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# Role of Test Manager at Crossroads?

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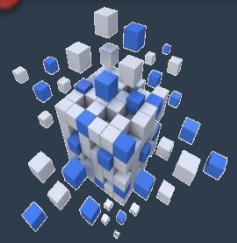
# The World of IT Today

## Digital Revolution

- By 2020, connected devices will touch 50 billion
- By 2017, 35% of enterprise applications will be hosted on cloud
- 64% of the testing in new development projects relates to big data, mobile and cloud

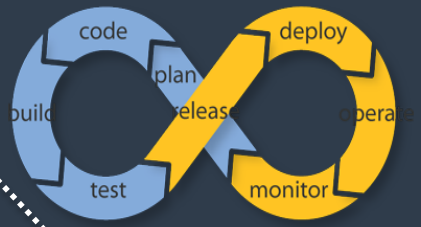


## Specialization & Consolidation

Market consolidation will displace up to 20% of the Top-100 IT service providers

Most organizations prefer external service providers for QA in a co-managed model, over purely in-house or fully-outsourced models

- Amazon deploys code every 12th second, and Facebook, every half-day
- By 2016, DevOps will move from being "niche" to "mainstream"
- By 2016, 25% of the Top-2000 global firms will adopt DevOps




## Continuous Delivery

Source:
World Quality Report 2014

# What It Means To QA

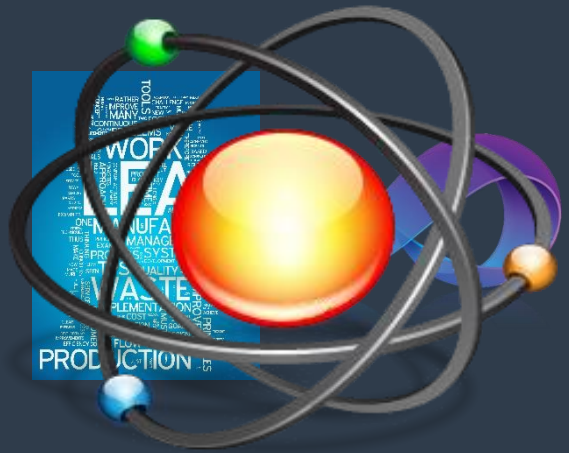
## The CIO Questions

- Is QA adding value
- Is cost of quality too high
- Is QA too archaic for the complex technologies
- Is QA too functional-focused vs UX-focused
- Is QA too slow for the go-to-market demands

**How to optimize and transform QA on-the-fly, without impact to projects**

OPTIMIZE

TRANSFORM



**LEAN & TRANSFORMATIONAL**

- Reduce QA Costs to sub-20% levels
- Attain Test Effectiveness of 95%+
- Increase Speed to Market by 20% or more
- Leading-edge technology adoption

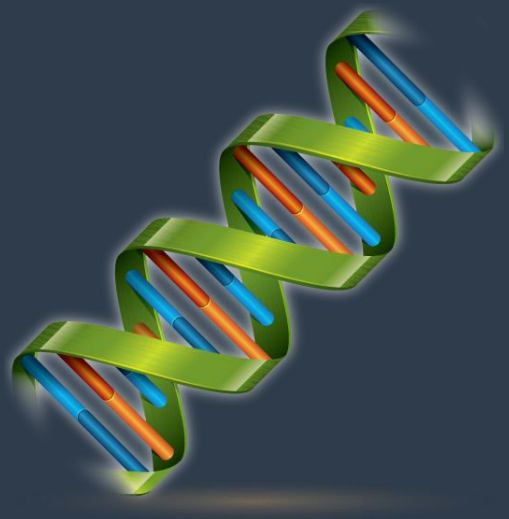
*" Repositioning QA to be a diffused, value-enhancing & future-ready component of IT and Business, without impacting speed-to-market and cost priorities "*

# How Has Testing Evolved …..

VALUE OF TESTING

| 1990s | Early 2000s | 2005-2015 | 2015+ |
|---|---|---|---|
| **Adjunct To Development** | **Important Phase In SDLC** | **Strategic To IT Organization** | **Diffused Engineering Phase Driving Business Assurance** |
| ➢ Afterthought<br>➢ Left to the less skilled, lower paid<br>➢ Few tools and little automation<br>➢ No management visibility / involvement | ➢ Key to good quality software<br>➢ Planned and monitored as a phase<br>➢ Explosion of tools, but no tool strategy<br>➢ Management involvement rudimentary | ➢ Own budget, clear leadership and ownership<br>➢ High visibility to executive management<br>➢ Integrated test activities, tool selection | ➢ Focus on customer experience<br>➢ Automation of all wait-times<br>➢ End-to-end integrated tool sets and delivery platforms enabling continuous delivery |

# How Has Test Manager Evolved



Traditional Model:

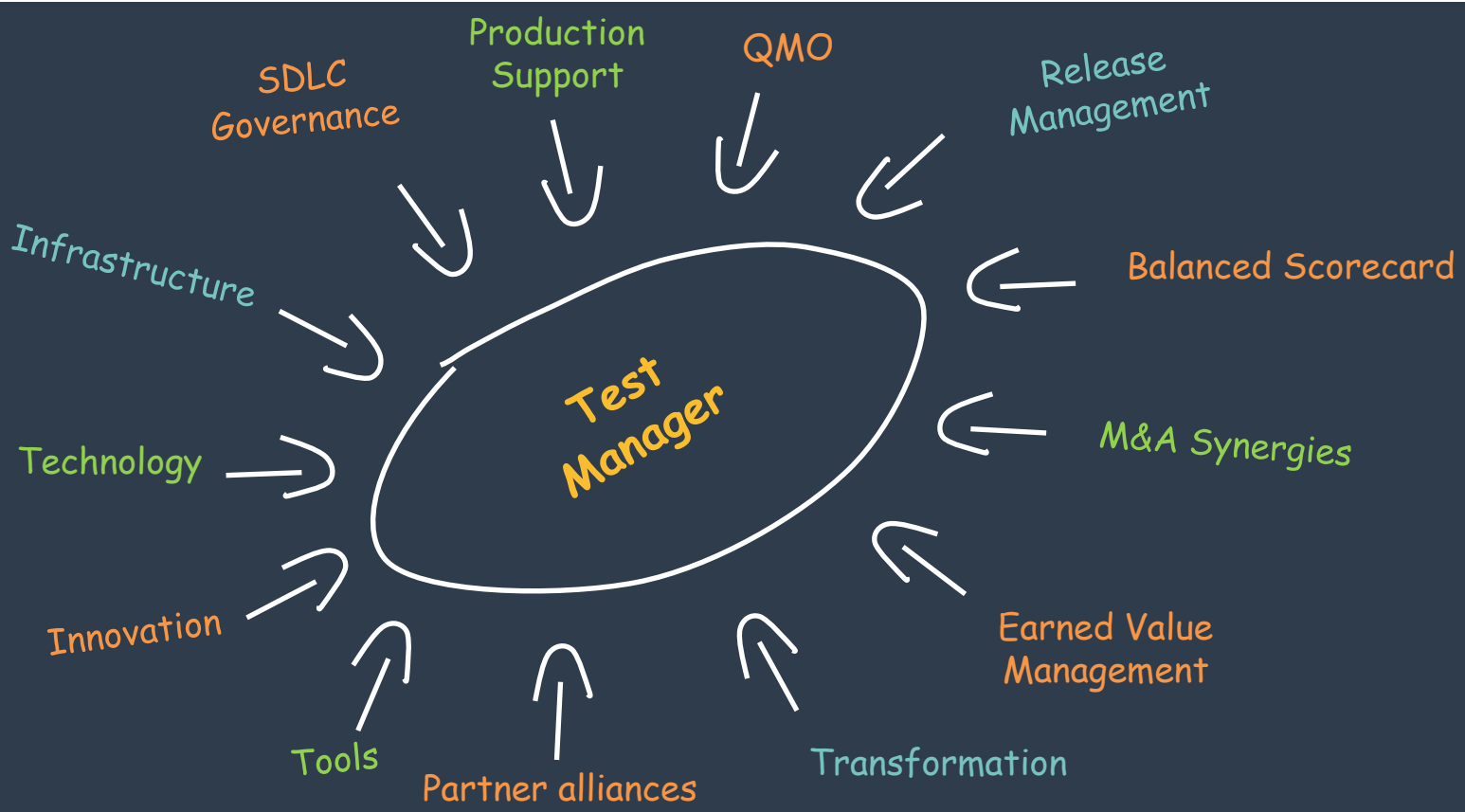
- Manage testing schedules, resources, costs, risks.
- Integration left to project/program manager.
- Technology management & governance secondary.

Agile Model:

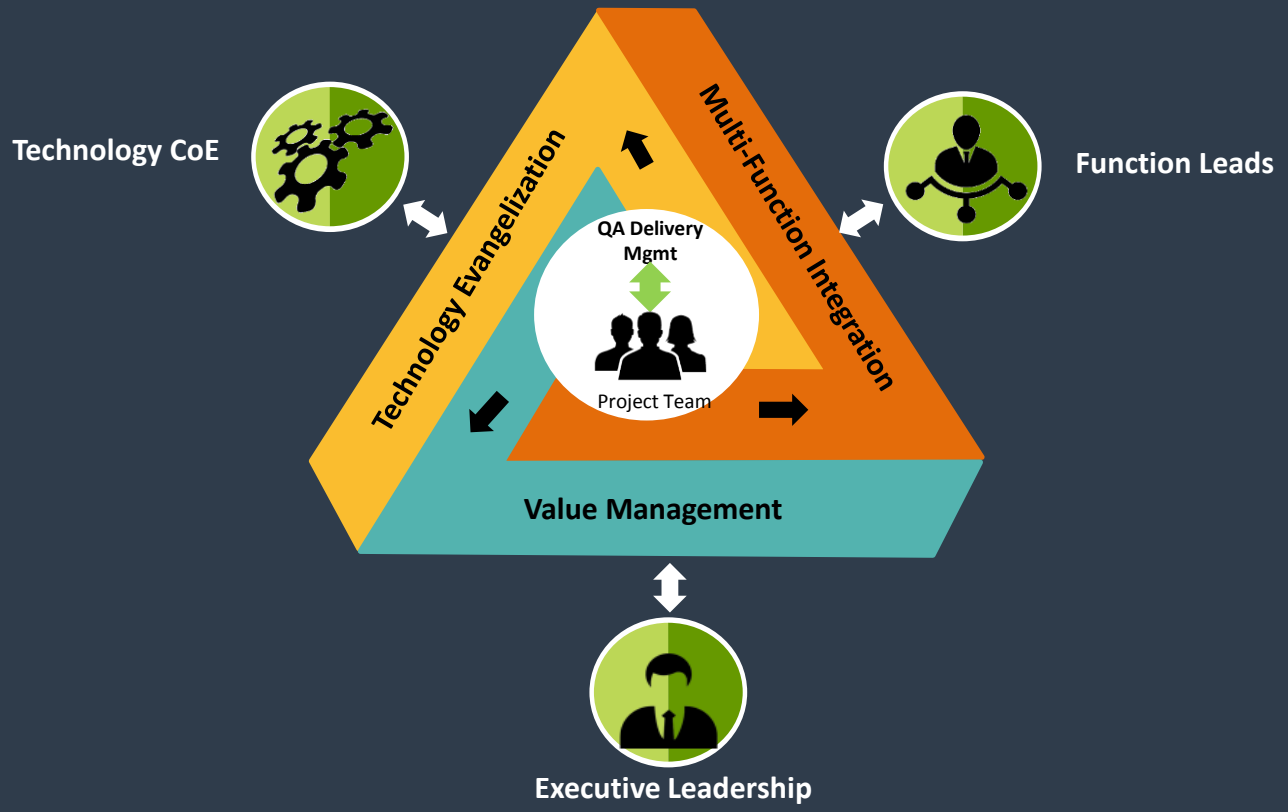
- Test management diffused into project
- Self organizing, role blurring, skill diversification in teams
- Educate and coach testers on Agile culture

Next Generation Model ??

# Test Manager @ Crossroads ???



# The New Paradigm



# Technology Evangelization

**WHY**

- Document- & process-based improvements are inadequate for the technological complexities
- Speed to market priorities call for technology adoption in projects on the fly
- Value progression from analysis to synthesis

**WHAT**

- Being an expert and a trusted advisor on a technology area
- Socialize and gather critical mass of support within an organization for use of the technology
- Connect with industry and discover innovative to uses of the technology to solve problems

# Technology Evangelization Framework

End-to-end food chain of technology adoption from conceptualization to implementation

# Case Study on SV: Problem Identification & Pattern Analysis

## The QA Landscape …

| 95 | 500 | 200 | 10 | 8 | 25 | 12 | 280 |
|---|---|---|---|---|---|---|---|
| SAP & Non-SAP applications across 8 LOB's | ESB-based interfaces | web services | middleware protocols | integrated test landscapes | application dev vendors | releases per year | testers at onsite & offshore |

## … & The Challenges

### Environment Conflicts

Out of 95 key applications, ~**30** shared across multiple landscapes

### Environment Delays

**2-6** weeks of wait for environments

### Environment Stability

**16%** environment related defects

### Environment Maintenance

**8** integrated test landscapes, higher maintenance

### Late Defect Detection

**80%** of defects detected in SIT or later

### Ineffective Static Stubs

**Static stubs** with low scalability and customizability

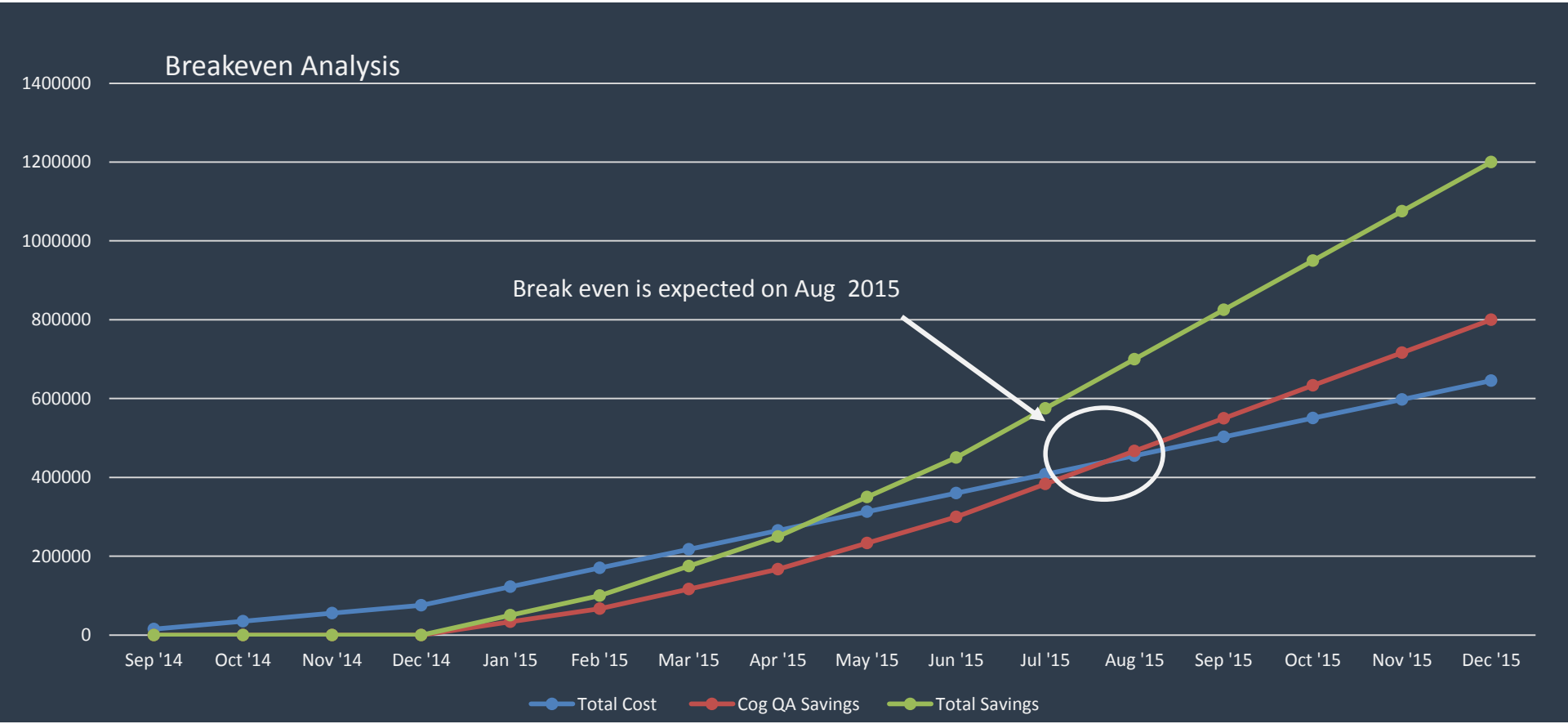
### PT Schedule Overruns

Constraints for early and tier specific performance testing

# Case Study on SV: Solution Evaluation

| | Key Tasks | Scope | Benefits | Success Factors |
|---|---|---|---|---|
| **QA ENV GAPS** | Landscape gap analysis<br>Rigorous feasibility analysis | 7 environments – Q1<br>13 environments – YTD | $ 800K YTD projected | Env/Infra team support |
| **EFFICIENT SIT** | Inventory ESB & WS interfaces<br>Prioritize scope by release | 41 services – Q1<br>78 services – YTD | $ 750K YTD projected | Release approach |
| **EARLY INTEGRATED SYSTEM TEST** | Socialize SV to Dev teams<br>Prioritize scope by release | 3 projects – YTD<br>10% - projected in Q3, Q4 | 35% defect shift-left<br>1-2 weeks of ST schedule saving | Leadership support<br>Change management |
| **TIER BENCHMARKING** | Analyze blueprint and isolate tiers<br>Virtualize WS & interfaces | Web application areas like eCom, Loyalty | 1-2 weeks of PT schedule saving | Dev team support<br>Change management |
| **AUTOMATION INTEGRATION** | Identify support applications in e2e flows<br>Integrate virtual services, customize framework | 20% of the 700 automated e2e flows | 35% faster execution of automated e2e flows | Socialization of benefits with functional test teams |
| | | | | **Skilled resource pool** |

# Case Study on SV: Solution Evaluation (ROI Analysis)



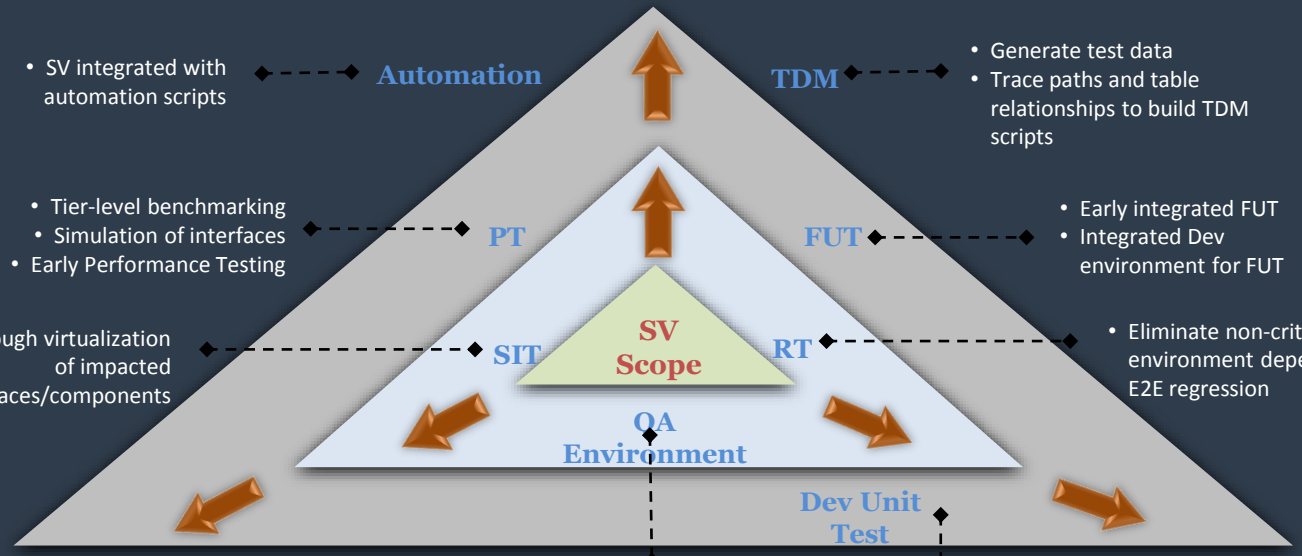
# Case Study on SV: Innovative Usages & Roadmap

**2014 Q4 Inception**

**2015 Q1, Q2 Quick Wins**
3% SIT efficiencies
$ 400K infra cost saving

**2015 Q3, Q4 Mid-Term**
3% SIT efficiencies
$ 400K infra cost avoidance
10% PT schedule saving
25% FUT DRE increase

**2016 + Long-Term**
6% SIT efficiencies
50% FUT DRE increase
Enable EPT, TDM, Dev-Ops




- SV integrated with automation scripts

- Generate test data
- Trace paths and table relationships to build TDM scripts

- Tier-level benchmarking
- Simulation of interfaces
- Early Performance Testing

- Early integrated FUT
- Integrated Dev environment for FUT

- Early SIT through virtualization of impacted interfaces/components

- Eliminate non-critical environment dependencies for E2E regression

**Dev-Ops**
- Testing of components/web-services
- Integrate with CI tool

- Environment gap redressal
- Enabler for landscape rationalization

- Early Component Integration Test

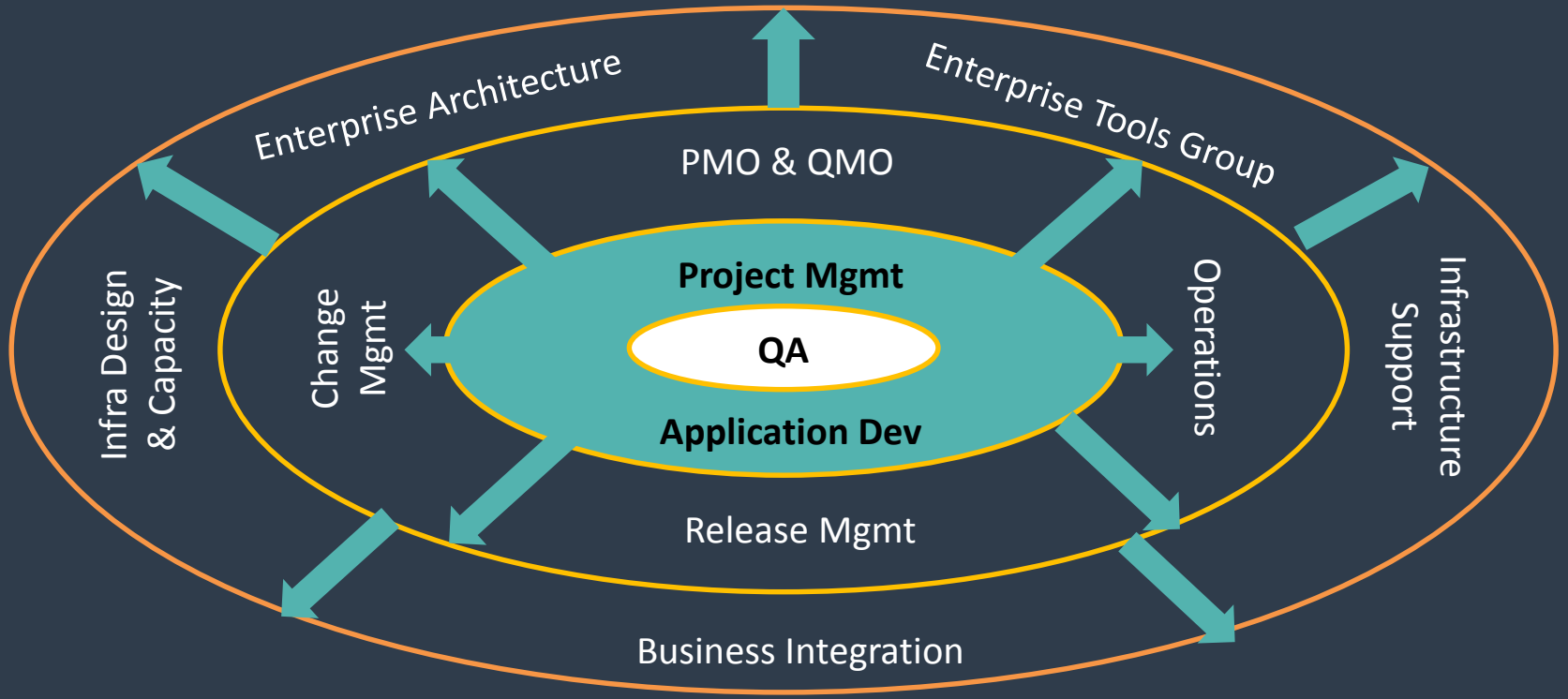
# Case Study on SV: Value Analysis

| Measure | Metric / KPI | Values | | Target |
|---|---|---|---|---|
| SV Utilization | SV Transaction Count | Cumulative: 2165<br>Last 30 days: 1225 | | Not applicable |
| | % Utilization of services | Period 3: 29% (8 VS out of total 28)<br>Quarter 1: 51% (21 VS out of total 41) | ● | 30% - for each period<br>70% - for each quarter |
| | % Projects leveraging SV | Q1 (Jan – Mar): 10% (3 out of 27)<br>April: 5% (1 out of 21) | ● | Q1: N/A<br>Q2: 5%<br>Q3: 10%<br>Q4: 25% |
| Early Defect Detection | Early Defect Detection | Not applicable for Q1 | ○ | Q1 & Q2 2015 - Evolve the FUT DRE Baseline<br>Q3 & Q4 2015 - Start the measurement |
| SV Delivery Productivity | SV Delivery Productivity | Q1 2015: 41 services (82% of plan) | ▲ | Q1: 50 Services<br>Q2: 50 Services<br>Q3: 50 Services<br>Q1: 25 Services |
| Applications Provisioned | Applications Provisioned through SV | 13 Applications | | Not applicable |

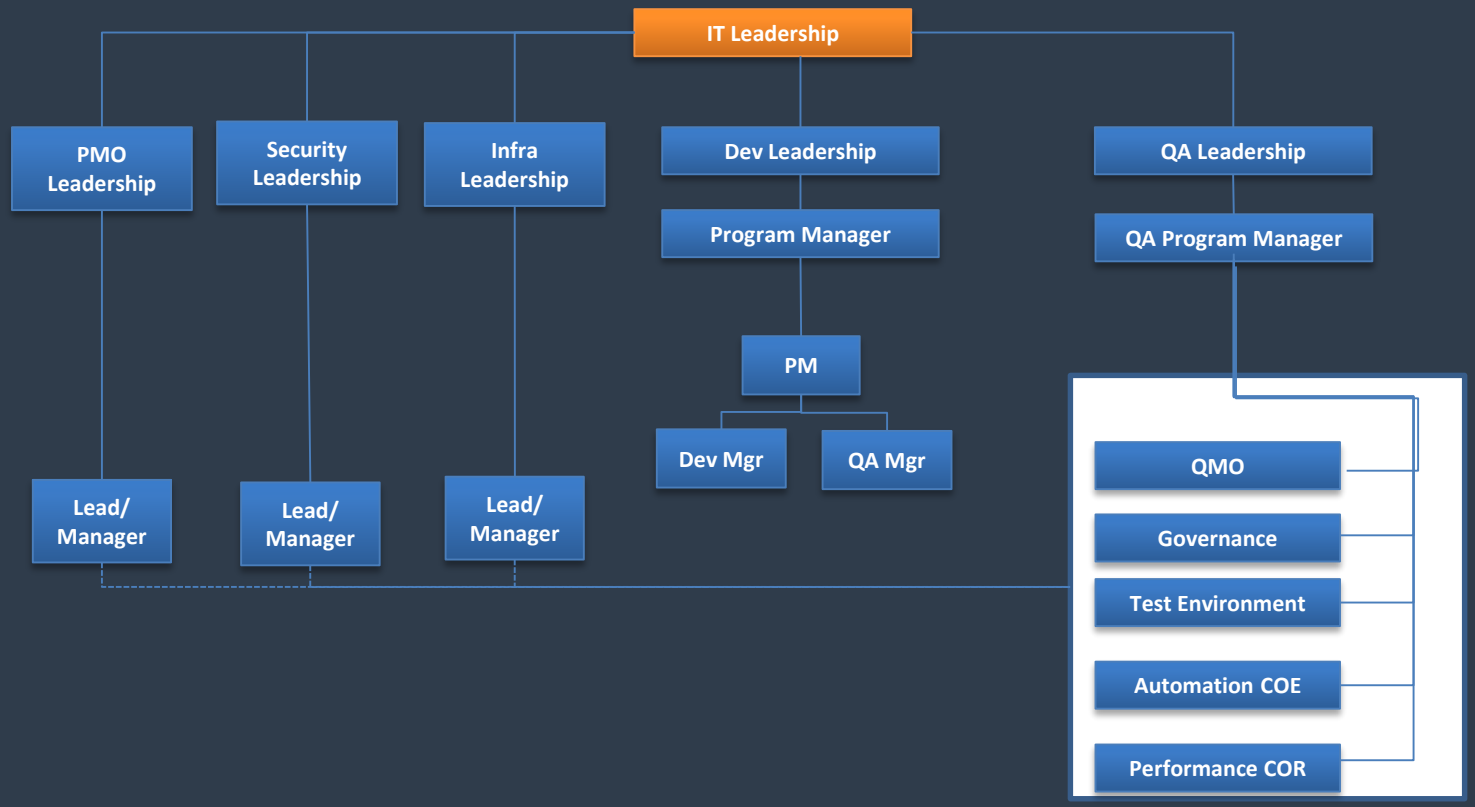
# Why Multi-Function Integration?

- Maximum risk for a program is at the points of integration of multiple disciplines
- Integrating and influencing the multiple functions outside QA is vital to engineer quality across the lifecycle

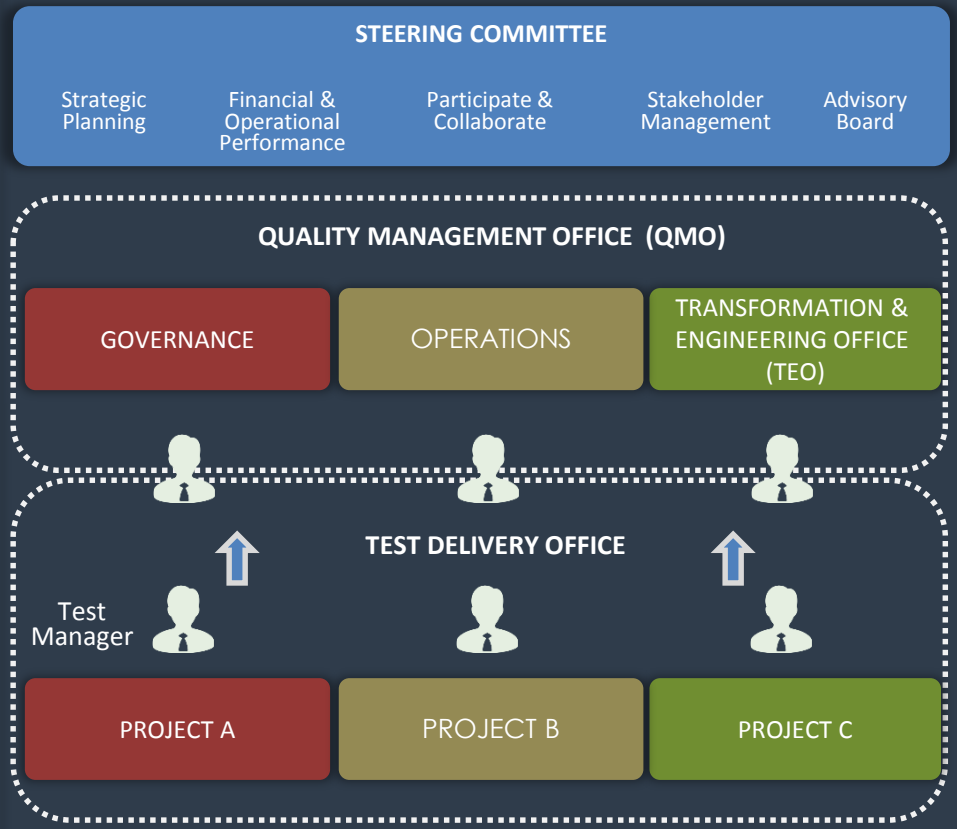
# Multi-Function Integration Scope



# Multi-Function Integration Enabler: Org Structure



# Multi-Function Integration Enabler: QMO

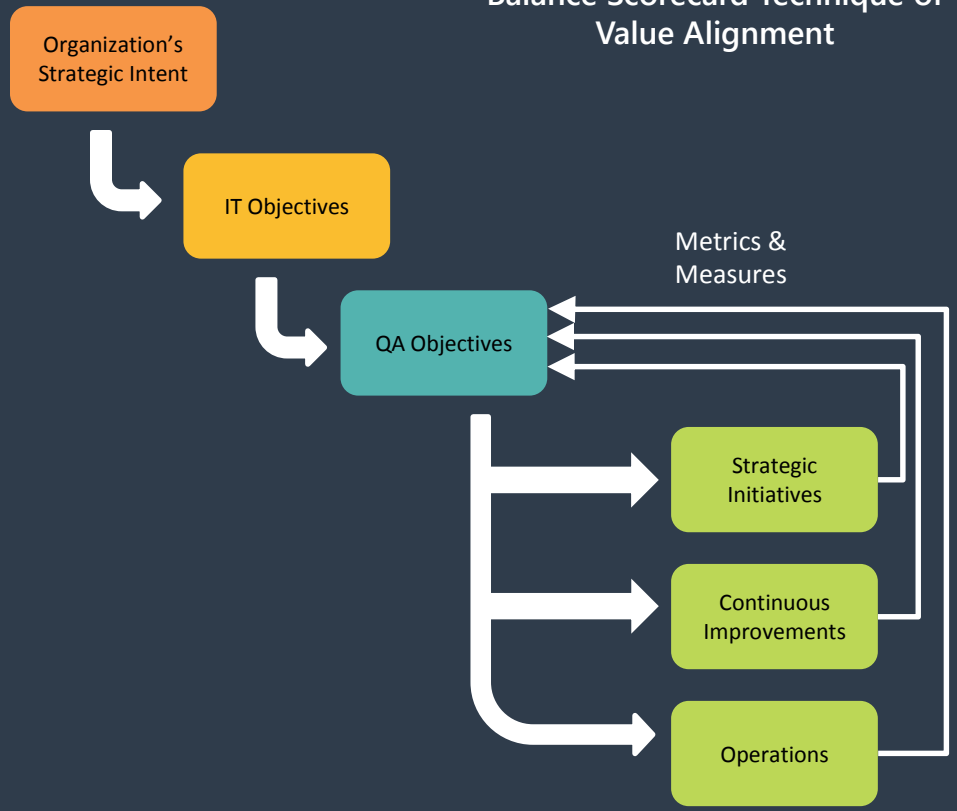



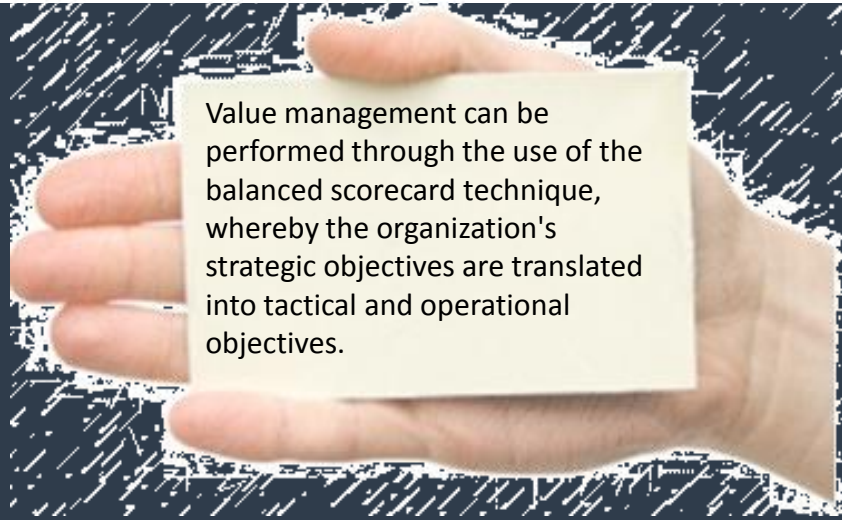
# Value Management


- In this role the test manager has to manage the value realization from QA's operational and strategic initiatives
- The role focuses on the balance between quality, speed and cost, assuring maximum value and alignment with the organization's objectives

# Value Management – Balanced Scorecard

## Balance Scorecard Technique of Value Alignment




- Align key performance measures with strategy at all levels of an organization.
- Provides strategic feedback and learning
- Facilitates communication and understanding of business goals and strategies

# Balanced Scorecard: Align QA and IT Objectives

## IT Objectives → QA Objectives

- **A** ERP complete and fully adopted including decommissioning of legacy applications
- **B** Best IT organization – 1.2% of revenue; quality delivery with updated infrastructure
- **C** Resilient, stable technology – 40% reduction in major incidents
- **D** Cost savings delivered through creative IT solutions – $250M
- **E** $500M in top line growth delivered through innovative IT solutions

# Balanced Scorecard: Break Down Objectives Into Initiatives

| Objectives | Themes | Initiatives | | Outcomes |
|---|---|---|---|---|
| I, IV, VI, VII | Governance of QA and SDLC phases | Scope control & CR process ★<br>PM – QAPM Integration ★ | Shift Left: Reqmt &Design Reviews ★<br>EVM Tracking ★ | •Reduce scope changes and schedule / budget overruns<br>•Minimize overlaps or shortening of test phases<br>•Avoid misalignment of Project and QA status reporting<br>•Achieve EVM of 80%+ |
| I, II, III, VII | Process Improvements & Gap Redressal | Release Mgmt Strategy & Tool ★<br>Code Freeze & Core Regression ★<br>Defect Age Improvement ★ | Change Mgmt Process ★<br>Autosys & Batch Testing ★ | •Code deployments as per release calendar<br>•Reduce MI's related to deployments, batch and change control<br>•Reduce wait time for environment code refreshes<br>•Minimize regression defect leakage into production<br>•More throughput due to quicker defect resolution |
| I, V, VIII | Automation, Tools & Innovation | Increase Regression Automation ★<br>Tools & Accelerators ★<br>Expand ADPART usage ★ | Automated Env Dashboard ★<br>Tool License Cost Rationalization ★<br>Innovation ★ | •Better regression coverage thru increased automation<br>•Reduce environment defects thru proactive monitoring of connectivity using automated dashboard<br>•Lower automation development cost thru accelerators<br>•Reduce tool license costs thru use of open source or alternatives |
| II, V, VIII | Strategic Initiatives | Environment Virtualization ★<br>Infrastructure Testing ★<br>Innovative Pricing Models ★ | Shift Left: EPT & Perf Engineering ★<br>Mobile Test Lab ★<br>Agile Testing ★ | •Reduce QA environment & infrastructure costs thru SV<br>•Increase quality and decrease performance failures by building performance into design<br>•Reduce MI's related to infrastructure<br>•Lesser cost and quicker speed to market thru use of mobile lab |
| IX | People Excellence | G1:Enhanced R&R Programs ★<br>G3: Increase Cross-Skilling ★ | G2: Increase Certified Associates ★ | •Motivated & multi-tower trained QA team<br>•Increased Utilization<br>•Quick induction for new joinees |

Foundational
Optimisation
Transformational

★ Independently owned and driven by Cognizant
★ Client owned, with Cognizant collaboration

# Balanced Scorecard: Schedule & Track Progress


Plan / Design / PoC | Implement | Stabilize / Transition | BAU

Independently owned and driven by Cognizant

Loblaw owned, with Cognizant collaboration

Initiatives tracked and reported regularly at executive level

# To Conclude …

- Test Manager's role is undergoing some interesting but very essential changes
- Technological Innovation, Integration and Value Management are the emerging dimensions
- Any questions, comments or thoughts ?
- You can also email: Sreeram.Gopalakrishnan@cognizant.com

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# Thank You