

Evolution of Quality processes at Tata Consultancy Services

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Agenda

- **TCS today**
- **Evolution of TCS Quality Initiatives**
 - Challenges
 - Mitigation
- **Tata Business Excellence Model**
- **Quality Organization Structure**
- **Rewards of Process Improvement**

TCS Today

US\$ 1.4 billion revenue in FY2003-04

Global Presence

More than 32,000 consultants

Significant experience and success in large project execution

High standards of quality and processes

Premier customer base with more than 600 overseas clients

Leading player in domestic market

India IT Industry - Export Performance (Revenue)⁽¹⁾

	FY 2001-02 US\$ bn	FY 2002-03 US\$ bn	Growth (%) y-o-y	FY 2003-04 US\$ bn	Growth (%) y-o-y
IT Services, Products & Technological Services	6.2	7.2	18%	8.4	17%
IT Enabled Services	1.5	2.3	59%	3.6	54%
Total IT Industry	7.7	9.5	25%	12.0	26%

TCS has approximately 10% market share of the total Indian IT industry

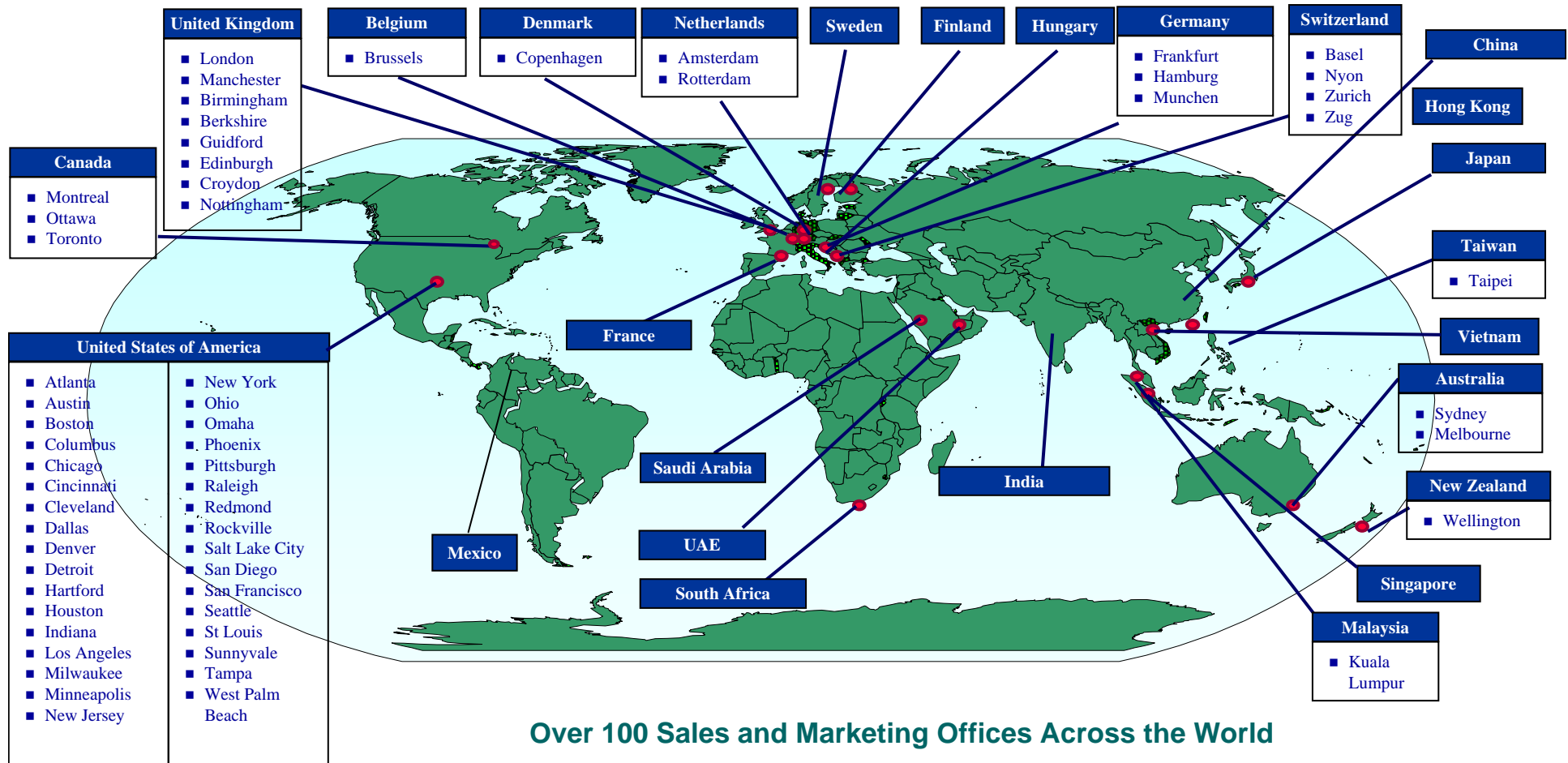
(1) Source: NASSCOM



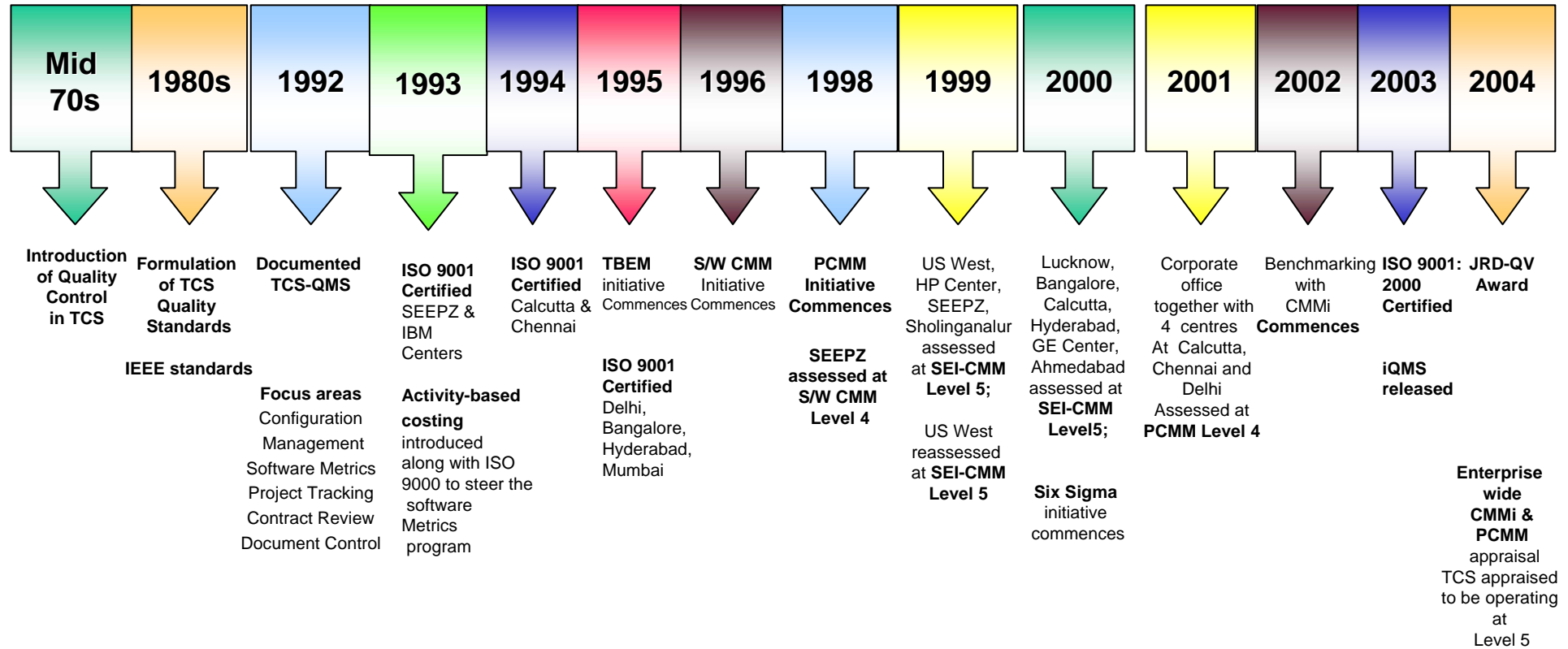
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Asia's Largest Global Software & Services Company

TCS - Global Footprint



Evolution of TCS Quality Initiatives



The Challenges

Clarity of objective

Process definition

Documentation

Training & ongoing facilitation

Ownership

Proper usage of tools

Buy-in ... What is in it for me?

Motivating people

Reluctance of people to become auditors/reviewers

Resistance to process change

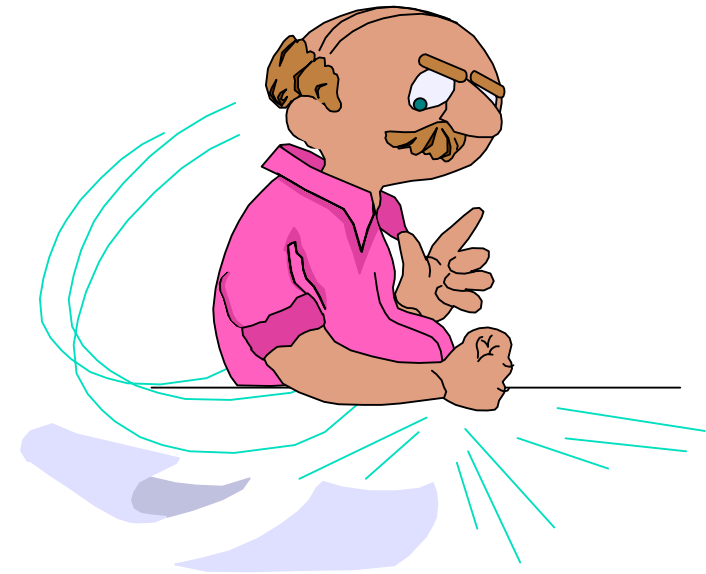
Process work seen as non technical and non value adding

“My project is unique”

Verification seen as external policing activity

‘I know my project better’ - attitude

Choosing the correct metrics and data collection



The Mitigation

Participation

Involve all affected

Involve practitioners in reviews and audits

Effectively communicate Approach, Deployment and Results

Empower all affected to give suggestions

Training programs

Sharing of experiences

Project Management Reviews

Pilot major process changes

Recognition for quality services

Responsibility with authority

Rewards and recognition



The Mitigation (continued)

Evolution of QA role

- Quality Assurance Group as Change agents
- CSQA Certification encouraged across the organization
- Formation of Reviewers pool and Auditors pool

Grooming Project Leaders as auditors

- Empathize with the dynamics of the project
- Appreciate the intent of the process
- Assist in coming up with a corrective action
- Facilitator who provides solution rather than 'fault finding'
- PMP Certification encouraged across the organization

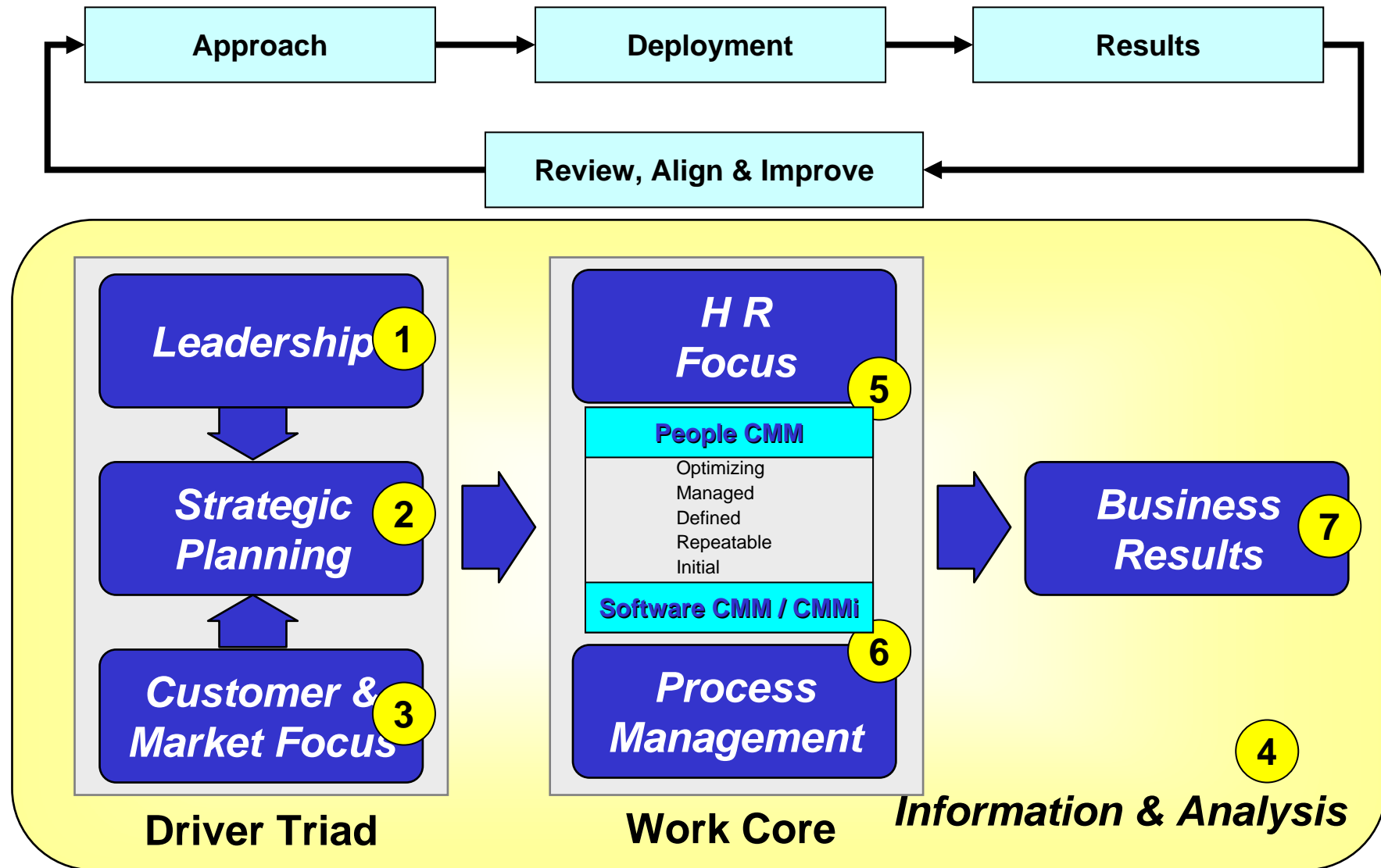
Automation support - IPMS

- Consistency of Process Use
- Enforcement of Process
- Objective Project Management
- Easier collection, analysis and retrieval of data

Feedback loop (e.g. ESS)



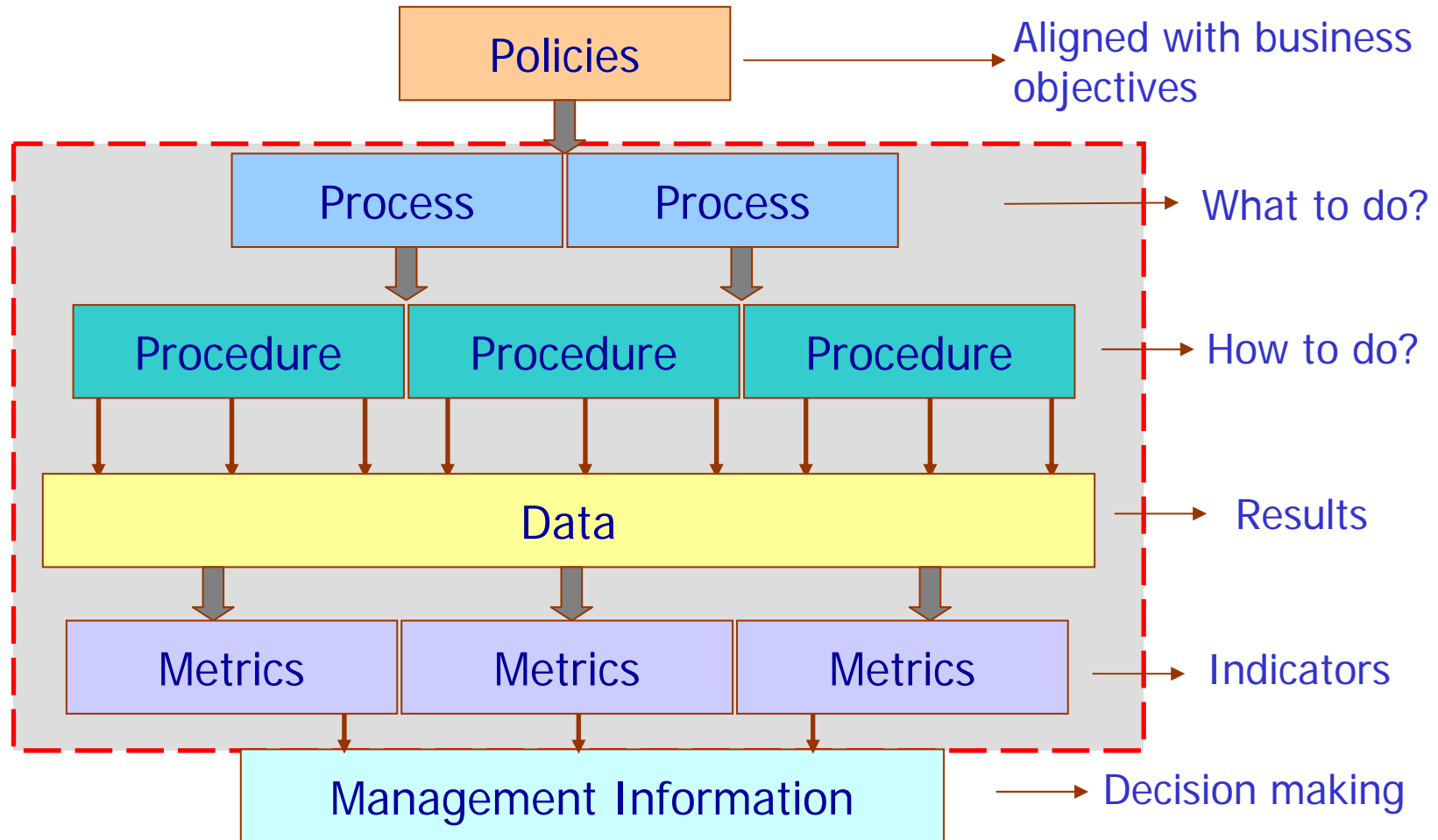
The Tata Business Excellence Model



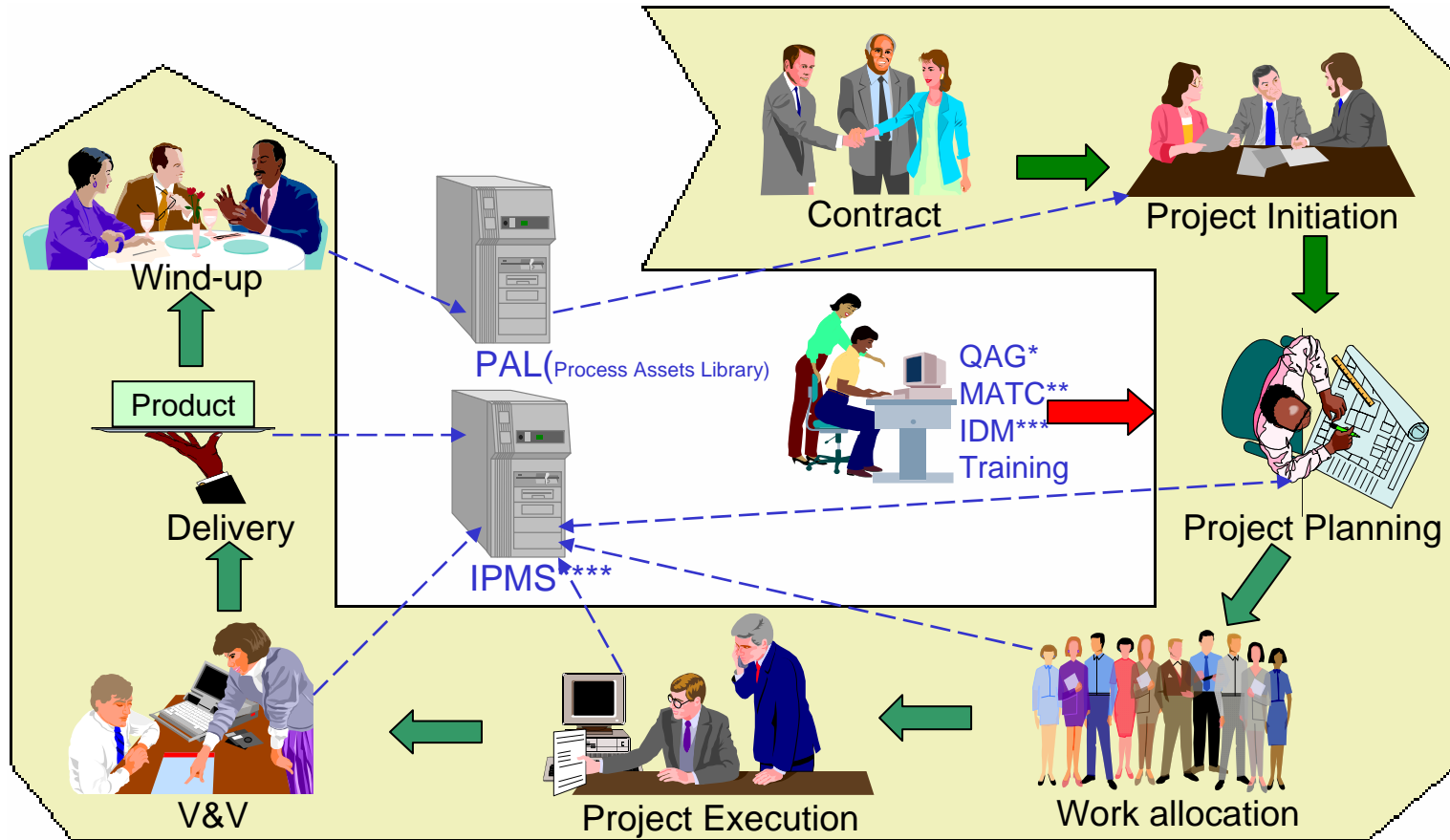
Software CMM and People CMM

- **People practices needed to evolve in parallel with the Software processes, not because they were in the model, but because they were the right steps for the business:**
 - Corporate focus on strategic preparation of the workforce
 - Center focus on sustaining high maturity software capability
 - Strong implementation of quantitative process management

Quality Management System



Project Life Cycle



•QAG: Quality Assurance Group; **MATC:Manpower Allocation Task Committee; ***IDM:Infrastructure Development and Maintenance

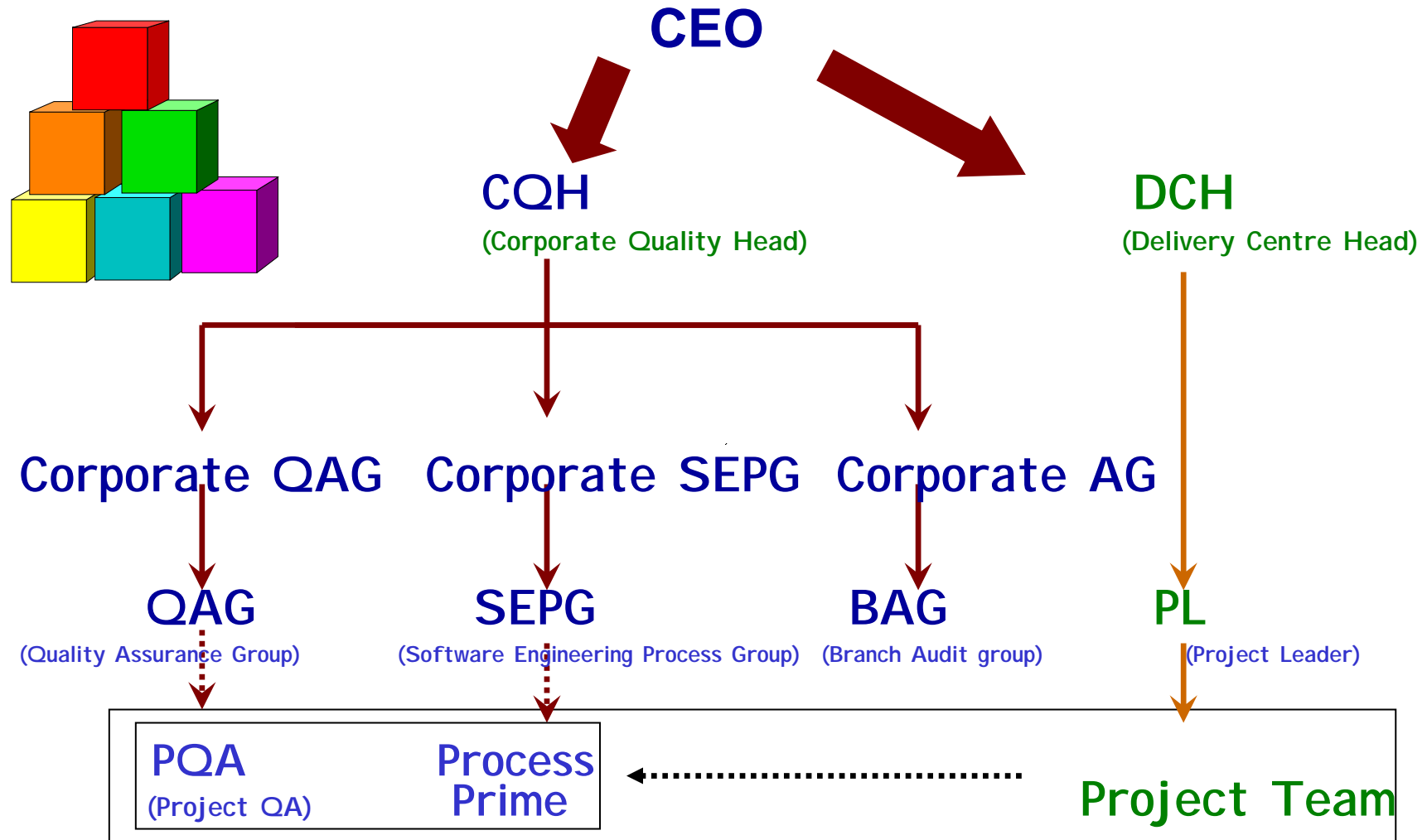
****IPMS:Integrated Project Management System



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Current Quality Organization Structure





SEPG

(Software Engineering Process Group)

Facilitate
continuous process
improvement



QAG

(Quality Assurance Group)

Deploy and
monitor the QMS

**QUALITY
GROUPS**



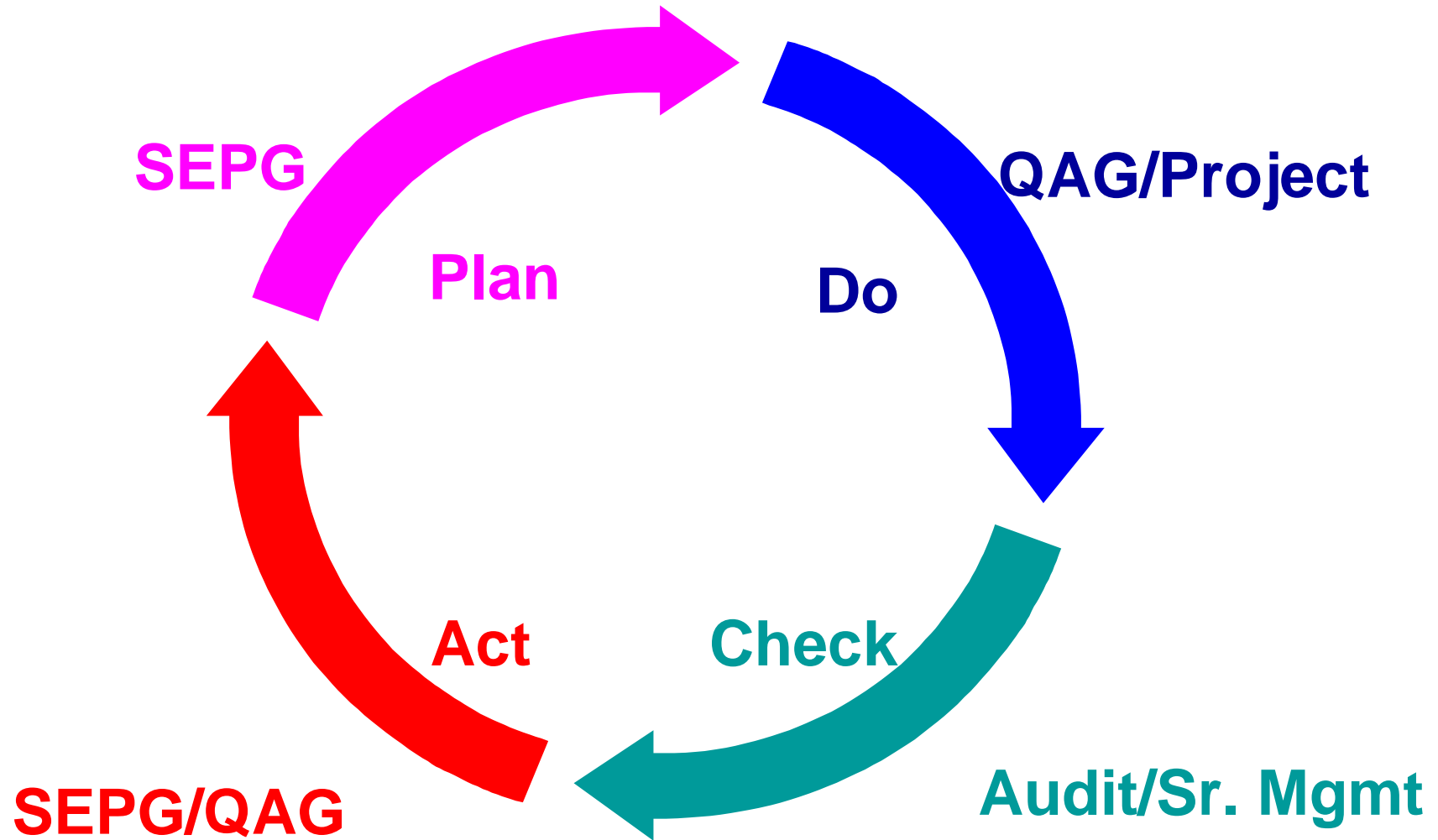
BAG

(Branch Audit Group)

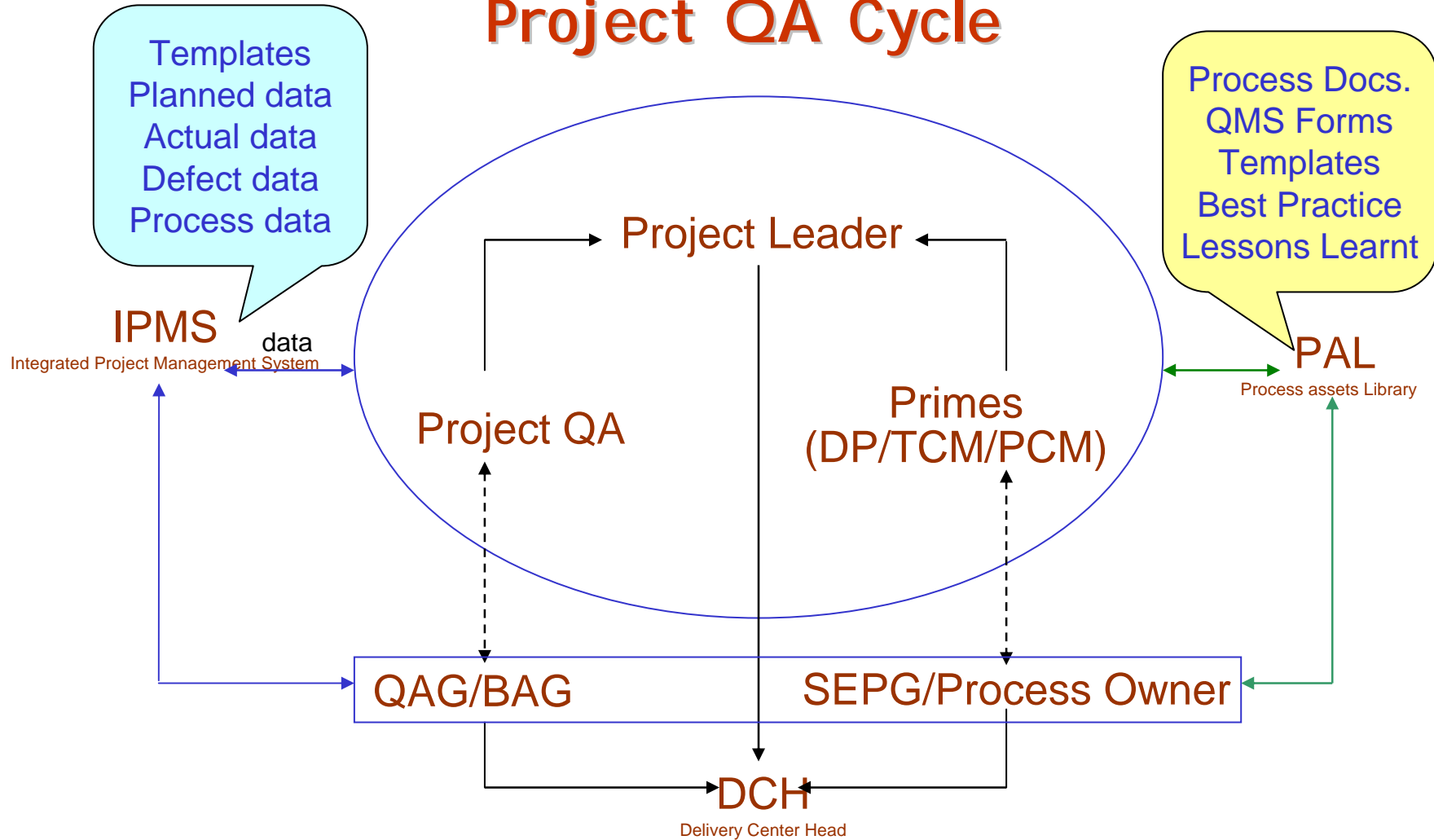
Check Compliance to the QMS



Process Improvement Cycle



Project QA Cycle



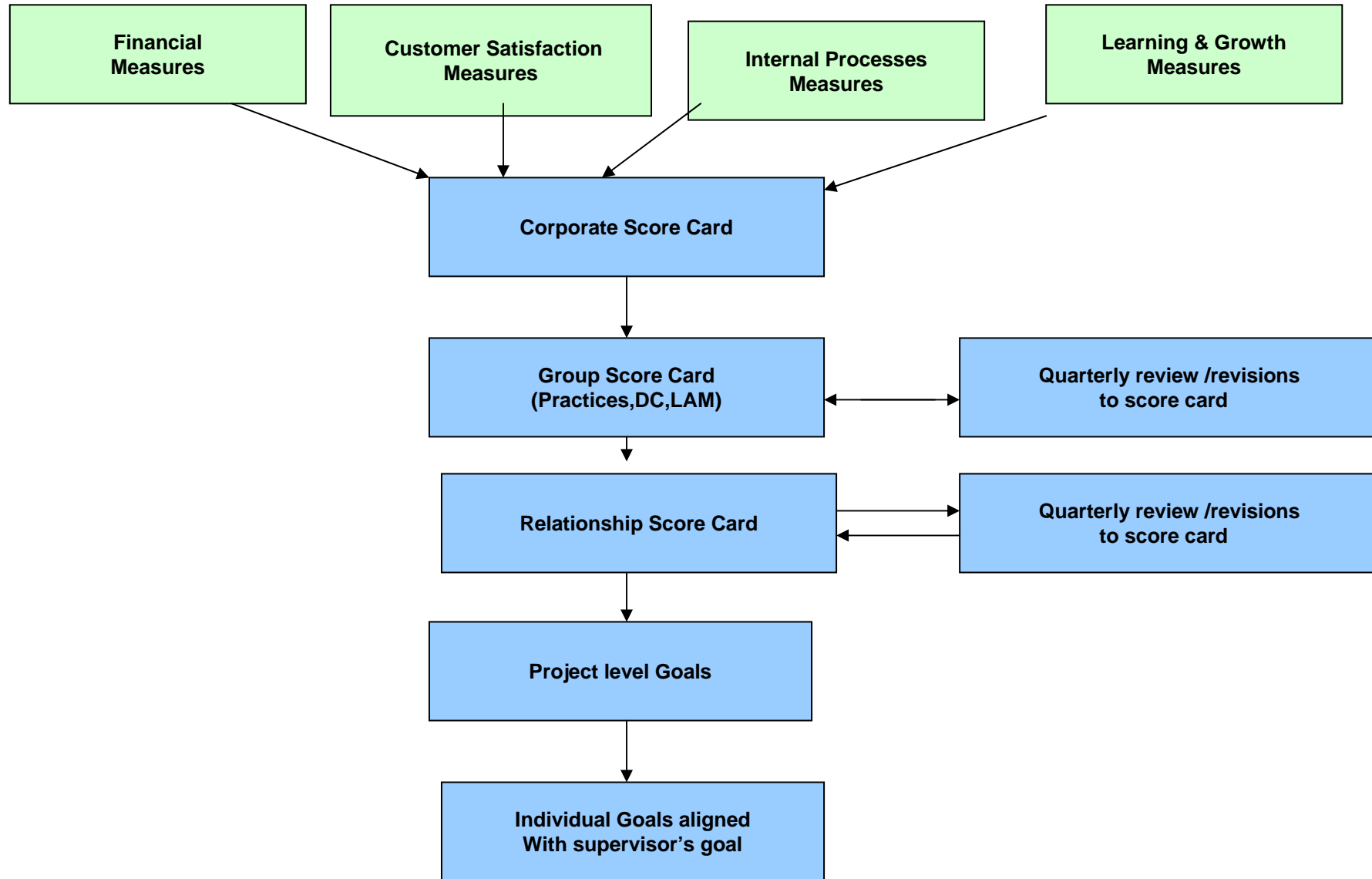
Quality Tools

- Integrated Project Management System (IPMS)
- Process Assets Library (PAL)
- Audit Process Tool (APT)
- PIP Tracking Tool
- SPC Charting Tool

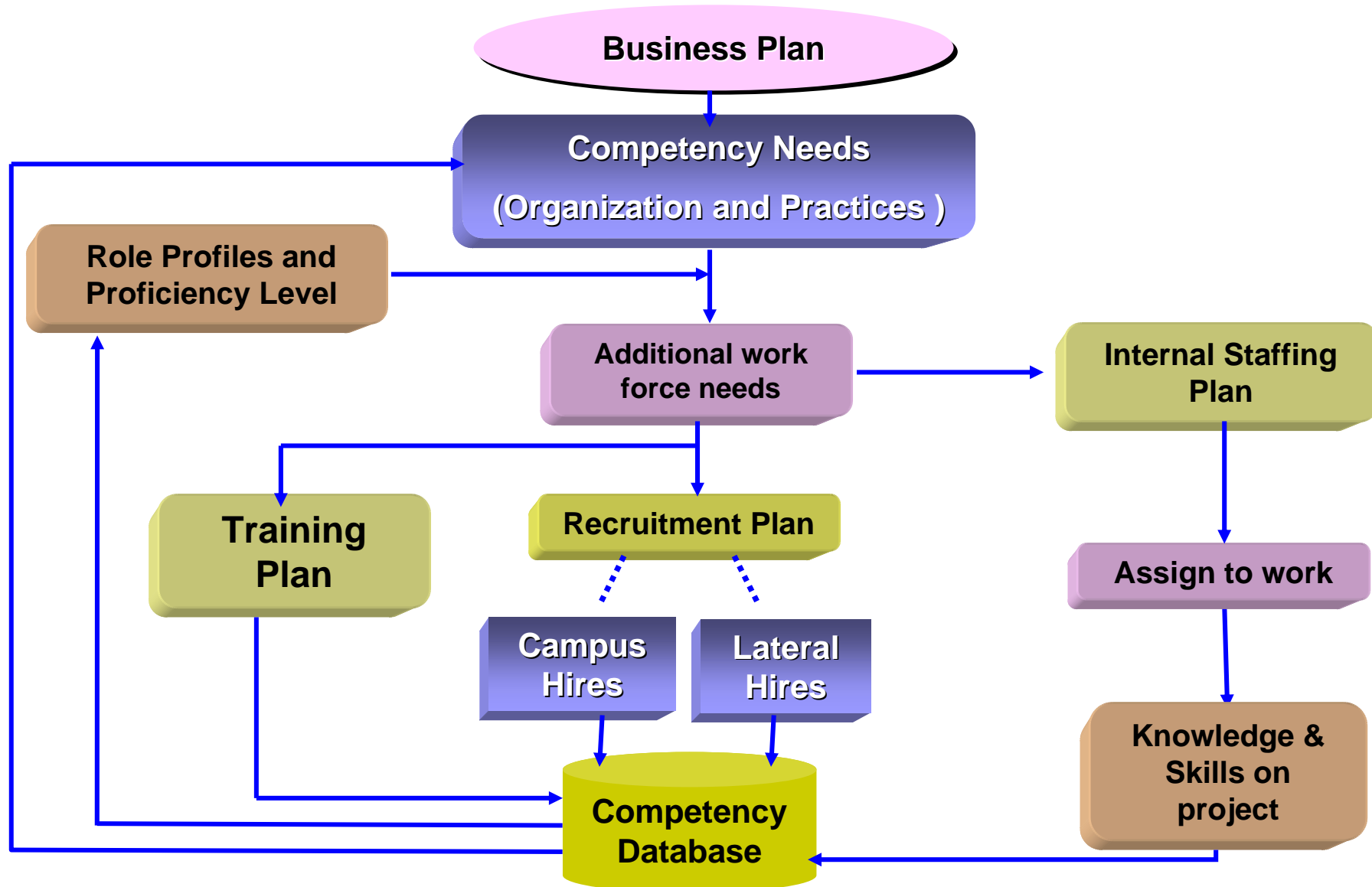
Quality Training

- Initial Training Program
- Continuing Education Program
- Quality Management System for Team Members, Project Leaders
- SPC, Defect Prevention
- Auditor's Training
- Six Thinking Hats
- Lateral Thinking

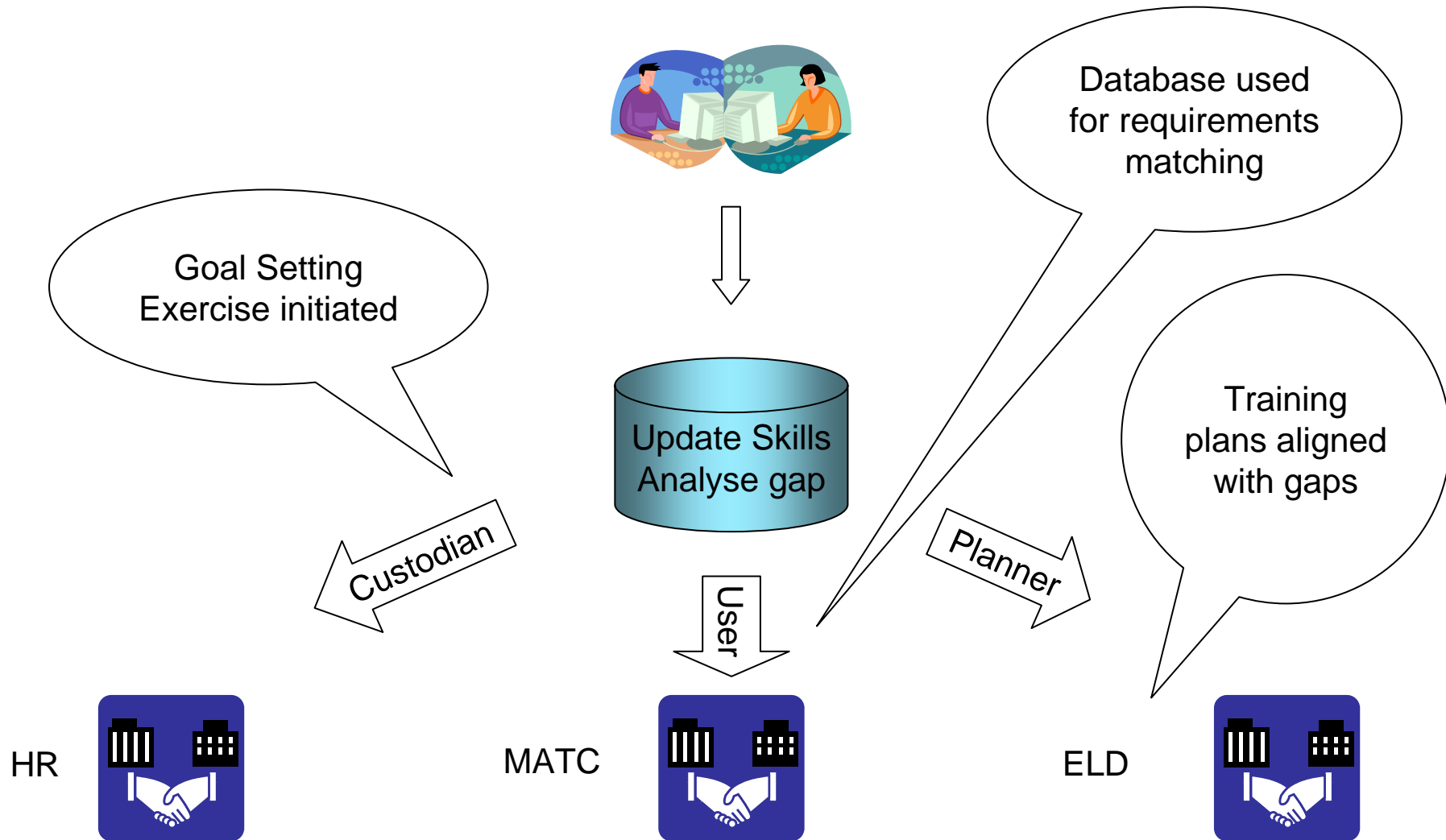
Goal Alignment






Competency Development Model



Competency Management Interface



Benefits of Process Improvement

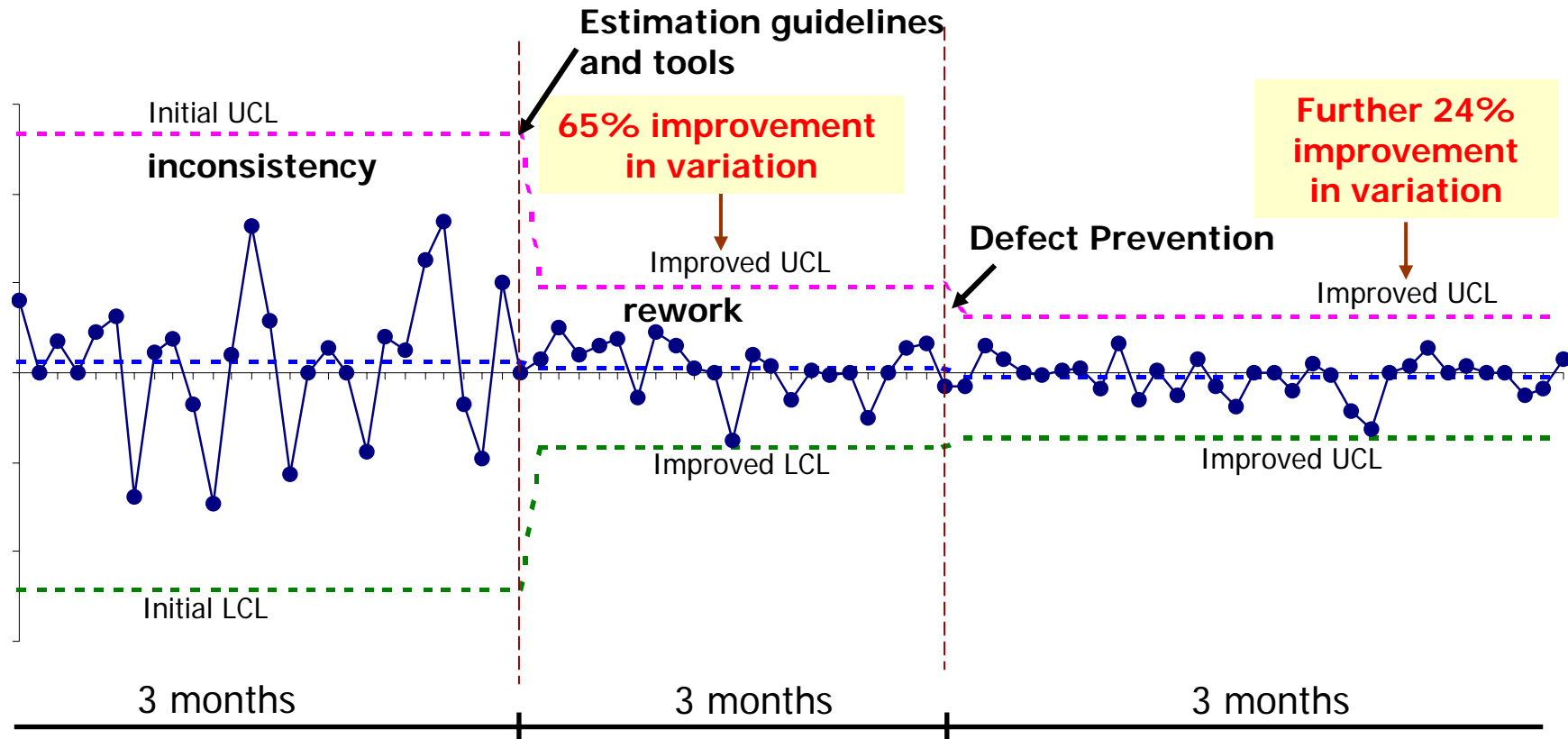
Area	Improvement
Productivity 	<ul style="list-style-type: none"> › Productivity improvement by 17% in Oracle D2K projects › Improvement by 20% in VB – Oracle projects › Improvement by 24% in Java – Oracle projects
Customer Satisfaction	<ul style="list-style-type: none"> › Satisfaction index improved by 16% › Repeat business from client 
Total Defect Containment and Reduction	<ul style="list-style-type: none"> › Reduction in residual defects by 17% › Reduction in defect density (SDLC) by 16% 
Schedule Performance	<ul style="list-style-type: none"> › Improved Compliance to Planned Schedule by 6X
Rework Reduction	<ul style="list-style-type: none"> › reduced rework effort by 2 to 1

Improved Review Effectiveness by 1.5X

Reduction in Project Management effort by 1.5X

Reduction in Non Value Added effort by 3X

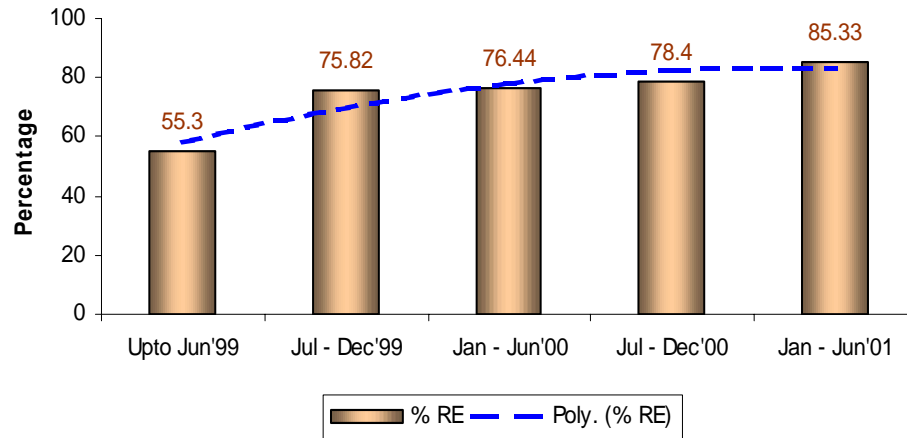
Improvements



Improvement in Effort Overrun

Impact of Process Improvement

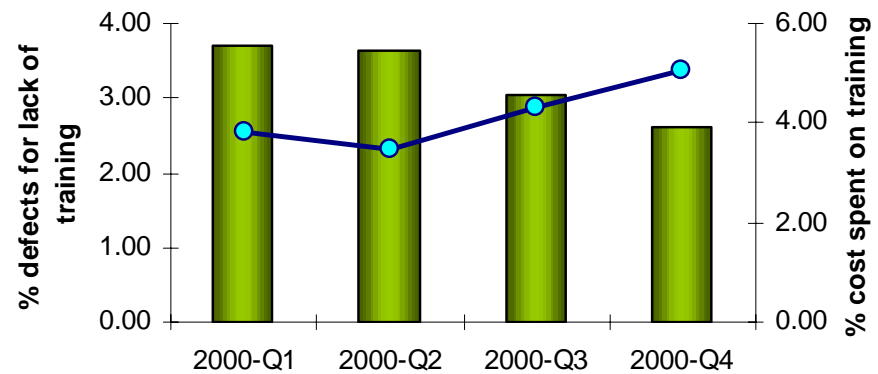
Review Effectiveness Trend



Improving trend for the ratio of defects detected in reviews against total number of defects ... early error detection

....increase in % cost spent on training leading to continuous reduction in % of defects attributed to lack of training

% defects vis-a-vis % cost



QUALITY CONSULTANTS

SEI CMM & PCMM

- 9 Software CMM Lead Assessors;
- 200 Software CMM Assessors
- 2 People CMM Lead Assessors
- 19 People CMM Assesors
- 3 CMMi Lead Assessors
- 25 CMMi Assessors

.Six Sigma Certification

- 3200 Awareness Resources
- 8 Master Black Belt
- 71 Black Belts
- 806 Green Belts
- 53 GB Certified
- 194 Six Sigma projects completed

ISO 9001

- 1314 trained Internal Auditors



• CSQA & PMP

- Over 2300 CQAs from TCS
- Largest number of CQAs in any one company
- TCS consultants have scored amongst the highest in the world for the last 4 consecutive years
- Growing no. of PMPs

Thank You

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