

SEPTEMBER 2010

Integrating Software Development and CMMI using TSP

Presenters:

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Who is CGI?

- A global leader in IT, business process, and professional services, CGI partners with federal agencies to provide end-to-end solutions for defense, civilian, and intelligence missions
- Acquired Stanley Associates, Inc. in August 2010

Organizational goals

- Improve existing software development processes and software team performance
- Improve software quality
- Enhance process performance
 - Estimations
 - Consistency
 - Schedule
- Achieve a CMMI ML3 rating in 18 months or less

SEI's Accelerated Improvement Method

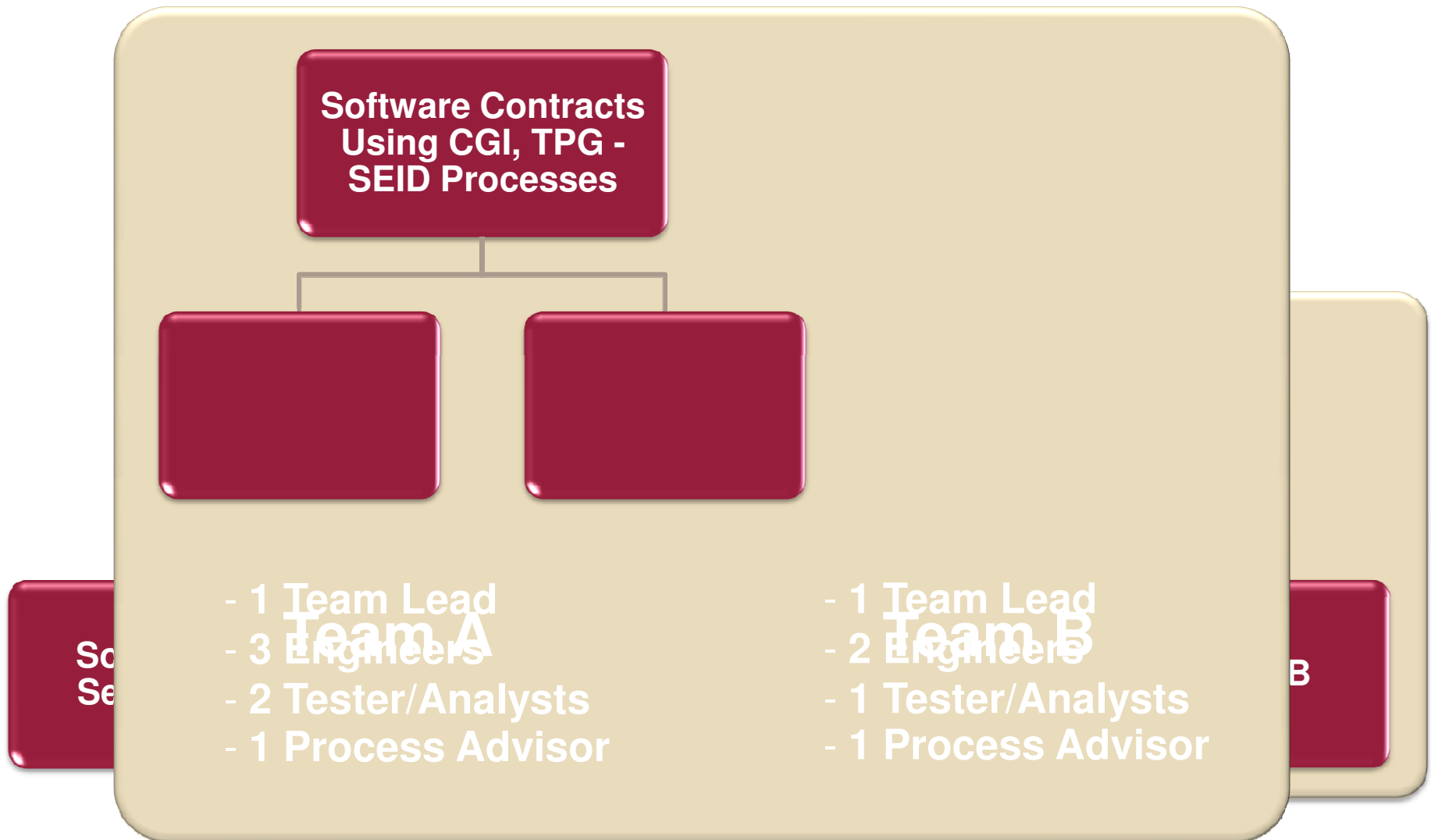
In

Six Sigma

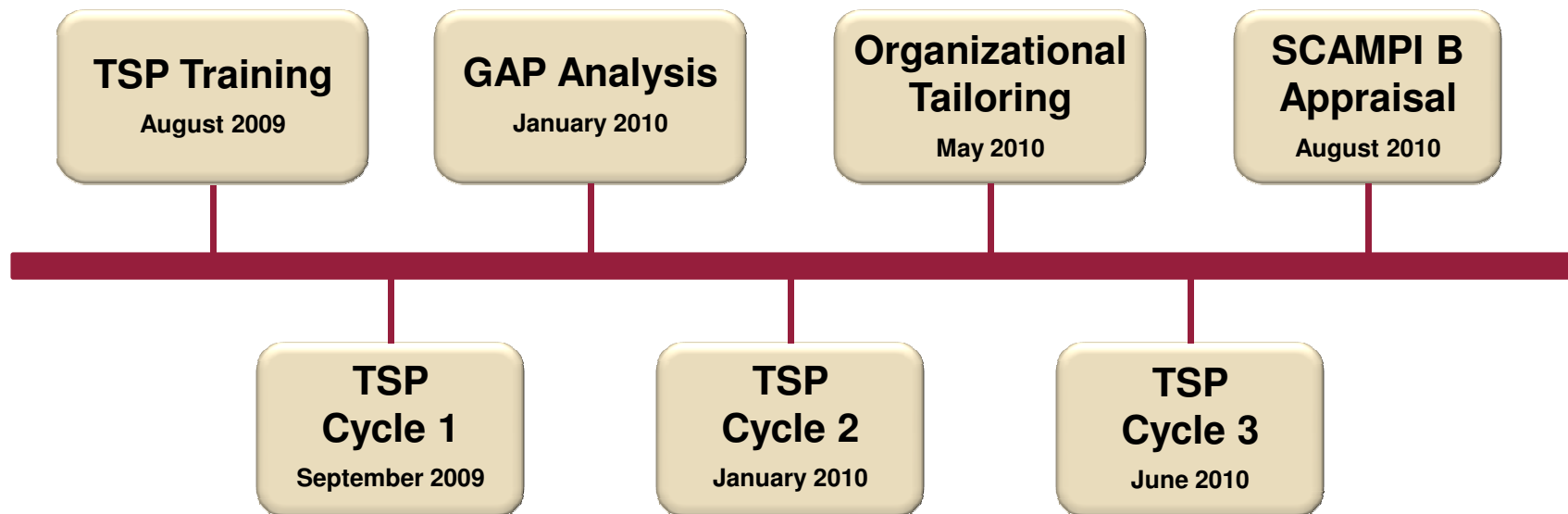
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- Select High Maturity Processes
- Identify and Pilot Improvements
- Organizational Process
- High Quality Broad Improvement

Organizational Scope and Team Composition



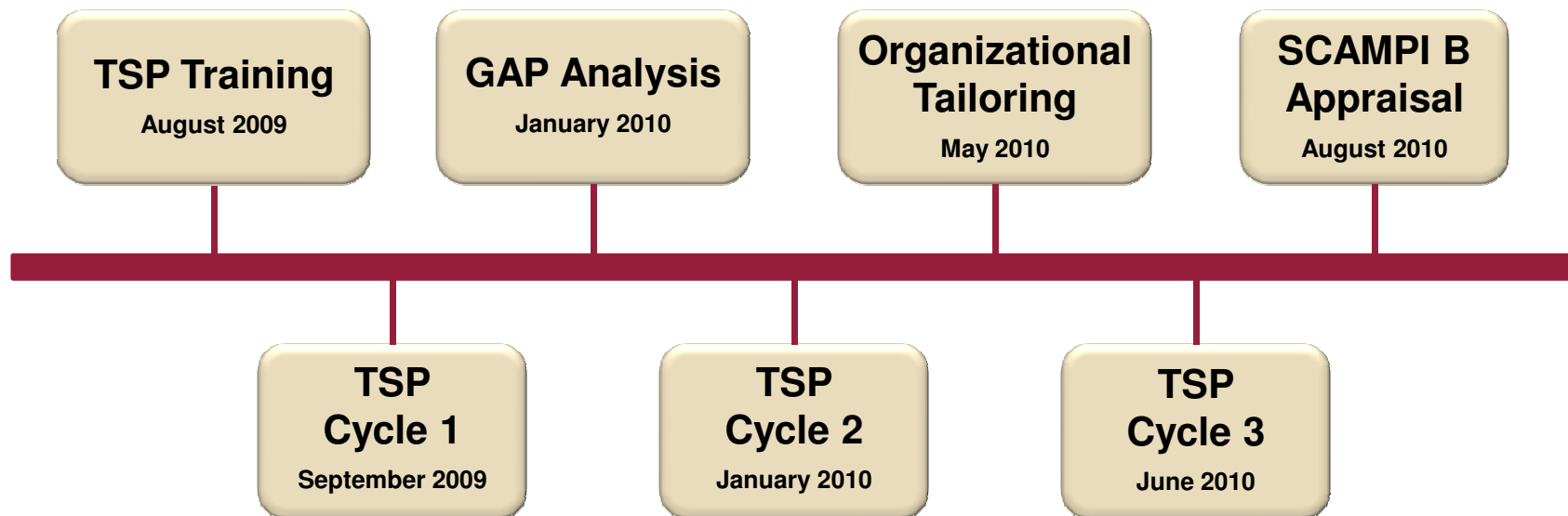
Implementation Timeline



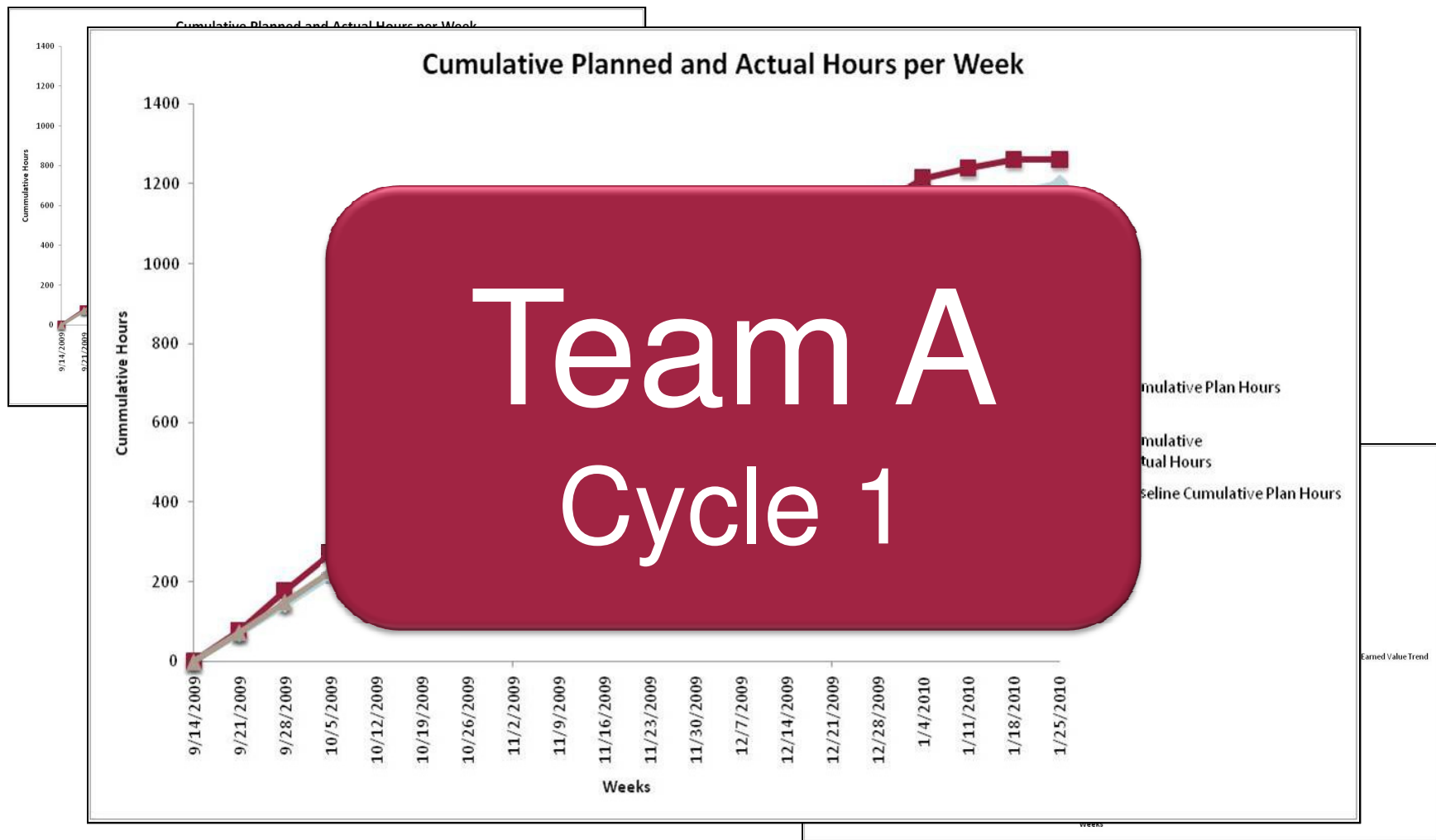
PSP/TSP Training

- Leading a Development Team
- TSP Team Member Training
- PSP Fundamentals
- PSP Advanced

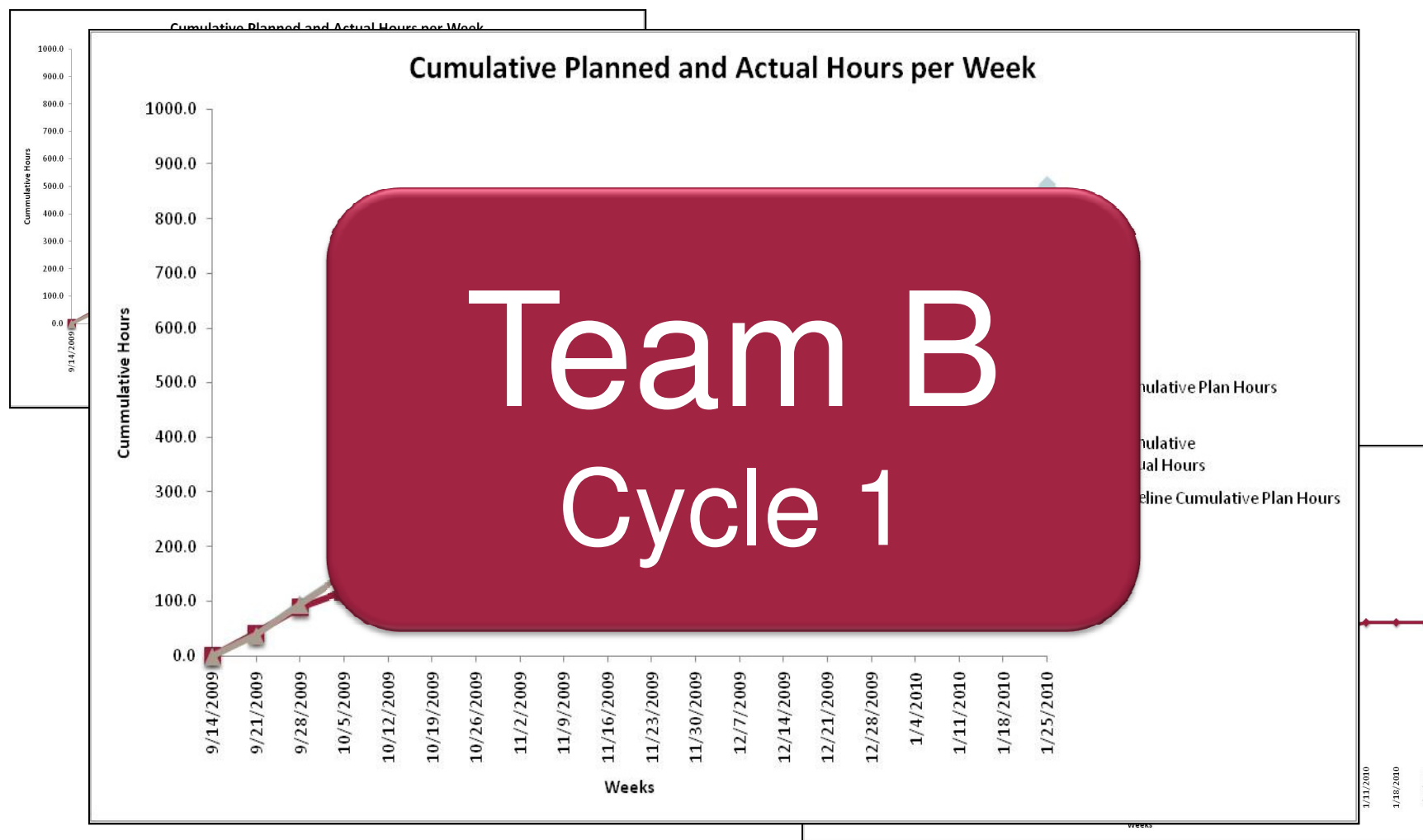
Implementation Timeline



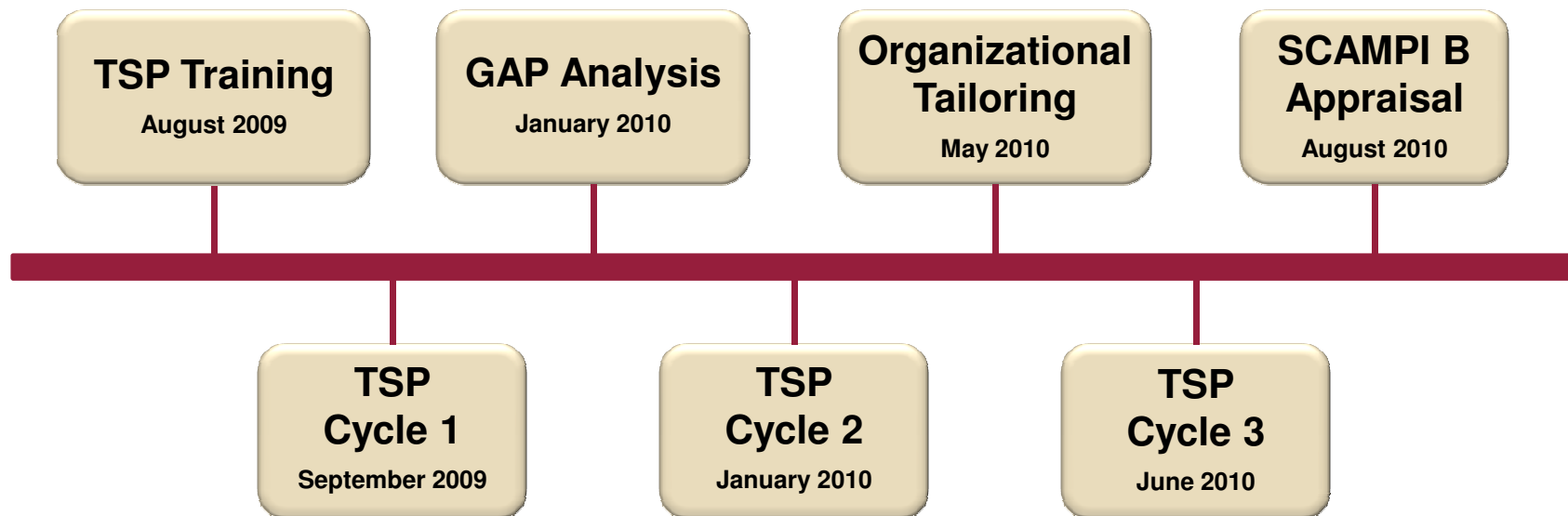
Team A – Cycle 1 Data



Team B – Cycle 1 Data



Implementation Timeline



Team A – Gap Analysis Results

	SG 1							SG 2								SG 3					GG 2										GG 3		
	SP 1.1	SP 1.2	SP 1.3	SP 1.4	SP 1.5	SP 1.6	SP 1.7	SP 2.1	SP 2.2	SP 2.3	SP 2.4	SP 2.5	SP 2.6	SP 2.7	SP 2.8	SP 3.1	SP 3.2	SP 3.3	SP 3.4	SP 3.5	GP 2.1	GP 2.2	GP 2.3	GP 2.4	GP 2.5	GP 2.6	GP 2.7	GP 2.8	GP 2.9	GP 2.10	GP 3.1	GP 3.2	
REQM	G	G	G	Y	G																R	G	G	G	G	Y	G	G	Y	G	G	Y	
PP	G	R	G	G				G	G	Y	G	G	R	G			G	G	G			G	G	G	G	G	G	G	R	G	G	Y	
PMC	G	G	G	Y	Y	G	G	G	G	G												Y	G	G	G	G	G	G	G	G	G	Y	
CM	Y	G	G					G	G								Y	G				G	G	G	G	G	G	Y	Y	G	G	Y	
RD	Y	Y						Y	Y	R							R	G	Y	G	G	R	G	G	G	Y	G	G	Y	G	R	Y	
TS	Y	Y						R	G	G	Y						G	G				R	G	G	G	Y	G	G	Y	G	R	Y	
PI	G	G	G					G	G								G	G	G	G		R	G	G	G	Y	G	G	Y	G	G	Y	
VER	G	G	G					G	G	Y							G	G				R	G	G	G	Y	G	G	Y	G	G	Y	
VAL	Y	G	G					G	G													R	G	G	G	G	Y	G	G	Y	G	G	Y
IPM	G	Y	Y	G	G	R		G	G	G												R	G	G	G	R	R	G	G	Y	G	R	R
RSKM	Y	Y	G					G	G								G	G				R	G	G	G	G	Y	G	G	Y	G	G	Y
DAR	G	Y	Y	Y	Y	Y															R	Y	Y	Y	G	Y	Y	Y	Y	Y	G	R	

Team B – Gap Analysis Results

	SG 1	SP 1.1	SP 1.2	SP 1.3	SP 1.4	SP 1.5	SP 1.6	SP 1.7	SG 2	SP 2.1	SP 2.2	SP 2.3	SP 2.4	SP 2.5	SP 2.6	SP 2.7	SP 2.8	SG 3	SP 3.1	SP 3.2	SP 3.3	SP 3.4	SP 3.5	GG 2	GP 2.1	GP 2.2	GP 2.3	GP 2.4	GP 2.5	GP 2.6	GP 2.7	GP 2.8	GP 2.9	GP 2.10	GG 3	GP 3.1	GP 3.2	
REQM		R	G	Y	R	G																			R	R	Y	G	Y	Y	Y	G	Y	Y		G	Y	
PP		G	R	G	G					G	G	Y	G	G	R	G				G	G	G				G	G	G	G	G	G	G	R	G		G	Y	
PMC		G	G	G	Y	Y	G	G		G	G	G													Y	G	G	G	G	G	G	G	G	G		G	Y	
CM		R	Y	G						R	Y									G	R					G	Y	G	Y	Y	Y	Y	G	R	Y		Y	Y
RD		Y	Y							Y	Y	Y								Y	G	R	G	G		R	G	G	G	Y	R	R	G	Y	G		R	Y
TS		Y	G							G	G	R	R							Y	G					R	G	G	G	G	R	G	G	Y	G		G	Y
PI		G	Y	Y						R	R									Y	G	Y	Y			R	G	G	G	R	R	R	G	Y	G		G	Y
VER		G	G	G						G	G	Y								G	G					R	G	G	G	G	R	R	G	Y	G		G	Y
VAL		G	Y	G						G	G															R	G	Y	G	G	R	R	G	Y	G		G	Y
IPM		R	Y	Y	Y	G	Y			G	G	G													R	G	G	G	G	R	R	G	Y	G		R	Y	
RSKM		Y	G	G						G	Y									G	G					R	G	G	G	G	Y	G	G	Y	G		G	Y
DAR		G	Y	Y	Y	Y	Y																			R	Y	Y	Y	G	Y	Y	Y	Y	Y		G	R

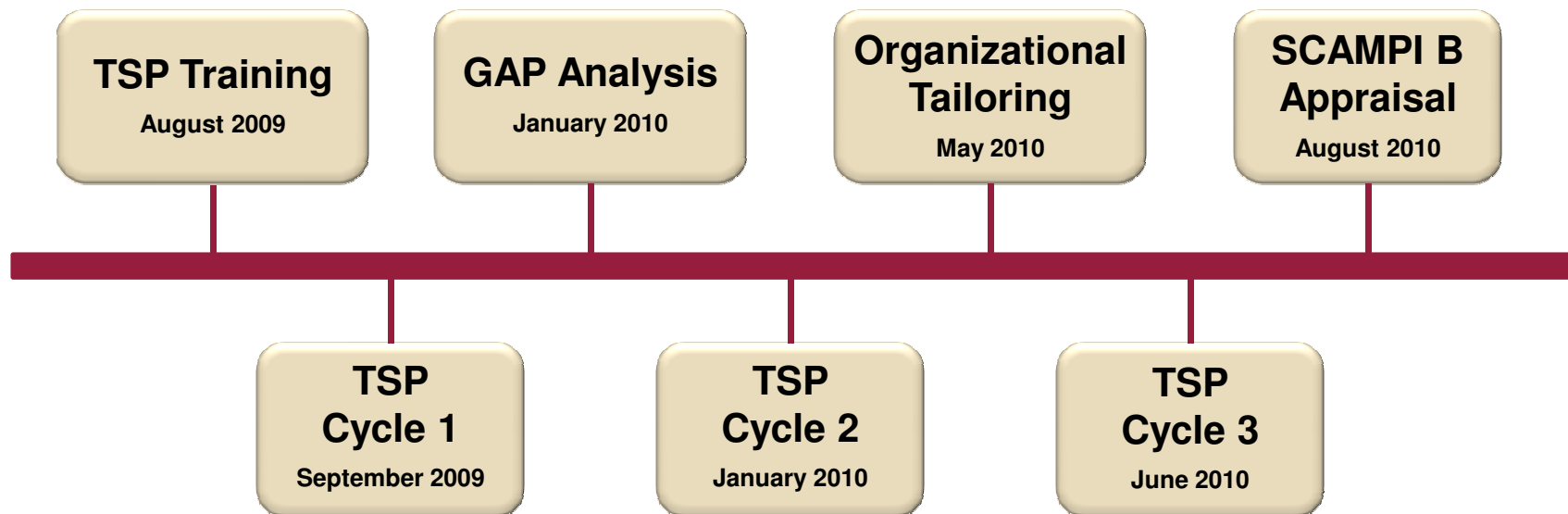
Organizational – Gap Analysis Results

	SG 1	SP 1.1	SP 1.2	SP 1.3	SP 1.4	SP 1.5	SP 1.6	SP 1.7		SG 2	SP 2.1	SP 2.2	SP 2.3	SP 2.4	SP 2.5	SP 2.6	SP 2.7	SP 2.8		SG 3	SP 3.1	SP 3.2	SP 3.3	SP 3.4	SP 3.5		GG 2	GP 2.1	GP 2.2	GP 2.3	GP 2.4	GP 2.5	GP 2.6	GP 2.7	GP 2.8	GP 2.9	GP 2.10		GG 3	GP 3.1	GP 3.2
OPF		R	G	G							G	G									Y	Y	R	R				R	G	G	Y	G	R	Y	G	R	Y			R	Y
OPD		R	G	R	R	Y	Y																					R	G	G	Y	G	R	Y	G	R	Y			R	Y
OT		R	Y	Y	Y						Y	G	Y															Y	Y	Y	G	Y	R	Y	R	Y	Y			G	Y
M&A		Y	Y	G	G						G	G	G	Y														Y	G	G	G	G	G	G	G	Y	G			G	Y
PPQA		R	G								Y	G																G	G	G	G	G	Y	Y	G	G	G			G	Y

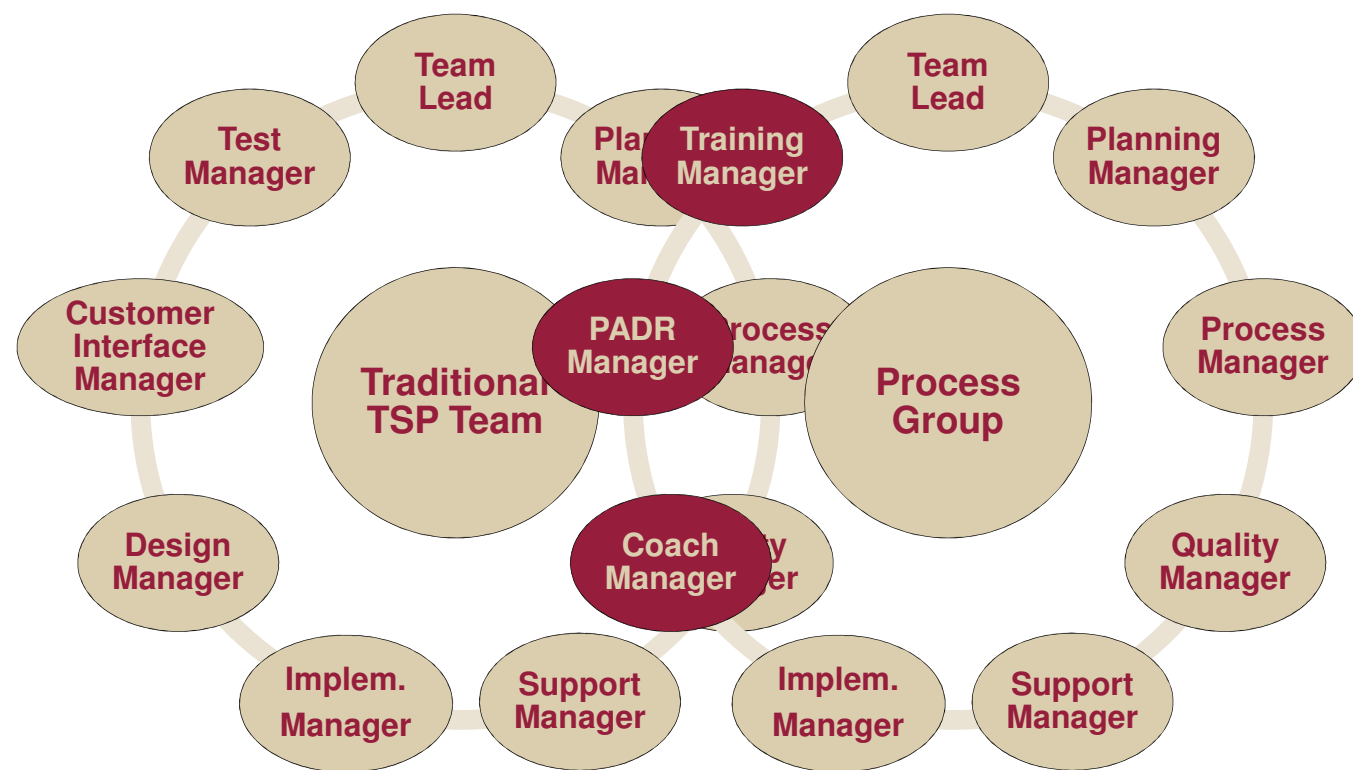
Gap Analysis Findings

- Document the processes as practiced
- Achieve consistency between software teams by standardizing development tool sets
- Improve and enhance the integration of TSP with the organizational processes
- Launch the Process Group as a TSP Team
 - Create New Organizational Processes
 - Track Appraisal Preparation Progress
 - Address Identified Weaknesses

Implementation Timeline



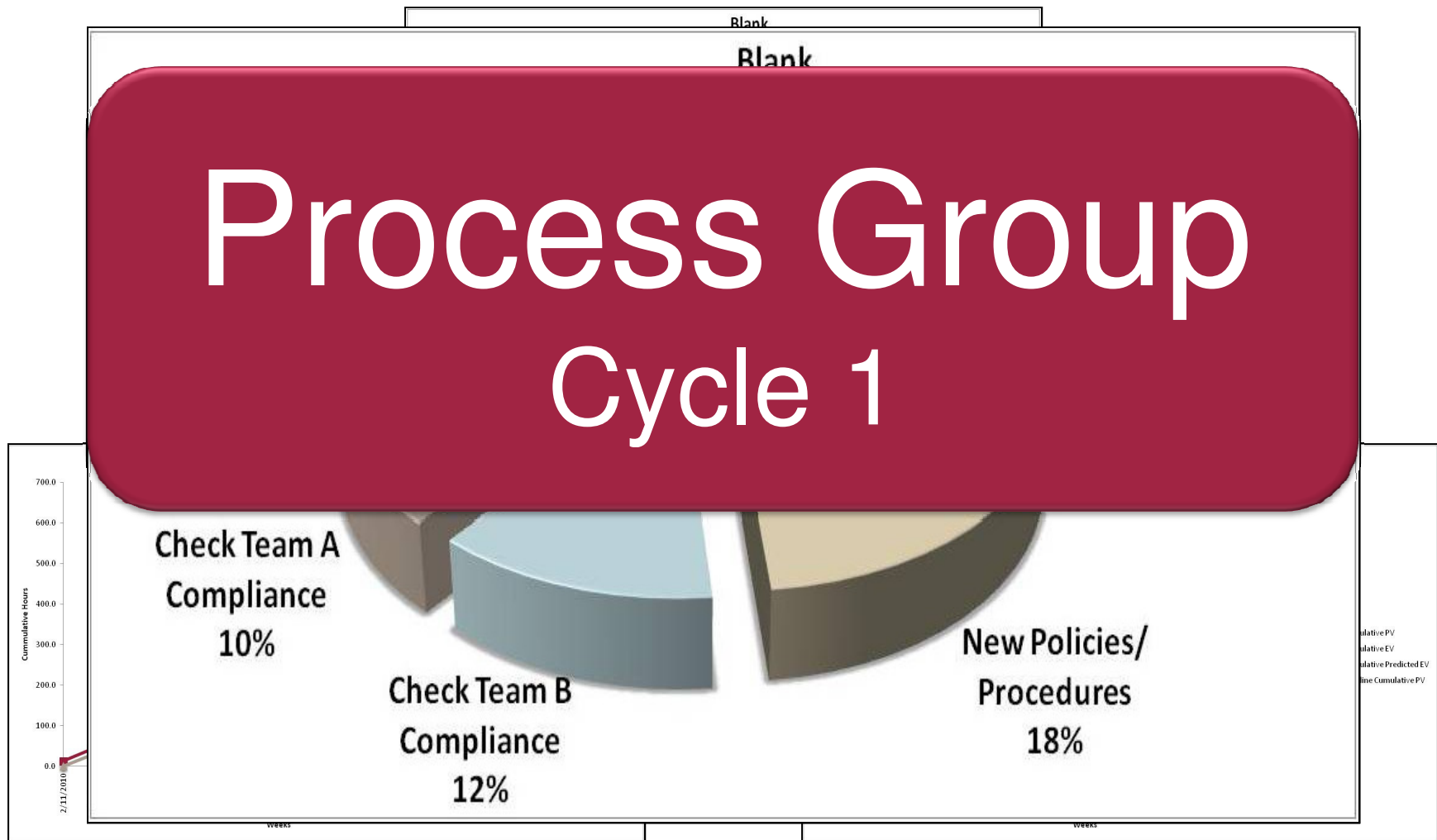
SEI's Accelerated Improvement Method



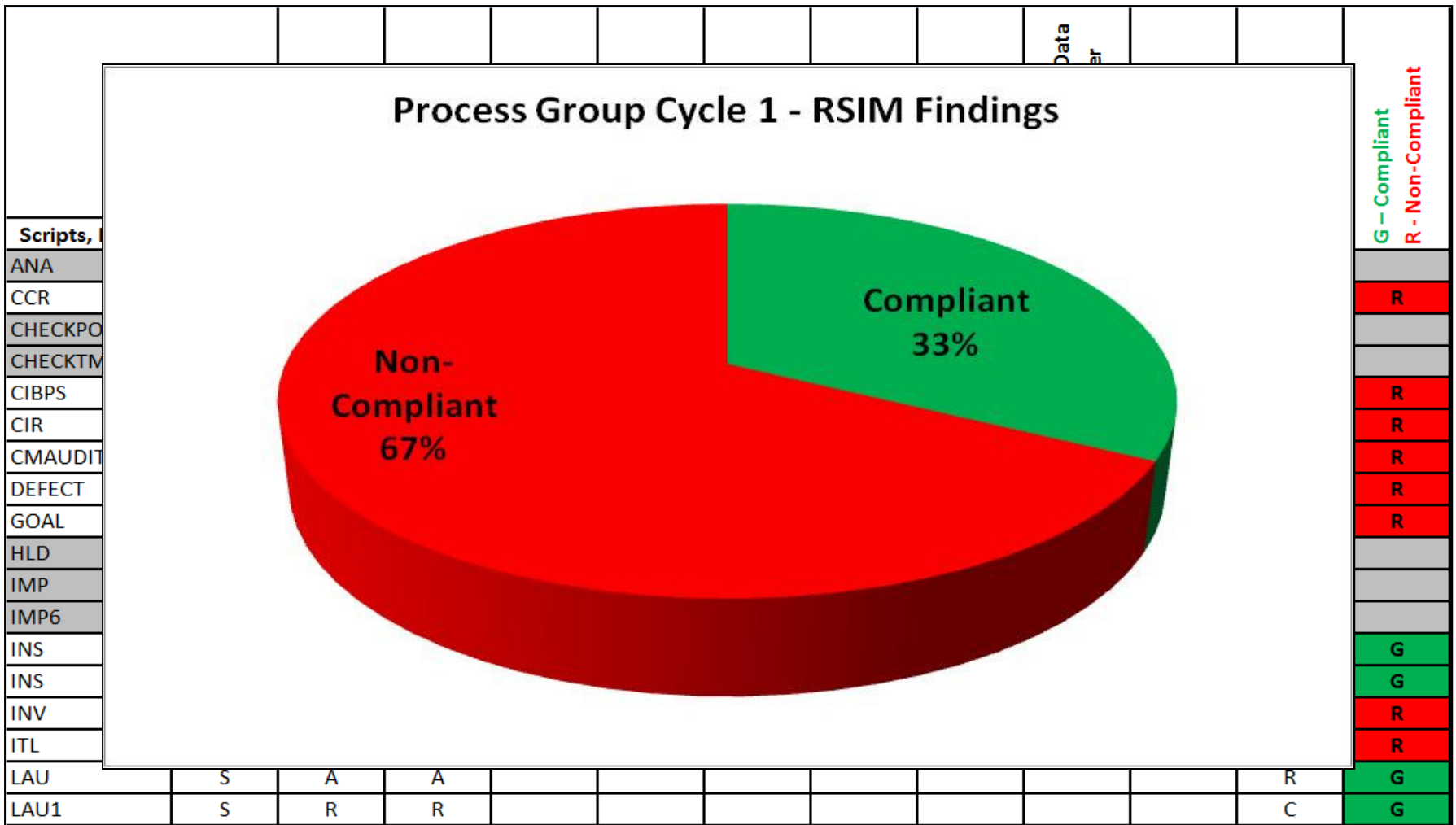
Launching the Process Group

- Process Group Details
 - Team Composition
 - Team Lead
 - 4 Additional Team Members
 - Part-Time Basis
 - Experienced In Process Improvement
- Role Revisions
 - Training Manager
 - Evidence Manager
- New Scripts

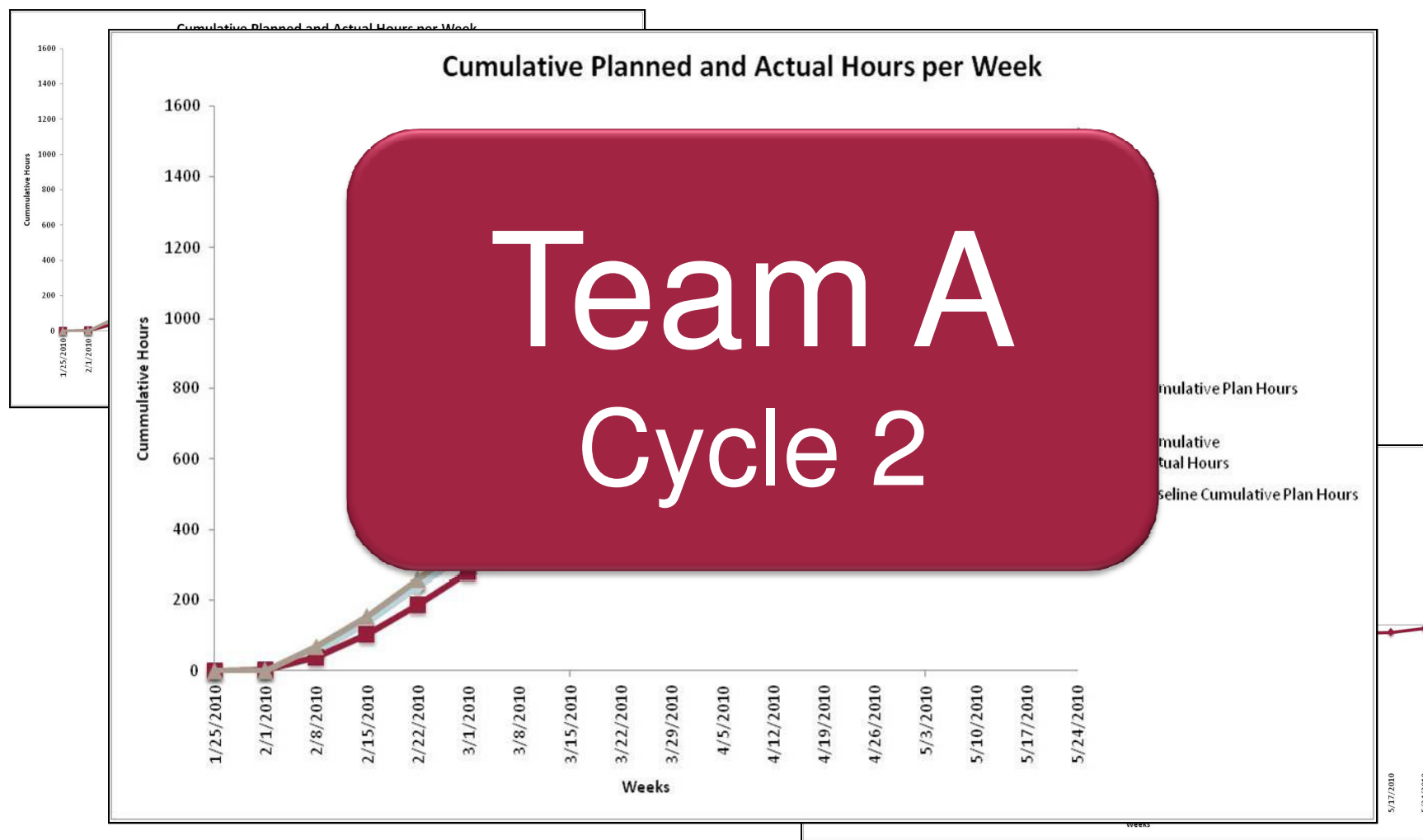
Process Group – Cycle 1 Data



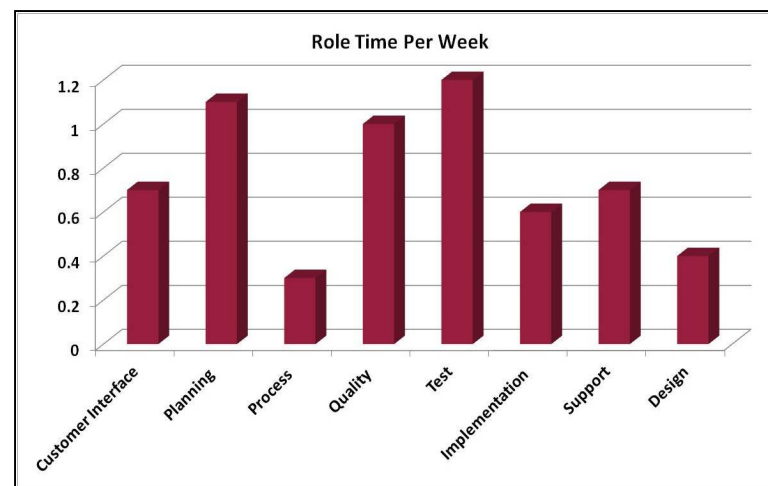
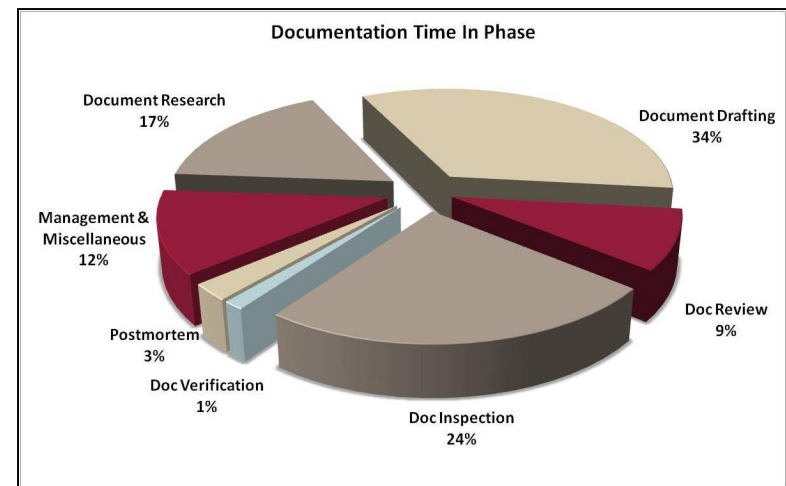
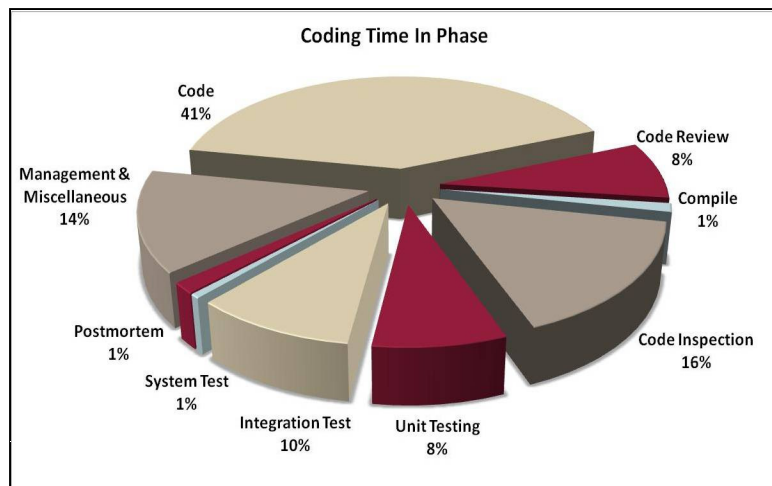
Process Group – Cycle 1 RSIM



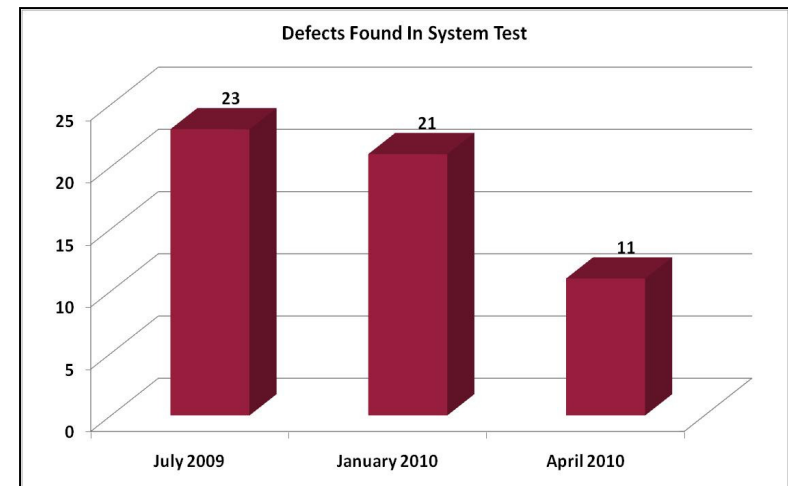
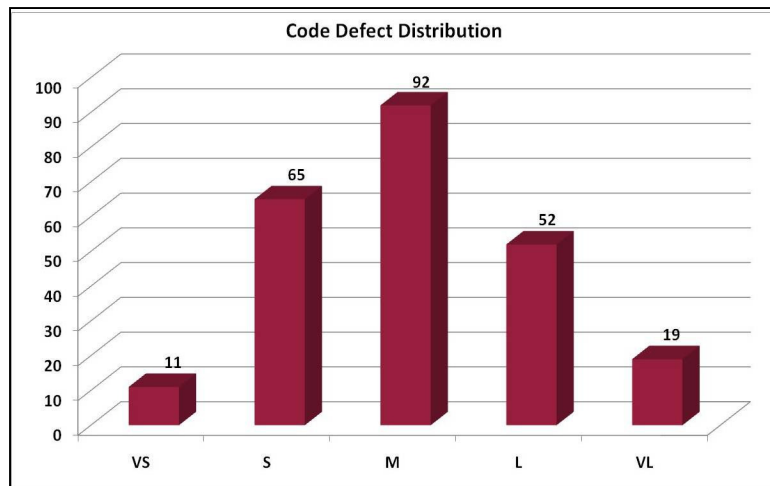
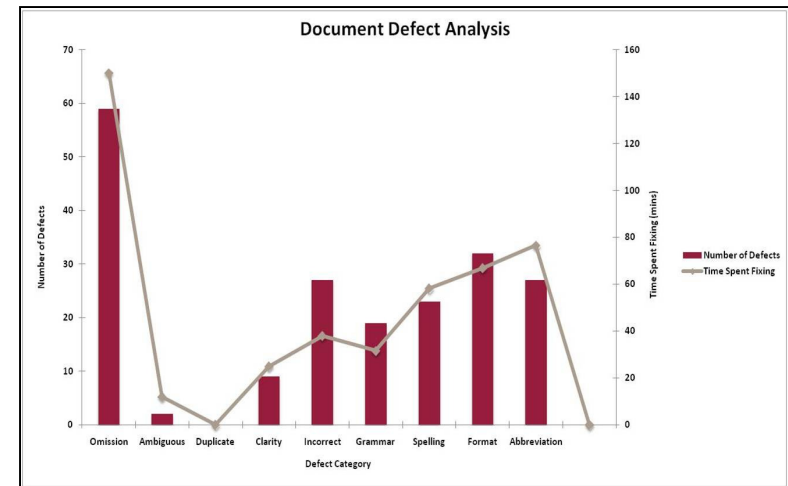
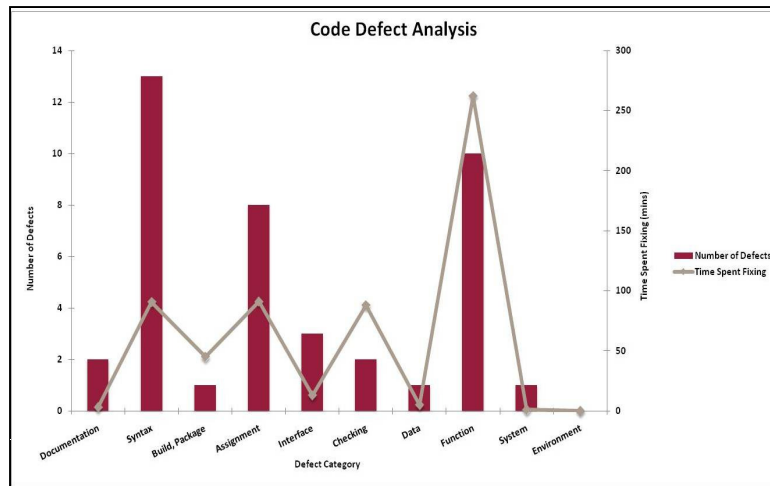
Team A – Cycle 2 Data



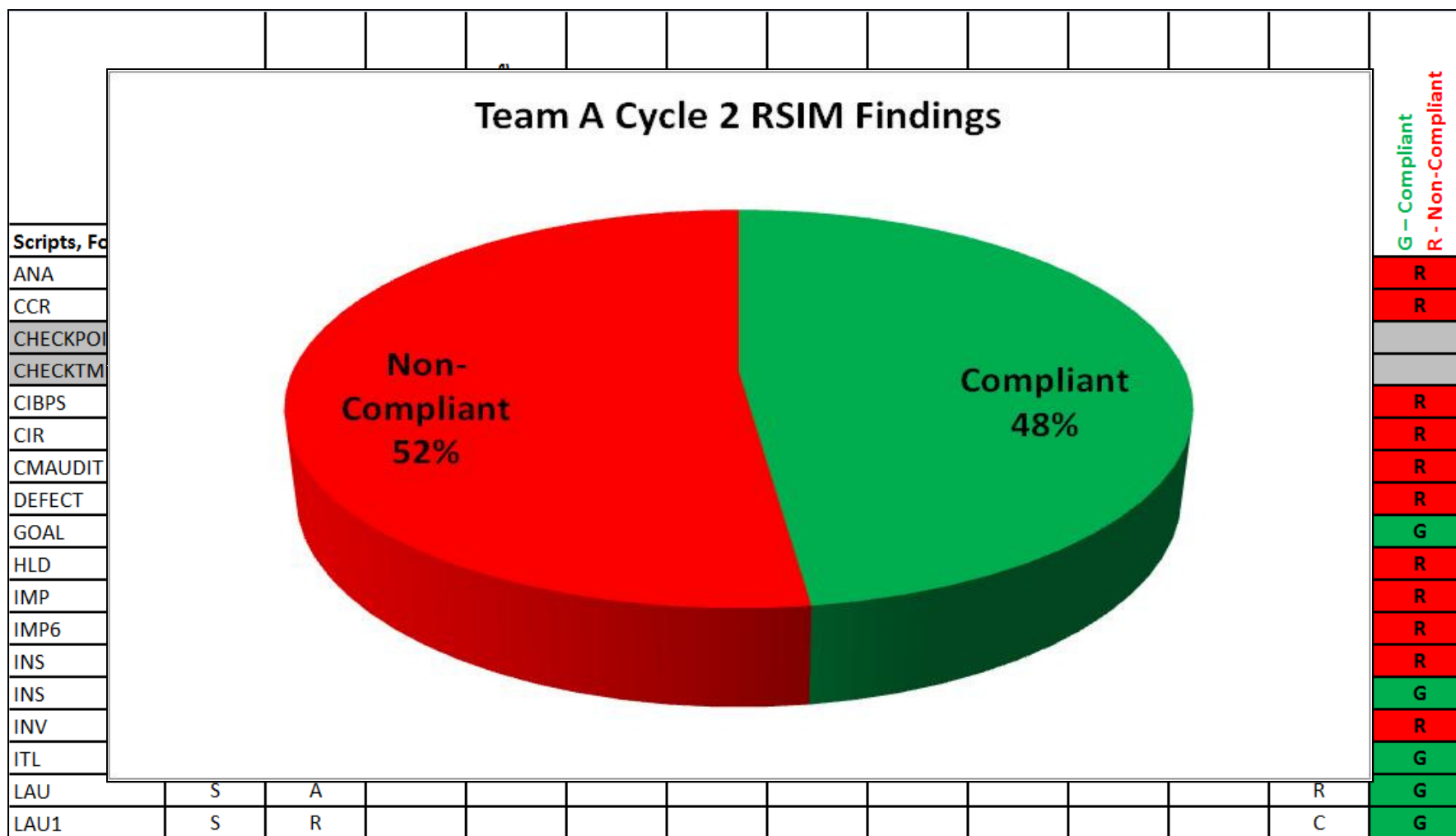
Team A – Cycle 2 Effort Analysis



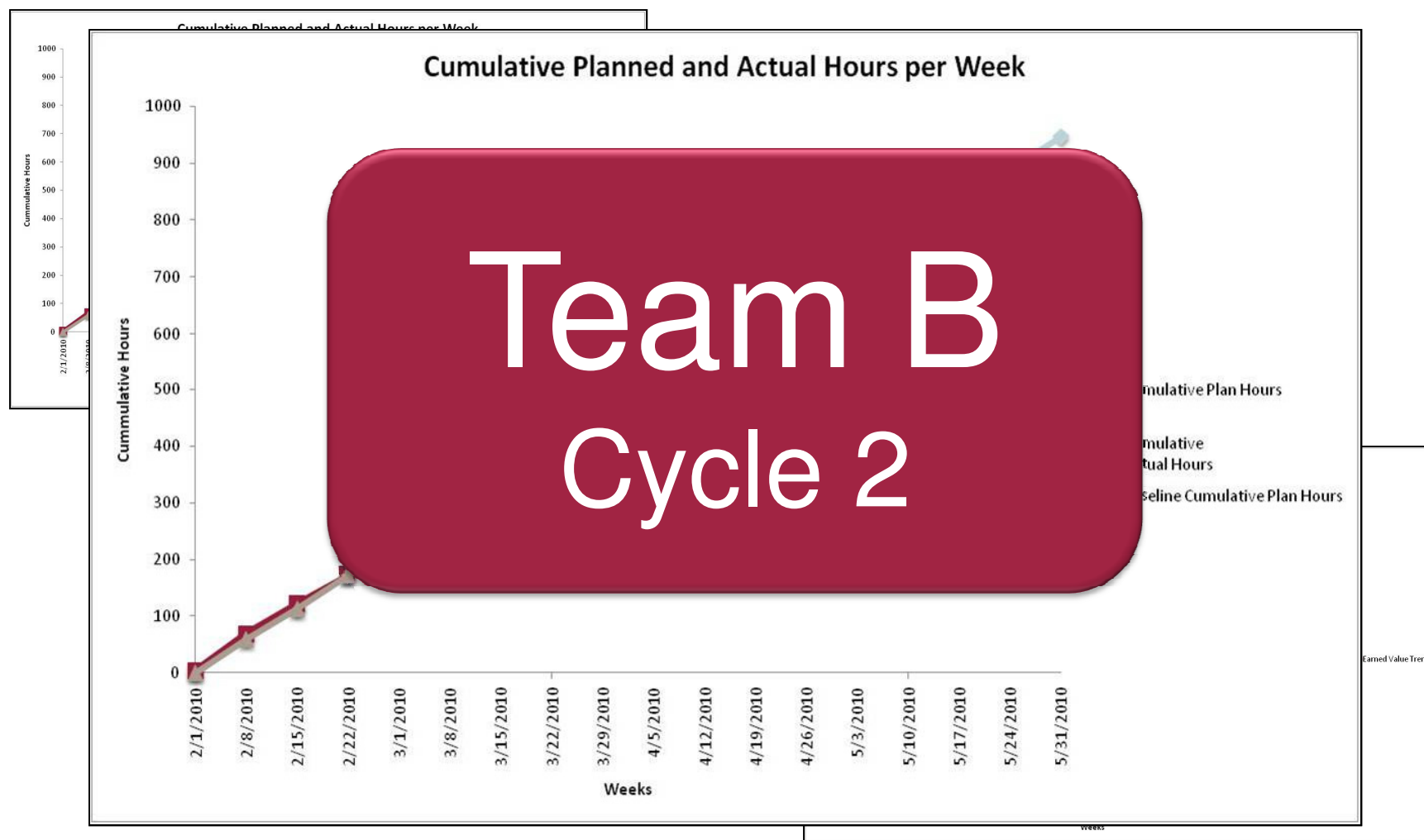
Team A – Cycle 2 Defect Analysis



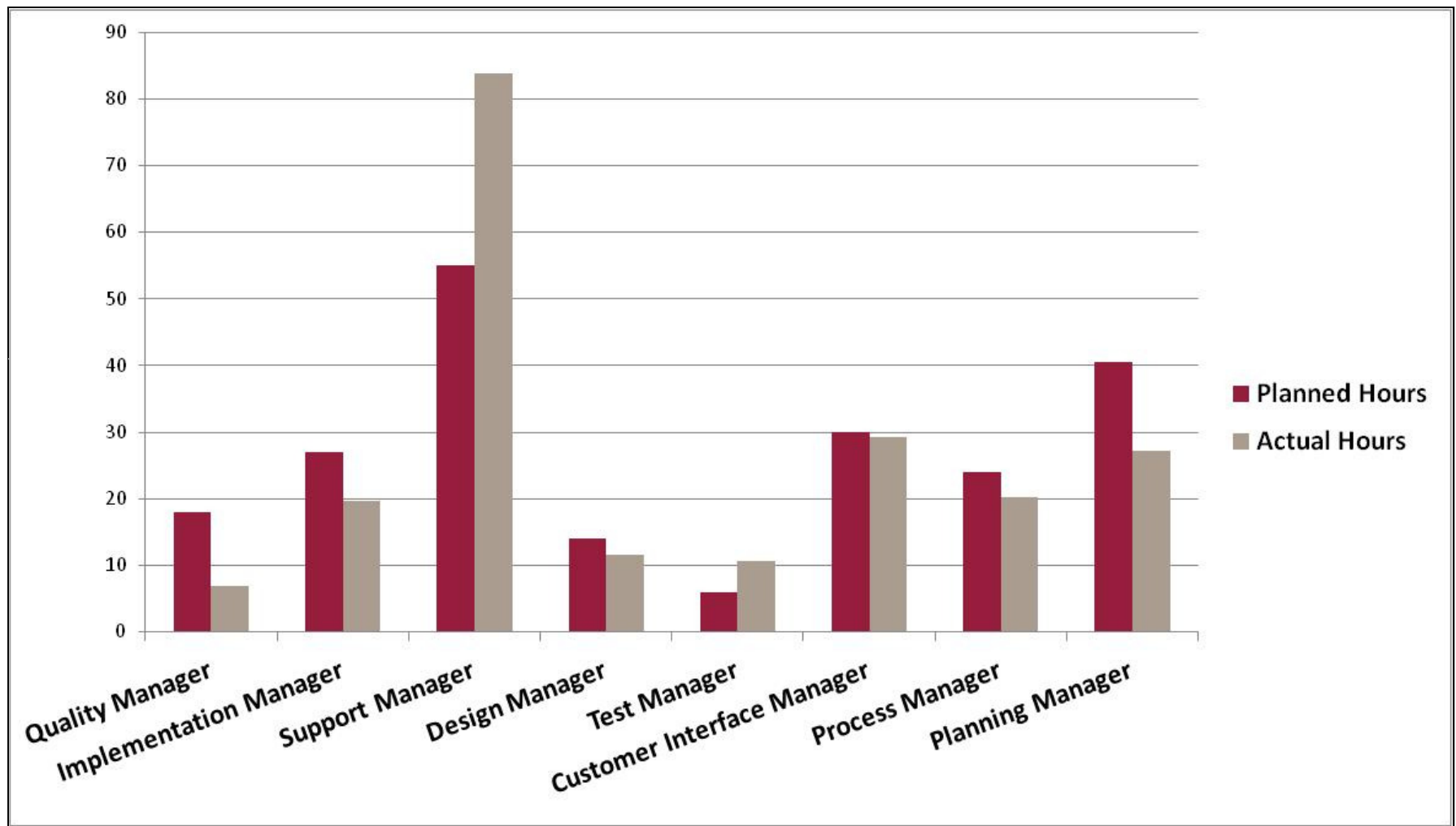
Team A – Cycle 2 RSIM



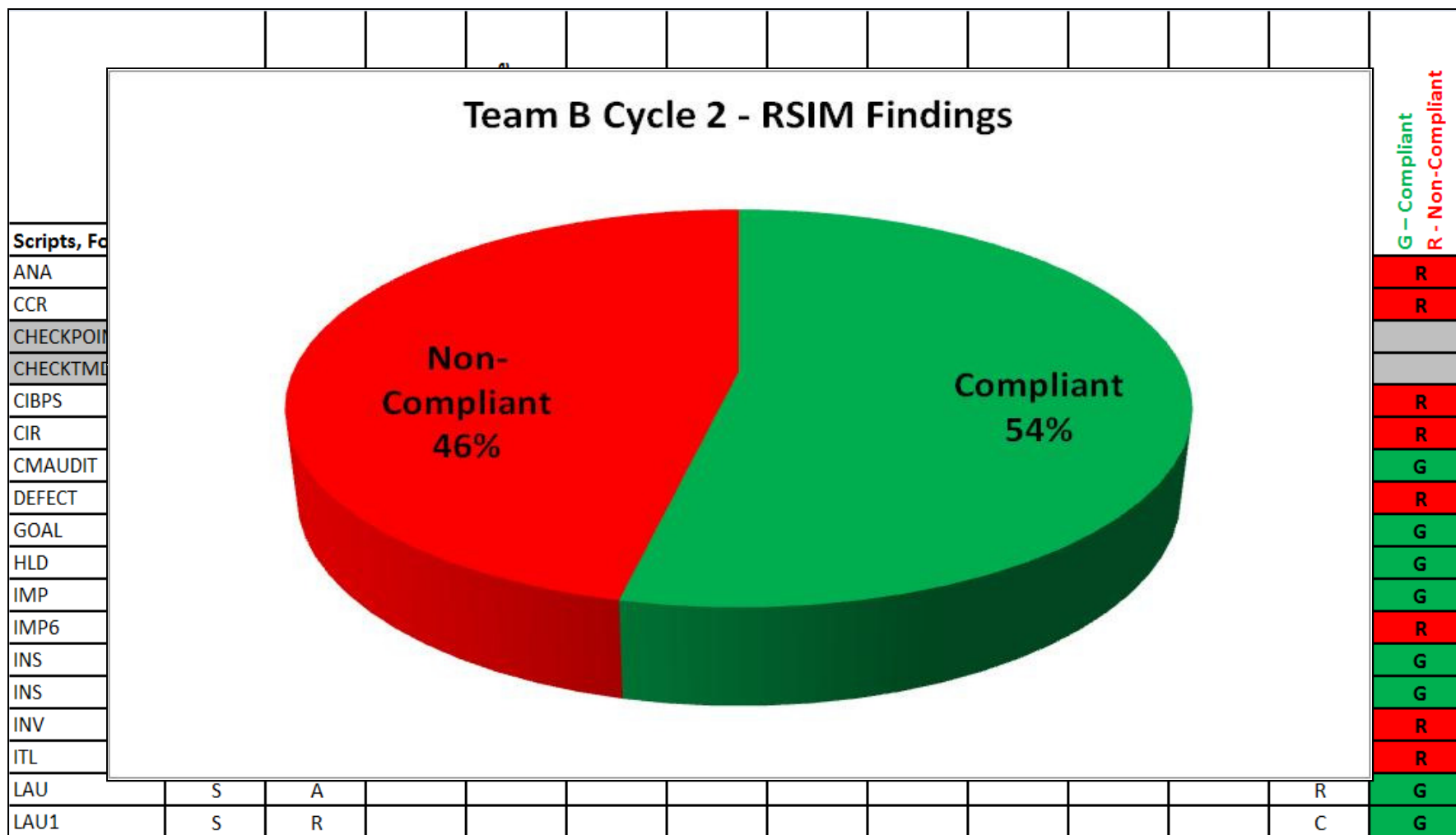
Team B – Cycle 2 Data



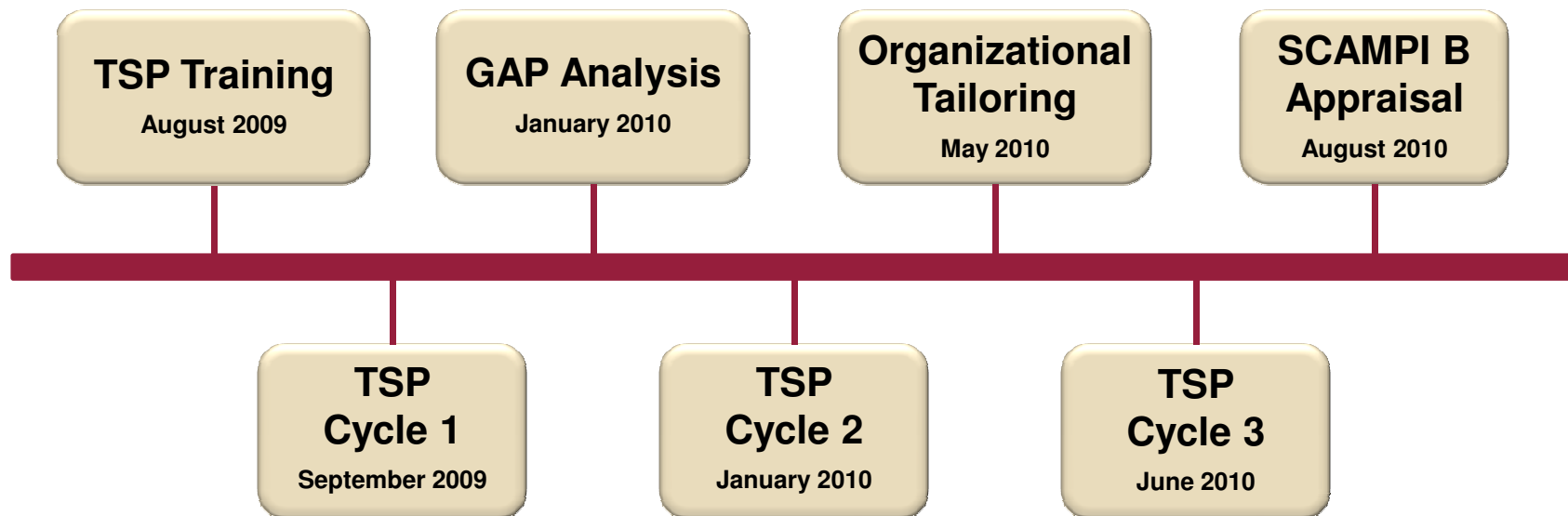
Team B – Cycle 2 Plan vs. Actual Role Work



Team B – Cycle 2 RSIM



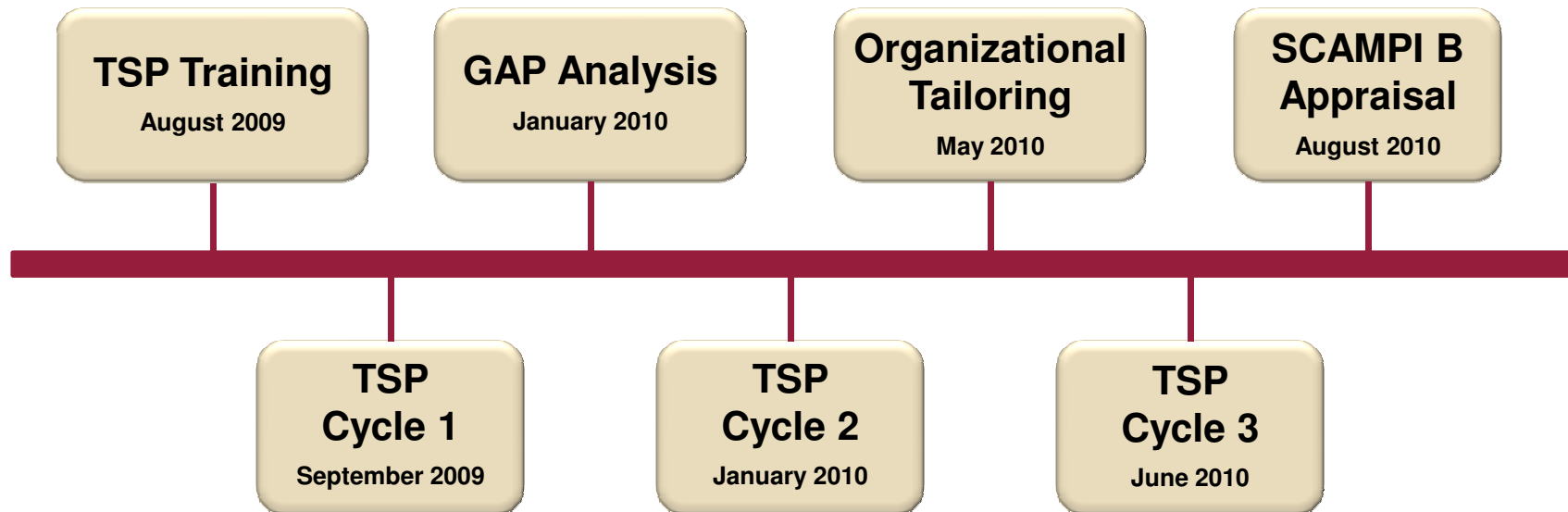
Implementation Timeline



Organizational Tailoring

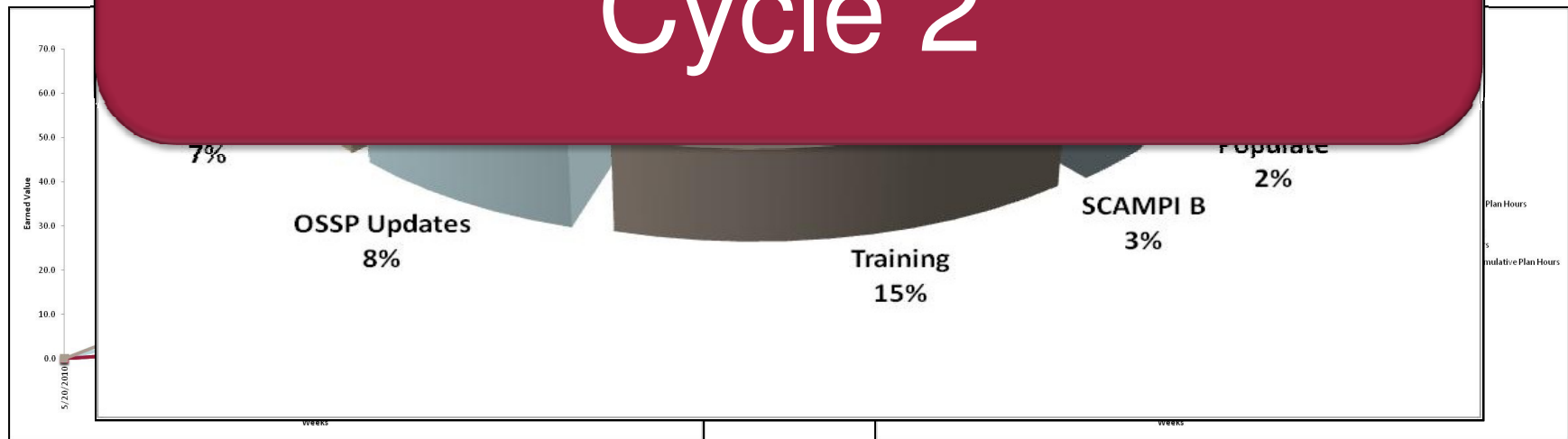
- Organizational processes were updated to allow for TSP to be used by software teams in addition to standard software practices
- TSP Documentation was updated to reflect CGI's processes as they are practiced
 - TSP Configuration Management Scripts/Forms removed
 - Training support removed
 - CGI organizational structure worked into TSP Documents
 - Gaps between TSP and organizational processes were filled
 - Effort required (18 hours x 3 people = 54 task hours)

Implementation Timeline



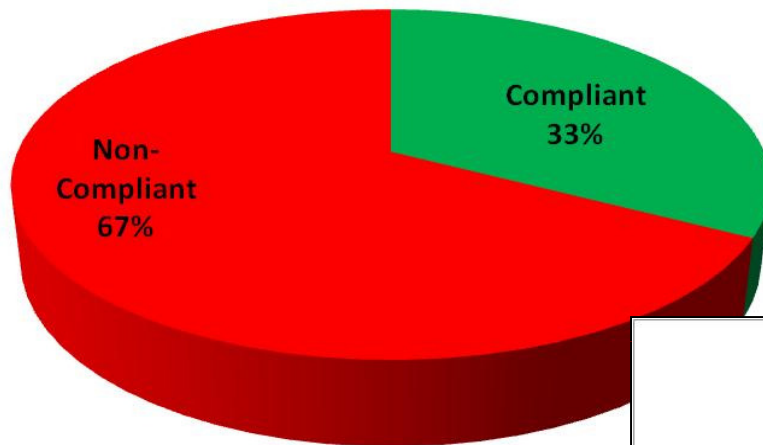
Process Group – Cycle 2 Data

Process Group Cycle 2



Process Group – Cycle 2 RSIM

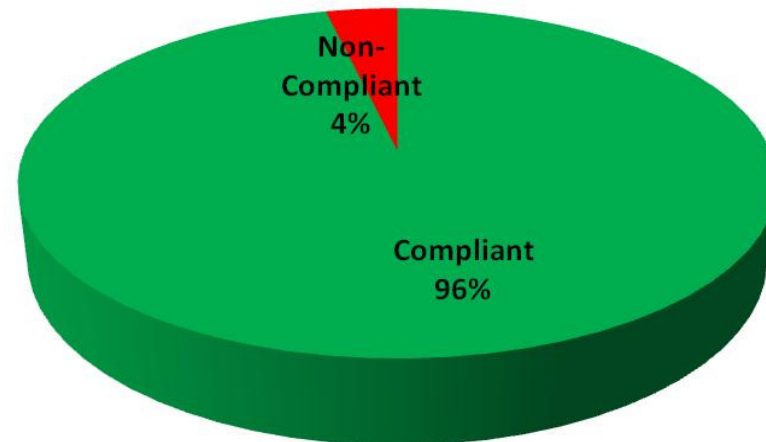
Process Group Cycle 1 - RSIM Findings



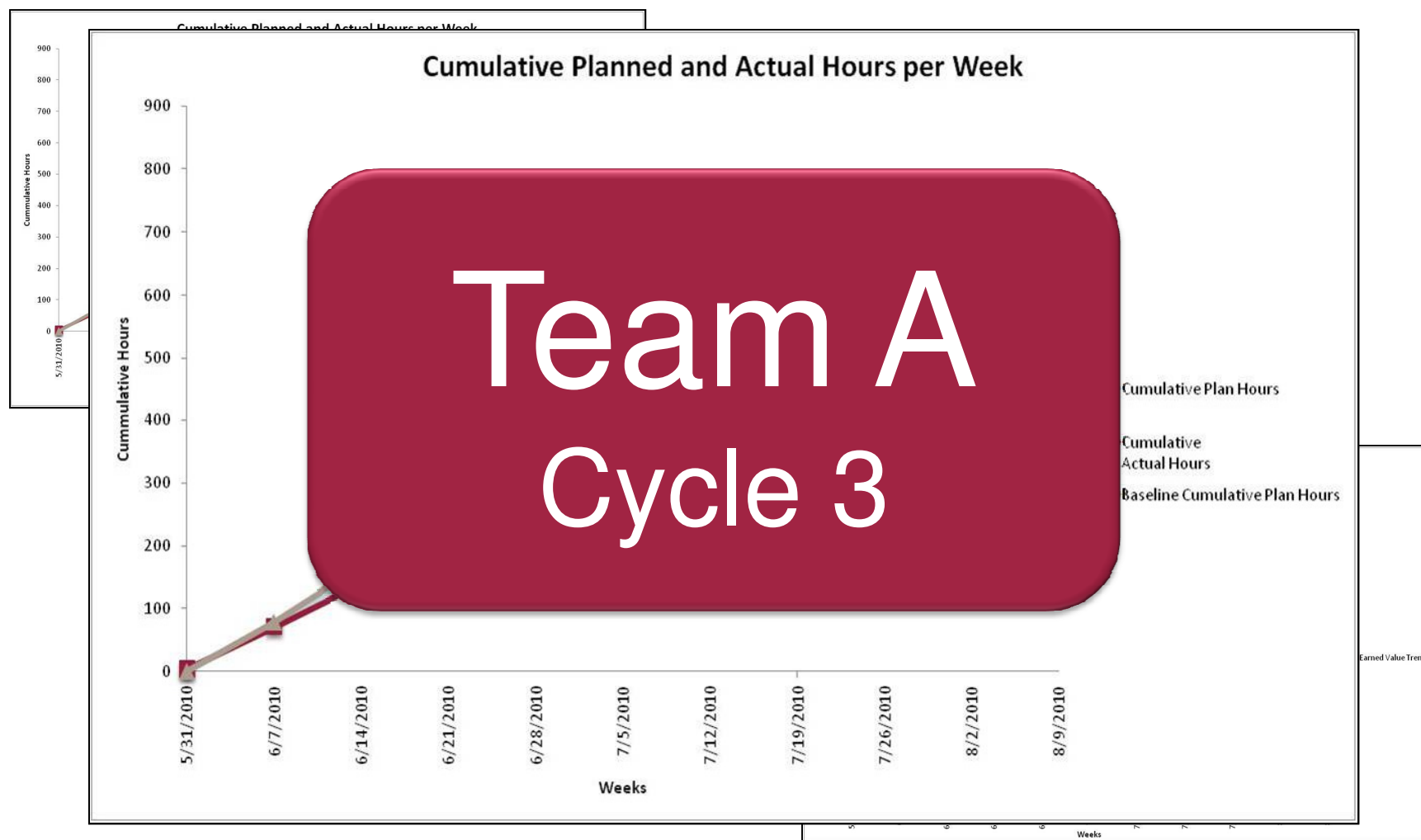
Quality Manager	Process Asset and Data Repository Manager	Evidence Manager	Coaching Manager	PG Team	G – Compliant R – Non-Compliant
			A		G
					G
				A	G

LAU4	S		R		R
LAU6	S		R		R
LAU7	S		R		
LAU8	S		R		
LAU9	S	A	A		
LAUPM	S	I			
LAUSUPPORT	S	I			
LOGD	F				
LOGPIP	F	I	C		
LOGSPDR	F	I	I		

Process Group Cycle 2 - RSIM Findings

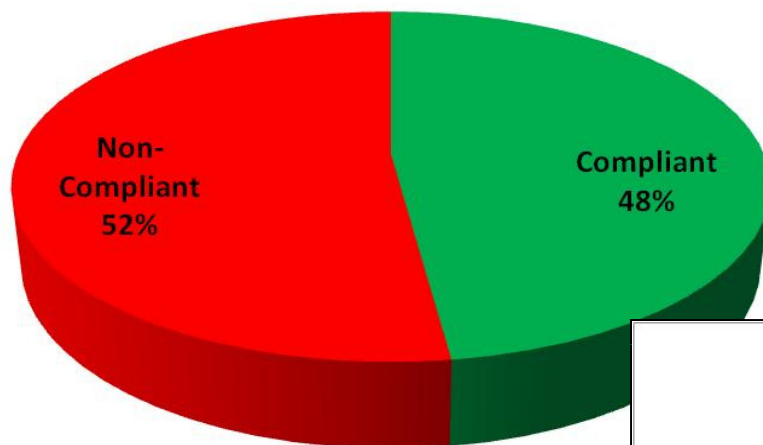


Team A – Cycle 3 Data



Team A – Cycle 3 RSIM

Team A Cycle 2 RSIM Findings



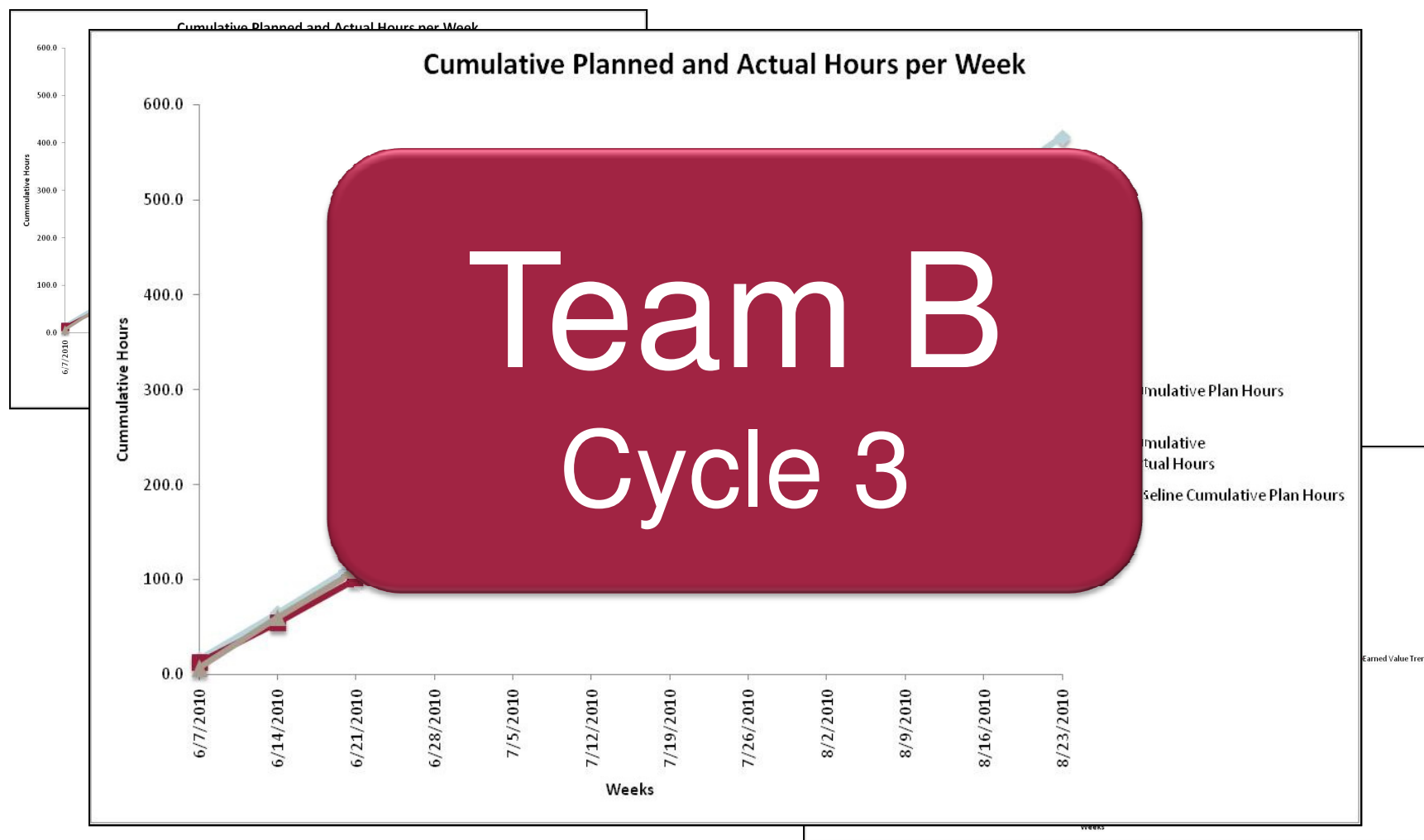
Process Manager	Support Manager	Quality Manager	Test Manager	TSP Team	G – Compliant R – Non-Compliant
				R	G
				I	

HLD	S	C			R
IMP	S	I			R
IMP6	S	I			
INS	S				
INS	F				
LAU	S	A			
LAU1	S	R			
LAU2	S		R		
LAU3	S		R		R
LAU4	S		R		R

Team A Cycle 3 RSIM Findings

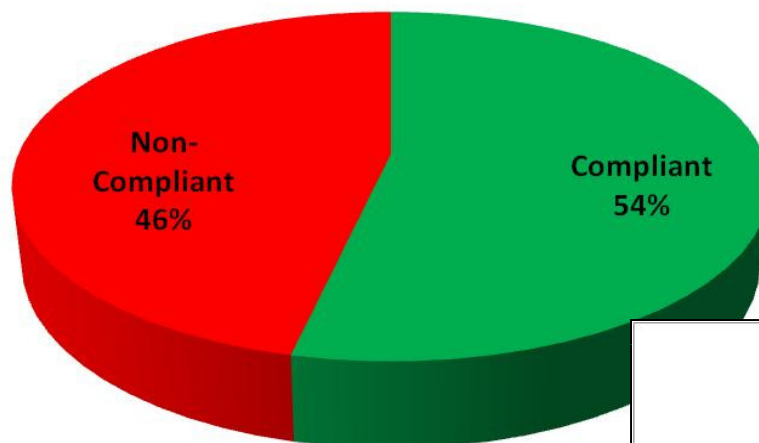


Team B – Cycle 3 Data



Team B – Cycle 3 RSIM

Team B Cycle 2 - RSIM Findings



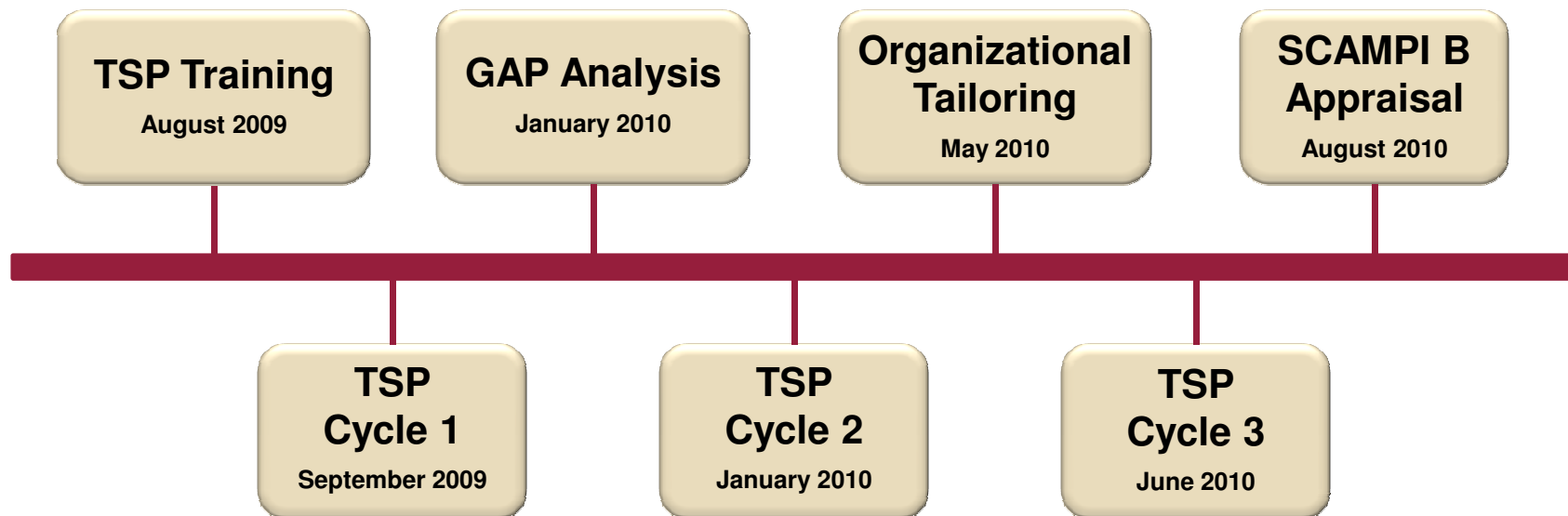
Process Manager	Support Manager	Quality Manager	Test Manager	TSP Team	G – Compliant R – Non-Compliant
				R	G
				I	

HLD	S	C			R
IMP	S	I			R
IMP6	S	I			
INS	S				
INS	F				
LAU	S	A			
LAU1	S	R			
LAU2	S		R		
LAU3	S		R		R
LAU4	S		R		R

Team B Cycle 3 - RSIM Findings



Implementation Timeline



Team A – SCAMPI B Results

	SG 1	SP 1.1	SP 1.2	SP 1.3	SP 1.4	SP 1.5	SP 1.6	SP 1.7		SG 2	SP 2.1	SP 2.2	SP 2.3	SP 2.4	SP 2.5	SP 2.6	SP 2.7	SP 2.8		SG 3	SP 3.1	SP 3.2	SP 3.3	SP 3.4	SP 3.5		GG 2	GP 2.1	GP 2.2	GP 2.3	GP 2.4	GP 2.5	GP 2.6	GP 2.7	GP 2.8	GP 2.9	GP 2.10		GG 3	GP 3.1	GP 3.2		
REQM		G	G	G	G	G																						G	G	G	G	G	G	G	G	G	G	G	G			G	G
PP		G	G	G	G						G	G	G	G	G	G	G					G	G	G					G	G	G	G	G	G	G	G	G	G	G			G	G
PMC		G	G	G	G	G	G	G			G	G	G															G	G	G	G	G	G	G	G	G	G	G	G			G	G
CM		G	G	G							G	G										G	G					G	G	G	G	G	G	G	G	G	G	G			G	G	
RD		G	G								G	G	G									G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G			G	G	
TS		G	G	G							G	G	G	G								G	G					G	G	G	G	G	G	G	G	G	G	G			G	G	
PI		G	G	G							G	G										G	G	G	G			G	G	G	G	G	G	G	G	G	G	G			G	G	
VER		G	G	G							G	G	G									G	G					G	G	G	G	G	G	G	G	G	G	G			G	G	
VAL		G	G	G							G	G																G	G	G	G	G	G	G	G	G	G	G			G	G	
IPM		G	G	G	G	G	G				G	G	G															G	G	G	G	G	G	G	G	G	G	G			G	G	
RSKM		G	G	G							G	G										G	G					G	G	G	G	R	G	G	G	G	G	G			G	G	
DAR		G	G	G	G	G	G																					G	G	G	G	G	G	G	G	G	G	G			G	G	

Team B – SCAMPI B Results

	SG 1	SP 1.1	SP 1.2	SP 1.3	SP 1.4	SP 1.5	SP 1.6	SP 1.7		SG 2	SP 2.1	SP 2.2	SP 2.3	SP 2.4	SP 2.5	SP 2.6	SP 2.7	SP 2.8		SG 3	SP 3.1	SP 3.2	SP 3.3	SP 3.4	SP 3.5		GG 2	GP 2.1	GP 2.2	GP 2.3	GP 2.4	GP 2.5	GP 2.6	GP 2.7	GP 2.8	GP 2.9	GP 2.10		GG 3	GP 3.1	GP 3.2		
REQM		G	G	G	G	G																						G	G	G	G	G	G	G	G	G	G	G	G			G	G
PP		G	G	G	G						G	G	G	G	G	G	G					G	G	G					G	G	G	G	G	G	G	G	G	G	G			G	G
PMC		G	G	G	G	G	G	G			G	G	G																G	G	G	G	G	G	G	G	G	G	G			G	G
CM		G	G	Y							G	G										G	G						G	G	G	G	G	G	G	G	G	G			G	G	
RD		G	G								G	G	G									G	G	G	G	G			G	G	G	G	G	G	G	G	G	G			G	G	
TS		G	G	G							G	G	G	G								G	G						G	G	G	G	G	G	G	G	G	G			G	G	
PI		G	G	G							G	G										G	G	G	G				G	G	G	G	G	G	G	G	G	G			G	G	
VER		G	G	G							G	G	G									G	G						G	G	G	G	G	G	G	G	G	G			G	G	
VAL		G	G	G							G	G																	G	G	G	G	G	G	G	G	G	G			G	G	
IPM		G	G	G	G	G	G				G	G	G																G	G	G	G	G	G	G	G	G	G			G	G	
RSKM		G	G	G							G	G										G	G						G	G	G	G	G	G	G	G	G	G			G	G	
DAR		G	G	G	G	G	G																						G	G	G	G	G	G	G	G	G	G			G	G	

Organizational – SCAMPI B Results

	SG 1								SG 2								SG 3						GG 2											GG 3				
	SP 1.1	SP 1.2	SP 1.3	SP 1.4	SP 1.5	SP 1.6	SP 1.7		SP 2.1	SP 2.2	SP 2.3	SP 2.4	SP 2.5	SP 2.6	SP 2.7	SP 2.8		SP 3.1	SP 3.2	SP 3.3	SP 3.4	SP 3.5		GG 2.1	GG 2.2	GG 2.3	GG 2.4	GG 2.5	GG 2.6	GG 2.7	GG 2.8	GG 2.9	GG 2.10		GG 3.1	GG 3.2		
M&A	G	G	G	G					G	G	G	G													G	G	G	G	G	G	G	G	G	G	G	G	G	
PPQA	G	G							G	G															G	G	G	Y	G	G	Y	G	G	G	G		G	G
OPF	G	G	G						G	G								G	G	G	G				G	G	G	G	G	G	G	G	G	G	G	G	G	
OPD	G	G	G	G	G	G																		G	G	G	G	G	G	G	G	G	G	G	G	G	G	
OT	G	G	G	G					R	G	G														G	G	G	G	G	G	G	G	G	G		G	Y	

Where do we go from here?

- CMMI ML3 SCAMPI A Appraisal – Oct 2010
- Brief current customers on the success of the pilot projects
- Develop an implementation plan to take TSP to larger, ongoing projects
- Develop a plan to integrate more elements of CMMI and Lean Six Sigma into our processes

Questions and Answers

Any Questions?

Contact information:

- Jenna Fleshman – jenna.fleshman@cgifederal.com
- Jason Huibregtse – jason.huibregtse@cgifederal.com

_experience the commitment™



Our commitment to you

We approach every engagement
with one objective in mind:
to help clients win and grow.