Terrific Transport Corporation

At The Speed of Need

A Scaled Agile Scenario for

SAFe® for Architects

Table of Contents

A Lean-Agile Journey into Autonomous Vehicle Manufacturing & Delivery 3
Terrific Transport Corporation Stakeholders 6
Chief Executive Officer – Anthea Bowen 6
Operational Value Streams 9
Strategic Themes 9
TTC Market Zones 10
Portfolio Canvas (with Autonomous Delivery Program) 11
Portfolio Vision 12
Autonomous Delivery Program Operational Value Stream 13
Autonomous Delivery Program System Descriptions 14
Systems mapped to the Operational Value Stream 15
Solution Train mapping to system architecture 16
Autonomous Delivery Program Solution Vision 17
Customer Personas 17
Context Diagram 18
Conceptual Architecture Diagram 19
Sequence Diagram 20
Roadmaps 21
TTC Solution Roadmap 21
PI Roadmap: Consumer Solutions ART 21
PI Roadmap: Fulfillment and Logistics ART 22
PI Roadmap (with Enablers): Consumer Solutions ART 22
PI Roadmap (with Enablers): Fulfillment and Logistics ART 23

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A Lean-Agile Journey into Autonomous Vehicle Manufacturing and Delivery

Welcome to TTC – we're happy to have you here!

As a new member of Terrific Transport Corporation (TTC), welcome to our exciting Lean-Agile journey on behalf of the entire company. The Terrific Transport Corporation (TTC) has been a leader in the commercial vehicle industry for the past 30 years, which we are very proud of. Still, we are also aware that we need to leverage this as a strength going forward. Your contributions as an architect here will help us on this journey, and you're joining the company at a pivotal time as we define the next phase. Before you begin, below is some information about TTC that will help orient you. You can also see this overview in our internal company welcome video.

Company background

It all started with a young man's dream to deliver a better transportation experience and provide stable jobs for families in his hometown. If you've seen a NatEx truck on the road, TTC likely built it. Since the beginning, we've always been committed to making the world a better place. We were the first in our industry to make being green and clean a priority, and our customers and employees embrace these values.

Evolving our vehicles

The first vehicle line we manufactured was our low-emissions long-haul Freightliner, which initially sold only in the United States but has expanded to the international market with the global push for clean energy in the past ten years.

Shortly after debuting our Freightliner, we also manufactured electric and natural-gas-powered courier vans to make point-to-point deliveries in busy cities. These have been popular around the world, where cities are increasingly looking to minimize their carbon footprint.

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Over the past few years, we've started to break into the autonomous vehicle market, beginning with a government contract providing vehicles capable of autonomous delivery on military bases. This was a good place for us to begin our foray into autonomous vehicle manufacturing. The deliveries were point to point on well-mapped military bases, and there were people to load and unload the vehicles at the endpoints.

How our experience is helping us define the next chapter

Our autonomous vehicle experience in the government sector and our excellent track record for safety and environmental friendliness have poised us for a unique opportunity to expand into commercial autonomous delivery. I'm excited to see what the future brings for the Terrific Transport Corporation.

The Case for Change

As other companies begin competing in the green, clean vehicle market where we've traditionally been a dominating force, we need to keep looking ahead to the future of transportation. By exploring opportunities in emerging technology while continuing to invest heavily in our core businesses, we will allow TTC to increase global revenue and profitability, develop market-leading autonomous vehicle innovations, and give more back to our communities.

Since we aim to capitalize on these exciting market opportunities and emerging technologies, we must evolve our architectures to support our desired business outcomes. The evolution of our architecture will be an iterative journey and must balance intentionality with emergent design. We must maintain our excellent safety and environmental records, meet regulatory compliance standards and deliver new capabilities with agility.

Your Role in our Journey

We expect that Agile Architects at TTC will own the planning for the Architecture Runway, which will provide the delivery of the Architecture Enablers to support our target state capabilities.

At TTC, our culture is critical to us, and there are some core tenets we want to ensure that everyone understands and aligns to. So that you can begin to learn more about the culture, here are our tenets:

We are innovators.

We care about the world we live in.

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We work hard to make the world a better place every day.

And we are revolutionizing the way we move.

Attached to this letter, you'll find our Strategic Themes, Value Streams, Portfolio Vision, and other TTC assets to help you understand the context in which you will be working. We recommend you study this and come to your first day with some basic knowledge of how companies like ours operate. While we believe you have a solid understanding of SAFe, we recommend you brush up on the Scaled Agile Framework to understand how architects provide value and impact. Specifically, we recommend that you study the System Architect, Solution Architect, and Enterprise Architect roles, as well as the "Architectural Runway," "Strategic Themes," "Development Value Streams," and "Operational Value Streams" articles in the Scaled Agile Framework.

During your first few days, you'll be introduced to some of your stakeholders. We've included short bios of some of the people you will be working with most closely in an attachment to this welcome letter. Think about some questions you'd want to ask them during your time with them as you examine the current as-is architecture compared to the to-be architecture that will help us reach our Strategic Themes and realize our Portfolio Canvas. These artifacts are also included as attachments to this letter.

Your leadership as an architect in our Lean-Agile enterprise is required for us to navigate this transition. We need you to learn these methods and apply them as a new leader at TTC. Let's get moving!

Welcome to the team!

Anthea Bowen

Chief Executive Officer & Member of Board of Directors

Terrific Transport Corporation

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Terrific Transport Corporation Stakeholders

Chief Executive Officer – Anthea Bowen

Anthea is a major stakeholder in TTC and a member of the Board of Directors. Anthea has an MBA and previously worked in the automotive industry for a major US brand. Promoted to Executive VP, she was responsible for an entire division of the company. As part of the company acquisition by a competitor, Anthea was offered a new role in Europe. Not wanting to move her family, she joined TTC as its CEO. She has successfully grown the company for the past two years, with the government autonomous vehicle contract being the latest win.

Agile experience: Lean-Agile was prevalent in her automotive industry experience. Anthea is responsible for moving Terrific Transport to SAFe and is working with her teams as they continue to launch ARTs and execute Planning Intervals (PIs).

Solution Manager – Pat Bakker

Pat has been with Terrific Transport for six months. She was hired as the Solution Manager for the Autonomous Delivery Business Value Stream.

Pat has an advanced business degree with an emphasis in transportation and logistics. She has more than 20 years of experience with a major package delivery company. During her time at the company, she worked in delivery operations, logistics, inventory control, and import/export. Her last role at the package delivery company was Director of Regional Service Center Operations.

Agile experience: The package delivery company Pat previously worked for had been using SAFe for several years, mainly focused on the IT aspects of the organization. Pat attended the Leading SAFe course and worked as a Solution Manager for their logistics team.

Enterprise Architect (EA) – Marco Torres

Marco is a recent employee of Terrific Transport. The CEO brought him on board to lead the technology development and integration for the autonomous vehicle government program.

Marco is brilliant and typically works 60-80-hour weeks. He also has a strong tendency to tell others what to do. He completed his advanced level computer science degree at a prestigious university and was immediately hired by a large system integrator. He successfully developed several different projects for the company. Terrific Transport hired Marco to architect the infrastructure for the autonomous vehicle program. He developed most of the architectural ideas, and he gave the nearly complete designs to other architects and developers to finish.

Agile experience: Marco has minimal direct Lean-Agile experience. His previous company developed client projects using waterfall approaches and project plans. Marco did develop some Agile projects as part of his degree program, so he is familiar with Lean-Agile concepts. Although he was registered to attend the recent Leading SAFe class, he only attended sporadically due to other commitments.

Solution Architect – Oxana Schroeder

Oxana is a new employee. She has been hired specifically to support the autonomous delivery business initiative.

Oxana has a degree in computer science and worked for several years as a developer. She worked at a SAFe enterprise for several years before joining Terrific Transport. At her previous company, she became a certified SPC and was heavily involved as a change agent to improve the company's overall architectural and development environment.

Agile experience: Oxana is an experienced SAFe and Lean-Agile practitioner. She is confident in her SAFe knowledge and is open about challenging and coaching others with less knowledge.

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System Architect – Aram Sarkisian

Aram joined Terrific Transport before the autonomous vehicle government program and worked with Marco Torres to build the architecture Marco designed.

Aram is an experienced system architect. He did share some of his ideas on the government project but mainly worked to implement what Marco gave him.

Agile experience: Aram has recently participated in the SAFe for Teams class and worked with an Agile Release Train to build their development infrastructure.

Release Train Engineer – Ethan Pascal

Ethan came to Terrific Transport before the autonomous vehicle government program. He was brought in to assist Terrific Transport with their Implementation roadmap.

Ethan has demonstrated strong capabilities as an RTE. He has energetically and effectively led several PI Planning sessions. He has done an excellent job helping Terrific Transport leadership transform their Lean Portfolio Management capabilities and Value Streams.

Agile experience: Ethan was an RTE at his previous company. He has been working with the TT Agile Release Trains to help them manage and optimize their flow of value.

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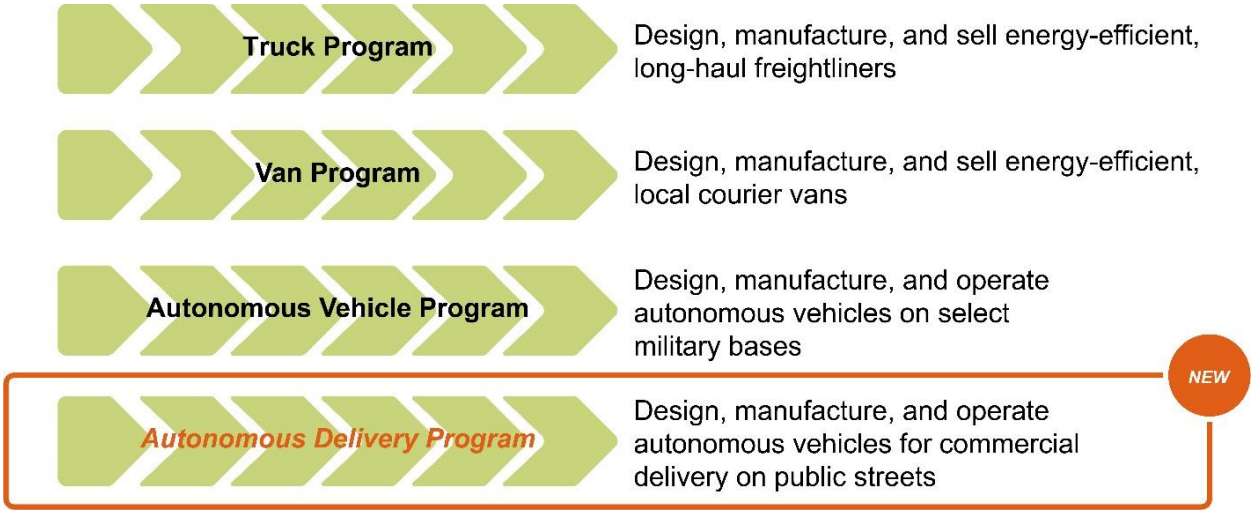
Operational Value Streams



Strategic Themes

TTC's Strategic Themes are:

- Increase truck program sales volume by 15%
- Obtain gold safety standard status with van program
- Triple autonomous vehicle program revenue within 18 months through commercial expansion
- Capture dominant autonomous delivery market share in zones 1 and 2 within 18 months
- Expand the Giving-1 Program to all TTC locations

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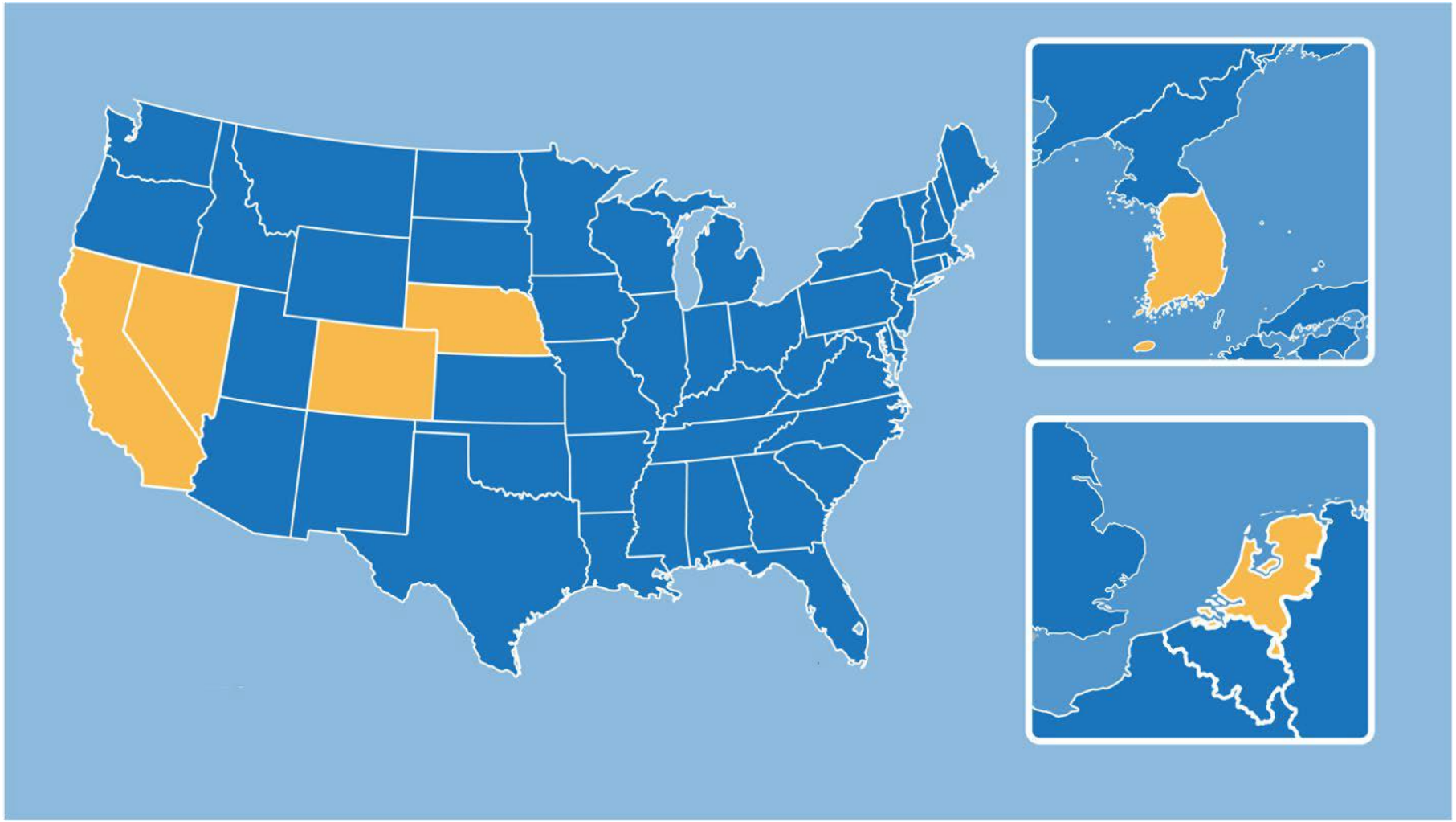
TTC Market Zones



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Portfolio Canvas (with Autonomous Delivery Program)

Value Propositions

Value Streams	Solutions	Customer Segments	Channels	Customer Relationships	Budget	KPI's/Revenue
Truck Program	Energy-efficient, long-haul freightliners	Shipping companies	Direct sales	Direct sales force	Fixed 12% of revenue (currently $20M)	Sales, margin
Van Program	Energy-efficient, local courier vans	Courier services, custom platforms	Direct sales reseller network	Direct sales force, reseller partner network	$2M operational	Sales, margin
Autonomous Vehicle Program	Autonomous vehicles for use on military installations	Government TTC internal	Direct procurement internal relationship	Procurement officers, CIO-managed	Cost + 5% $30M investment	Delivery metrics, safety, availability
Autonomous Delivery Program	Autonomous vehicles for commercial delivery on public streets	Local business delivery	Direct relationship	Direct sales force	$50M initial investment	Uptake

Key Partners

Viral Video – Guidance and sensor technology

Federation automation initiative – government program to automate systems

Lockbox Systems, Inc. – Provider of on-board lockbox hardware

Various enterprise software vendors

Various hardware suppliers for components (e.g. RFID systems)

Key Activities

Marketing new delivery capabilities

Supporting autonomous delivery needs in Van/Truck programs on behalf of Autonomous Vehicle and delivery

Accelerated procurement support for new capabilities

Government lobbying for Zone 1 and 2 regulations

Key Resources

Experienced automation architects from government program

Flexible St. Louis assembly plant (highly responsive to design changes)

Strategic patent library for electric van systems

Strong reputation for eco-operations

Cost Structure

Total budget this year. $117M

$95M is short-term capital investment to support autonomous push across all value streams

$22M is routine operating budget for Truck/Van programs

Future operating budget depends on revenue achievement for new value streams

Revenue Streams

Current revenue streams:

85% from general Truck and Van sales, 8% from government program, 7% from outsourced delivery contracts

Goal is to achieve 40% from Van/Truck sales,10% government

50% direct delivery in 24 months

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Portfolio Vision

By exploring opportunities in emerging technology while continuing to invest heavily in our core businesses, we will allow TTC to increase global revenue and profitability, develop market-leading autonomous vehicle innovations, and give more back to our communities.

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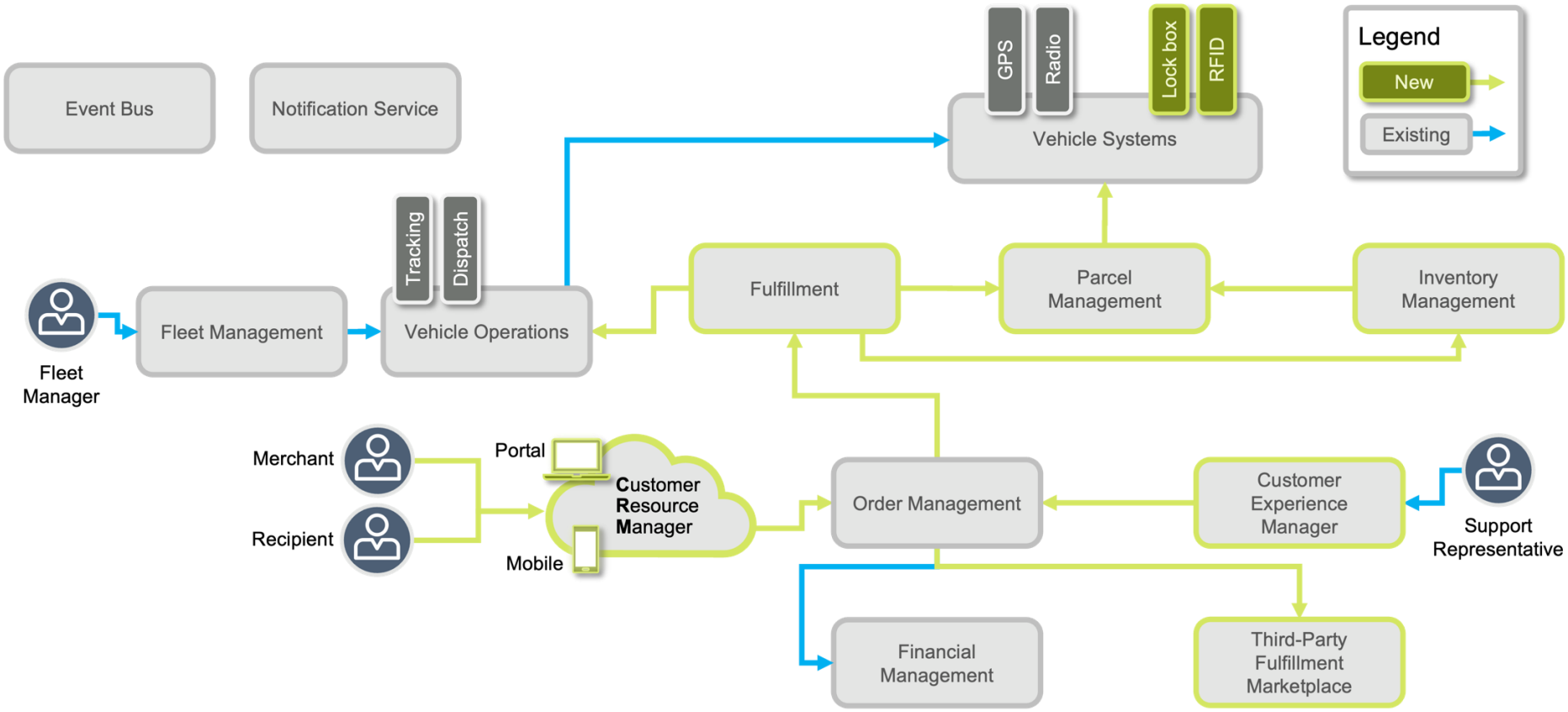
Autonomous Delivery Program Operational Value Stream

Grey boxes are existing systems and support existing value streams.

New boxes are systems/capabilities needed for the new value stream (the Autonomous Delivery Program).



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Autonomous Delivery Program System Descriptions

Customer Relationship Management (CRM)	Provides a robust customer relationship management capability, including prospecting, lead generation, contact database, and point of sale functionality
Order Management	Manages the full life cycle of an order, from order capture through delivery fulfillment
Fulfillment Marketplace	Third party network of delivery fulfillment providers (used for orders placed in non-supported zones)
Financial Management	Manages billings, receivables, expenses, budgeting, and reporting
Fleet Management	Manage vehicles, cross-region load balancing, maintenance, and fleet usage reporting. Provides insights into vehicle availability and expected delivery windows
Fulfillment	Orchestrates the physical delivery process from vehicle dispatch to vehicle return
Vehicle Operations	Communicates with onboard vehicle systems during delivery and tracks vehicle location
Vehicle Systems	Onboard vehicle systems that control all vehicle and lockbox functions
Parcel Management	Tracks the location and disposition of every parcel in transit
Inventory Management	Reports on product availability, storage location, size, weight, warehouse layout, and pick-up logistics
Customer Exp. Mgmt.	Provides customer service representatives visibility into delivery process and systems

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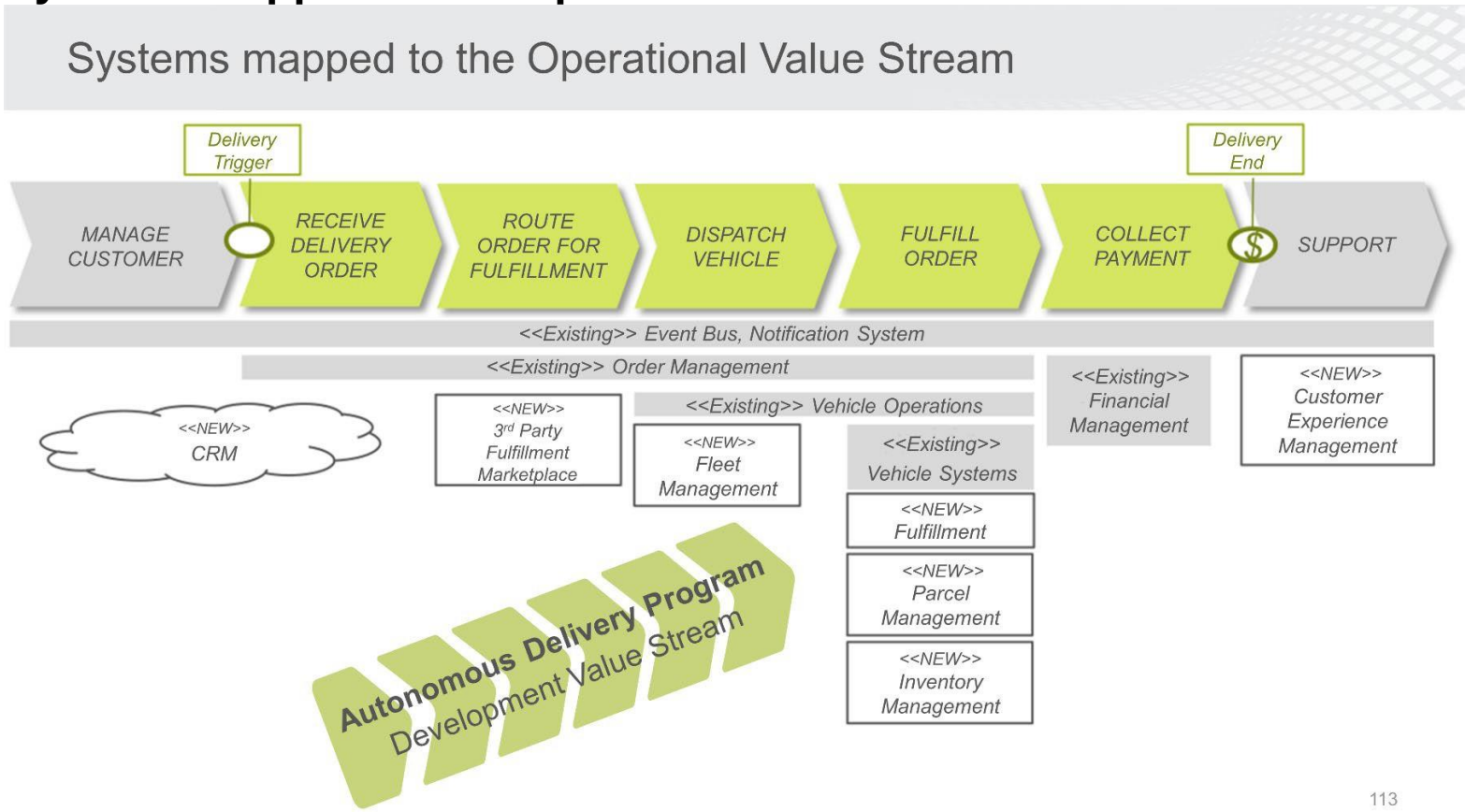
Systems mapped to the Operational Value Stream



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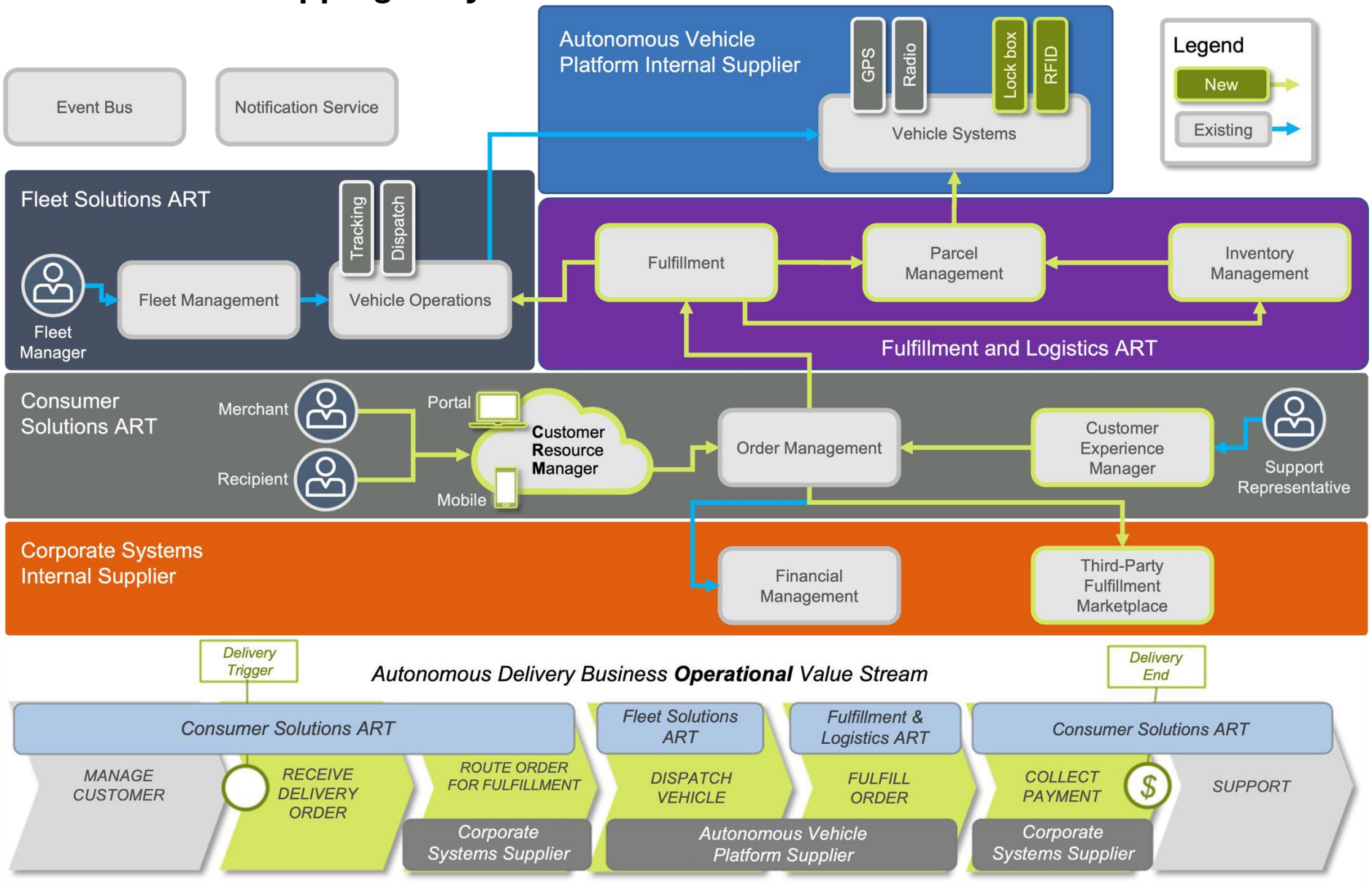
Solution Train mapping to system architecture



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Autonomous Delivery Program Solution Vision

Terrific Transport Company's (TTC) commercial autonomous delivery solution will provide:

- The most efficient and reliable parcel delivery service on the market
- Unparalleled federal, state, and local safety and compliance ratings
- Convenient, curbside pickup and delivery anywhere within zone boundaries
- On-demand web and mobile access to delivery services
- Delivery payloads that are never lost or stolen
- Engaging, friendly merchant and endpoint customer experience

Customer Personas

- **Merchant Persona:** My business markets and sells physical goods to retail consumers in my region. I need the ability to take orders for products I carry and deliver the orders using a reliable, secure, and cost-effective transportation service. It should pick up parcels at my business's distribution points (warehouses, stores, or curbside loading zones) and drop them off at the recipient's location.

- **Recipient Persona:** I am a retail customer placing a delivery order to a local business. I want to receive the product within two hours of ordering it. While the order is processed and the package is in transit, I would like to receive status updates through a mobile app. The package must be secured so that I am the only one authorized to take delivery of it at the drop-off location.

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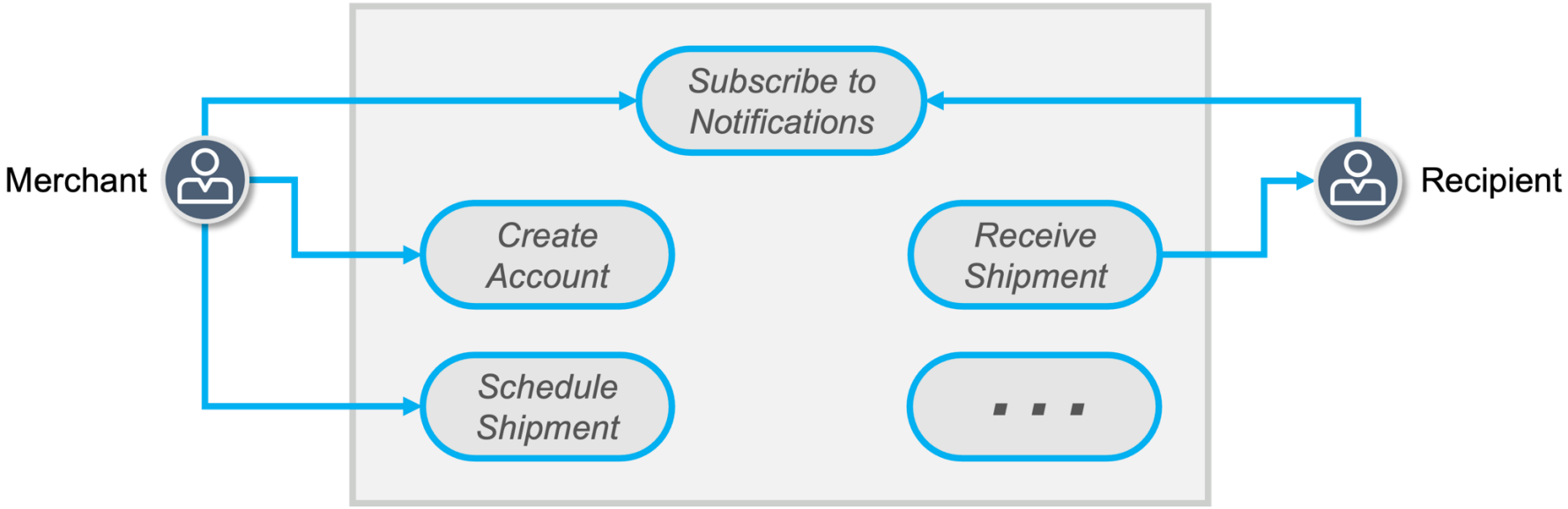
Context Diagram



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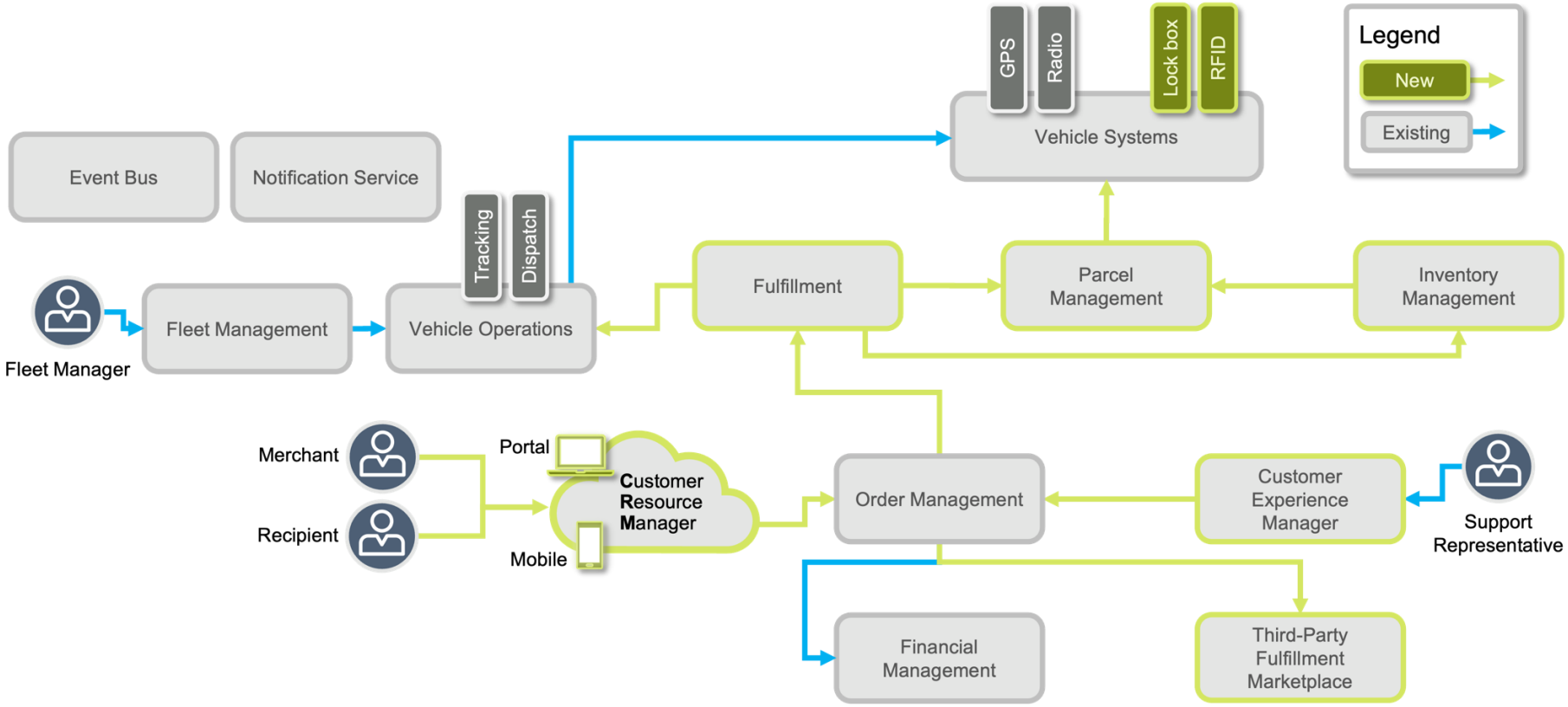
Conceptual Architecture Diagram



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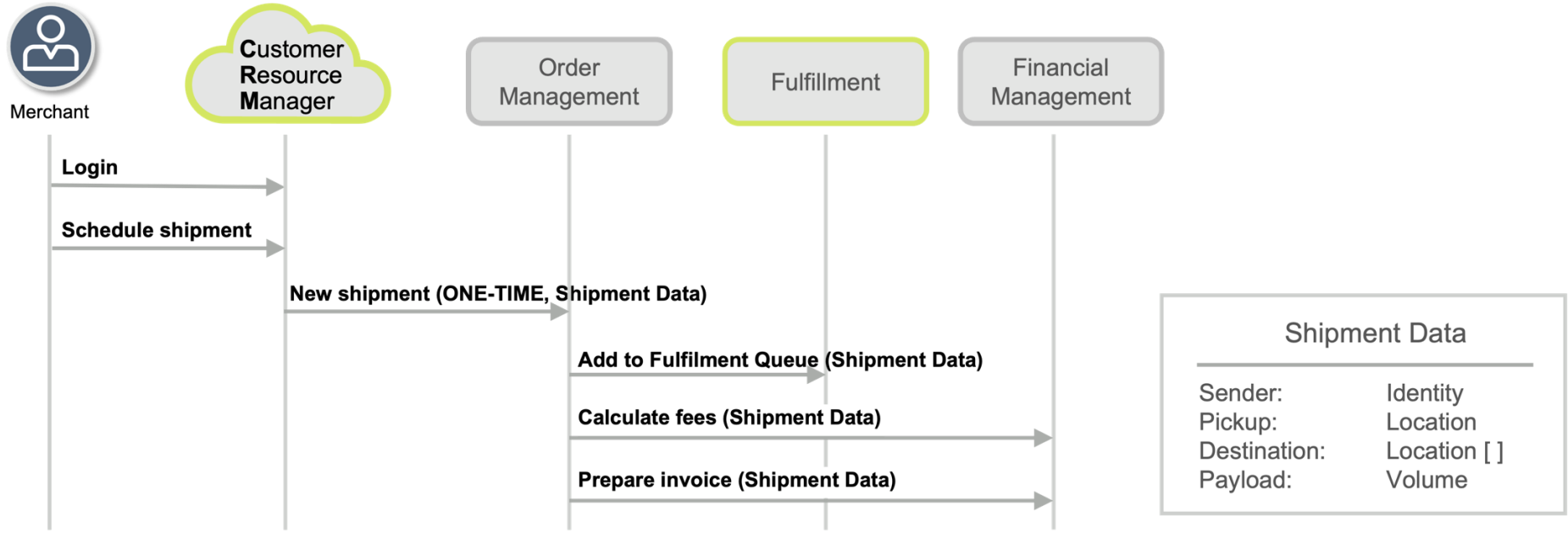
Sequence Diagram



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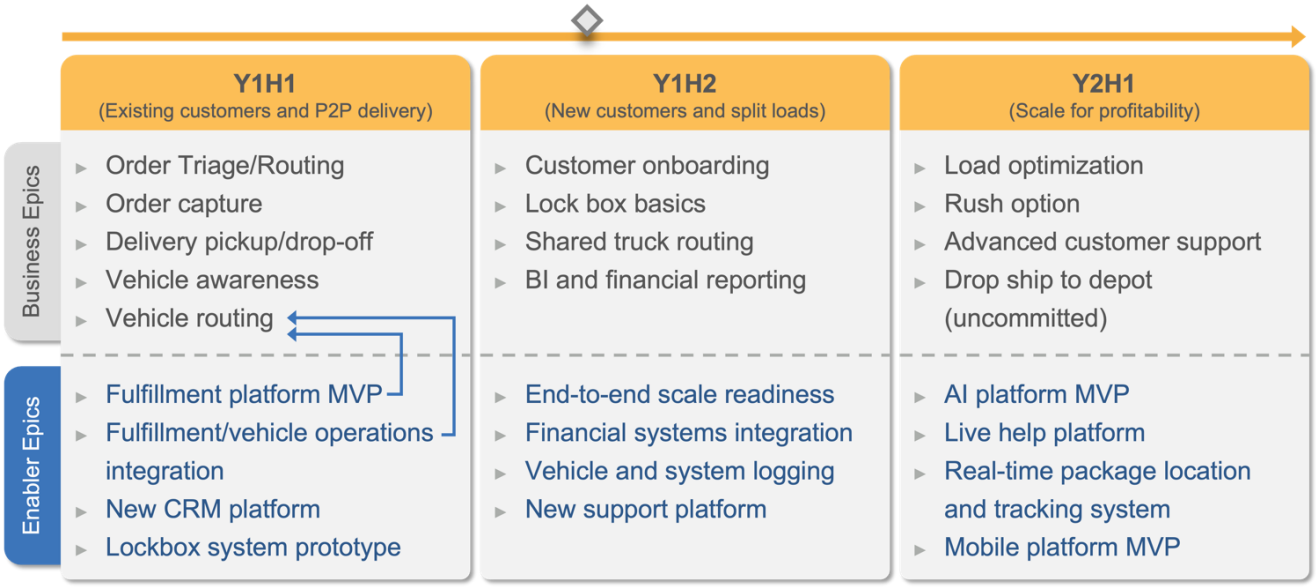
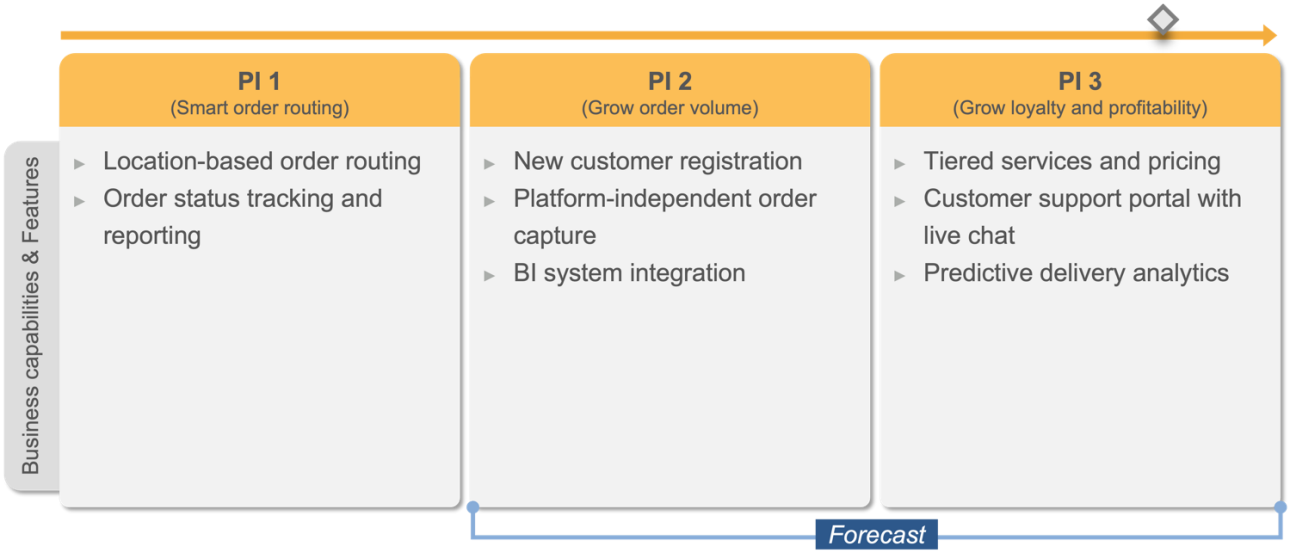
Roadmaps

TTC Solution Roadmap



PI Roadmap: Consumer Solutions ART



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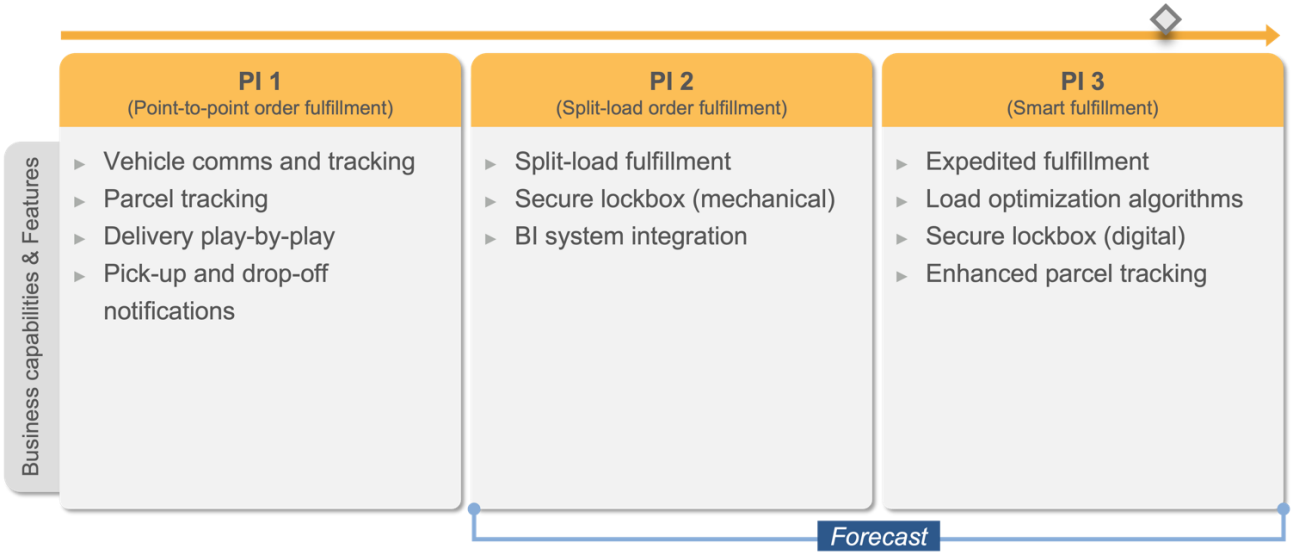
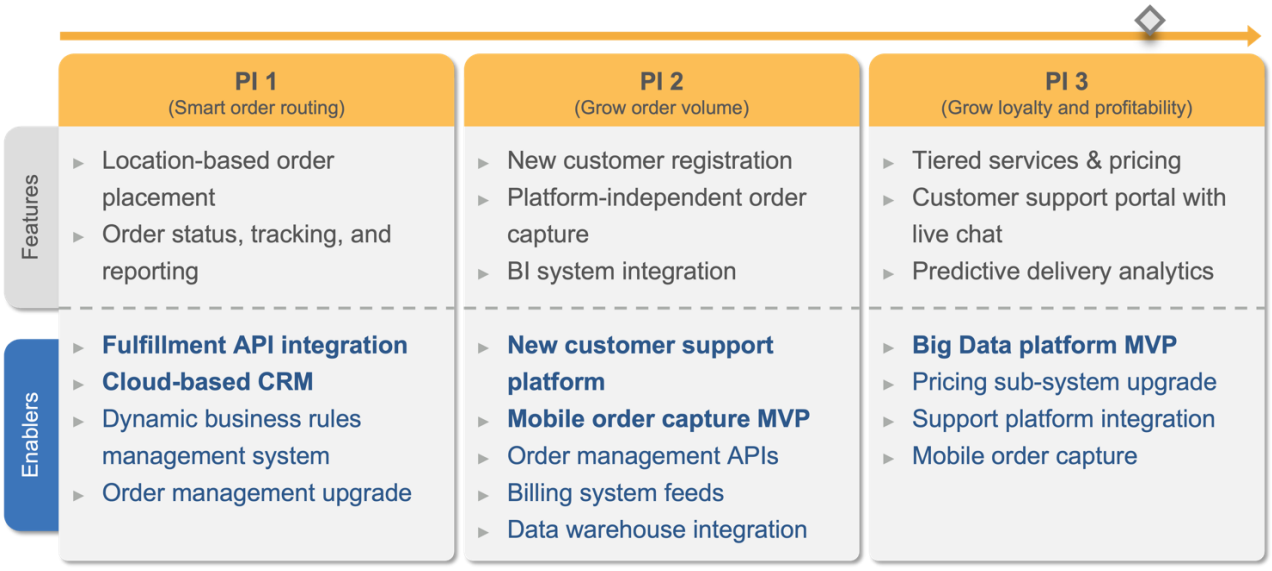
PI Roadmap: Fulfillment and Logistics ART



PI Roadmap (with Enablers): Consumer Solutions ART



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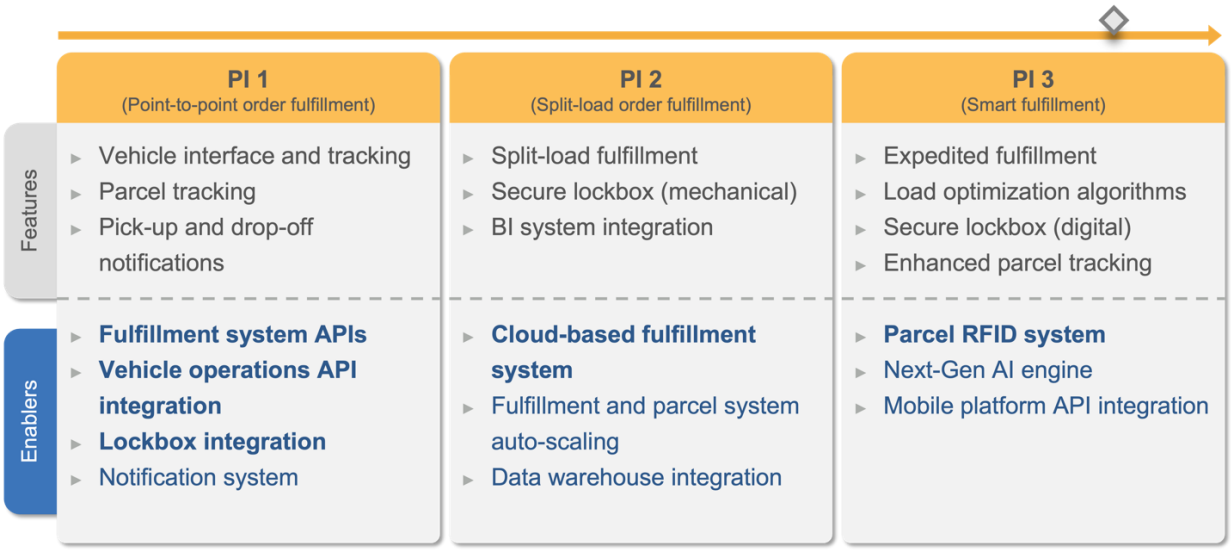
PI Roadmap (with Enablers): Fulfillment and Logistics ART



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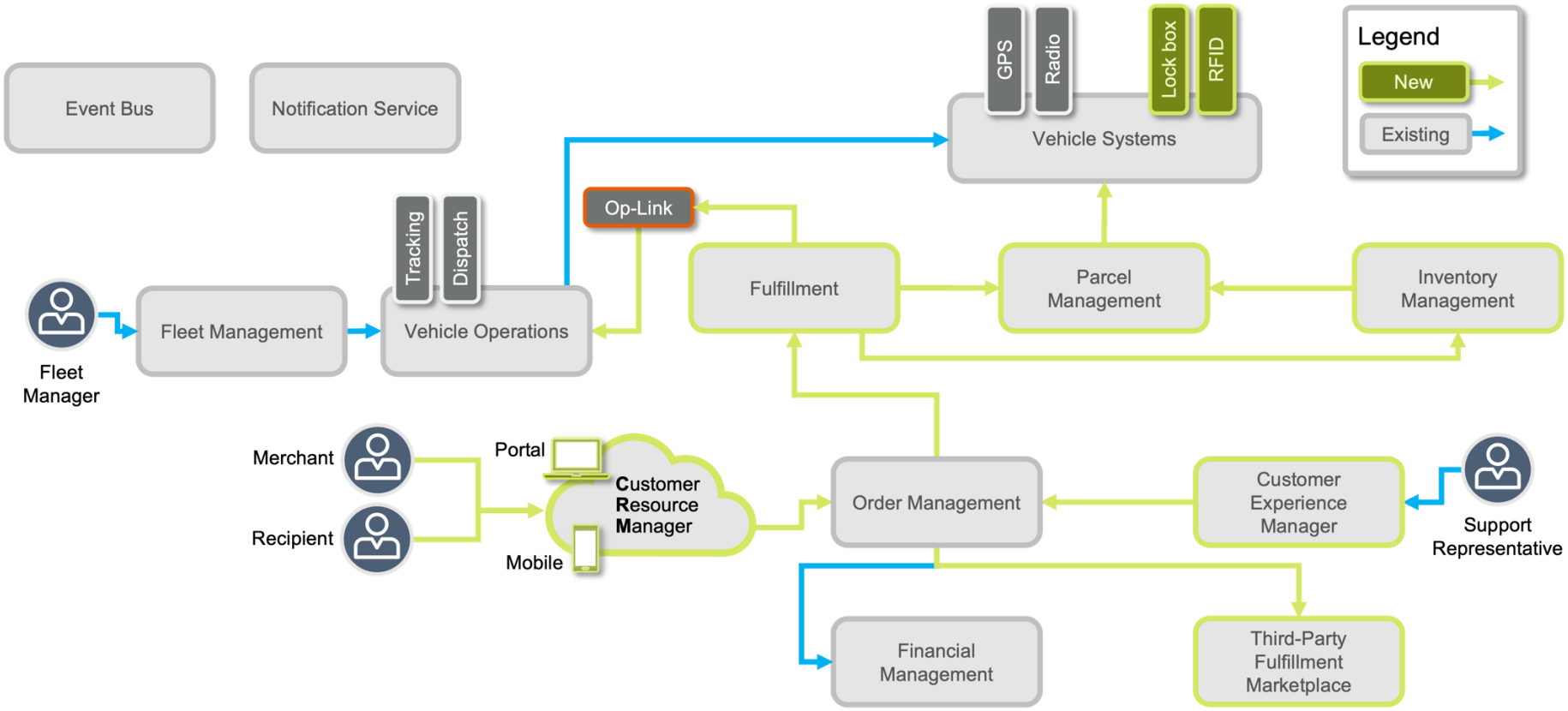
Op-Link API Issue Architecture Model



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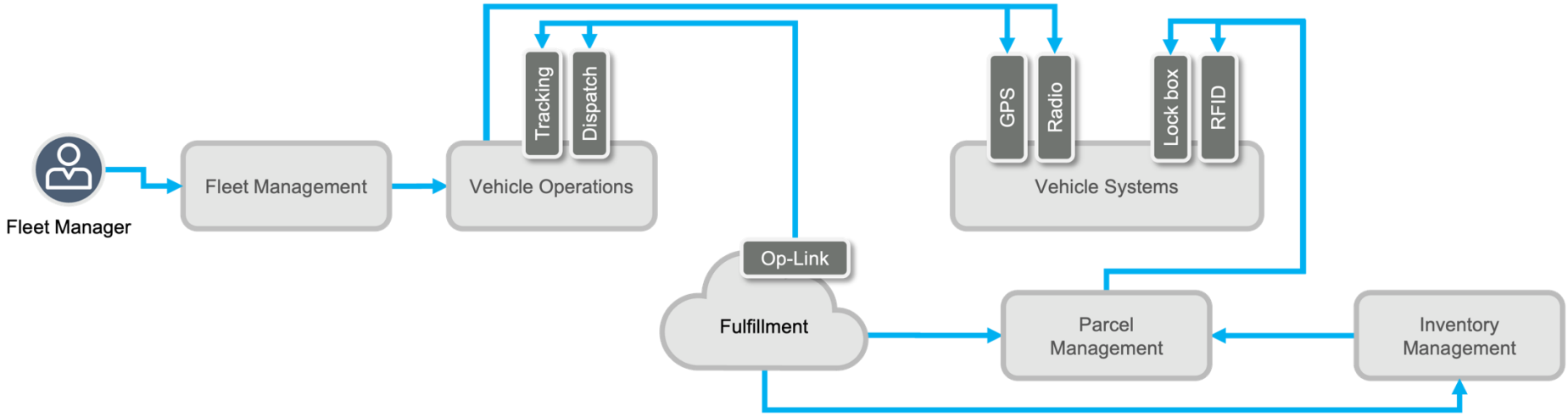
TTC’s Fulfillment Platform going into Joint Venture



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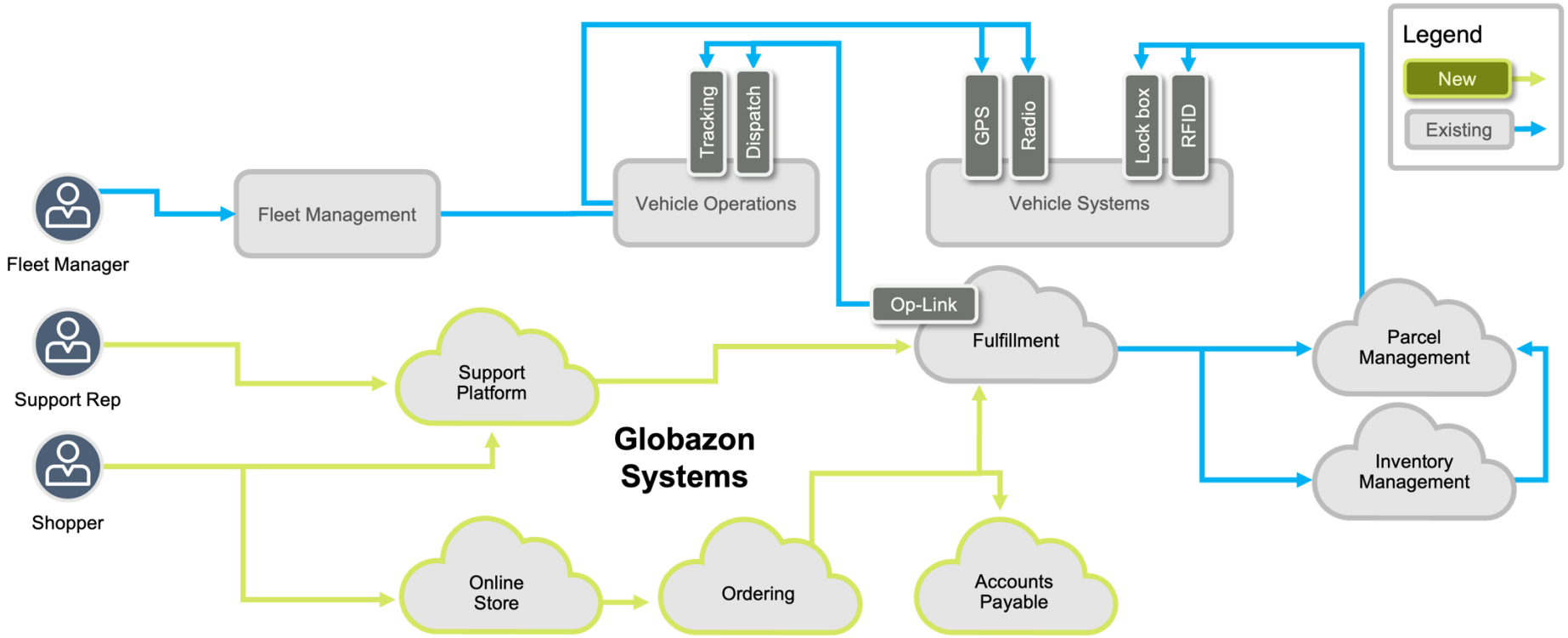
To-Be architecture with Globalzon integration



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TTC's New Strategic Theme

- Grow Truck Program sales volume by 15%
- Obtain Gold safety standard status with Van Program
- Triple Autonomous Vehicle Program revenue through commercial expansion within 18 months
- Capture dominant autonomous delivery market share in zones 1 and 2 within 18 months
- Expand the Giving-1 Program to all Terrific Transport locations
- Demonstrate expansion strategy through Globalzon joint venture. (NEW)

TTC's New Operational Value Streams

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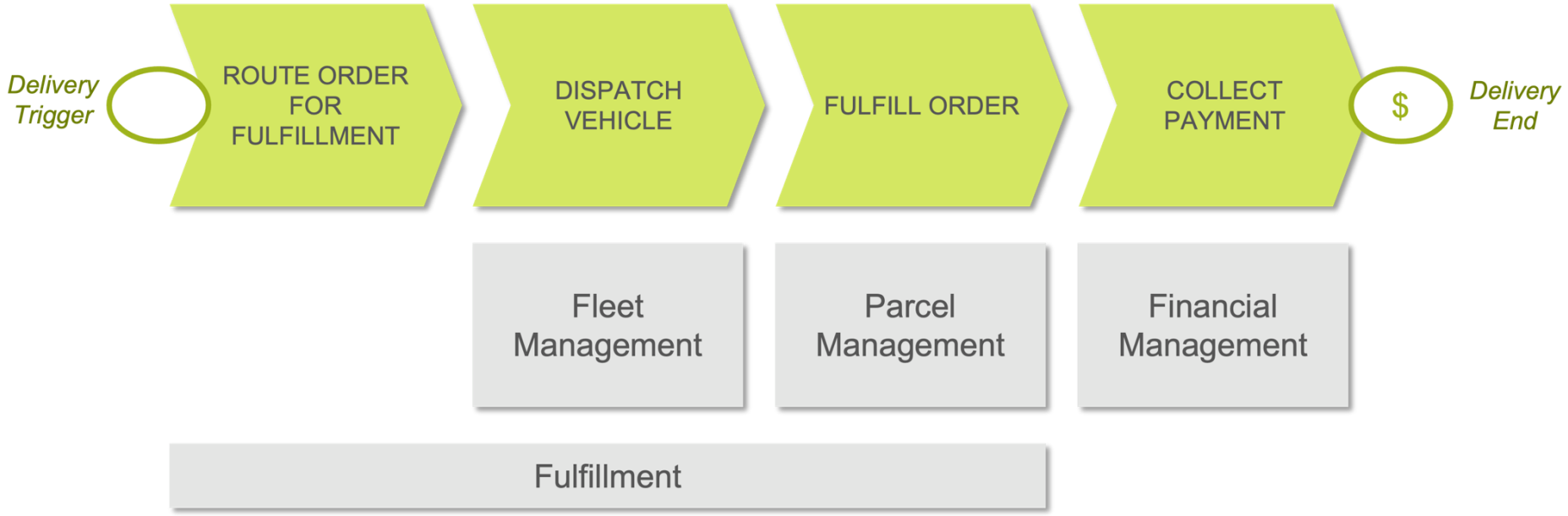
Globalzon Joint Venture Operational Value Stream



NOTE: Within Globalzon, TTC would be considered a Supplier

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Updated Portfolio Vision

By exploring opportunities in emerging technology while continuing to invest in our core businesses, we will allow TTC to increase global revenue and profitability, develop market-leading innovations in smart-vehicle technology, and give more back to our communities.

Our best-in-class autonomous delivery solution will allow TTC to realize rapid revenue growth in the commercial sector through the Globalzon partnership and continued global expansion via a highly scalable, multi-tenant deployment model.

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