

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

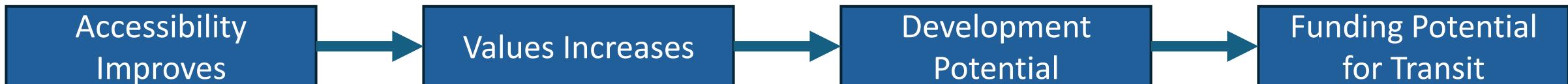


THE OPPORTUNITY OF INTEGRATION



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

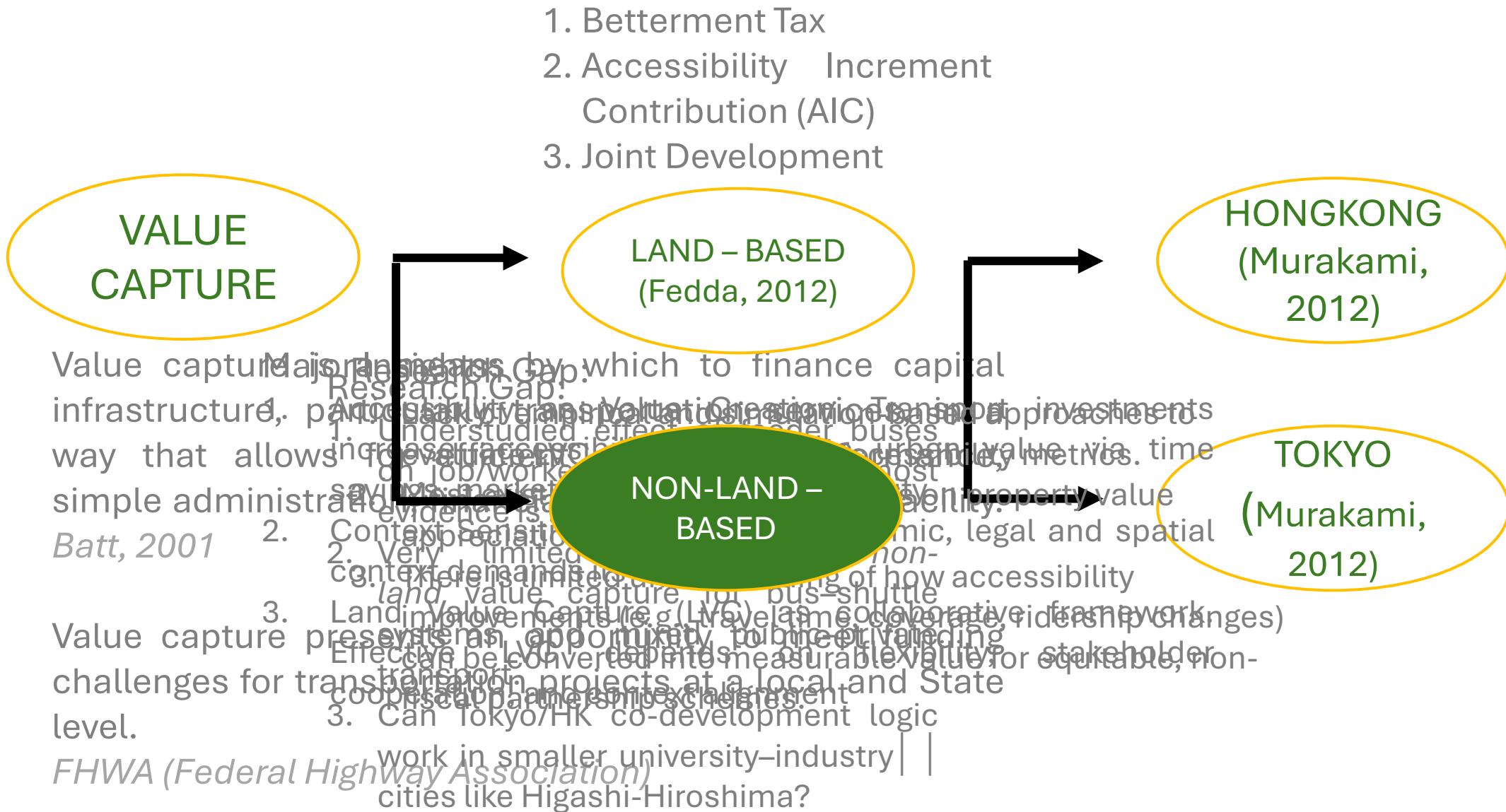
- RQ 1.** How do current travel patterns of private shuttle compare to public transport in Higashihiroshima?
- RQ 2.** What are the impacts of integrating private shuttle with the public transport network on accessibility and travel behavior?
- RQ 3.** To what extent can value capture mechanisms based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



OBSERVATION OF GTFS DATA

PRIVATE SERVICES (MICRON SHUTTLE)

- Overview

Indicator	Value	Interpretation
Agencies	1 (マイクロン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
Geijo_14000	吉川線（西条駅 - 西条駅・午前）	Geijo_14000	26.02
Geijo_14010	吉川線（西条駅 - 西条駅・午後）	Geijo_14010	25.93
Geijo_14300	吉川線（八本松駅 - 吉川工業団地・長沢）	Geijo_14300	8.86
Geijo_14310	吉川線（吉川工業団地 - 八本松駅・長沢）	Geijo_14310	8.82

route_id	route_name	shape_id	distance_km
Geijo_13100	八本松 - 広大線（八本松駅 - 八本松駅・広大）	Geijo_13100	10.50
Geijo_13700	八本松 - 広大線（八本松駅 - 広大北口・農）	Geijo_13700	10.22
Geijo_13710	八本松 - 広大線（広大二神口 - 八本松駅・農）	Geijo_13710	10.34
Geijo_13800	東広島 - 広大線（東広島駅 - 大学会館前）	Geijo_13800	4.88
Geijo_13810	東広島 - 広大線（ががら口 - 東広島駅）	Geijo_13810	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

MICRON ROUTES

HIRODAI ROUTES

PUBLIC BUS

- Trip Duration

route_id	route_name	total_stops	start_time	end_time	trip_duration_(min)
Geijo_1400 0	吉川線 (西条駅 - 西条駅・午 前)	62	09:40:00	10:32:00	52.00
Geijo_1401 0	吉川線 (西条駅 - 西条駅・午 後)	62	13:28:00	14:20:00	52.00
Geijo_1430 0	吉川線 (八本松駅 - 吉川工業団 地・長沢)	19	07:29:00	07:46:00	17.00
Geijo_1431 0	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 - 広北大北口・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

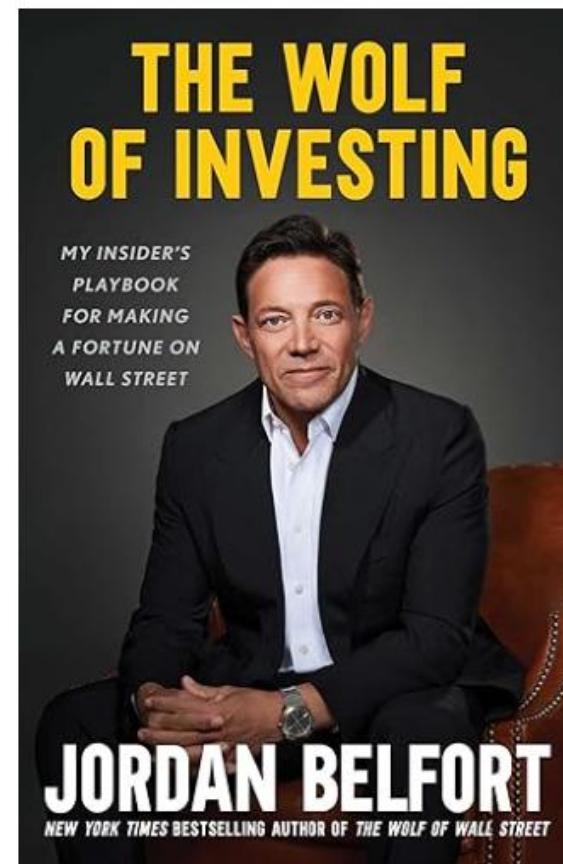
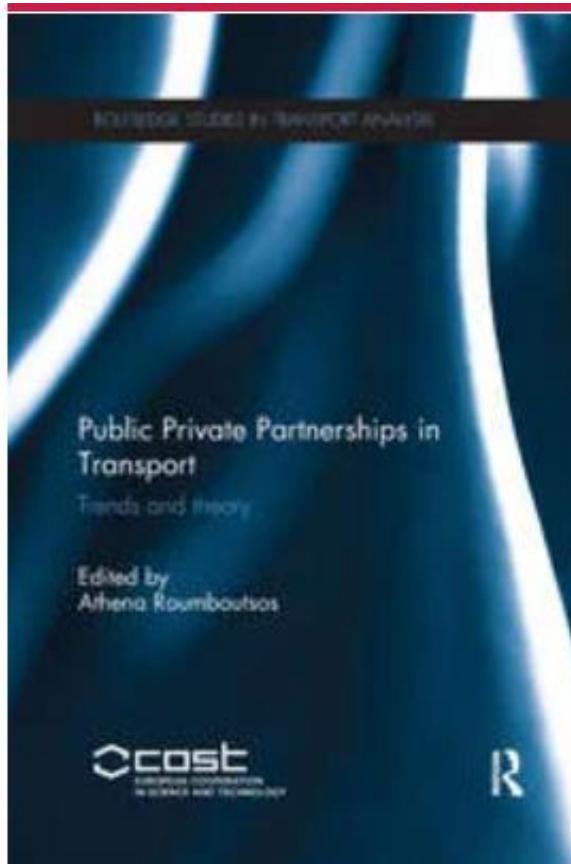
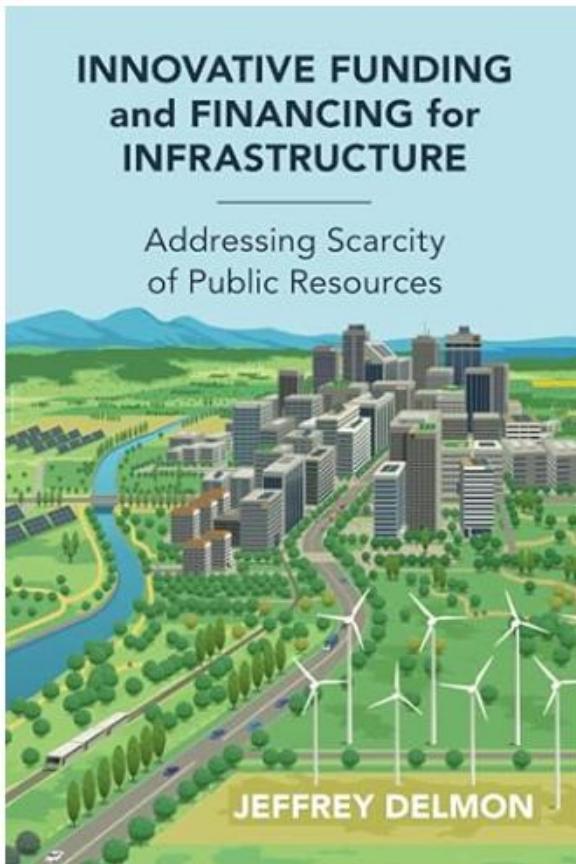
PUBLIC BUS

- Headway
- Fare

Upcoming Learning Focus

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

Books?



THANK YOU