

Understanding the complete trip using TSMO and MOD

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Table of Contents

- ▶ Setting the stage
 - ▶ Mobility on Demand Vision
 - ▶ Defining TSMO
- ▶ The Complete Trip
- ▶ User-Focused Mobility
- ▶ Active Transportation and Demand Management
- ▶ Bring the trip chain and complete trip together
- ▶ Finishing with holistic view of multimodal management
 - ▶ Expand partnerships and integrate stakeholders
 - ▶ Expand geographic scope
 - ▶ Expand technical capability and functionality

The Mobility on Demand (MOD) Vision

The United States Department of Transportation (USDOT) uses the term Mobility on Demand (MOD) to represent its vision for future mobility. MOD envisions a safe, reliable and carefree mobility ecosystem that supports complete trips for all, both personalized mobility and goods delivery.

USDOT achieves this vision by leveraging innovative technologies and facilitating public private partnerships to allow for a user-centric approach that improves mobility options for all travelers, and delivery of goods and services.



Traveler-centric



Mode-neutral



Technology-enabled



Partnership driven

*“**Integrated** strategies to optimize the performance of existing infrastructure through the implementation of **multimodal** and intermodal, cross-jurisdictional systems, **services**, and projects designed to preserve capacity and improve security, safety, and **reliability** of the transportation system”*

Definition of Transportation Systems Management and Operations (TSMO) as stated in 2012 Moving Ahead Progress in the 21st Century (MAP-21) legislation

THE COMPLETE TRIP

After his doctor's appointment, Andy decides to take a spontaneous trip to meet a friend at a coffee shop in an unfamiliar part of town. Using ATTRI's **pre-trip concierge**, **wayfinding and navigation**, **robotics and automation**, and **safe intersection crossing** applications, Andy can travel with confidence throughout his trip.

5. Arrival at Destination

Andy safely arrives at his destination, while the **pre-trip concierge application** plans his return trip home.



1. Plan and Book a Trip

Andy uses a **pre-trip concierge application** to plan and book his trip from the doctor's office to the coffee shop.



4. Cross the Street

As Andy approaches an intersection, his **safe intersection crossing application** communicates with the traffic signal to ensure sufficient time for him to safely cross the street, and notifies him when it is safe to begin crossing. The application also communicates with nearby cars to notify them of Andy's presence in the intersection.



2. Travel to Transit Station

An **automated shuttle** (rideshare service) is dispatched to take Andy to the transit station based on his booked trip. Once there, an **assistive robot** helps Andy to his bus platform.



3. Ride the Bus

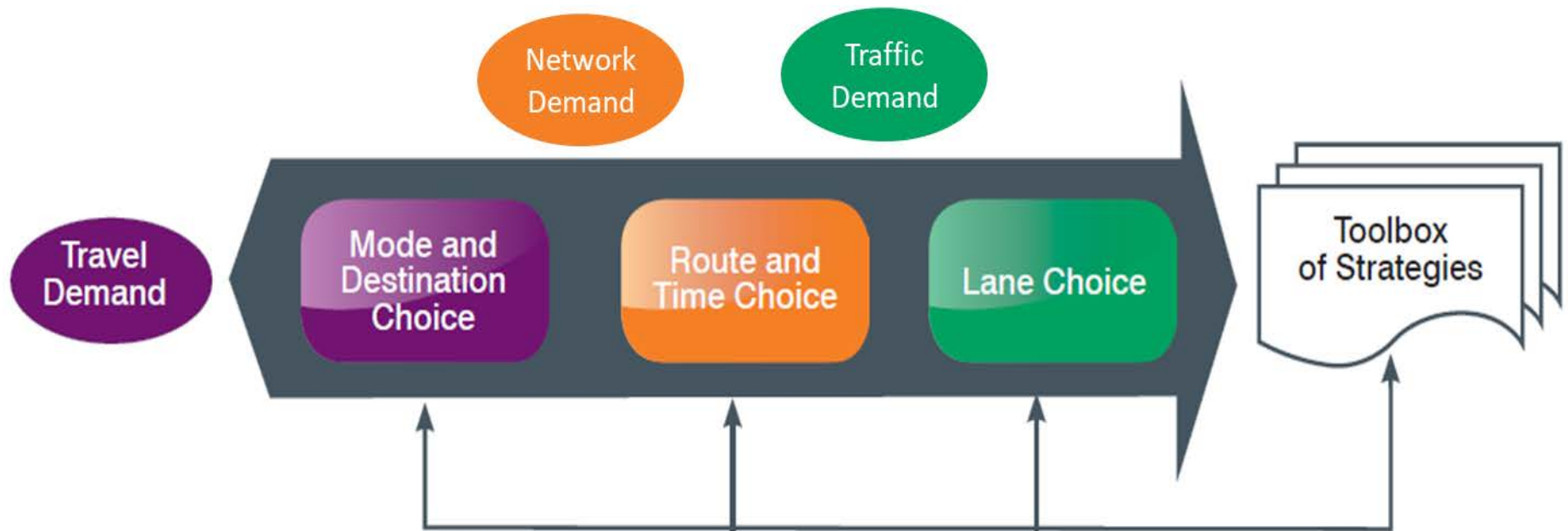
While on the bus, Andy receives direction on when to pull the Stop Request cord from his **wayfinding and navigation application**. After he departs the bus, the application provides Andy with turn-by-turn walking directions to the coffee shop.



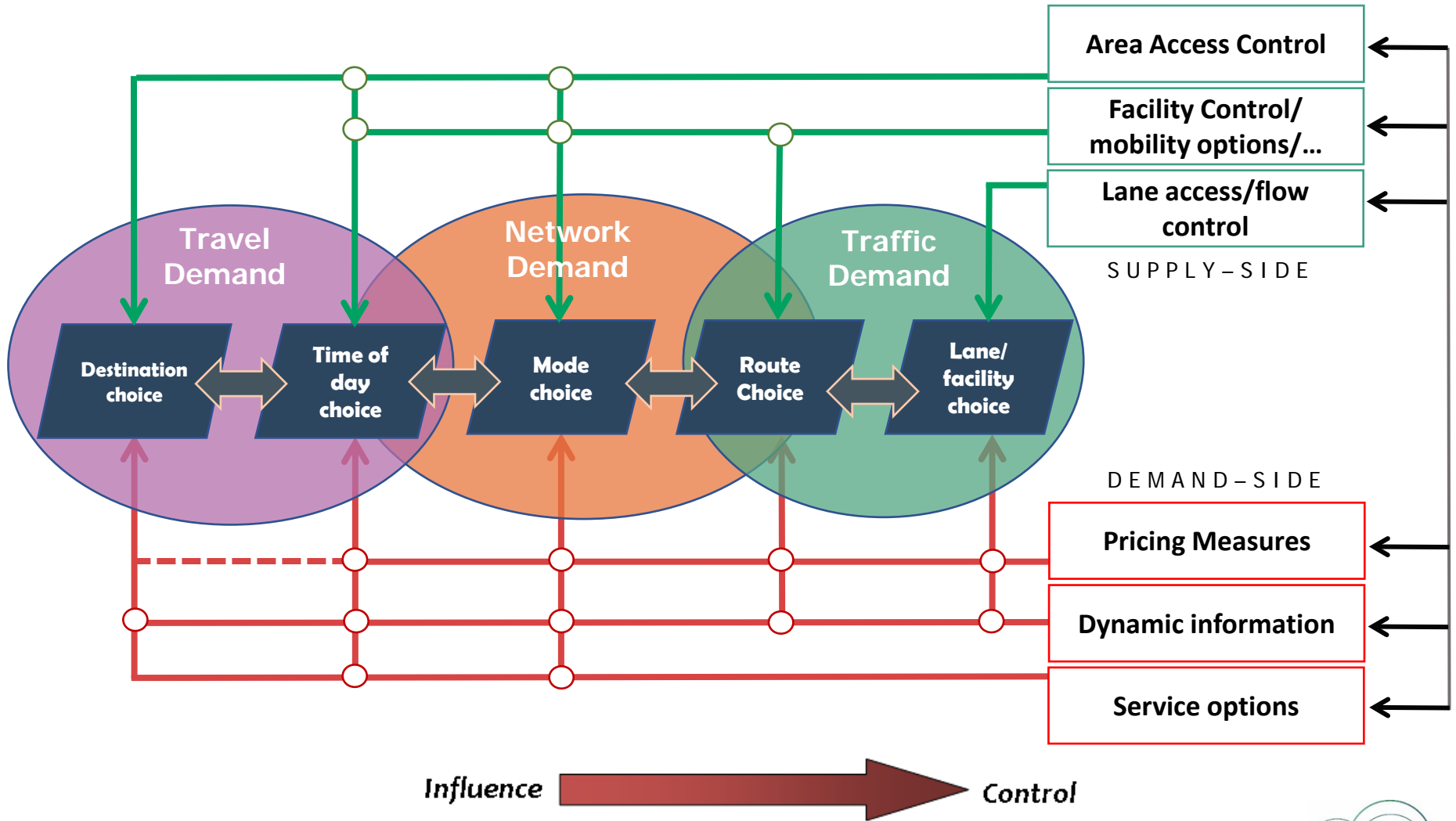
User-Focused Mobility



Active Transportation and Demand Management

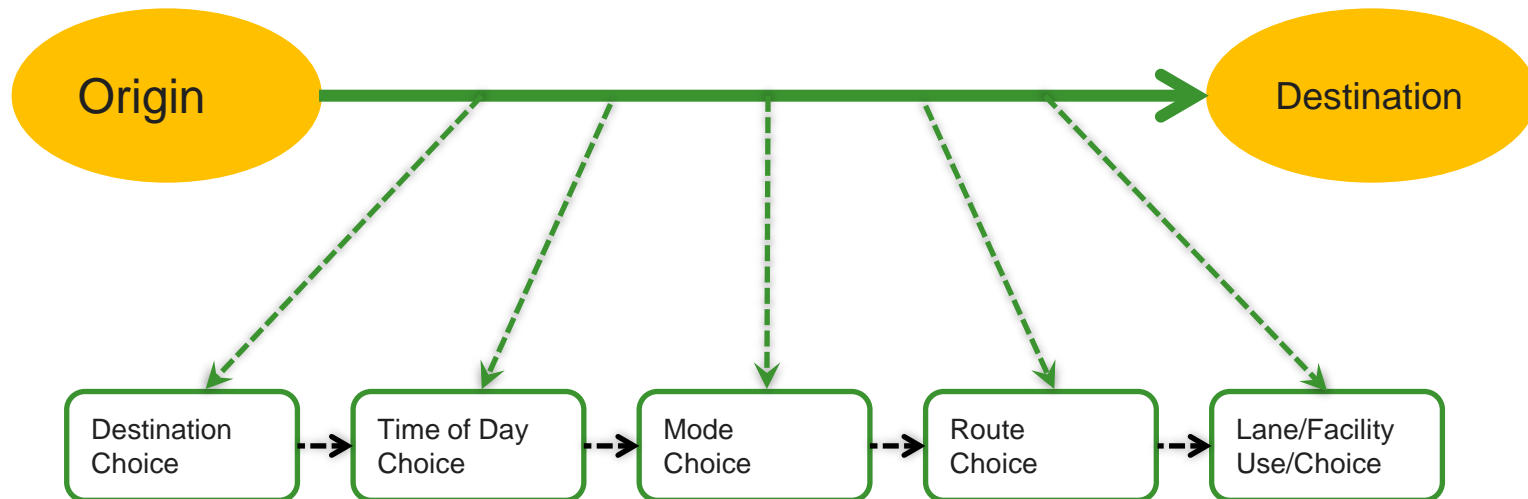


Elaboration of trip chain – tied to complete trip management



Managing Demand Through the Trip-Chain

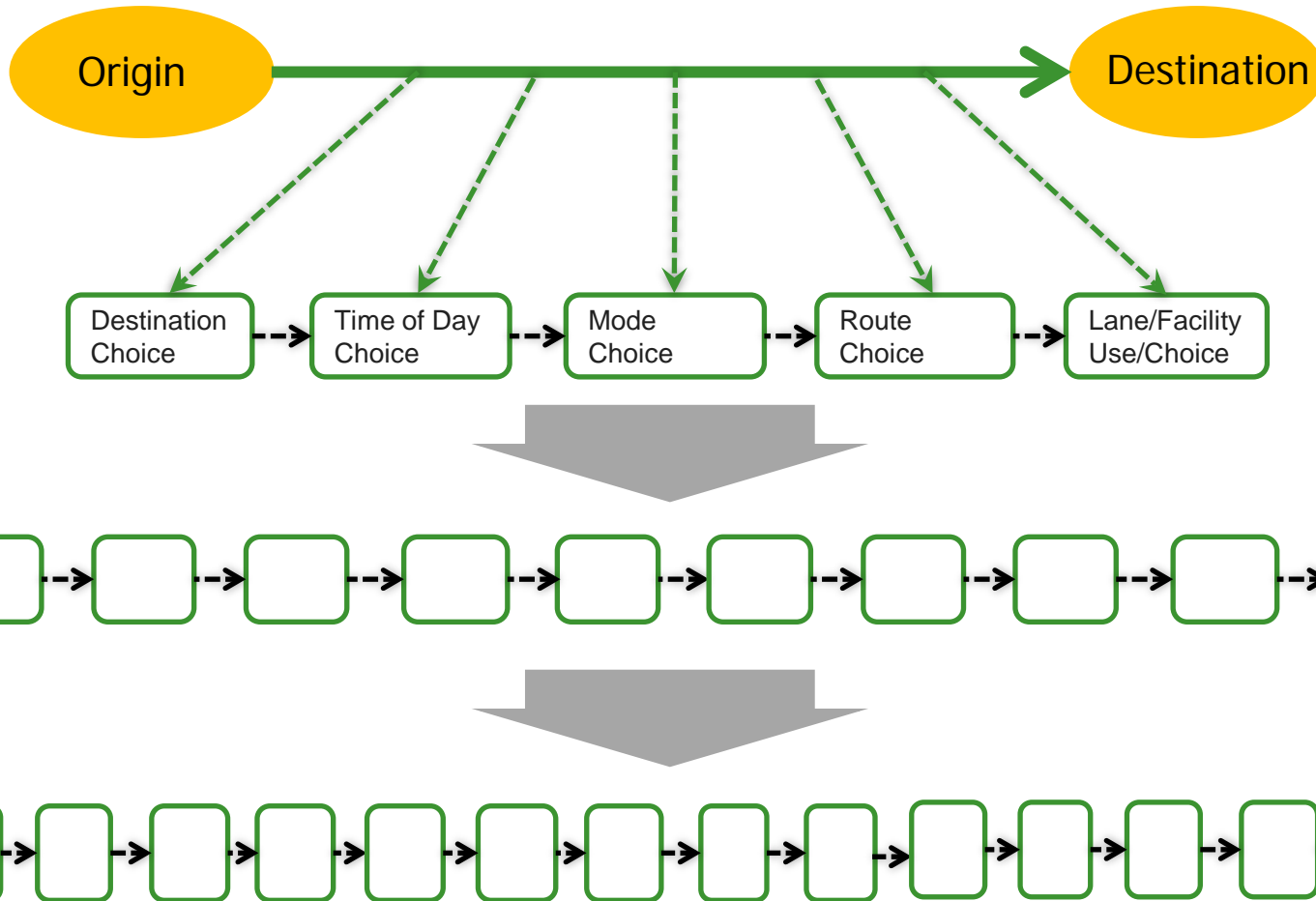
Approaches provide travelers with choices throughout the trip chain leading to network performance optimization and increased efficiency



Key Takeaway: Active management occurs before, during, and at the end of the trip chain

Trip Chain – Level of detail

Key Takeaway: There are many links in a complete chain



Trip chain to Complete Trip

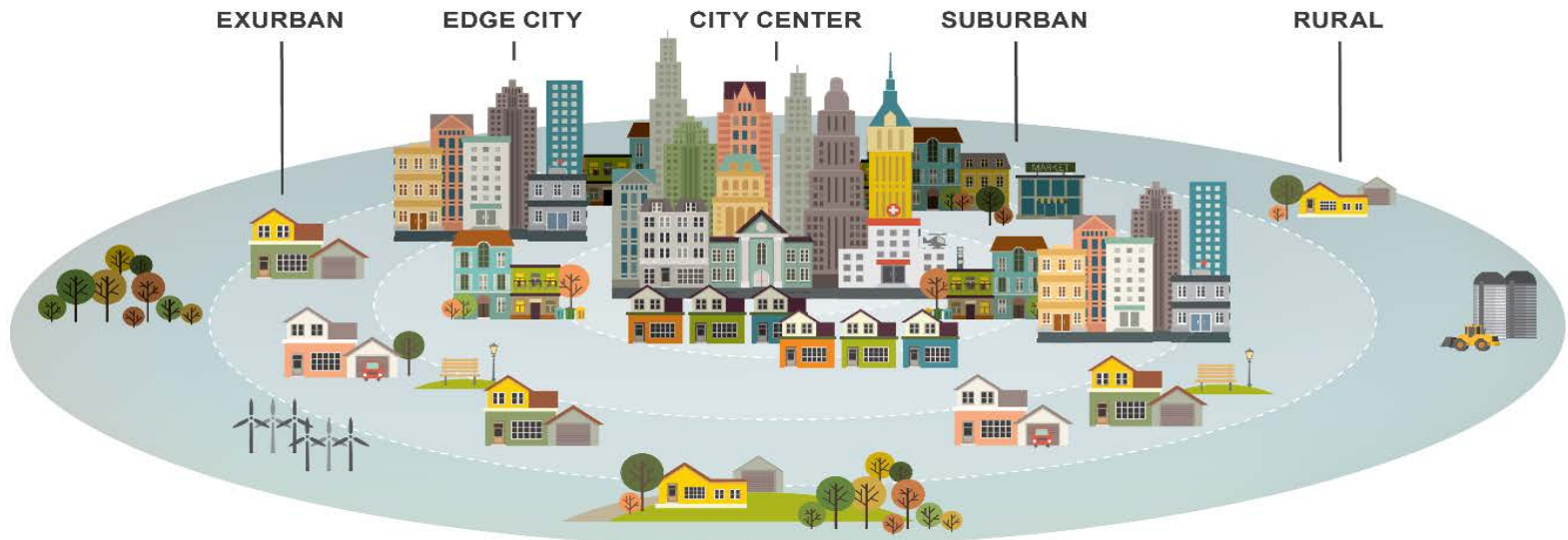
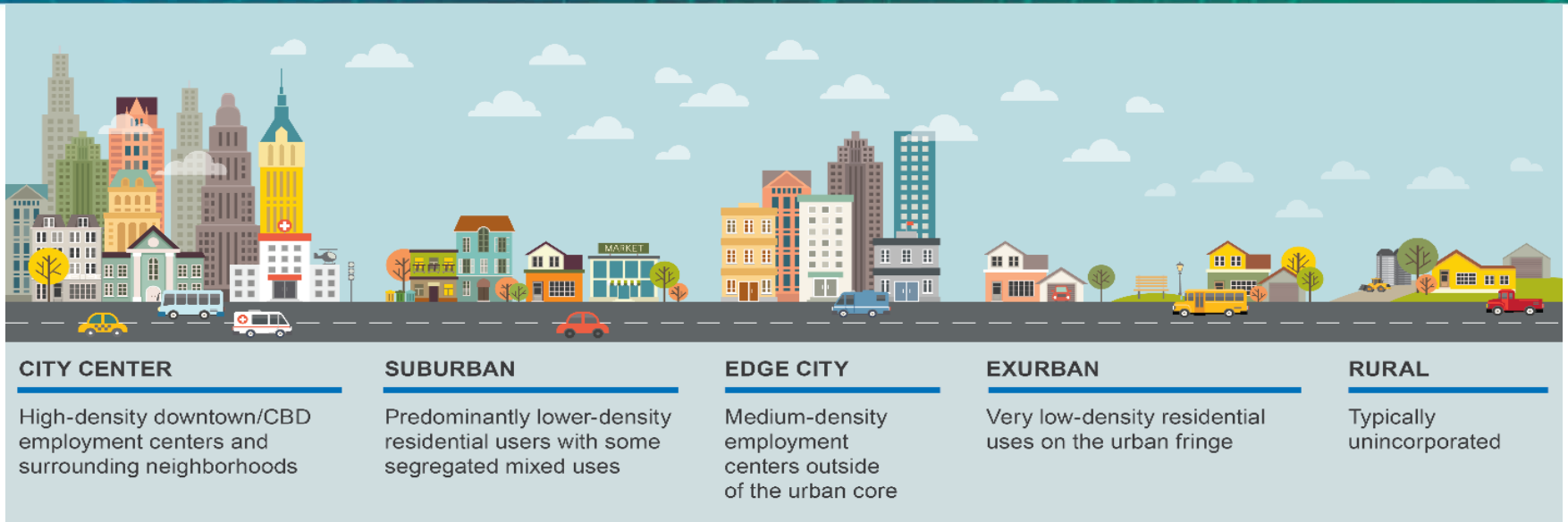


Dimensions of User Focused Travel

- ▶ Defines complete trips that are user focused
- ▶ By creating a standards framework, not only are trip chain needs identified, but the technology components that enable standards to work together will be aligned with standards that are needed to address traveler's needs.

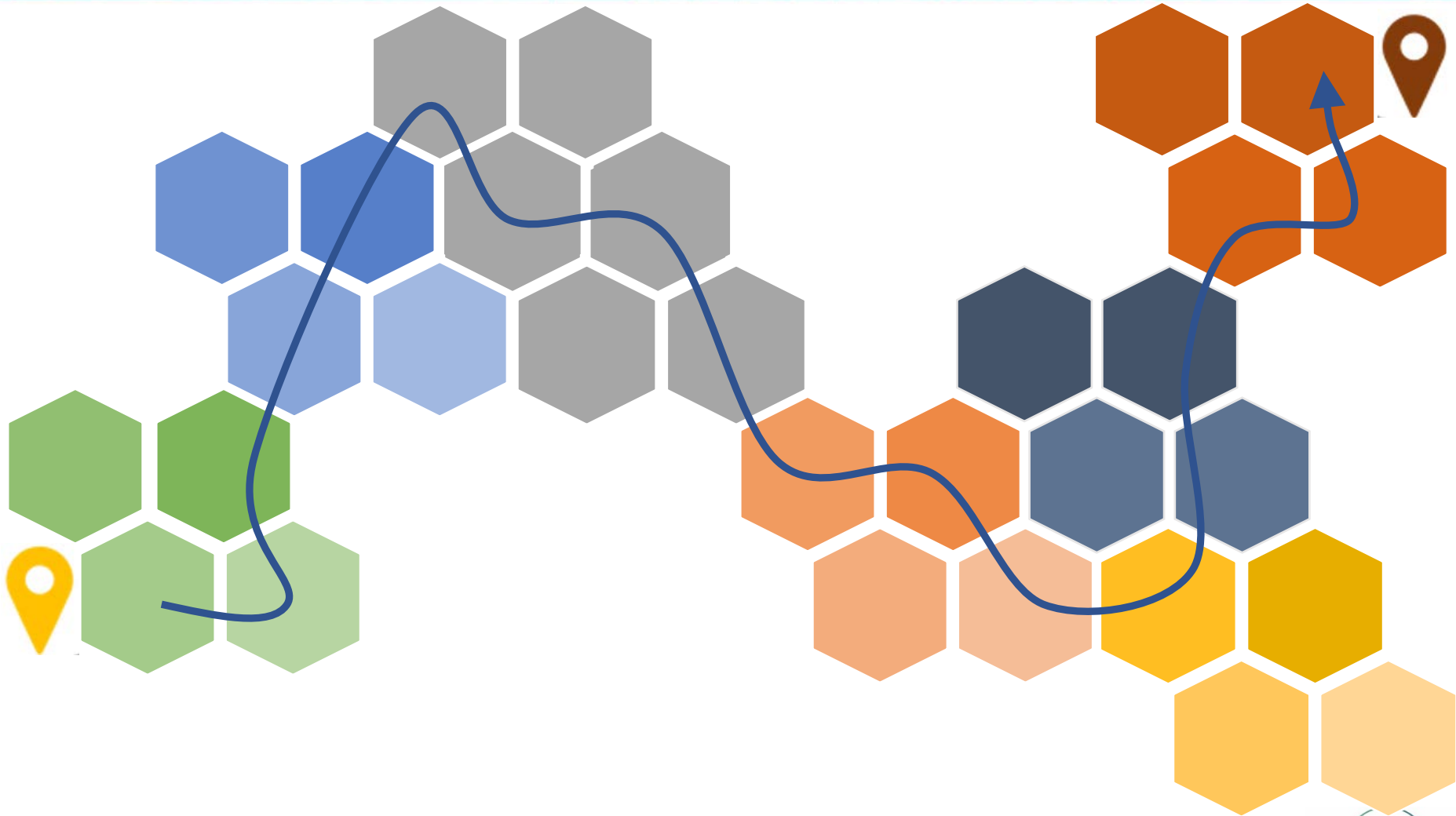


More than corridors...more than regions



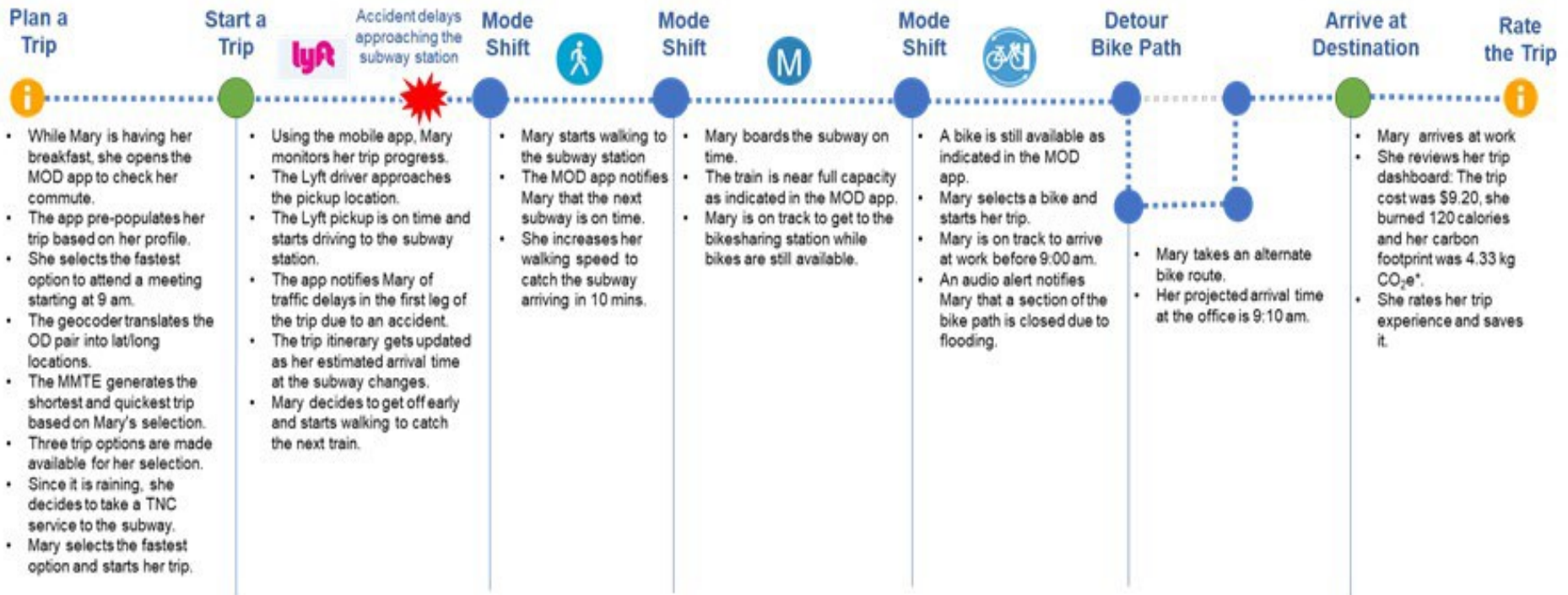


Many links, many providers, many jurisdictions, many operators



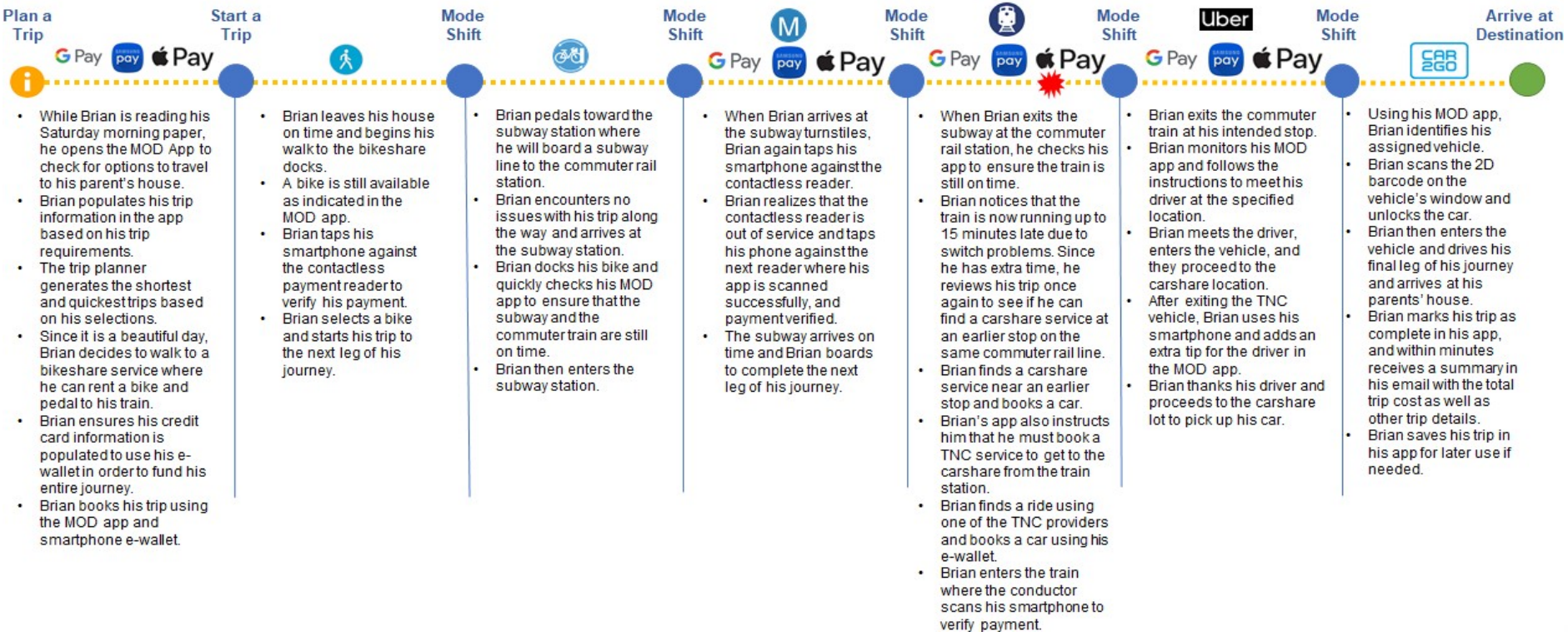
User Journey Map – Example 1

Mary is a recent college graduate who lives in a close-in suburb and works in the downtown of a major metropolitan area. She currently does not own a car and relies on her phone to plan her commute to work everyday. On a rainy day, she uses the MOD app to plan the best way to get to the office before 9 am.



User Journey Map – Example 2

Brian lives in a metropolitan area and does not need a car. This weekend, Brian made plans to visit his parents who live well outside the city, and transit options are limited. There is, however, a commuter train that can take him in the direction of his parents' house, but he will need to plan his options to the train, and then to their house from the train. Brian opens his MOD app and begins his planning.





Timeline Review

Incident Timelines

Interactive timelines quickly reveal how the incident is being managed while showing the relationships between responder notifications and arrival times, lane closures, traffic queues, clearance times, communication logs, CCTV, and dynamic message signs.



Multimodal Management Processes



Expand Partnerships / Integrate Stakeholders



Expand Geographic Scope

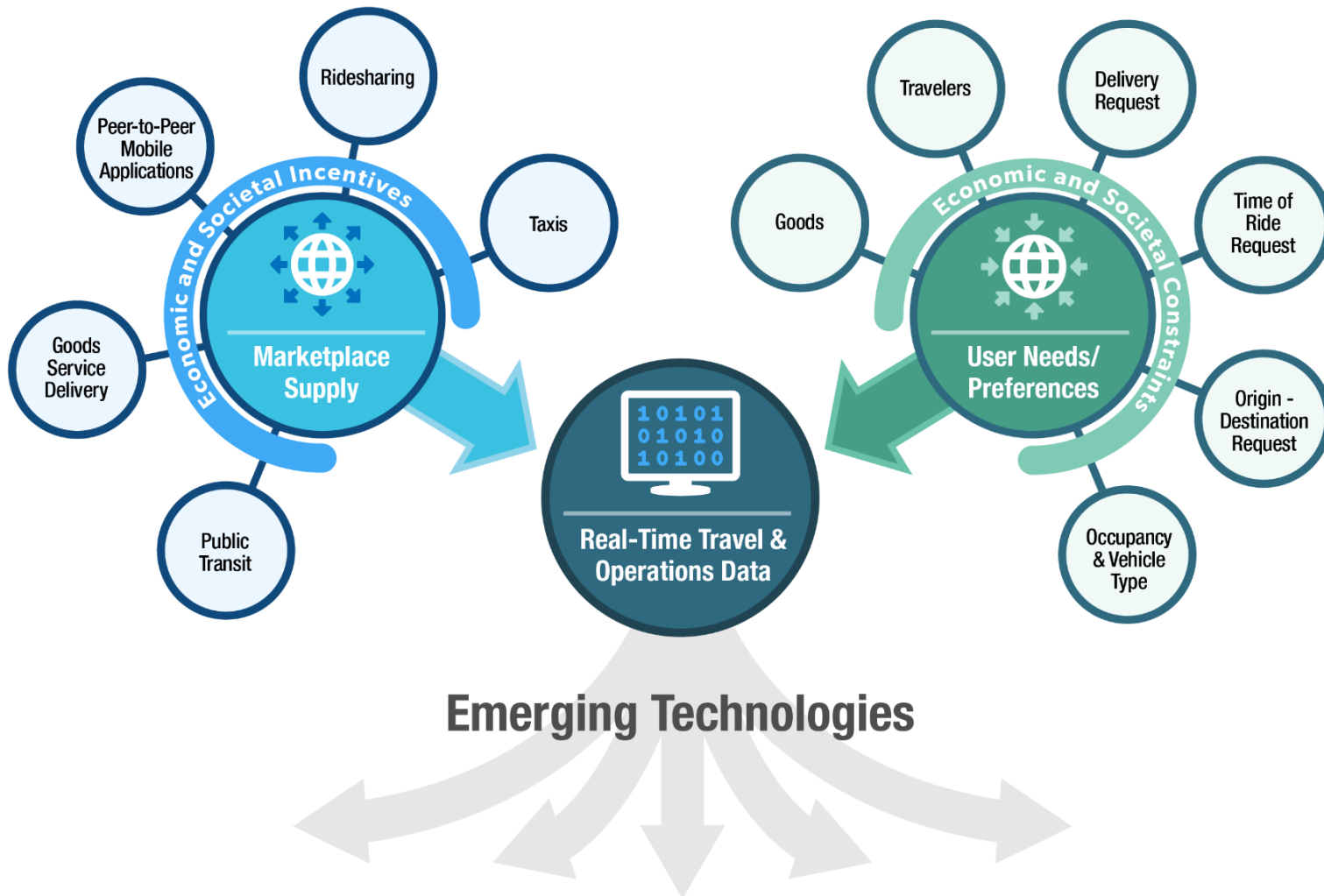


Expand Capabilities/ Enhance Functionality

- Develop and evolve system for identifying objectives that can vary with time and place
- Coordinate institutional functions to enable expanded data capture, improved data sharing, advanced data fusion and flow.
- Advance technical capabilities to enable higher temporal and spatial resolution in system data and to improve and automate data fusion processes
- Establish institutional functions to manage macro-system decision support (whether it's a *federated, centralized, or hybrid* system), and to enable fully coordinated response plans
- Advance technical performance of decision support systems and response and feedback processes



Multimodal Management to Marketplace – Next Chapter





Thank you

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