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An Approach to Carry Out Consistency Analysis on Requirements: Validating and Tracking Requirements through a Configuration Structure

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Presentation Outline

- Background
- Literature
- Problem Statement
- Framework
- Industry Case

Background and Motivation

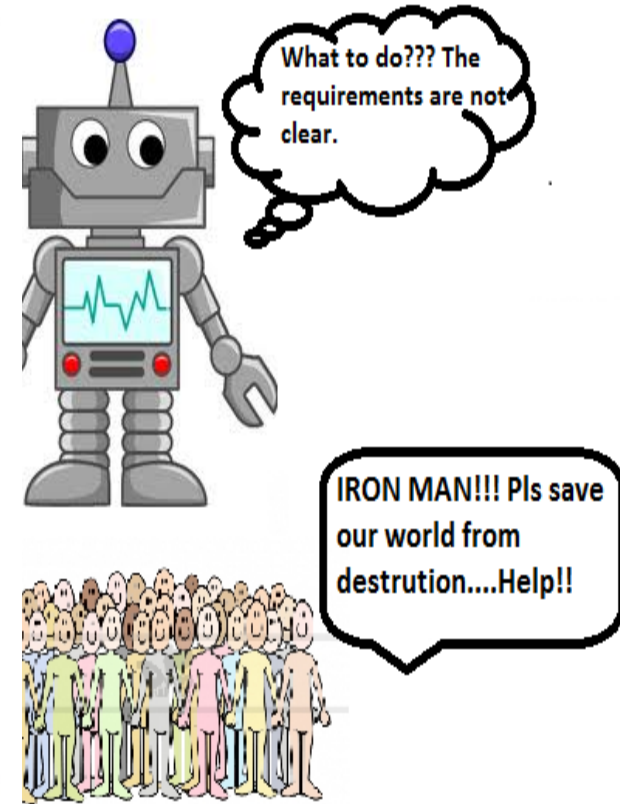
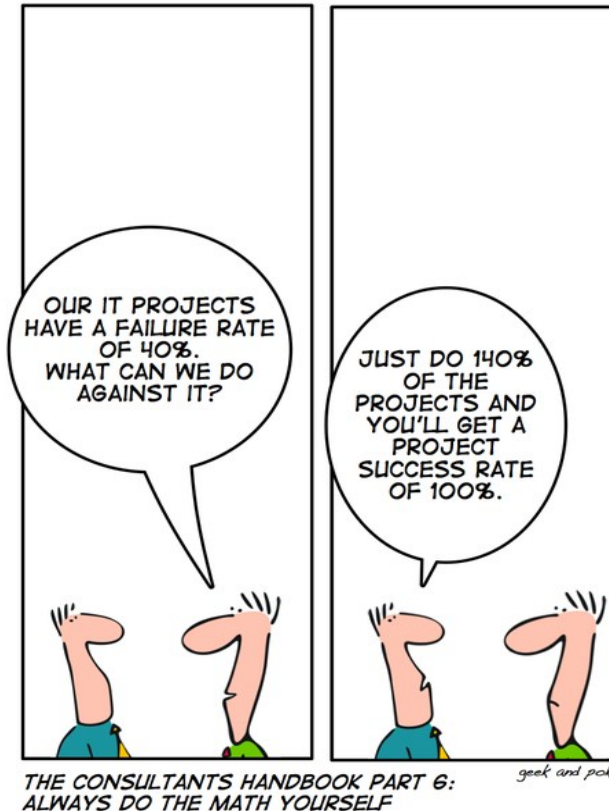
1. 30-40% software defects can be traced to requirements

2. Document level traceability matrix

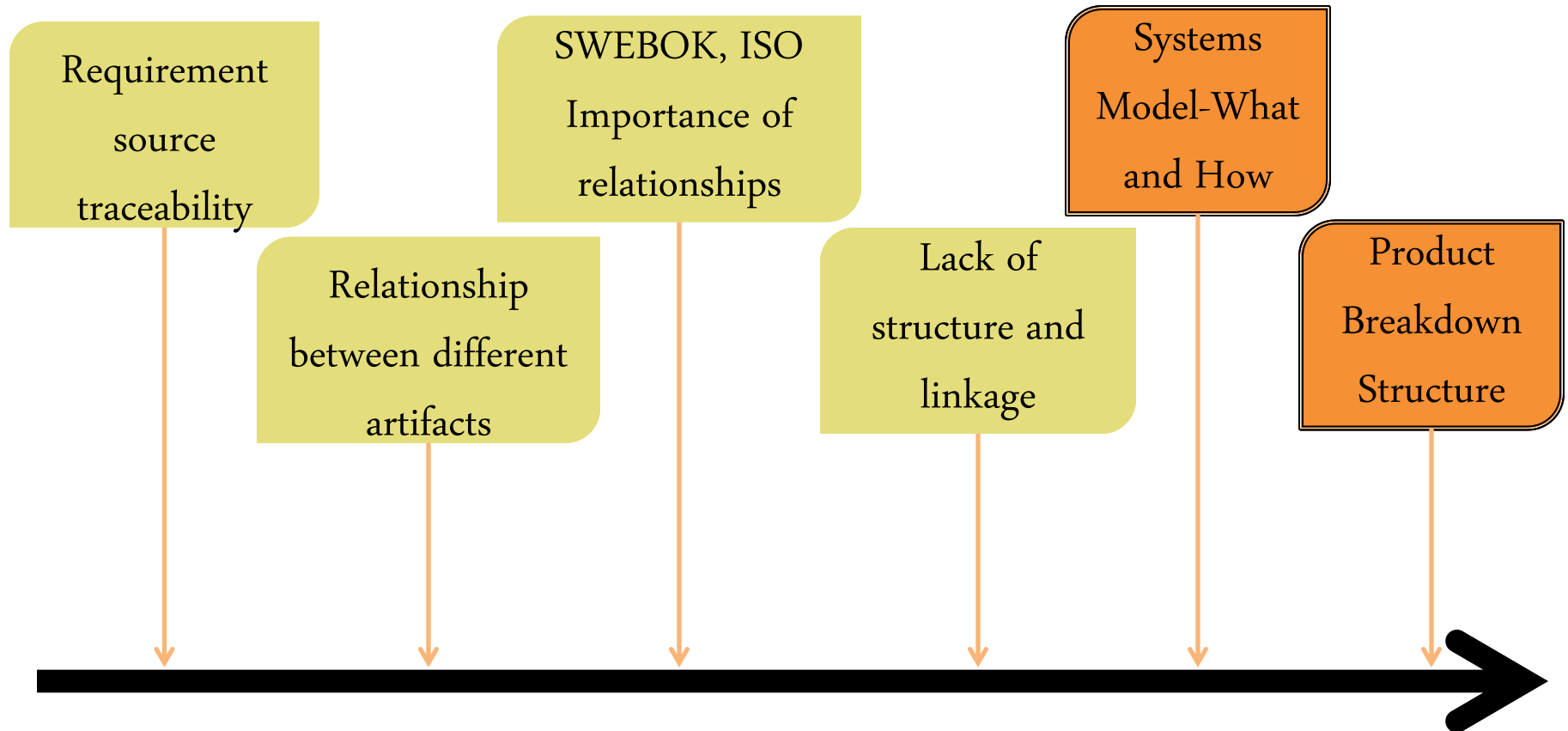
3. Missing granularity in items, requirements alignment and tracking

4. No Proper metrics for Requirements

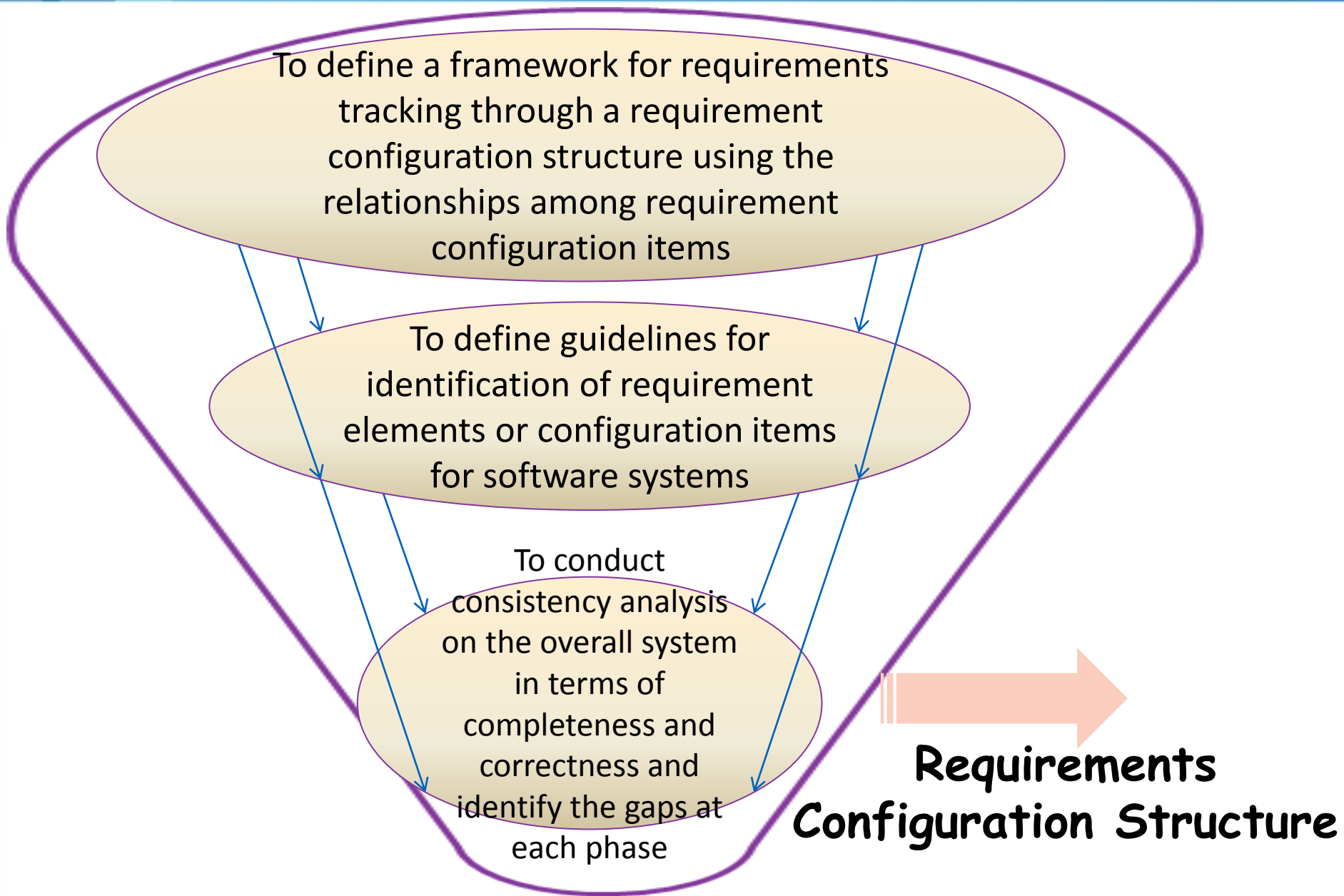
5. Leakage of Requirements



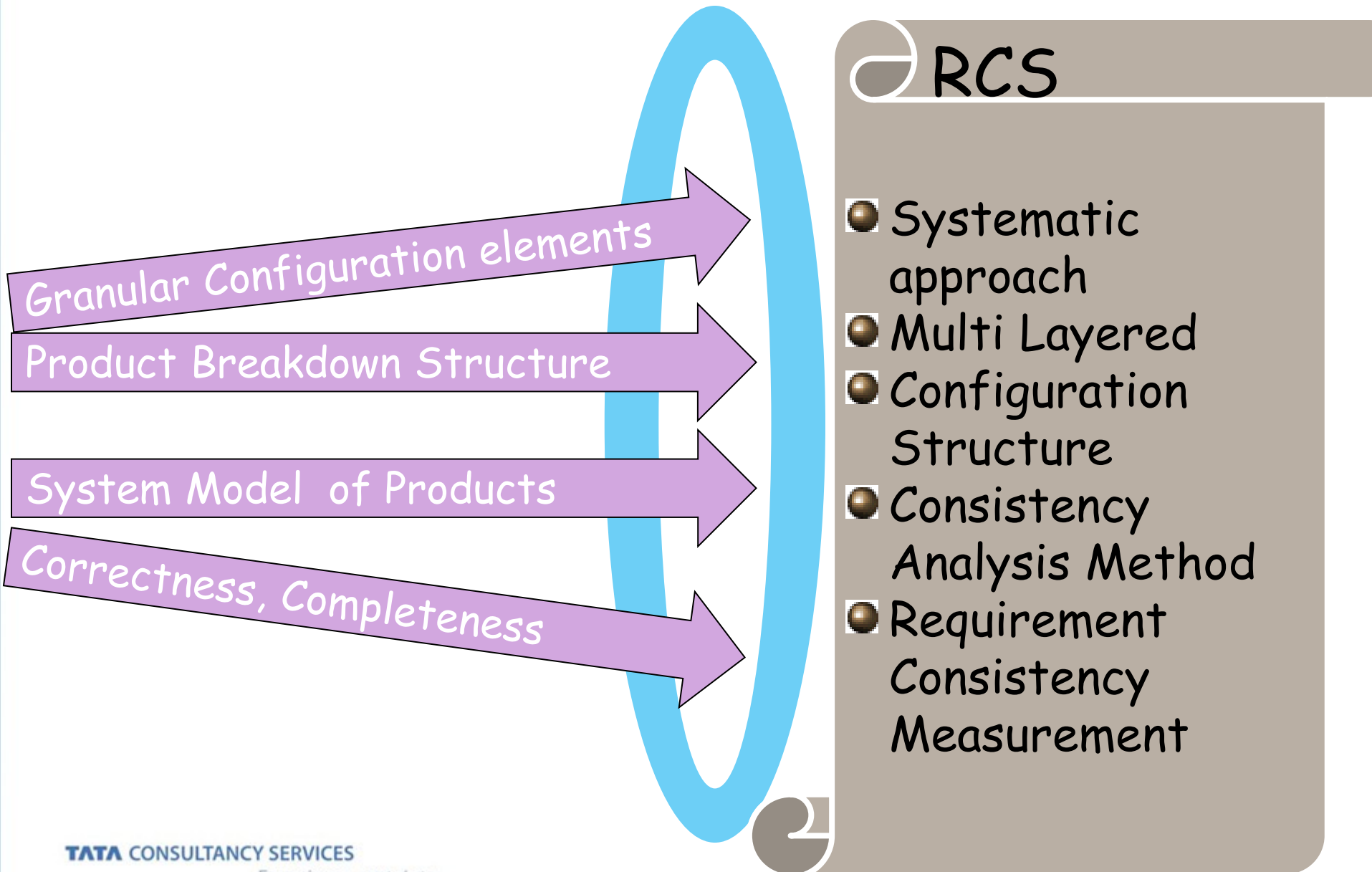
Literature Survey



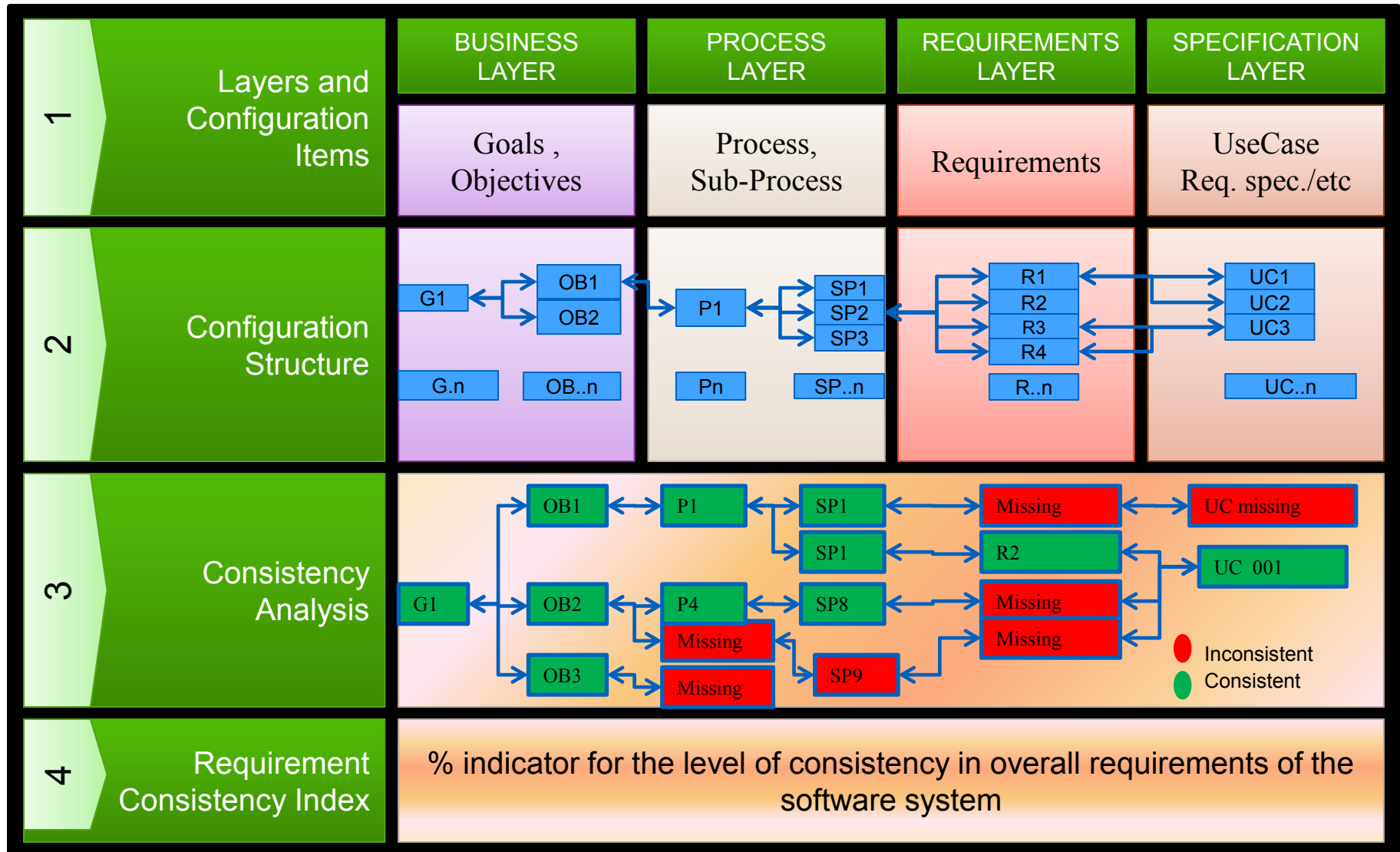
Problem Statement



Solution & Approach



Requirement Configuration Structure Framework



Case Study: Background

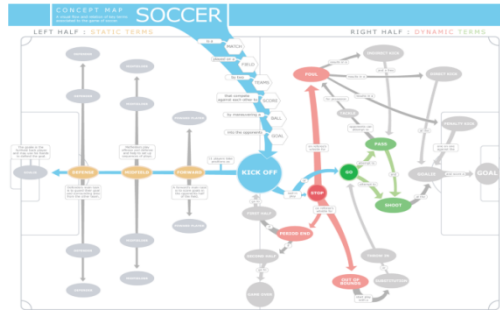
- An eRegistration System which provides different methods of automatically registering external customers and maintaining and accessing their account.
- The existing registration process is enhanced with implementation of security framework for few processes. The new application also integrates the Management Information (MI) report creation.
- Few of the processes of registration are-
 - Bulk Registration
 - Self Registration
 - Automatic Registration
 - Website Registration

Case Study: Implementing RCS

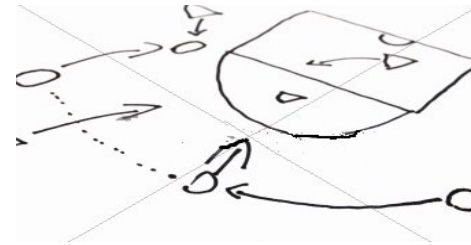
Layers and
Configuration
Items



Business Goals



Process Layer



Requirements
Layer



Specification Layer

Three
objectives

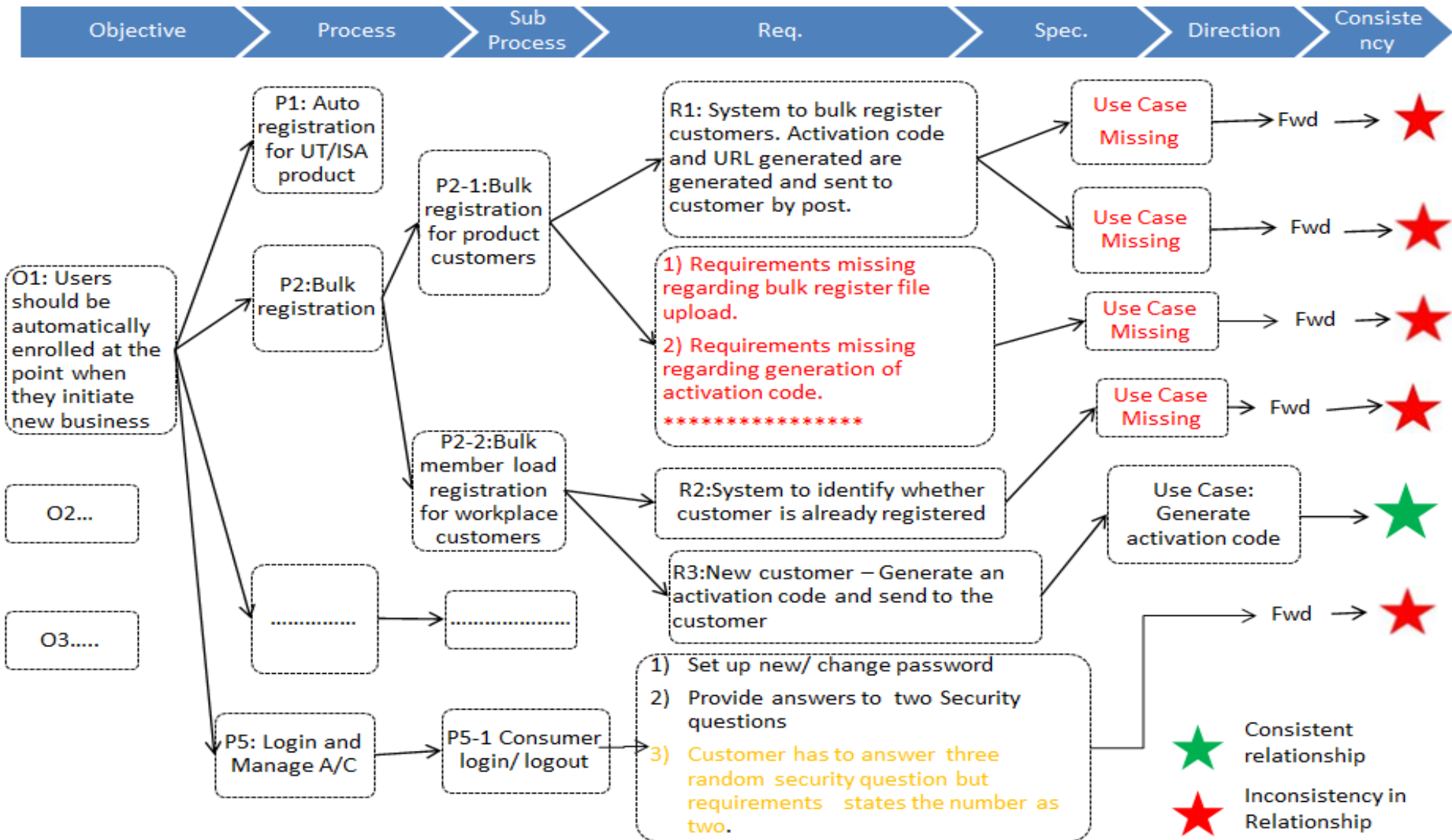
Seven
process

Multiple
Sub-
process

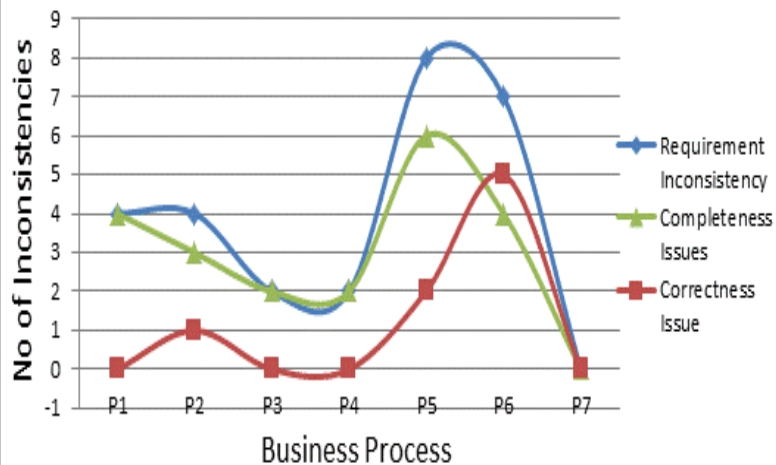
Fifty
requireme
nts

Multiple
Use
Cases

e-Registration System - "Requirement Consistency Analysis"



Requirements Inconsistency



**Requirement Consistency
Index (RCI) 48%**

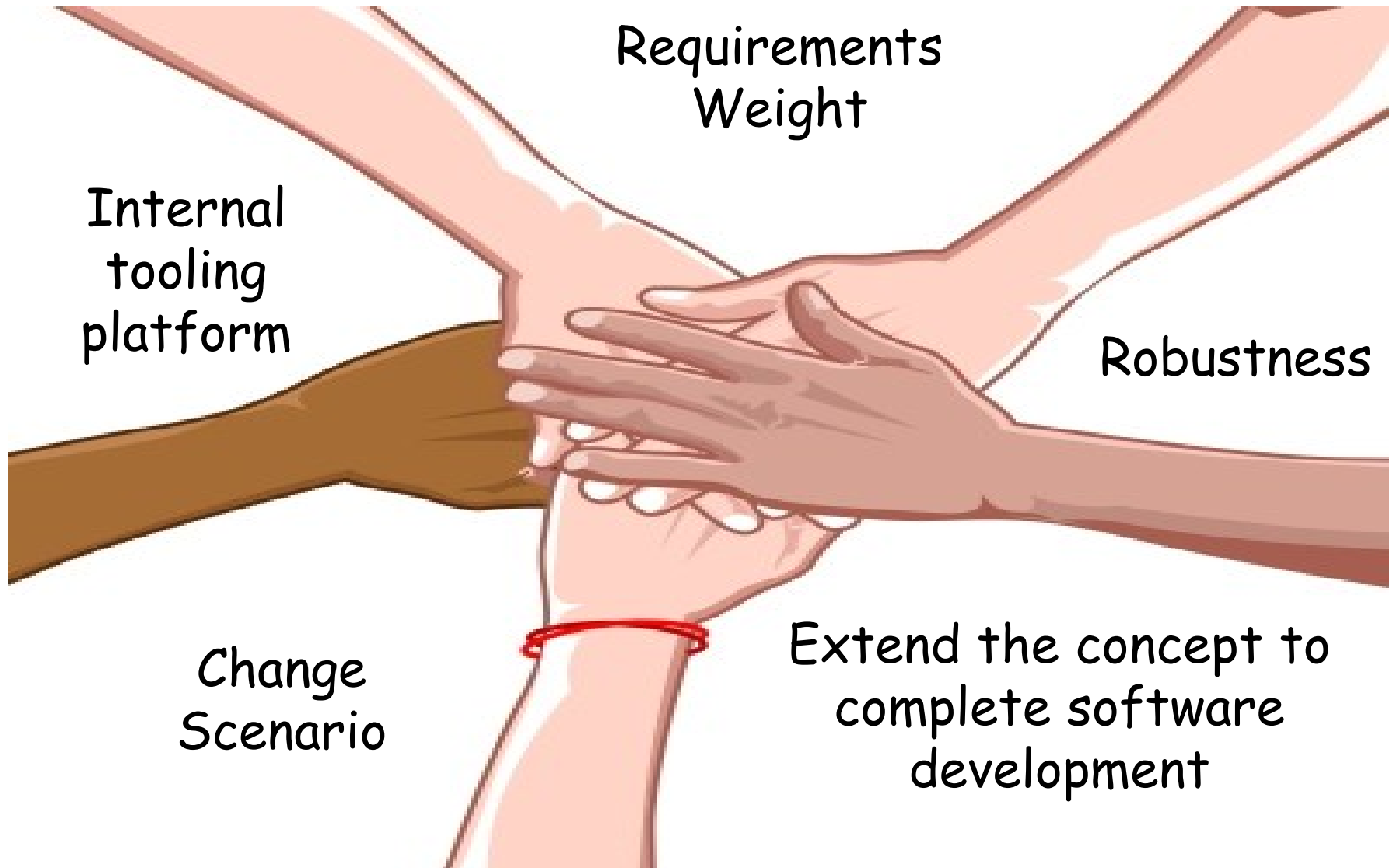
- Requirements Inconsistency - High
- Complete business requirements missing
 - Bulk registration
 - Auto registration.
- Both Completeness and Correctness/erroneous related gaps present.
- Requirements for key processes like bulk registration and auto registration were completely missing.
- Similarly many use cases were missing and are not specified.
- No of requirements 50
- No of consistent requirements 24

Conclusions



- ☑ Structured Approach
- ☑ Easy findings of gaps
- ☑ Missing +Erroneous
- ☑ Backward and Forward
- ☑ Track of complete value chain
- ☑ RCI – Quality Indicator

Future Work and Collaboration





Thank You