

Importance of Adequate Interface Management and Systems Integration

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Scope & Coverage of Presentation

- Interface Management & Systems Integration as encountered in typical rail transit projects
 - ✓ Why Needed
 - ✓ Typical Approach
 - ❖ Plan and Basis
 - ❖ Process and Associated Tasks
 - ❖ Documents
 - ✓ Typical Interfaces
 - ✓ Organization
- Goal: Cite and Enhance the importance of Interface Management & Systems Integration



Interface Management & Systems Integration

Why Needed?

- Projects getting more complex-Demands
 - ✓ Contract delivery options: PPP, D-B, DBO&M, etc. keen on meeting bottom line, performance, efficiency and schedule
 - ✓ New Starts or Improvement Projects: Focused approach for
 - ❖ Infrastructure development
 - ❖ Integration and testing
 - ❖ Seamless operation
- Agencies Concerns
 - ✓ Fading funding streams, overruns and delays
 - ✓ Need to increase local participation and distribute work: increases the interfaces and entities to interface
 - ✓ Staffing



Interface Management & Systems Integration Approach

- Integral to the Engineering Management Plan, the Project should have Interface Management and Systems Integration Plan
 - ✓ Focused and Logical, Structured and Documentable
 - ✓ Built-in tools for managing, controlling, tracking and verifying interfaces
 - ✓ Plan ensures that
 - ❖ civil facilities are compatible within the facility
 - ❖ Civil and Infrastructure elements are fully integrated with all Systems elements
 - ❖ Civil and Systems elements function as Planned, designed and Constructed



Interface Management & Systems Integration Approach

- Basis of Interface Management and Systems Integration
 - ✓ Client defined
 - ❖ Project Objectives
 - ❖ O&M Parameters including RAMS
 - ❖ Design Criteria, Standards and Directive Drawings
 - ✓ Requirements specific to the Project
 - ❖ Stakeholders
 - ❖ Project Participants and Third-Parties having jurisdiction
 - ❖ External & Internal Interfaces
 - ❖ Test & Commissioning Requirements
 - ❖ Interfaces with existing operating segment
 - ❖ Documentation



Interface Management & Systems Integration Approach

- Interface Management Process Capable to
 - ✓ Identify - Define - Describe - Coordinate - Clarify
- Resolve - Document
 - ✓ Achieve desired functionality of integrated systems
 - ✓ Prevent unnecessary rework, cost overruns and schedule delays
 - ✓ Structured to Continue throughout the Project Life Cycle

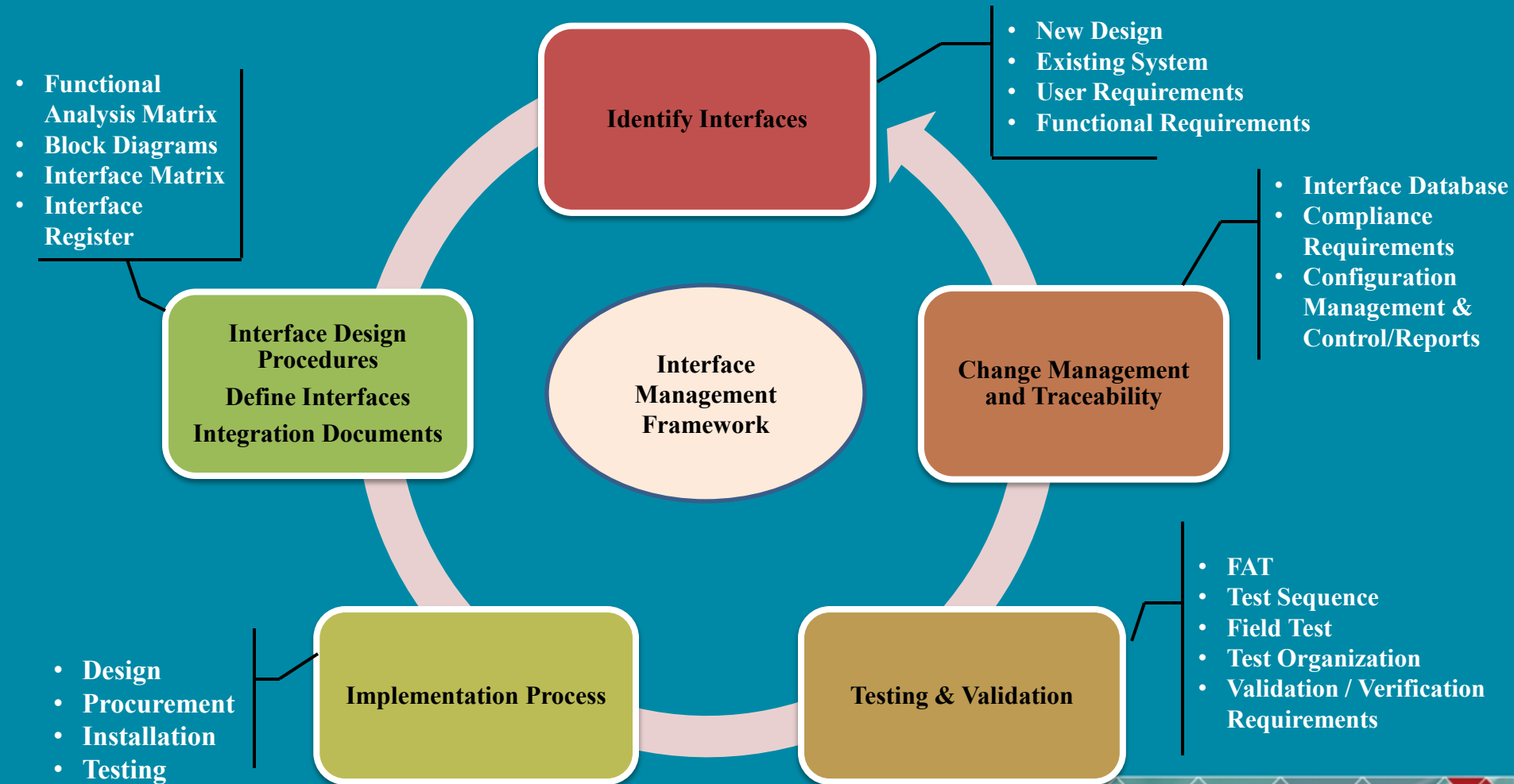


Interface Management & Systems Integration Approach

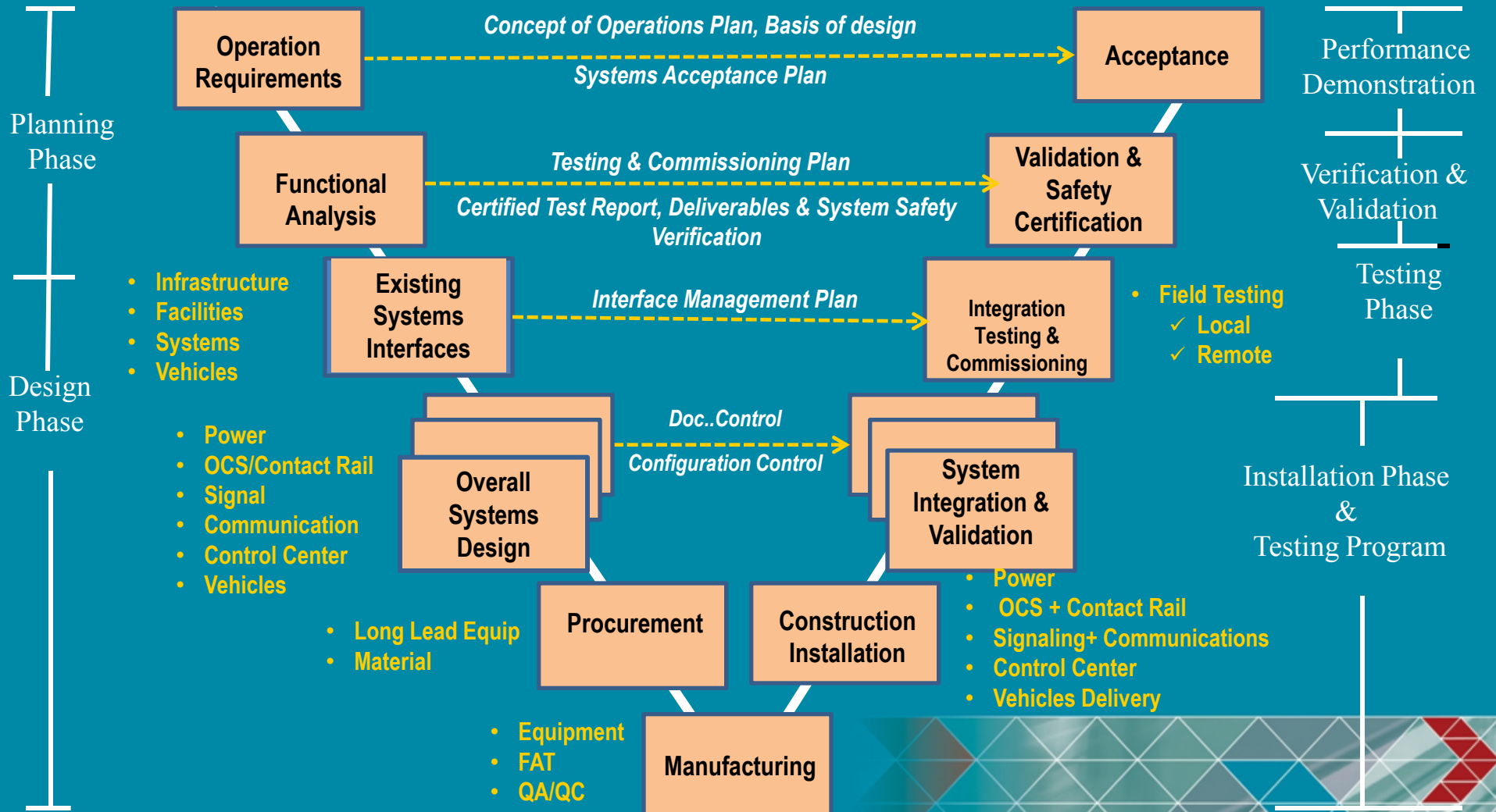
- Tasks within Interface Management Process
 - ✓ Identify and define all interfaces for all phases of the scope
 - ✓ Ensure that interfacing systems are designed to the same requirements
 - ✓ All participants are identified and committed
 - ✓ Schedule, hold regular meetings and document to coordinate and track interfaces
 - ✓ Ensure that all interfaces are resolved and verified before pre-revenue testing



Typical Framework of Interface Management



Typical Interface Management Process Through Project Life Cycle



Interface Management & Systems Integration

Typical List of Documents

- Interface Responsibility Matrix
- Project Integration Implementation Plan
- Interface Tasks and Phasing Matrix
- Interface Block Diagrams
- Composite Drawings
- Interface Coordination and Systems Integration Checklists
- Test Plan
- Equipment Matrix
- Interface Control Documents
- Systems Integration Database



Interface Management & Systems Integration

Typical List of Interfaces

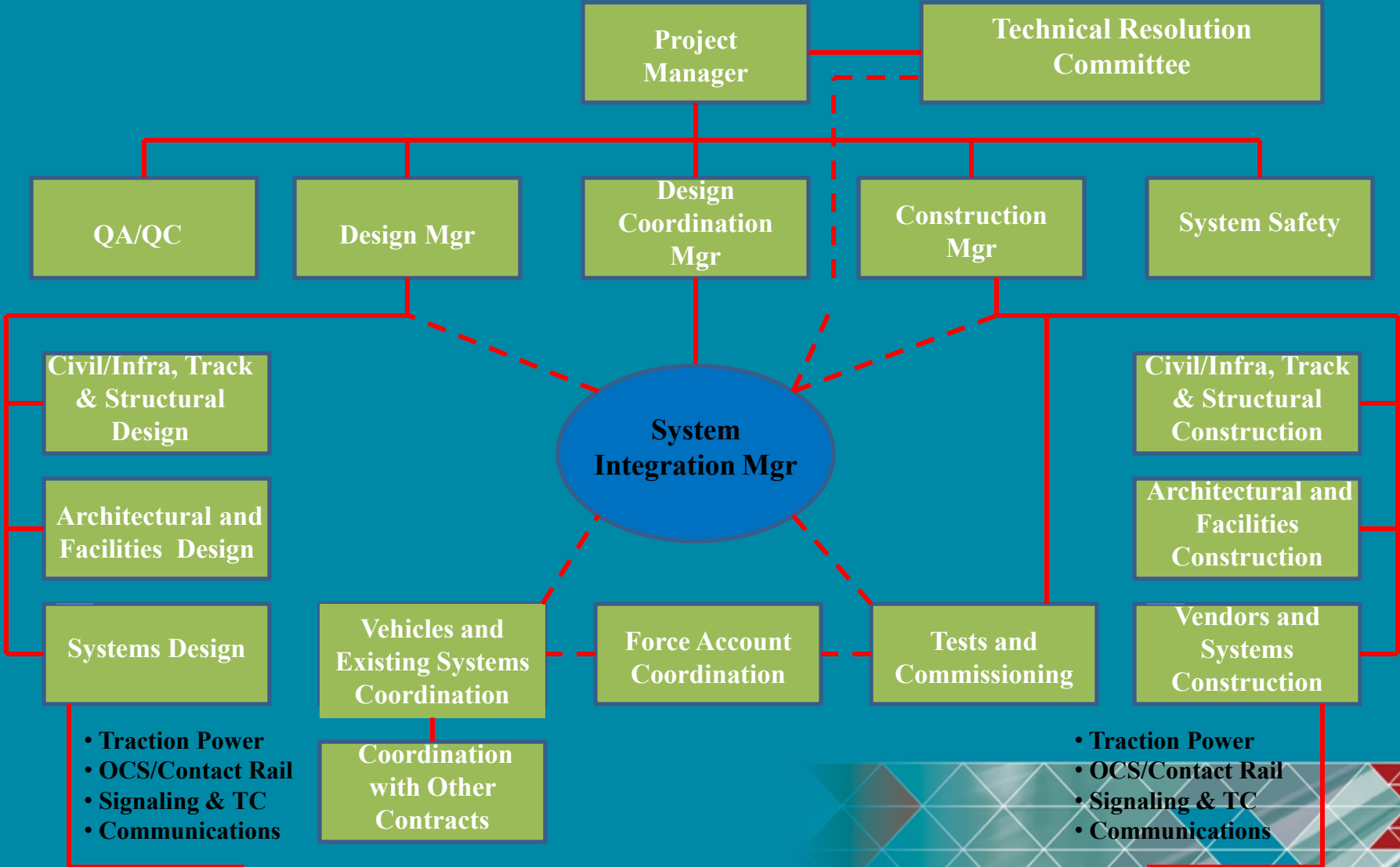
- Interface during Design, Procurement & Construction
 - ✓ Stakeholders and other participants
 - ✓ Third Parties having jurisdiction
 - ✓ Adjacent Contract related
 - ✓ Civil/Infra, Tracks, Alignment Facilities, Vehicles and Systems
 - ✓ Vendors and Suppliers
 - ✓ Interfaces with Client or Agency for
 - ❖ Force Account Supports
 - ❖ As-Built Drawings and deviations there from
 - ❖ O&M Requirements including RAMS
 - ❖ Interfaces with existing operating segment
 - ❖ Test & Commissioning Requirements
 - ❖ Training

Interface Management & Systems Integration Organization and Responsibilities

- Assign Systems Integration Manager from the inception of the Project
- Power him with authority, responsibility and accountability for Interface Management and Systems Integration throughout the Project Life Cycle
- Assign his support staff in proportion to the responsibilities
- Systems Integration Manager to have ability to seek help from Technical Resolution Committee



Typical Interface Management Organization



In Summary.....

- Plan for a meaningful Interface Management and Systems Integration
- Provide it throughout the Project Life-Cycle
- Set reasonable Interface Management and Systems Integration goals and requirements in proportion to the size and complexity of the Project
- Allow tools and adequate resources to be effective and efficient

Otherwise Do not expect Miracles

