D8L

Digital Transformation in Supply Chain: Towards Cloud-BasedTransport Management

Group 9

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Company Introduction

D8L

Fictional logistic service provider based in Rotterdam with more than 20 years of experience

Their processes are not automated

The new CEO wants D8L to become a 4PL

Struggles with stagnant profits and no market share increase

87% of contracts are fixed and long-term, while the rest are short-term or one-off orders

Provides road, rail and waterway transport in the Netherlands, Germany, Italy, Austria, and Poland

SWOT Analysis

Top 5 most relevant points

Positive — Negative

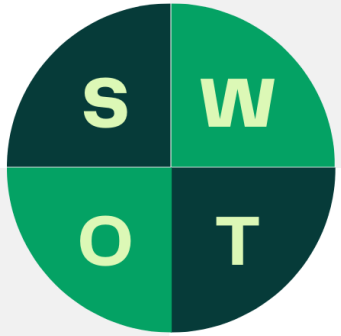
Internal Factors — External Factors

STRENGTHS

1. D8L uses some IT systems for planning, fleet management, ordering and finance
2. The IT landscape is simple and it is easy to build up on this from scratch
3. D8L already has an established infrastructure
4. Established and loyal customer base with long term contracts
5. D8L has a few employees, almost all of them with a lot of experience

WEAKNESSES

1. Insufficient automation and standardization depending on manual systems
2. No connection between IT systems
3. It takes a lot of time to create routes in PLAN-IT and to solve disruptions
4. It is not possible to integrate in PLAN-IT the routes of the outsourcing companies
5. D8L does not have predictive tools for changes or a data-driven approach



OPPORTUNITIES

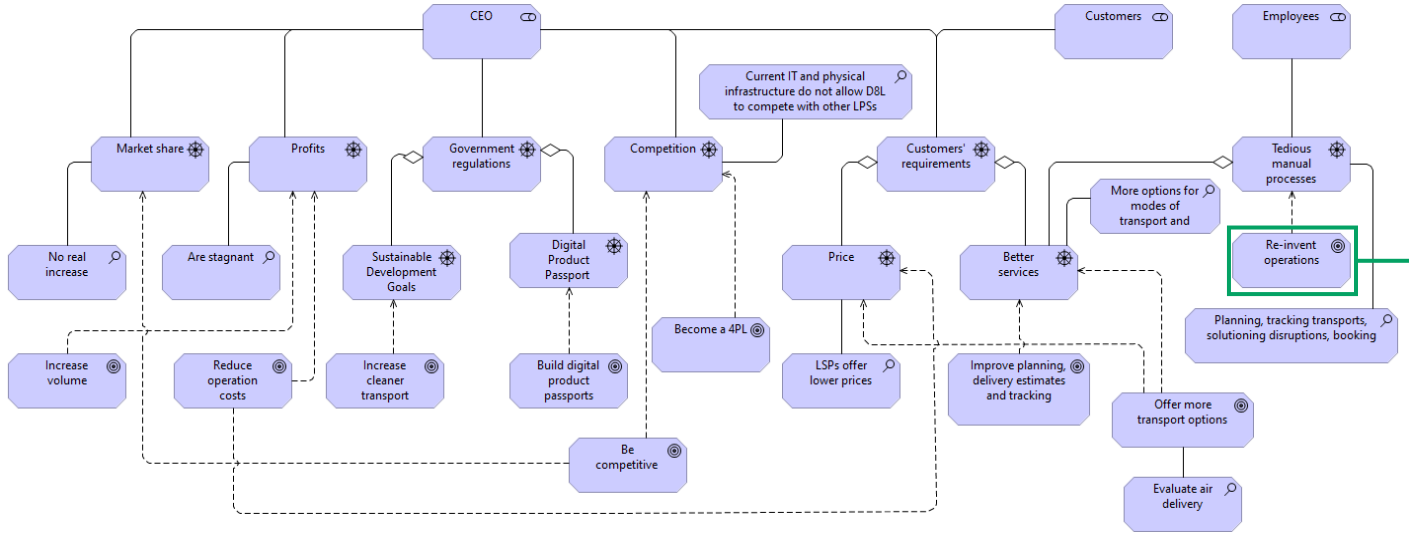
1. The simple IT landscape enables Digital Transformation with state-of-the-art solutions
2. Increased revenue by adhering to carbon emission goals
3. Clients require transport of specific cargo like perishable goods
4. D8L outsources specialized consignments to companies and earns commissions
5. D8L recognizes the need to invest in predictive technology

THREATS

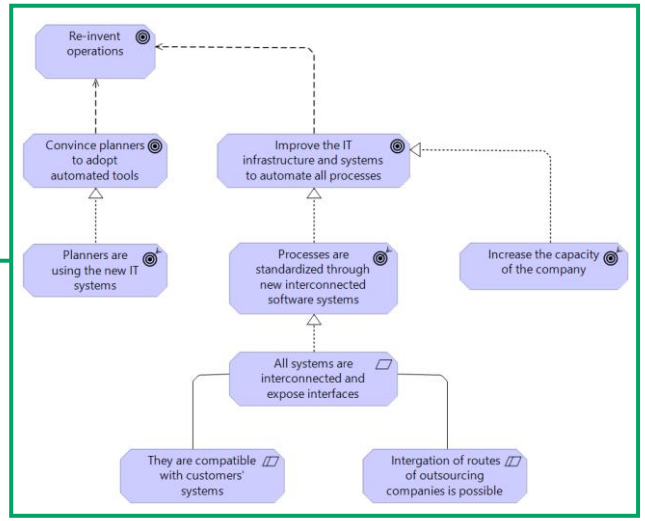
1. Clients may switch to newer and more competitive LSPs
2. 4PL competitors have better prices
3. Competitors have a data-driven approach that enable them to offer better services
4. New LSPs often offer multiple transport options with varying CO2 emissions
5. D8L does not know in advance if there are going to be issues with a route

Motivation Viewpoint

Stakeholder Viewpoint



Section of the Goal Realization Viewpoint



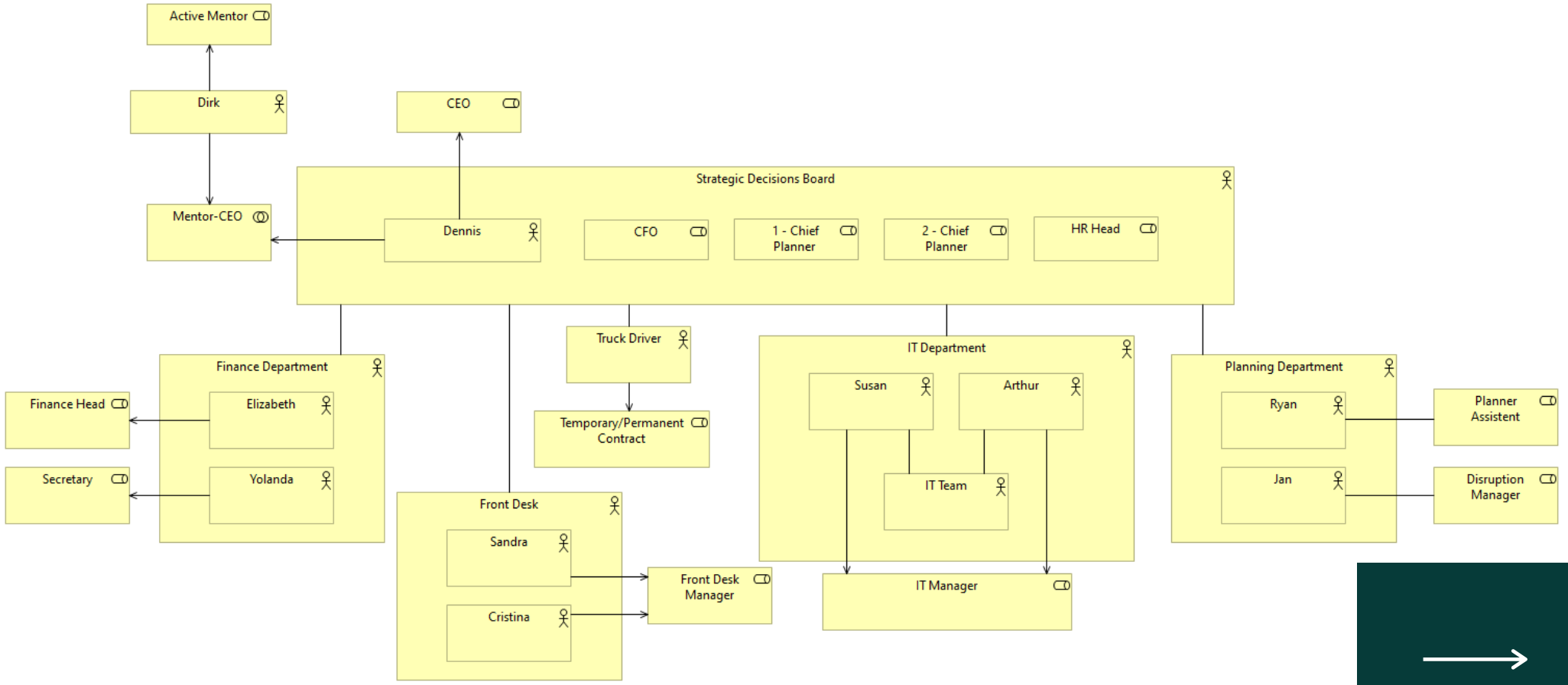
The goals of the organization can be achieved by implementing two systems:

- Transport Management System **(TMS)**
- Environmental Management System **(EMS)**

Organizational Viewpoint **As-Is**

6 Main Departments

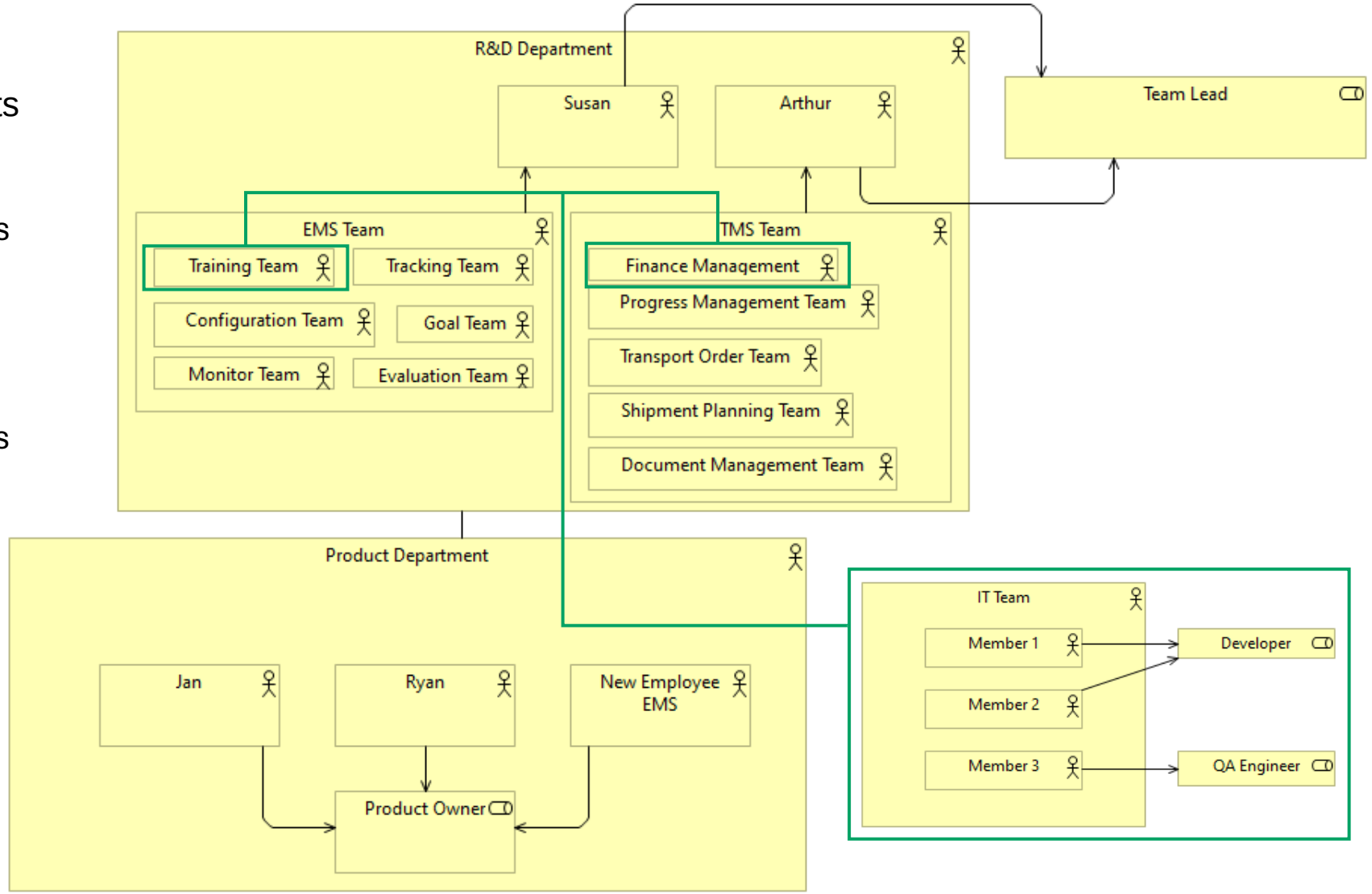
- Strategic Decisions Board
- IT
- Finance
- Front-Desk
- Planning
- Drivers



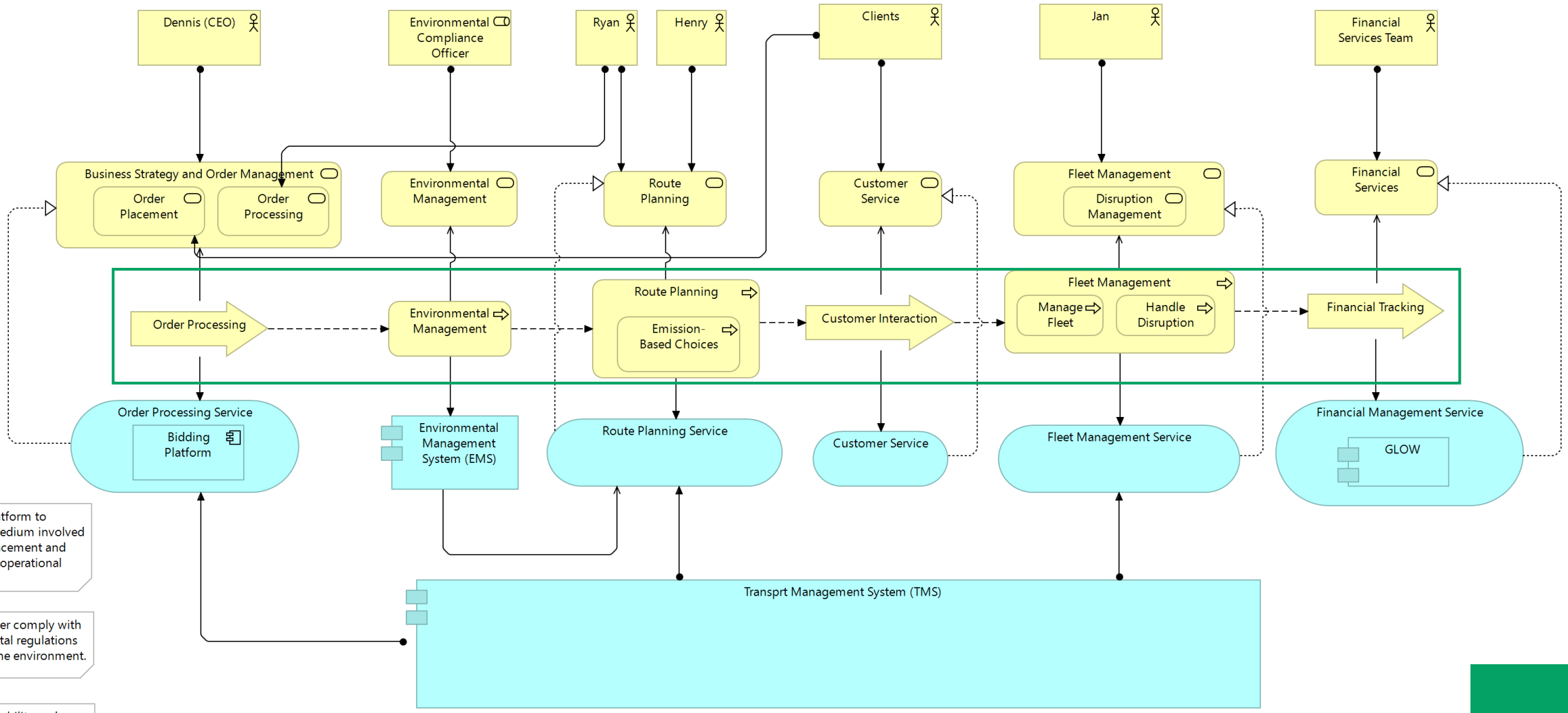
Organizational Viewpoint **To-Be**

Changes

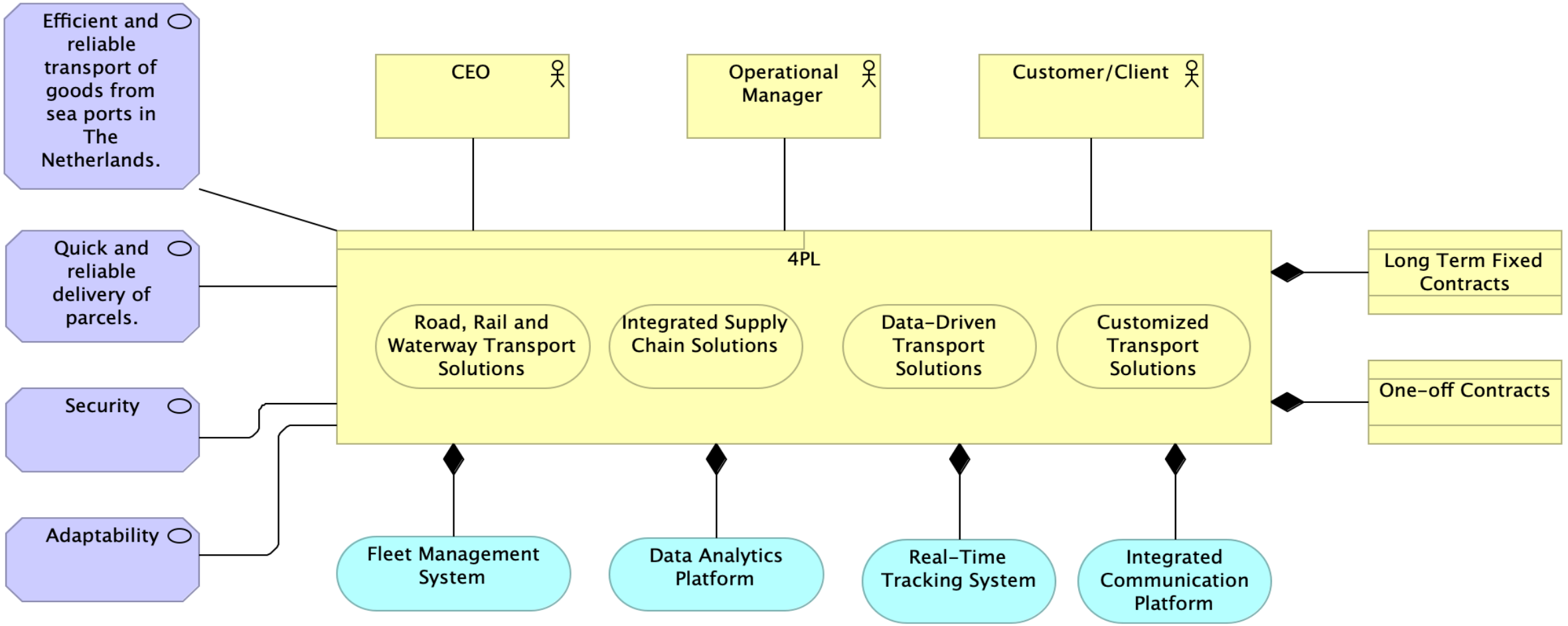
- R&D and Product Departments
- Each Microservice = One Team
- Jan and Ryan = Product Owners
- IT Team
  - 2 Devs
  - 1 QA
- Susan and Arthur = Team Leads



Service realization Viewpoint



Product Viewpoint



Environmental Management System

We used microservices to design the EMS app.
Each big functionality represents one microservice.

Training Application

- Raises employees' awareness about environmentally friendly transport.

Evaluation Application

- Gains the transport configurations and make some reports based on them

Goal Application

- Helps the strategic board to set a goal for a certain period.

Monitor Application

- Monitor energy conservation, employees' awareness, and operational costs, comparing everything with the set goal

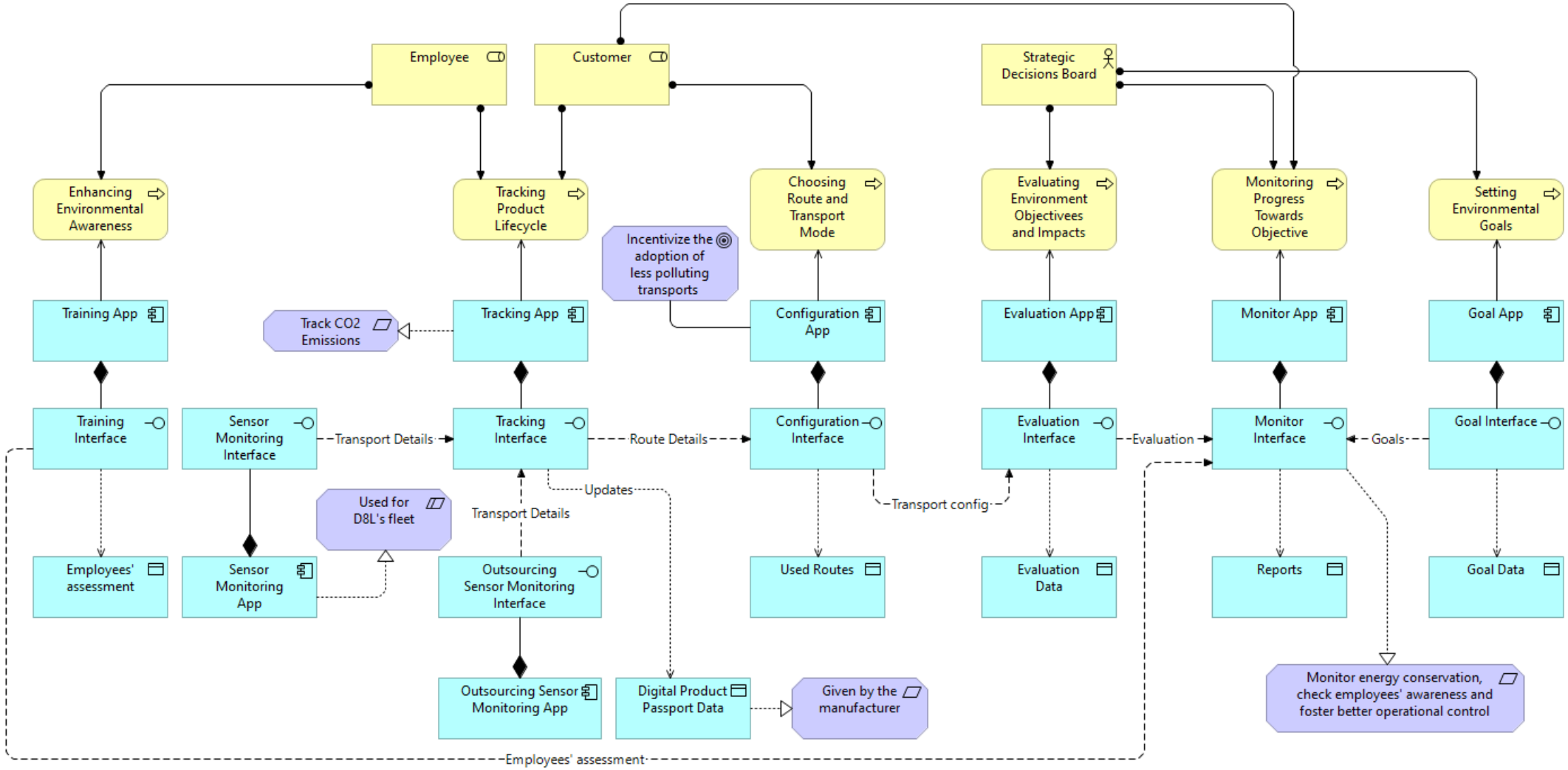
Configuration Application

- Customers can choose the route and the transport mode they want, making the adoption of less polluting transports easier

Tracking Application

- Tracks CO2 emissions using sensors from D8L's fleet or outsourcing monitoring interface

EMS


Employee
Customer
Strategic Decisions Board
Enhancing Environmental Awareness
Tracking Product Lifecycle
Choosing Route and Transport Mode
Evaluating Environment Objectivees and Impacts
Monitoring Progress Towards Objective
Setting Environmental Goals
Incentivize the adoption of less polluting transports
Training App
Track CO2 Emissions
Tracking App
Configuration App
Evaluation App
Monitor App
Goal App
Training Interface
Sensor Monitoring Interface
Transport Details
Tracking Interface
Route Details
Configuration Interface
Evaluation Interface
Evaluation
Monitor Interface
Goals
Goal Interface
Used for D8L's fleet
Updates
Transport Details
Transport config
Employees' assessment
Sensor Monitoring App
Outsourcing Sensor Monitoring Interface
Used Routes
Evaluation Data
Reports
Goal Data
Outsourcing Sensor Monitoring App
Digital Product Passport Data
Given by the manufacturer
Monitor energy conservation, check employees' awareness and foster better operational control
Employees' assessment

Transport Management System

We used microservices to design the TMS app.
Each big functionality represents one microservice.

Transport Order Application

- Manages the creation and tracking of transport orders

Shipment Planning Application

- Optimizes shipment routes and schedules using advanced analytics for efficient, real-time logistics management

DMS Application

- Centralizes logistics document management, ensuring easy access, retrieval, and regulatory compliance

Progress Application

- Tracks the progress of logistical operations against set objectives, focusing on cost-effectiveness and operational timelines

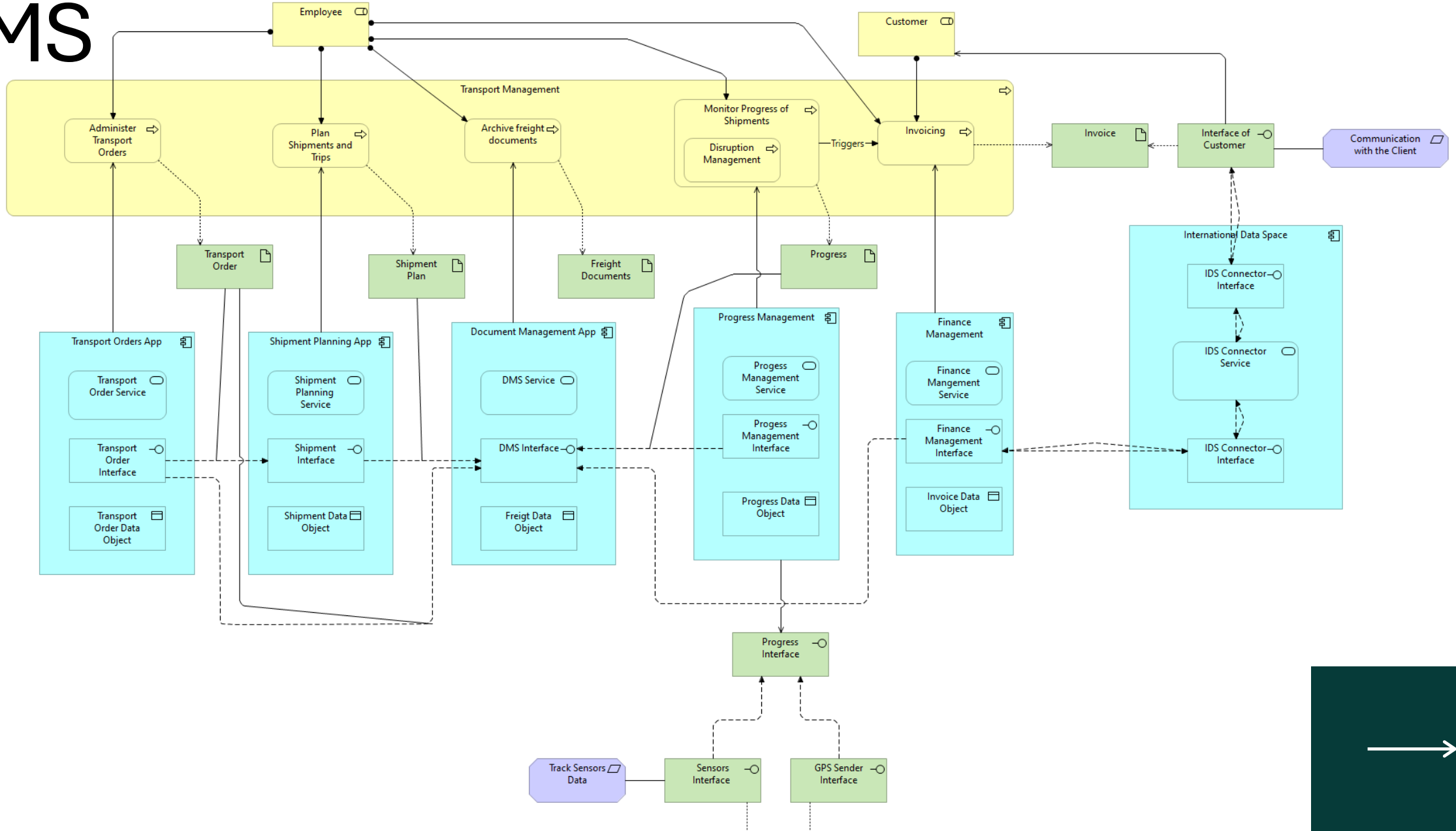
Finance Application

- Supports financial operations and customer invoicing

IDS Application

- Secures data exchanges in the logistics network, ensuring compliance and enhancing inter-company communication reliability

TMS


Employee
Customer
Transport Management
Administer Transport Orders
Plan Shipments and Trips
Archive freight documents
Monitor Progress of Shipments
Disruption Management
Triggers
Invoicing
Invoice
Interface of Customer
Communication with the Client
International Data Space
IDS Connector Interface
IDS Connector Service
IDS Connector Interface
Transport Order
Shipment Plan
Freight Documents
Progress
Transport Orders App
Transport Order Service
Transport Order Interface
Transport Order Data Object
Shipment Planning App
Shipment Planning Service
Shipment Interface
Shipment Data Object
Document Management App
DMS Service
DMS Interface
Freigt Data Object
Progress Management
Progess Management Service
Progess Management Interface
Progress Data Object
Finance Management
Finance Mangement Service
Finance Management Interface
Invoice Data Object
Progress Interface
Track Sensors Data
Sensors Interface
GPS Sender Interface