



Software Quality Management

Standards & Processes

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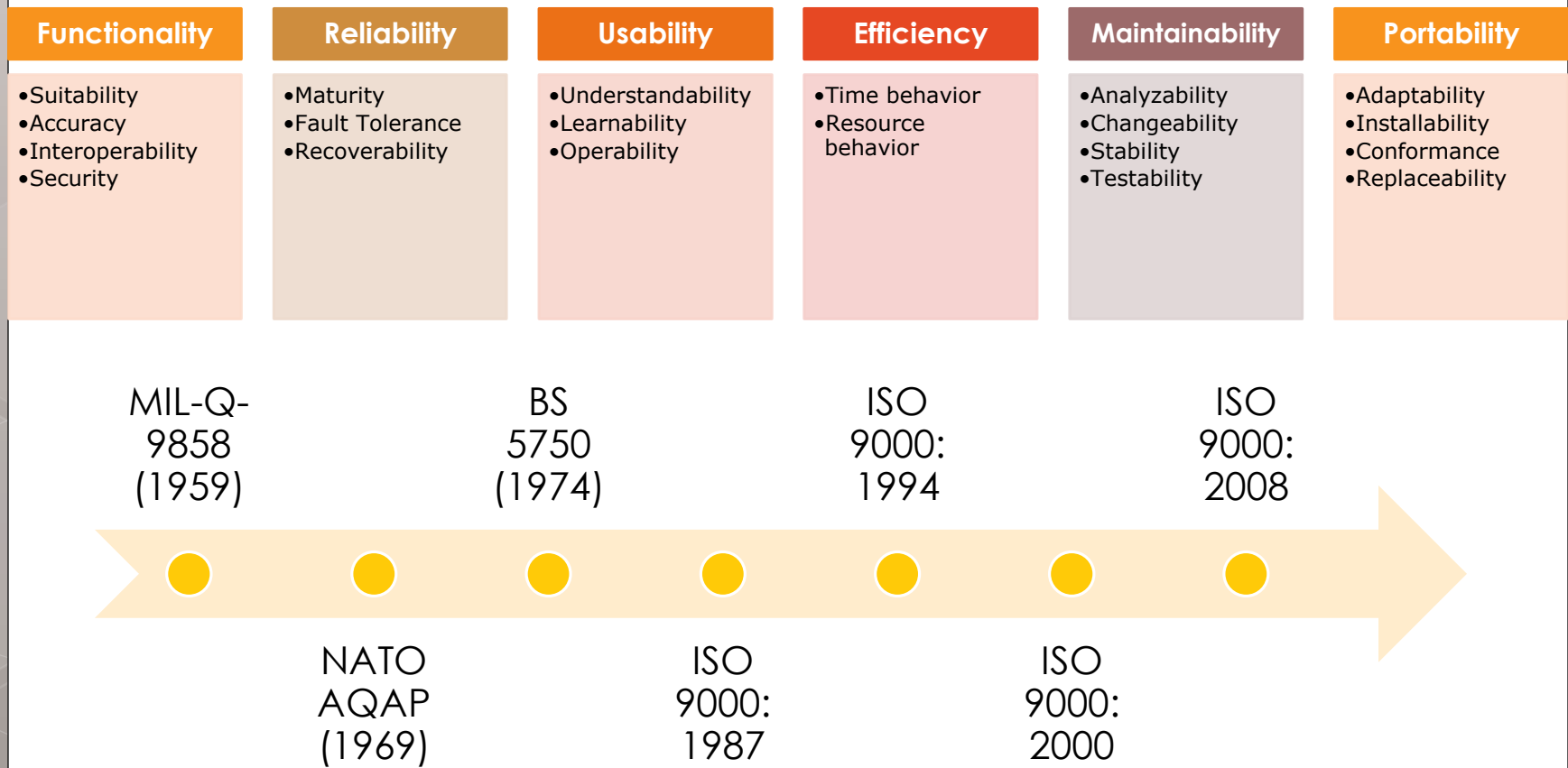
#AdTekDev #ICoTek #VNASQ #VNSQA #VNSoftwareTesting

Outline

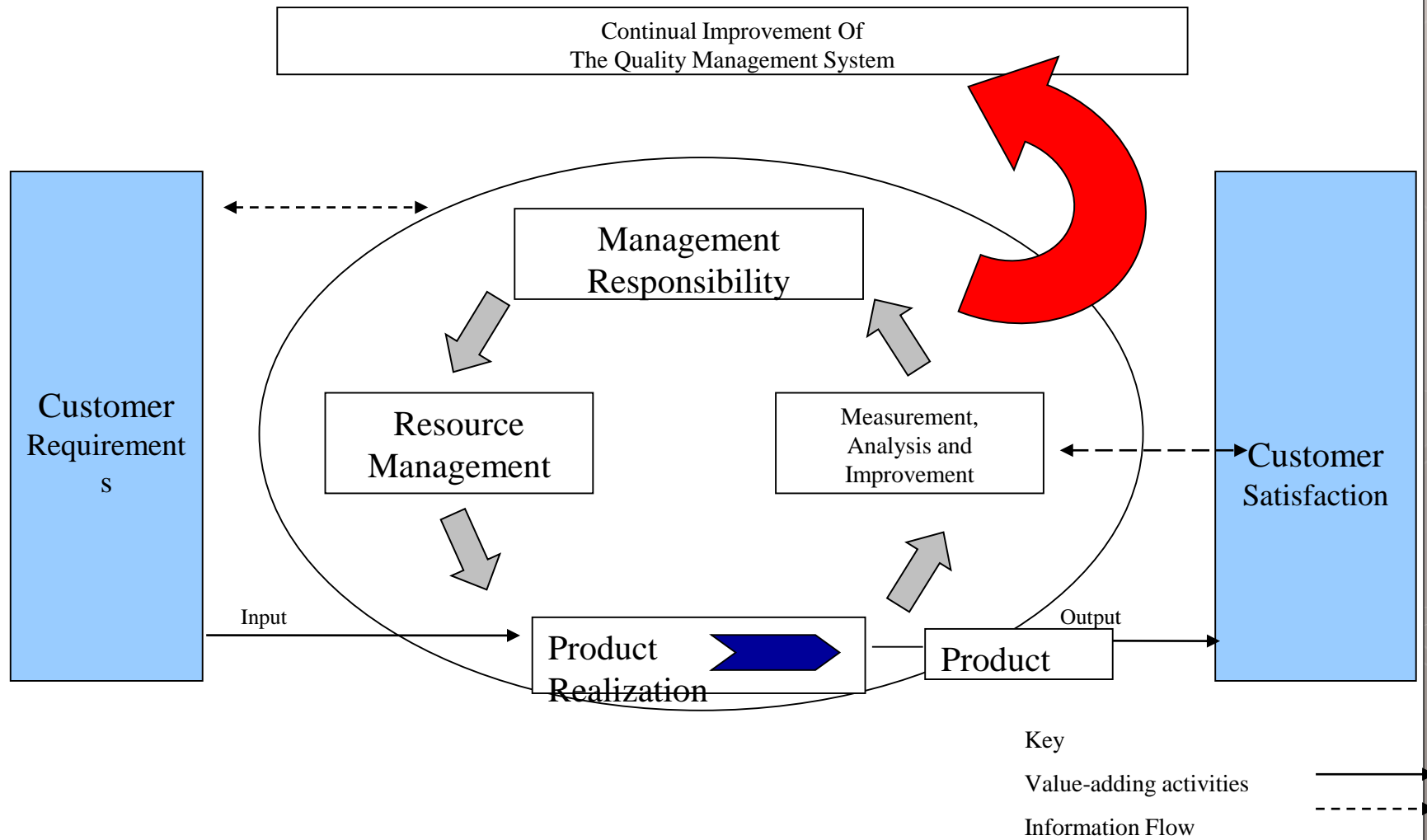
- ISOs
- IEEEs
- TQM
- CMMi
- TMMi
- ITIL
- CoBIT
- Kanban – Lean – TPS
- Kaizen
- 6-Sigma : DMAIC – DFSS



ISOs



ISO 90003 – QMS Model



ISO & IEEEs

Standard Code	Standard
AECL CE-1001	Standard for Software Engineering of Safety Critical Software
BSI BS-7925-2	Standard for Software Component Testing
IEE 3	Guidelines for Assuring Testability
ISO/IEC TR 15271	Guide for ISO/IEC 12207 - (Software Life Cycle Processes)
ISO/IEC 14102	Guideline For the Evaluation and Selection of CASE Tools
ISO/IEC 15408-1	Information technology -- Security techniques -- Evaluation criteria for IT security
IEEE 730	IEEE Standard for Software Quality Assurance Plans
IEEE 829	IEEE Standard for Software Test Documentation
IEEE 1008	IEEE Standard for Software Unit Testing
IEEE 1044	Classification for Software Anomalies
IEEE 1044.1	Guide to Classification for Software Anomalies

ISO & IEEEs

Standard Code	Standard
IEEE 1012	IEEE Standard for Software Verification and Validation
IEEE 1028	IEEE Standard for Software Reviews
IEEE 1045	IEEE Standard for Software Productivity Metrics
IEEE 1059	IEEE Guide for Software Verification and Validation Plans
IEEE 982.1	IEEE Standard Dictionary of Measures to Produce Reliable Software
IEEE 1061	IEEE Standard for a Software Quality Metrics Methodology
ISO/IEC 27001	Information security management
ISO/IEC TR 9126	Software engineering -- Product quality
ISO/IEC 250xx	Software engineering -- Software product Quality Requirements and Evaluation (SQuaRE)
ISO/IEC 25010	(SQuaRE) -- System and software quality models
ISO/IEC 25020	(SQuaRE) -- Measurement reference model and guide
ISO/IEC 25030	(SQuaRE) -- Quality requirements
ISO/IEC 25040	(SQuaRE) -- Evaluation guide for developers, acquirers and independent evaluators

TQM

Counting

Tools, techniques, and training in their use for analyzing, understanding, and solving quality problems

Customers

Quality for the customer as a driving force and central concern.

Culture

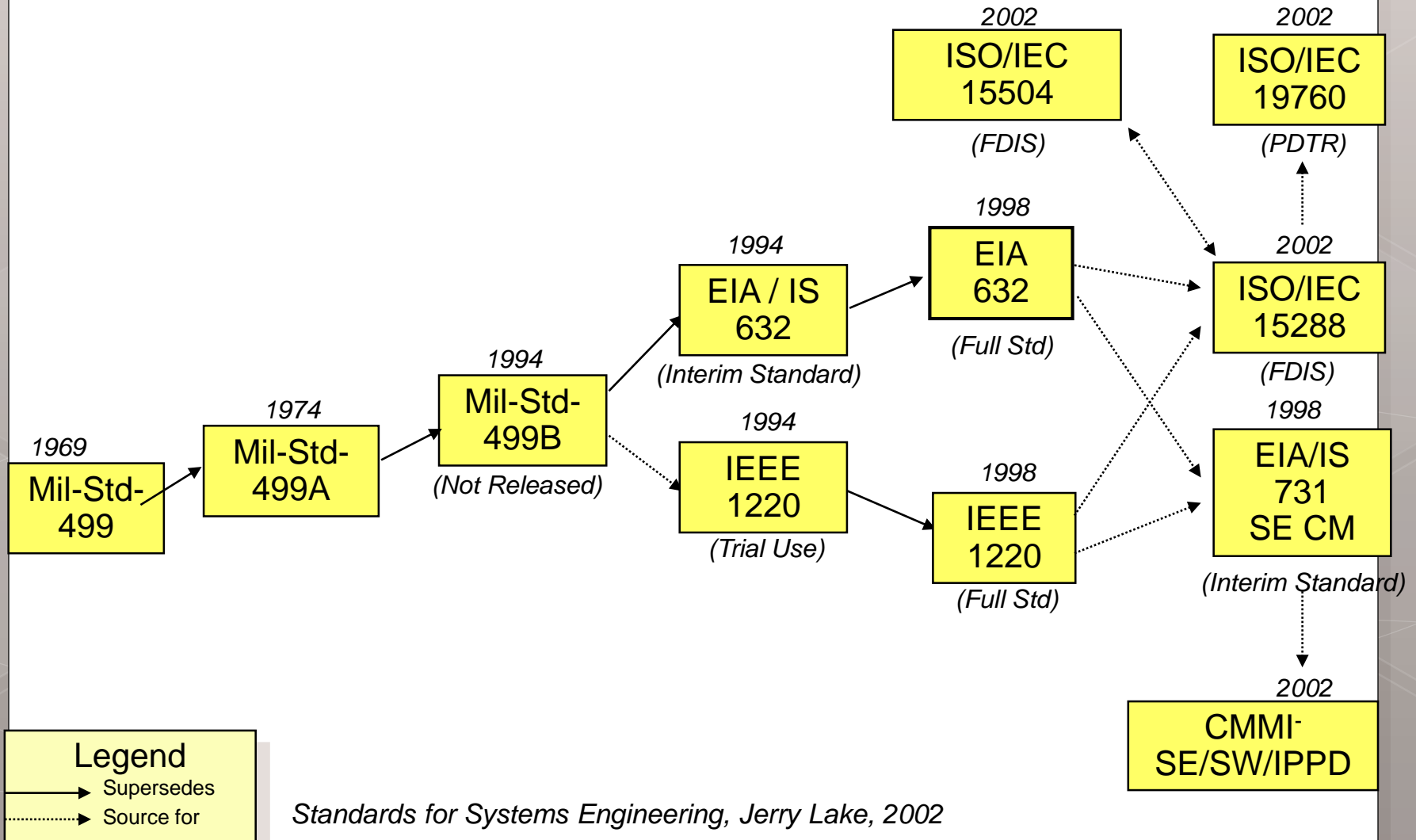
Shared values and beliefs, expressed by leaders, that define and support quality.

TQM

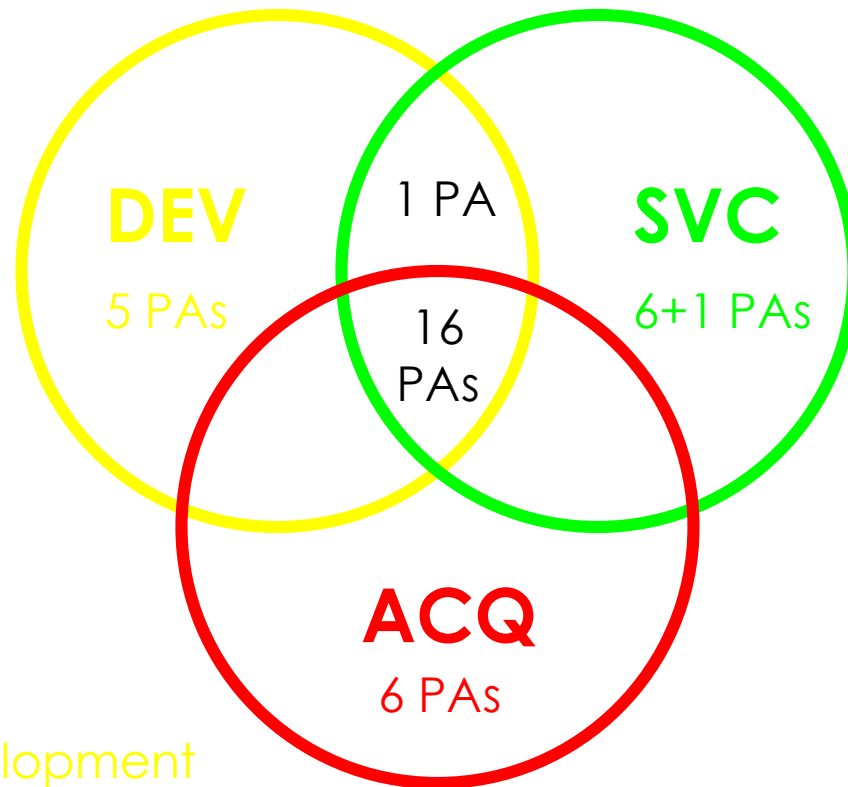
1. Focus on delivering customer value.
2. Continually improve systems and processes.
3. Focus on managing processes rather than people.
4. Use teams to continually improve.



CMMi



CMMi



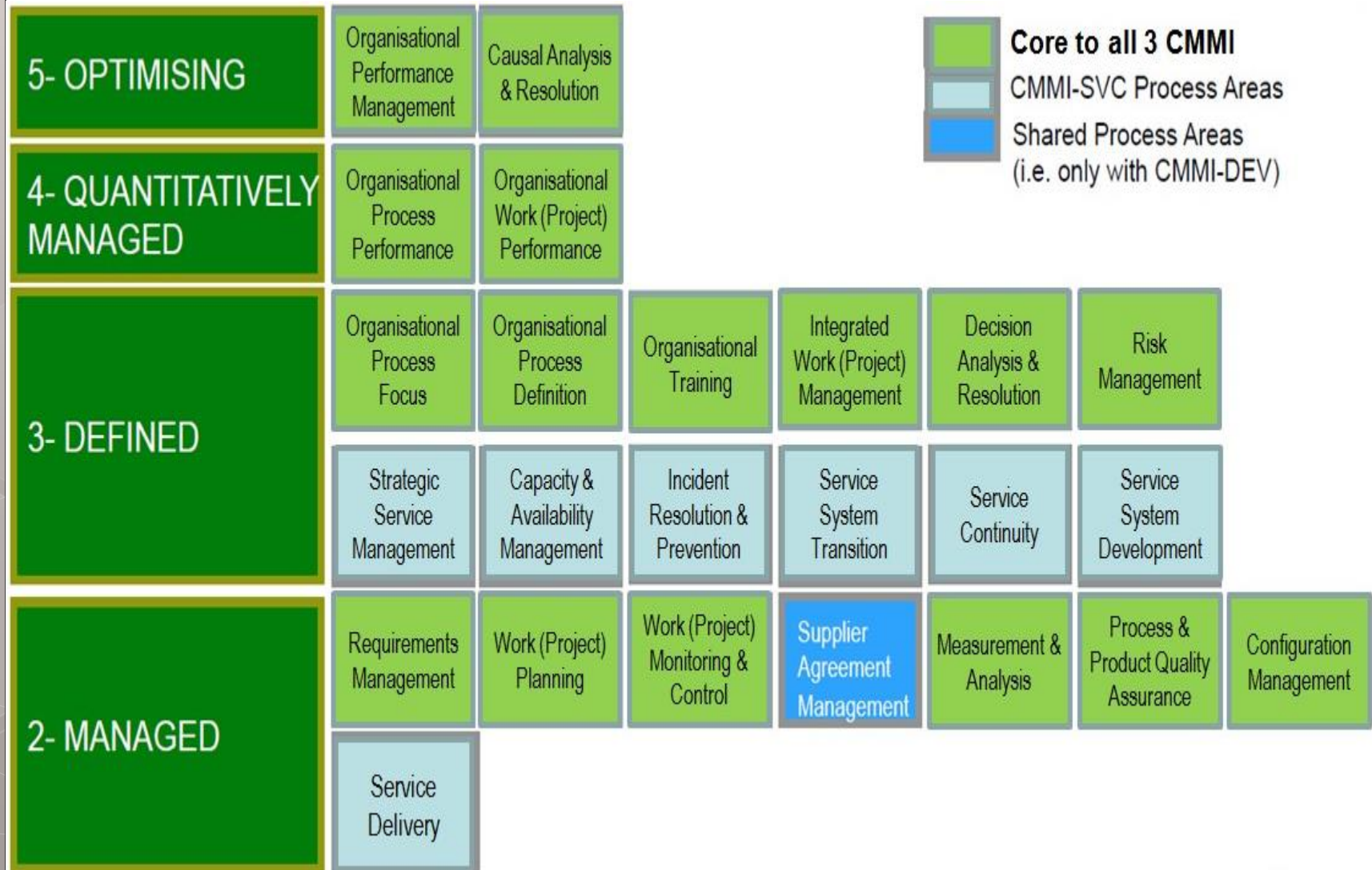
CMMI-DEV - Development

CMMI-SVC - Services

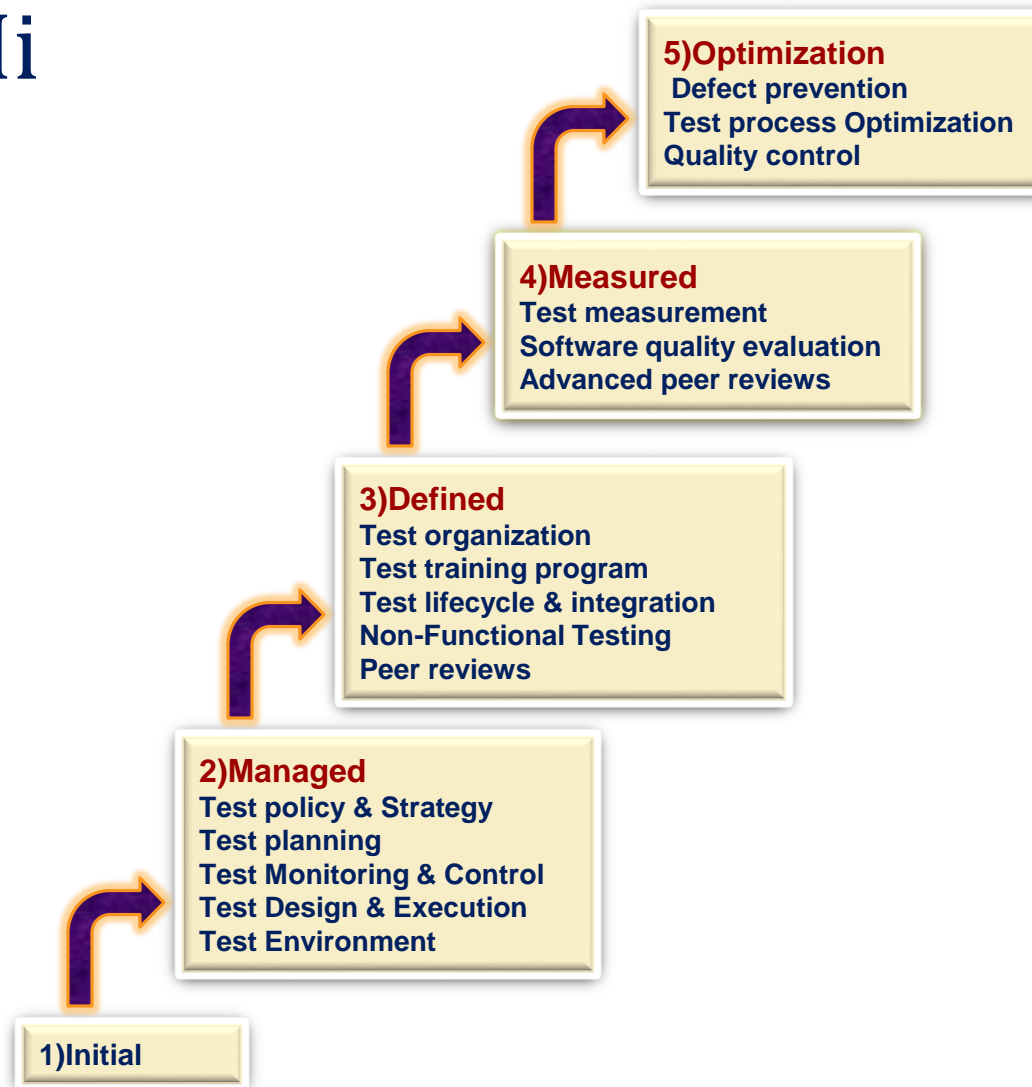
CMMI-ACQ - Acquisition

CATEGORY

MATURITY LEVEL	CATEGORY			
	Process Mgt	Project Management		Service Establishment and Delivery
				Support
	5	• OID		• CAR
	4	• OPP	• QPM	
3		• OPF • OPD* • OT	• IPM* • RSKM • Service Continuity Management (SCON) • Capacity and Availability Management (CAM)	• DAR
			• Strategic Service Management (STSM) • Service System Transition (SST) • Incident Resolution and Prevention (IRP) • Service System Development (SSD) [ADDITION]	
2			• PP* • PMC • REQM • SAM*	• CM • PPQA • MA



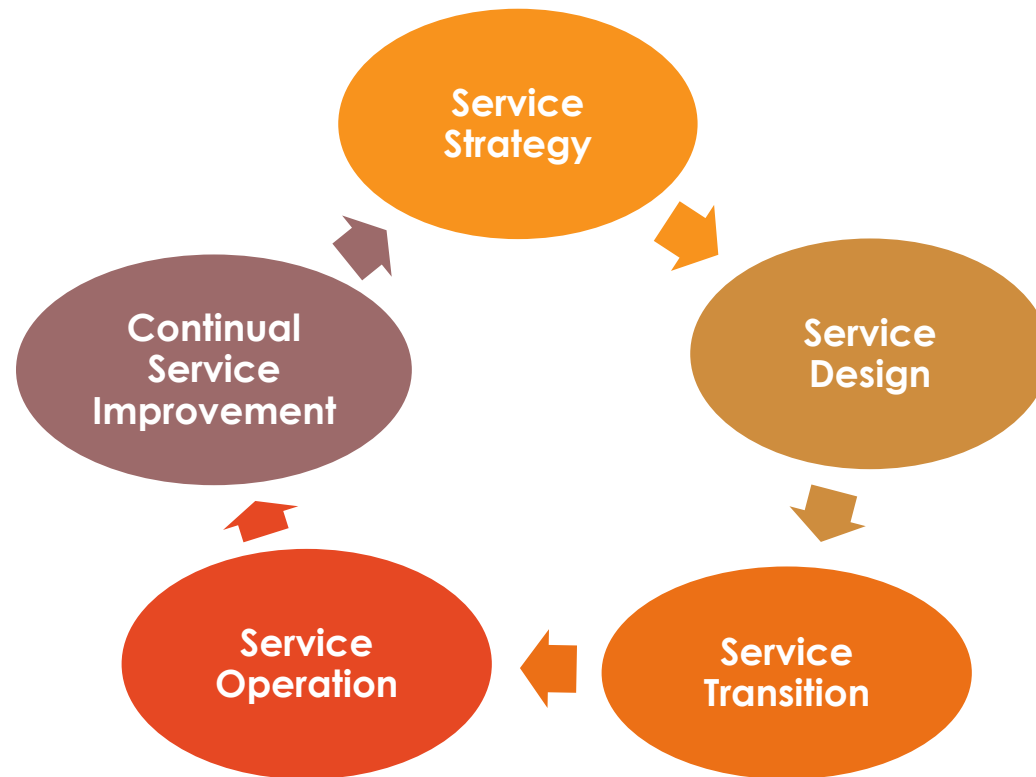
TMMi

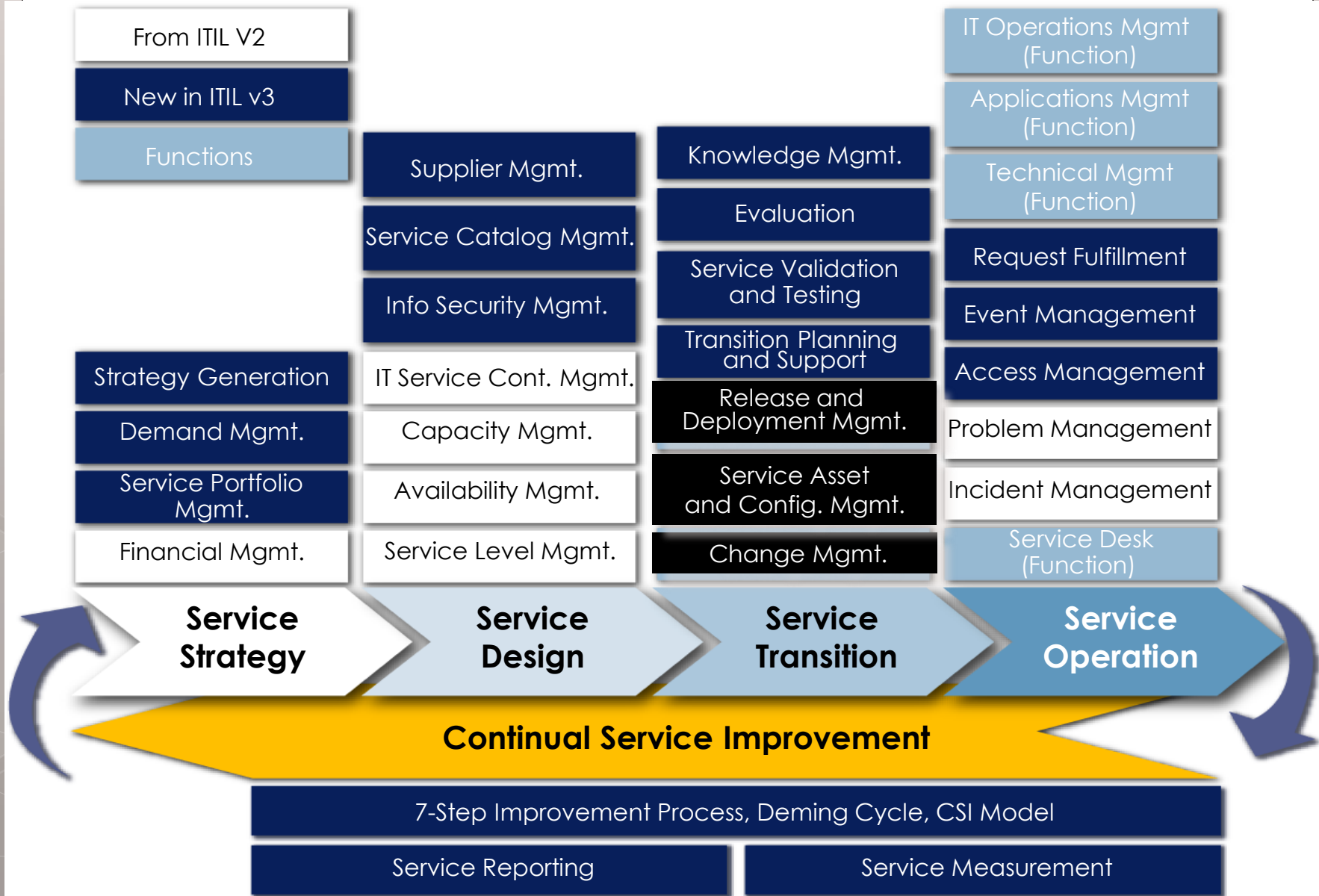


TMMi – CMMi

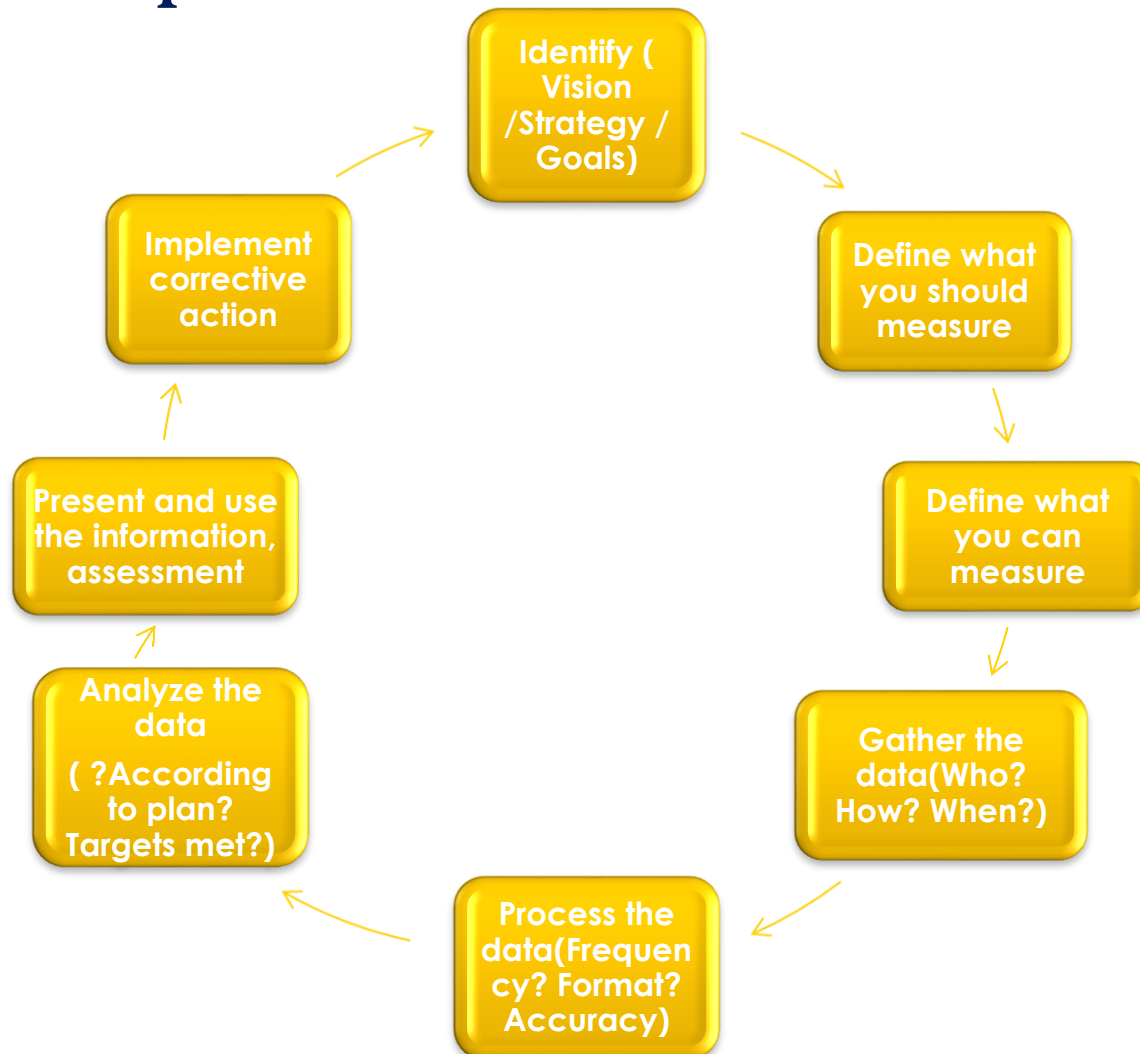
Level	Focus	Key Process Areas (CMMi Testing)	TMMi Level
5 Optimizing	Continuous Process Improvement	Improved Test Process	Defect Prevention
		Defect Management	Test Process Optimization
			Quality Control
4 Quantitative Managed	Quantitatively Managed	Establish & measure testing process performance	Test Measurement
		Peer Reviews	Product Quality Evaluation
			Advanced Peer Reviews
3 Defined	Process Standardization	Standard template for test requirements collection	Test Organization
		Integration test plans & schedule	Test Training Program
		Testing Process	Test Life Cycle and Integration Non-Functional Testing
		Peer Reviews	Peer Reviews
2 Managed	Basic Project Management	Gathers Testing Requirements	Test Policy and Strategy
		Testing Schedule	Test Planning
		Testing Execution	Test Monitoring and Control
		Testing Monitoring & Reporting	Test Design and Execution
1 Initial	Process is informal and Adhoc	No Process for Testing	Testing is a chaotic,
			Undefined process

ITIL





ITIL – improvement

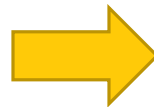


CoBIT

Control Objectives for Information and Related Technology

Resources

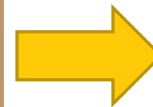
- Data
- Application systems
- Technologies
- Facilities
- People



Processes

4 Major Domains

- Plan & Organize
- Acquisition & Implementation
- Delivery & Support
- Monitoring



Business Requirements

- Effectiveness
- Efficiency
- Confidentiality
- Integrity
- Availability
- Compliance
- Reliability

... COSO, ITIL, ISO 17799

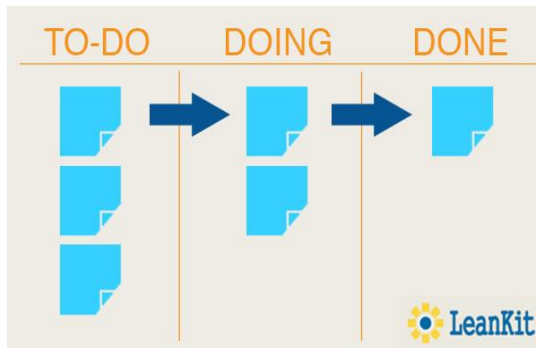
Kanban

- Stop Starting things and Start Finishing them.

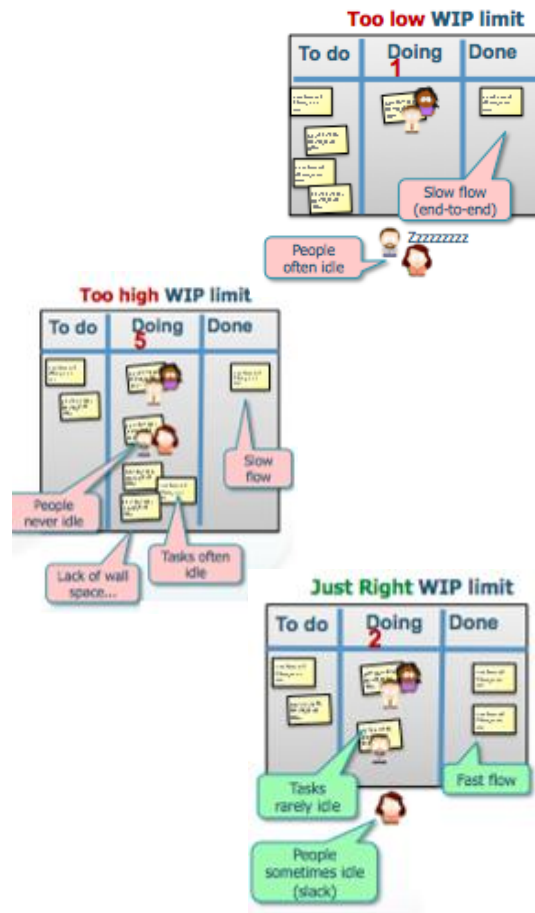


Kanban

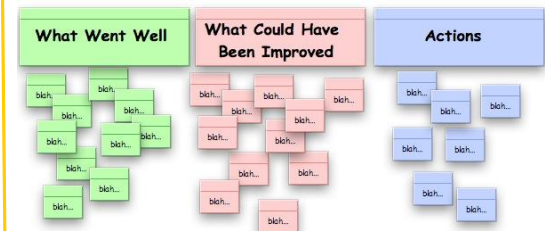
Visualize your Tasks



Minimize your WIP



Improve



Kaizen

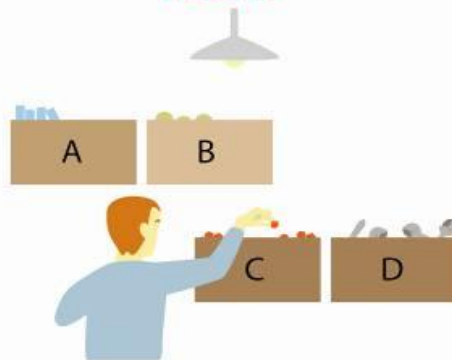
改善

- Eliminate waste (non value added activities)
- Increase productivity / output
- Reduce inventory (less material and labor)
- Reduce cycle time (less time to produce specific part)
- Reduce space (work cell, office area)
- Improve On-Time Delivery (OTD)
- Improve quality of product and process
- Improve housekeeping, 5S and visual management
- Reduce downtime (setup time, maintenance)
- Reduce transport time and distance
- Standardize the process (less variation)
- Reduce operating costs

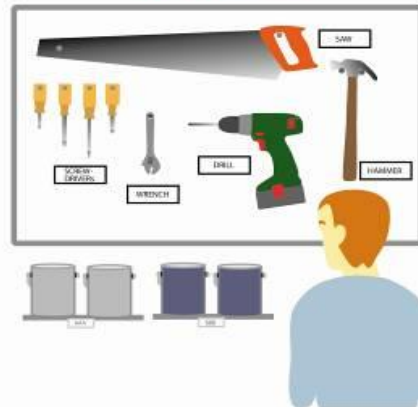
Kaizen Activities

5 S's

1. SORT



2. STABILIZE



3. SHINE



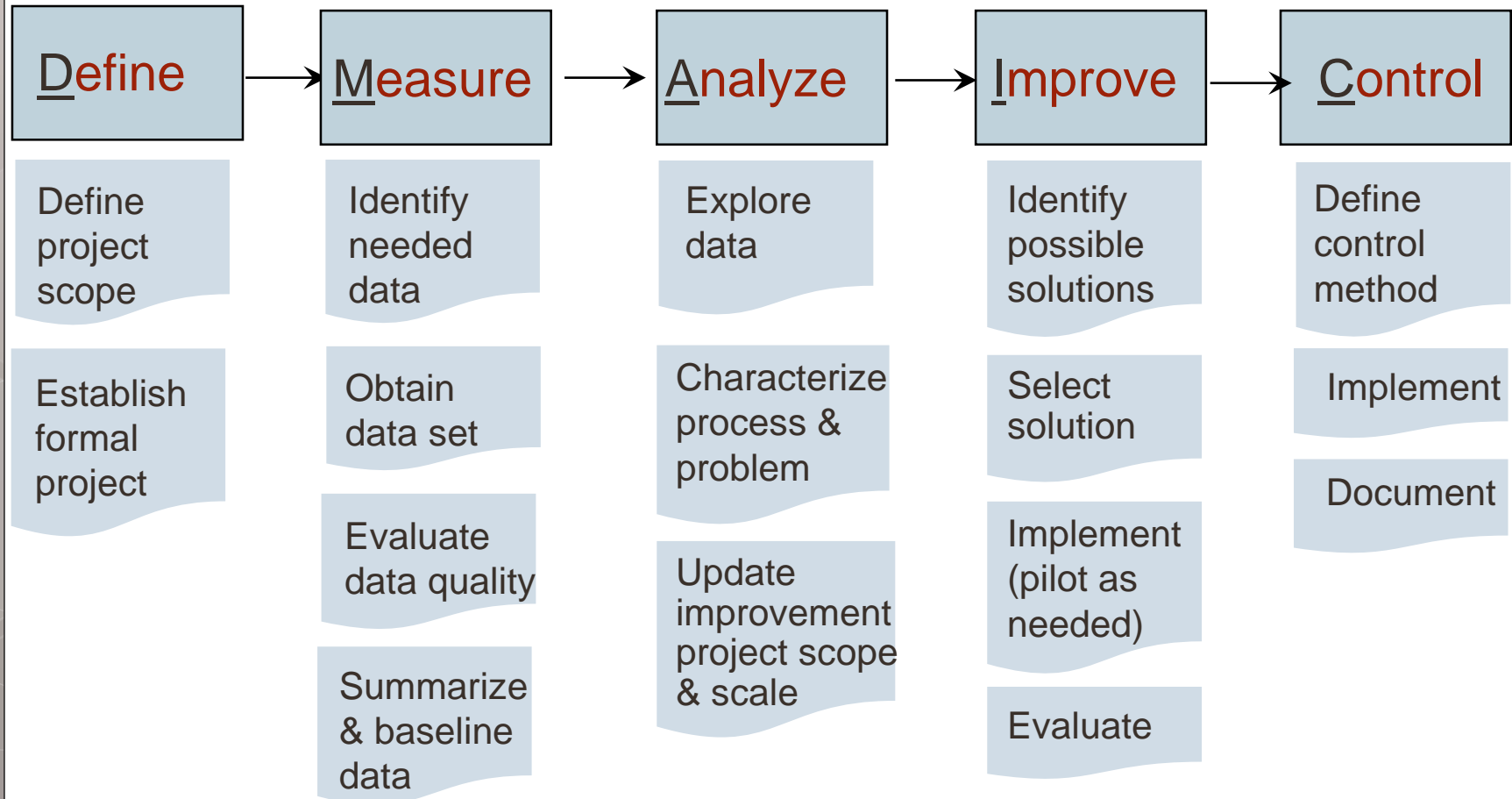
4. STANDARDIZE



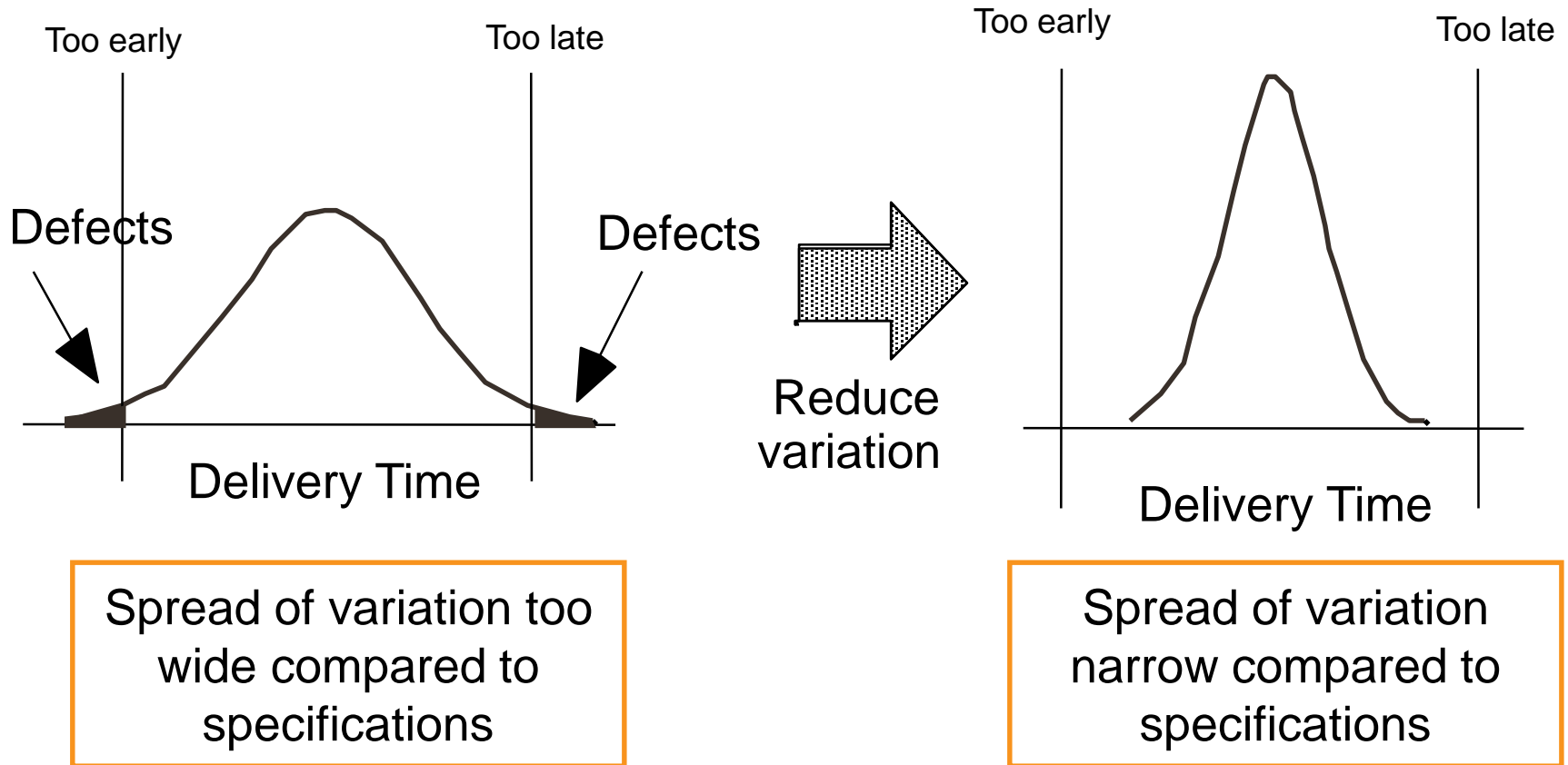
5. SUSTAIN



6-Sigma : DMAIC – DFSS



LSS – Lean six sigma



Q/A ?!

