

INTEGRATING PRIVATE SHUTTLE SERVICES INTO PUBLIC TRANSPORTATION

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Previous Discussion 29 October 2025

- Integration needs institutional frameworks.
- Consider how different actors coordinate and share responsibilities.
- Capturing value from transport investment.
- Idea of “*New Style PPP*” (*Public Private Partnership*).
 - Localized collaboration.
 - Focused on service level improvement and cost sharing.
- **INSIGHT** → Simulation – Policy Link.

INTRODUCTION

The role of Private Shuttle in Urban Mobility

- Enables employees accessibility and mobility

(Peker, 2023)

- Addresses underserved geographic areas strategically

(Ryusuke et al, 2022)

- Connects residential areas to job sites

(Commute Seattle, 2021)



Potential Challenges: Fragmented Mobility in Higashihiroshima

- Shuttle and public transport operate separately
- Reduced public transit ridership potential
- Operational cost burden on private alone

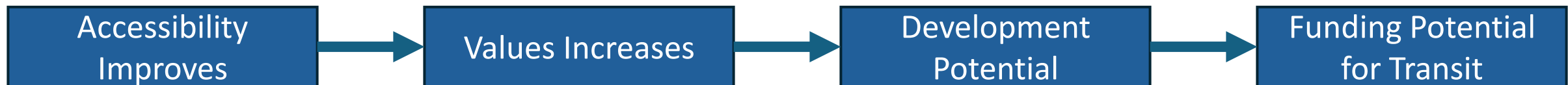


THE OPPORTUNITY OF INTEGRATION



Creates benefits:

- Reduced redundancy
- Improved coverage
- Better equity
- System sustainability



Research Objectives and Questions

- To understand how simulated integration of private shuttle into public transport network affects accessibility and travel behavior in Higashihiroshima
- To explore how accessibility improvements from integration could be used as a basis for value capture schemes

- RQ 1.** How do current travel patterns of private shuttle compare to public transport in Higashihiroshima?
- RQ 2.** What are the impacts of integrating private shuttle with the public transport network on accessibility and travel behavior?
- RQ 3.** To what extent can value capture mechanisms based on accessibility improvements support the financial sustainability of an integrated shuttle–public transport system?

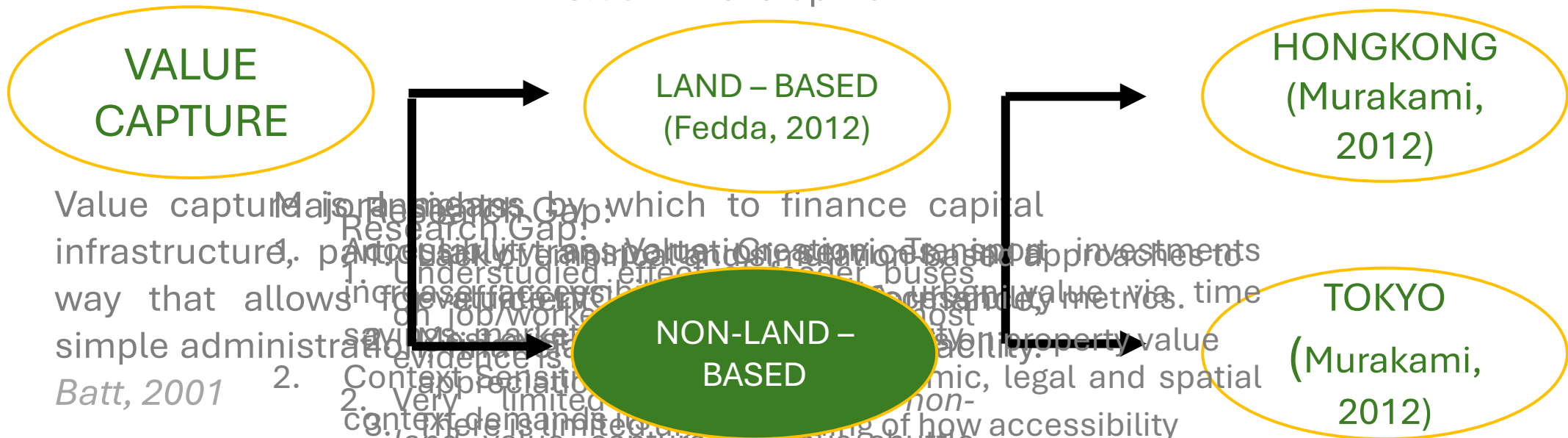
PROGRESS REPORT

Current Learning Focus

- Literature Review: Value Capture
 - Francesca Medda (2012) — *Land Value Capture Finance for Transport Accessibility*.
 - Jin Murakami and K. I. Gregory (2012) — *Transit value capture: New town co-development models and land market updates in Tokyo and Hong Kong*. Value capture and land policies: 285-320.
- Observe GTFS Data Structure
 - Private services (Micron Shuttle).
 - Public bus (Hirodai and Micron routes).

Literature Review

1. Betterment Tax
2. Accessibility Increment Contribution (AIC)
3. Joint Development



Value capture... which to finance capital infrastructure, particularly via... investments way that allows... time simple administrative... evidence is... (M

1. Understudied effect... bus... urban... metrics... property value... economic, legal and spatial

2. Context... non-land... how accessibility

3. Land... (LVC) as collaborative framework... changes)

Value capture... opportunity to... challenges for transport projects at a local and State level.

3. Can Tokyo/HK co-development logic work in smaller university-industry cities like Higashi-Hiroshima?

FHWA (Federal Highway Association)

OBSERVATION OF GTFS DATA

PRIVATE SERVICES (MICRON SHUTTLE)

- Overview

Indicator	Value	Interpretation
Agencies	1 (マイクロメモリジャパン株式会社)	Single operator (private shuttle)
Routes	1	One main service corridor
Trips	70	Individual daily departures
Stops	29	Total stops (dense spacing)
Shapes	6	Variants of inbound/outbound route alignments
Calendar	2 (平日, 土曜・日曜・祝日)	Weekday vs holiday operation
Calendar dates	22 exceptions	Public holidays and national breaks
Period covered	2024-05-24 → 2025-03-31	Full service year

Dimension	Indicator	Micron Shuttle Pattern
Temporal frequency	Headway	10–20 min (weekday) → 30–70 min (holiday)
Trip efficiency	Duration	30–35 min stable, slightly longer holiday median
Spatial spacing	Inter-stop time	1–3 min, uniform across service days
Overall behavior		Consistent route; flexible timetable based on shift demand

PUBLIC BUS

- Route Length

route_id	route_name	shape_id	full_route_distance_km
Geiyo_1400 0	吉川線 (西条駅 - 西条駅・午前)	Geiyo_1400 0	26.02
Geiyo_1401 0	吉川線 (西条駅 - 西条駅・午後)	Geiyo_1401 0	25.93
Geiyo_1430 0	吉川線 (八本松駅 - 吉川工業団地・長沢)	Geiyo_1430 0	8.86
Geiyo_1431 0	吉川線 (吉川工業団地 - 八本松駅・長沢)	Geiyo_1431 0	8.82

MICRON ROUTES

route_id	route_name	shape_id	distance_km
Geiyo_1310 0	八本松 - 広大線 (八本松駅 - 八本松駅・広大)	Geiyo_1310 0	10.50
Geiyo_1370 0	八本松 - 広大線 (八本松駅 - 広大北口・農)	Geiyo_1370 0	10.22
Geiyo_1371 0	八本松 - 広大線 (広大二神口 - 八本松駅・農)	Geiyo_1371 0	10.34
Geiyo_1380 0	東広島 - 広大線 (東広島駅 - 大学会館前)	Geiyo_1380 0	4.88
Geiyo_1381 0	東広島 - 広大線 (かがら口 - 東広島駅)	Geiyo_1381 0	7.26
JRbus_1490550946_13	JRbus - 八本松駅 - 八本松	JRbus_30001200	10.74
JRbus_1490550946_18	JRbus - 東広島駅 - 大学会館前	JRbus_30002180	4.75
JRbus_1490550946_23	JRbus - ががら口 - 東広島駅	JRbus_30002170	7.05

HIRODAI ROUTES

PUBLIC BUS

- Trip Duration

route_id	route_name	total_stops	start_time	end_time	trip_duration(min)
Geiyo_14000	吉川線 (西条駅 - 西条駅・午前)	62	09:40:00	10:32:00	52.00
Geiyo_14010	吉川線 (西条駅 - 西条駅・午後)	62	13:28:00	14:20:00	52.00
Geiyo_14300	吉川線 (八本松駅 - 吉川工業団地・長沢)	19	07:29:00	07:46:00	17.00
Geiyo_14310	吉川線 (吉川工業団地 - 八本松駅・長沢)	19	17:30:00	17:49:00	19.00

MICRON ROUTES

PUBLIC BUS

- Trip Duration

route_id	route_name	shape_id	total_stops	total_time_min	travel_time_min
Geiyo_1310 0	八本松 - 広 大線 (八本 松駅 - 八本 松駅・広 大)	Geiyo_1310 0	33	33.0	33.0
Geiyo_1370 0	八本松 - 広 大線 (八本 松駅 - 広大 北口・農)	Geiyo_1370 0	21	20.0	20.0
Geiyo_1371 0	八本松 - 広 大線 (広大 二神口 - 八 本松駅・	Geiyo_1371 0	21	21.0	21.0
Geiyo_1380 0	東広島 - 広 大線 (東広 島駅 - 大学 会館前)	Geiyo_1380 0	15	18.0	18.0
Geiyo_1381 0	東広島 - 広 大線 (がが ら口 - 東広 島駅)	Geiyo_1381 0	16	19.0	19.0
JRbus_1490550946_13	JRbus - 八 本松駅 - 八 本松	JRbus_30001200	33	33.0	33.0
JRbus_1490550946_18	JRbus - 東 広島駅 - 大 学会館前	JRbus_30002180	15	18.0	18.0
JRbus_1490550946_23	JRbus - が がら口 - 東 広島駅	JRbus_30002170	16	19.0	19.0

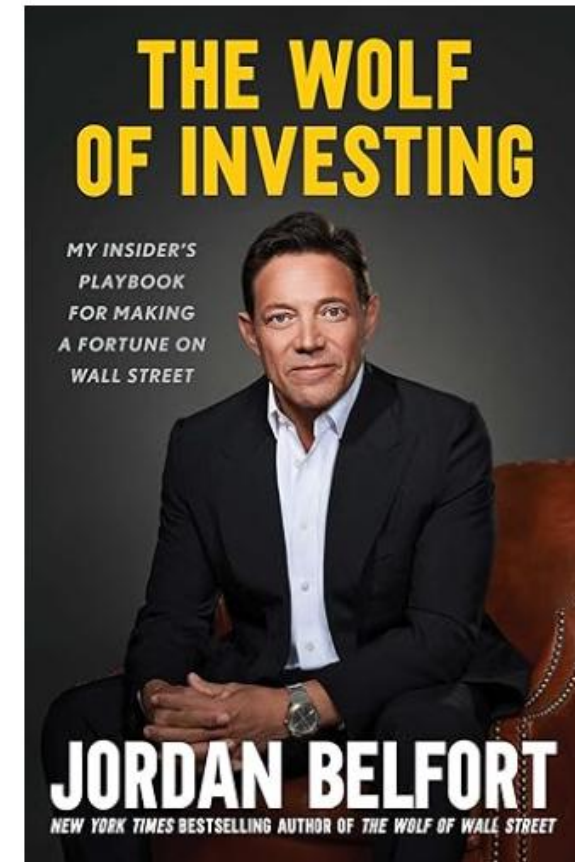
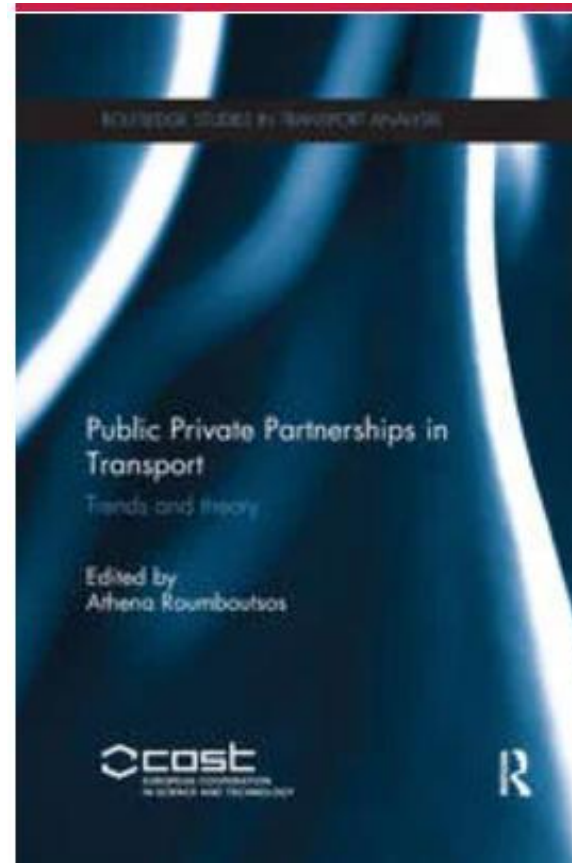
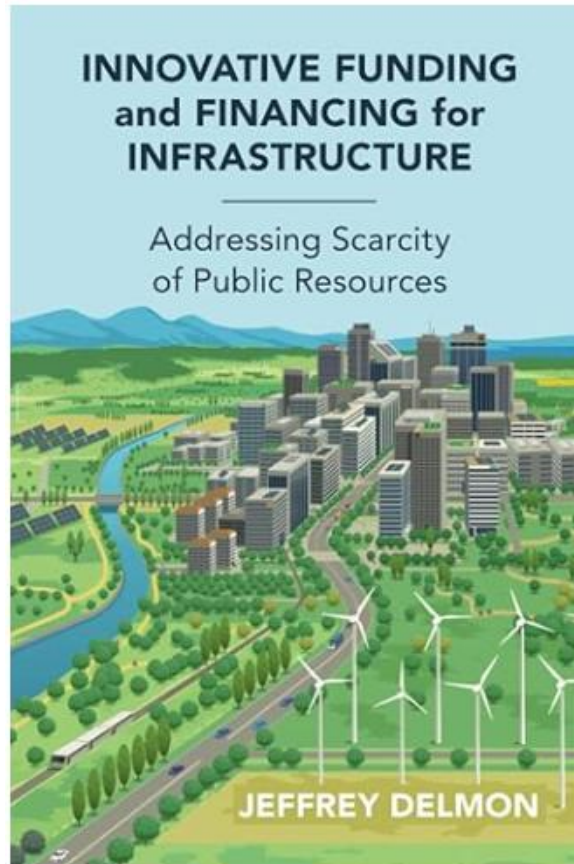
PUBLIC BUS

- Headway
- Fare

Upcoming Learning Focus

- Literature Review: Non-land based value capture
- Literature Review: Cost-sharing schemes
- Literature Review: PPP
- Design Conceptual Framework
- Design Simulation Scenarios

Books?



THANK YOU