DASSAULT SYSTEMES

ARCHITECTING THE CHANGE

Experiencing Enterprise Transformation with UAF in a Non-Deterministic World

Edita Milevičienė
Tobias Kaiser

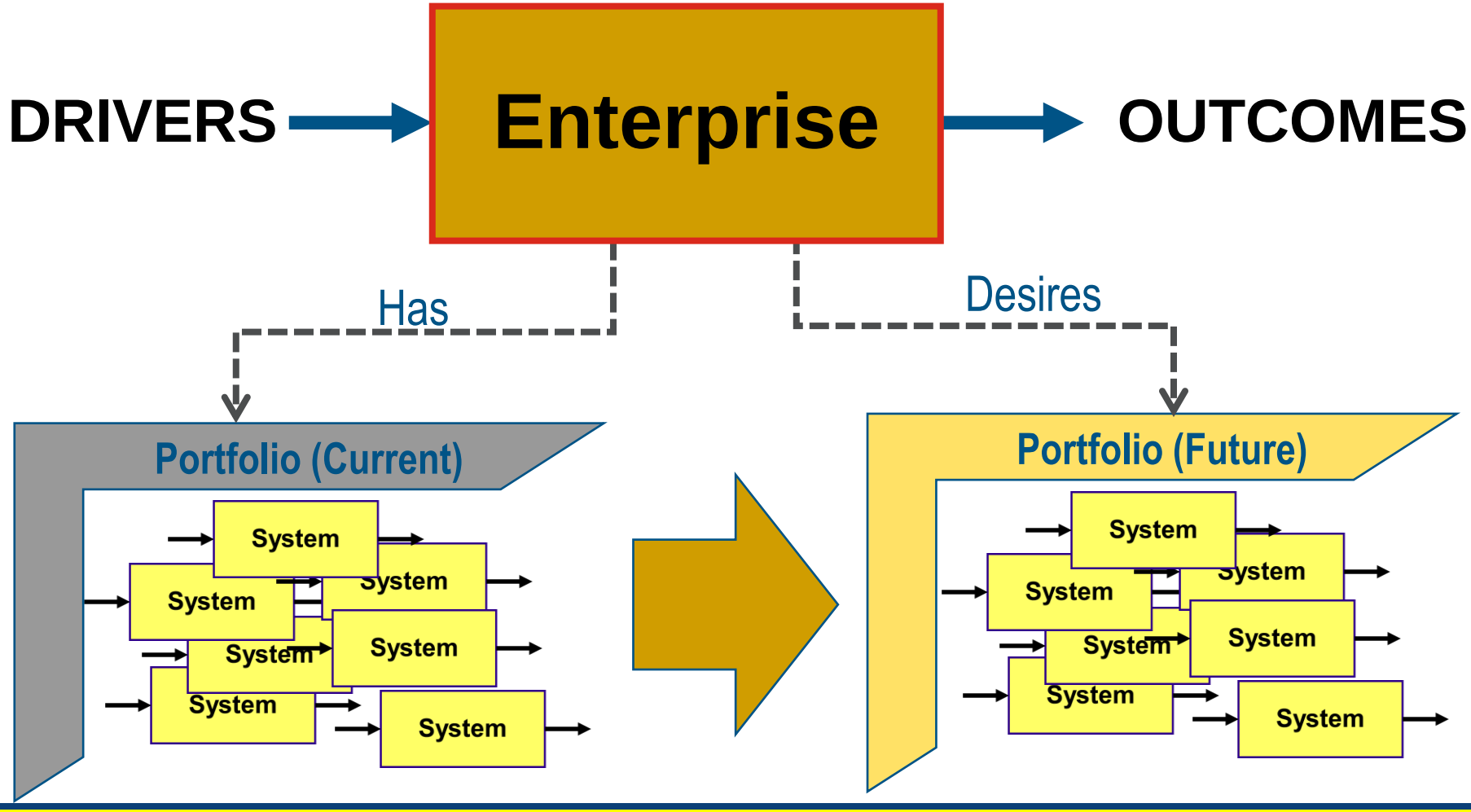
3DEXPERIENCE®

PLANS ARE DETERMINISTIC. TRANSFORMATIONS ARE NOT.

- We plan transformation as if it was a project.
- In reality, it behaves more like a living system:
  - decisions create new dependencies,
  - dependencies create constraints,
  - constraints reshape the plan.

- **Model-Based Enterprise Architecture (MBEA)** can effectively support transformation planning by considering available resources, including systems, personnel, and technologies, as well as identifying any new resources to acquire or develop.

UAF – TRANSFORMATIONAL APPROACH



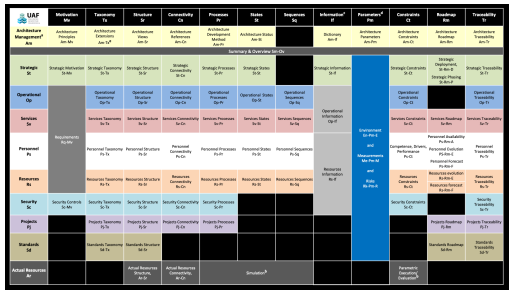
Enterprise - a purposeful or industrious undertaking (especially one that requires effort or boldness)

UAF

- **UAF is an International Standard for Enterprise Systems Engineering**

MagicGrid

UAF
OMG UNIFIED ARCHITECTURE FRAMEWORK ™



Product
Relatively simple
Verifiable Requirements
No human resources considered as part of system

Service
Software intensive
Involves products and other services
Human resources may be involved

Enterprise
Fuzzy Requirements
Involves a lot of risk
Rich of human resources
Made of services and products

Complicated → Complex

technical → socio-technical

DASSAULT SYSTEMES

UAF Use Cases

15288 System Lifecycle Processes
Acquisition Decision Making
AOA (Analysis of Alternatives)
Application Portfolio Management
Budget Planning
Business and Mission Analysis - INCOSE
Business Process Reengineering
Business Transformation Planning
Capability Gaps Analysis
Capability Planning
Capability Portfolio Management
Capability-based Assessment
Certification Planning
Defense Acquisition System
Define and analyze problem space
Describe SoS
Design Surety
Digital Engineering Planning and Execution
Digital Transformation Planning
Digital Twin
Doctrine Development
Ecosystem Sustainability
Enterprise Planning
Enterprise Systems Engineering - INCOSE
Federated Mission Network (FMN)
JCIDS
Logistics Support Planning
Mission Assurance
Mission Criticality
Mission Engineering
Operational Analysis
Operational Sustainability
Operations
Operations Planning
Optimization
Organizational and Strategic Planning
Performance Management
Policy Formulation
Portfolio Management
PPBE
Predictive Analytics
Program Assessment and Evaluation
Program Formulation
Program Planning
Requirements Development and Flowdown
Risk and Opportunity Management
Security Analysis
Simulation Support
Strategic Planning and Execution
Sustainability
Sustainment Engineering
System Lifecycle Management
System Security Engineering
System Sustainability
Technology Planning and Assessment
Test Planning and Execution
Training

TRANSPORTATION ENTERPRISE TRANSFORMATION

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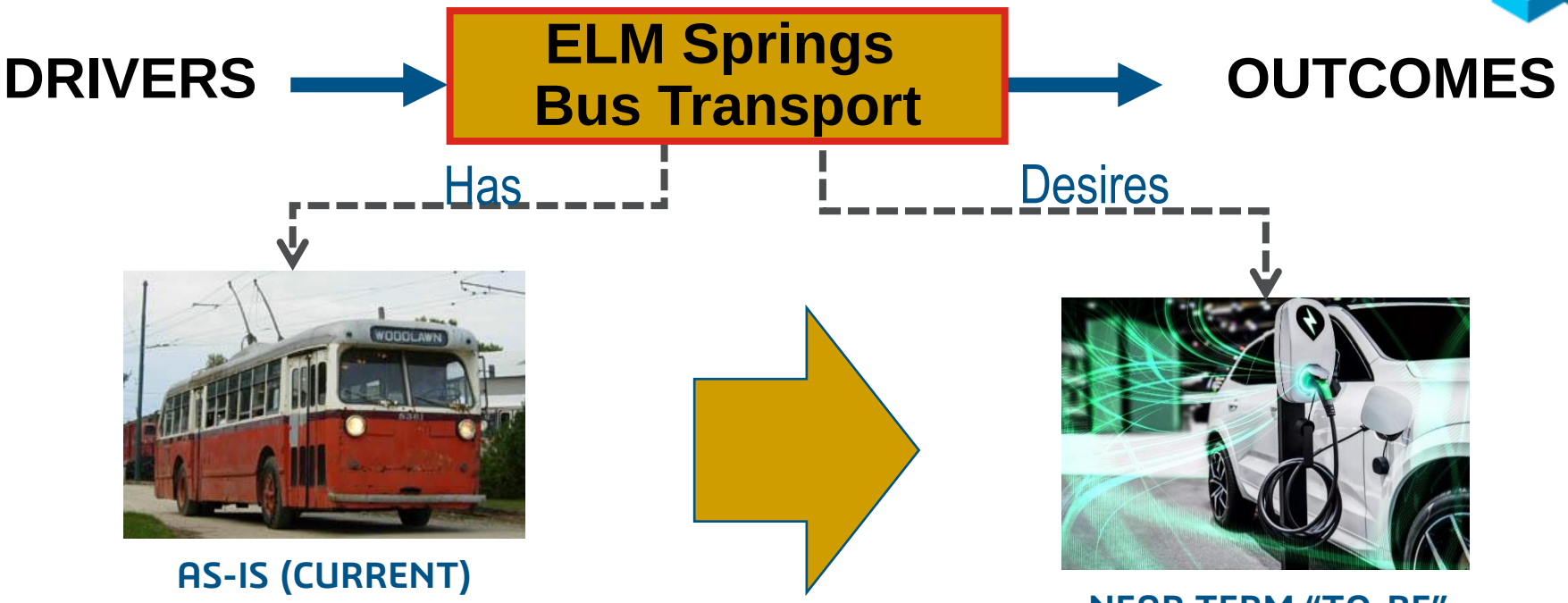


AS-IS (CURRENT) PHASE

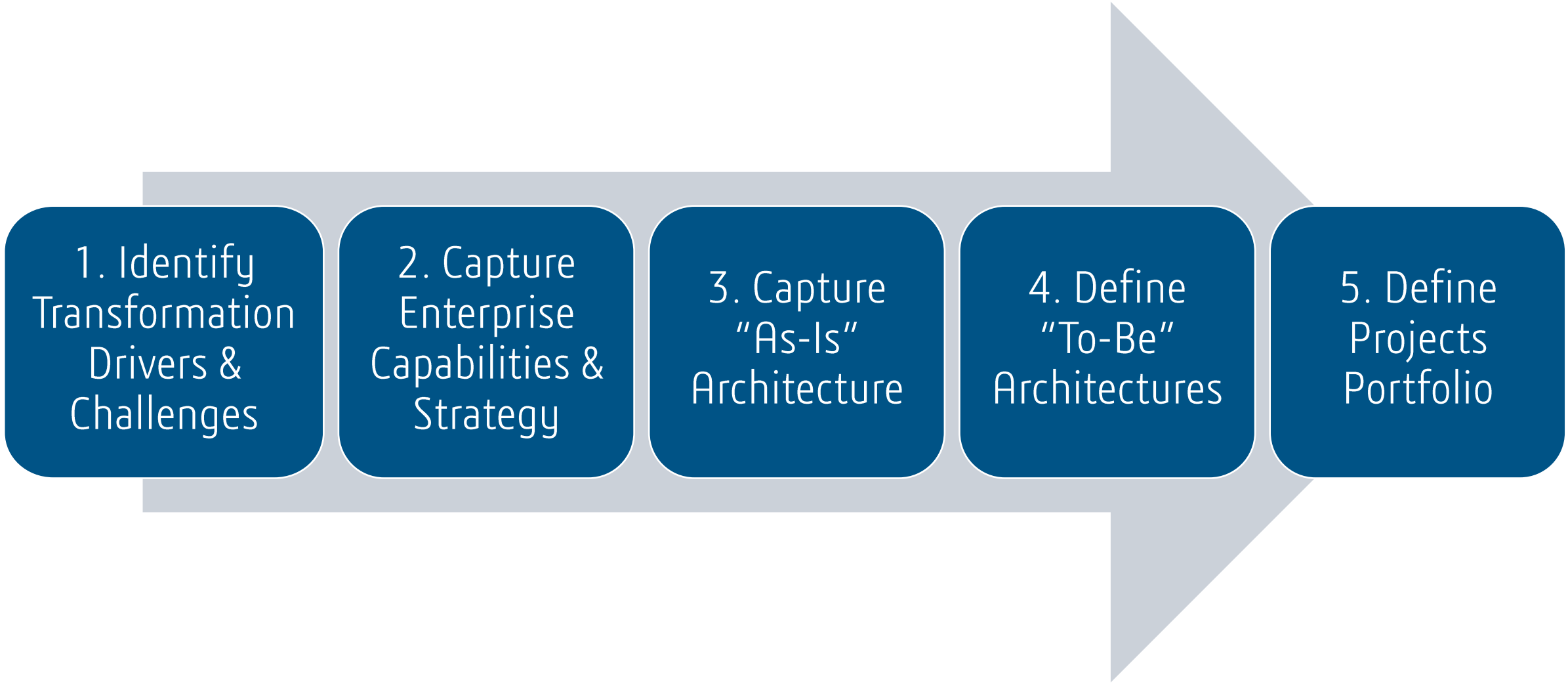
- Mixed fleet of diesel and trolley buses
- Drivers
- Re-fueling
- Washing and Cleaning
- Scheduled and unscheduled repairs
- …

NEAR TERM "TO-BE" PHASE

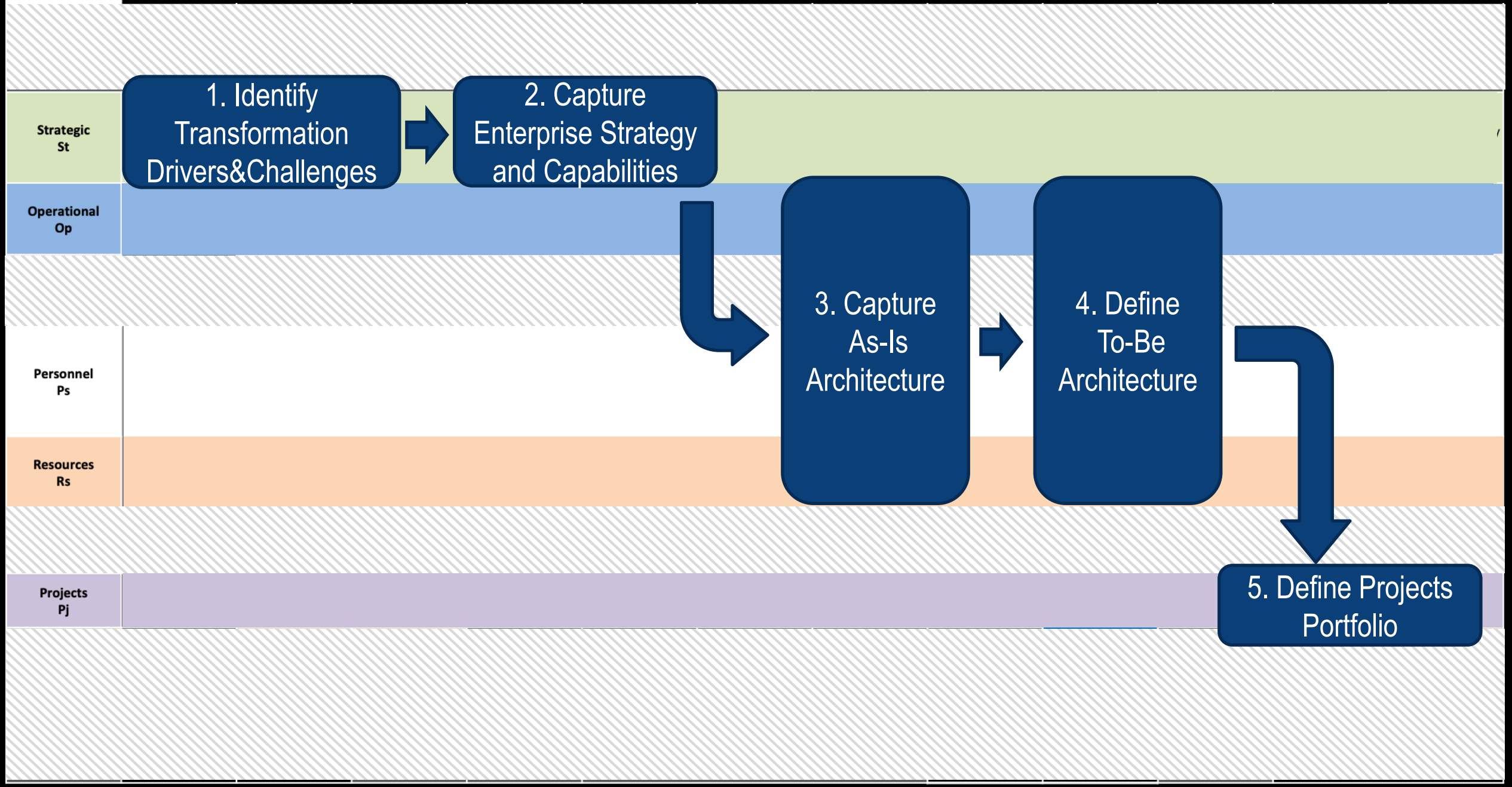
- Electric bus fleet
- Drivers
- Re-charging
- Washing and Cleaning
- Scheduled and unscheduled repairs
- …

DASSAULT SYSTEMES

ACTIVITIES OF ENTERPRISE TRANSFORMATION PLANNING

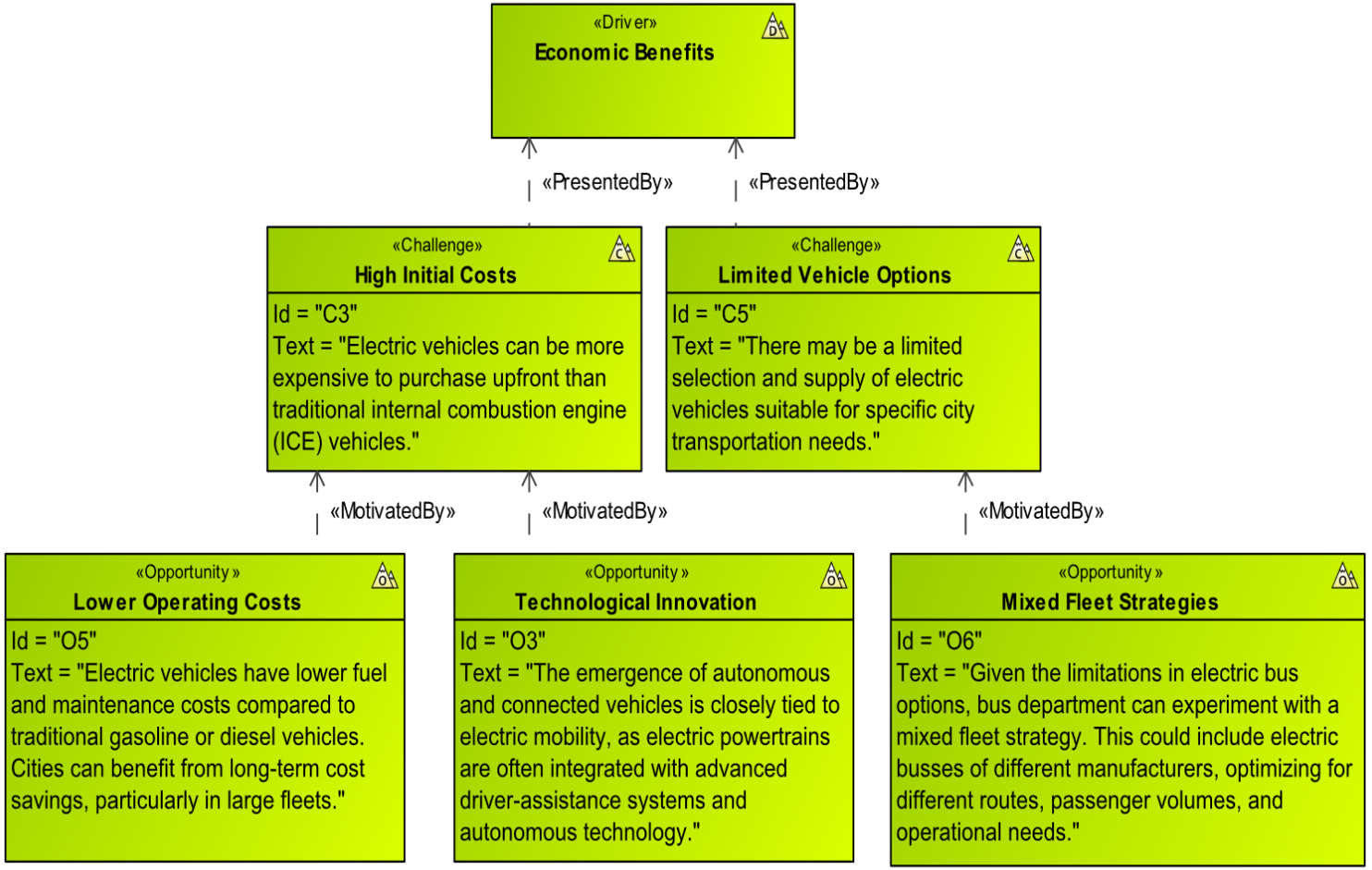


Model-Based Enterprise Transformation Planning Workflow



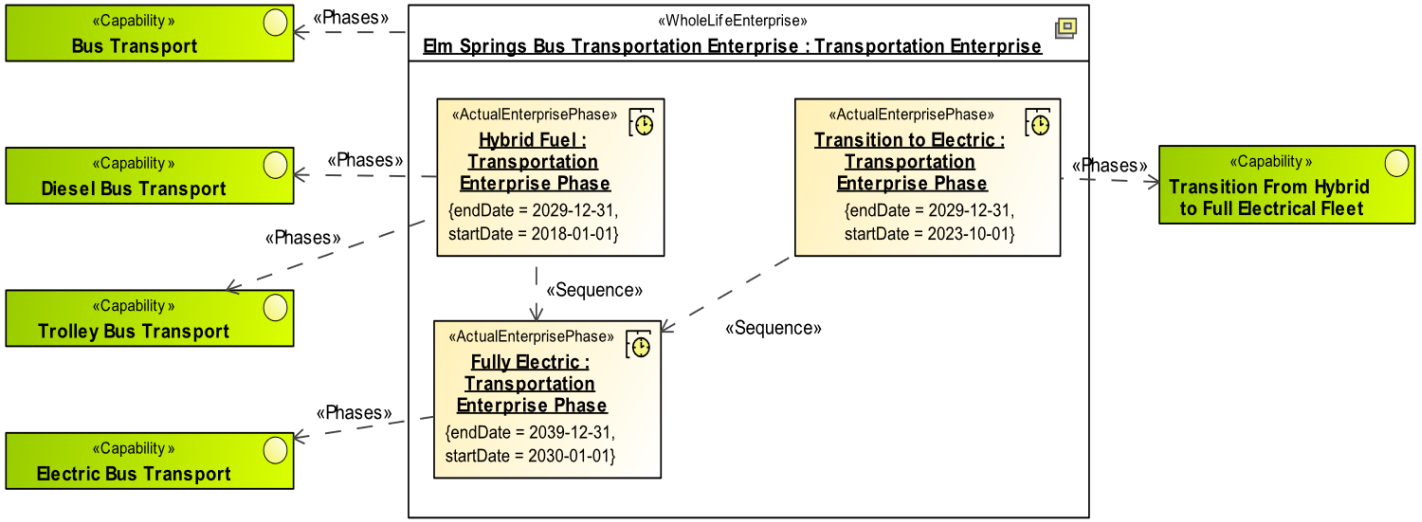
1. IDENTIFY ARCHITECTURE DRIVERS AND CHALLENGES

- Determine **WHY** the enterprise needs transformation:
  - **Drivers** justify the changes are identified
  - **Challenges** present difficulties in addressing the drivers are assessed
  - **Opportunities** based on drivers and challenges are identified

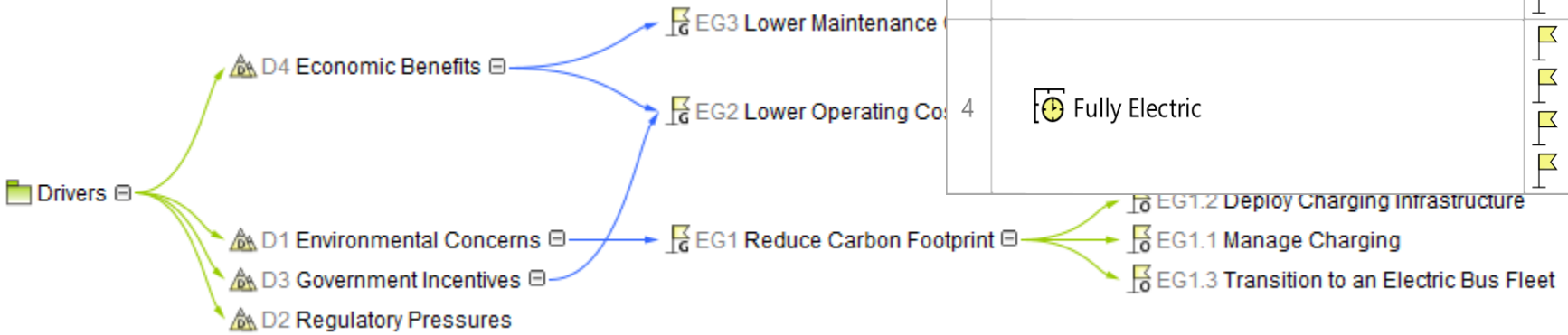


2. CAPTURE ENTERPRISE STRATEGY AND CAPABILITIES

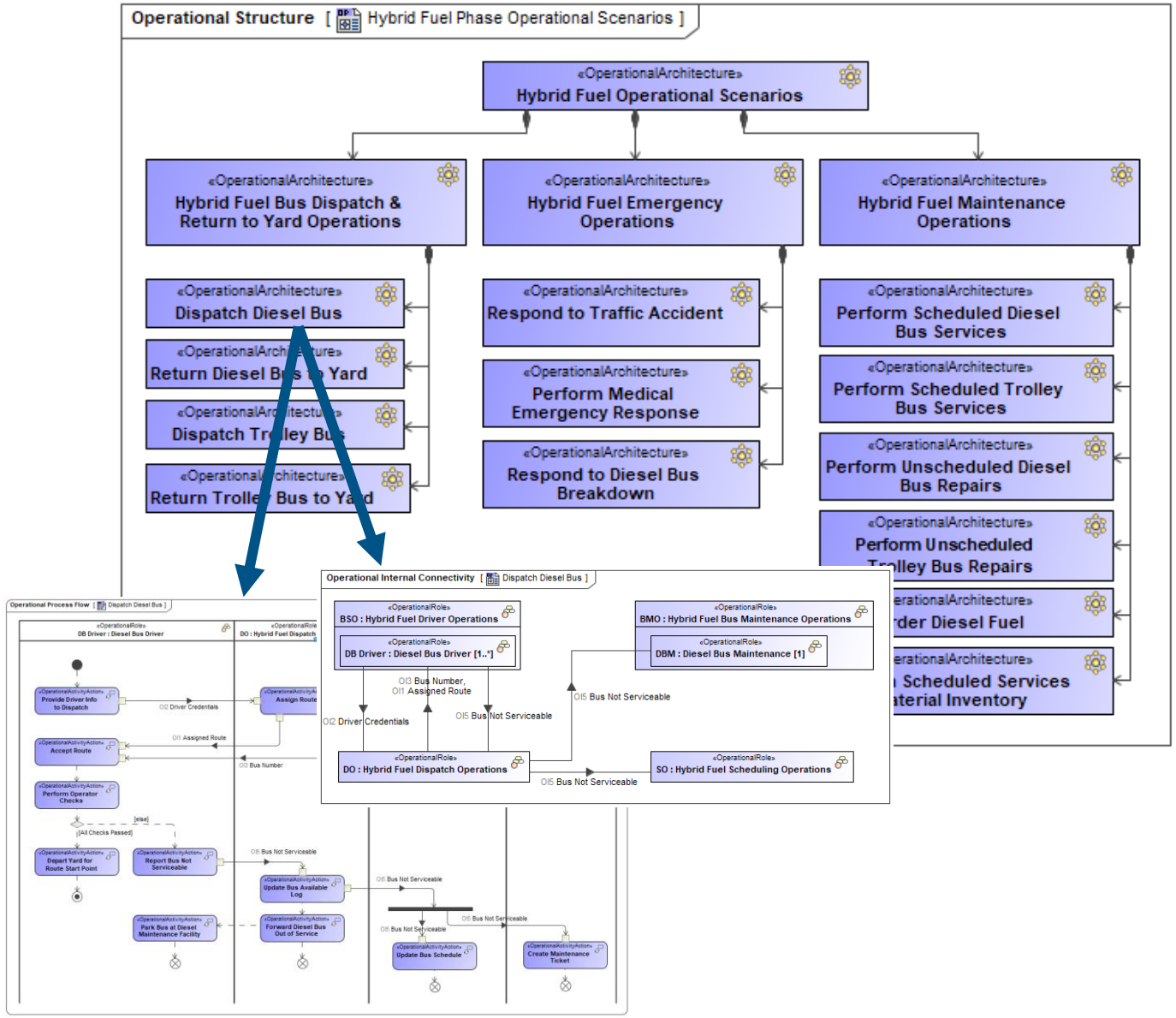
- **Plan** the enterprise transformation from its current to the target phase
- Identify current and target phase **Capabilities**



2	Hybrid Fuel		2018-01-01	2029-12-31
3	Transition to Electric	EG3.1 Train Staff EG1.2 Deploy Charging Infrastructure EG1.3 Transition to an Electric Bus Fleet	2023-10-01	2029-12-31
4	Fully Electric	EG2.2 Ensure Efficient Operation EG2.1 Perform Cost-Benefit Analysis EG1.1 Manage Charging EG2.3 Adopt Innovative Technologies	2030-01-01	2039-12-31

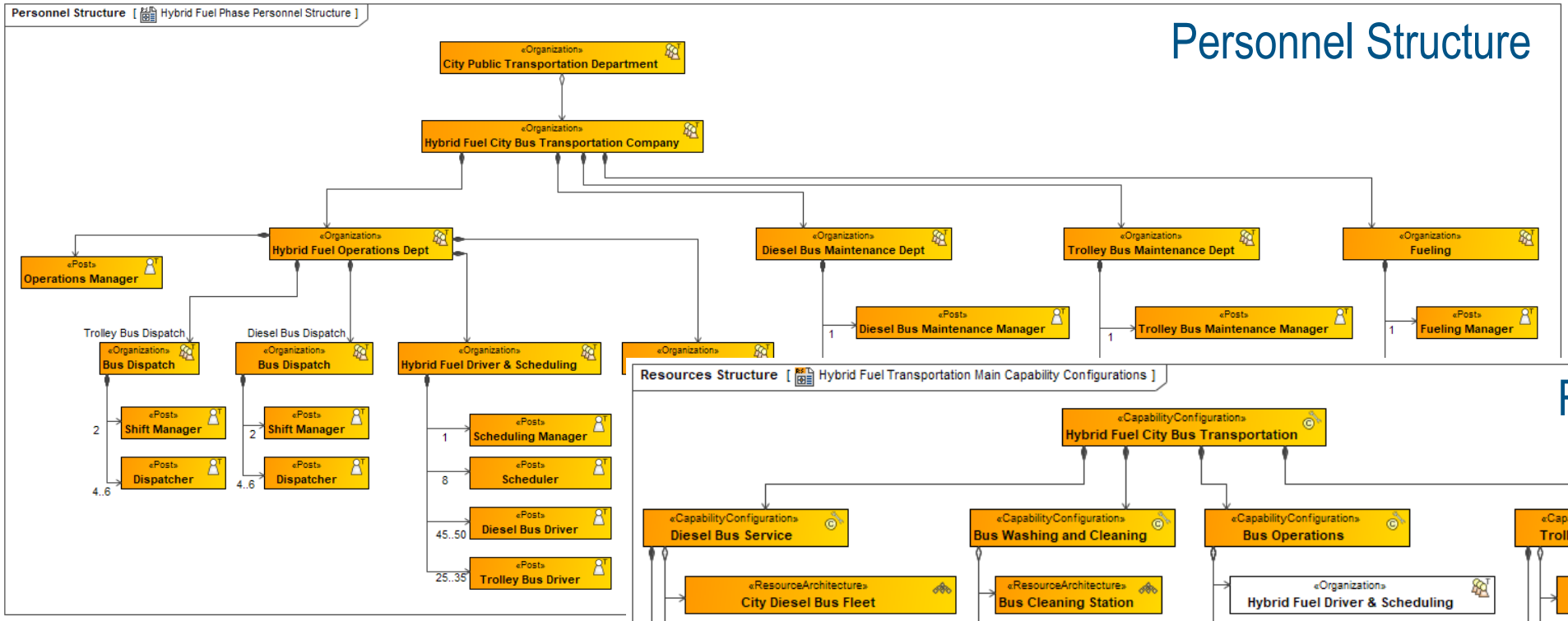


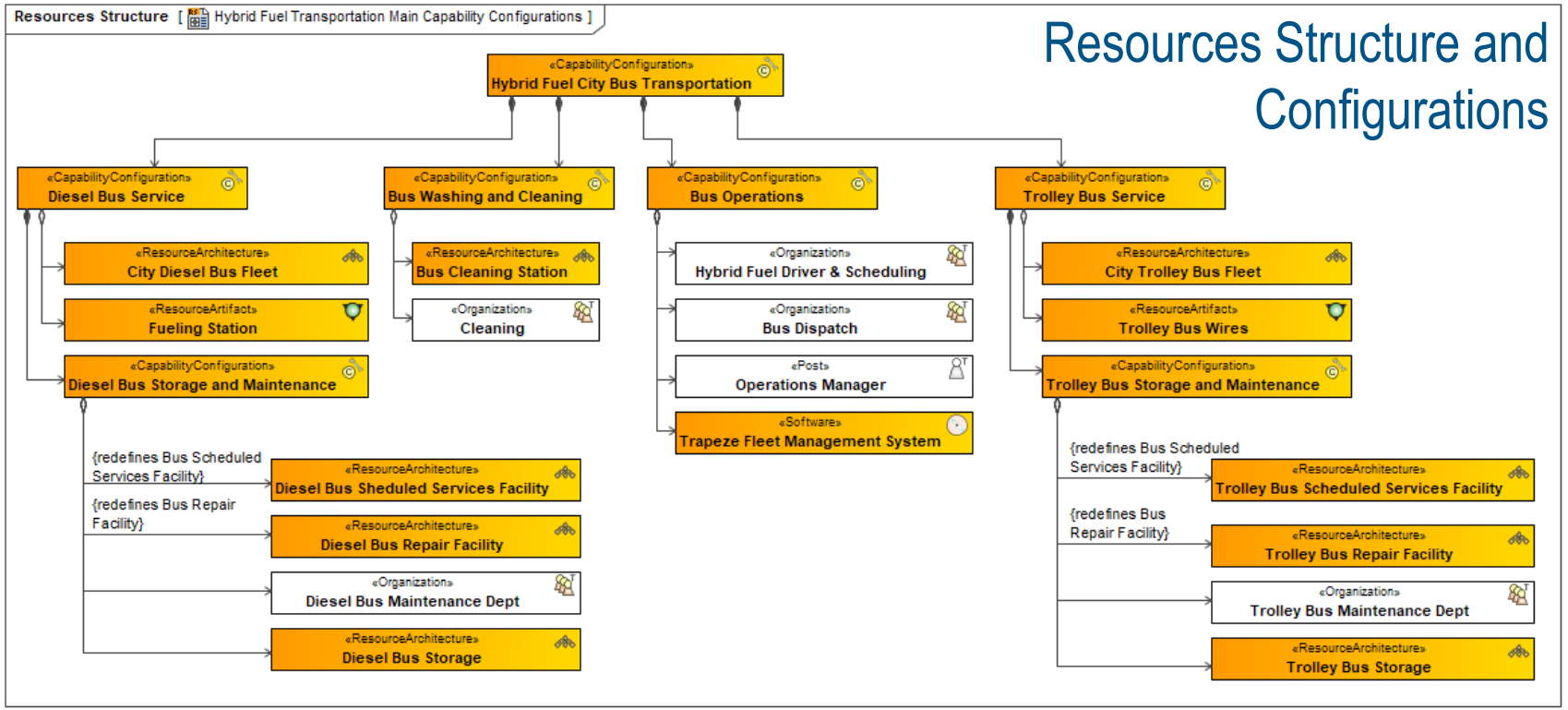
3. CAPTURE AS-IS ARCHITECTURE



- **Document** the architecture of the current enterprise phase, including:
  - "As-Is" Operational Architecture
  - "As-Is" Personnel Architecture
  - "As-Is" Resources Architecture

3. CAPTURE AS-IS ARCHITECTURE (CONT.)

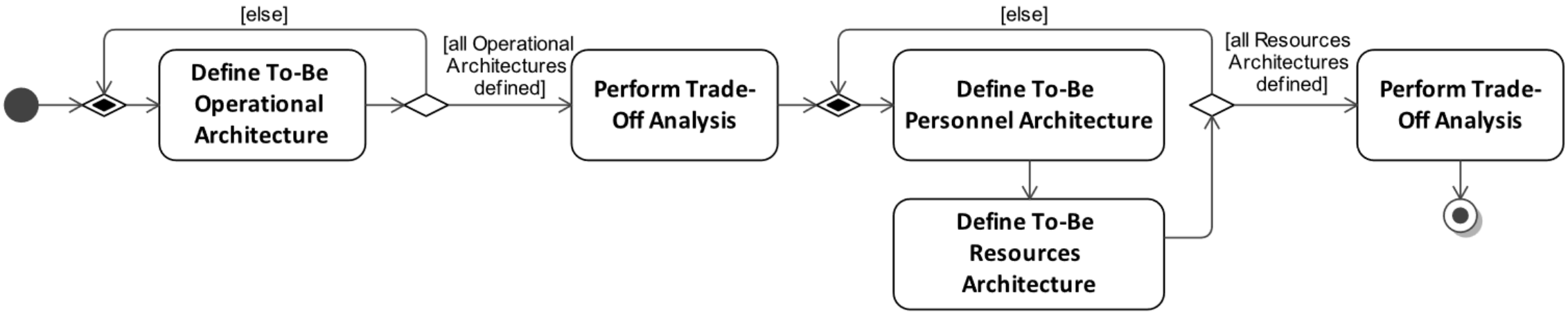




Capture- an **implementation-specific description** of how the enterprise implements operational needs and exhibits capabilities

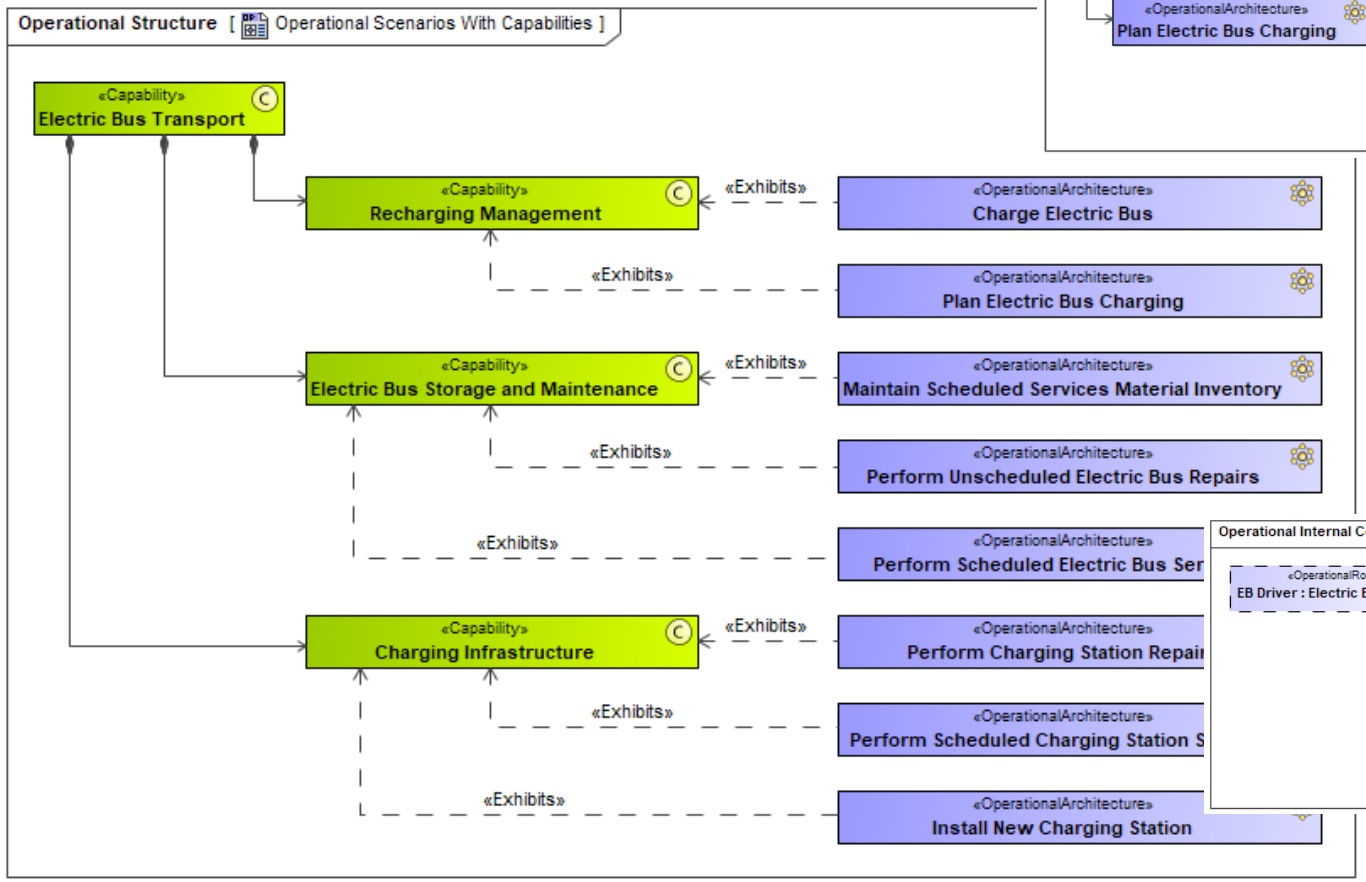
4. DEFINE TO-BE ARCHITECTURES

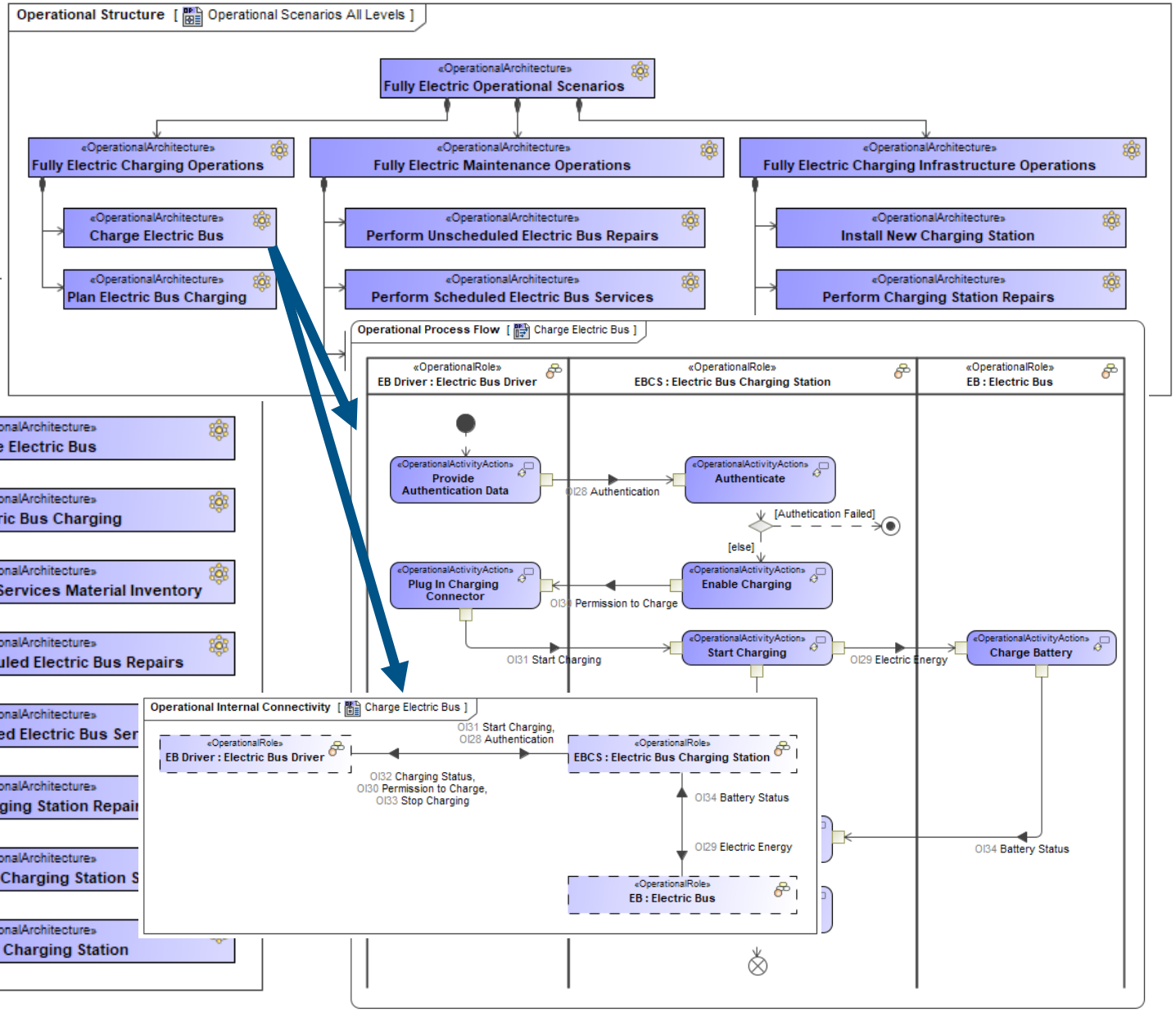
- **Multiple "to-be" architectures can be produced**
  - If multiple "to-be" architectures are specified, a trade-off analysis is performed to select the optimal one
- **Additionally, the "to-be" architectures can be based on the relevant "as-is" architectures,** using them as a baseline, rather than being created from scratch



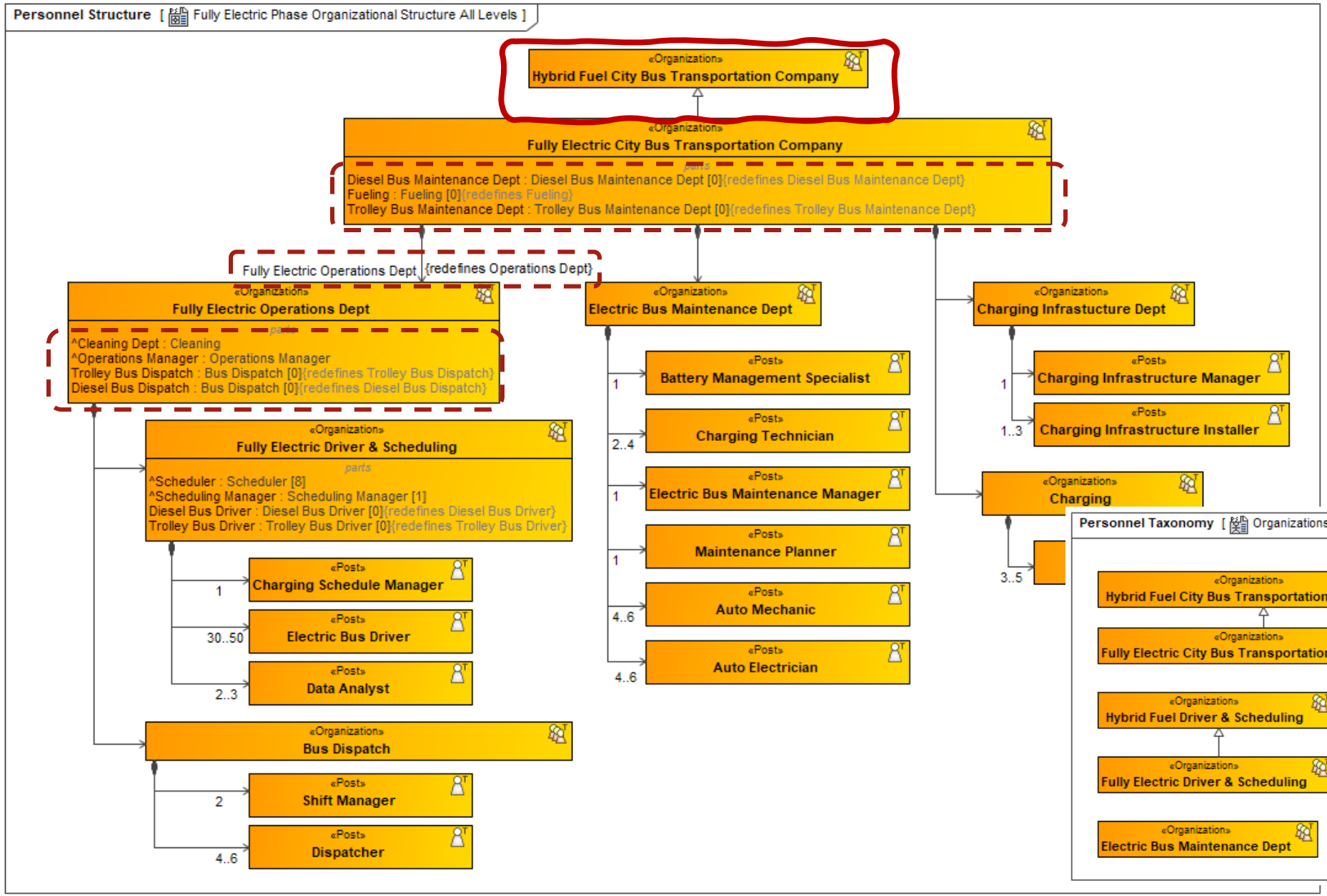
4.1 DEFINE TO-BE OPERATIONAL ARCHITECTURE

- Built from scratch to **allow flexibility** of the architecture and **avoid constraints** from existing solution



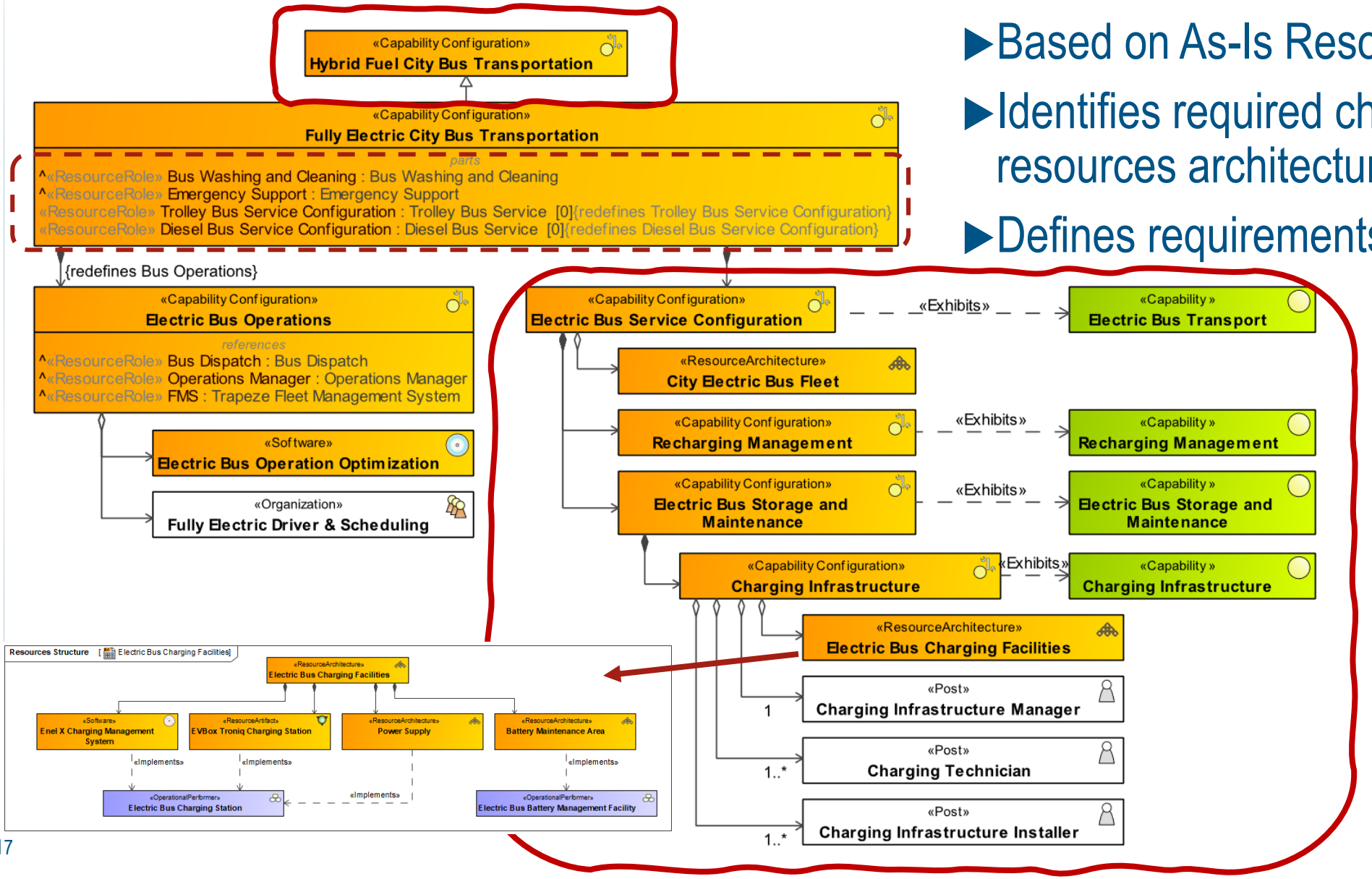


4.2 DEFINE TO-BE PERSONNEL ARCHITECTURE



- Based on As-Is Personnel structure
- Identifies required changes for To-Be phase

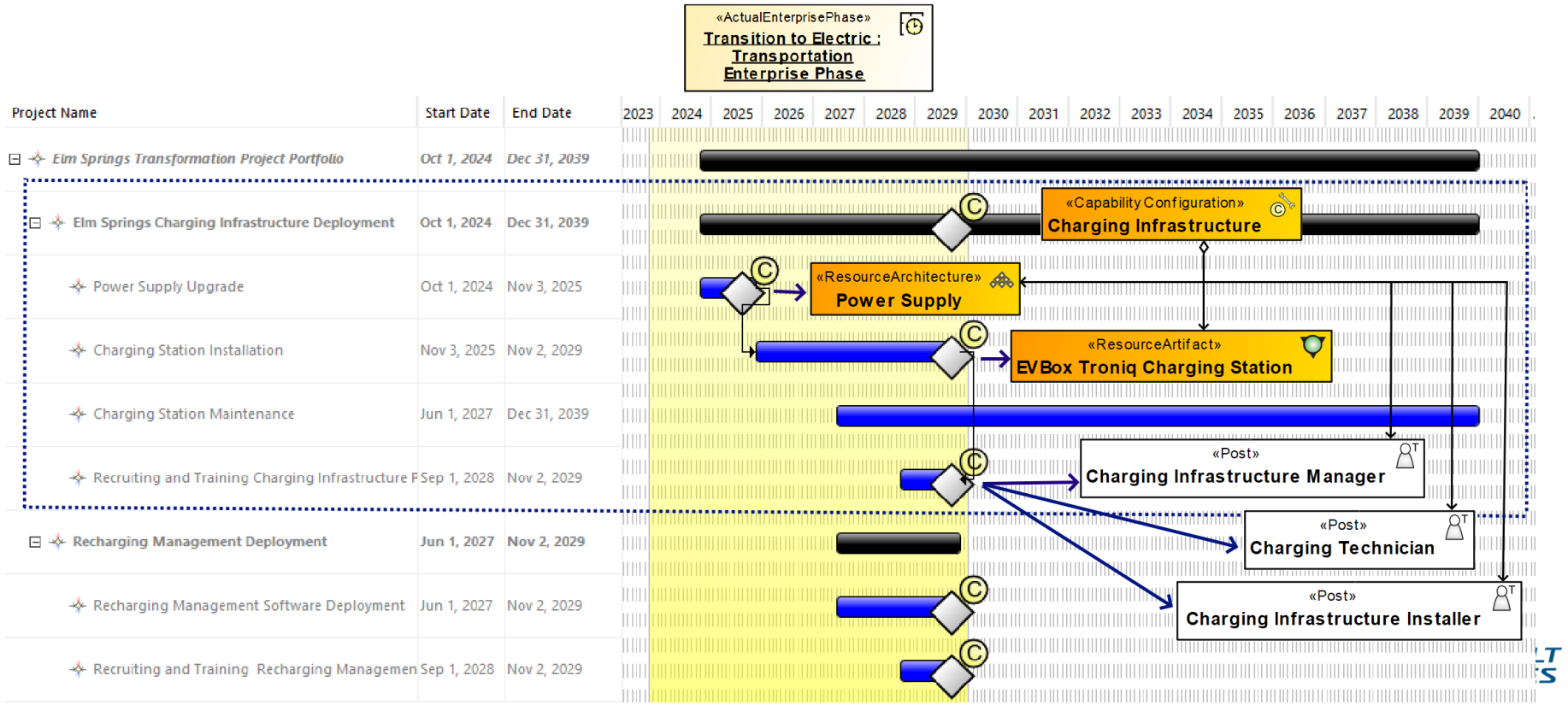
4.3 DEFINE TO-BE RESOURCES ARCHITECTURE



- Based on As-Is Resources Architecture
- Identifies required changes to existing resources architecture
- Defines requirements for new resources

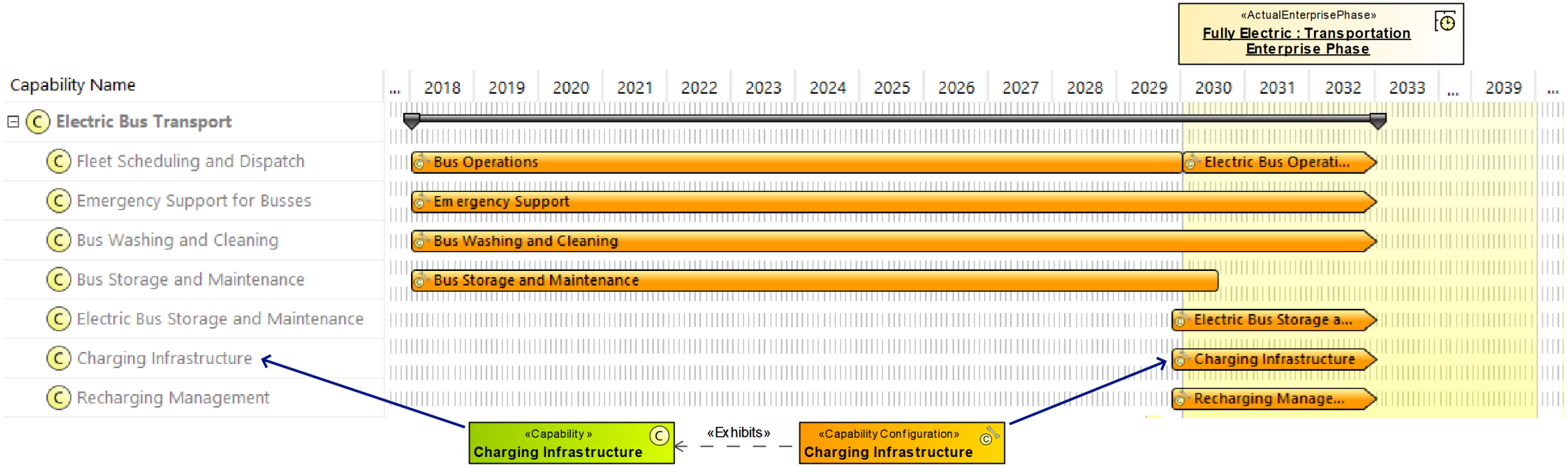
5. DEFINE PROJECTS PORTFOLIO

- Identifies and describes **projects** required to transit the enterprise from the “as-is” to “to-be” phase
- Captures each project **milestones** to monitor its progress and evaluate how it contributes to realizing the capabilities of the enterprise
  - Once all the resources of a single capability configuration become available, it enables the relevant capability



5. DEFINE PROJECTS PORTFOLIO (CONT.)

- The projects portfolio definition enables analysis of capabilities delivery:
  - when each capability becomes available
  - which capability configuration realizes it, and for what period of time
- It also provides an overview of how changes in projects might affect capability deployment and allows to identify capability gaps



CONCLUSIONS

- UAF enables practical, model-based way for planning and managing enterprise transformation from strategy to implementation.
- Enterprise capabilities, processes, resources, and projects can be managed within a single transformation model.
- Model-based architecture improves visibility of dependencies, impacts, and transformation risks.
- The approach is presented to the UAF Task Force within the Object Management Group (OMG) and gathered valuable feedback for further refinement.

Thank You!