



TOWA TSP Initiative

- The Ambition to Succeed -

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➡ Introduction

- The Need for Quality
- TSP Introduction Strategy
- A TSP Project Experience
- Current Status
- Next Steps



Introduction

- Mexican initiative to promote the adoption of TSP
 - Participants
 - Government
 - Academia led by ITESM
 - SEI
 - Industry



Introduction

- Mexican initiative to promote the adoption of TSP
 - Strengths of the Mexican industry
 - Geographical proximity to the USA
 - A stable macroeconomic environment
 - World class infrastructure with competitive cost
 - Abundant human talent
 - Trade agreements which facilitate the exchange of services with many countries



Introduction

- Mexican initiative to promote the adoption of TSP
 - Goal:
 - Growth software development and IT related services industry
 - Position the Mexican software industry as an international player
 - Developing a world class industry that produces high quality software and services
 - TSP as a differentiator



Introduction

- Who we are?
 - Software development company
 - Operation started on 2004
 - 232 Employees
 - Offices in Monterrey (Mexico) and Mexico City
 - Goal of achieving 3,000 employees over the next 6 years
 - Decided to adopt PSP and TSP as our basic process methodology



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The need for Quality

- With the growing, quality levels became an issue
- Towa was created with
 - ✓ focus on quality and
 - ✓ capability to grow fast
- Need to keep best practices while the company is growing
- We strongly believe that quality is the key to achieve our goals



The need for Quality

- The challenge relies on how to get the new generations to understand how to apply the old “good practices” while developing with the new technologies



The need for Quality

- Old good practices:
 - ✓ A strong in-house requirements analysis methodology supported by a CASE tool
 - ✓ Careful personal reviews of code and products
 - ✓ Quality focus based on work products inspections performed by an experimented coach
 - ✓ Design and Coding standards that facilitate its understanding
 - ✓ Implementation of “reusable models” that encapsulate the main expected functionality
 - ✓ Provide expert coaching to the team members



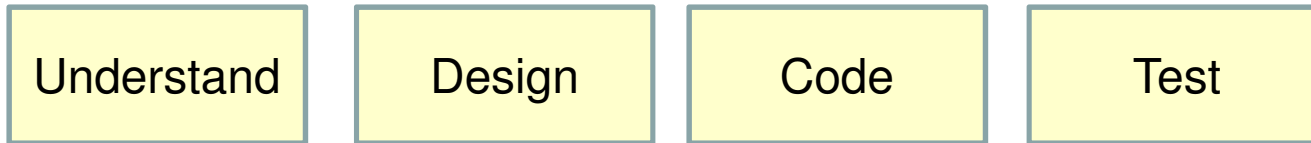
The need for Quality

- What PSP/TSP Provides?:
 - ☐ A well defined process
 - Steps to create the product
 - Take into account the human nature of making mistakes (insert defects)
 - Include review activities, as well as inspections
 - ☐ Collect data during the execution of the task.
 - Aid for making good estimations and planning
 - Aid for managing projects adequately
 - Aid for predict future performance
 - Key to perpetuate the work with “good practices”



The need for Quality

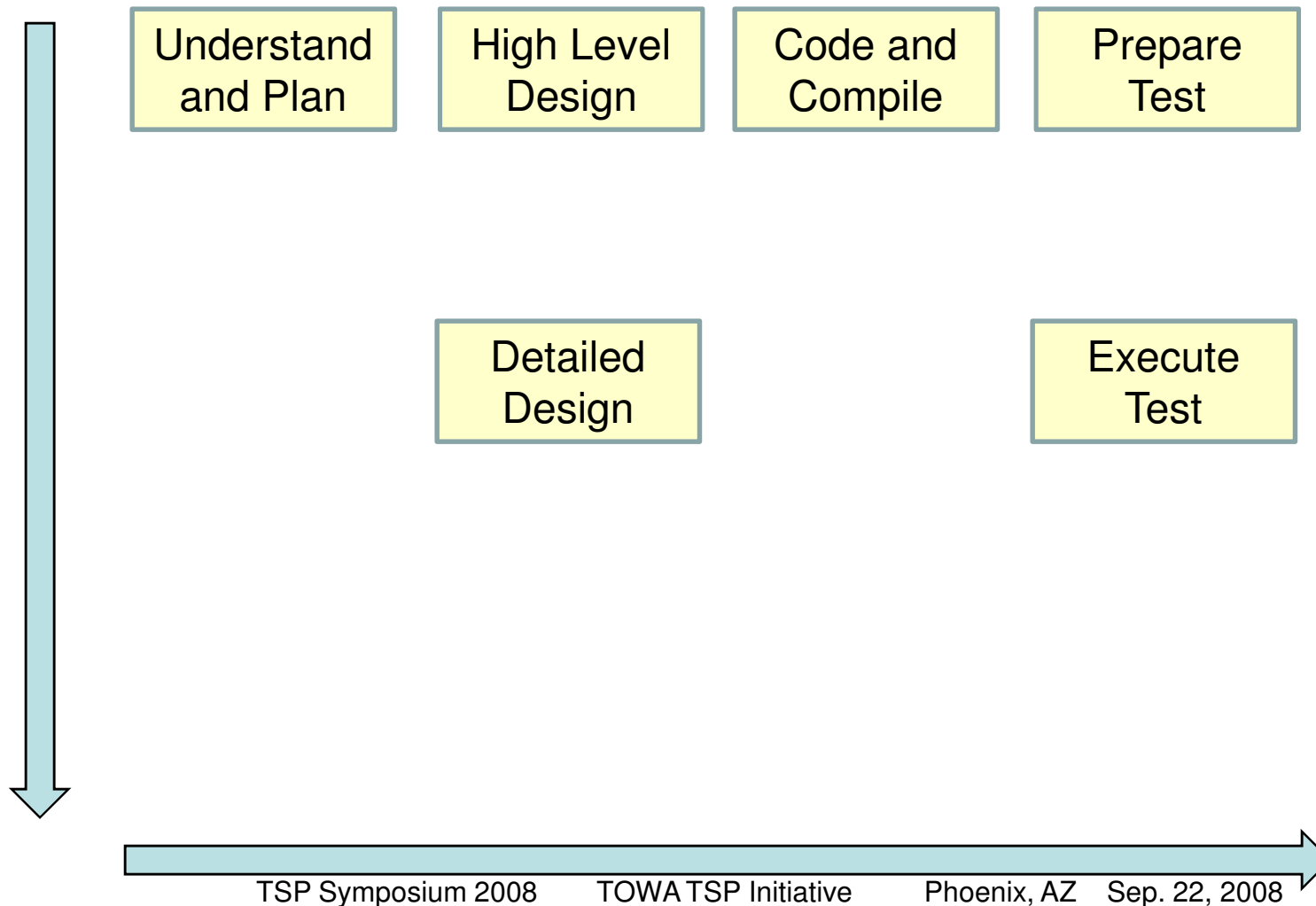
- The Process for Component Implementation:





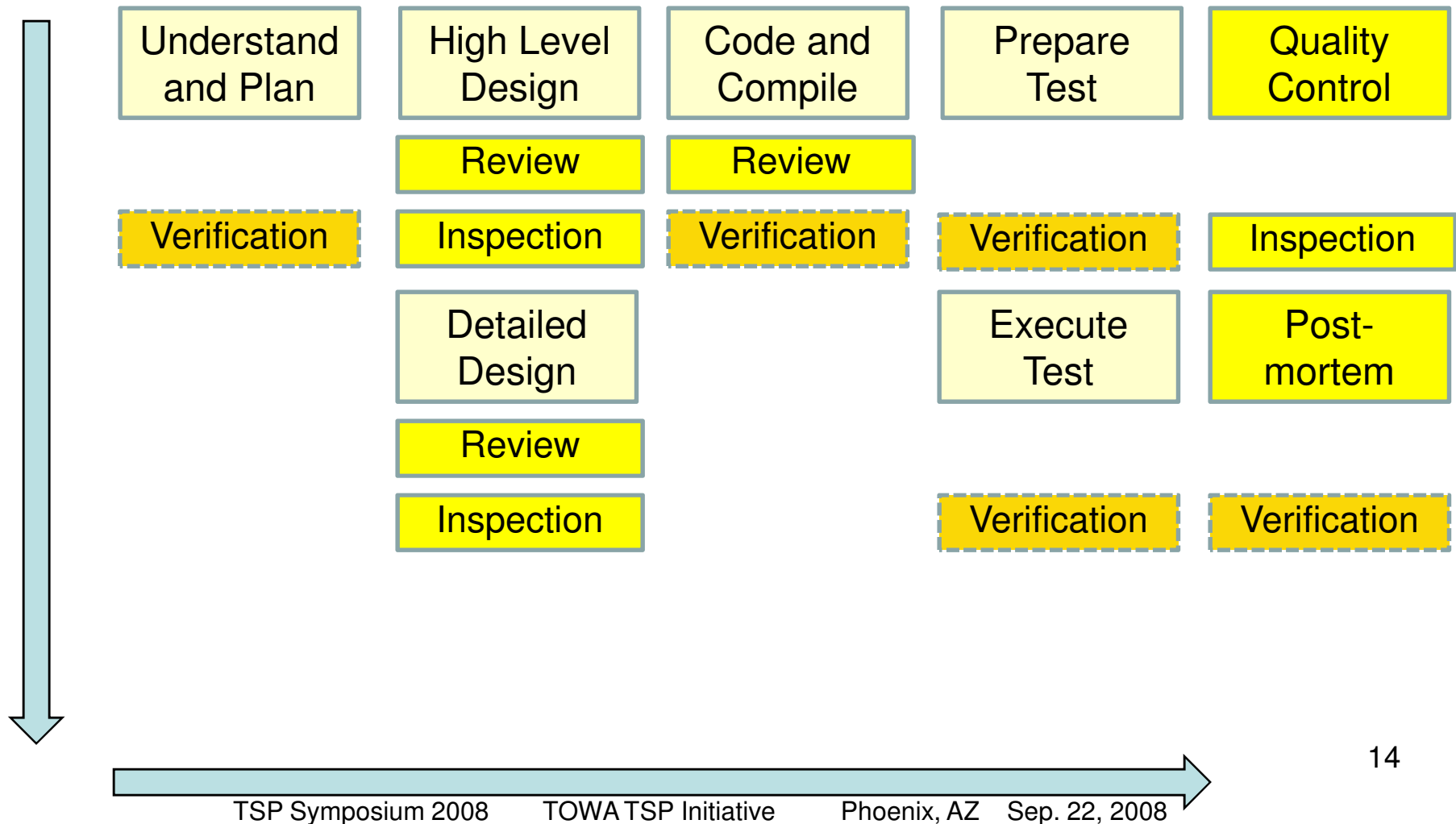
The need for Quality

- The Process:



The need for Quality

- The Process:





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TSP Introduction Strategy

- Commit ourselves with this process:
 - ☐ Firmly believing that (PSP &) TSP is the right path
 - ☐ Continuously talk about what we are doing
 - ☐ Train our teams constantly
 - ☐ Buy as many books as possible about the topic
 - ☐ Discuss with customers what we are doing



TSP Introduction Strategy

- Commit ourselves with this process:
 - ☐ Commit
 - ✓ to ourselves and
 - ✓ **to our customers**about our goals for quality and PSP/TSP
 - ☐ Disseminate these ideas
 - ✓ with other organizations,
 - ✓ with clients and
 - ✓ even with competitors
 - ☐ **Once we have created a significant mass of “believers”, implementation is going to evolve more naturally and become easier**



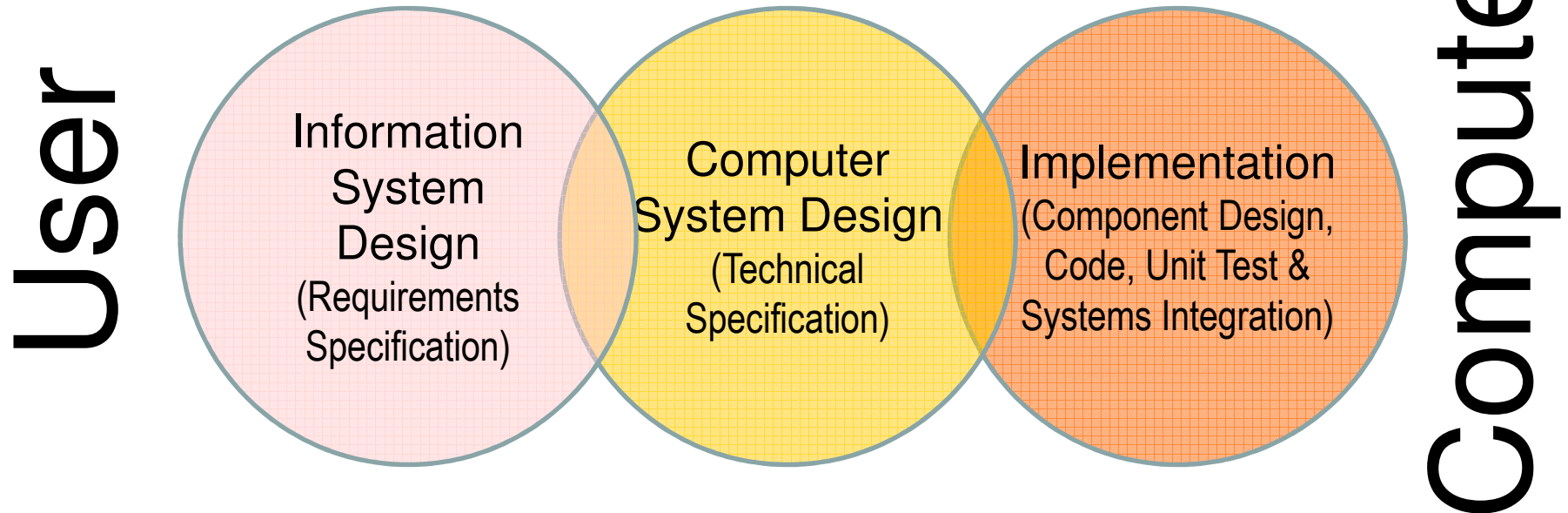
TSP Introduction Strategy

- Apply our former ideas and methodologies mixed with the PSP/TSP concepts - tailoring PSP for adapting to:
 - ✓ Information System Design (Requirements Specification)
 - ✓ Computer System Design (Technical Specification)
 - ✓ Implementation (Component Design, Code, Unit Test & Systems Integration)
 - ✓ System Testing



TSP Introduction Strategy

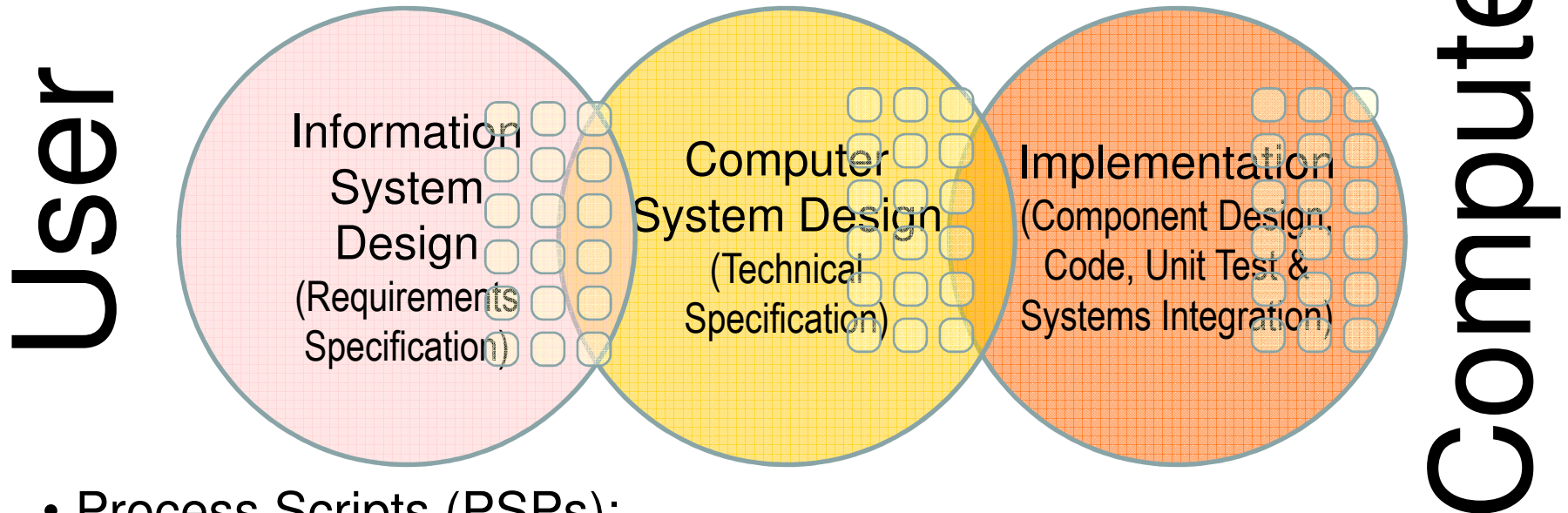
- Development of data processing applications:





TSP Introduction Strategy

- Development of data processing applications:



- Process Scripts (PSPs):
 - Specification of Functions
 - Specification of System Components
 - Component Design, Coding & Unit Testing (Programming Task)



TSP Introduction Strategy

- All Project (No pilot project)
- Train PSP Instructors (9) and TSP Coachs (16)
- Train every team
- Adapt PSP (type of applications & technology)
- **Adapt to a never ending training environment**
- Develop an Integral SW Tool (TSP + ???)
- Align engineering practices
- Align human capital practices
- Align management practices

We are just starting, we have a long way to go



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A TSP Project Experience

- Project name: “Orbita”
- Client: Multipack
- Objective: Business Operating System
- Size: 55,000 hours
- Management team:
 - Requirement Specifications Manager
 - Design Manager
 - Code Manager
 - TSP Implementation Manager



A TSP Project Experience

- We won the project competing with some of the most prestigious software development companies in Mexico



A TSP Project Experience

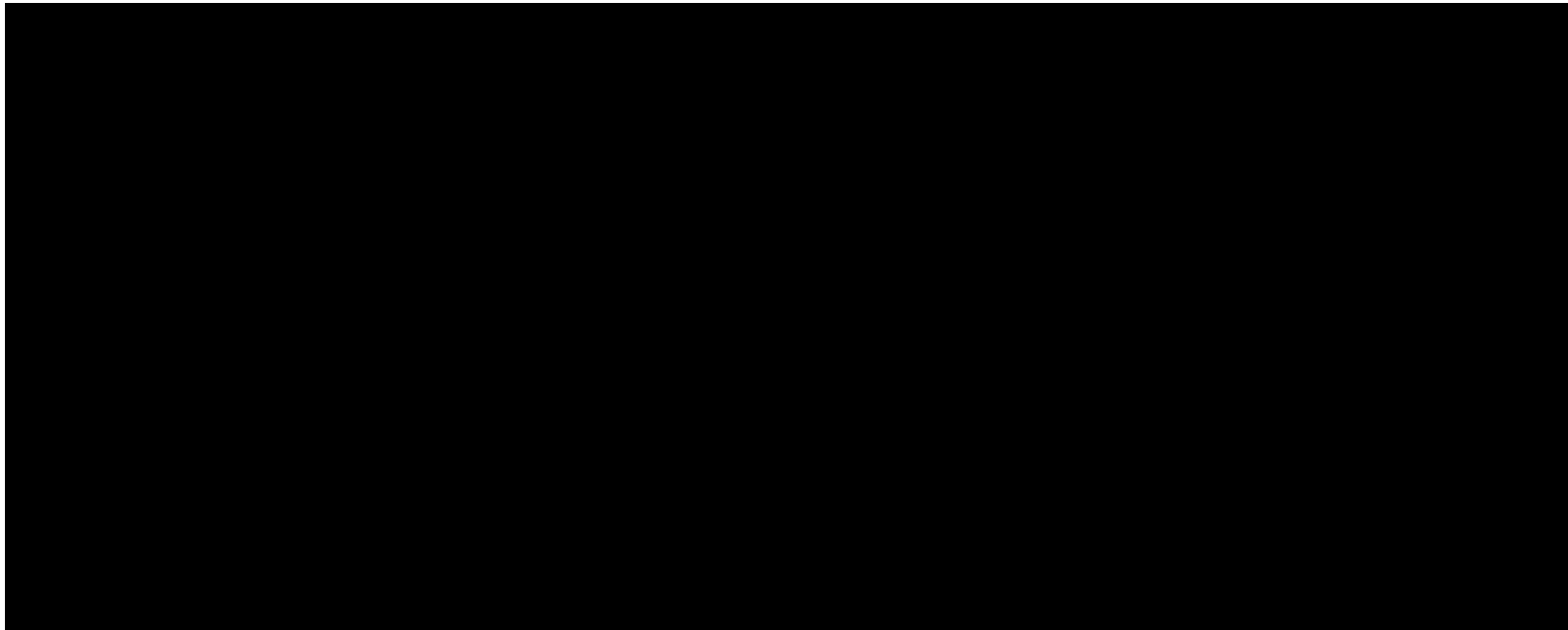
- Quality plan - Requirements Specification:

Requirements Specification						
Phase		Def Inj/Hr	Yield	Def Inj/KLOC	Def Rem/KLOC	Def Residual/KLOC
PLANREQ	Planning	0	0%	0.000	0.000	0.000
REQELI	Requirement Elicitation	0	0%	0.000	0.000	0.000
REQUCD	User Concept Diagram Creation	0.25	0%	0.198	0.000	0.198
REQUCR	User Concept Diagram Review	0.025	50%	0.010	0.104	0.104
REQUCII	User Concept Diagram Internal Inspection	0	65%	0.000	0.068	0.036
REQUCCI	User Concept Diagram Coach Inspection	0	70%	0.000	0.026	0.011
REQUCUI	User Concept Diagram User Inspection	0	70%	0.000	0.008	0.003
REQS	Software Requirement Specification	0.25	0%	1.062	0.000	1.065
REQSR	Software Requirement Specification Review	0.025	50%	0.053	0.559	0.559
REQSII	Software Requirement Internal Inspection	0	65%	0.000	0.364	0.196
REQSCI	Software Requirement Coach Inspection	0	70%	0.000	0.137	0.059
REQSUI	Software Requirement User Inspection	0	70%	0.000	0.041	0.018
PMREQ	Postmortem	0	0%	0.000	0.000	0.018



A TSP Project Experience

- Quality plan - Design:





A TSP Project Experience

- Quality plan - Code:



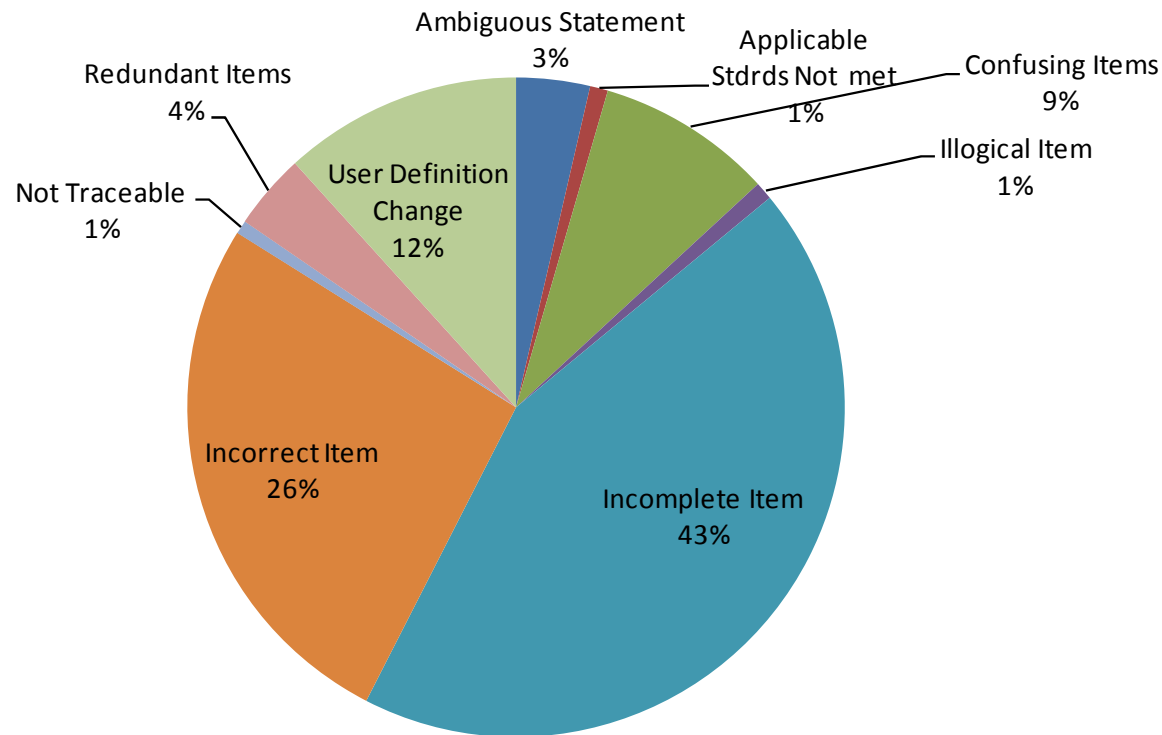
- Expected Defects in Product Delivered: 0.06 Def/KLOC (5 Sigma)



A TSP Project Experience

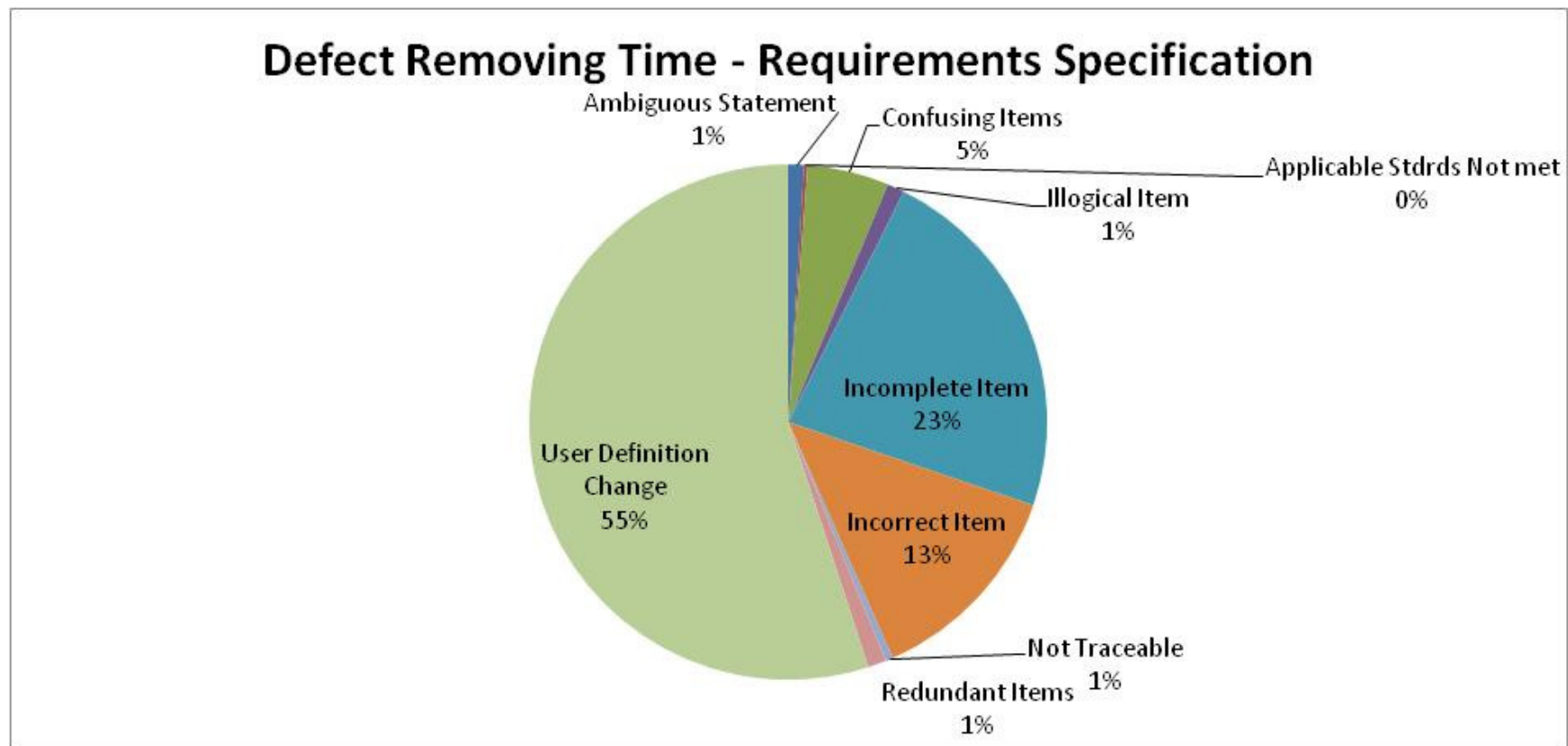
- Defect Analysis

Number of Defects - Requirements Specification



A TSP Project Experience

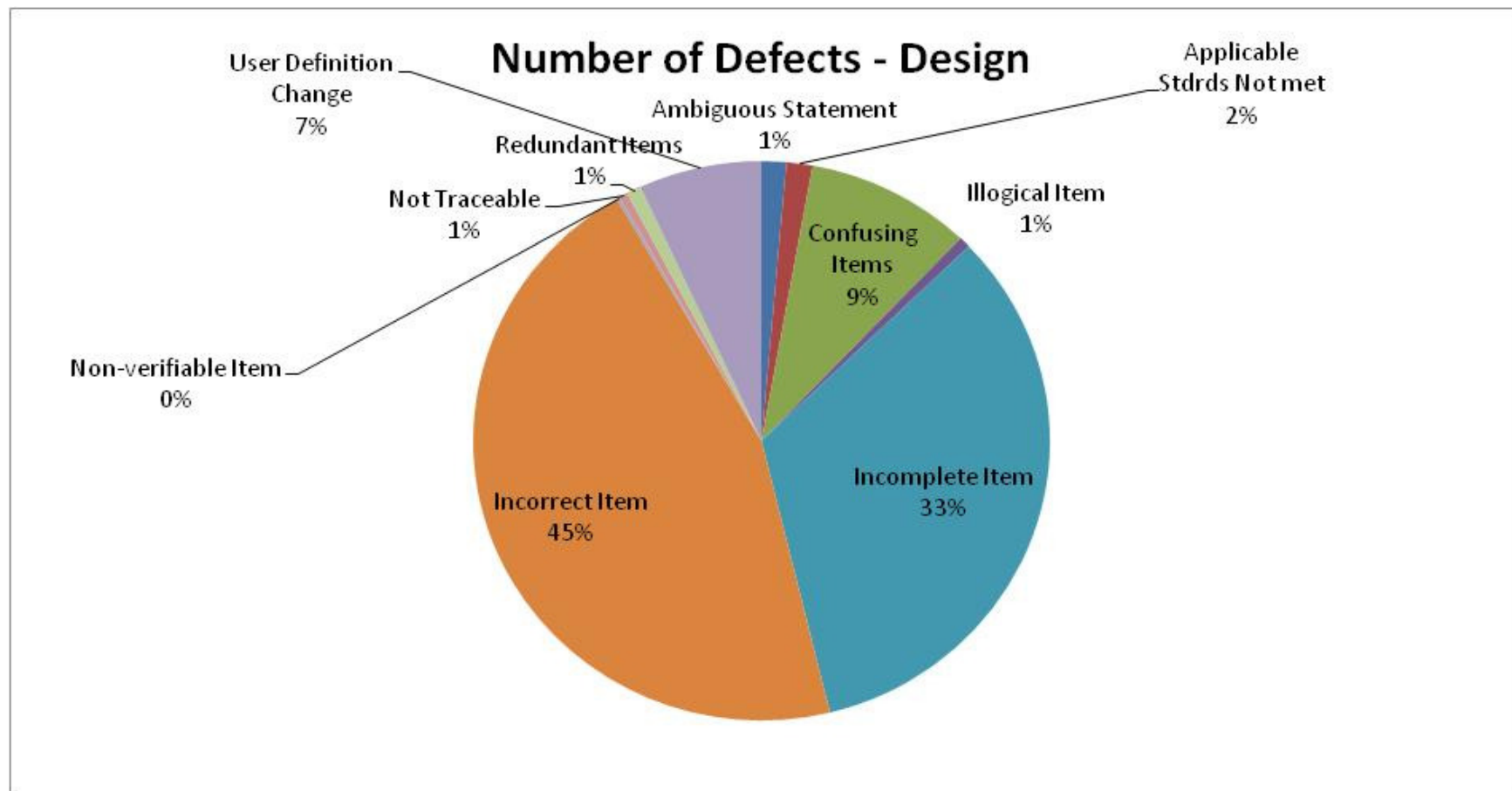
- Defect Analysis





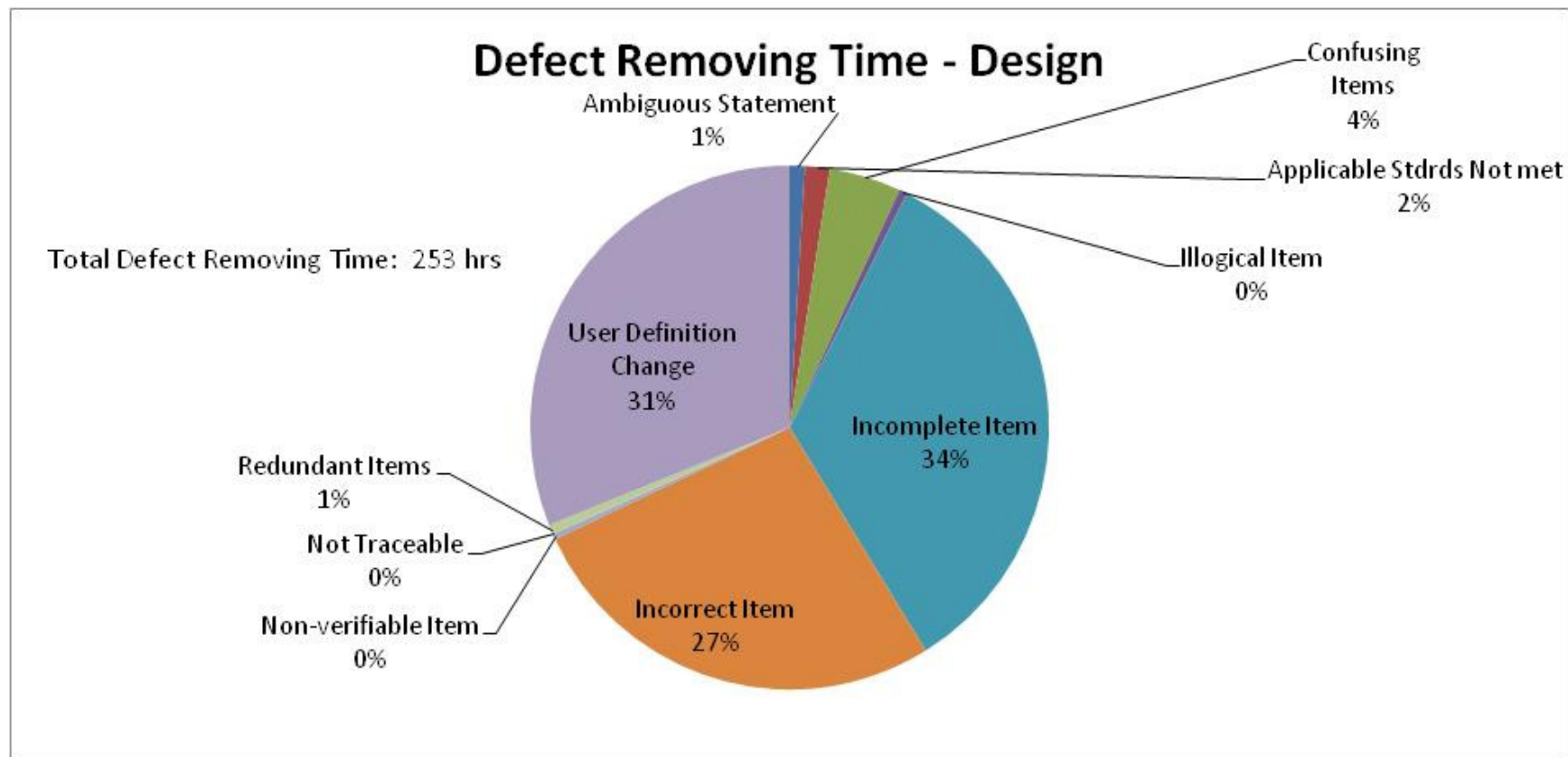
A TSP Project Experience

- Defect Analysis



A TSP Project Experience

- Defect Analysis





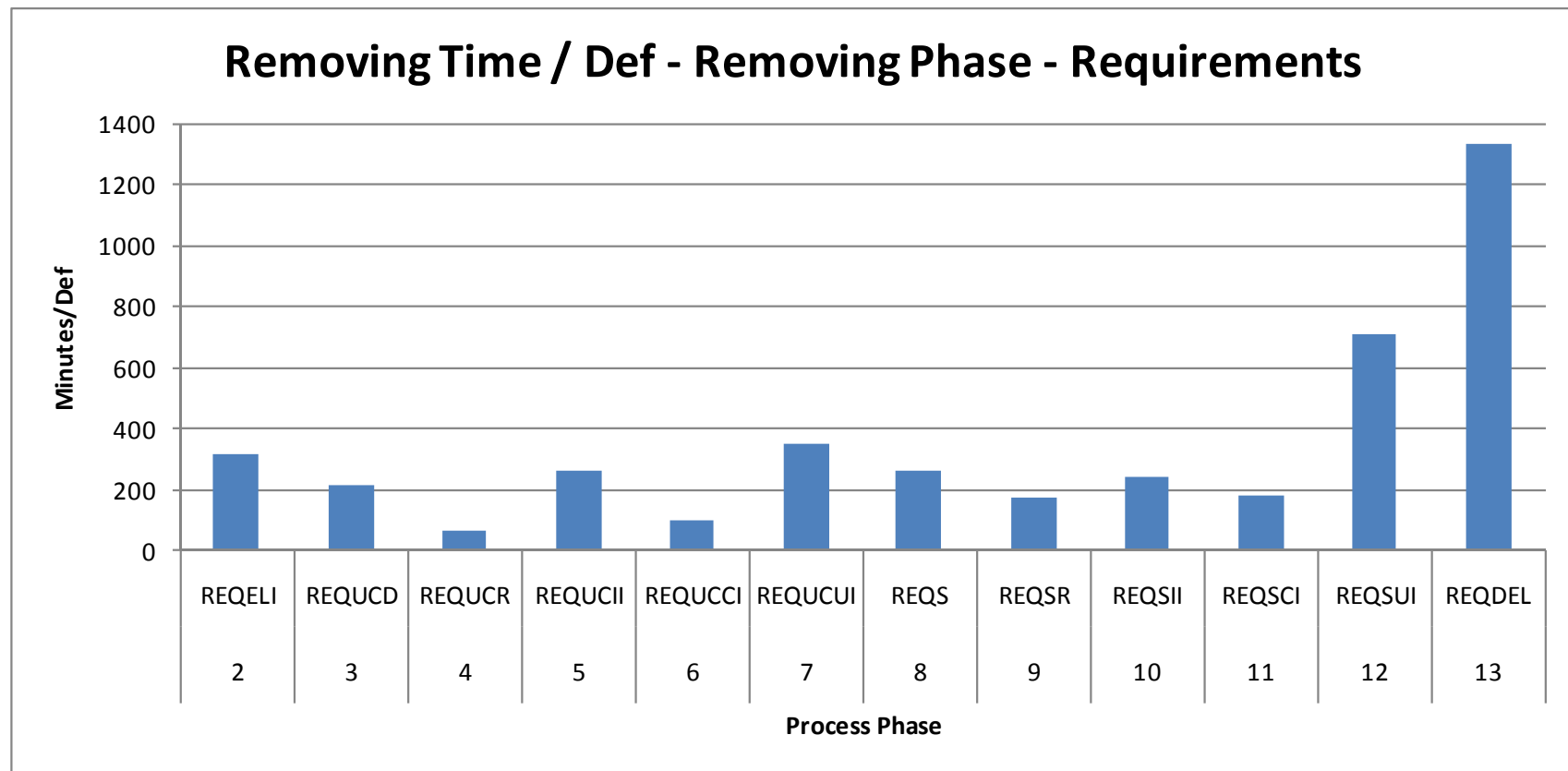
A TSP Project Experience

- Defect Analysis – Actions taken
 - Adding specific items to the initial checklist
 - Implementation of a format for recording the information collected
 - Sharing information with the client, they took actions to better organize their ideas
 - Include a new phase to our requirements process



A TSP Project Experience

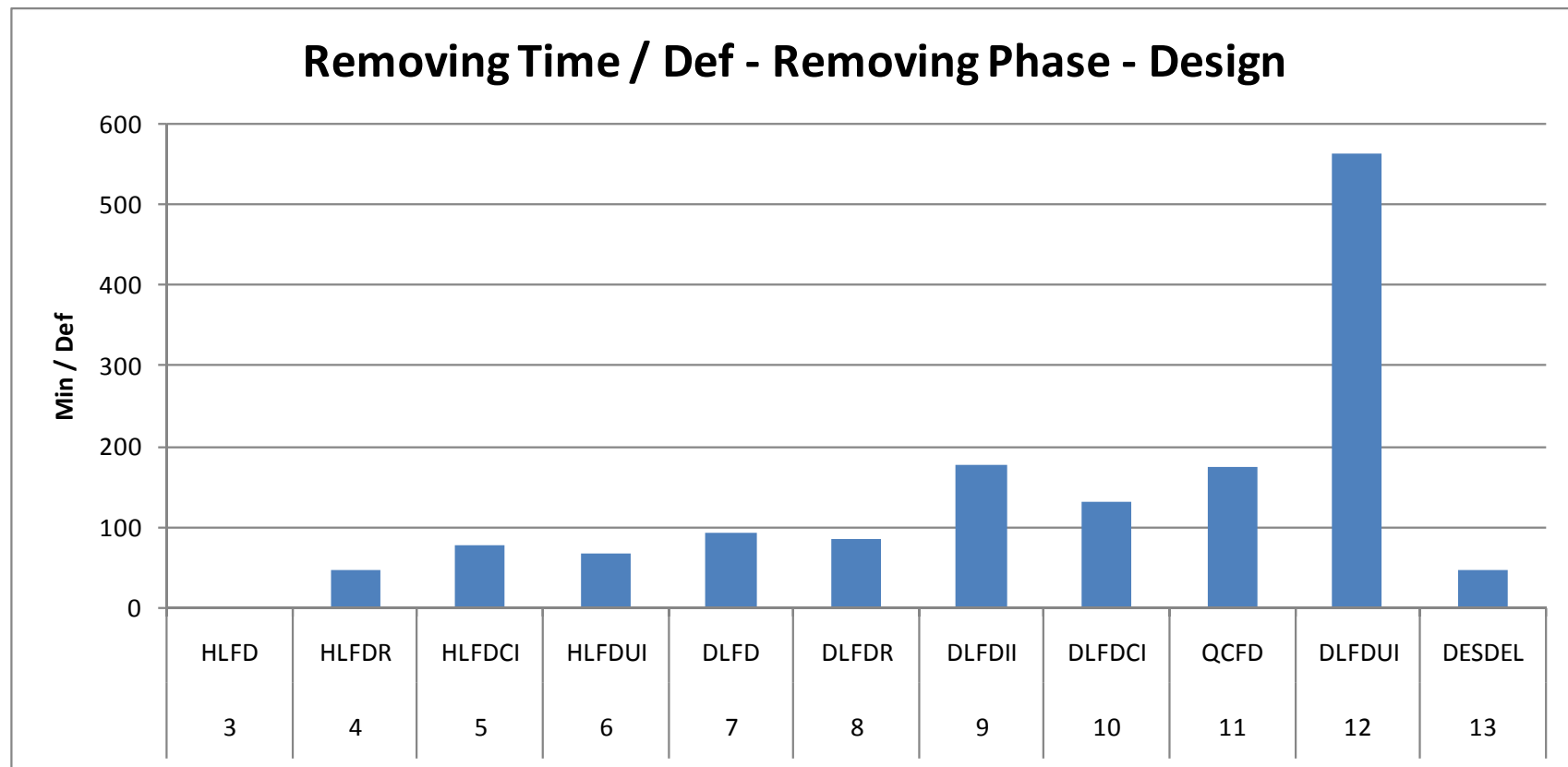
- Defect Analysis





A TSP Project Experience

- Defect Analysis





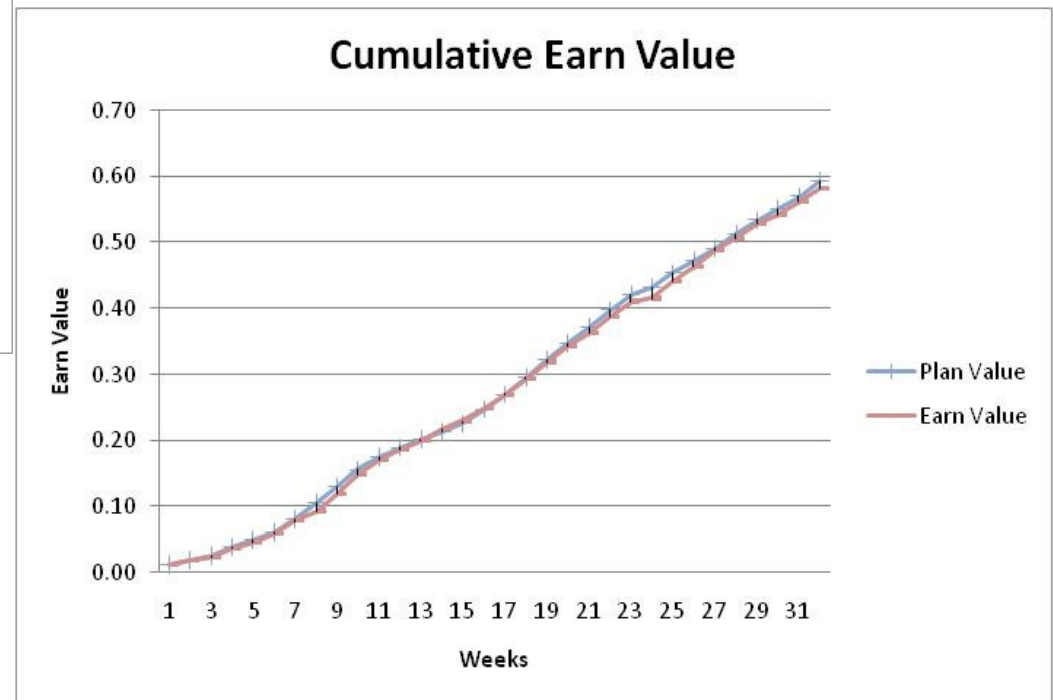
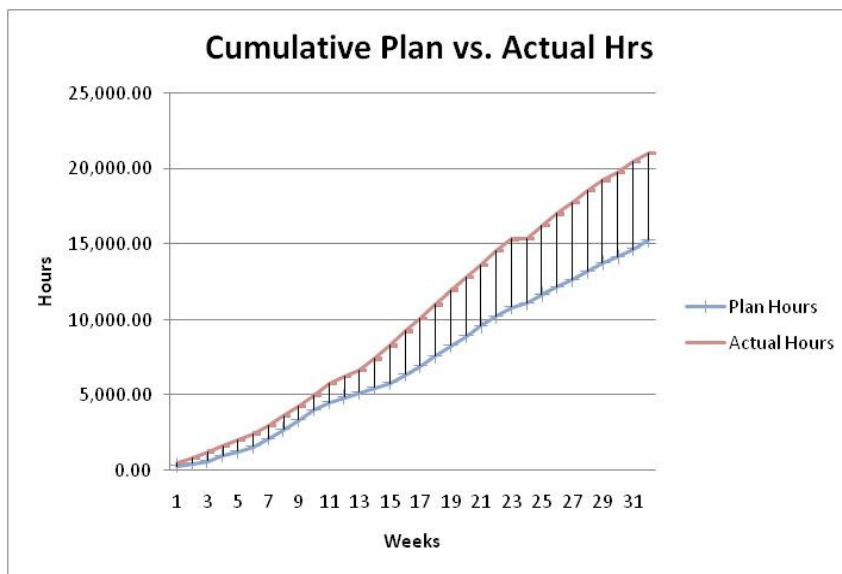
A TSP Project Experience

- Defect Analysis – Actions taken
 - Getting the team to pay special attention to removing defects early in the process.



A TSP Project Experience

- Status Information





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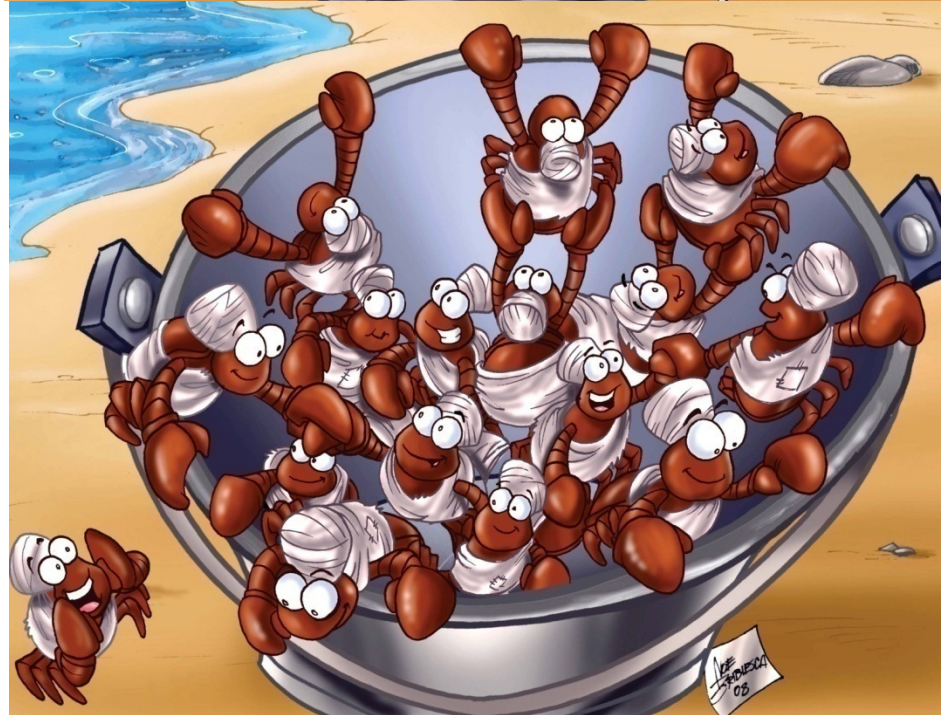
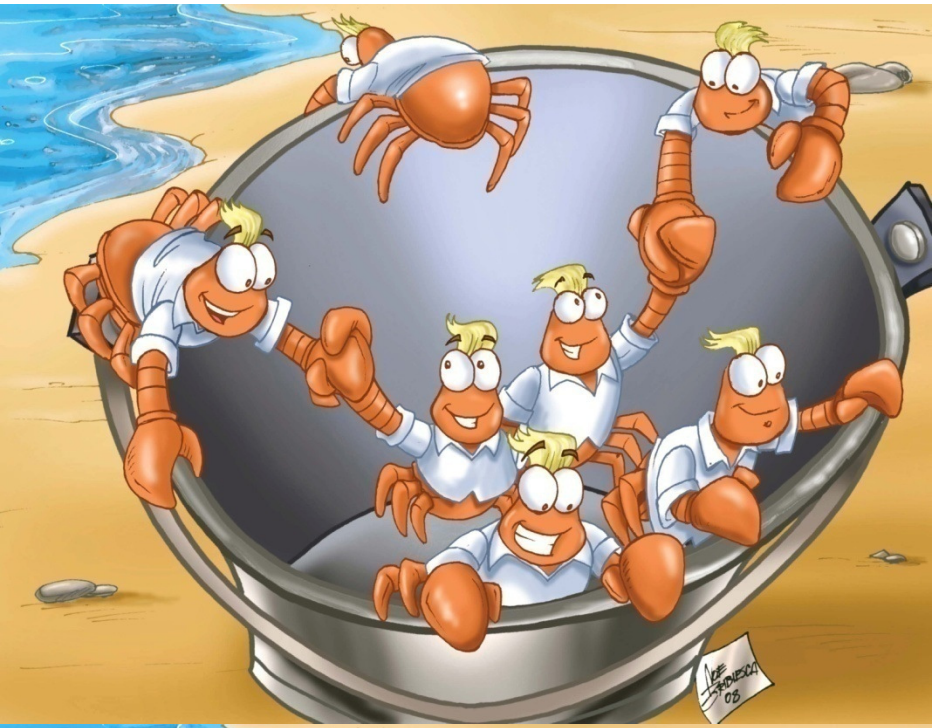
Current Status

- Implementation Status
 - TSP current capabilities
 - 20 PSP Certified Developers
 - 5 PSP Authorized Instructors
 - 8 TSP Trained Coaches
 - By end 2008
 - 16 Certified TSP coaches
 - 9 Authorized PSP instructor



Current Status

- Challenges
 - We have the commitment to achieve the highest quality levels possible
 - Fast growing
 - When we achieve the middle goal of 500 members, we will focus on the USA market
 - The resistance to change is huge
 - Team work culture







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Next Steps

- Train and certify as PSP Developer most of organization developers
- Train enough PSP instructors and TSP coaches
- PSP/TSP should become a strategic tool for supporting our growth
- Develop TSP tools integrated to our systems
- Working together with Academia and the Mexican government



Next Steps

- We are committed to promoting PSP and TSP and helping the Mexican industry earn a distinction for its quality levels
- Our goal is to give Mexico worldwide recognition for achieving best software quality levels