Best of Everything – ITIL, CMMI & Lean Six Sigma

SEPG 2008, Tampa FL

March 2008
What will be covered?

♦ Key Issues / Problem Statement
♦ Understanding individual frameworks / methodologies
♦ Comparison of approaches
♦ Integrating frameworks
♦ Summary
Key Issues

♦ We are already doing CMMI – does it makes sense to do Lean and Six Sigma?
♦ We have CMMI level 5 matured processes – do we still align to ITIL?
♦ Are these approaches compatible?
♦ Is there a need for organization to go for individual frameworks?
♦ What are the building blocks for an integrated approach to quality?
Business Challenges

Meeting ever increasing customer needs and demands

- Doing it right the first time
  - Lower maintenance cost

- Doing it efficiently
  - Lower development cost

- Doing it on-time every time
  - Lower schedule overrun cost
The Journey so far

Yesterday’s milestone is today’s benchmark.

- Develop a best-practice process.
- Improve and innovate the process. Build quality around people processes.
- Reduce waste, increase process speed.

Top Down

Bottom Up

Time

Quality Management System
ISO 9001/TickIT

CMM, CMM(I), Agile, ITIL, CobiT

Six Sigma PCMM

Lean
The Journey going forward

**Traditional view**
- Processes
  - Doing things well
  - Internal silos
  - Quality
  - Certifications
  - Value driven

**Contemporary view**
- Defects, productivity, waste
  - Doing the right things well
  - End-to-end, integrated supply chain
  - Operational effectiveness
  - Achieving enterprise goals
  - KPI and value driven

**Process Maturity**
- Process, People and automation
These approaches address the same objective – Efficiency and High Quality

Maximise productivity, product quality, defect level and time

All these approaches lead to continuous improvements and can be integrated so that they yield synergy
What are these frameworks / approaches?

♦ ITIL – a framework for IT Service Management. It consists of set of guidelines that specify what an IT organization should do based on industry best practice.

♦ CMMI – a framework for managing processes and integrating activities across an organization

♦ Lean – a set of principles for efficient and effective processes

♦ Six Sigma – a problem solving approach that addresses specific improvement needs through improvement projects
What is ITIL?

♦ ITIL (IT Infrastructure Library) provides a framework of Best Practice guidance for IT Service Management and since its creation, ITIL has grown to become the most widely accepted approach to IT Service Management in the world.

♦ Business and IT integration

♦ Value Service Network Integration

♦ Dynamic Service Portfolios

♦ Service management Lifecycle
What is CMMI ®?

♦ Capability Maturity Model Integration is a process improvement approach that provides organizations with the essential elements of effective processes.

♦ It can be used to guide process improvement across a project, a division or an entire organization.

♦ CMMI® helps integrate traditionally separate organizations functions, set process improvement goals and priorities, provide guidance for quality processes and provide a point reference for appraising current processes.

♦ A basis for planning improvements to the business processes
Focus on CMMI ® levels

♦ Levels 2 and 3 address the definition of engineering and management processes
  — Organizational Process Definition
  — Organizational Process Focus
  — Others defining specific disciplines

♦ Levels 4 & 5 address the control and improvement of those processes
  — Organizational Process Performance (OPP)
  — Quantitative Project Management (QPM)
  — Causal Analysis and Resolution (CAR)
  — Organizational Innovation and Deployment (OID)
What is Lean?

“Lean is a philosophy that shortens the timeline between the customer order and the shipment by eliminating waste.”

John Shook, Toyota’s first American manager in Japan

“Lean is the search for perfection through the elimination of waste and insertion of practices that contribute to reduction in cost and schedule while improving performance of products”

Lean Aerospace Initiative, MIT, WP99-01-91

• Lean is not a process but a mindset
• A grassroots productivity enabler
• Action oriented: focused on NVA elimination
• Difficult to imitate
The Toyota Way – Key Principles

Continuous improvement

Go see yourself to understand thoroughly (Genchi Genbutsu)
Make decisions slowly by consensus, thoroughly considering all options; implement rapidly
Continuous organization learning thru Kaizen

People & Partners

Respect challenge & grow

Grow leaders who live the philosophy
Respect, develop and challenge your people and teams
Respect, challenge and help your suppliers

Process

Eliminate Waste

Create process flow to surface problems
Use pull systems to avoid overproduction
Level out the workload (heijunka)
Stop when there is a quality problem (jidoka)
Standardize tasks for continuous improvement
Use visual control so no problems are hidden
Use only reliable, thoroughly tested technology
What is Six Sigma?

♦ Six Sigma is a set of practice originally developed by Motorola to systematically improve process by eliminating defects

♦ Refers to ability of highly capable process to produce output within specification
ITIL and CMMI

- CMMI and ITIL improves the Software Development Process and Software Quality and reduces the Cost Of Quality

**ITIL**
- The focus for ITIL is Service Management/operations
- ITIL in IT operations and services
- Addresses IT operations issues, such as security, change and configuration management, capacity planning, troubleshooting and service desk functions.
- Framework for the operations and infrastructure side of IT, particularly for IT Services.

**CMMI**
- The focus for CMMI is software development, integration, deployment and maintenance
- CMMI in application development, ICT Infrastructure projects
- Geared specifically to software development organizations, and focuses on continuous improvement
- The de facto quality standard for software development processes
Lean and Six Sigma

♦ **Lean Six Sigma** is a business improvement methodology which combines tools from both Lean Manufacturing and Six Sigma

- Lean manufacturing focuses on speed
- Six Sigma focuses on quality
- Result is better quality faster

Combination of tools utilization to optimize the improvement results

** Lean and Six Sigma tools**

- Req Analysis
- Planning (Work allocation)
- Design
- Coding
- Unit testing
- System Test

- VOCT QFD
- Hypothesis testing
- Pugh Matrix
- PMEA
- Cybernetic complexity
- Orthogonal Array
- Reliability Engineering

- VSM DSM
- Concurrent Engineering
- Pull Workload leveling
- Standardization
- Visual Controls
- Takt Visual Controls
- SMED SS
CMMI ® and Lean Six Sigma

♦ Lean CMMI is an approach to software engineering process improvement that integrates agile computing methods with process design and deployment for organization's wishing to improve software engineering capability and achieve desired maturity level.
CMMI and Lean Six Sigma

♦ **Six Sigma** identifies what activities are used for improvement (DMAIC, DMADV)

♦ CMMI identifies how those activities might be implemented

Focus on specific improvement projects

```
Define       Measure       Analyze       Improve       Control
```

Focus is foundation for organization improvement

- CMMI Level 2, 3
- CMMI Level 2, 4
- CMMI Level 2, 3, 4, 5
- CMMI Level 3, 5
- CMMI Level 2, 3, 4
Integrating ITIL, CMMI and Lean Six Sigma

Process Maturity

Excellence
Kaizen

ITIL
Operate
Deploy

CMMI
Design
Develop

Lean
Six Sigma

Defect Prevention

Process Institutionalization

Infrastructure
Applications
Conclusions and Next Steps

CMMI translates many Six Sigma concepts into software and systems terminology

Six Sigma is difficult for Level 1 organizations to implement however Lean principles do apply

ITIL, Lean, Six Sigma and CMMI based process improvement are complementary

Incorporating Lean principles and Six Sigma techniques helps organizations working towards level 4 and 5 to deliver the best business results

Organization has well defined and documented processes that collectively have been demonstrated to deliver superior IT services to the business.

The processes are integrated and operating at a measurable and standardized maturity level.
Conclusions and Next Steps

Integrated Framework adoption in Software Services Delivery – A Unique Initiative

Focus on Operational effectiveness

Continuous improvement program in place

Main Results are in reducing Cycle time, improving throughput, reducing Crisis Situations – Overall improving productivity

Next Steps – collaborating with our clients in applying end–to-end solutions in creating Unique Value through a synergistic, symbiotic and strategic partnership
Case Study: Establishing maturity

- Reduced risk
- Improved productivity
- Reduced defects
- On-time/on-budget delivery
- Better visibility

- ISO – basic foundations of documented systems
- CMM & CMMI – software engineering practices
- ITIL – to focus on Service Management
- Six sigma – customer focused data driven time bound improvements
- Lean – for org level waste elimination & continual improvement
- Agile – to build in flexibility and adaptability

Thank You