



# World Class Standard for ICT Project Management

(บริหารจัดการโครงการด้าน ICT: กรณีศึกษา)

โครงการอบรมหลักสูตรผู้บริหารเทคโนโลยีสารสนเทศระดับสูง CIO

(Chief Information Officer) รุ่นที่ 27

Wednesday, February 10, 2016

Chayakorn Piyabunditkul – D.Eng, CSPM Chayakorn.piyabunditkul@nstda.or.th

National Science and Technology Development Agency (NSTDA)









# CIO competencies







CIO









NECTEC NANOTEC members of NSTDA, Ministry of Science and Technology

4 ACIOA - ASEAN Chief Information Officer Association





โครงการส่งเสริมให้ผู้ประกอบการได้รับมาตรฐานกระบวนการผลิตและบริการ Capability Maturity Model Integration (CMMI)

เปิดรับสมัครเข้าร่วมโครงการ วันนี้ - 15 ก.ย. 57

CIO LEADERS

THAILAND - 2015



ดาวน์โหลดรายละเอียดโครงการ www.swpark.or.th/ommiproject

สอบภามข้อมูลเพิ่มเสิม งานปรีกษาด้านไอที โพร. 025839992 ต่อ 1431-34

Federal Executive Competencies





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> 04.28.15 Global Heinz

Heinz College

Information Systems Management (MISM) Information Security Policy & Management

(MSISPM) Information Technology

Information Technology (MSIT) - Australia

#### CIO Institute

allowed me to broaden my perspective and my ability to see the trends as they're emerging within the sector CMU has taught me not onl to see emerging trends, but build strategy upon them that bridges the federal and commercial sectors Melvin Brown II

Director for Portal Consolidation, Migratio & Training, HSIN Program

CMU Arts

SM

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#### Gartner CIO Leadership Forum

16 - 18 March 2015 | London, UK

#### The 1st ASEAN CIO Forum 2012 in Thailand

April 20, 2012 3:03 pm



CIO LEADERS

The Ministry of Informatio Info-communications Tecl Association of Thailand jo concept on how to empha Sourcing in ASEAN countr





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#### THE CIO FORUM

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MAY 17 - 19 2015, TURNBERRY ISLE, MIAMI
JUNE 4 2015, RITZ CARLTON, SAN FRANCISCO
SEPTEMBER 13 - 15 2015, PARK HYATT AVIARA, CARLSBAD
NOVEMBER 5 2015, THE HARVARD CLUB, NEW YORK











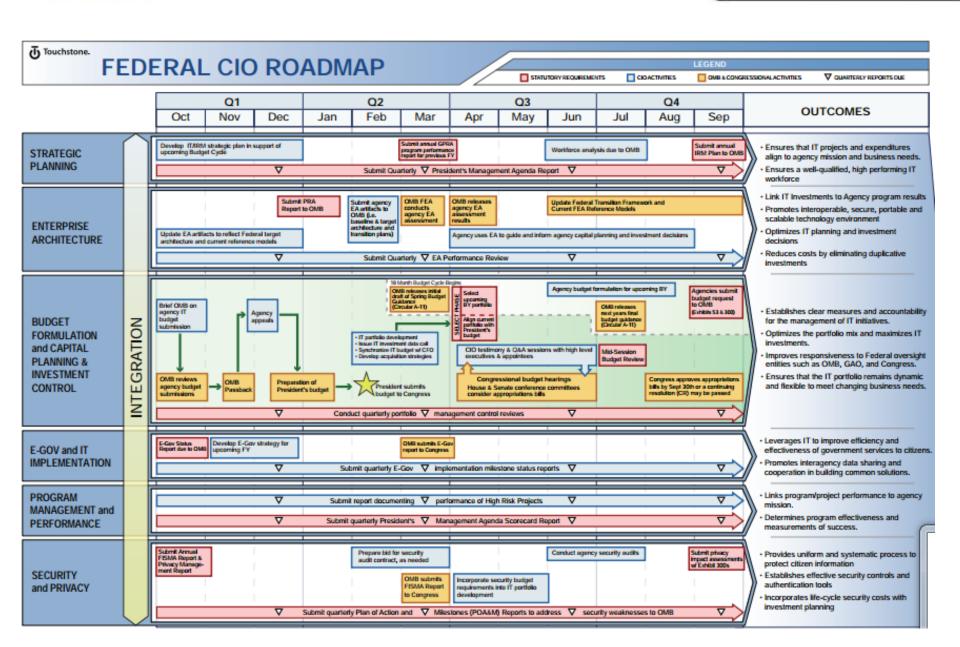
### The Top 5+1 Things Every CIO Should Know

- 1. <u>Cloud Service</u> มีชุดแอพพลิเคชั่นและอุปกรณ์พื้นฐานสำเร็จรูปที่ได้มาตรฐานเตรียมไว้ให้ในราคาที่ถูกกว่าราว 70 80% และพร้อมใช้งานภายในไม่กี่วัน หรืออาจจะไม่กี่ชั่วโมง ผู้ให้บริการแบบเดิมๆ ต่างก็ดิ้นรนที่จะเสนอบริการให้ได้ในระดับ เดียวกันนี้ และพยายามเข้าสู่ธุรกิจการเป็นที่ปรึกษา หรือสร้างมูลค่าเพิ่มด้วยบริการรับบริหารระบบธุรกิจ (BPO services)
- 2. Mobile first พนักงาน และลูกค้าต่างก็ใช้แอพพลิเคชั่นบนโทรศัพท์เคลื่อนที่ ปัจจัยสำคัญคือพลวัตรในธุรกิจที่เปลี่ยนไป เป็นแบบ Real Time และข้อมูลก็อาจจะมีผลกระทบต่อการตัดสินใจทางธุรกิจ
- 3. <u>Data driven</u>— งานที่ต้องทำเป็นกระบวนการ เป็นขั้นตอน มีน้อยลงเรื่อยๆ เมื่อเทียบกับงานที่ต้องใช้ข้อมูลในการ ตัดสินใจ โดยเฉพาะข้อมูลที่มีแอพพลิเคชั่นดีๆ ช่วยนำเสนอ และวิเคราะห์ให้
- 4. <u>Community Innovation</u>—มีนวัตกรรมหลายอย่างที่ไม่ได้เกิดจากผู้ให้บริการแบบเดิมๆ หรือเกิดจากบริษัทใหญ่ๆ อีก ต่อไป แต่เกิดจากชุมชน ซึ่งก็มักจะก่อร่างกันมาในโอเพนซอร์ซที่เปิดโอกาสให้คนทั่วไปนำระบบไปพัฒนาต่อได้ อย่างเช่น Hadoop หรือ Java หรืออาจจะเป็นกลุ่มที่เกิดในบริษัทเกิดใหม่ หรือหน่วยงานราชการ
- 5. <u>Service Providers and Consulting</u>—การเลือกใช้หรือเลือกซื้อบริการที่ปรึกษา และการนำระบบมาติดตั้งกำลัง ปรับตัวไปสู่แนวทางใหม่ อาจจะฟังดูขัดแย้ง แต่มันจะมีลักษณะเหมือนสินค้าเกษตรที่ดูเหมือนไม่มีความแตกต่างของผลิตภัณฑ์
- **+ 6.** <u>CyberSecurity</u> มาตรฐานสากลที่นิยมใช้กันทั่วโลก ISO/IEC17799: 2005 (Second Edition) หรือ BS7799-1, CobiT (Control Objective for Information and Related Technology), ITIL (IT Infrastructure Library)/BS15000, SANS TOP20, ISMF 7 (Information Security Management Framework)

Source: http://axelwinter.com/2014/10/08/











### **Course Index**

- 1. World Class ICT Standard
- 2. ICT Standard in Thailand
- 3. Knowledge Area of CMMI
- 4. CMMI in practices
- 5. CIO in ICT Standard







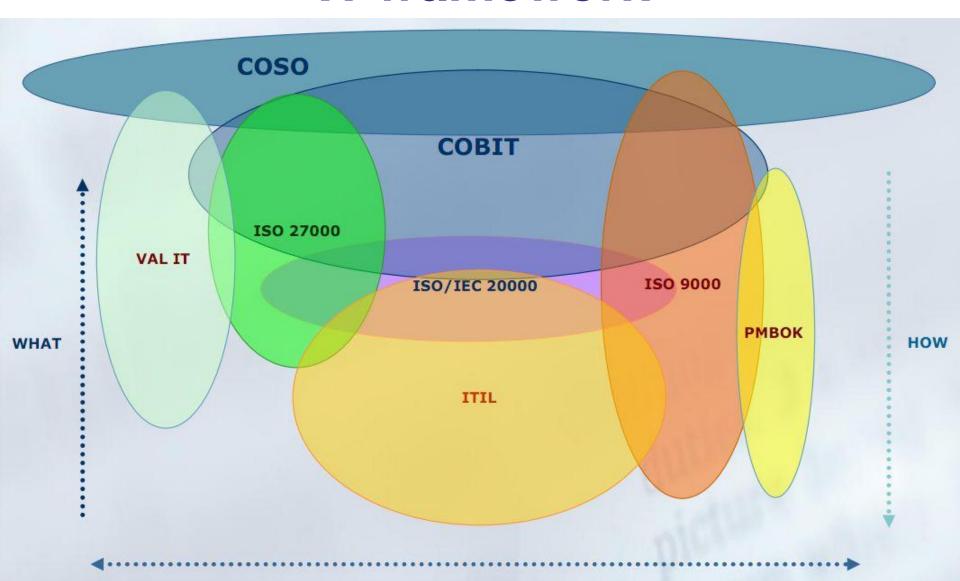
### 1. World Class ICT Standard







### **IT** framework









#### ด้วอย่าง กรอบวิธีปฏิบัติ

(คำอธิบาย จะบรรยายถึงกระบวนการและขั้นตอนที่ช่วยให้ผู้ปฏิบัติสามารถ ดำเนินการและพัฒนาขีดความสามารถของการนำเทคโนโลยีสารสนเทศไปใช้ งานได้อย่างมีประสิทธิภาพ สำหรับแนวทางที่ให้จะเป็นลักษณะของ Best practice (แนวทางปฏิบัติชั้นดี))

COBIT

coso

ITIL

#### ้ตัวอย่าง มาตรฐานสากลที่เกี่ยวข้องกับระบบเทคโนโลยีสารสนเทศ

(คำอธิบาย มาตรฐานเหล่านี้จะมีขอบเขตที่แตกต่างกันออกไป ได้แก่

- ISO/IEC 27001 ว่าด้วยเรื่องการรักษาความมั่นคงปลอดภัยระบบ
- ISO/IEC 13335 ว่าด้วยเรื่องแนวทางปฏิบัติในการบริหารจัดการความ มั่นคงปลอดภัยระบบ
- ISO/IEC 15408 ว่าด้วยเรื่องเทคนิควิธีด้านความมั่นคงปลอดภัยซึ่งจะถูก ใช้เป็นเงื่อนไขกลางหรือเกณฑ์กลาง (Common Criteria) ในการประเมิน ระบบในเรื่องของความมั่นคงปลอดภัย )

ISO/IEC 27001

ISO/IEC 13335

ISO/IEC 15408

้ตัวอย่าง แนวทางปฏิบัติขั้นด่ำที่องค์กรภาคูรัฐต้องปฏิบัติตาม

(ค่าอธิบาย แนวทางปฏิบัติดังกล่าวได้พัฒนาขึ้นโดยหน่วยงานภาครัฐ เพื่อใช้ เป็นแนวทางปฏิบัติทางเทคนิคให้กับหน่วยงานที่ต้องการความมั่นคงปลอดภัย เป็นพิเศษและมีมาตรฐานเทคโนโลยีเฉพาะทาง) FIPS PUB 200

NIST 800-14

IT BPM Manual

#### ้ตัวอย่าง เครื่องมือต่างๆ ที่ใช้สำหรับบริหารจัดการระบบเทคโนโลยี สารสนเทศ

(คำอธิบาย แนวทางปฏิบัติหรือเครื่องมือต่างๆ มีไว้เพื่อช่วยวิเคราะห์ความ ต้องการ ช่วยออกแบบ ช่วยจำลองแนวทาง และช่วยบริหารจัดการโครงการ ทางเทคโนโลยีสารสนเทศให้ดำเนินการได้ง่ายขึ้นและเป็นไปอย่างมี แบบแผน)

PRINCE2

**PMBOK** 

TickIT

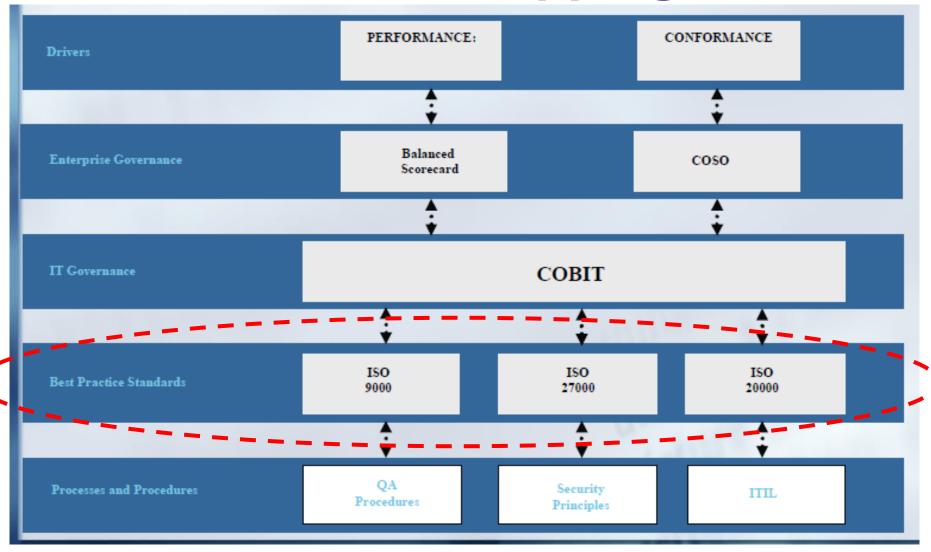
TOGAF 8.1







# **Governance Mapping**

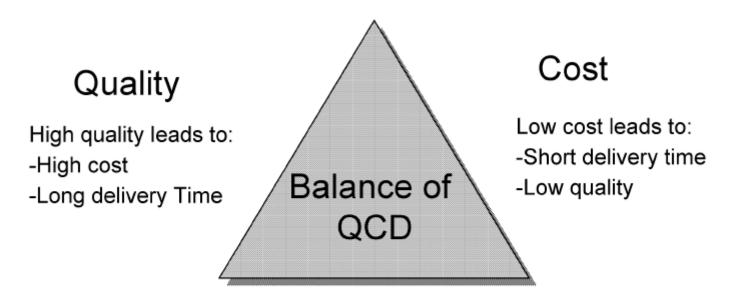








### **QCD-based Project Management**



Delivery (=Schedule, Time)

Short delivery time leads to:

- Low cost
- Low quality



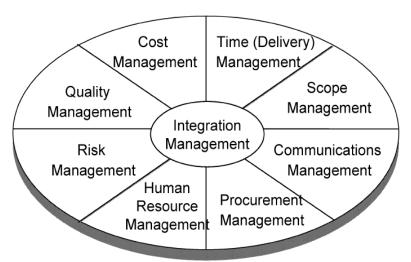




### PMBOK-based Project Management #1

PMBOK (Project Management Body of Knowledge)

- Global standard of project management framework issued by PMI
- Can be applied to general industry fields
- Composed of:
  - 9 Knowledge Areas
  - 5 Process Groups



9 Knowledge Areas of PMBOK

5 Process Groups of PMBOK

#### **Project Management Processes**

| <ul><li>(1) Initiating</li><li>(2) Planning</li></ul> | (3) Executing (4) Controlling |        |                 | (5) Closing |  |
|---|-------------------------------|--------|-----------------|-------------|--|
|   |                               |        |                 |             |  |
|   | Analysis                      | Design | Progra<br>mming | Testing     |  |

(Reference) System Development Processes







### **PMBOK-based Project Management #2**

| Sys. Dev. Stages                   | (N/A)      | (N/A)    | Analysis / Design /<br>Programming / Testing |             | N/A     |
|------------------------------------|------------|----------|--|-------------|---------|
| 5 Process Groups 9 Knowledge Areas | Initiating | Planning | Executing                                    | Controlling | Closing |
| Integration Mgmt                   |            | ~        | ~  | ~           |         |
| Scope Mgmt                         | ~          | ~        |  | ~           |         |
| Time Mgmt                          |            | ~        |  | ~           |         |
| Cost Mgmt                          |            | ~        |  | ~           |         |
| Quality Mgmt                       |            | ~        | ~  | ~           |         |
| Human Resource Mgmt                |            | ~        | ~  |             |         |
| Communications Mgmt                |            | ~        | ~  | ~           | ~       |
| Risk Mgmt                          |            | ~        |  | ~           |         |
| Procurement Mgmt                   |            | ~        | ~  |             | ~       |

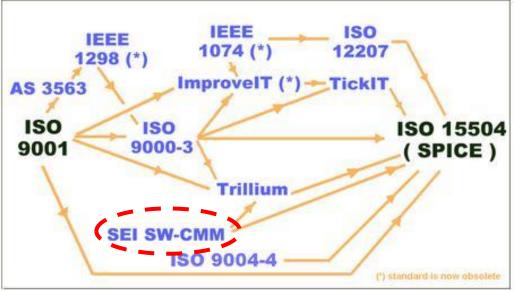
Mapping of 9 Knowledge Areas and 5 Process Groups

















#### ISO 15504

### about performing process assessments

Part 2 defines requirements for performing assessments

Part 5, 6, and 8 define example Process Assessment Models using other standards as Process Reference Models

Part 5 for ISO 12207 about software lifecycle processes

Part 6 for ISO 15288 about system lifecycle processes

Part 8 for ISO 20000 about IT service management processes





CMMI for Services provides

guidance for those providing

### Flexible and Leverageable Product Suite

The CMMI Product Suite is composed of models, training, and appraisals:

 Models describe best practices for specific target audiences.

 Appraisals allow organizations to benchmark against any model

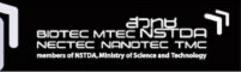
Training ensures a consistent

educational approach.

CMMI for Development provides guidance for measuring, monitoring, and managing development processes.

services within organizations and to external customers. CMMI-SVC SCAMPI Training Appraisals 16 Core Process: Areas CMMI for Acquisition provides guidance for CMMI-ACQ CMMI-DEV acquirers in improving operating practices.





### **Capability Maturity Model Integration (CMMI)**

<u>CMMI</u>, a process improvement framework that guides organizations in highperformance operations given by Carnegie Mellon University of Pittsburg, USA sponsored by the Department of Defense (DoD), USA

### 2 categories of CMMI (by 22 key process area)

### 1. Maturity level (ML);

5 MLs level; Initial, Managed, Defined, Quantitatively Managed, Optimizing

### 2. Capability level (CL);

4 group CLs; Project management, Engineering, Support, Process Management with

6 CLs level; Incomplete, Performed, Managed, Defined, Quantitatively Managed, Optimizing







### **Background on CMMI®**

- A <u>Framework</u> for Improving Performance
- A Model, Not a Process
- Satisfy Your Most Important Stakeholders
- CMMI is a Diverse Solution that can Work for Everyone
- CMMI offers three constellations:

CMMI for **Acquisition**,

CMMI for **Development**, and

CMMI for Services

that help to improve specific business needs, plus the <u>People Capability</u> <u>Maturity Model (People CMM)</u>

Our models offer best practices in eight capability areas

- Project and Work Management
- Process Management
- Supporting Infrastructure
- People Management
- Product Engineering and Development
- Service Delivery and Management
- Supplier Management
- Data Management





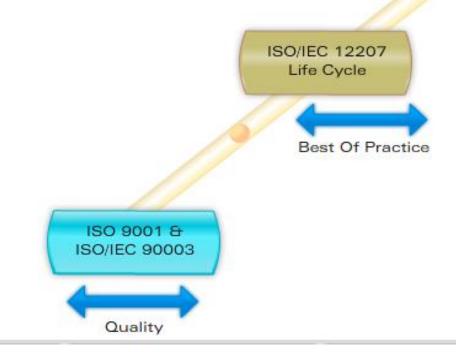


### **SW Engineering Standard**

The Major ISO/IEC Software Engineering Standards

The relationship of ISO/IEC 12207 to ISO/IEC 90003 and ISO/IEC 15504.











### The ISO/IEC 12220 series

\* Additional detailed guidelines on the supporting processes of ISO/IEC 12207

- 1. ISO/IEC 12220-1: Overview Document;
- 2. ISO/IEC 12220-2: SW Configuration Management;
- 3. ISO/IEC 12220-3: SW Project Management;
- 4. ISO/IEC 12220-4: SW Quality Assurance;
- 5. ISO/IEC 12220-5: SW Verification and SW Validation;
- 6. ISO/IEC 12220-6: SW Reviews and Audits;





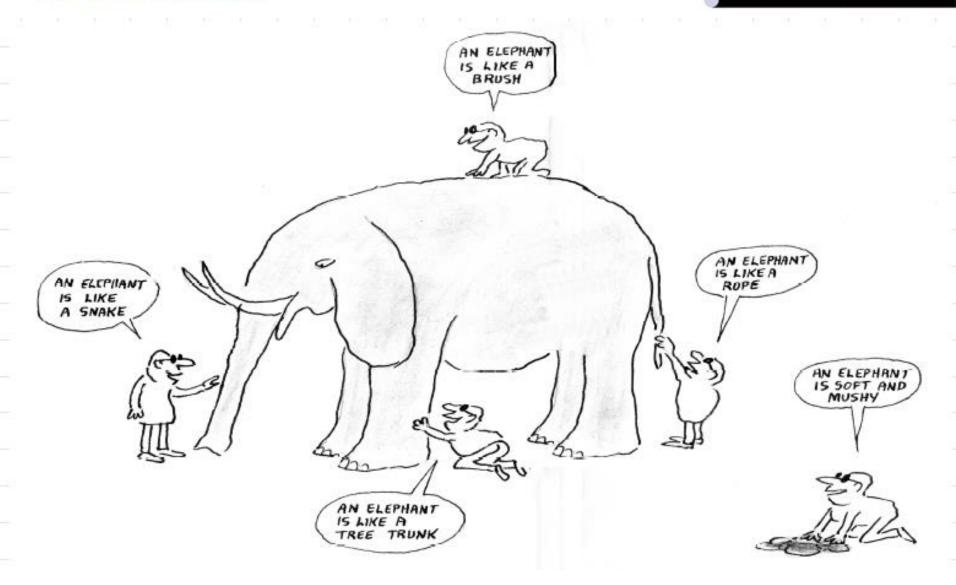


# 2. ICT Standard in Thailand









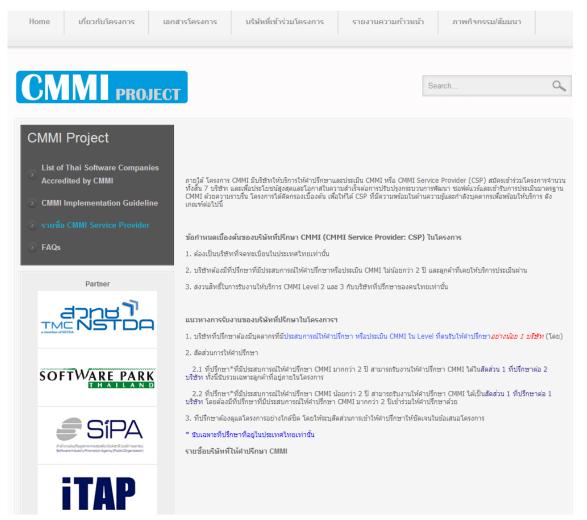








### โครงการพัฒนาผู้ประกอบการให้ได้มาตรฐาน CMMI









### ประโยชน์ของ CMMI

- การทำงานทุกอย่างมีร่องรอยหรือหลักฐาน ให้ตรวจสอบได้ง่ายขึ้นและสมบูรณ์มากขึ้น
- ทำงานอย่างเป็นระบบมากขึ้น
- สามารถรับงานจากต่างประเทศ และทำรายได้เข้าประเทศได้อีกมาก
- บริษัทจะมีวัฒนธรรมการทำงานที่เป็นแบบเดียวกัน มีวิธีการปฏิบัติที่เป็นมาตรฐานแต่ก็ยืดหยุ่น เพราะจะแสวงหากลยุทธ์ในการปรับตัวให้เข้ากับความเปลี่ยนแปลงได้ตลอดเวลา











- 1. เพื่อสนับสนุนบริษัทซอฟต์แวร์ไทยในการปรับปรุงกระบวนการพัฒนาซอฟต์แวร์ และขอการ รับรองมาตรฐาน CMMI มาตรฐานกระบวนการผลิตที่เป็นที่ยอมรับในระดับสากล
- 2. เพื่อกระตุ้นให้บริษัทซอฟต์แวร์ไทยทำการปรับปรุงกระบวนการพัฒนาซอฟต์แวร์ตาม มาตรฐาน CMMI อย่างต่อเนื่อง และให้มีความสามารถต่อยอดไปสู่ระดับวุฒิภาวะที่สูงขึ้น
- 3. เพื่อสนับสนุนบริษัทซอฟต์แวร์ไทยในการปรับปรุงกระบวนการพัฒนาซอฟต์แวร์ด้าน CMMI for Development (CMMI–DEV) หรือ CMMI for Service (CMMI-SVC)
- 4. เพื่อ ผลักดัน และส่งเสริมบริษัทซอฟต์แวร์ไทยในการพัฒนา และเร่งสร้างบุคลากรที่มีความรู้ ด้านการพัฒนาและการปรับปรุงกระบวนการพัฒนา ซอฟต์แวร์

### หน่วยงานสนับสนุนในประเทศไทย

- งานปรึกษาด้านไอที เขตอุตสาหกรรมซอฟต์แวร์ประเทศไทย (ชั้น 4) สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ
- สำนักงานส่งเสริมอุตสาหกรรมซอฟต์แวร์แห่งชาติ (องค์การมหาชน)





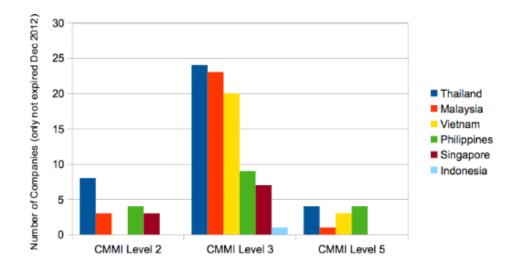


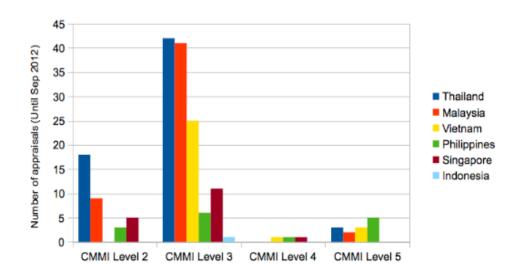
# CMMI in practices Thai companies in PARs (Gov/Private)

### CMMI in ASEAN

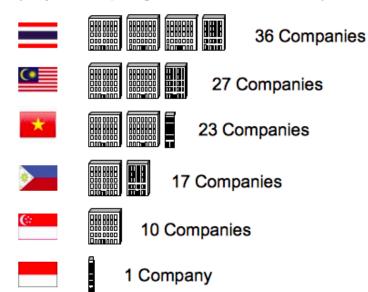
Compiled By: IMC Institute www.facebook.com/imcinstitute







### Number of CMMI Companies by Country (only non-expiring certificates: Dec 2012)







Avalant Co., Ltd.; since Mar 2010



CPF IT Center Co., Ltd.; since Oct 2011



Wealth Management System Limited; since Mar 2012



Gosoft (Thailand) Co., Ltd.; since Aug 2012

Source: CMMI Institute: Published Appraisal Results 2012







### Certificate













### **CMMI** Institute

### **Published Appraisal Results**

#### Published CMMI® Appraisal Results

The intended goal and purpose of the CMMI<sup>®</sup> Model and People CMM<sup>®</sup> Model, and the SCAMPI<sup>sm</sup> family of appraisal methods is for process improvement. The outcome, which is entirely dependent on the organization implementing it, is a measurable increase in the quality of the products developed with a better ability to predict the time and budget needed to perform the development. The goal is to increase the entity's ability to reliably develop products and services in a repeatable fashion with continual improvement.

Maintaining and improving beyond a certain maturity status is a continuous process. Therefore once a certain level is reached, appraisals are still necessary to know if the maturity or capability is being maintained and increasing over time. This published list of appraisal results show the maturity or capability status achieved at a point in time indicated by the appraisal's end date.

For information that provides a snapshot of the state of global process maturity, based on appraisal results submitted to the CMMI Institute's SAS database, see the <u>Process Maturity Profile</u>.

The following link will generate a current list of Organizational Units which have completed and reported SCAMPI Class A appraisals against the CMMI or People CMM Model. Documented authorization has been received from the sponsor of each posted appraisal for this release of information.

NOTICE: We have made a change to the Published Appraisal Results website (sas.cmmiinstitute.com/pars). Due to wide variation in the material previously posted involving the descriptions of the organizational unit's maturity level 4 and 5 activities, we will be modifying SAS to better portray the needed information, and reduce the variation and volume of material depicted. Because of this, we have removed the existing level 4 and 5 descriptions from the PARS site. The remainder of the provided ADS is not affected by this deletion, and will remain on the PARS website. We will work with the SCAMPI High Maturity Lead Appraisers once we have an improved design so that a better set of information can be posted to PARS for all V1.2 High Maturity appraisals regarding level 4 and 5 descriptions. Thank you for your understanding in this matter.

#### Click here to view the Published Appraisal Results List

If you have conducted a SCAMPI Class A appraisal in your organization and would like to see your results published here, please contact your SCAMPI Lead Appraiser<sup>SM</sup> The Lead Appraiser will collect the appropriate data and authorizations from your organization and initiate the posting process.

If you would like to search for a specific lead appraiser, or if you would like to contact a specific Partner, see Partner Directory.

If you would like to comment on this Published SCAMPI Appraisal Results webpage, please send email to <u>appraisal-info@cmmiinstitute.com</u>.















https://sas.cmmiinstitute.com/AppSys/





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#### About the SCAMPI Appraisal System

#### Purpose

The CMMI Institute Appraisal Program, partnering with the process appraisal community worldwide, has developed the SCAMPI Appraisal System (SAS). The SAS helps to oversee the quality and consistency of the CMMI Institute's process appraisal technology and encourage its effective use. The system assists the CMMI Institute Appraisal Program in its three functions: appraisal quality control; training, authorizing, and providing resources for Lead Appraisers; and monitoring and reporting appraisal results.

To learn more about the CMMI Institute Appraisal Program, please visit: http://cmmiinstitute.com/cmmi-solutions/cmmi-appraisals/

To view the Published Appraisal Results Site (PARS), please visit: https://sas.cmmiinstitute.com/pars/

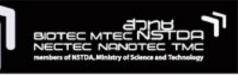
To visit the CMMI Institute's main site, please click: http://cmmiinstitute.com

#### Registration Information

You must have an affiliation with the CMMI Institute in order to register with the SAS. In order to register as a Lead Appraiser, you must have an emailed invitation from the SAS Administrator.

To register in the SAS Appraisal Team Member Group, you must have completed the appropriate introduction course (i,e. Intro to CMMI-Dev, Intro to CMMI-SVC, Intro to People CMM).





## บริษัทที่ได้รับการประเมินผ่านมาตรฐาน CMMI

- ML5: (4 บริษัท)
  - 1. Avalant Co., Ltd.
  - 2. SMARTERWARE CO.,LTD.
  - 3. Wealth Management System Limited
  - 4. Yip In Tsoi & CO.,LTD.
- ML3: (33 บริษัท)
  - 🗖 2 หน่วยงานภาครัฐ
    - NECTEC-NSTDA
    - Faculty of Medicine Ramathibodi Hospital
  - 🗖 1 หน่วยงานรัฐวิสาหกิจ
    - ธนาคารเพื่อการเกษตรและสหกรณ์การเกษตร
- ML2: (7-> 7 บริษัท)

ข้อมูลจาก: ณ วันที่ 4 กุมภาพันธ์ 2559

https://sas.cmmiinstitute.com/pars/pars.aspx





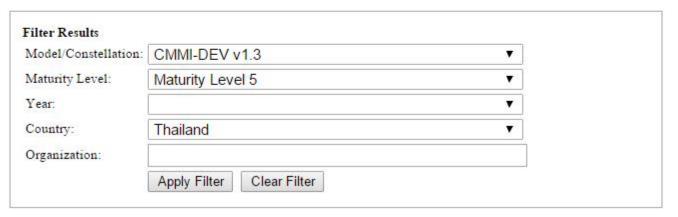






# **CMMI** Institute

### **Published Appraisal Results**



| Organization Organizational Unit                                   | Team Leader Sponsor                          | Appraisal End<br>Date | Model (Representation): Maturity Level   |
|--|--|-----------------------|--|
| Avalant Co., Ltd. Software Department Bangkok                      | Rajarshi Kumar Das<br>Akarapol Bunworaset    | 03/27/2013            | CMMI-DEV v1.3(Staged):Maturity Level 5   |
| SMARTERWARE CO.,LTD. Software Implementation Department            | Sankaran Venkataramani<br>Suchart Duangtawee | 08/16/2013            | CMMI-DEV v1.3(Staged):Maturity Level 5   |
| Wealth Management System Limited Software Development and Services | Stephen Fletcher<br>Somkiat Chinthammit      | 05/15/2015            | CMMI-DEV v1.3(Staged):Maturity Level 5<br>CMMI-SVC v1.3(Staged):Maturity Level 3 |
| YIP IN TSOI & CO., LTD. Software development unit                  | Pieter van Zy1<br>THIENCHAI LAILERT          | 01/15/2016            | CMMI-DEV v1.3(Staged):Maturity Level 5   |

Source: https://sas.cmmiinstitute.com/pars/pars.aspx







# Ma

Warwick Adler

Paul Iredale

Thanapongphan Thanyarattakul

Sutthikan Rungsrithong

Tachanun Kangwantrakool

Patchara Kiatnuntavimon

Rajarshi Kumar Das

Poonsook Musiklad

Li-Ju (Ariel) Chou

Jirapon Tubtimhin

Stephen Fletcher

Thanapol Kongboonma

Somboon Sukheviriya

Chusak Okascharoen

Pimporn Hanchanlert

Stephen Fletcher

Wei-Chung Chen

Praphan Dedrukthip

Mike McCoy

Paul Iredale

Supakit Yongvithisatid

Tachanun Kangwantrakool

Tachanun Kangwantrakool

SUPAVADEE PHANTUMVANIT

Paul Iredale

Paul Iredale

Russ Hippe

Paul Iredale

Sponsor

Model (Representation): Maturity Level

CMMI-DEV v1.3(Staged):Maturity Level 3

CMMI-SVC v1.3(Staged):Maturity Level 3

CMMI-DEV v1.3(Staged):Maturity Level 3

CMMI-SVC v1.3(Staged):Maturity Level 3

CMMI-DEV v1.3(Staged):Maturity Level 3

CMMI-DEV v1.3(Staged):Maturity Level 3

| iter Kesuits         |                    |
|----------------------|--------------------|
| fodel/Constellation: | CMMI-DEV v1.3 ▼    |
| faturity Level:      | Maturity Level 3 ▼ |
| ear:                 | ▼                  |
| ountry:              | Thailand ▼         |
| rganization:         |                    |

Appraisal End

06/05/2015

02/19/2013

08/08/2014

04/25/2014

04/24/2015

09/19/2014

05/27/2015

04/29/2014

12/19/2014

12/23/2015

03/05/2015

02/20/2015

07/12/2013

03/19/2015

Date

| Organization |               | Team Leader               |
|--------------|---------------|---------------------------|
|              |               | Apply Filter Clear Filter |
|              | Organization: |                           |
|              | Country:      | Thailand                  |
|              | 2 0112        |                           |

Organization

Organizational Unit

2 3 Perspective Co., Ltd. Operation and Technical Department

Infomax System Solutions & Services Co., Ltd.

Application Development and System Support Team

Accellence (Thailand) Ltd. Accellence (Thailand) Ltd.

Advanced Research Group Co., Ltd. AR soft

Bank for Agriculture and Agricultural Cooperatives

Information Technology Operation Department (Development Unit), Operation

Internal Audit Department (QA Unit), Office of Information Technology Planning (Testing Unit).

Betimes Solutions Co., Ltd. Production Department

Chan Wanich Co., Ltd. Software Development Department

Comanche International Co., Ltd. Software Development and Customer Service

DST Worldwide Services (Thailand) Limited Development and Quality Assurance

Faculty of Medicine Ramathibodi Hospital Clinical Informatics Section Fusion Solution Co., Ltd. & FA System and Application Co., Ltd.

Development Projects G-Business Group of companies Software Development for Insurance, Content Management, and Operations Support

IConcepts Group of Companies SW development Units (BUs:IConcepts Co., Ltd.&Buzzebees Co., Ltd.)

Application Greenline Synergy Co.,Ltd. Shared Service and Technology Department

| Innovative Business Company Limited Business Intelligence Unit  | Paul Iredale<br>Awacharin Nachin                      | 03/30/2015 | CMMI-DEV v1.3(Staged):Maturity Level 3<br>CMMI-SVC v1.3(Staged):Maturity Level 3 |
|---|---|------------|--|
| InterSET Research And Solution Co., Ltd. Technology Department  | Pimpom Hanchanlert<br>surongkan thaosan               | 06/19/2015 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| ITOS Consulting Co., Ltd. Software Department   | Pimpom Hanchanlert Pipat Poesriprasert                | 08/21/2015 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| KP Soft Co., Ltd. Auto Business Solution Unit, and CMMI Unit  | Pimpom Hanchanlert<br>Somchai Kitipom                 | 06/09/2015 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| Mobile-Technologies Co., Ltd.  ISL (Intelligent Service Layer)  | HansRaj Takemal<br>Eli Hem Jensen                     | 10/03/2014 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| National Science and Technology Development Agency (NSTDA) NECTEC/IENDU   | Tachanun Kangwantrakool<br>Dr. Thaweesak Koanantakool | 09/01/2014 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| Progress Software Company Limited KASIKORNBANK/PSC  | Tachanun Kangwantrakool<br>Siripong Lohasirigul       | 11/22/2013 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| Promptnow Co.,Ltd. Software Development Department  | Tachanun Kangwantrakool<br>Natjira Honda              | 04/29/2013 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| PTT ICT Solutions Company Limited Solution Delivery   | Paul Iredale<br>Montri Sanghirun                      | 11/20/2015 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| Rax Interdiagnostic Co., Ltd. Product Development Division  | Kwangsik Shin<br>Pisit Wannavitayapa                  | 09/11/2015 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| Samart Corporation Public Company Limited Software departments of Samart Corporation and 9 subsidiary companies                                       | Rajarshi Kumar Das<br>Payoongsak Silagul              | 12/12/2013 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| Shoppening Pty Ltd Operation and Technical Department   | Warwick Adler<br>Thanapongphan Thanyarattakul         | 06/12/2015 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| SUMMIT COMPUTER CO.,LTD. SW Development Units   | Tachanun Kangwantrakool<br>jinda boonlarptaveechoke   | 11/21/2014 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| TOT Public Company Limited Innovation Institute (IP and IT Innovation Sector)   | Paul Iredale<br>Mr. suriya jiajan                     | 01/22/2016 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| Tri Petch IT Solutions Co., Ltd. Software Management Department   | Pimpom Hanchanlert<br>Sinongras Piyaseth              | 12/25/2014 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| VP Advance Co., Ltd.  VP Advance Co., Ltd.  | Paul Iredale<br>Vatha Promlikitchai                   | 04/24/2013 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| VP Advance Co., Ltd. Software Solutions and Services  | Paul Iredale<br>Vatha Promlikitchai                   | 03/11/2015 | CMMI-DEV v1.3(Staged):Maturity Level 3<br>CMMI-SVC v1.3(Staged):Maturity Level 3 |
| V-Smart Co.,Ltd.  Business Software Development, Sales & Service Business, Innovation Consulting Service, and Project Management & Quality Management | Li-Ju (Ariel) Chou<br>Thavom Puasirirak               | 04/10/2015 | CMMI-DEV v1.3(Staged):Maturity Level 3   |
| Wealth Management System Limited Software Development and Services  | Stephen Fletcher<br>Somkiat Chinthammit               | 05/15/2015 | CMMI-DEV v1.3(Staged):Maturity Level 5<br>CMMI-SVC v1.3(Staged):Maturity Level 3 |
|   |   |            |  |







| Filter Results       |                           |   |
|----------------------|---------------------------|---|
| Model/Constellation: | CMMI-DEV v1.3             | • |
| Maturity Level:      | Maturity Level 2          | • |
| Year:                |                           | • |
| Country:             | Thailand                  | • |
| Organization:        |                           |   |
|                      | Apply Filter Clear Filter |   |

| Organization Organizational Unit  | Team Leader<br>Sponsor                       | Appraisal End<br>Date | Model (Representation): Maturity Level |
|---|--|-----------------------|--|
| Abstract Computers Co., Ltd. Software Division  | Pimpom Hanchanlert<br>Pichai Achariyakul     | 08/04/2015            | CMMI-DEV v1.3(Staged):Maturity Level 2 |
| Bangkok Medical Software Co., Ltd. Software Development Department                                | Pimpom Hanchanlert<br>Chaiyapom Suratemeekul | 02/06/2015            | CMMI-DEV v1.3(Staged):Maturity Level 2 |
| CDG Systems Limited Project Management, Application Development, and Quality Assurance Department | Pimpom Hanchanlert Pithaya Kichthivaranond   | 03/13/2015            | CMMI-DEV v1.3(Staged):Maturity Level 2 |
| Interset Research and Solution Co., Ltd. IT Department  | Pimpom Hanchanlert<br>surongkan thaosan      | 02/20/2013            | CMMI-DEV v1.3(Staged):Maturity Level 2 |
| Professional Computer Co., Ltd. Software Development Division                                     | Pimpom Hanchanlert Disphom Daungtaweetong    | 10/30/2013            | CMMI-DEV v1.3(Staged):Maturity Level 2 |
| Similan Technology Co.,Ltd. Software Development Department                                       | Pimpom Hanchanlert<br>Porramin Netrabukkana  | 01/26/2015            | CMMI-DEV v1.3(Staged):Maturity Level 2 |
| ZI-ARGUS Limited System Integration   | Paul Iredale<br>Frank van Baal               | 01/16/2015            | CMMI-DEV v1.3(Staged):Maturity Level 2 |





### CMMI partner 7 บริษัทในประเทศไทย

- Asian Intelligent Information Technology Co., Ltd. (India)
- ISEM Co., Ltd. (TH)
- KPMG (India)
- PKT Consultant Co., Ltd. (TH)
- QAI India Limited (India)
- SGCMC Co., Ltd. (Korea)
- Software Park Thailand NSTDA (TH)

ข้อมูลจาก: ณ วันที่ 4 กุมภาพันธ์ 2559

http://partners.clearmodel.com/partner







## 3. Knowledge Area of CMMI



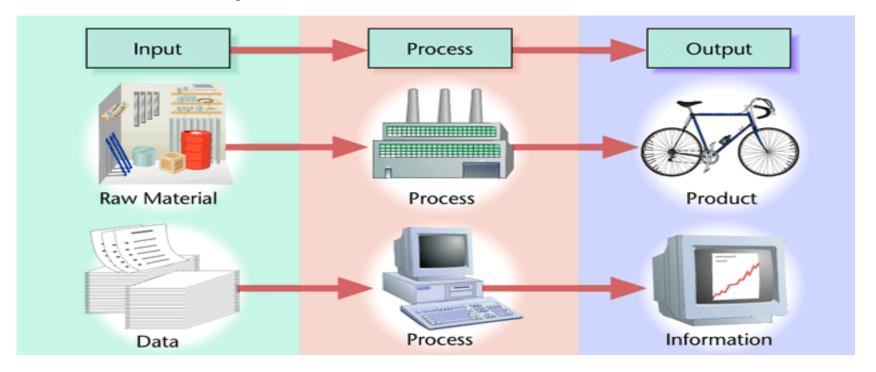




### **Data vs. Information**

#### **Generating Information**

Computer-based IS take data as raw material, process it, and produce information as output.

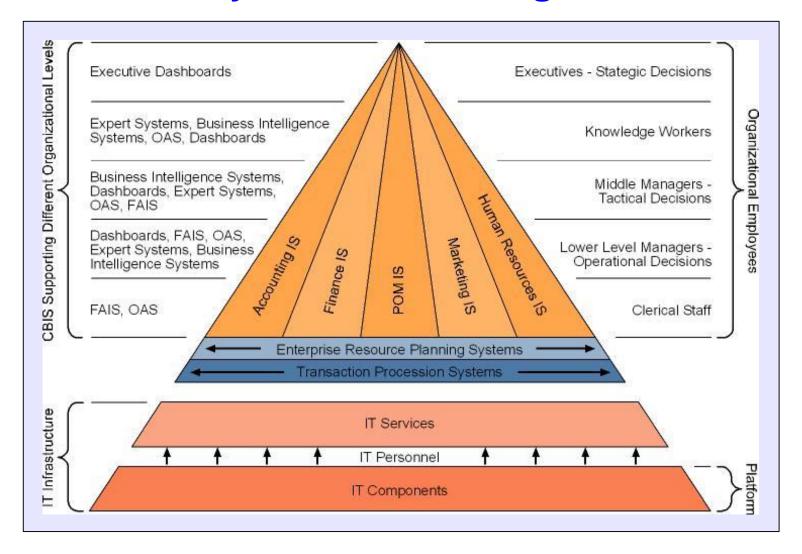








#### Information Systems Inside Organization

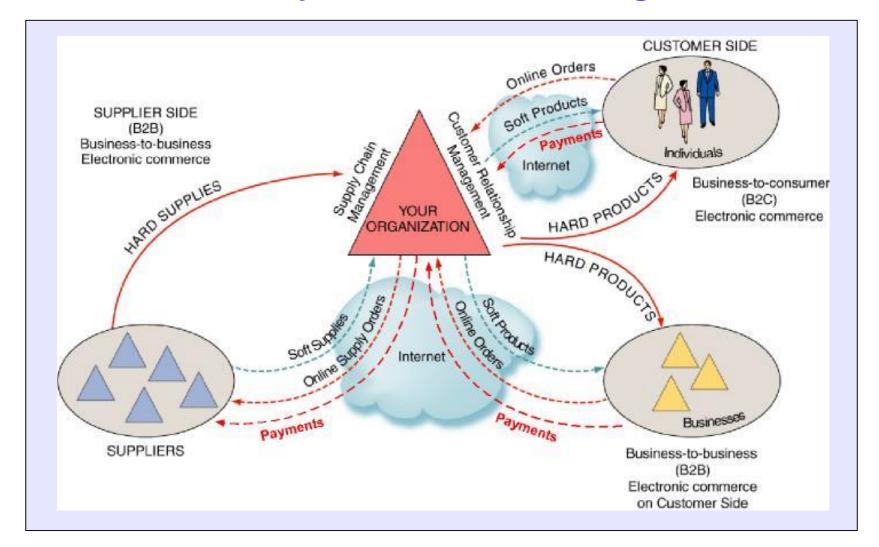








### **Information Systems Outside Organization**

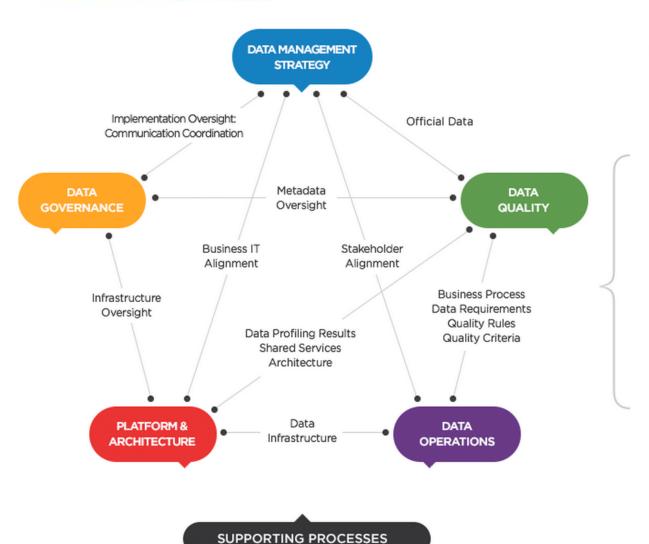












DATA MANAGEMENT STRATEGY

Data Management Strategy
Communications
Data Management Function
Business Case
Funding

GOVERNANCE Governance Management
Business Glossary
Metadata Management

DATA QUALITY Data Quality Strategy
Data Profiling
Data Quality Assessment
Data Cleansing

DATA OPERATIONS Data Requirements Definition
Data Lifecyle Management
Provider Management

PLATFORM & Architectural Approach
ARCHITECTURE Architectural Standards
Data Management Platform
Data Integration

SUPPORTING Measurement & Analysis
PROCESSES Process Management

Process Quality Assurance Risk Management Configuration Management

Historical Data & Archiving







**What: CMMI Standard Model** 









CMMI® Institute helps organizations discover the true value they can deliver by building capability in their people and processes.

#### Learn More

94

#### COUNTRIES

Organizations use CMMI to elevate performance in 94 countries.

12

- I**∠**\_\_\_\_\_\_
- NATIONAL GOVERNMENTS

12 governments invest in CMMI to support economic development in their countries.



bia • Mexico • UK

India • Kenya

South Africa • China

Malaysia

10

#### LANGUAGES

CMMI models have been translated into 10 languages.

- Chinese, •
- Simplified Tradition
- French
- German
- Japanes
- Dortugues
- Spanish
- Korean







### **Capability Maturity Models - Overview**

- A representation of the engineering and management "world"
- Focuses on elements of essential practices and processes from various bodies of knowledge
- Describes common sense, efficient, proven ways of doing business (which you <u>should</u> already be doing) - not a radical new approach
- Presents a <u>minimum</u> set of recommended practices and leverage points that have been shown to enhance organizational maturity and project capability
  - ☐ It defines the expectation (the "what")
  - Without overly constraining the implementation (the "how")
- Example implementations of CMMs:
  - ☐ People CMM: develop, motivate and retain project talent
  - □ Software CMM: enhance a software-focused development and maintenance capability
  - ☐ CMMI: focuses on systems and software engineering process development









#### Who Needs CMMI?



- CMMI is for projects or organizations that:
  - Need to manage the acquisition, development, and maintenance of products or services
  - □ Are concerned about cost and schedule overruns or unhappy users / stakeholders
  - ☐ Are concerned about costs of quality and rework
  - □ Are seeking a competitive advantage
- It is a process improvement method that provides <u>a set of best practices</u> to address productivity, performance, costs, and stakeholder satisfaction. CMMI <u>focuses on the total system problem</u> unlike:



- □ Single-discipline models that can result in confusion and higher costs. CMMI facilitates enterprise-wide process improvement
- Asynchronous initiatives that result in bolt-ons that last only as long as the squeaking.
  - » CMMI provides a consistent, enduring framework that can accommodate new initiatives
  - » CMMI integrates well with current best practices, process improvement, or quality management strategies (ISO-9001, PMBOK, Lean Six Sigma, etc.)







### **Capability Maturity Model Integration - Current**

Multiple models, based on disciplines addressed

CMMI - ACQ: Acquisition

CMMI - DEV: Systems Engineering

CMMI - SVC: Technical Support Services

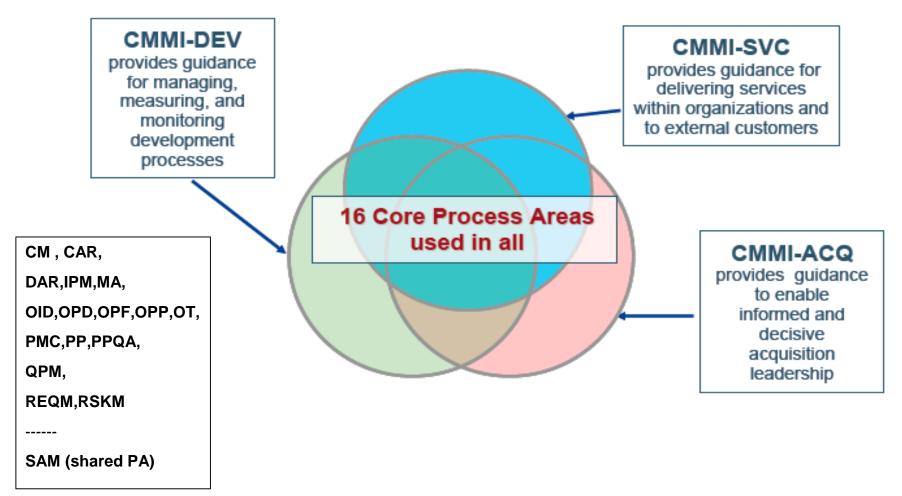
- CMMI V1.2 incorporates lessons learned from using other standards and models (Software CMM, EIA-731, IEEE-12207)
- Developed at the DoD-sponsored Software Engineering Institute (SEI)
  - ☐ CMMI-ACQ in draft, expect release in 2007
  - ☐ CMMI-SVC in development, expect release in 2007
  - Models and information at <a href="http://www.sei.cmu.edu/cmmi/">http://www.sei.cmu.edu/cmmi/</a>







#### **MUTUALLY SUPPORTIVE CMMI MODELS**



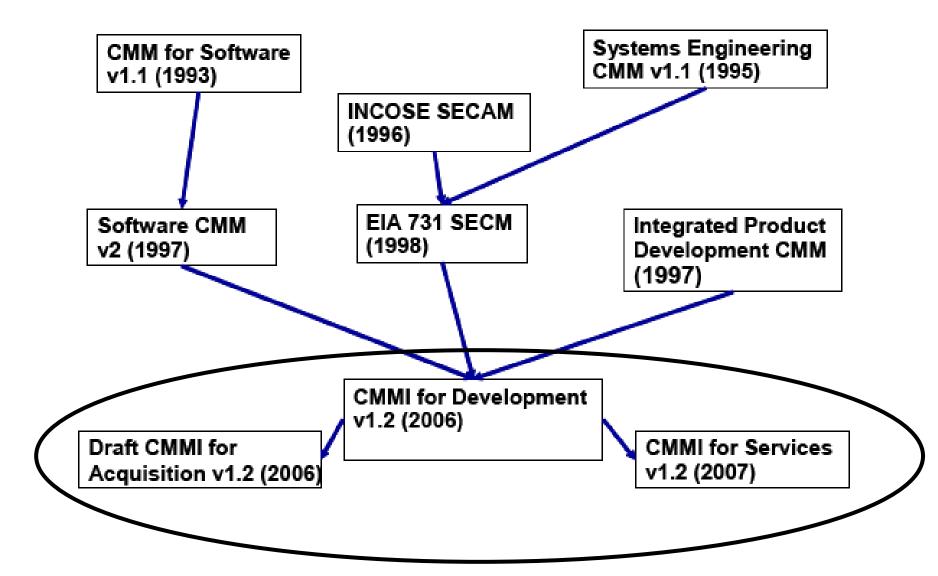
Ref: Software Engineering Process Office, SPAWAR System Center San Diego







## History/Relationship of CMMI Models

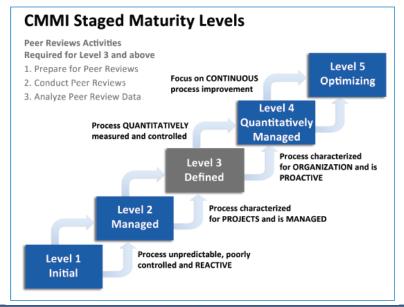












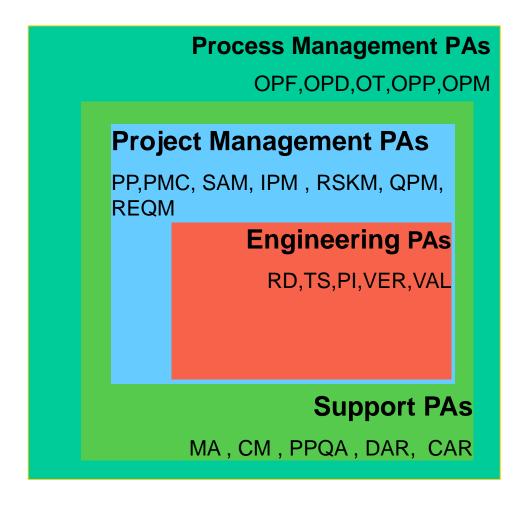
| 5 Optimising   | The previously described predictable process is continuously improved to meet relevant current and projected business goals.   |  |
|--|--|--|
| 4 Predictable  | The previously described established process now operates within defined limits to achieve its process outcomes.   |  |
| 3 Established The previously described managed process is now implemented using a defined process that is capable of achieving its process outcomes.   |  |  |
| 2 Managed  The previously described performed process is now implemented in a man fashion (planned, monitored and adjusted) and its work products are appropriately established, controlled and maintained |  |  |
| 1 Performed  | Performed The implemented process achieves its process purpose   |  |
| 0 Incomplete   | The process is not implemented or fails to achieve its process purpose. At this level, there is little or no evidence of any systematic achievement of the process purpose |  |







#### **Relationships Among 22 PAs (CMMI)**









### Use CMMI in process improvement activities as a

- collection of <u>best practices</u>,
- <u>framework</u> for organizing and prioritizing activities,
- support for the coordination of <u>multi-disciplined activities</u> that might be required to successfully build a product, and
- means to emphasize the alignment of <u>the process improvement</u> <u>objectives</u> with organizational business objectives.

CMMI incorporates lessons learned from the use of the SW-CMM®, EIA-731, and other standards and models.







#### **CMMI-DEV PAs: Maturity Level and Continuous Representation: PAs by Category**

| _ |     | Process<br>Management   | Project<br>Management   | Engineering   | Support   | Quality<br>Productivity |
|---|-----|---|---|---|---|-------------------------|
|   | ML5 | Organizational<br>Performance<br>Management   |   |   | Causal Analysis and Resolution  | 1                       |
|   | ML4 | Organizational<br>Process<br>Performance  | Quantitative Project<br>Management  |   |   |                         |
|   | ML3 | Organizational<br>Process Focus<br>Organizational<br>Process Definition<br>Organizational<br>Training | Integrated Project<br>Management<br>Risk Management   | Requirements Development Technical Solution Product Integration Verification Validation | Decision Analysis<br>and Resolution   |                         |
|   | ML2 |   | Project Planning Project Monitoring and Control Requirements Management Supplier Agreement Management |   | Configuration Management Process and Product Quality Assurance Measurement and Analysis | Risk<br>Rework          |





#### CMMI Level 2 1 7 PA

- 1. CM Configuration Management
- 2. MA Measurement and Analysis
- 3. PMC Project Monitoring and Control
- 4. PP Project Planning
- 5. PPQA Process and Product Quality Assurance
- 6. REQM Requirements Management
- 7. SAM Supplier Agreement Management





### CMMI Level 3 มี 11 PA แต่ต้องทำทั้งสิ้น 18 PA

(รวม PA ของ Level 2 ด้วย)

- 1. DAR Decision Analysis and Resolution
- 2. IPM Integrated Project Management +IPPD
- 3. OPD Organizational Process Definition +IPPD
- 4. OPF Organizational Process Focus
- 5. OT Organizational Training
- 6. PI Product Integration
- 7. RD Requirements Development
- 8. RSKM Risk Management
- 9. TS Technical Solution
- 10. VAL Validation
- 11. VER Verification





## CMMI Level 4 มี 2 PA แต่ต้องทำทั้งสิ้น 20 PA

(รวม PA ของ Level 2 และ 3 ด้วย)

- 1. QPM Quantitative Project Management
- 2. OPP Organizational Process Performance

### CMMI Level 5 มี 2 PA แต่ต้องทำทั้งสิ้น 22 PA

(รวม PA ของ Level 2, 3 และ 4 ด้วย)

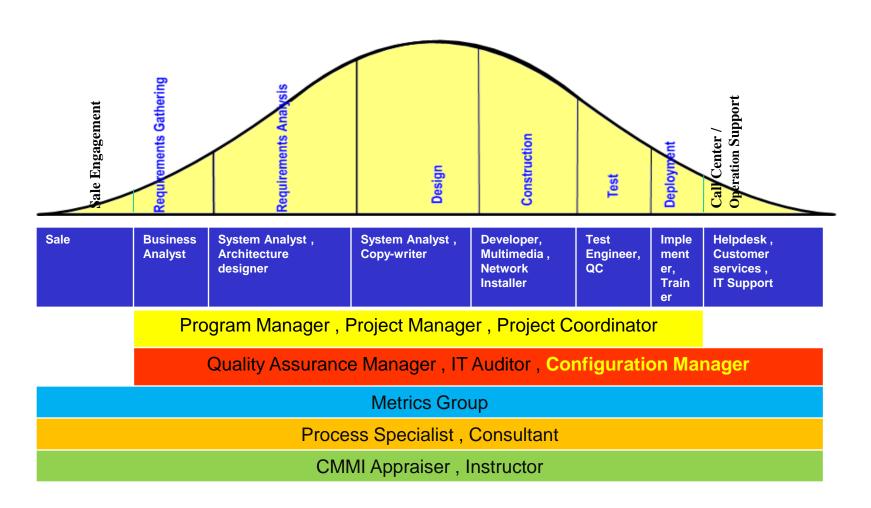
- 1. CAR Causal Analysis and Resolution
- 2. OID Organizational Innovation and Deployment





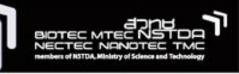


#### **SDLC VS Roles & Responsibilities**









#### **Performance Measures**

The performance results in the following table are from 30 different organizations that achieved percentage change in one or more of the six categories of performance measures below.

| Performance Category  | Median Improvement |
|-----------------------|--------------------|
| Cost                  | 34%                |
| Schedule              | 50%                |
| Productivity          | 61%                |
| Quality               | 48%                |
| Customer Satisfaction | 14%                |
| Return on Investment  | 4:1                |







# **CMMI** for Development









#### **CMMI DEV Staged Representation**

| Continuous Process Improvement  | Level        | Focus   | Process Areas   |
|---|--------------|---------|---|
| Managed  Process Standardization  Process Standardization  Process Standardization  Process Standardization  Process Standardization  Process Standardization  Process Organizational Process Focus Organizational Process Definition (+ IPPD extras) Organizational Training Integrated Project Mgmt (+ IPPD extras) Risk Management Decision Analysis and Resolution  Requirements Management Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance Configuration Management | 5 Optimizing | Process |   |
| Process Standardization  Process Standardization  Process Standardization  Product Integration Verification Validation Organizational Process Focus Organizational Process Definition (+ IPPD extras) Organizational Training Integrated Project Mgmt (+ IPPD extras) Risk Management Decision Analysis and Resolution  Requirements Management Project Planning Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance Configuration Management                                |              |         |   |
| 2 Managed Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance Configuration Management   | 3 Defined    |         | Technical Solution Product Integration Verification Validation Organizational Process Focus Organizational Process Definition (+ IPPD extras) Organizational Training Integrated Project Mgmt (+ IPPD extras) Risk Management |
| 1 Initial   | 2 Managed    | Project | Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance  |
|   | 1 Initial    |         |   |



Risk Rework







#### **CMMI-DEV Process Areas**

(22 process areas)

- Causal Analysis and Resolution (CAR)
- Configuration Management (CM)
- Decision Analysis and Resolution (DAR)
- Integrated Project Management + Integrated Process and Product Development (IPM + IPPD)
- Measurement and Analysis (MA)
- Organization Innovation and Deployment (OID)
- Organization Process Definition + IPPD (OPD + IPPD)
- Organization Process Focus (OPF)
- Organization Process Performance (OPP)
- Organizational Training (OT)

- Product Integration (PI)
- Project Monitoring and Control (PMC)
- Project Planning (PP)
- Process and Product Quality Assurance (PPQA)
- Quantitative Project Management (QPM)
- Requirements Development (RD)
- Requirement Management (RM)
- Risk Management (RSKM)
- Supplier Agreement Management (SAM)
- Technical Solution (TS)
- Validation (VAL)
- Verification (VER)







# **CMMI** for Acquisition







# CMMI For Acquisition Organizations (CMMI-ACQ)

- CMMI-ACQ is being developed as a joint effort between General Motors and the Software Engineering Institute
- Provides process improvement guidance for organizations engaged in acquisition
- "Adopting CMMI for Acquisition Organizations: A Preliminary Report" published in June 2006
  - ☐ Contains the draft CMMI-ACQ model
- Model will be piloted and further developed before official acceptance by Government and industry
- Based on CMMI V1.2 architecture and model framework
- SEI developing CMMI V1.2 for Acquisition Organizations, Development Organizations, and Services Organizations







#### **CMMI-ACQ Process Areas**

(22 process areas)

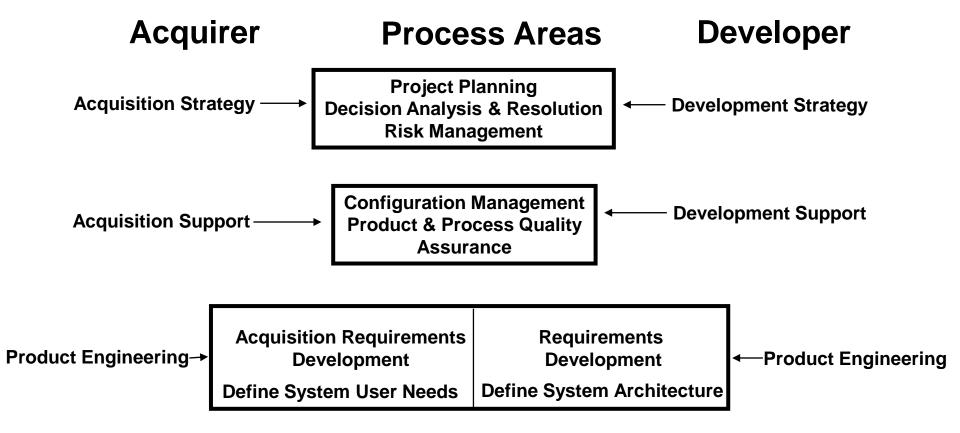
- Acquisition Management (AM)
- Acquisition Requirement Development (ARD)
- Acquisition Technical Solution (ATS)
- Acquisition Validation (AVAL)
- Acquisition Verification (AVER)
- Causal Analysis and Resolution (CAR)
- Configuration Management (CM)
- Decision Analysis and Resolution (DAR)
- Integrated Project Management (IPM)
- Measurement and Analysis (MA)
- Organization Innovation and Deployment (OID)

- Organization Process Definition (OPD)
- Organization Process Focus (OPF)
- Organization Process Performance (OPP)
- Organizational Training (OT)
- Project Monitoring and Control (PMC)
- Project Planning (PP)
- Process and Product Quality Assurance (PPQA)
- Quantitative Project Management (QPM)
- Requirement Management (RM)
- Risk Management (RSKM)
- Solicitation and Supplier Agreement Development (SSAD)





### **CMMI-ACQ Complements CMMI-DEV**









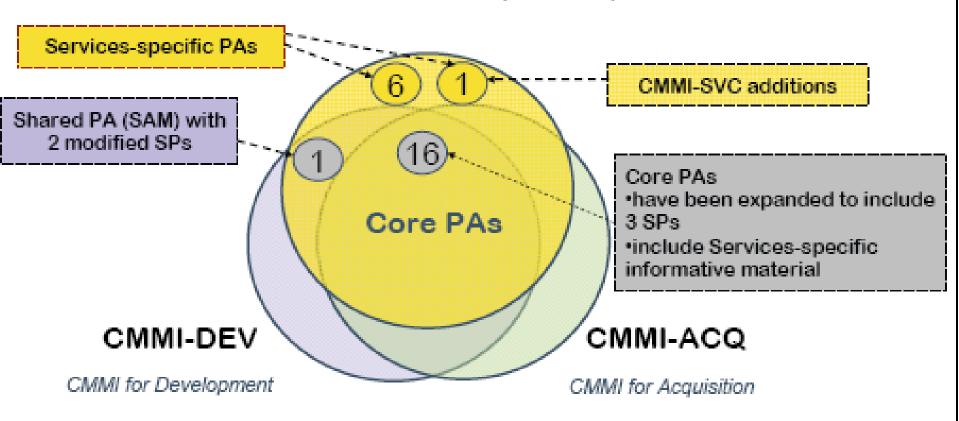
## **CMMI** for Service





### Relationships to Other Constellations

CMMI-SVC (24 PAs)





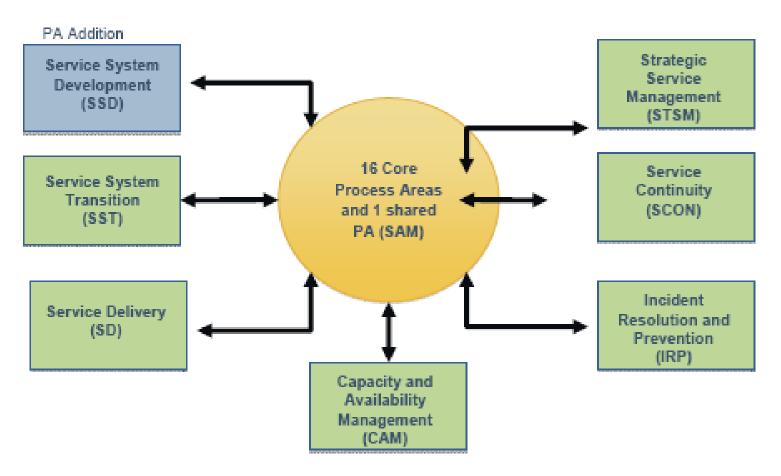








#### CMMI-SVC v1.2 Process Areas







### What Types of Services Does CMMI-SVC Cover?















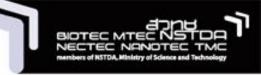




**How: Agile Methodology** 







### Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.





### Golden Rules for Agile Process Improvement

- Dare to share As early as possible and frequently
- The result depends on the team Not the individual members
- The one who checks out a task is not necessarily the one who has to finish it
- The one's working on a task are the right people
- You may critique anything, but you may never criticize anyone Conclusions

These golden rules are something that my team members have learned in the project, and are still using in their current work. For them it is a way to collaborate effectively and efficiently in a team. Your rules will (and should) be different, depending on your needs and the situation at hand. But my expectation is that you can re-use from the principles that we have used to define our rules:

• The Agile Manifesto, EVO, Open Space Technology, Solution Focused, and Retrospectives.

ข้อมูลจาก: http://www.benlinders.com/2011/golden-rules-for-agile-process-improvement



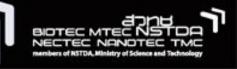


### Agile SDLC

- 1 .Agile SDLC Agile aims to reduce risk by breaking projects into small, time-limited modules or timeboxes ("iterations")
- 2. Each iteration being approached like a small, self-contained mini-project, each lasting only a few weeks. Each iteration has it own self-contained stages of analysis, design, production, testing and documentation.
- 3. In theory, a new software release could be done at the end of each iteration, but in practice the progress made in one iteration may not be worth a release and it will be carried over and incorporated into the next iteration.
- 4. The project's priorities, direction and progress are *re-evaluated* at the end of each iteration.







### **Agile SDLC property**

- Speed up or bypass one or more life cycle phases
- Usually less formal and reduced scope
- Used for time-critical applications
- Used in organizations that employ disciplined method

### **Agile Methods**

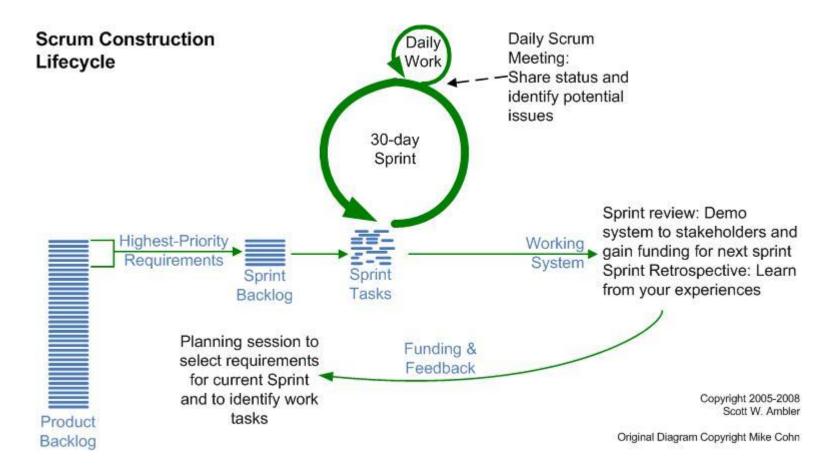
- Adaptive Software Development (ASD)
- Feature Driven Development (FDD)
- Crystal Clear
- Dynamic Software Development Method (DSDM)
- Rapid Application Development (RAD)
- Scrum
- Extreme Programming (XP)
- Rational Unify Process (RUP)







### Agile SDLC: The Scope of Life Cycles

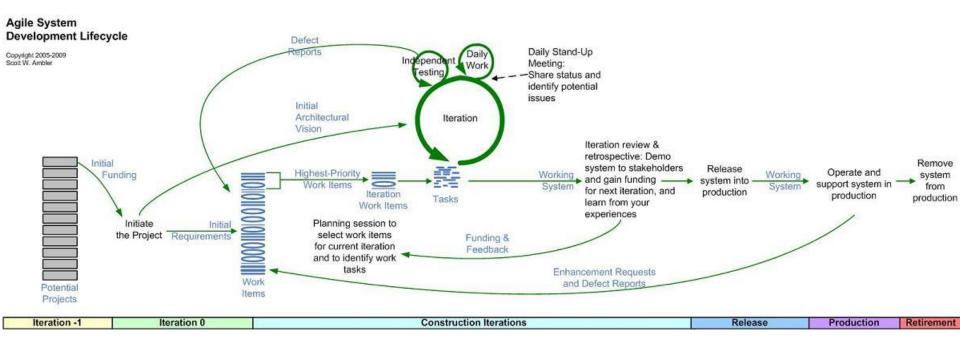








### Agile SDLC: The Scope of Life Cycles

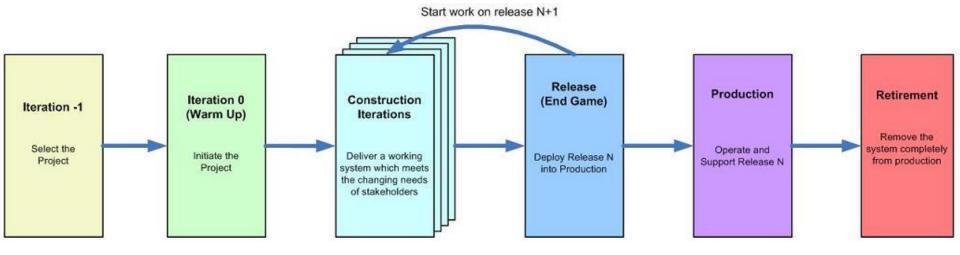








### Agile SDLC: The Scope of Life Cycles



- Identify potential projects
- Prioritize potential projects
- Develop initial vision
- Consider project feasibility
- Active stakeholder participation
- Obtain funding and support
- Start building the team
- Initial requirements envisioning
- Initial architecture envisioning
- Setup environment

- Active stakeholder participation
- Collaborative development
- Model storming
- Test driven design (TDD)
- Confirmatory testing
- Evolve documentation
- Internally deploy software
- Pilot test the release - Train end users
- Train production staff

- Final system testing

- Final acceptance testing

Finalize documentation

- Deploy system into production

- Active stakeholder participation

- Operate the system
- Support the system
- Identify defects and
- enhancements
- Remove the final version of the system-Data conversion
- Migrate users
- Update enterprise models

Copyright 2006-2008 Scott W. Amble







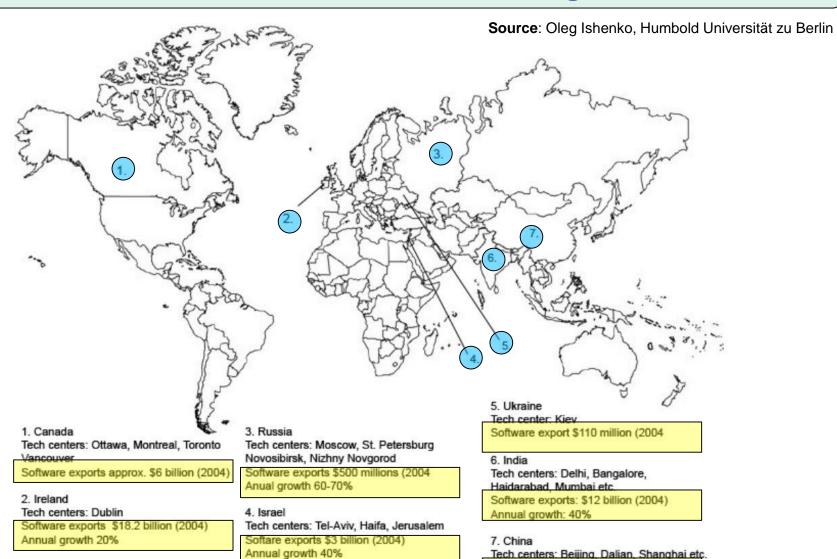
4. CMMI in practices







### **International IT Outsourcing**



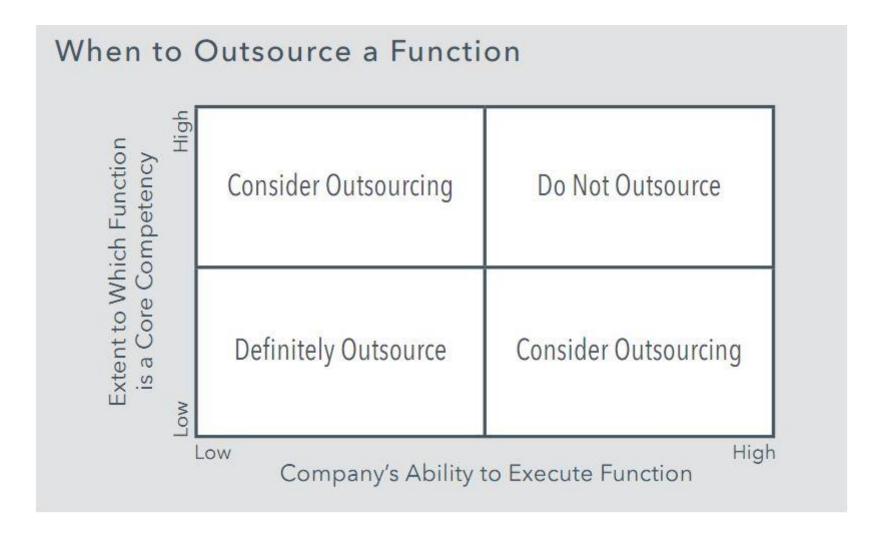
Software exports \$2.8 billion (2004)

Annual growth: over 30%







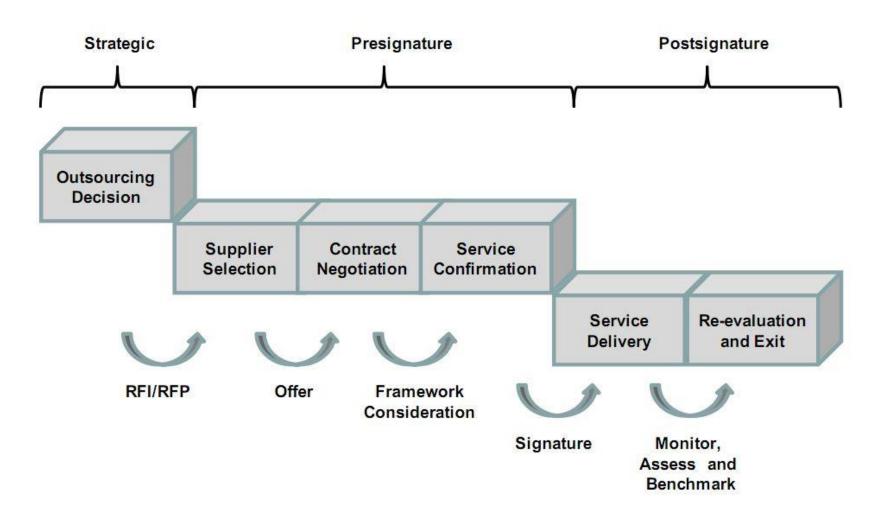








### **Outsourcing Lifecycle**



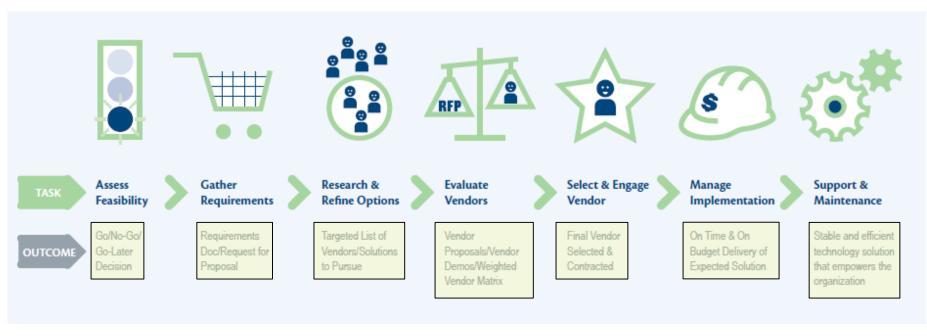
Source: ITGI-2005







### Select the right technology vendor



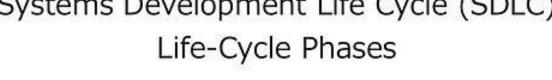
- 1. Go/No-Go/Go-Later Decision
- 2. Requirements Doc/Request for Proposal
- 3. Targeted List of Vendors/Solutions to Pursue
- 4. Vendor Proposal/ Vendor Demos/ Weighted Vendor Matrix
- 5. Final Vendor Selected & Contracted
- 6. On Time & On Budget Delivery of Expected Solution
- 7. Stable and Efficient technology solution







### Systems Development Life Cycle (SDLC) Life-Cycle Phases





Initiation





#### System Concept Development

Feasibility Study.

Defines the scope or Begins when boundary of a sponsor the concepts. identifies Includes Systems a need or an Boundary opportunity. Document. Concept Cost Benefit Proposal Analysis, Risk is created Management Plan and

#### Planning

Develops a Project Management Plan and other planning documents. **Provides** the basis for acquiring the resources needed to achieve a soulution.



#### Requirements Analysis

Analyses user needs and develops user requirements. Create a detailed Functional Requirements Document.



#### Design

Transforms detailed requirements into complete. detailed Systems Design Document Focuses on how to deliver the required functionality



Converts a design into a complete information system Includes acquiring and installing systems environment; creating and testing databases preparing test case procedures; preparing test files, coding, compiling, refining programs; performing test readiness review and procurement activities.



#### Integration and Test

Demonstrates that developed system conforms to requirements as specified in the Functional Requirements Document. Conducted by Quality Assurance staff and users. Produces Test Analysis Reports.



#### Implementation

Includes implementation preparation, implementation of the system into a production environment, and resolution of problems identified in the Integration and Test Phases



#### Operations & Maintenance

Describes tasks to operate and maintain information systems in a production environment. includes Post-Implementation and In-Process Reviews.

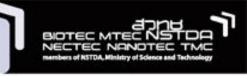


Disposition

Describes end-of-system activities, emphasis is given to proper preparation of data.







### **System Development Methodology**

|                            | Analysis                    | _                               | Design                              |                       |                 | Programming Testing     |                     |    |          |  |
|----------------------------|-----------------------------|---------------------------------|-------------------------------------|-----------------------|-----------------|-------------------------|---------------------|----|----------|--|
| Waterfall Model            | Requirements<br>Definition  | External                        | Design                              | Internal              | Internal Design |                         | Programming         |    | Testing  |  |
| Prototype Model            | Requirements<br>Definition  | External                        | Design                              | Internal Design       |                 | Progra                  | Programming         |    | Testing  |  |
| Spiral Model               |                             | olication Pro<br>esign          |                                     |                       | Evaluatio       | n Requirem<br>Definitio |                     |    | (cont'd) |  |
| RAD Model                  | JRP: Joint Requ<br>Planning | irement                         | ement JAD: Joint Application Design |                       | tion            | Construction            |                     | C  | utover   |  |
| Packaged Software<br>Model | Requirements<br>Definition  | Packag<br>Evaluatio<br>Selectio | n &                                 | Fit & Gap<br>Analysis | Des             | -                       | Add-on<br>Developme | nt | Testing  |  |







# CMMI Asia conference 2014-2015 organized by CMMI Institute









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10-11 December 2014 Shenzhen, China JW Marriott Hotel



26-27 March 2015 London, England

**More information** 



12-13 May 2015

Seattle, Washington, USA The Westin Seattle Hotel

More information

**More information** 







### **CMMI** Asia conference















### **CMMI** conference 2014-china















### **Case Study**







### **CMMI Implementation Guideline & Roadmap**

| ลำดับ | กิจกรรม  | ระยะเวลา  |
|-------|--|-----------|
| 1     | วินิจฉัยเบื้องต้น(Gap Analysis)  | 3 เดือน   |
| 2     | จัดทำกระบวนการและเอกสารที่เกี่ยวข้อง(Process Defintion)                                | 4-5 เดือน |
| 3     | นำกระบวนการไปใช้จริง   | 5-6 เดือน |
|       | 3.1 นำกระบวนการไปทดลองใช้ในโครงการนำร่อง ( Pilot Project )                             | 1 เดือน   |
|       | 3.2 Mini Appraisal สำหรับโครงการนำร่องและปรับแก้กระบวนการให้เหมาะสม                    | 0.5 เดือน |
|       | 3.3 นำกระบวนการไปใช้ในโครงการที่จะนำมาประเมินCMMI (Candidate Project Implementation)   | 3-4 เดือน |
|       | 3.4 Mini Appraisal สำหรับโครงการที่จะนำมาประเมินและปรับแก้กระบวนการให้เหมาะสม          | 0.5 เดือน |
| 4     | Mini Appraisal เพื่อตรวจสอบความพร้อมในการเข้าประเมินจริง(Appraisal Readiness<br>Check) | 0.5 เดือน |
| 5     | Format Appraisal   | 1 เดือน   |

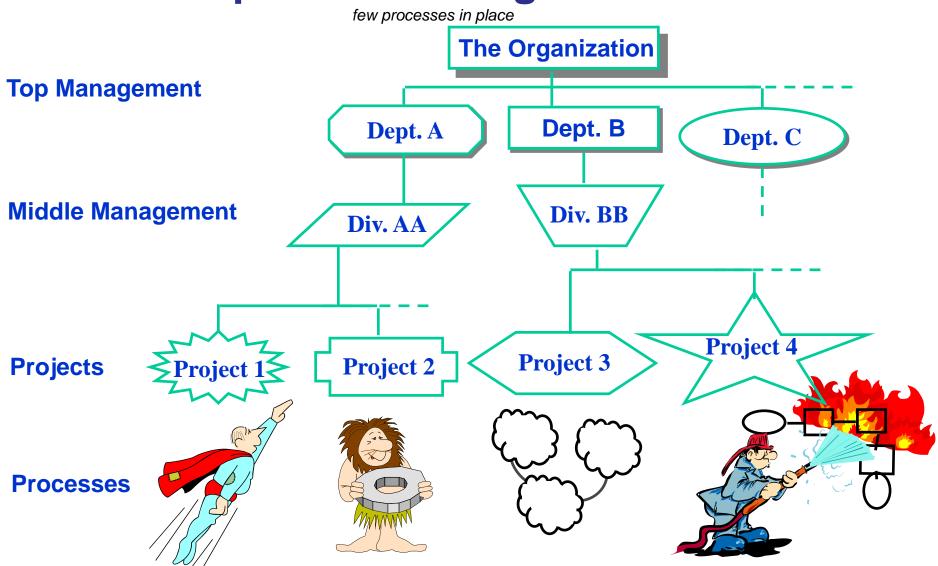
หมายเหตุ : สำหรับ CMMI Level 3-5 จะมีกิจกรรมที่คล้ายกันแต่จะใช้ระยะเวลาดำเนินการนานกว่าขึ้นอยู่กับวุฒิภา วะะของแต่ละ บริษัทและจำนวน Process Area (PA) ที่เพิ่มขึ้นด้วย







### Sample Level 1 Organization



Ref: Software Engineering Process Office, SPAWAR System Center San Diego







# Level 1: the "Initial" Level Success depends on heroes

Good performance is possible - but

- Requirements often misunderstood, uncontrolled
- Schedules and budgets frequently missed
- Progress not measured
- Product content not tracked or controlled
- Engineering activities nonstandard, inconsistent
- Teams not coordinated, not trained
- Defects proliferate

"Processes limit my creativity"

"Processes don't help my delivery schedule"

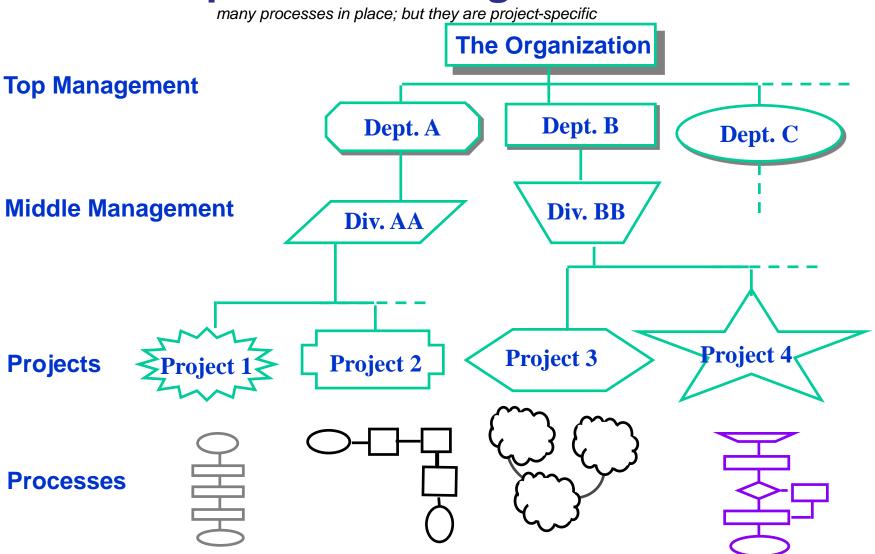








### Sample Level 2 Organization









# CMMI Level 2: the "Managed" Level Establishing basic project management controls

### **7 Process Areas**

#### **DETERMINE REQUIREMENTS**

- Baseline the product requirements DOCUMENT PLANS
- Estimate project parameters,
- Develop plans and processes

#### TRACK PROGRESS

- Measure actual progress to enable timely corrective action
- Measure for mgmt. info needs
- Verify adherence of processes and products to requirements

#### **CONTROL PRODUCTS**

- Identify and control products, changes, problem reports
- Select qualified suppliers / vendors; manage their activities

Requirements Management (REQM)

Project Planning (PP)

- Project Monitoring and Control (PMC)
- Measurement & Analysis (M&A)
- Process & ProductQuality Assurance (PPQA)
- ConfigurationManagement (CM)
- Supplier AgreementManagement (SAM)

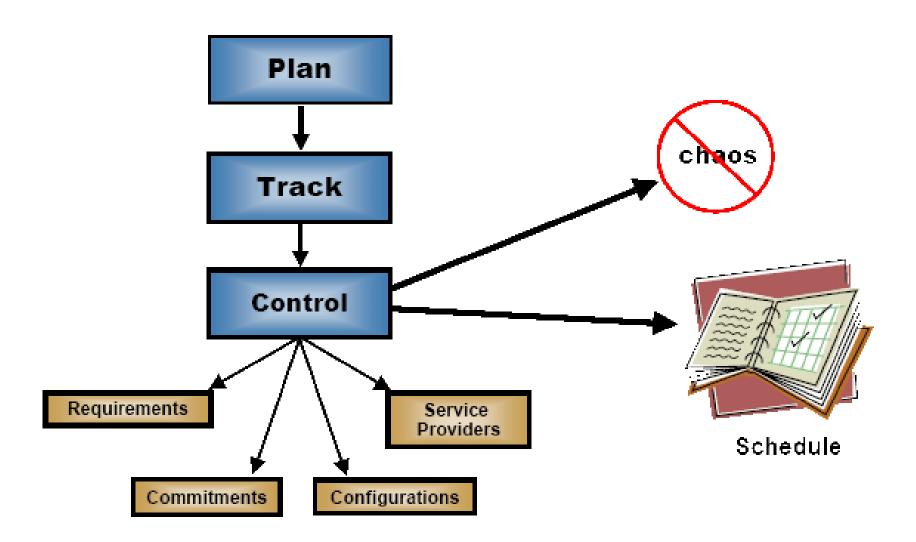








### ML<sub>2</sub>



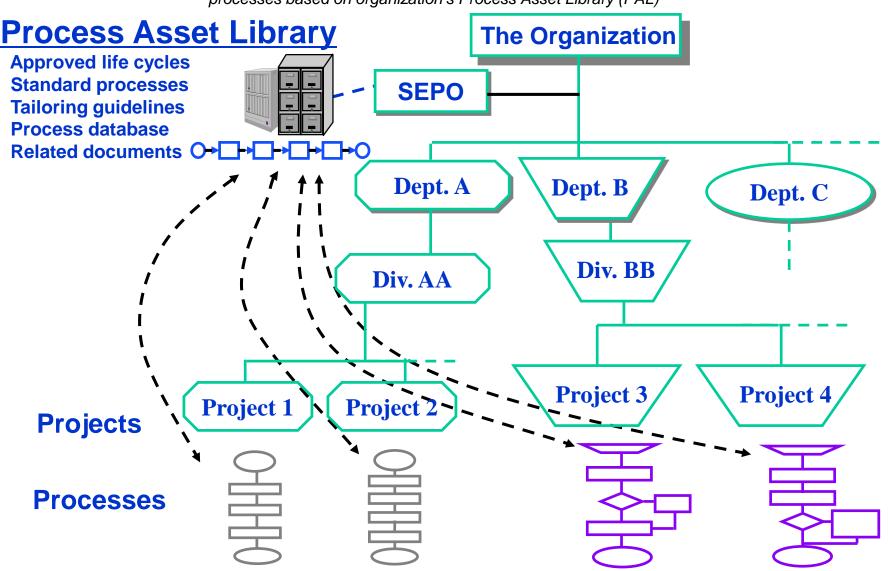






### Sample Level 3 Organization

processes based on organization's Process Asset Library (PAL)



Ref: Software Engineering Process Office, SPAWAR System Center San Diego





## CMMI Level 3: the "Defined" Level - Standardizing the organization's process

11 Process Areas\*

#### **ENGINEER THE PRODUCT**

- Clarify customer requirements
- Solve design requirements; develop implementation processes
- Assemble product components, deliver
- Ensure products meet requirements
- Ensure products fulfill intended use
- Analyze decisions systematically

#### MANAGE THE PROJECT

- Follow integrated, defined processes
- Identify and control potential problems

#### PROVIDE ORG. INFRASTRUCTURE

- Establish org. responsibility for PI
- Define the org's best practices
- Develop skills and knowledge

- Requirements Developmt (RD)
- Technical Solution (TS)
- Product Integration (PI)
- Verification (Ver)
- Validation (Val)
- Decision Analysis& Resolution (DAR)
- Integrated Project Mgmt (IPM)
  - Risk Management (RSKM)
- Org. Process Focus (OPF)
- Org. Process Definition (OPD)
- Org. Training (OT)

ORGANIZATIONAL PROCESSES

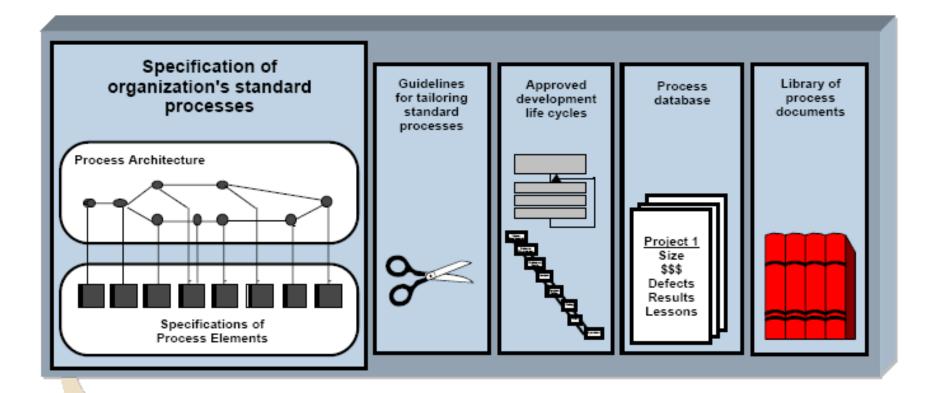
PROJECT MANAGEMENT











- best practices
- consistent work products
- comparable measurements
- · transfer of learning

Cost Function Quality







### **Benefit ML3 - Managers**

### Organization supports managers processes already defined from best practices ☐ templates for planning and managing ☐ history from similar projects **Estimates are more accurate** ☐ common measures across projects □ better negotiating position—data on a defined process Cost, schedule, and functionality in control **Quality improves** ☐ most defects detected before the start of integration test

□ large reductions in defects delivered to customers



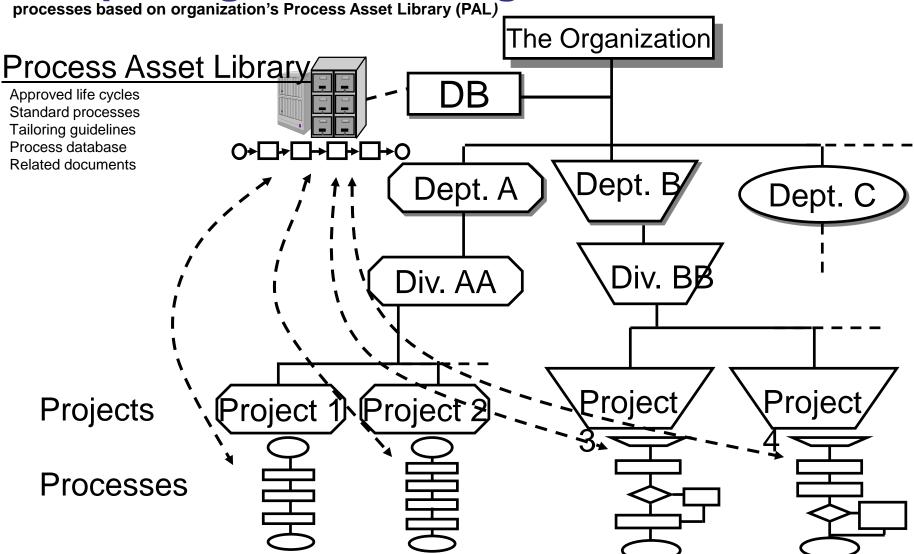




### **Benefit ML3 -Developers**

|     | mmon foundation for professional work  ☐ processes built from best practices ☐ well understood roles   |
|-----|--|
|     | <ul><li>undation for technology benefits</li><li>□ more effective selection of tools</li><li>□ trusted processes produce reusable components</li></ul> |
| Tra | nsfer among projects is enhanced ☐ lessons learned ☐ people  |

A common engineering culture emerges





### BIDTEC MTEC NSTDA NECTEC NANDTEC TMC nembers of NSTDA, Ministry of Science and Technology

### **CMMI Higher Maturity Level Concepts**

#### **OPTIMIZE PERFORMANCE**

 Identify and eliminate the cause of defects <u>early</u>

#### **ADOPT IMPROVEMENTS**

 Identify and deploy new tools and process improvements to meet needs and business objectives

#### MANAGE PROJECTS QUANTITATIVELY

 Statistically manage the project's processes and sub-processes
 MANAGE THE ORGANIZATION

### MANAGE THE ORGANIZATION QUANTITATIVELY

 Understand process performance; quantitatively manage the organization's projects

#### **Level 5 Process Areas**

- Causal Analysis and Resolution (CAR)
- Organizational Innovation and Deployment (OID)

### **Level 4 Process Areas**

- Quantitative ProjectManagement (QPM)
- Organizational Process Performance (OPP)

QUANTITATIVE MANAGEMENT ORGANIZATIONAL PROCESSES

PROJECT MANAGEMENT







### **Process Area Profile (Staged)**

### **Maturity Level:**

5

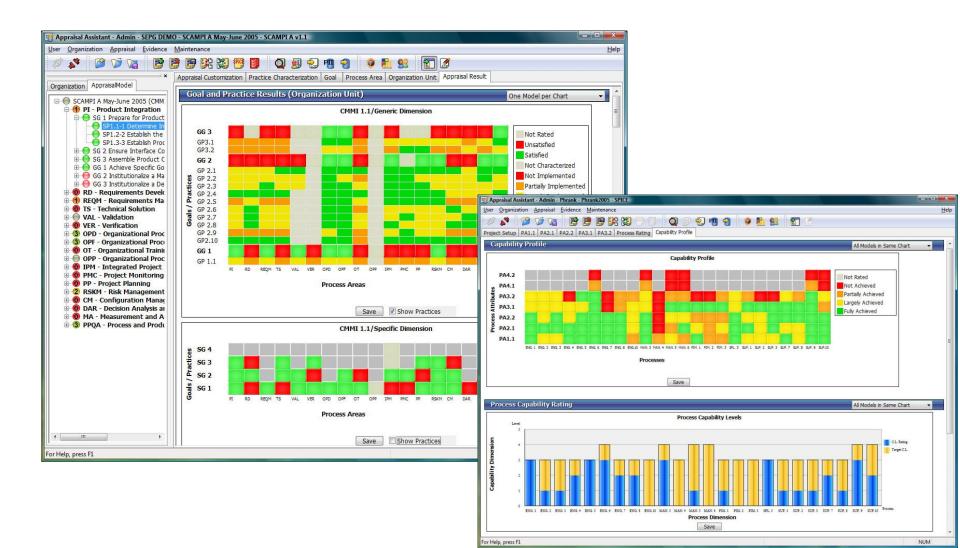
| Optimizing  |   |   |    |       |                |  |  |
|---|---|---|----|-------|----------------|--|--|
| Causal Analysis & Resolution Organizational Performance Management  |   |   |    |       |                |  |  |
|   |   | Quantitatively Manag                          |    |       |                |  |  |
|   |   | Quantitative Project Ma Organizational Proces | ce |       |                |  |  |
|   | Defined   |   |    |       |                |  |  |
|   | Decision Analysis & Resolution Risk Management Integrated Project Management Organizational Training Organizational Process Definition Organizational Process Focus Validation Verification Product Integration Technical Solution Requirements Development |   |    |       | satisfied      |  |  |
|   | Managed   |   | ]  |       |                |  |  |
| Configuration Management Process & Product Quality Assurance Measurement & Analysis Supplier Agreement Management Project Monitoring & Control Project Planning Requirements Management |   |   |    |       | unsatisfied    |  |  |
|   |   |   |    | NA NR | not applicable |  |  |







### **Software for Appraisal**







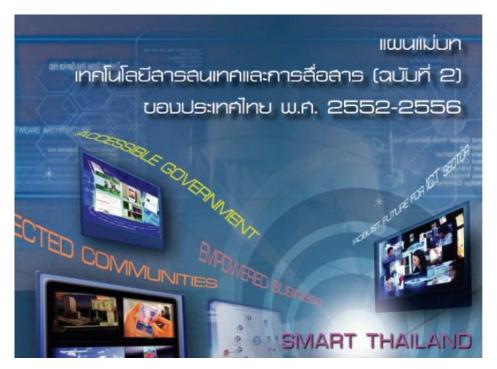


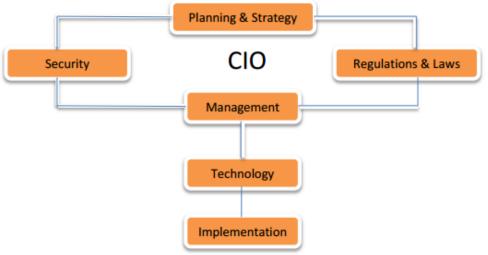
### 5. CIO in ICT Standard









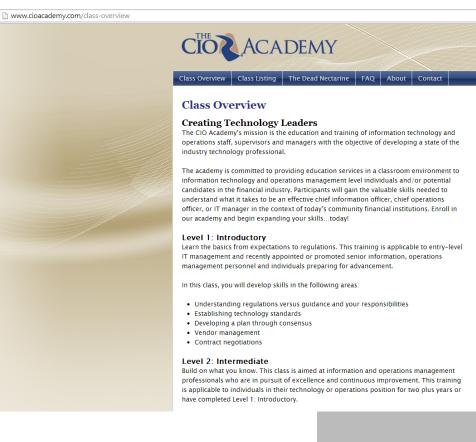












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**AGENDA** 

#### U.S.-U.K. Digital Government Partnership



RESOURCES













#### January 16th, 2015

#### Adam Hughes

Shaun Donovan is the Director of the White House Office of Management and Budget. Megan Smith is the U.S. Chief Technology Officer in the White House Office of Science and Technology Policy.

BLOG

Today, we are building on a long history of innovation and collaboration on digital technologies with the United Kingdom. The President and Prime Minister Cameron just announced a commitment to strengthen and expand the ongoing digital partnership between our two countries. Both countries have made real progress in working to improve how our governments use digital services to better serve citizens and businesses, and to build a stronger digital economy. We will expand our already existing collaborations in these areas as well as continue to support open data and open government initiatives for our own countries as well as for all countries.

U.S.-U.K. innovation and collaboration on digital technology dates back to WWII, when both countries were in need of extraordinary amounts of mathematical computation capacity. Teams from both countries did the seminal work that created modern digital computing. Breakthrough work included the United Kingdom's Bletchley Park code breakers, the ENIAC ballistics calculation advances in the United States, and many other groundbreaking programs in both

The U.S. and U.K. have also been ongoing innovators of open government and open data; from very early releases and collaborations on weather and mapping data to full data portals now hosted at the United Kingdom's data gov.uk, and data.gov in the United States, which host hundreds of thousands of government data sets released to the public. And for decades, United States and United Kingdom innovators have been at the forefront of including children in learning computer coding - from early work at Dartmouth to MIT Media Lab's Seymour Papert's seminal work on Logo in the 1970s and 80s, to the UK's BBC Micro from Acorn, a computer designed with an emphasis on education created during those same early years.

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#### Message from the President



Firstly I would like to thank all chapter members of IAC for

#### About IAC

IAC or International Academy of CIO was founded in 2006 in Japan by co-founders included Japan, USA, Indonesia, Philippines, Switzerland and Thaland. Members and alliances are evolving to include economies in all regions such as China, Cambodia, Holland, India, Korea, Laos, Hong Kong, Macao, Peru, Singapore, South Africa, Taiwan, UK, Viet Nam, Italy, Russia and etc. Its missions includes, firstly to establish academic standards based on its research on

#### Activities and News

Waseda University International e-Government Ranking 2013 The Waseda University Institute of e-Government is pleased to release the 2013 Waseda University International e-Government Ranking. This is the ninth...

International Academy of CIO 7th Anniversary edition Message from Presidents of IAC Chapters

On this the seventh anniversary of founding of the International Academy of CIO, I would like to briefly look back on the IAC's history and some of IA...

APEC-OECD Workshops were concluded successfully The APEC workshop "Information Communication Technology (ICT) Applications for

IAC Meeting and Activities During APEC-OECD Workshops IAC Extra General Meeting The meeting, chaired by Professor Toshio Obi

#### Gallen























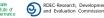






















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Ministry of Technology, Innovation

and Citizens' Services

Office of the Chief

#### About the OCIO

- About Bette-Jo Hughes
- ▶ <u>Governance</u>
- Role of the CIO Role of the Ministry
   CIO
- Architecture and Standards
- Identity Informati Management
- Intellectual Property Program
- Legislation, Privacy and Policy
- Network BC

#### CIO Council

The Chief Information Officer Council (CIO Council) of the Province of British Columbia offers strategic advice and recommendations regarding the management of information and technology (IM/IT). The council is chaired by <u>Bette-Jo</u> <u>Hughes</u>, <u>Chief Information Officer</u> (CIO) for the Province of British Columbia, and its members include ministry

The purpose of the CIO Council is to support the Chief Information Officer's authority for standards setting, oversight and approvals for the Province's information and communications technology, including the implementation of the direction and evaluation measurements as described in <a href="Lapater12">Chapter 12</a> of the Core Policy and Procedures Manual. For more information about IM/IT policies, please visit our related legislation, policy and standards web pages.

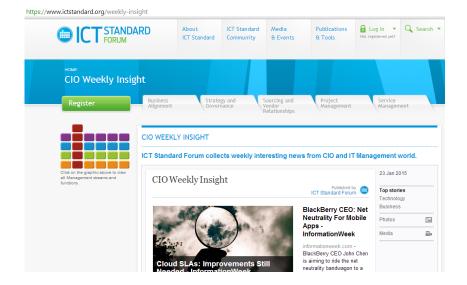
The CIO Council:

- · Provides cross-government leadership and maximizes investments
- · Provides structure and processes for related areas of accountability, authority and responsibility
- Provides an effective business and IM/IT environment
   Promotes the <u>Ministry Chief Information Officer's</u> as executive business and service leaders
   Provides advice on major IM/IT strategic planning and policy issues



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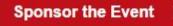
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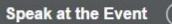
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### Programme

CIO Summit 2015 Advisory Panel

The agenda and theme of the CIO Summit are drawn up in close consultation with a panel of Asia's leading enterprise IT leaders assembled by Executive Networks Media and IDC Asia/Pacific. In short, it's a programme for CIOs by CIOs.



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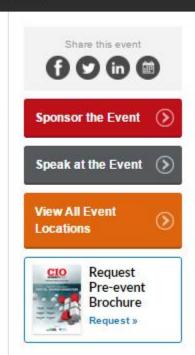
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