

Results of an Enterprise Appraisal

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- 1. What is an Enterprise Appraisal (EA)**
- 2. Purpose of the EA**
- 3. Why do an EA**
- 4. EA plan**
- 5. Appraisal Principles**
- 6. Demographics in EA**
- 7. Why this was not just another appraisal**
- 8. Results achieved**
- 9. Risks and how were these addressed**
- 10. Challenges and how they were overcome**
- 11. What we would do differently**
- 12. What is next for TCS**

The Enterprise Appraisal (EA) is:

- a single appraisal conducted by one trained, qualified and experienced appraisal team for the entirety of the appraisal
- using multiple models (CMMI[®] and P-CMM[®])
- with a single appraisal methodology (SCAMPISM)
- addressing all of Tata Consultancy Services (TCS) for
 - off-shore Delivery Centres
 - onsite-offshore projects
 - Global Delivery Centres (GDCs)
 - pure onsite projects
- covering the TCS global organization with over 29,000 consultants, in India and overseas as a multi-national, multi-cultural work force

SM SCAMPI is a service mark of Carnegie Mellon University.

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Determine performance across TCS as an worldwide enterprise referencing CMMI® and P-CMM® with respect to *iQMS*, TCS's Integrated Quality Management System, to validate

- ***iQMS* as an effective framework for integrating solution delivery processes with people practices**
- **The robustness of Delivery Processes across a global organization**
- **The consistency of deployment of software and people practices across the entire global organization**

Demonstrate the value of combining the CMMI and P-CMM models in one appraisal using the SCAMPI method to:

- **Reduce time frames for coverage**
- **Offer cost advantages for appraisals across the TCS enterprise**

Ensure uniform deployment of *iQMS* across entire TCS

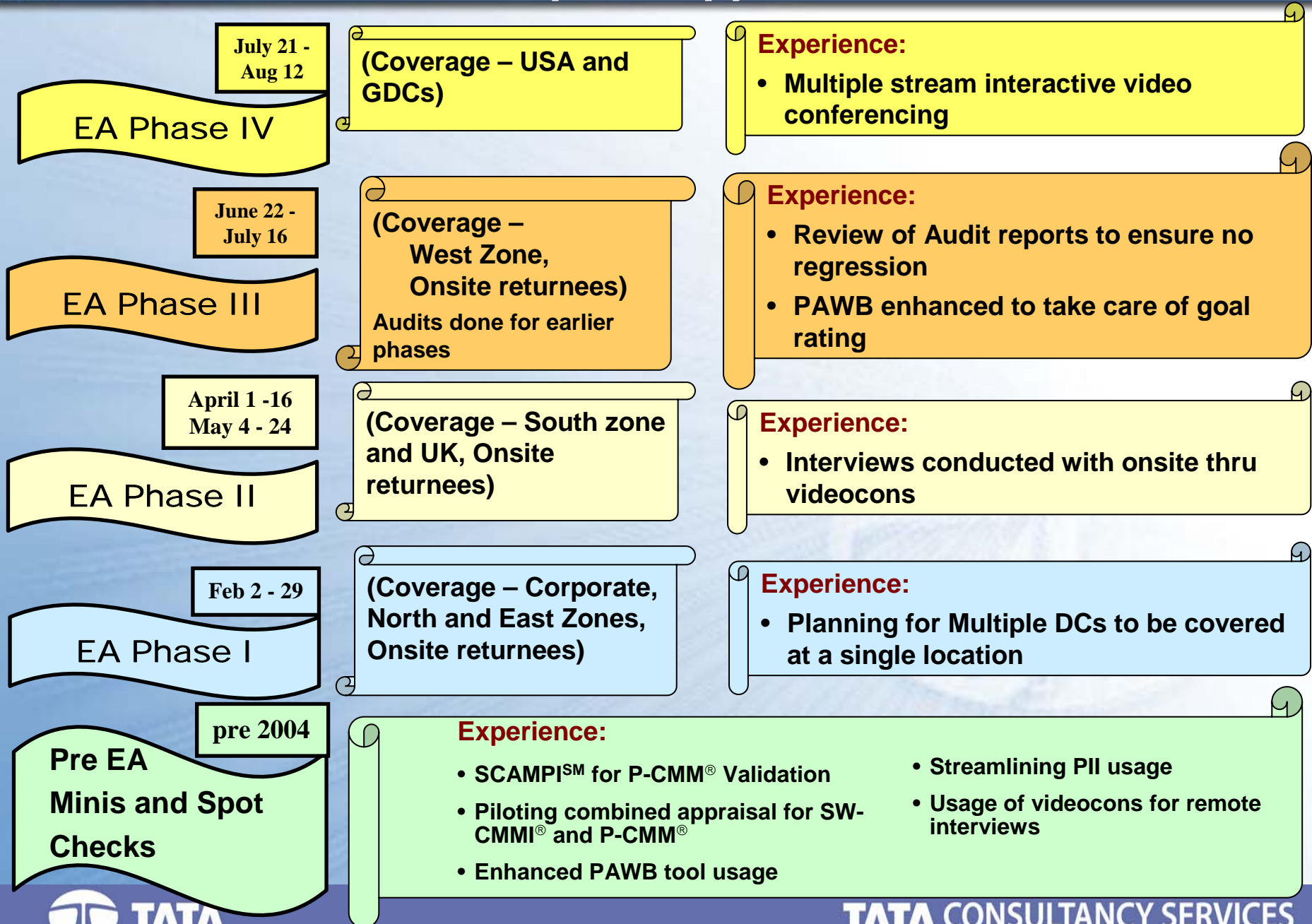
Determine an integrated approach to align with changing business needs

Provide a differentiator with competition

Perform a comprehensive process verification of TCS performance with reduced variation across the enterprise

Define a cost effective benchmarking approach

Demonstrate that new GDCs could be brought up to speed quickly in the use of *iQMS*



Maintain full fidelity with the SCAMPI Method Definition Document for CMMI; i.e., tailor nothing out. Add some method processes to further ensure the integrity for a full enterprise appraisal of this size.

Maintain full fidelity with the SCAMPI Interpretation Guide for P-CMM.

No weaknesses found during early phases will be removed or modified from the final report for the enterprise.

Review the set of all audit reports for the organizations appraised during phases 1, 2a, and 2b while we are completing phases 3 and 4 to ensure there are no regressions.

Select the most qualified Appraisal Team Members (ATMs) to be on the team from a pool of 36 trained appraisers.

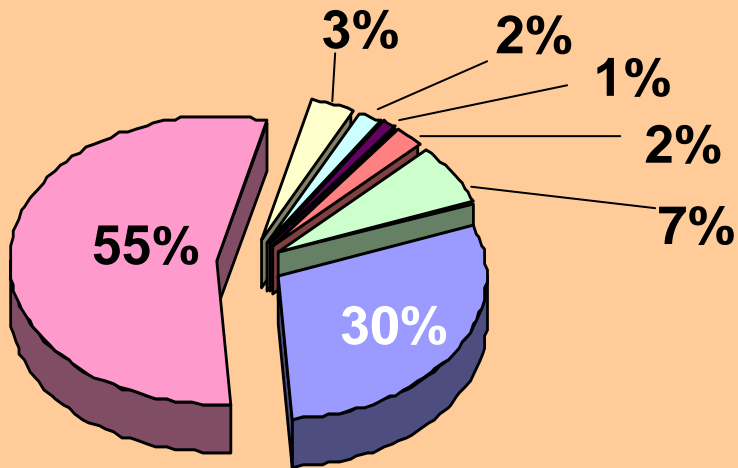
The appraisal and its results will be widely communicated to all 29,000+ associates of TCS.

Engage multiple CMMI, P-CMM, and CMM Lead Appraisers and Lead Assessors on the team for enhanced qualification of the team's capabilities.

Engage a non-TCS ATM to provide QA on our use of SCAMPI, CMMI, and P-CMM interpretations.

Engage a non-TCS ATL.

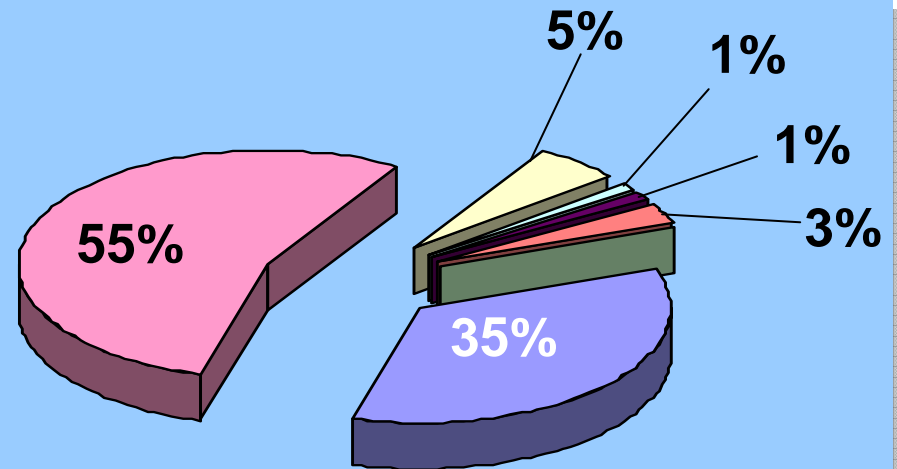
Use random selection of projects and participants to ensure non-biasing the findings. Ensure that representation within the random sampling meets the demographics of the enterprise. Ensure a high percentage will be selected.



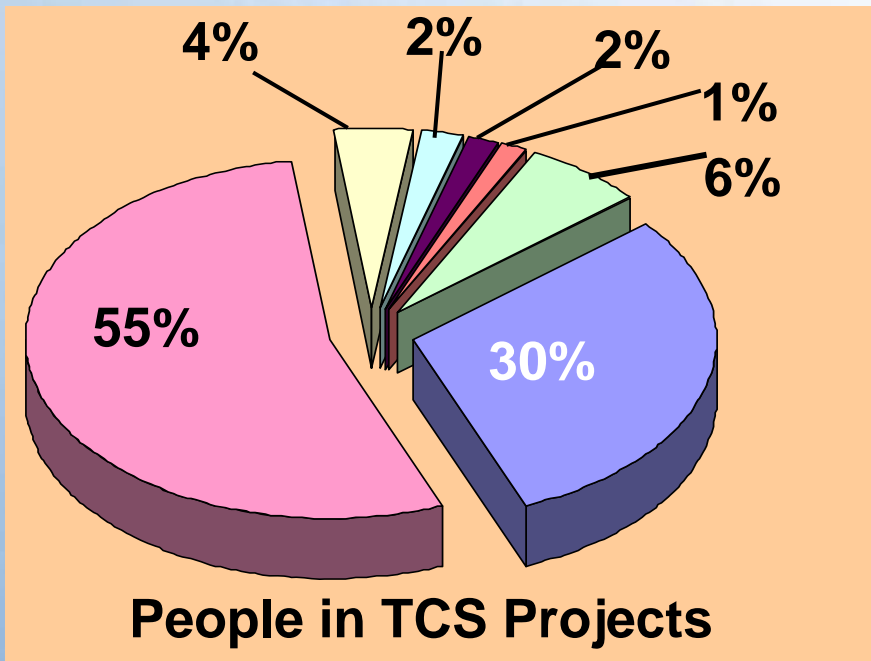
Project Types in TCS



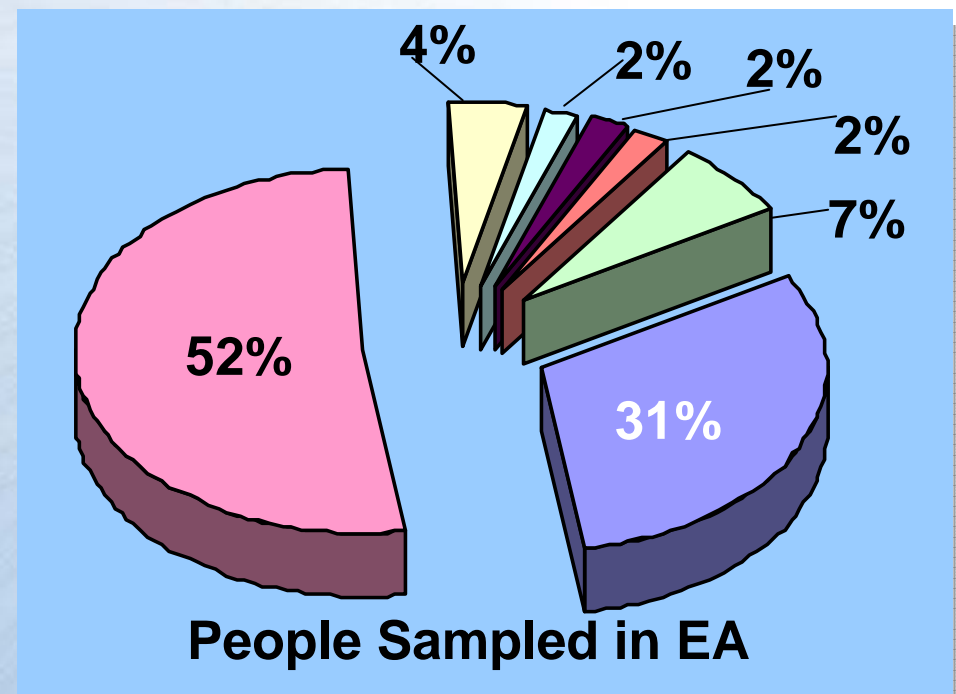
Development Projects were increased to give more coverage to Engineering PAs



Project Types Sampled in EA



- Development
- Maintenance
- Package Implementation
- Conversion
- Tools and Products
- CAD/FEA
- Others



The large size of the appraised organization

**The planning was initiated two years ago and the appraisal carried out
February – August 2004**

The rigor with which the appraisal was performed

Combined appraisal for CMMI and P-CMM models

The official SEI appraisal method SCAMPI was applied to P-CMM

Pilots with the support of the SEI

Every practice was rated

PMO established for the appraisal

Enhanced in-house PAWB tool

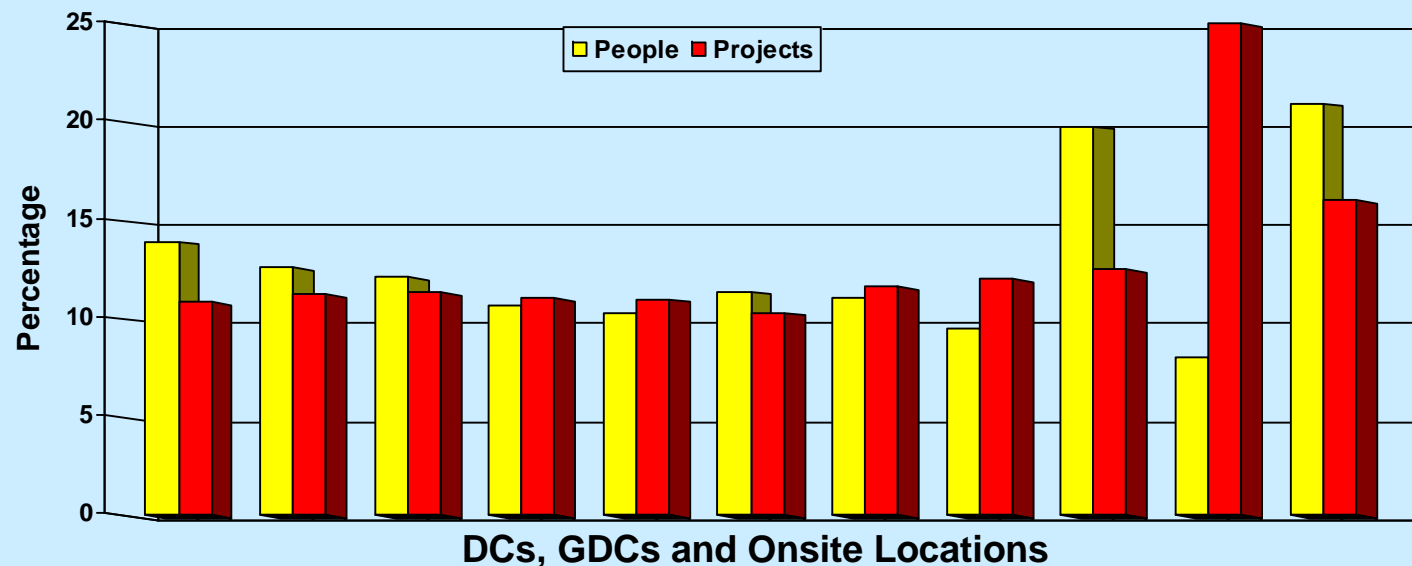
Multiple capability of team - 6 of 13 Lead Assessors / Appraisers (46%)

**Percentage analysis of inputs from the Two Big Questions asked at the
end of each phase to check against interview input and analysis**

**Multi site draft presentations using multiple stream interactive video
conferencing (up to 15 remote sites online at a time)**

The TCS organization was addressed in its entirety

- Random selection of projects and participants
- Over 10% of projects were examined; 144/1275 (11.3%)
- Over 10% of the people in selected/sampled entities in the organization were interviewed; 3109/29120 (10.7%)
- 754 projects out of 1275 were included (59.14%)
- 27 countries covered; 6 continents
- 26 Development Centres covered
- 35,469 documents reviewed



Other organization entities included:

Practices	Information Systems	Corp Communications
SEPG	Audit Groups	Quality Groups
Learning & Development	HR, including Recruitment	Staffing (MATC)
Computing Infrastructure	Administration	TechCommunications

Complementary nature of CMMI and P-CMM allows cross checking in key processes; e.g., Training, Project Management, Continuous Improvement, Resource Management, Process Assets

Audit report reviews after completion of early phases ensured no regression in performance over the appraisal period

Independent QA across all PAs and team activities throughout the appraisal

In some Process Areas we went beyond the requirements in the SEI models; e.g., Supplier Agreement Management analysis included the CMMI required receiver's use and selection of the supplier's tools; additionally the supplier's role, responsibilities, and processes were analyzed

Levels

- The TCS global organization was appraised at Optimizing Level 5 for both CMMI and P-CMM

SCAMPI with P-CMM

- Practice Implementation Indicators (PIIs) aligned to incorporate P-CMM's three tiered view of Organization (organization, unit, workgroup)
- Entity-wise PA applicability mapping
- P-CMM SCAMPI pilot determined successful in the mini-appraisals and reconfirmed during the EA

Combined model appraisal

- Took advantage of complementary process areas to achieve coverage in shorter time frames
- Save on appraisal cost – 2 appraisals vs. 1

PAWB

- Demonstrated savings from internally developed PAWB tool (189%)

Customers and Business

When quality is done right, it pays for all stakeholders

ROI from TCS

Competitiveness, the customers always benefit

Word of mouth about the reliability of the supplier

Business goals have been established and aligned from the top to each and every associate

Defined, tracked, and evolving metrics for the goals

The *iQMS* process supports the achievement of these goals

COQ objectives

Productivity

Process evolution

Reuse of assets

Control of costs

Stretch goals are targeted for TCS and every associate

People

People are an investment and an asset

People stay with organizations that bring them values and opportunity; TCS has a very low attrition rate

TCS is a people sensitive company

- Communication
- Empowerment
- Teamwork
- Community
- Family
- Growth in capabilities via
 - Training
 - Mentoring
 - Sharing
 - Providing diverse career choices

Potential impact of untested methodology

- **P-CMM SCAMPI Pilot endorsed by SEI**
- **Risks mitigated by 4 pilots where the methodology was tested**

Untested combined CMMI and P-CMM

- **CMMI SCAMPI and P-CMM SCAMPI combination agreed to by SEI**
- **Risks mitigated by 4 pilots where the combination was tested**

P-CMM survey not used

- **Experience indicated limited usefulness of survey data at higher levels of maturity**
- **PIIs from the sampled set used as input to the appraisal; refined from minis onwards**

Team issues (availability and workload)

- **Redistribution of work amongst remaining ATMs**
- **ATL could take up some work**

ATL availability

- Backup ATL on team from start of EA
- Backup participated in minis

Size (29000+) and Geographic Spread of the Organization

- PMO set up

Language barriers in some GDCs

- Interpreters used, when needed, in Brazil, China

Infrastructure Availability – videocons

- Infrastructure for 3 parallel videocons + 1 backup site
- Extensive videocon testing with 30 onsite locations

Monsoon

- Buffer days

Changing demographics

- **Demographics baselining from Ultimatix**
- **4 Baselines during the EA**
- **Sampling done in line with the demographics**

Multiple time zones

- **Onsite and Global Development Centres**
- **EA schedule as per onsite time zone – interviews up to 2:00 AM IST**

Associates at client sites in Production Support jobs

- **Branch Regional Managers approached clients for time-off for selected associates**

Interview coverage of onsite associates; sampled from 20 of 24 countries with > 5 associates

- **In addition to sampling of associates in UK, US, India, GDCs (Hungary, Brazil, Uruguay, and China)**
- **Onsite returnees (< 3 months) included**

Handling large volume of data

- **PAWB tool enhanced to handle huge data volumes**

Sampling issues

- **Dynamic demographics changes on daily basis**
- **Project status change; team allocations change**
- **Joinees/resignations/transfers/deputations**
 - **Dynamic identification of assessees before each phase**
 - **Backups identified, available at interview site**
 - **Each assessee's availability checked for interview date, supervisor informed**
 - **Local site coordinator had contacts of all assessees**

Onsite demographics – coverage – how to sample

- **Onsite e.g. USA divided into 20 regions geographically with sizeable population; UK into 5 regions**
- **Within each region; sampling done within a region**

- **Automation of PII filling by practitioners to increase consistency and correctness**
- **Further optimize interview questions across common PAs/practices in models**
- **Leverage more from artifacts found in other PAs**
- **Start consensus later where possible**
- **Start consolidation as early as possible each day**
- **Have backup videocon facilities**
- **Access to gym**
- **Not have PAWB supported by key ATM**

Improvement

- Continuous “rigor” improvement at process area level using Six Sigma
- Transparency of all information to customers using “Delivery 25” tool which provides the top 25 delivery measures as a digital cockpit

Expansion

- Adoption of new quality models/ process areas into *iQMS* – eSCM, BS 7799, SPICE, etc.
- Externalization of *iQMS* by making it available to the industry at large

Innovation

- Domain specific *iQMS* releases, e.g. *iQMS/Pharma*, *iQMS/FS*, etc.

Special thanks to:

- **SEI for supporting the**
 - **Technical Report for Interpreting SCAMPI for P-CMM, and**
 - **Identifying this Enterprise Appraisal as a Pilot for using SCAMPI for the P-CMM along with CMMI**
- **Corporate PMOs and site coordinators across TCS locations enterprise-wide**
- **All the TCS participants who were part of this EA**

Q & A

- **Chrissis, Mary Beth, Mike Konrad, and Sandy Shrum, CMMISM for Systems Engineering/Software Engineering/Integrated Product and Process Development/Supplier Sourcing, Version 1.1, Staged Representation (CMMI-SE/SW/IPPD/SS, V1.1, Staged) [CMU/SEI-2002-TR-012]. Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University.**
- **Curtis, B., Hefley, W.E., and Miller, S. (2002). The People Capability Maturity Model: Guidelines for Improving the Workforce. [ISBN 0-201-60445-0]. Reading, MA: Addison Wesley Longman.**
- **Hefley, W. E. & Curtis, B. (1998). People CMM[®]-Based Assessment Method Description [CMU/SEI-98-TR-012]. Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University.**
- **Members of the Assessment Method Integrated Team. (2001). Standard CMMISM Appraisal Method for Process Improvement (SCAMPISM), Version 1.1: Method Definition Document [CMU/SEI-2001-HB-001]. Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University.**
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Thank You