertainment, recreation, and spiritual	8.6%
financial, insurance	7.5%
healthcare, personal care	7.5%
education and training	7.5%
transportation and maintenance	6.5%
energy	5.4%
real estate, household	4.3%
manufacturing	3.2%
travel and tourism	2.2%
human resources	2.2%
media and telecomm's	2.2%
hotel, restaurant, food	2.2%

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Sample Use Cases & Scenarios by Industry - 2

Accounting services
Aircraft maintenance
Aluminum packaging manufacturer
Ambulatory
Auto service
Auto insurance
Banking
Billing
Call center
Church administration
Client staffing
Database management
Defense contractor
Education
Eldercare
Electric generation and supply
Employment
Fertilizer manufacturer
Fitness club
Fitness equipment maintenance
Food services
Gardening and lawn care
Genealogy

Gutter maintenance
Healthcare
Home health care
Home inspection
Infrastructure management
Internal process group
Internet retail
Internet cable provider
ISO audits
IT services
Letting a holiday home
Loan broker
Logistics
Maintenance
Management consulting
Military communications support
Nuclear power
Oilfield services
Organizational performance improvement
Pharmaceutical
Process consulting
Project management

Providing PCs
Public health information
Publishing
Quality assurance
Recommending technology
Securities investment
Software benchmarking service
Software development
Software testing
Sports officiating
Staff augmentation
Stock trading
Textiles
Thermal diagnostics
Training
Training and other aviation services
Training and technology deployment for COTS software
Translation services
Travel agency
Travel services
University
Voice and data services

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Early SCAMPI results - 1

As of August 16, 2012, 231 formal SCAMPIs were reported in the SEI Appraisal System (SAS). Of these,
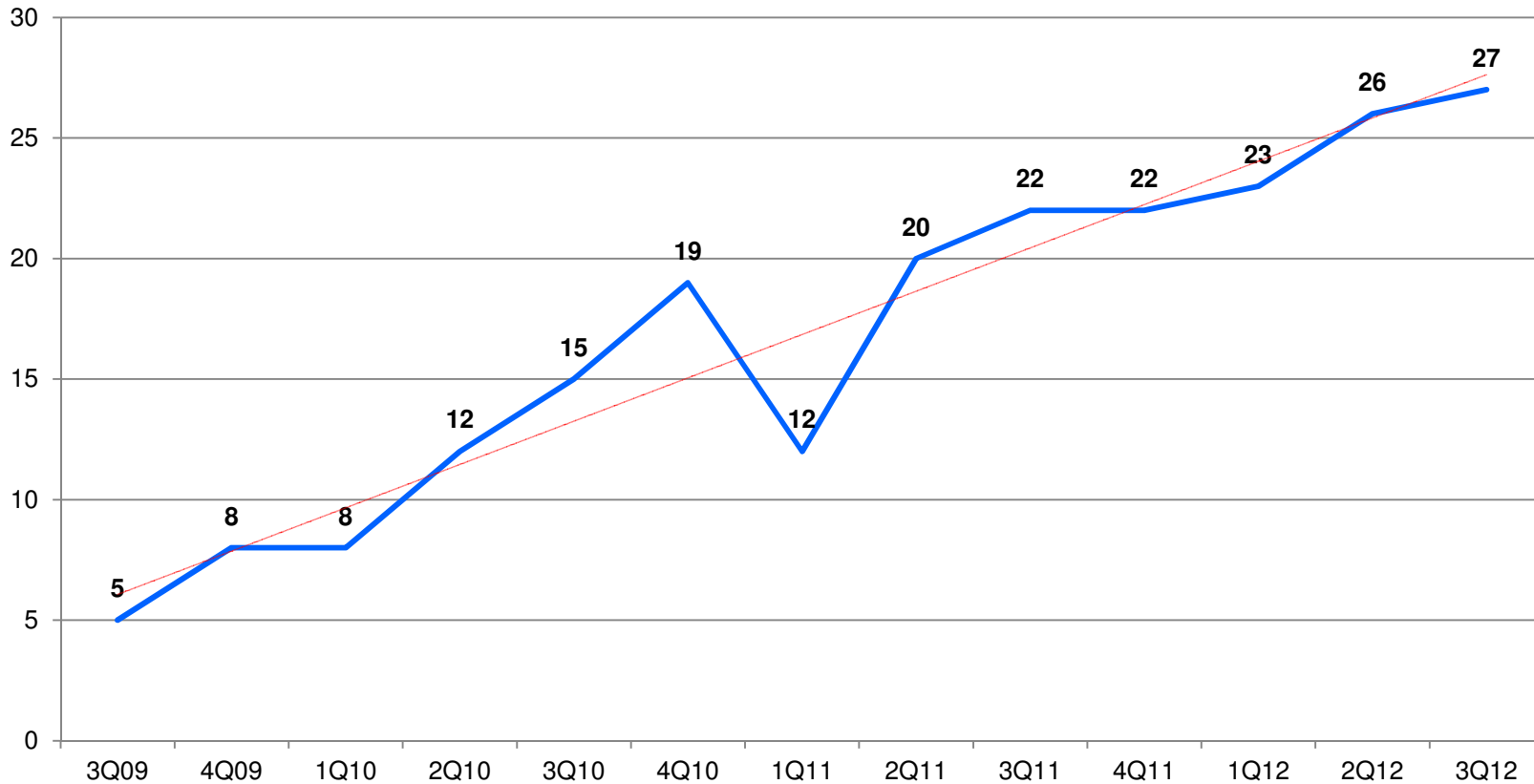
- 189 are SCAMPI As, 20 SCAMPI Bs, 22 SCAMPI Cs
- 25% are using SSD
- 143 appraisals are on SEI's Published Appraisals Results (PARs) list

This represents just under 3 years of CMMI-SVC appraisals. For comparison, it took 5 years for the Software CMM to reach 100 appraisals.
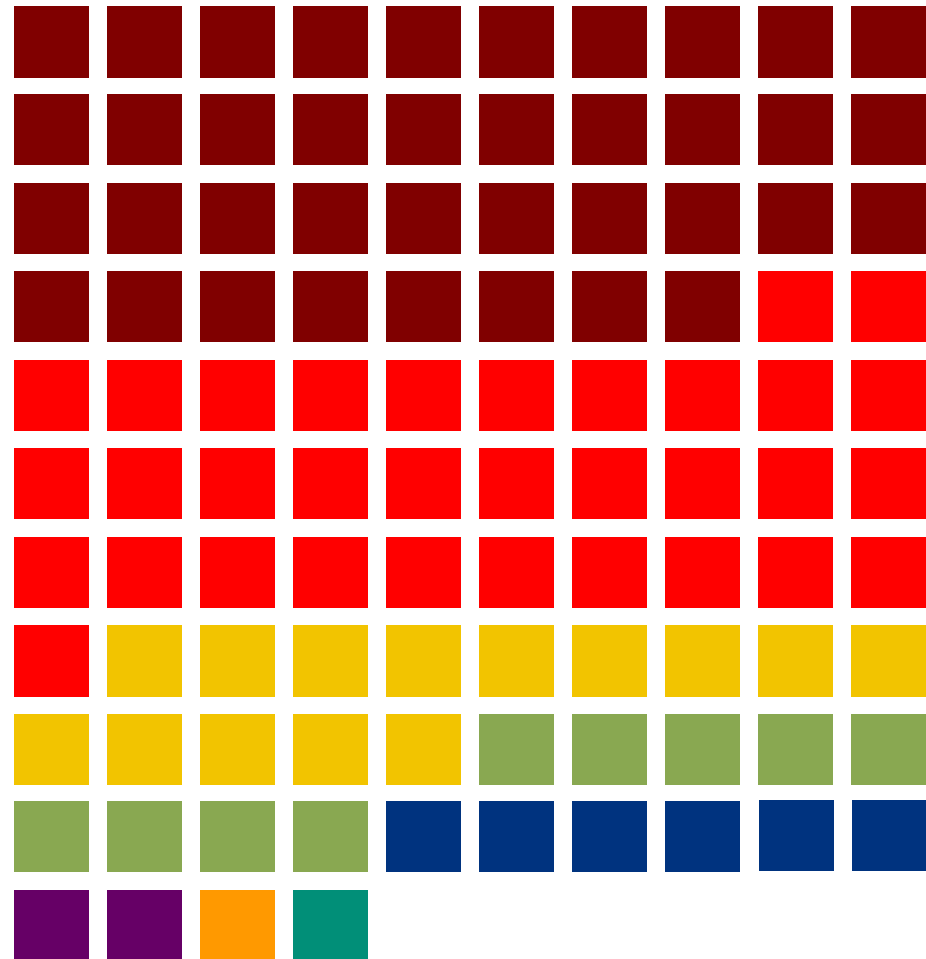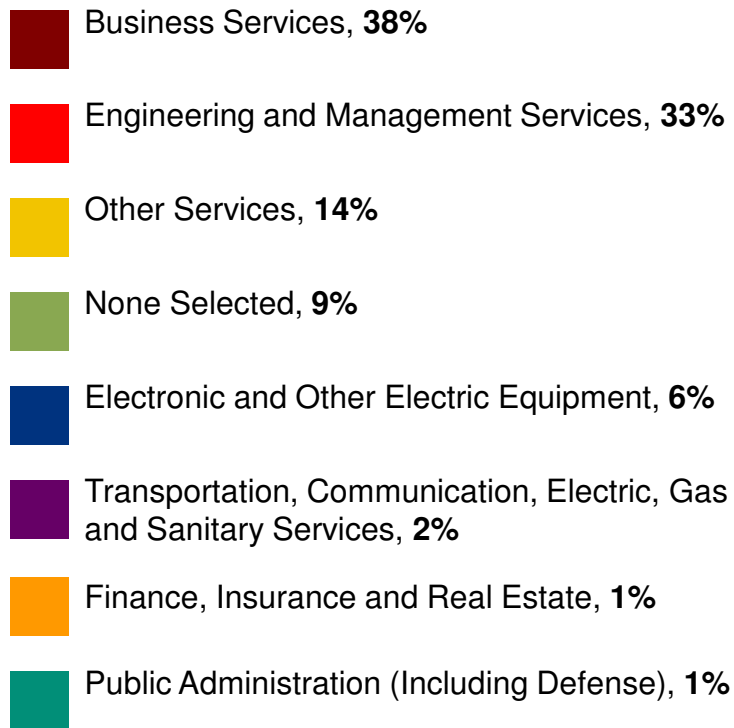
Early SCAMPI results - 2

Number of Appraisals by CY Quarter

Early SCAMPI results - 3

Percentage of Appraisals by Industry

- Business Services, **38%**
- Engineering and Management Services, **33%**
- Other Services, **14%**
- None Selected, **9%**
- Electronic and Other Electric Equipment, **6%**
- Transportation, Communication, Electric, Gas and Sanitary Services, **2%**
- Finance, Insurance and Real Estate, **1%**
- Public Administration (Including Defense), **1%**

More indicators of uptake of CMMI-SVC

We have four ML5 appraisals. The first was also enterprise and multi model.

We see an increase in CMMI-SVC appraisals quarter over quarter.

More than 190 lead appraisers have been certified.

More than 280 instructors have been certified.

More than 6,000 students have been taught CMMI-SVC.

Qualification for new instructors in Intro to CMMI-SVC continues (63 in queue).

The CMMI-SVC book is available worldwide, and in second edition. Two other books featuring CMMI-SVC by partners are published, a third on its way.

Two masters theses and four doctoral dissertations are complete or ongoing.

Translations of CMMI-SVC into Chinese is complete for V1.2 and under way in Arabic and Spanish for V1.3.

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Maybe All Work is Service Work

Knowledge work, such as legal and research

Production, such as engineering and manufacturing

Disciplines and industries, such as education, health care, insurance, utilities, and hospitality

Plus, consider garbage bags and Zipcars and home exchange

What about Software?

"CEOs don't buy software anymore…they buy service level agreements"

– George Fischer, EVP and Group Executive for CA Technologies, Speaking at NASSCOM and SEPG Asia Pacific 2010

Are Services Agile?
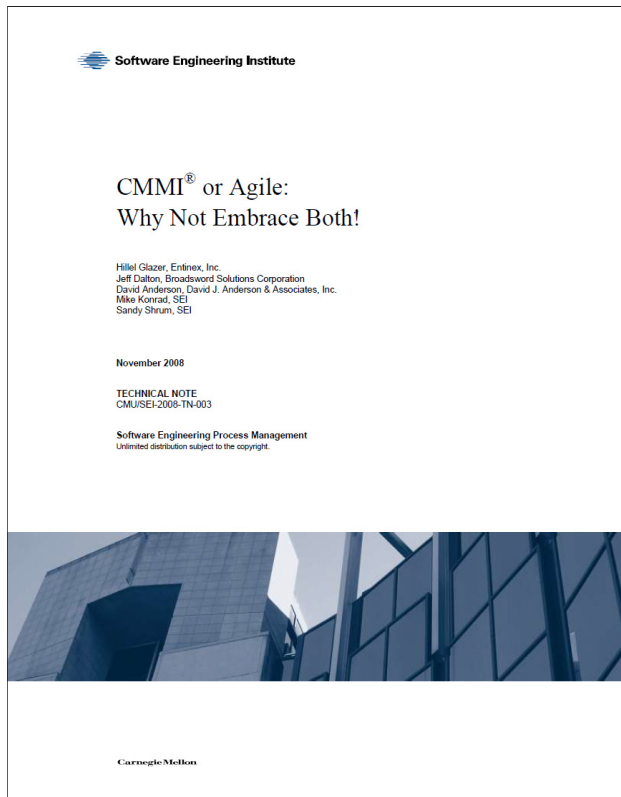
Perhaps Agile is an attempt to make development more like service.

Consider these features of service:

- Ongoing close relationship between provider and user to agree on the product

- Simultaneity

- Coproduction

- Many instances of the work

- Frequent production of customer-facing value

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The patterns I see

Change from CMMI-DEV to CMMI-SVC.

Choose CMMI-SVC as your base model, grab the engineering PAs for particular services.

Use both about equally, implementing and appraising together.

Treat development or engineering as a service, managed using the practices of CMMI-SVC, and treat the engineering PAs as informative material to SSD.

Use all of the CMMI-DEV for advanced development, and then add CMMI-SVC for additional practices: SCON, SST, CAM.

Start with CMMI-DEV at the beginning of a life cycle, adding in a few SVC goals and practices. Add more in mid-life. Change over to SVC at the end for maintenance.

Take a life cycle view and consider total cost of ownership, may add multiple other models, do a mash up or composition from CMMI and other models.

SSD and CMMI-DEV Engineering PAs

SSD compared to CMMI-DEV Engineering PAs

(table comparing SSD (SVC) goals and practices to Engineering (DEV) goals and practices — SG1/SP1.1–SP1.3 mapped to RD, SG2/SP2.1–SP2.5 mapped to TS and PI, SG3/SP3.1–SP3.4 mapped to VER and VAL)

Some mixed services and development environments use both the engineering PAs from DEV and a single SVC PA: Service System Development. The patterns:

- Stick with SSD, but grab a single engineering PA when needed

- Use SSD for simple development, add engineering PAs for complex development

- Use SSD and treat engineering PAs roughly as "informative material"

- Use engineering PAs for service systems, but add the informative material from SSD to get the service flavor

How Might Services PAs Help Development?

Although they are not included in the CMMI-DEV model, each of the following CMMI-SVC process areas could be used by a development group:

- Capacity and Availability Management

- Service Continuity

- Incident Resolution and Prevention

- Service System Transition

- Strategic Service Management

We have examples of high maturity development organizations doing system of systems engineering who are finding the CMMI-SVC PAs add new capability.

Not a pattern, but another approach

Fill a pot hole:
add a single PA to get over a gap in CMMI-SVC that some perceive as missing (one piece of content: security)

Build a bridge:
Start at your location (SVC) and connect to another model with related but richer content (RMM)

The same can be done with P-CMM.

Security Pseudo PA added to CMMI-SVC

GPs and Pseudo PA approach allows you to selectively borrow from additional models, even during appraisal.

Examination of ISO 27001 provided a nice suggestion of initial content

- Establish and Maintain a Security Management System

- Use the Agreed Security Management System to Provide Required Security

- Note we dropped "information" in our version

Under these two strands we can construct statements that look and feel like practice statements

- Ideal for appraisal purposes

- Very valuable for improvement teams constructing an improvement plan

- One language style, one plan, potentially multiple models engaged

Pseudo PA:
Security Management (SM)

ESG1 – Establish a Security Management System

   ESP1.1 Establish Security Objectives

   ESP1.2 Establish an Approach to Threat Assessment

   ESP1.3 Identify Security Threats

   ESP1.4 Evaluate and Prioritize Security Threats

   ESP1.5 Establish a Security Management Plan

   ESP1.6 Obtain Commitment to the Security Management Plan

ESG2 – Provide Security

   ESP2.1 Operate the Security Management System

   ESP2.2 Monitor the Security Management System

Example New Informative Material

ESP1.2 – Establish an Approach to Threat Assessment

Establish and maintain an approach to assessing vulnerabilities and threats to essential assets.

Subpractices

1. Select methods for assessing security threats

2. Define criteria for evaluating and quantifying security threats.

3. Describe responsibility and resources for evaluating vulnerabilities and threats.

RMM & CMMI in the life cycle
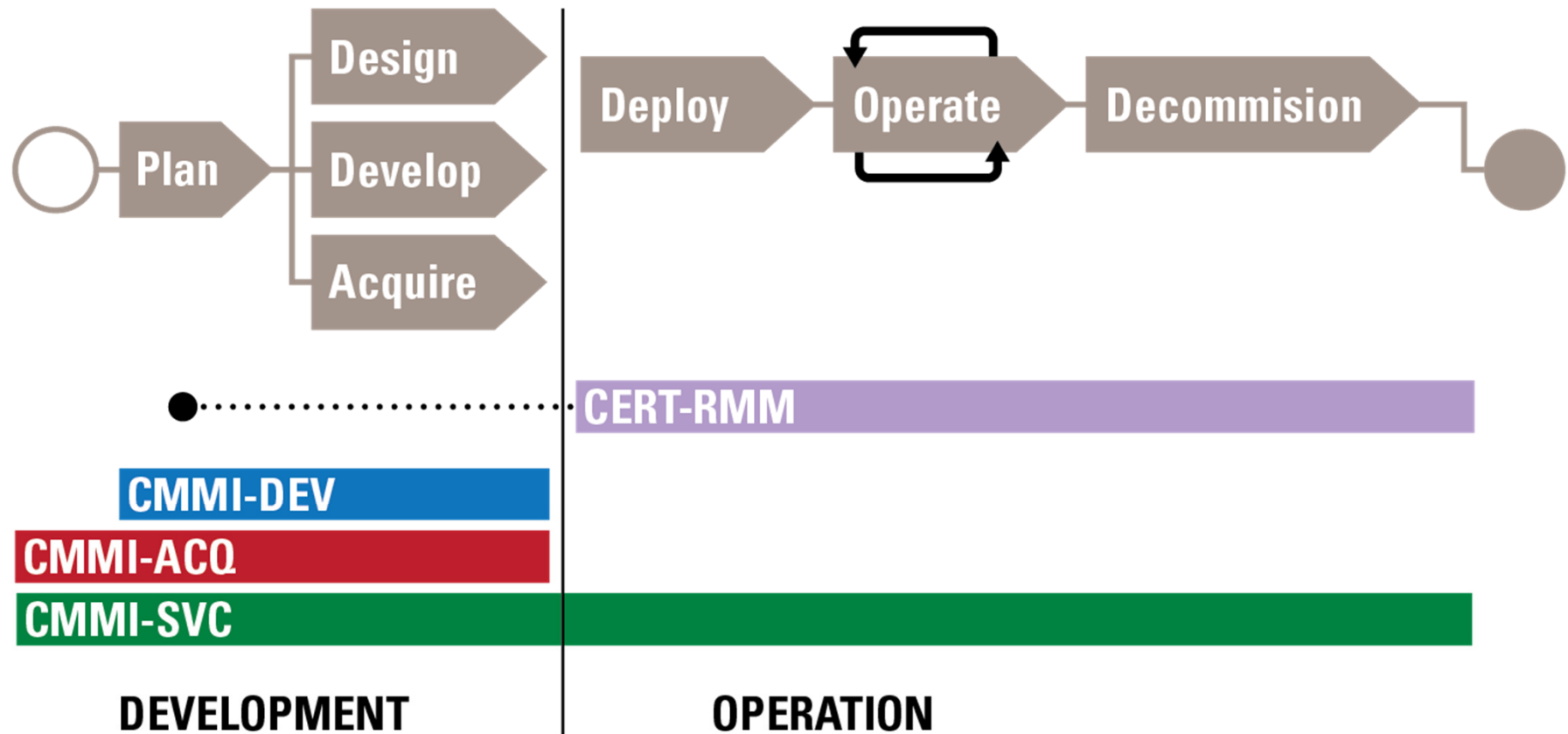
CERT-RMM at a glance

Engineering	
ADM	Asset Definition and Management
CTRL	Controls Management
RRD	Resilience Requirements Development
RRM	Resilience Requirements Management
RTSE	Resilient Technical Solution Engineering
SC	Service Continuity

Enterprise Management	
COMM	Communications
COMP	Compliance
EF	Enterprise Focus
FRM	Financial Resource Management
HRM	Human Resource Management
OTA	Organizational Training & Awareness
RISK	Risk Management

Operations Management	
AM	Access Management
EC	Environmental Control
EXD	External Dependencies
ID	Identity Management
IMC	Incident Management & Control
KIM	Knowledge & Information Management
PM	People Management
TM	Technology Management
VAR	Vulnerability Analysis & Resolution

Process Management	
MA	Measurement and Analysis
MON	Monitoring
OPD	Organizational Process Definition
OPF	Organizational Process Focus

26 Process Areas in 4 categories

CERT-RMM and CMMI-SVC

SCON

CERT-RMM

CMMI-SVC

CMMI-DEV

CMMI-ACQ
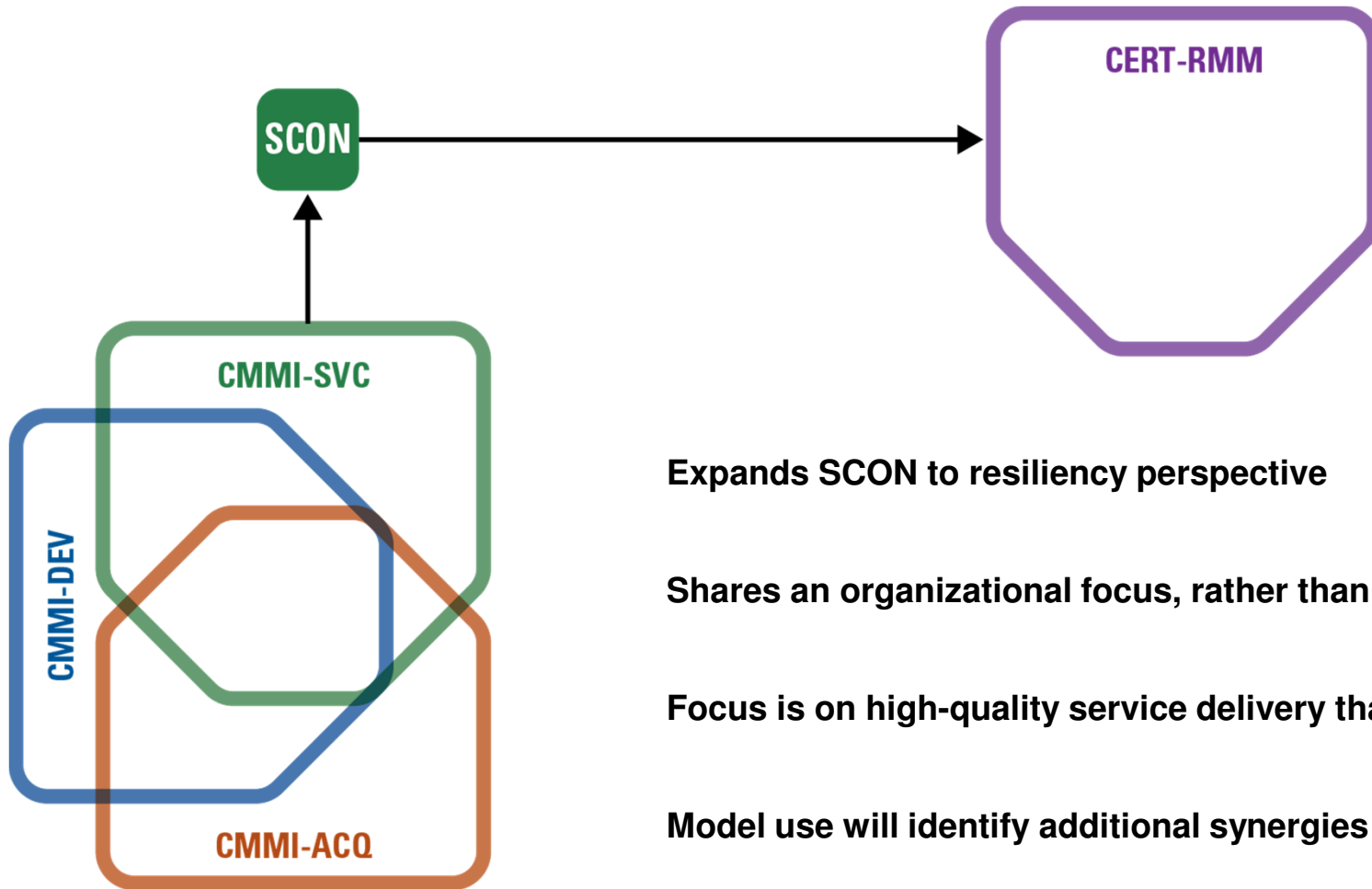
Expands SCON to resiliency perspective

Shares an organizational focus, rather than project

Focus is on high-quality service delivery that is resilient

Model use will identify additional synergies

A service example: US auto insurance

Olive Vehicle Insurance (OVIG) provides car and light truck insurance.

Customer services include providing quotes, issuing policies, billing and processing premiums, processing claims, providing legal services, and providing vehicle repair.
They pride themselves on being easy to reach and quick to act when the customer needs them. They are facing an increasingly demanding regulatory environment in the US.

What does it mean for these services to be resilient? What assets must be resilient? What practices in RMM go beyond RSKM, IRP, and SCON?

CMMI-SVC PAs that ensure mission success

Incident Resolution and Prevention (IRP):

handling what goes wrong—and preventing it from going wrong ahead of time if you can

Risk Management (RSKM):

supporting the success of your service mission by anticipating problems and how you will handle them—before they occur

Service Continuity Management (SCON):

being ready to recover from a disaster and get back to delivering your service

Service System Transition (SST):

getting new systems in place, changing existing systems, and retiring obsolete systems, all while making sure nothing goes terribly wrong with service

CMMI-SVC PAs taken further with RMM PAs

Incident Resolution and Prevention (IRP):

IMC is obvious, but also VAR in RMM goes further than goal 3 in IRP to actively watch and resolve vulnerabilities before they become incidents that disrupt insurance services

Risk Management (RSKM):

KIM practices can be used to apply controls for confidentiality, integrity, and availability to critical data, such as customer information

CTRL practices go further to applying controls to service processes such as paying claims, so that, for example, no claim is paid twice and that claim data is kept confidential and not accidentally modified

Service Continuity Management (SCON):

SC in RMM explodes the goals and practices found in SCON with considerably more detail; for example, a data-intensive service like insurance can find more advice on managing effects on vital records; in addition, SC makes clear the distinctions among continuity, recovery, and restoration of service

Also consider:

EXD, which goes beyond SAM to further resilience, more info on external dependencies and service agreements

MON, which goes beyond MA in SVC to have "feelers" out for data so that the organization knows how their data stands relative to threats and vulnerabilities

Multiple Models

SVC

CL 1																		
CL 2																		
CL 3																		
SD	CAM	IRP	SCON	SSD	ST	STSM	CM	MA	WMC	WP	PPQA	REQM	SAM	OPD	OPF	OT	DAR	IWM	RSKM

DEV

CL 1																	
CL 2																	
CL 3																	
PI	RD	TS	VAL	VER	CM	MA	PMC	PP	PPQA	REQM	SAM	OPD	OPF	OT	DAR	IPM	RSKM

ACQ

CL 1																	
CL 2																	
CL 3																	
AM	ARD	SSAD	ATM	AVAL	AVER	CM	MA	PMC	PP	PPQA	REQM	SAM	OPD	OPF	OT	DAR	IPM	RSKM

RMM

CL 1																								
CL 2																								
CL 3																								
ADM	AM	COMM	COMP	CTRL	EC	EF	EXD	FRM	HRM	ID	IMC	KIM	MA	MON	OPD	OPF	OTA	PM	RISK	RRD	RRM	RTSE	SC	TM	VAR
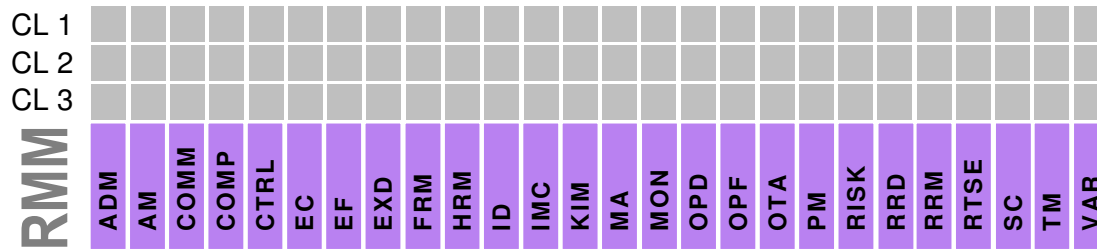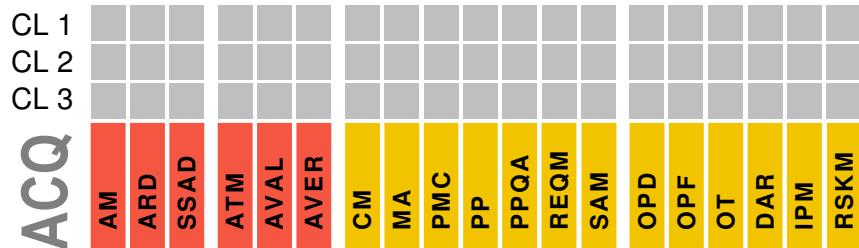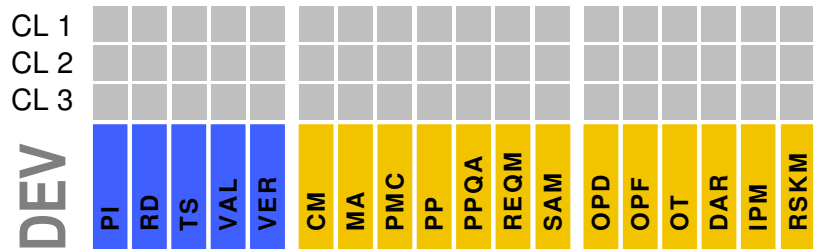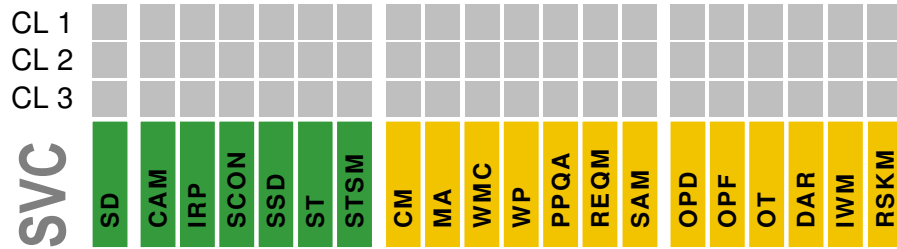
Level 2 P-CMM

STF	Staffing
CC	Communication & Coordination
WE	Work Environment
PM	Performance Management
TD	Training and Development
CP	Compensation

Level 3 P-CMM

CA	Competency Analysis
WP	Workforce Planning
COMD	Competency Development
CARD	Career Development
CBP	Competency-Based Practices
WD	Workgroup Development
PC	Participatory Culture

People CMM

| STF | CC | WE | PM | TD | CP | CA | WP | COMD | CARD | CBP | WD | PC |

Cloud Services

SVC

															OPD	OPF	OT			
CL 1															3	3	3			
CL 2															2	2	2			
CL 3															1	1	1			

SD | CAM | IRP | SCON | SSD | ST | STSM | CM | MA | WMC | WP | PPQA | REQM | SAM | OPD | OPF | OT | DAR | IWM | RSKM

ACQ

													OPD	OPF	OT			
CL 1													3	3	3			
CL 2													2	2	2			
CL 3													1	1	1			

AM | ARD | SSAD | ATM | AVAL | AVER | CM | MA | PMC | PP | PPQA | REQM | SAM | OPD | OPF | OT | DAR | IPM | RSKM

RMM

	ADM				EC		EXD					KIM			OPD	OPF	OTA		RISK	RRD	RRM		SC	TM	
CL 1															3	3	3								
CL 2	2				2		2					2			2	2	2		2	2	2		2	2	
CL 3	1				1		1					1			1	1	1		1	1	1		1	1	

ADM | AM | COMM | COMP | CTRL | EC | EF | EXD | FRM | HRM | ID | IMC | KIM | MA | MON | OPD | OPF | OTA | PM | RISK | RRD | RRM | RTSE | SC | TM | VAR

People CMM

STF | CC | WE | PM | TD | CP | CA | WP | COMD | CARD | CBP | WD | PC

Providing Cloud Services

- People CMM for an effective workforce
- ACQ to procure the cloud services
- SVC for service delivery
- RMM for managing the security and other risks of cloud computing

Bridging

The Security Pseudo PA has been piloted several times and is available for use and feedback.

RMM and CMMI-SVC are being used together in appraisal and implementation. They have common content, similar product suites, and provide different detail and specificity to choose from to meet your precise needs.
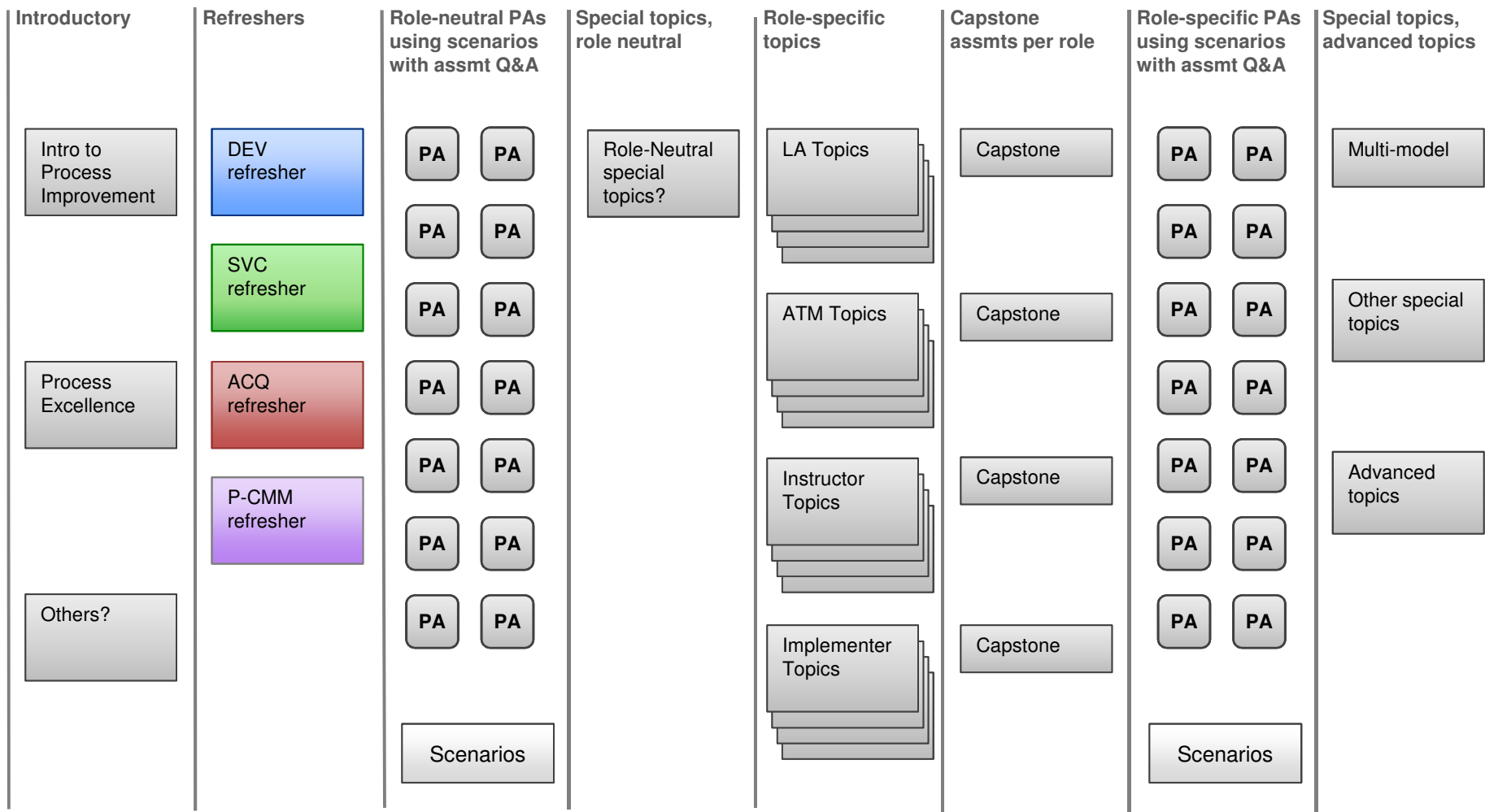
We are doing field work with organizations trying various combinations.

Next, what the SEI is doing to position us to support multi model use more strategically.
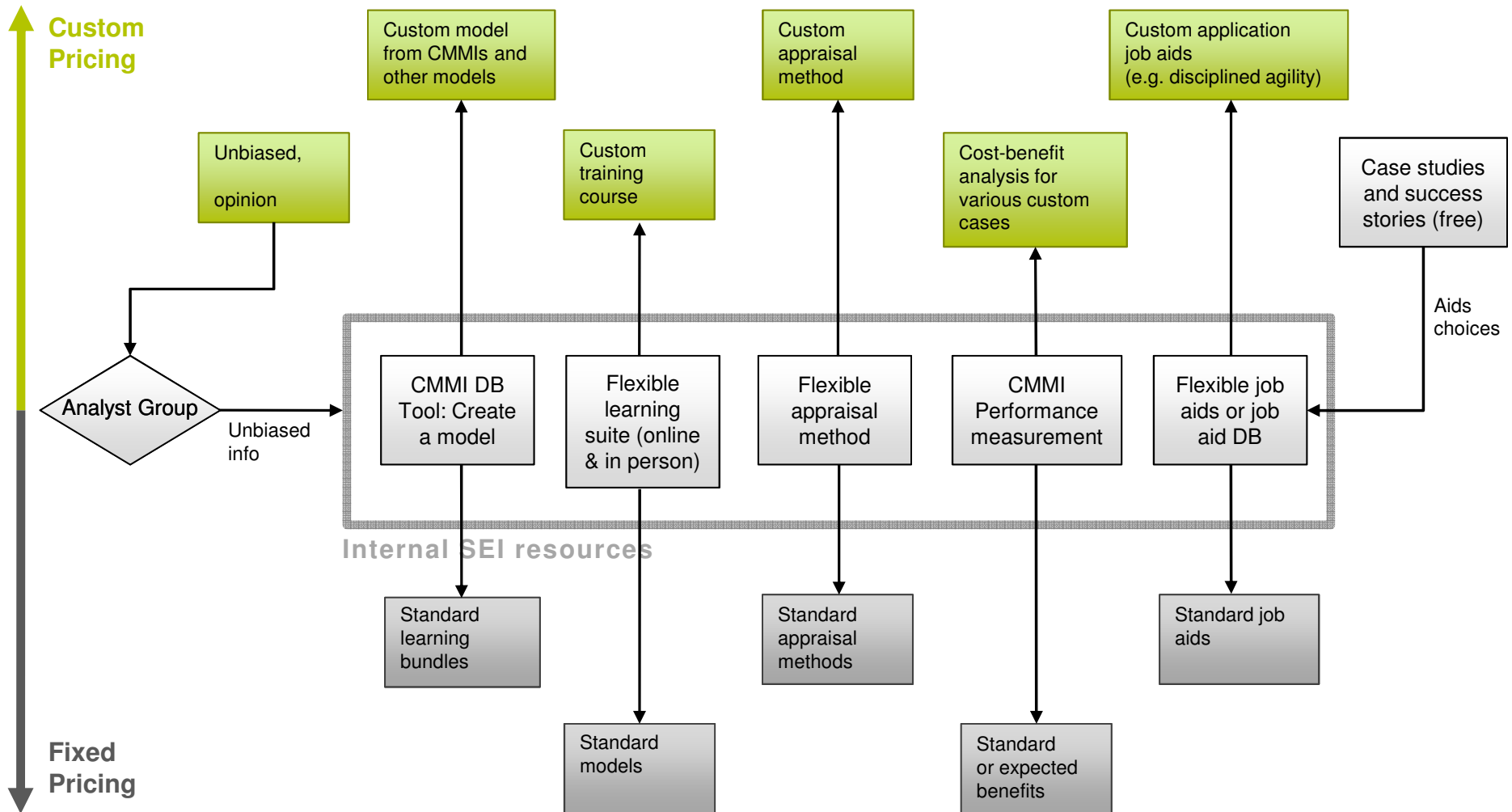
CMMI E-Learning

Start in many places, thread your way through. Some predefined paths for specific purposes, customized assembly available.

Introductory	Refreshers	Role-neutral PAs using scenarios with assmt Q&A	Special topics, role neutral	Role-specific topics	Capstone assmts per role	Role-specific PAs using scenarios with assmt Q&A	Special topics, advanced topics
Intro to Process Improvement	DEV refresher	PA PA	Role-Neutral special topics?	LA Topics	Capstone	PA PA	Multi-model
	SVC refresher	PA PA		ATM Topics	Capstone	PA PA	
Process Excellence	ACQ refresher	PA PA		Instructor Topics	Capstone	PA PA	Other special topics
	P-CMM refresher	PA PA				PA PA	
		PA PA		Implementer Topics	Capstone	PA PA	Advanced topics
Others?		PA PA				PA PA	
		PA PA					
		Scenarios				Scenarios	

CMMI Strategic Product Vision

Custom Pricing

Fixed Pricing

Custom model from CMMIs and other models

Custom appraisal method

Custom application job aids (e.g. disciplined agility)

Unbiased, opinion

Custom training course

Cost-benefit analysis for various custom cases

Case studies and success stories (free)

Analyst Group

Unbiased info

Aids choices

CMMI DB Tool: Create a model

Flexible learning suite (online & in person)

Flexible appraisal method

CMMI Performance measurement

Flexible job aids or job aid DB

Internal SEI resources

Standard learning bundles

Standard appraisal methods

Standard job aids

Standard models

Standard or expected benefits
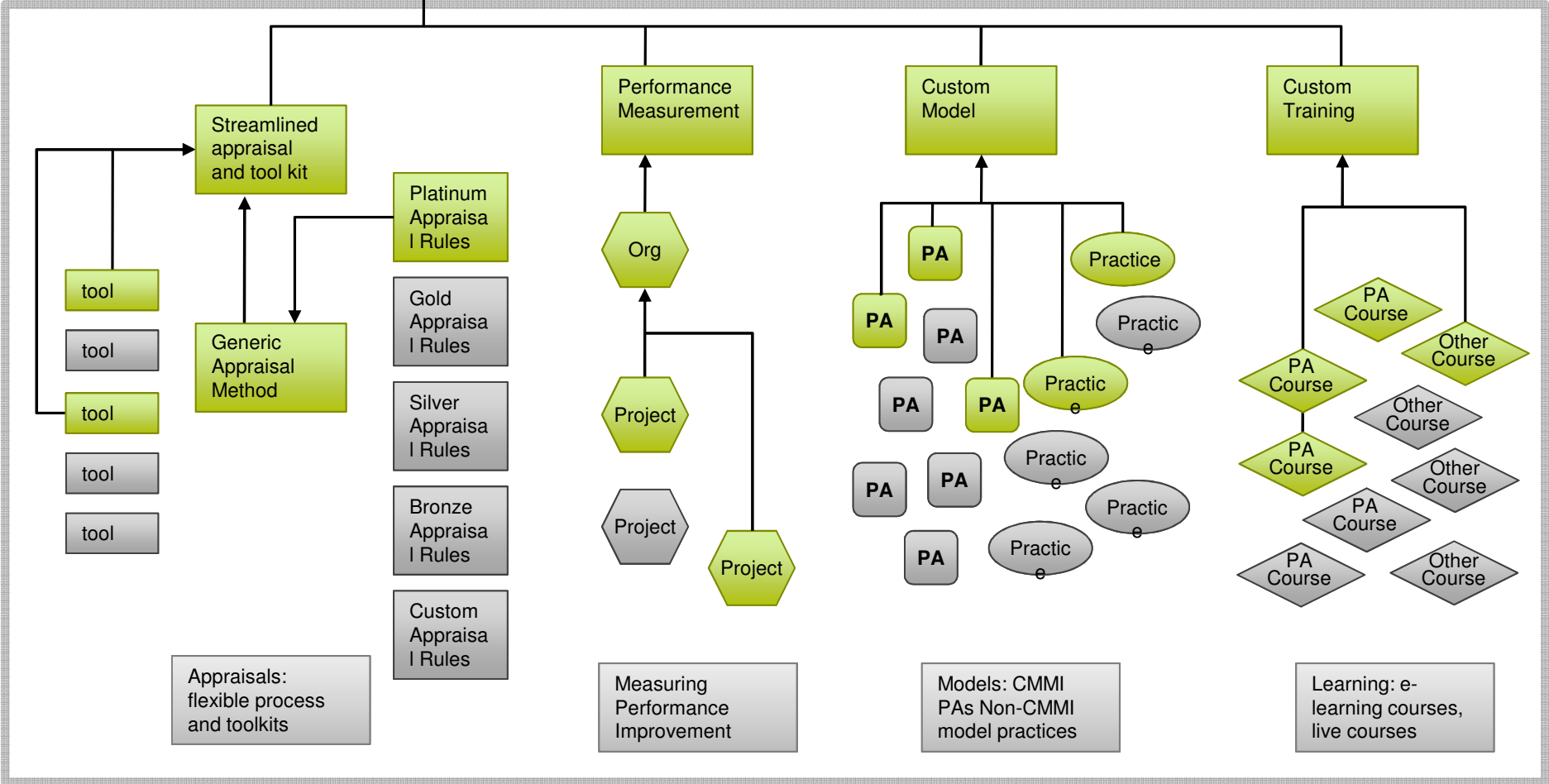
SAS and PARS (posted to PARS by specific authorization) ← Your Solution

Tell us what you need and we'll provide the mixed model to suit your domain and business; the type of appraisal that suits your budget, resources and requirements; custom training for precise practices that matter most to your business success!

Streamlined appraisal and tool kit

tool
tool
tool
tool
tool

Generic Appraisal Method

Platinum Appraisal Rules
Gold Appraisal Rules
Silver Appraisal Rules
Bronze Appraisal Rules
Custom Appraisal Rules

Appraisals: flexible process and toolkits

Performance Measurement

Org
Project
Project
Project

Measuring Performance Improvement

Custom Model

PA
PA
PA
PA
PA
PA
PA
PA

Practice
Practice
Practice
Practice
Practice
Practice
Practice

Models: CMMI PAs Non-CMMI model practices

Custom Training

PA Course
PA Course
PA Course
PA Course
PA Course
Other Course
Other Course
Other Course
Other Course

Learning: e-learning courses, live courses

Your needs such as: for appraisals (cost, precision, accuracy, etc.) for models (applicable models, methods, standards, etc. and only those parts of them that you need), for training (training specific to the parts and pieces selected for models and where you have training needs, i.e., targeted training)

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What's the Summary?

CMMI-SVC has a PA that "summarizes" the engineering PAs in DEV, for those occasions when more detailed practice information is needed.

CMMI-SVC and CMMI-DEV can be used and appraised together, as can SVC and RMM.

Development or engineering tasks can be treated as a service, and managed with the practices in CMMI-SVC.
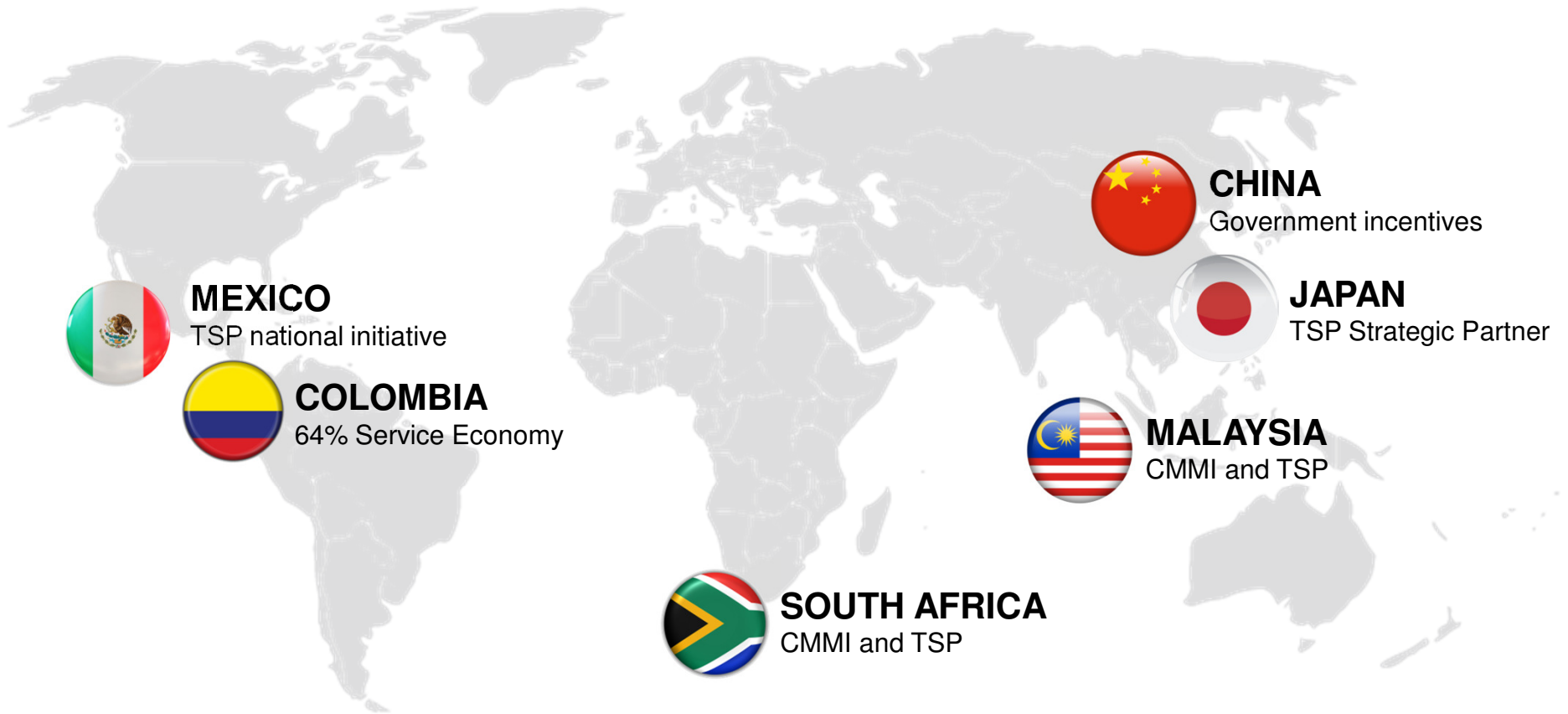
Advanced development may use all of the CMMI-DEV, and then add CMMI-SVC for additional practices: SCON, SST, CAM.

Service and development organizations can add security, resilience, and people management—and more--as needed.

The SEI is positioning to support multi model implementation.

Achievements in Growing Economies

MEXICO
TSP national initiative

COLOMBIA
64% Service Economy

SOUTH AFRICA
CMMI and TSP

CHINA
Government incentives

JAPAN
TSP Strategic Partner

MALAYSIA
CMMI and TSP

Strategic Possibilities for Services & Portugal

Portugal's Service Economy

Service portion of worldwide economy is 80%, also 80% in US

Service sector is Portugal's largest employer, with 3 of 5 working in service, and 75% of total GDP.

Service challenges and opportunities:

- mismatch of labor and education
- mobile broadband is huge, with little room left for growth; superior service may become the discriminator
- national reform plan calls for competition within service industry

Success story: Portugal was one of least friendly countries to start a business, now one of the best; achieved by a focus on process improvement

Colombia's Service Economy

Colombia's economy is 64% service:

Financial: 18.1%

Government, personal, and other: 17.5%

Commerce: 13.4%

Transportation & communication: 7%

Construction & public works: 5%

Utilities: 2.7%

Services and Huntsville

Drivers include: outsourcing, cuts in federal support, disasters, customer retention

Notable services in Huntsville region include:

- Engineering services
- Health care (life sciences and bio tech related and growing)
- Aerospace and defense, including Army and other services
- Technical and scientific research services
- IT services
- Finance
- Academic service
- Government services
- Church and religious
- Telecommunications

Huntsville and CMMI for Services: on the Road to Superior Service

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Some Useful Links

CMMI for Services Model

http://www.sei.cmu.edu/cmmi/tools/svc/index.cfm

CMMI for Services and Security Whitepaper

http://www.sei.cmu.edu/cmmi/tools/svc/upload/Security-and-CMMI-SVC.pdf

CMMI for Services Book

http://www.amazon.com/CMMI-Services-Guidelines-Superior-Engineering/dp/0321711521/ref=sr_1_1?ie=UTF8&qid=1304415568&sr=8-1

CMMI-SVC Service PAs in Plain Language

Capacity and Availability Management (CAM):

making sure you have enough of the resources you need to deliver services and that they are available when needed—at an appropriate cost

Incident Resolution and Prevention (IRP):

handling what goes wrong—and preventing it from going wrong ahead of time if you can

Service Continuity Management (SCON):

being ready to recover from a disaster and get back to delivering your service

Service Delivery (SD):

setting up agreements, taking care of service requests, and operating the service system

Service System Development (SSD):

making sure you have everything you need to deliver the service, including people, processes, consumables, and equipment

Service System Transition (SST):

getting new systems in place, changing existing systems, and retiring obsolete systems, all while making sure nothing goes terribly wrong with service

Strategic Service Management (STSM):

deciding what services you should be providing, making them standard, and letting people know about them

Core and Shared PAs in Plain Language

Causal Analysis and Resolution (CAR):

getting to the sources of important outcomes and taking effective action to correct or repeat them

Configuration Management (CM)

controlling changes to your crucial work products

Decision Analysis and Resolution (DAR):

using a formal decision making process on the decisions that matter most in your business

Integrated Work Management (IWM):

making the most of your participants and defined processes, even when it's complex

Measurement and Analysis (MA):

knowing what to count and measure to manage your service

Organizational Performance Management (OPM):

managing your improvements and innovations using a statistical understanding of your process performance

Organizational Process Definition (OPD):

establishing standard processes and relaying them throughout your organization

Core and Shared PAs in Plain Language

Organizational Process Focus (OPF):

figuring out your current process strengths and weaknesses, planning what to do to improve, and putting those improvements in place

Organizational Process Performance (OPP):

making sure you understand your process performance and how it affects service quality

Organizational Training (OT):

developing the skills and knowledge your people need to deliver superior service

Process and Product Quality Assurance (PPQA):

checking to see that you are actually doing things the way you say you will in your policies, standards, and procedures

Quantitative Work Management (QWM):

managing service to quantitative process and performance objectives

Requirements Management (REQM):

keeping clear with your customers and other stakeholders about the service you provide, and adjusting when you find inconsistency or mismatched expectations

Supplier Agreement Management (SAM):

getting what you need and what you expect from suppliers who affect your service

Risk Management (RSKM):

supporting the success of your service mission by anticipating problems and how you will handle them—before they occur

Work Monitoring and Control (WMC):

making sure what's supposed to be happening in your service work is happening and fixing what isn't going as planned

Work Planning (WP):

estimating costs, effort, and schedules; getting commitment to the work plan; and involving the right people—all while watching your risks and making sure you've got the resources you think you need

CMMI-DEV Engineering PAs in Plain Language

Product Integration (PI):

putting together all the product components so that the overall product has expected behaviors and characteristics

Requirements Development (RD):

understanding what stakeholders think they need and documenting that understanding for the people who will be designing solutions

Technical Solution (TS):

using effective engineering to build solutions that meet end user needs

Validation (VAL):

making sure that the solution actually meets the needs of users in the service environment

Verification (VER):

making sure that the solution you ended up with meets your agreement about the needs