///// La Metamorfosi dell‘Autobus:

Ripensare i Ruoli nell‘Ecosistema della Mobilità – Riflessioni incentrate sullo Sviluppo Urbano /////



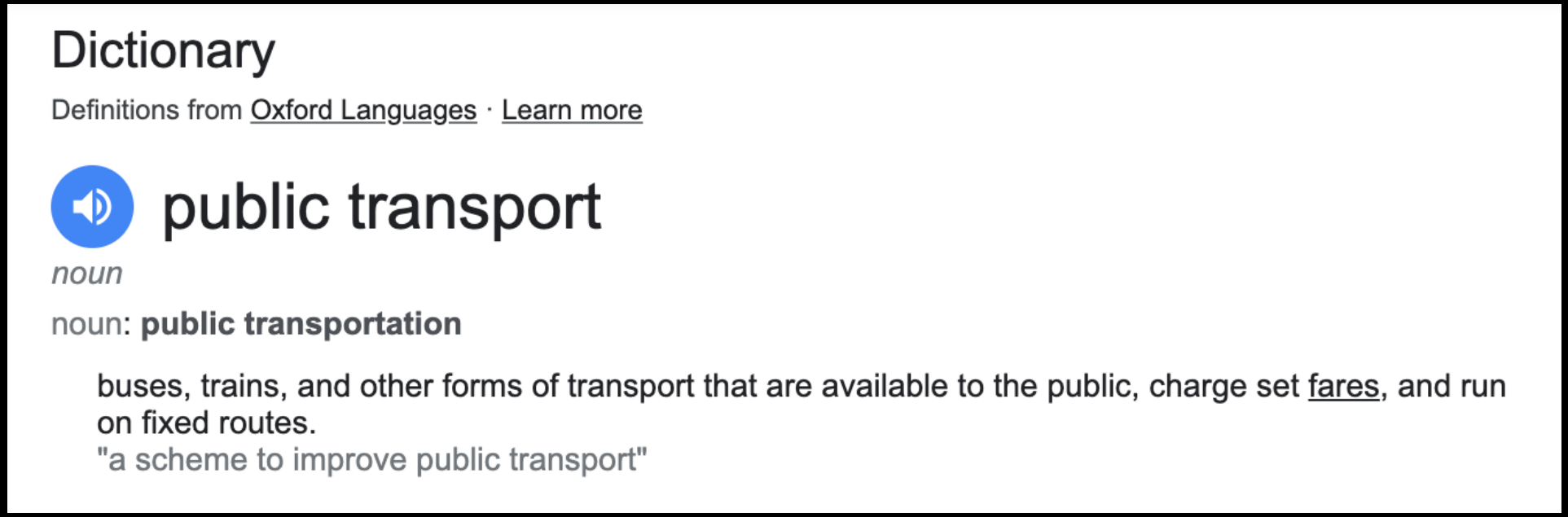
Arnd N. Bätzner
arnd@baetzner.ch

BAETZNER METROPOLITAN
CATALYZING TRANSIT DYNAMICS

1

Il trasporto pubblico nell'era dei veicoli autonomi: “NextGen Public Transit”

/// TP du Futur, Modes du Futur: Quelles Métriques Appliquer? ///



Dictionary

Definitions from Oxford Languages · Learn more

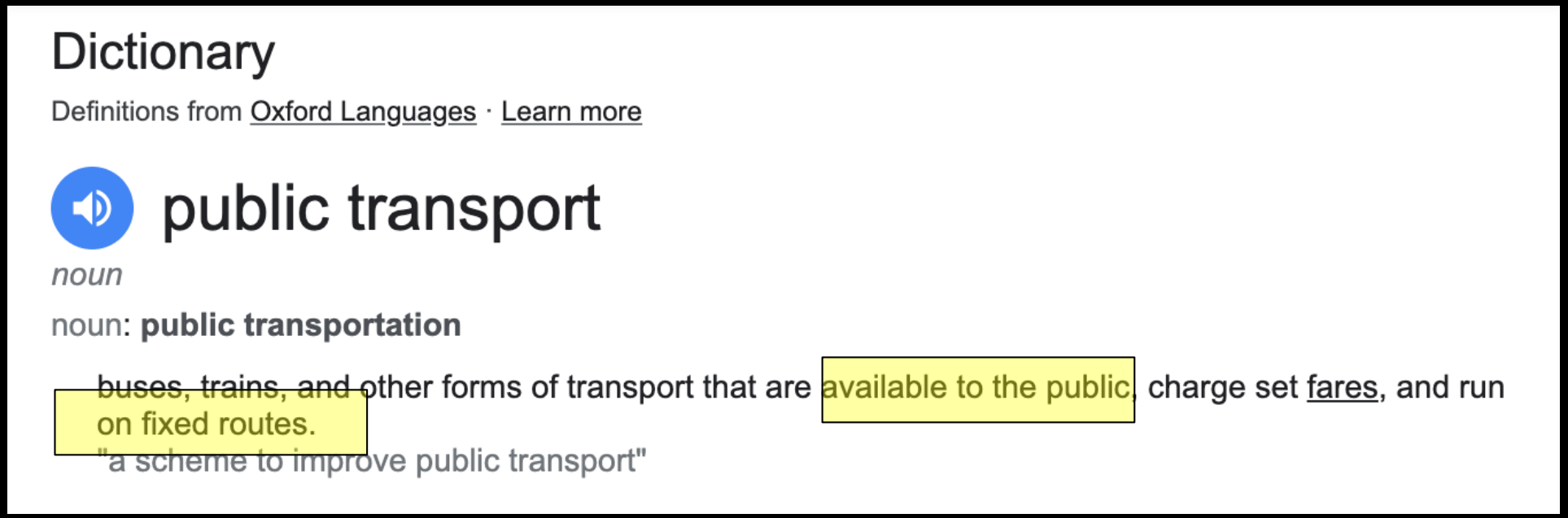
public transport

noun

noun: **public transportation**

buses, trains, and other forms of transport that are available to the public, charge set fares, and run on fixed routes.
"a scheme to improve public transport"

/// Future Transit, Future Modes: Which Metrics Matter? ///



Dictionary

Definitions from Oxford Languages · Learn more

public transport

noun

noun: **public transportation**

buses, trains, and other forms of transport that are available to the public, charge set fares, and run on fixed routes.
"a scheme to improve public transport"

//// Metrics Defining Transit, Traditionally ////

set Fares

Buses, Trains, Others

Public Availability

Fixed Routes

//// Metrics Defining Transit, Traditionally ////

Buses, Trains, Others

Public Availability

Fixed Routes

//// Metrics Defining Transit, Traditionally ////

Buses, Trains, Others

Public Availability

//// Metrics Defining Transit ////

Public Availability

//// Metrics Defining Transit ////

= Disponibilité Au Public

// Recap and Example: Swiss Travel System: Key Rail and Bus Routes //



// „Swiss Travel System“:
Full Integration of Modes (Scheduling, Ticketing) //

Mainline Rail



Private Rail Ops.



Rural / Alpine Bus Services



Water Transport (Lakes)



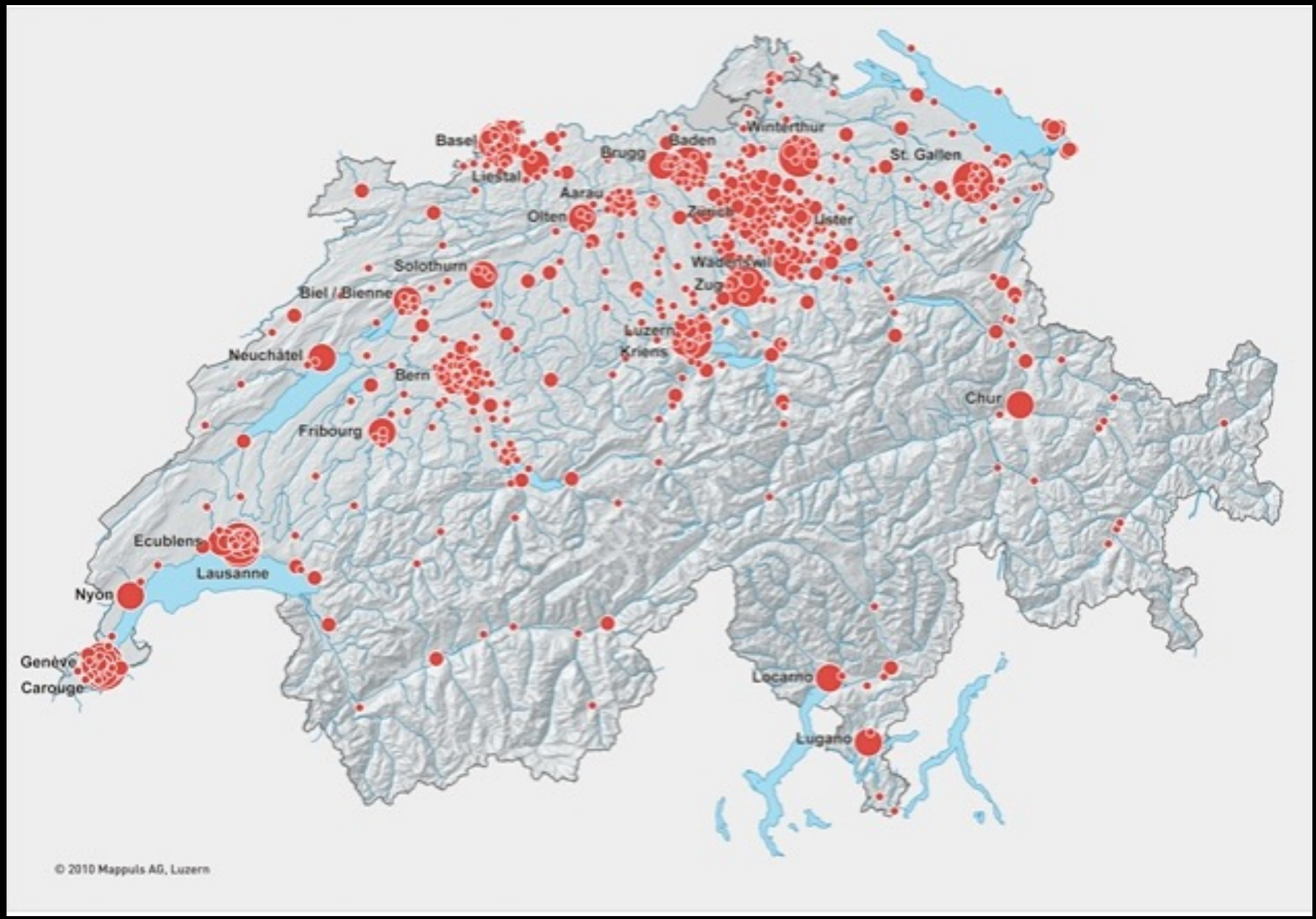
Cable Transport



Urban Networks



1‘300 Pods, Nationwide in Switzerland...



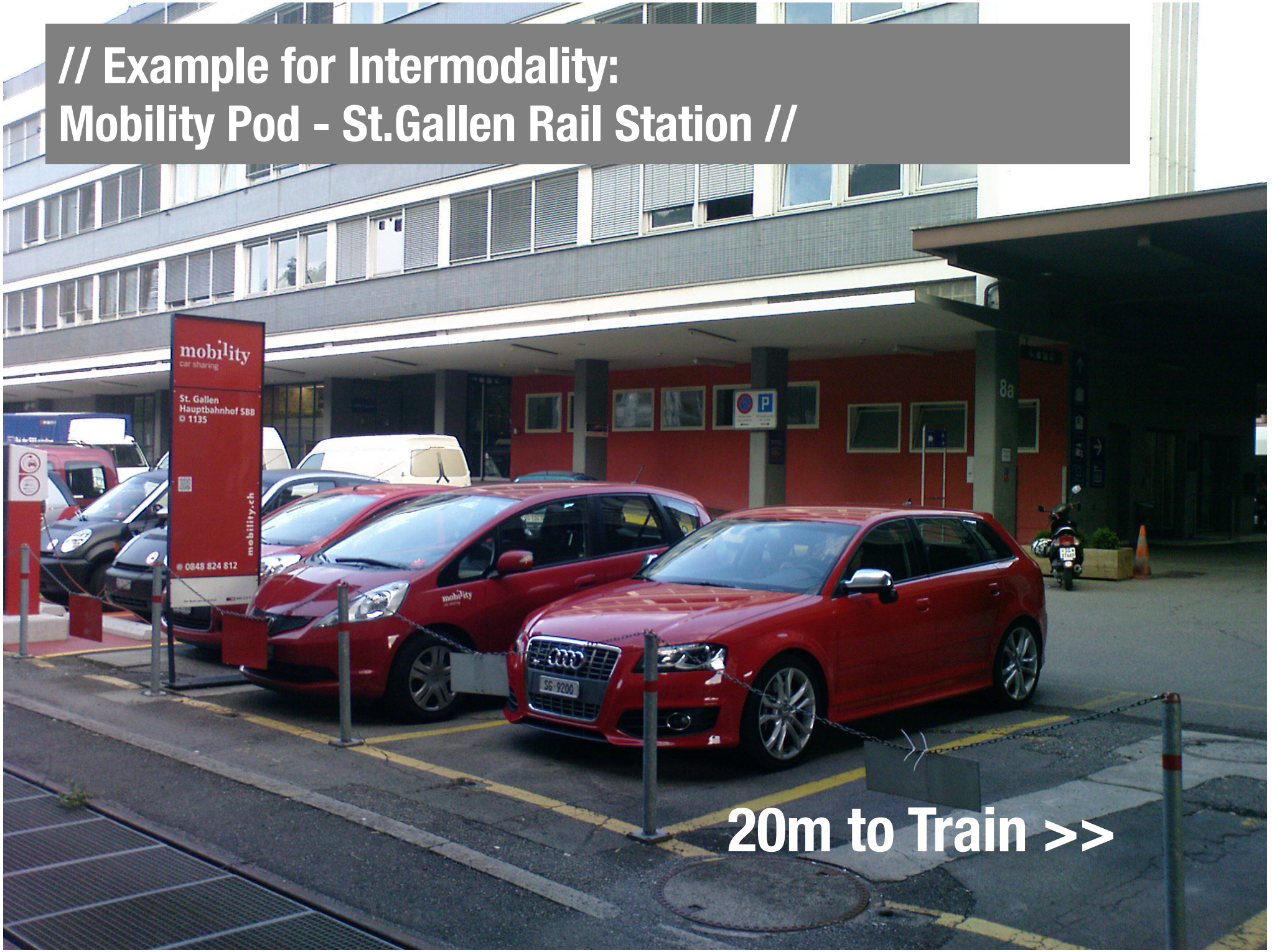
// Think Intermodality, Not Mode:
Cooperation between Actors //



SEAMLESSNESS

in usability, accessibility, comfort, interchanges, fares, ...

// Example for Intermodality:
Mobility Pod - St.Gallen Rail Station //




// Example for Intermodality:
Mobility Pod – Geneva Airport //
mobility
<< 300 m to C/I Desks
<< 100 m to Train

// Marketing: CS as part of Public Paratransit Offer //



Example Geneva:

CarSharing Vehicle branded as Public Transportation





Federal Rail Logo on License Plate Holder



Unireso:

Geneva Region Tariff Community



// Integration into Urban Space: Re-Assignment of Street Parking for CarSharing //



// 2015: Full Inclusion of Car Sharing in Customer Travel Chain – and in Fare Media //





2015: Phase-In e-Fare Media „Swiss Pass“: Added Functions

- CarSharing
- BikeSharing
- Sports
- +++



//// Overcoming Classic System Borders: Dedicated Infrastructure for NextGen Transit ////




//// Pick-Up and Drop-Off:
Ready for A Robotaxi Age ////
Singapore (2017)

>> towards a Discourse on Policymaking

Tecnologia <> Scelta modale <> Governance: Imparare dagli insuccessi. Accelerare.

Where are we headed?

/// Uber vs. CPUC, and what followed... ///



///// eHailing / RideHailing: SFO /////

TNCs in San Francisco, July 2017:

> 170’000 trips

///// eHailing / RideHailing: SFO /////

TNCs in San Francisco, July 2017:

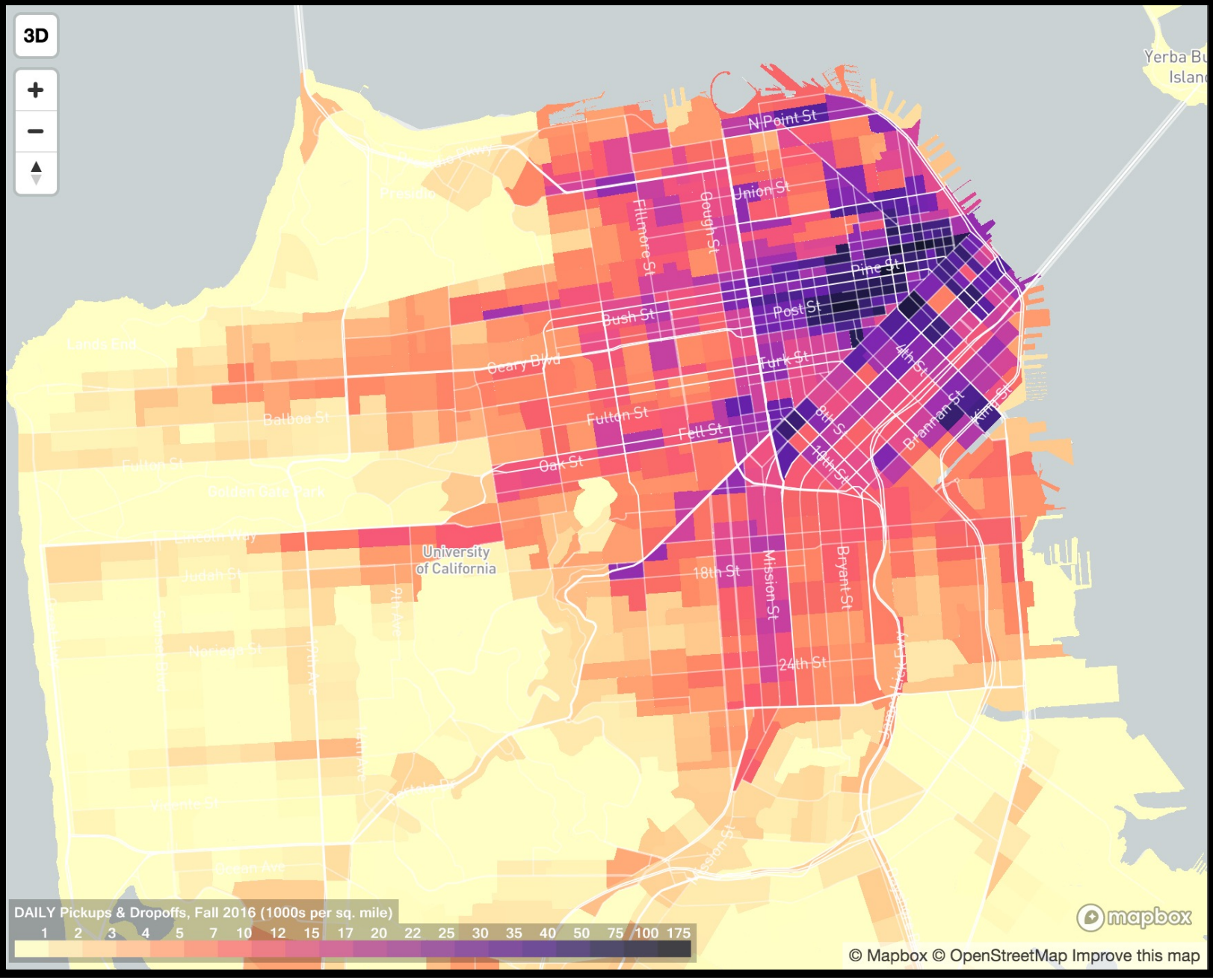
> 570’000 downtn miles driven

///// eHailing / RideHailing: SFO /////

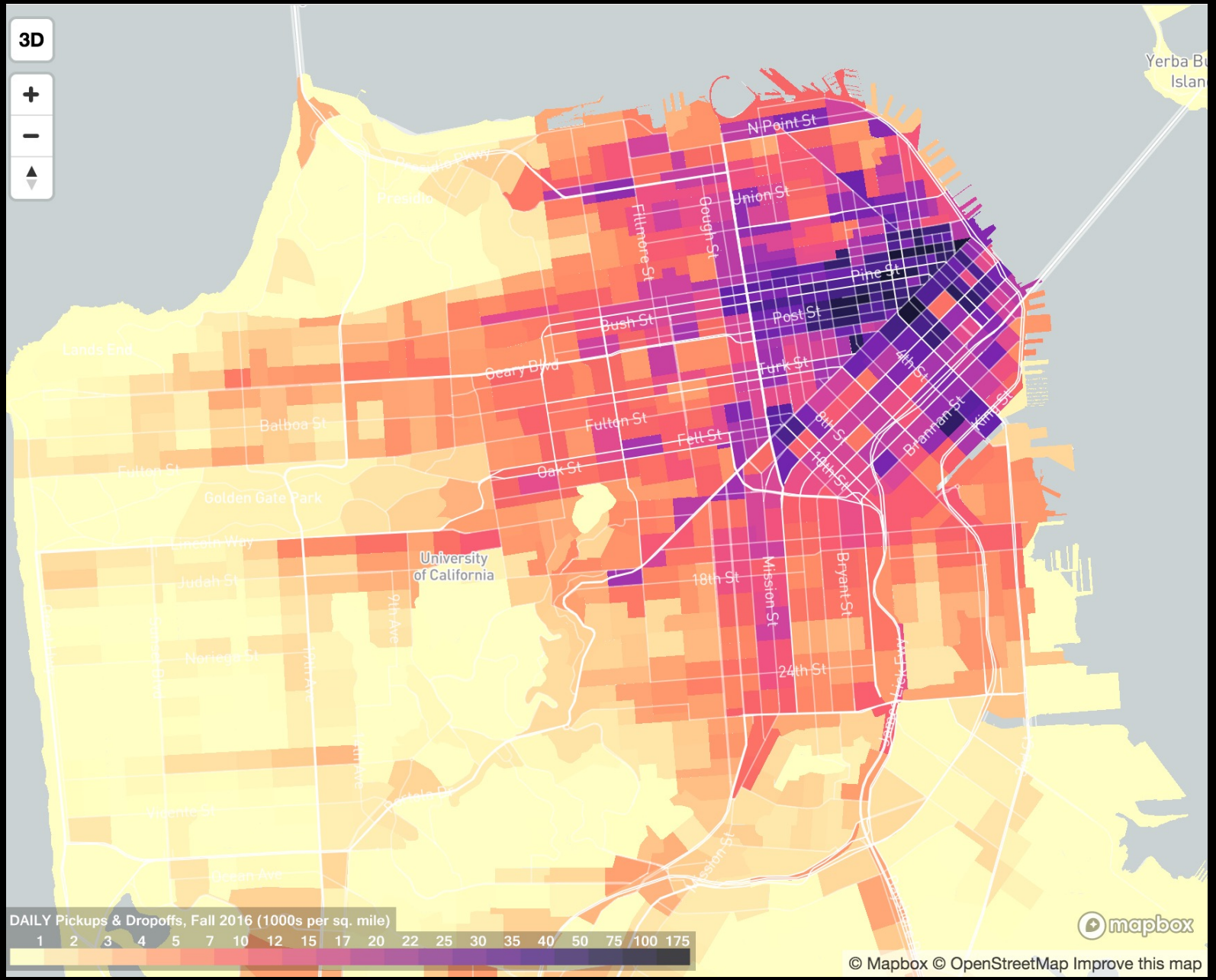
TNCs in San Francisco, July 2017:

48’000 TNC cars

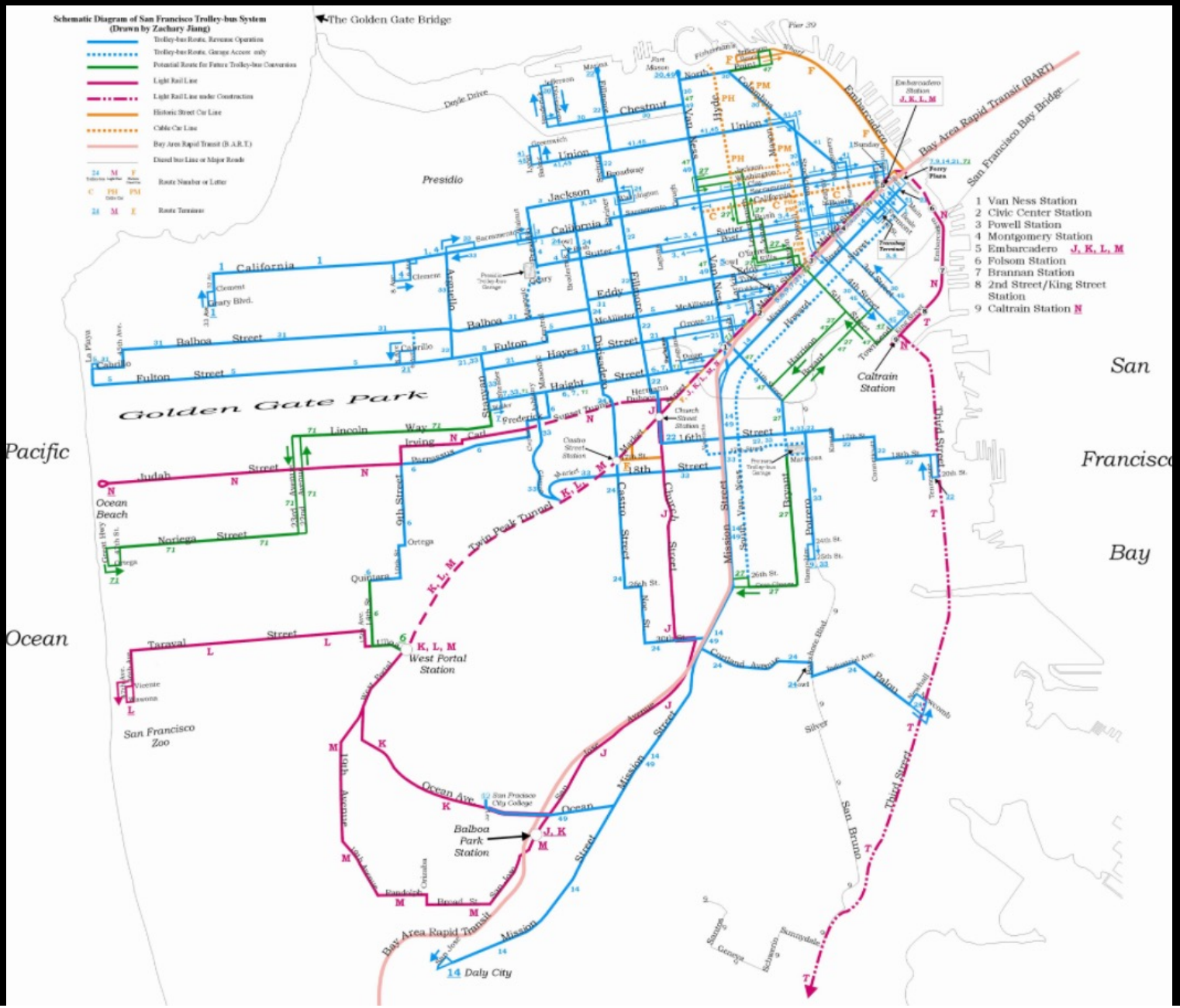
///// eHailing in SFO: Pickups /////



///// eHailing in SFO: Dropoffs /////



/// Comparison: Overlay with SF Electric Public Transit Network ///



//// SF - What‘s on Stake: Zero Emission Inclusive Efficiency…////



//// ...competing with Low-Density Modes ////



What did we learn?

// Paratransit: Shared Rides //



/// Paratransit Reloaded? System Inegration Level - Complement or Competition? ///



/// Has the Problem been Understood? Probing for an AV Fleet? Does it Scale? ///




/// Has the Problem been Understood?
Probing for an AV Fleet? Does it Scale? ///

//// Innovation and Convergence: Next Frontiers ////



/// AV Use Scenarios:
Moving Beyond the Tech Discourse Matters ///



//// Towards an Integrative View ////

Autonomous is not an isolated mode

//// The Tech Bro Solution ...
#NotHelpful ////

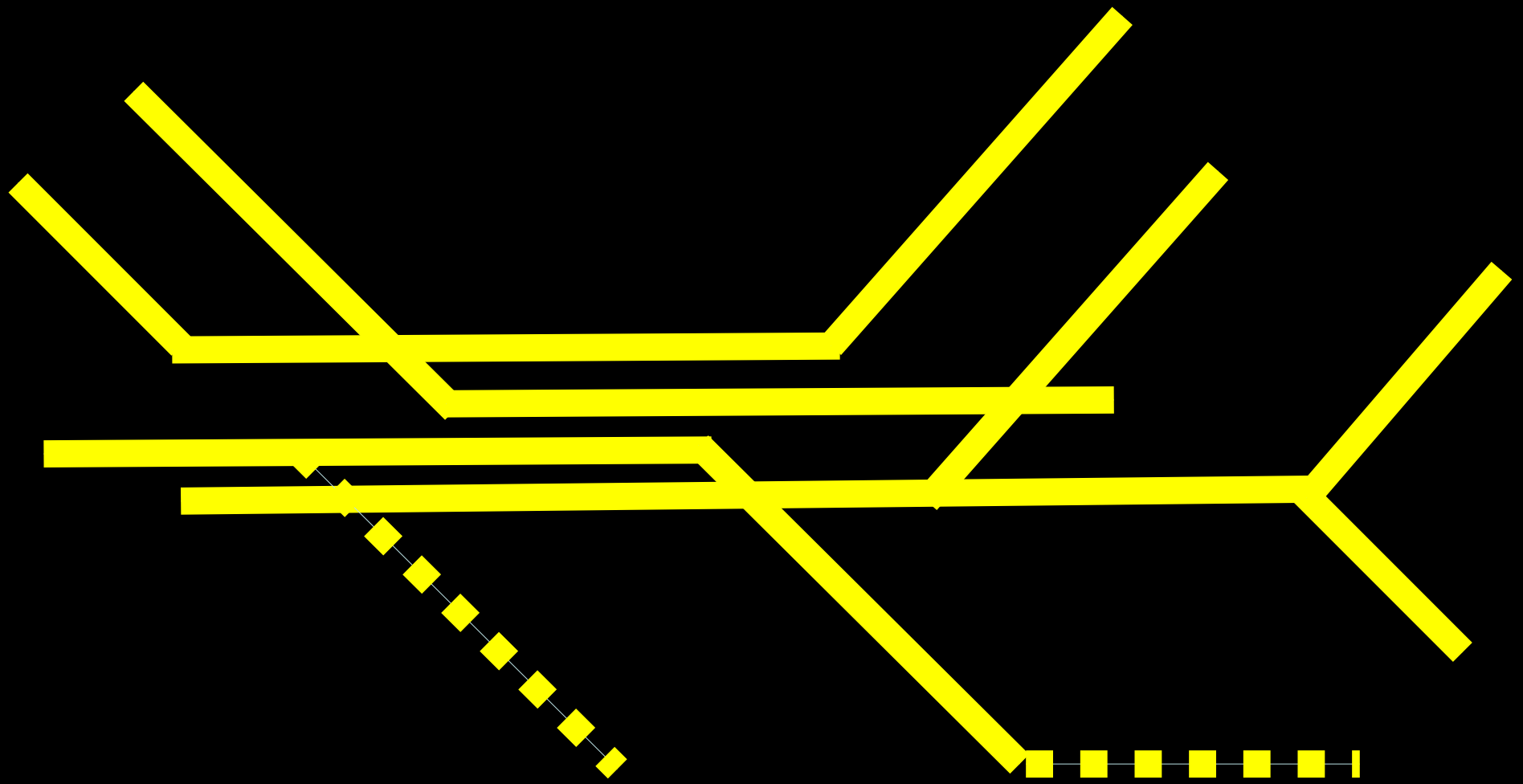


3

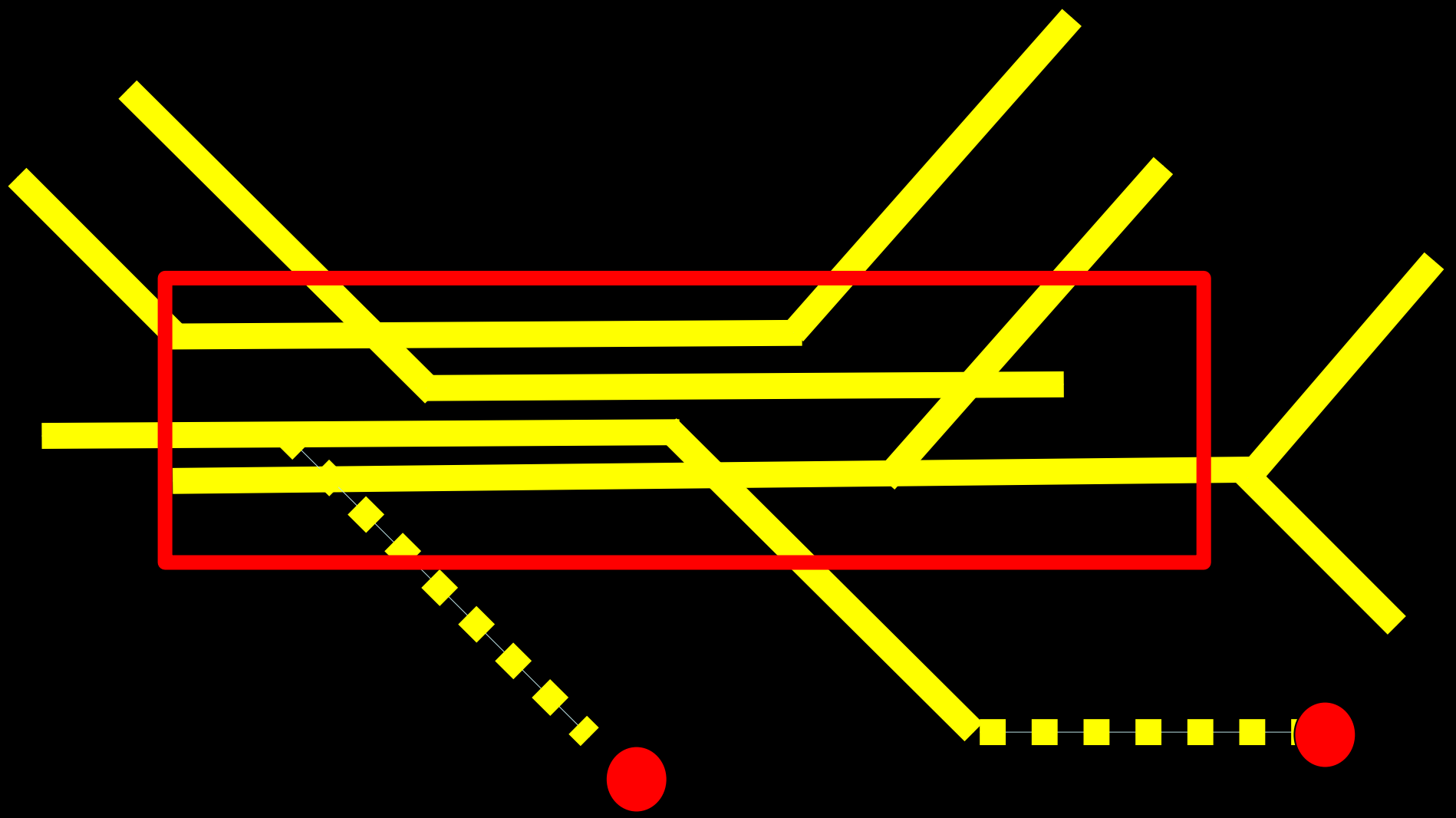
Il valore delle infrastrutture: Strutturare gli spazi, A lungo termine

//// Externalities:
The Corridor Concept ////

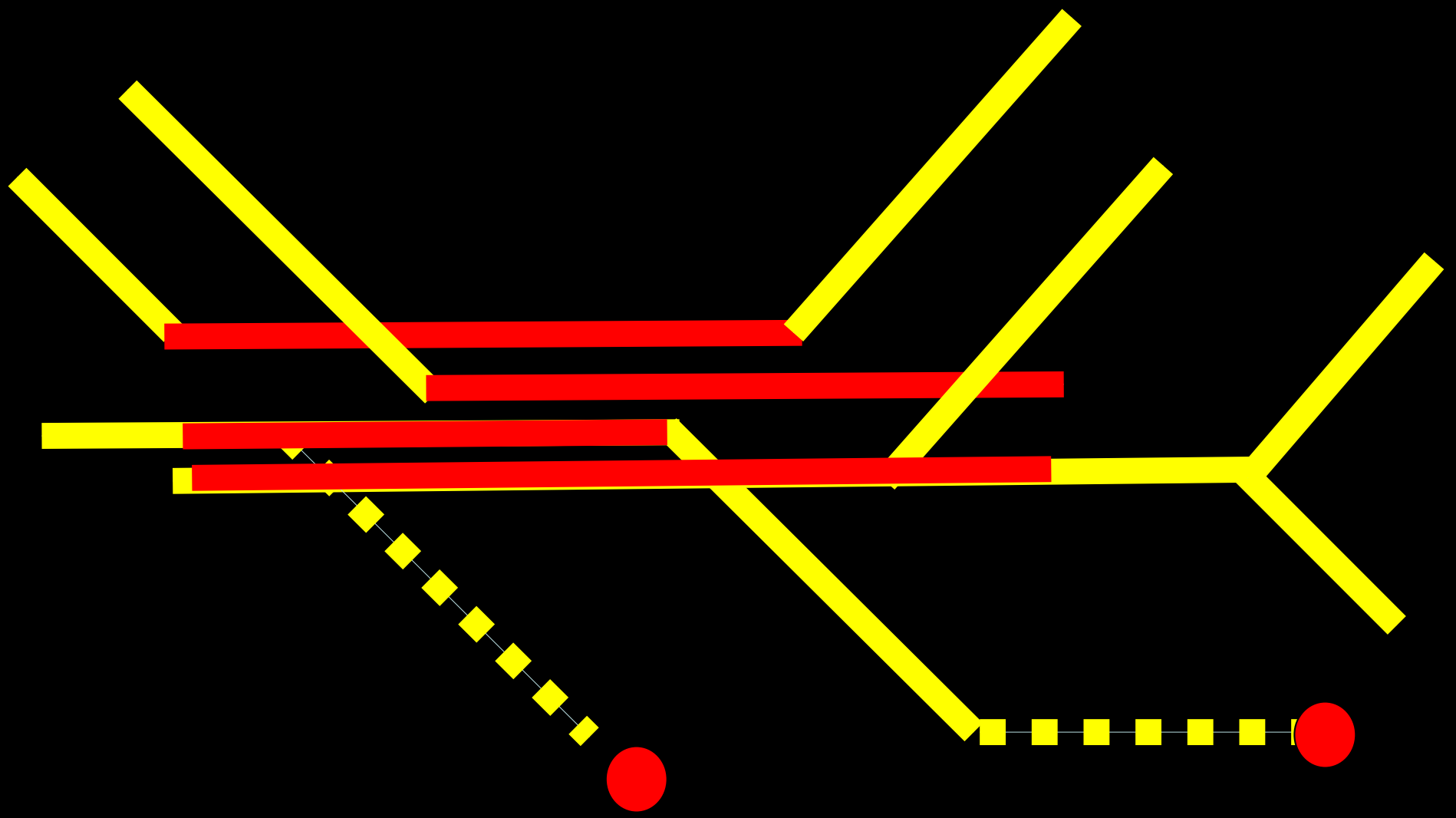
/// The Corridor Concept ///



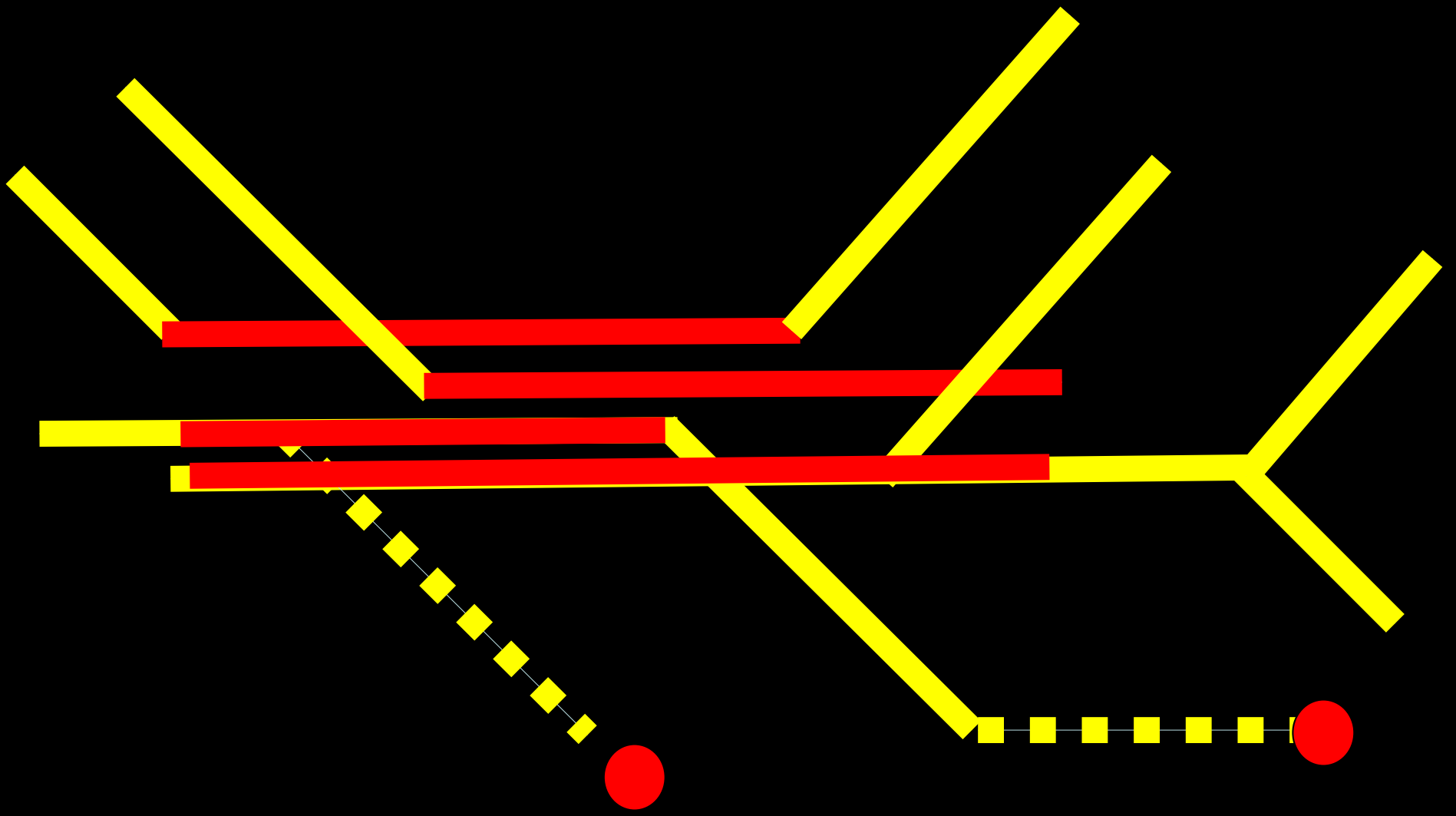
/// The Corridor Concept ///



/// The Corridor Concept ///



/// »Strategic Wiring» electrifies 80% of Network ///



+ ROW Infrastructure = eBRT

///// KPIs / Critical Success Factors /////

Convergence of economic and ecologic efficiency

/// Fixed Route Infrastructure in Crisis Facing Cost Pressure (Capex, Opex) ///



Mülheim a.d. Ruhr (2023)

/// Resulting Deficits in Maintenance ///



Mülheim a.d. Ruhr (2023)


/// Absolute Primacy of the Private Automobile:
Kahlenberg Light Rail Route, Mühlheim, Germany ///
8014
MH ZV 84
Mülheim a.d. Ruhr (2023)

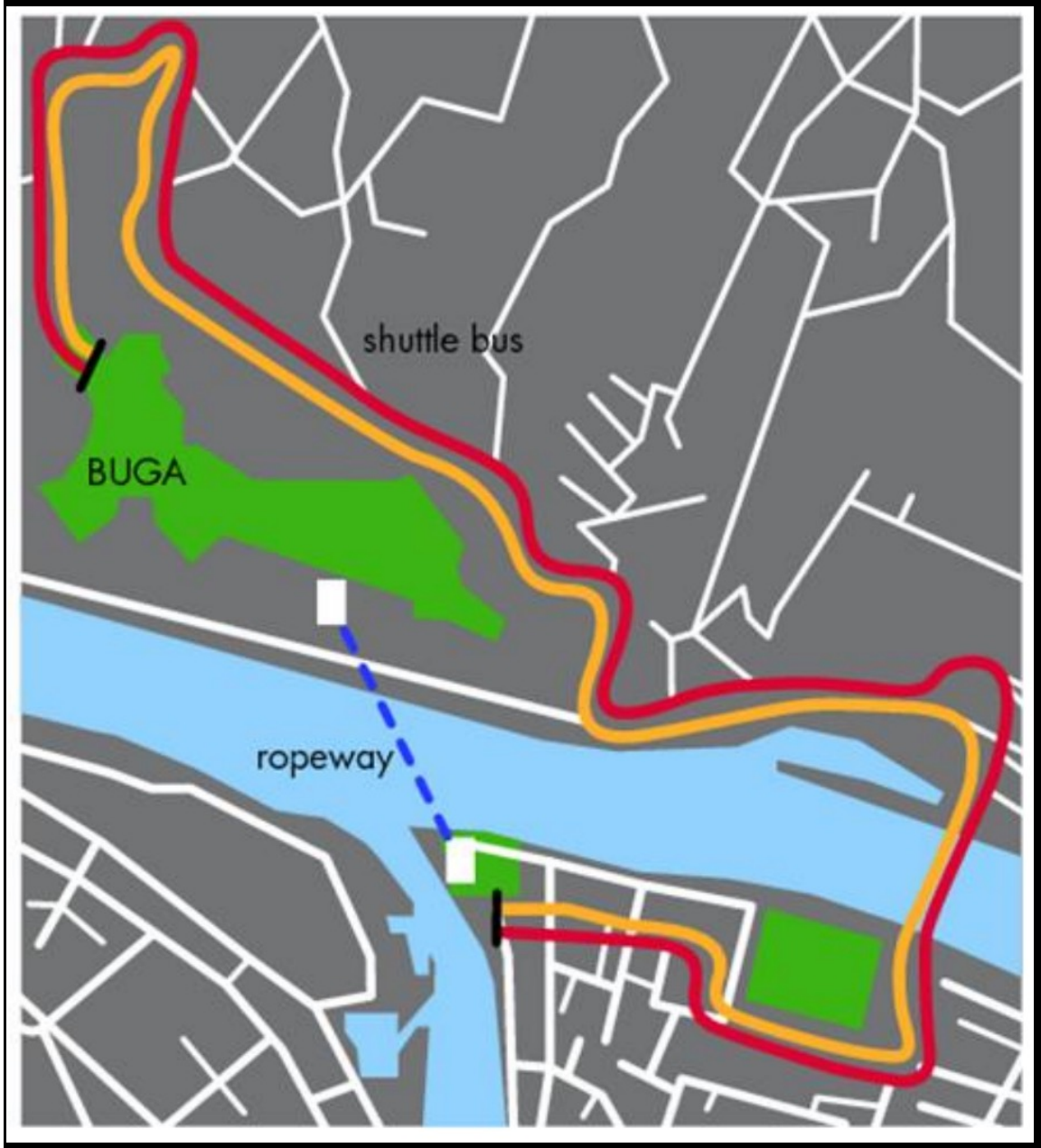
/// Third Level:
New Links, Quick and Cheap to Implement ///



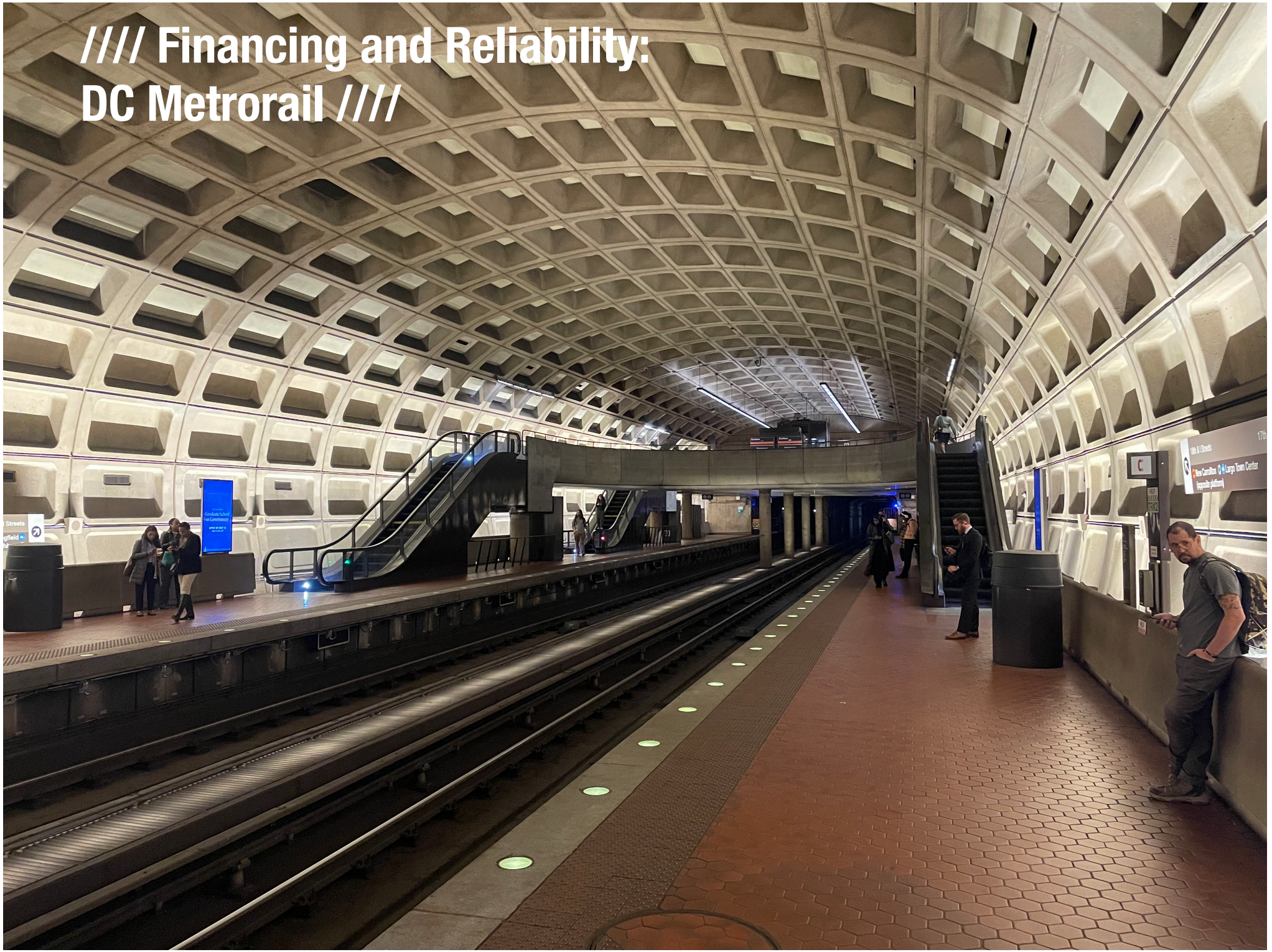
/// Retrofit Cable Car: Koblenz, Germany ///



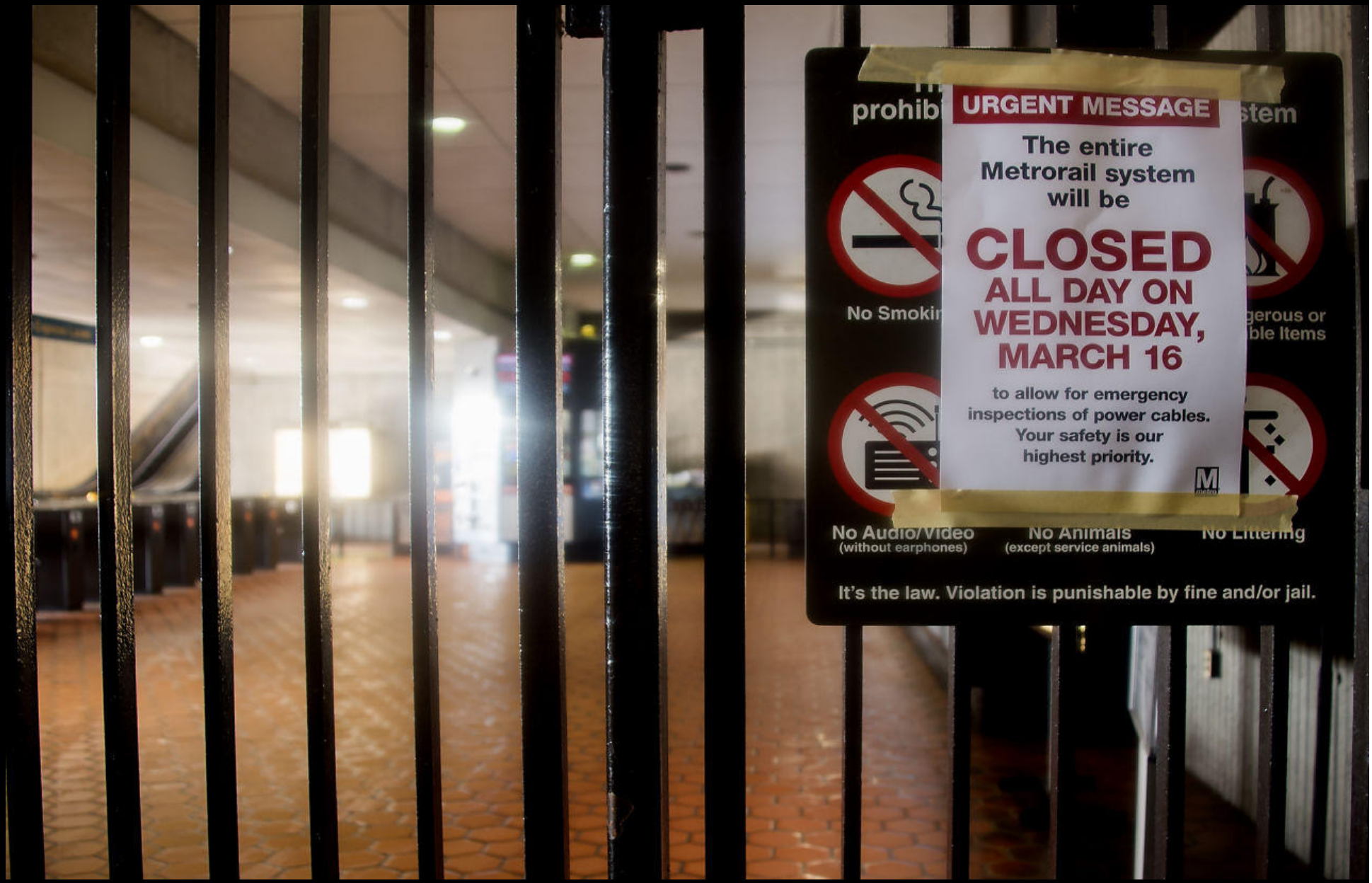
/// Cable Car as New Mode Replacing Bus Route ///



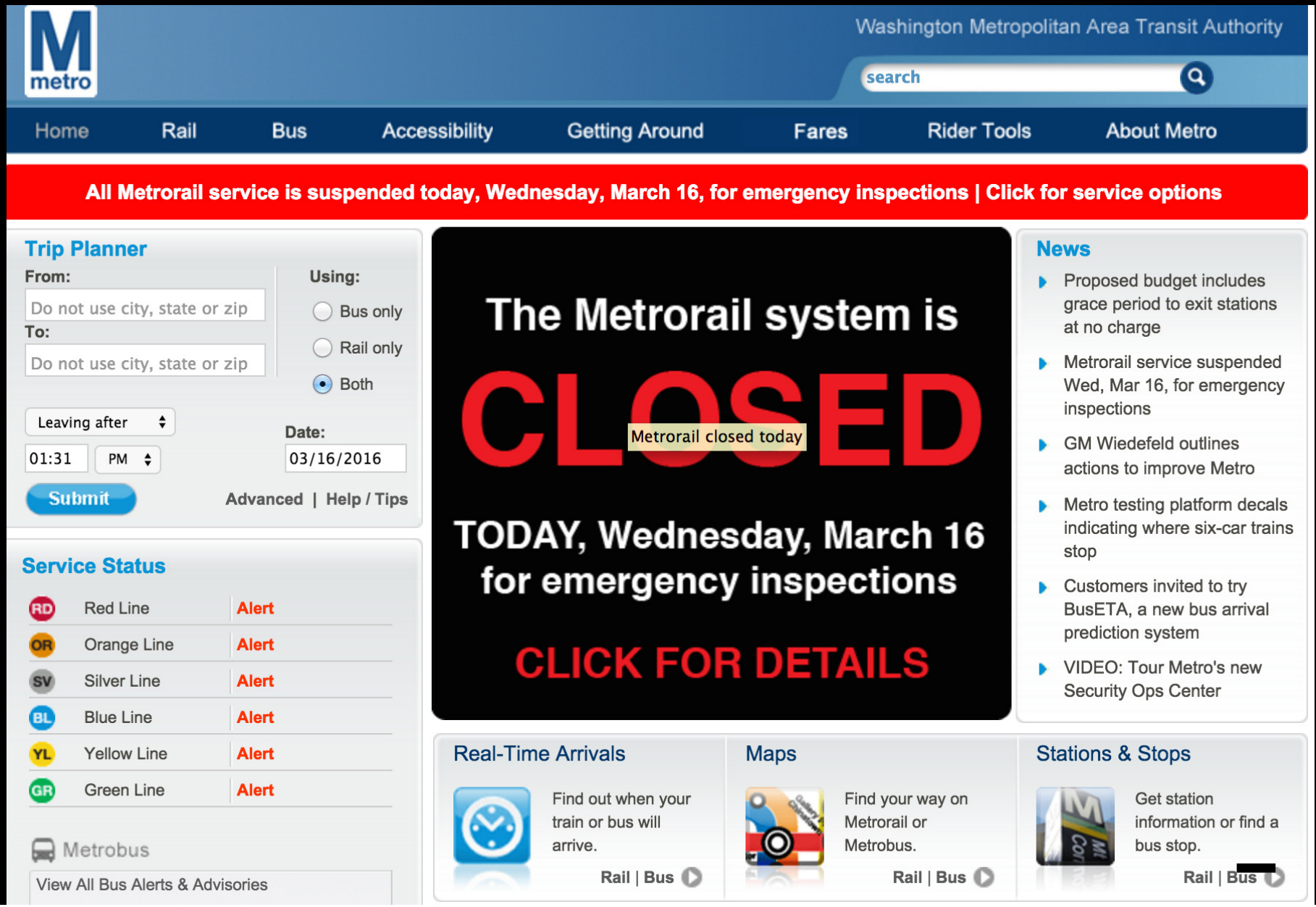
//// Financing and Reliability: DC Metrorail ////



//// Financing and Reliability: DC Metrorail ////



/// Infrastructural Collapse
> New Value Caption Models ? ///




Spatial
and temporal
Accessibility and Reach
Reliability
externalities
Public Service
modes assigned per strength

//// Reminder: 3 Meta-Drivers of Future Mobility ////

///// Suburbia Rules /////







/// Urban sprawl: key sustainability inhibitor
greedy for Land, Time, Energy, Lives

/// Flipping lifestyle drivers: 1960s dreams re-emerging as 2000s nightmares

/// Difficult if not impossible to serve by public transportation

> Overcoming vicious cycles: call for smart, vehicle-based solutions

> Re-thinking territories, spaces, functions

///// Rising Networks of Green Infrastructure: Data is the New Oil /////



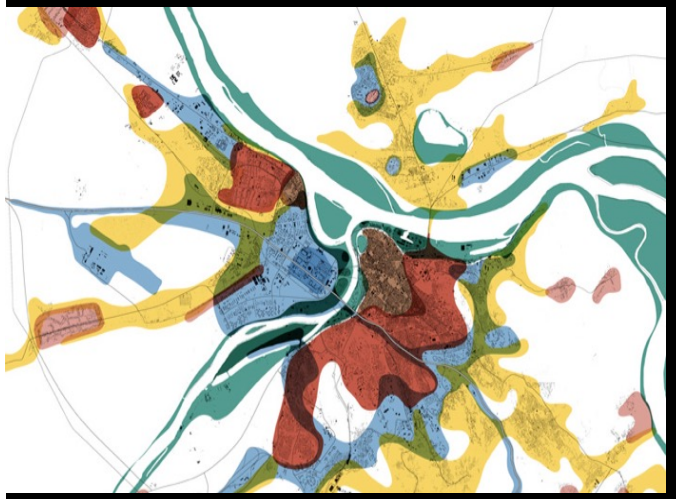




/// infrastructure deployment fostering dependency on private transport
/// Retail as we know it is declining
/// Malls increasingly appearing as dinosaurs of a bygone era
/// IT-driven service economy gradually taking over

> Understanding future urban mobility is understanding retail and services
> the urban vehicle of the future is the delivery van
> Need to re-consider the political economy of urban territories

///// Informality /////







/// approx. 90% of Mexico City built by non-architects

/// deficits in governance as main drivers for emergence of informal urbanism

/// retro-fitting infrastructure is a major headache

> formaliization of informal transport and deformalization of formal transport

> transport interventions are always urban interventions (change in paradigm)

> calls for thorough understanding of socio-economic conditions of inhabitants

///// Framing Technology through Governance: Econometric Aspects /////



//// Spatial Effects … ////

//// eBRT Key to
Governance of Transportation Infrastructure ////

Infrastructure as core Strategic Location Asset!


Move
fast and
break
make
things!

4

Agire dove le Cose accadono:

Spazi Suburbani, Exurbani e Regionali

/// Challenge: Serving Low Density Spaces ///




/// What Works Where?
Reshuffled Roles of Fixed Route and On-Demand Modes ///
Regensberg ZH, Switzerland (2023)


/// Or - rather this ? ///
WAYMO
WAYMO
17791M4
San Diego Ca, USA (2026)

/// Rural Corridors as Backbones, often overlooked… ///



NÖNPLUS | GÖSTLING

Ybbstalbahn-Gleise werden abgebaut

ERSTELLT AM 06. JUNI 2022 | 06:19
ANMELDEN, UM ARTIKEL ZU SPEICHERN

GÖSTLING AN DER YBBS

/// … Yet full of potential:
Powerful Infrastructure Keeping Rural Spaces Going ///



Goms, Switzerland (2024)

performant

Mobility is a decisive Location Factor

5

Aspettative sociali: cosa guida il Comportamento degli Utenti?

//// What are the Key Constraints in Urban Transport, and what can we learn from how we got there? ////

/// Key Constraints in Urban Transport (1): Availability and Use of Urban Space ///

SPACE

// Efficiency in Use of Public Space //



// New Infrastructure: Expensive in $$ and Time //



// Better Use of Existing Infrastructure //



// Key Criteria: # Slots Used per Passenger Carried //



/// Key Constraints in Urban Transport (2): The Cost of Time ///

TIME

// Congestion > Industrialization of Urban Transport //



Quest for Efficiency:

New York City, 1890s
Elevated Railway
405 M pax / yr

/// Key Constraints in Urban Transport (3): Comfort ///

COMFORT

/ Scarcity of Lifetime of the upper Tier:
Common Transport welcome if the product fits /



/ Dem ÖV Überlagerte Expressbus-Linien als
> Premium-Angebot
> Netzergänzung Schieneninfrastruktur /



Midtown NYC (2019)

/// Neuer Kundenfokus ///

„We need to de-Stress the Travel Lifestyle“

Oscar Munoz, United Continental Holdings
(fm CEO United Airlines)

/ Community Shuttle Networks (Oman) – Fixed Route blended with Demand Responsive /











Ruwi Central Baiza Bus Stop , 2014

//// Transportation and the Built Environment: How did we get here? ////

// Post WW II: Decline of Urban Rail Transit - „The Great American Streetcar Scandal“ //





Dismantling of urban and suburban electric rail in favour of motorbuses:

/// 1935: 90% of US Population Relies on Public Transportation
/// 1946: „National City Lines“- stakeholders: GM, Standard Oil, Firestone Tires controls 80% of urban and suburban rail networks
/// 1955: Over 1000 systems controlled, over 900 motorized

// Post WW II: Urban Sprawl //



San Mateo County (2013)



Los Angeles (1972)



Anonymous (2010)

/// Main driver behind increase of daily distances travelled

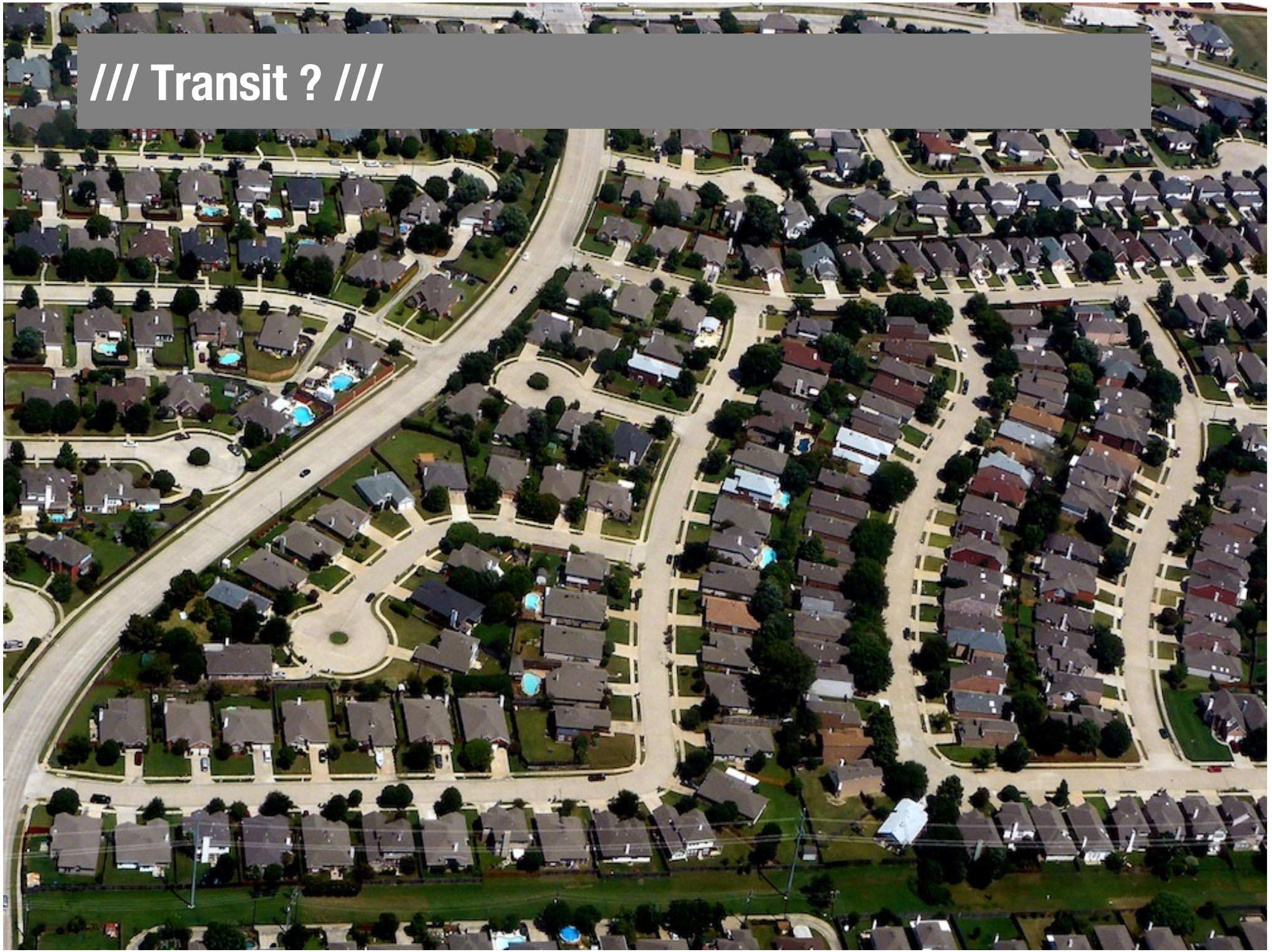
/// only conceivable with cheap, readily available individual mobility

/// one of the most unsustainable ever developments in urban planning ever

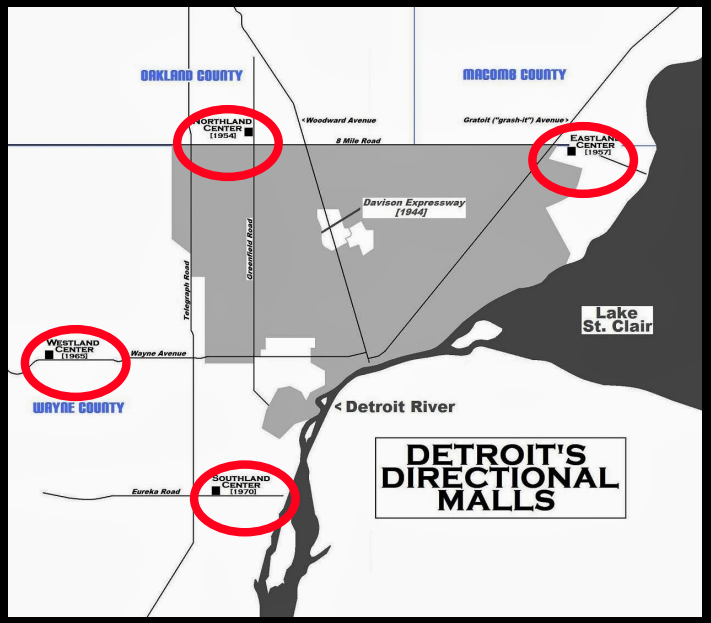
/// extremely difficult to serve by public transportation

/// loss of progress, loss of efficiency, „limits of growth“ become visible

/// Transit ? ///



// The Rise of the Mall //



Strategic Implementation of Malls in Detroit (2013)



Valley Fair Mall, San José CA (1956)

/// **Spatial unbundling** of daily-life Infrastructure

/// Strategic positioning of malls

/// Fostering Economic **Decline of Inner Cities** > No-Go-Areas, Ghettos

// The Age of Free Parking //



Southdale Center,
Minneapolis (1956)



Riverside Plaza,
San Bernardino (1950)

// inhibitor to efficient land use

// Free Parking = „Fertilizer Drug for Cars“ (D. Shoup)

// 99 % of US automobile trips end up in free parking spaces (2012)

// The Social Stigma of the Transit Bus //



Daly City CA, 2012



Palo Alto, CA, 2012



Silicon Valley CA, 2012

// Transit buses **shunned by middle-class citizens**
// Reputation **much worse than for rail services**
// Considered transportation **for the poor and underprivileged**

6

Gli Autobus nell'Ecosistema della Mobilità Futura: Trasporto a Capacità Intermedia

/// Relevant Metrics ? ///

/// Relevant Metrics ? ///

Drivers of Efficiency

ecologic

+ economic?

/// Relevant Metrics ? ///

> Spatial Externalities

/// Relevant Metrics ///

> Spatial Externalities

> Soci(et)al Effects

/// Relevant Metrics ///

> Spatial Externalities
> Soci(et)al Effects
> Energetical Effects

///// Systemic Remarks:
Brief Benefit-Centered Look
at Integrated Mobility Strategies /////

Be

Open

And curious

& SEE

New Business

Be Quick with Regulation & Policymaking

//// Going Beyond traditional Scopes ////

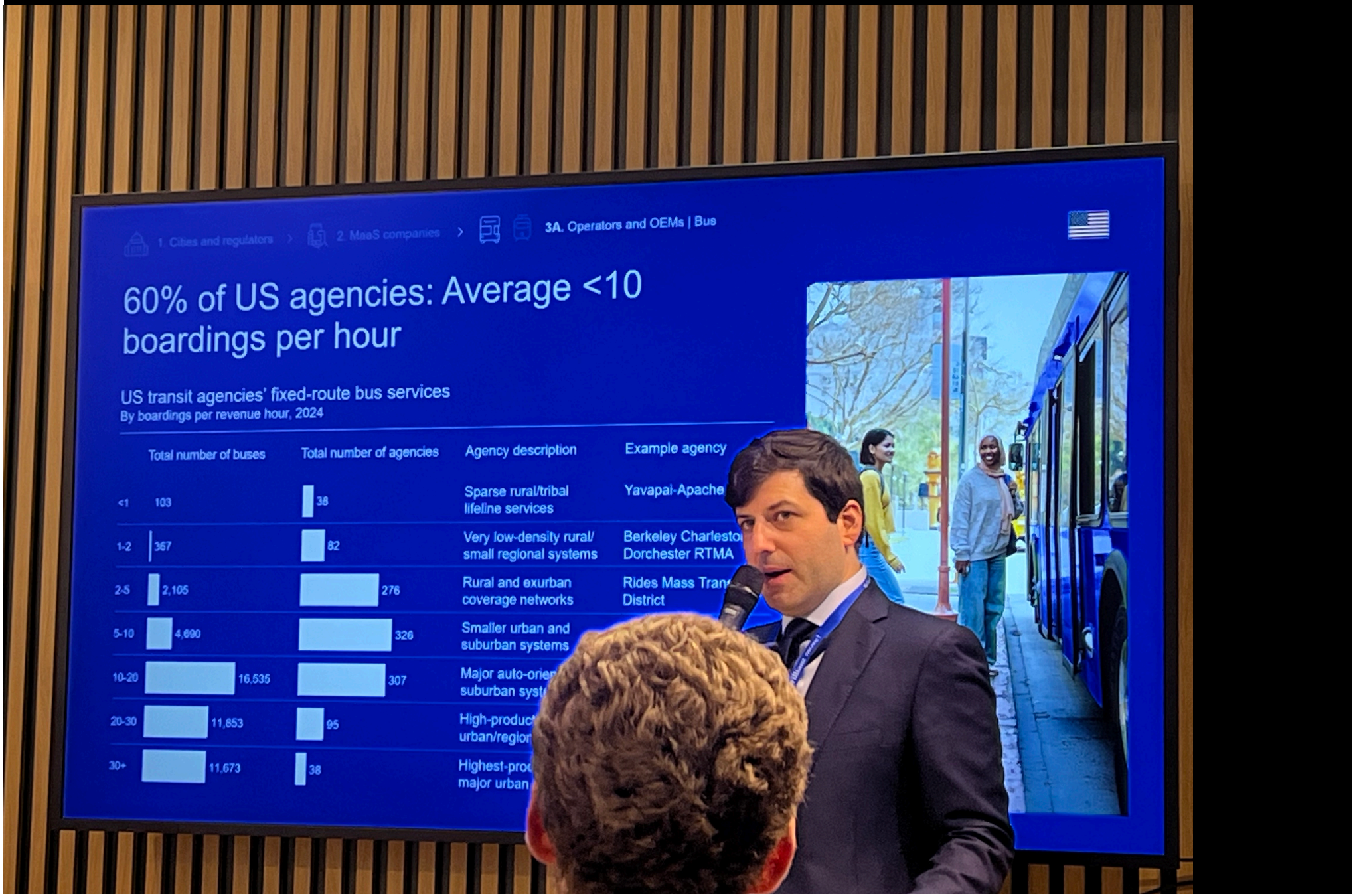
Societal Goals + Tech Development aligned

//// AV Car Systems:
Thinking Beyond the Urban Core ////

///// Governance and Policy:
Key Challenges ahead of us /////

Alignment of economic and ecologic Efficiency

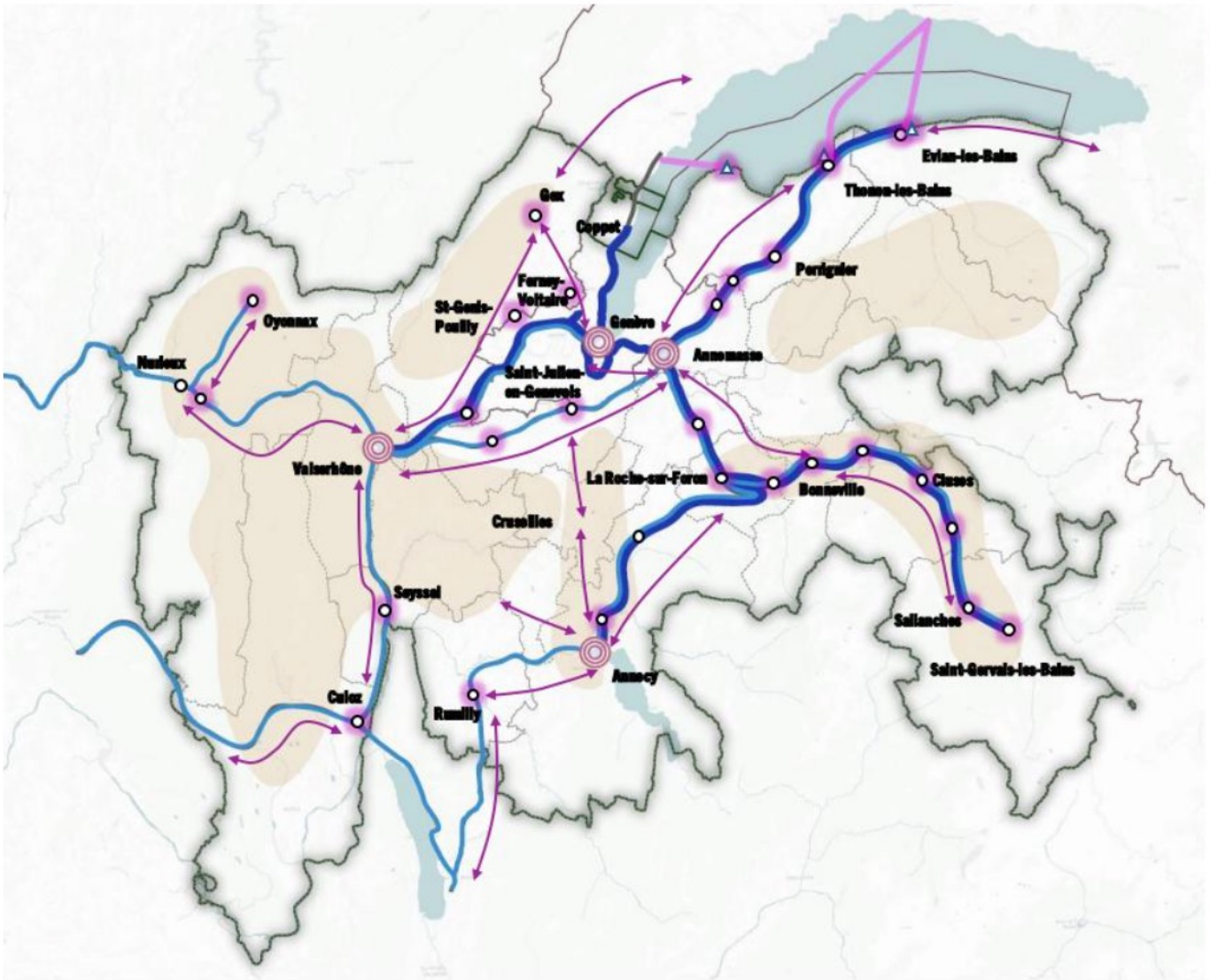
//// The Logics Behind AV Conceptualization ////



///// Governance and Policy:
Key Challenges ahead of us /////

Decarbonization needs to happen fast and scale

//// Understanding Streams: Understanding and Interpreting Data ////



Des enjeux traduits en objectifs territorialisés

Enjeux problématisés :

Faire émerger une vision d'ensemble et une offre structurée et cohérente à l'échelle du périmètre du SERM

Accompagner les évolutions d'offre ferroviaire, notamment sur le LEX, ~~en tenant compte de~~ prenant comme point de départ l'infrastructure existante

Proposer une offre performante, alternative à la voiture individuelle sur des corridors de déplacement

Améliorer l'irrigation en transports des territoires ne bénéficiant pas d'une offre suffisamment cadencée

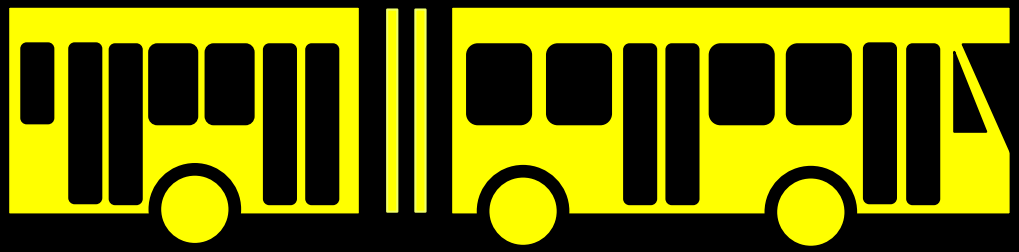
Améliorer l'organisation de l'intermodalité autour des nœuds de rabattement

Préserver les nœuds centraux de mobilité, portes d'accès du territoire

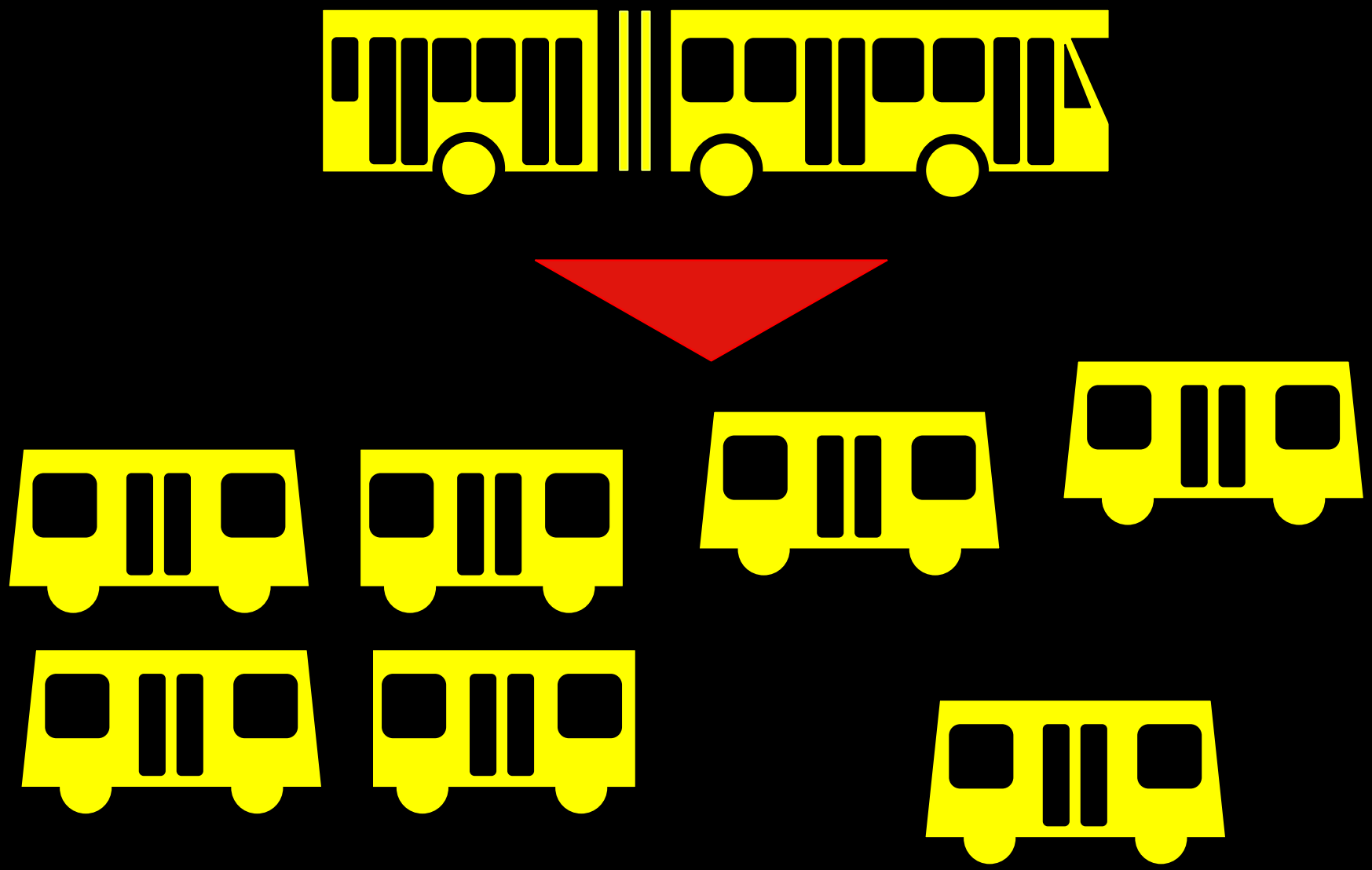
Aide à la lecture :

- Limites administratives des EPCI
- Liaisons lacustres
- Léman express
- Nœud ferroviaire et/ou routier
- Topographie lacustre

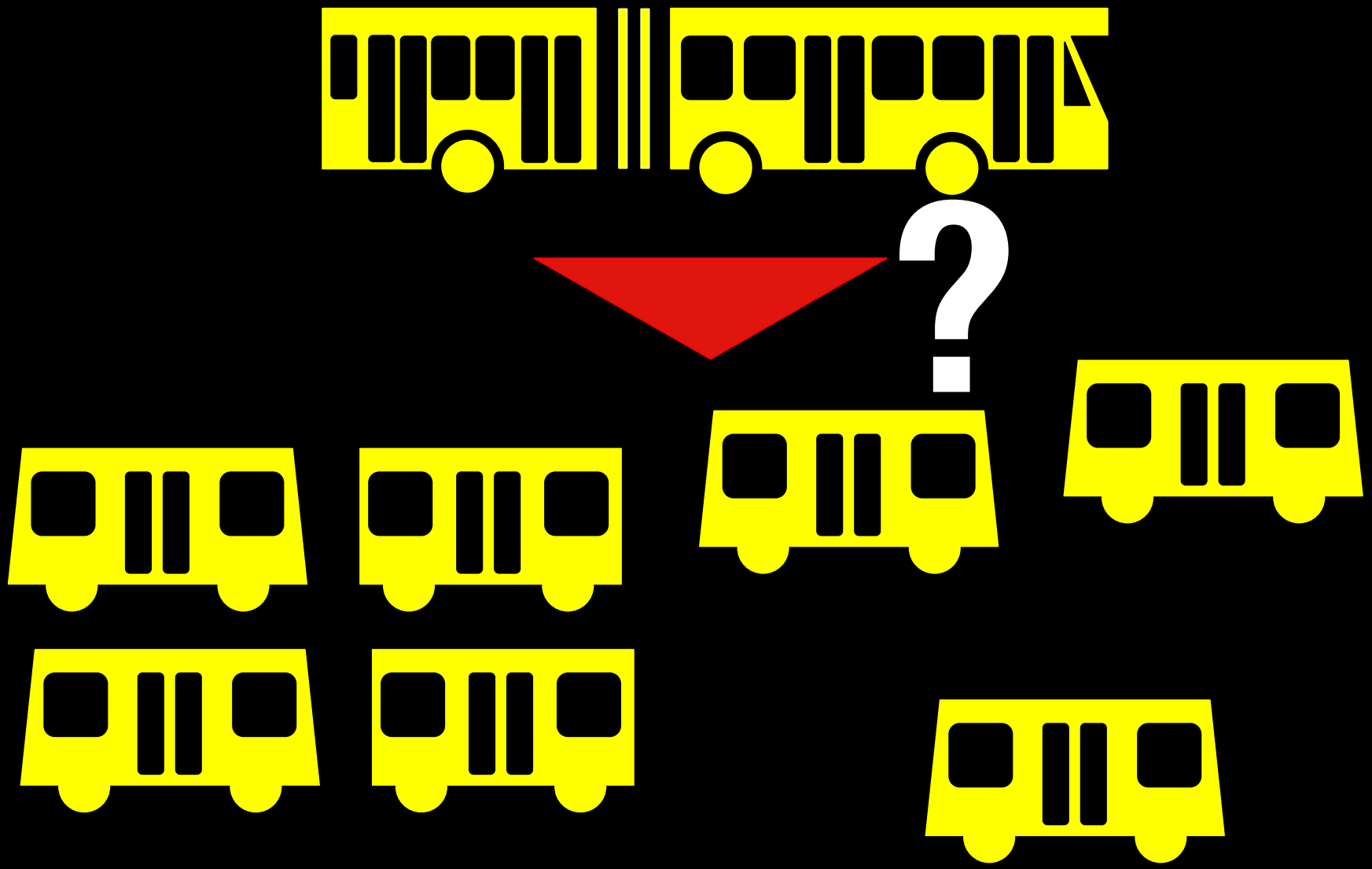
/// Mode Assignment in an AV Age ///



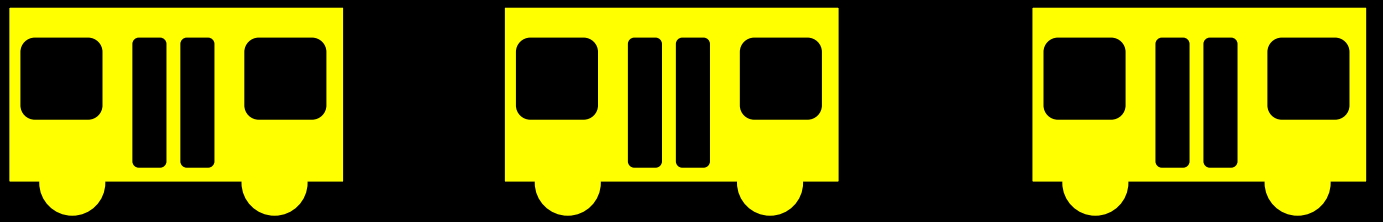
/// Mode Assignment in an AV Age ///



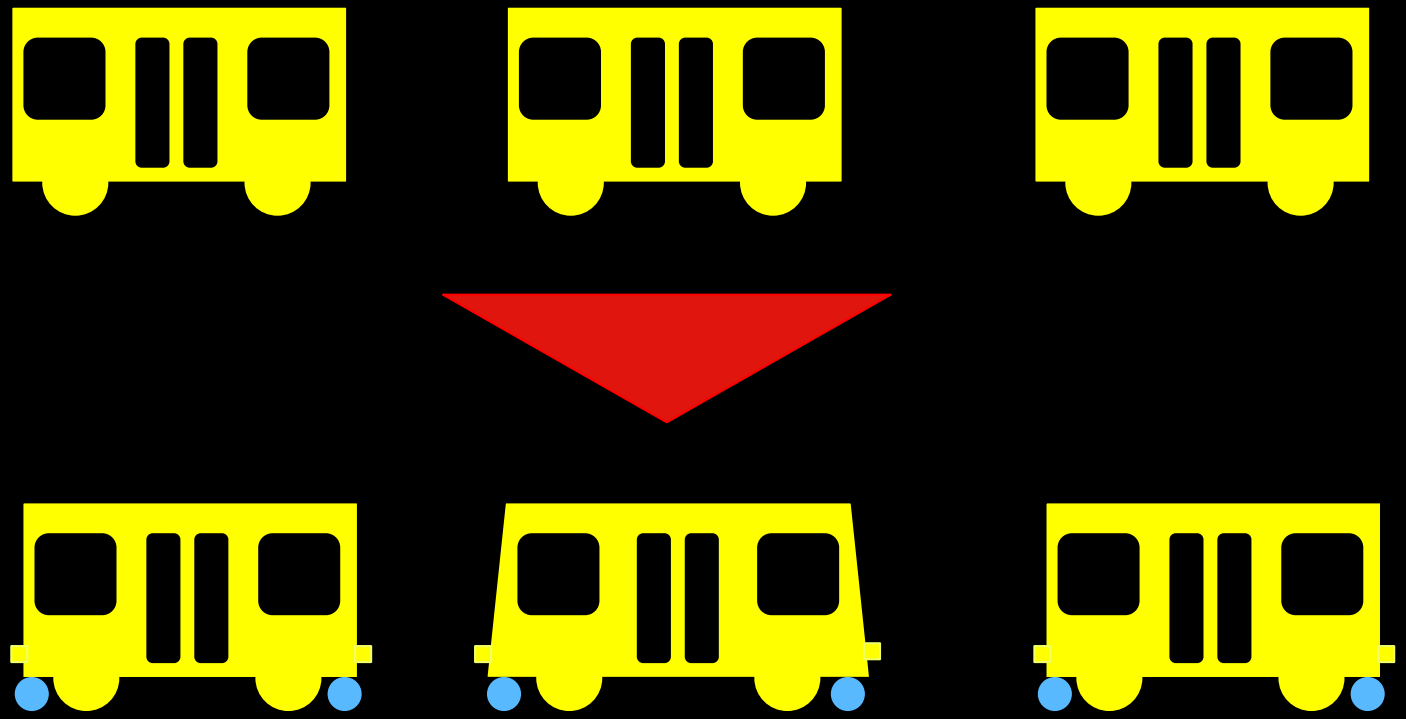
/// Zukunft des ÖV:
Intermodalität Neu Denken ///



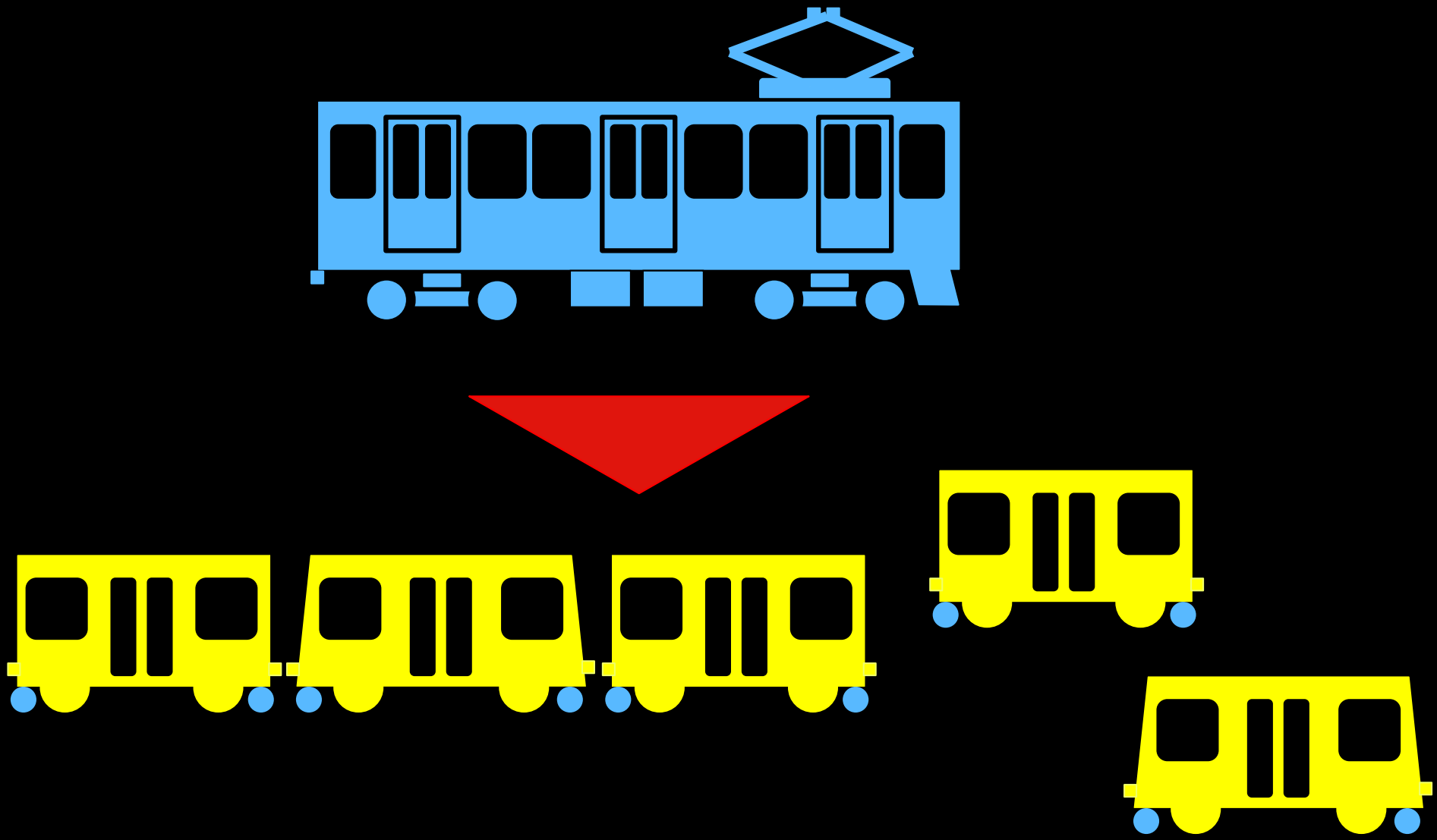
/// Re-Launch Intermodality:
Leverage Assets of Regional Rail ///



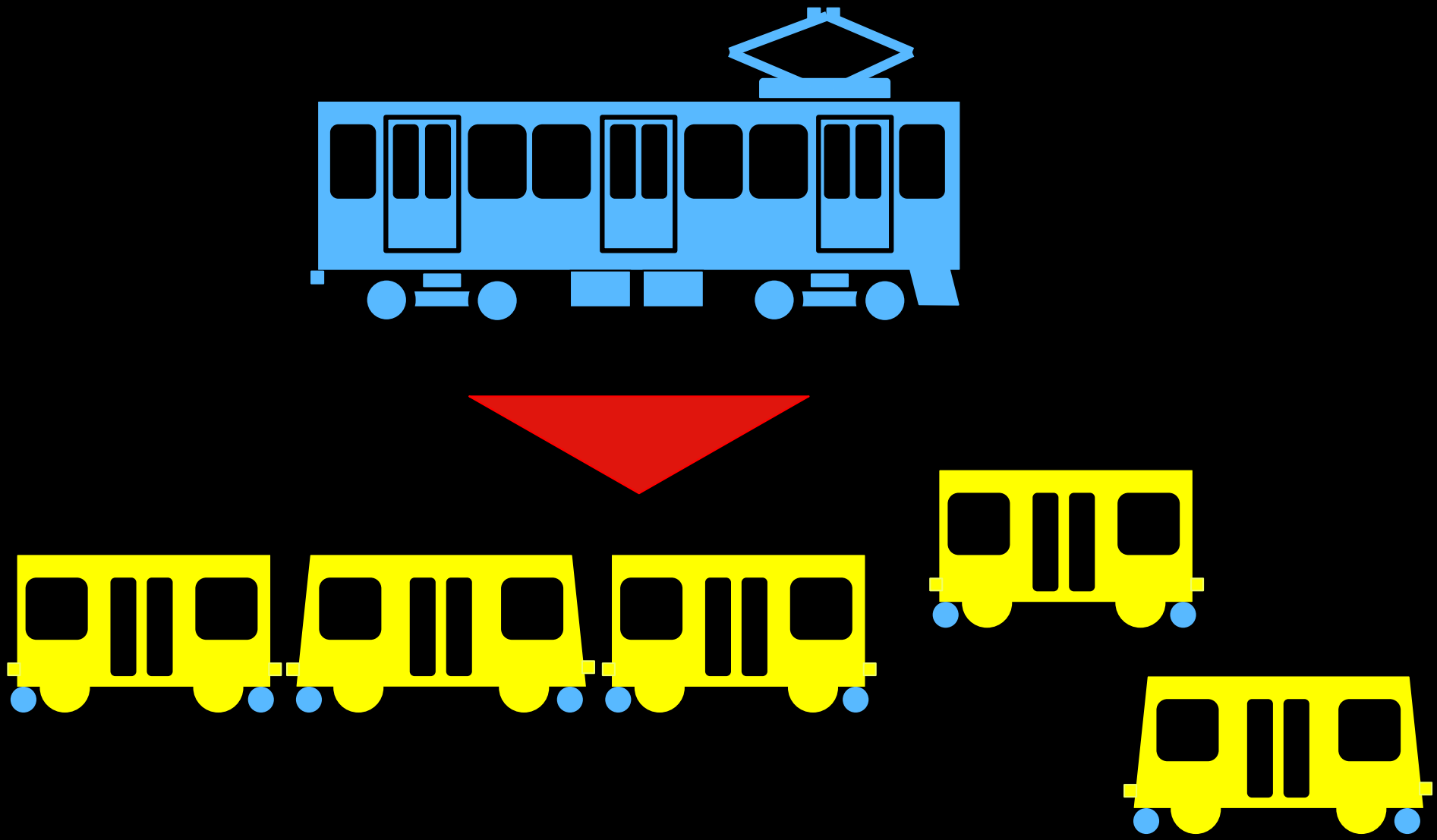
/// Re-Launch Intermodality:
Leverage Assets of Regional Rail ///



/// Re-Launch Intermodality:
Leverage Assets of Regional Rail ///



/// Re-Launch Intermodality:
Leverage Assets of Regional Rail ///



7

Centrato sulle Persone
Centrato sulla Società

//// Participatory Planning:
Metrics for Public and Private Actors ////

/// Tech- and VC-driven Top-Down Approaches

vs.

Participatory Planning and Regulation

“L’Humain est au Centre, pas le Capital”

//// Social and Societal Externalities ////

> Inclusion

//// Social and Societal Externalities ////

> Inclusion

> Simplification / Liberation

//// Social and Societal Externalities ////

> Inclusion

> Simplification / Liberation

> Accessibility

///// Taking Risks and the Dilemma of Regulated Industries /////

// State-Backed Actors (PT) highly conservative – need to!
> State: sets Guide Rails (Governance Framework)
> State as Entrepreneur… meh

// Actors from the Autonomous Vehicle World
> Identify and Occupy New Strategic Terrains
> Build Competence Faster (liaise Private Sector, Academia, Policymakers)
> Put the Customer Front and Center
> Exploit Weaknesses in “Partner” Products > $$

> What matters to POTENTIAL AND EXISTITING customers out there?

8 Scenari Urbani


What
goes
where
?


STOP
WAYMO

///// Developments of Contexts and Frameworks:
Econometric Aspects /////

It's all about the intersection of people processes and technology

//// Externalities:
Leveraging the Commons –
AI-Enabled Cars and Public Space ////

what does really matter?

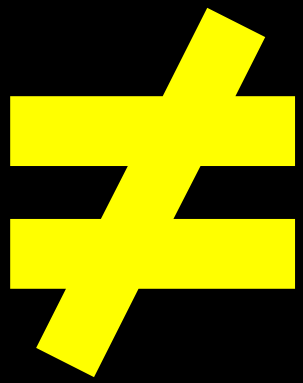
> what's next?

/// The Idea of the Commons ///

// **Public Space:**

> Shared Vehicles are Integral Parts of Social Forums

> Re-Valuation of Togetherness



// **Capsule Transportation**

> Isolation of Individuals and Coherent Sub-Groups

> Public Space perceived as Alien Territory

///// Proposals for Atomization of Transport: Car Advertising Narratives /////



///// Proposals for Atomization of Transport: Car Advertising Narratives /////



Auto Werbung - Der neu AUDI A1 - Autobing.de



Auto Werbung - Der neu AUDI A1 - Autobing.de

/// Historic Drivers ///

// Victor Gruen:

> Retail: Mall as Surrogate of Public Space

> Hard-Wiring Car Dependency into Built Environment

// Post-WWII rise of Car-based socities:

> Suburbia as History of Segregation

> Fall of Detroit – Flight to wealthy Suburbs, north of 8 Mile Road

//// The Energy Side ////

Efficiency

Well-to-Wheel

Sourcing

Vehicle Productivity

///// Monopolization of Public Space (I): Organizational - Rejection of Public Space /////

// Car (Capsule Transport)

// Mar-A-Lago …. Gated Communities

// AirBnB > Illusion of Privacy and Belonging as Core of Business Model

// Uber > Safety in a Hostile World (building on Car Model)

///// Monopolization of Public Space (II): Brute Force – Tribalism /////

// Perceived Degradation in Public Safety:

Appropriation of Space, Tribalism

> Appropriation is always Aggressive Act

> Social Issues at the Base

> High Levels of Homelessness,

Drug Abuse as Co-Indicators

> Small amount of troublemakers with overproportional visibility and reception

// Today: Single Biggest Thread to Public Transport

What
is required?

(and how to get there)

//// Formalization and Deformalization
Example: Marshrutki ////





INFORMAL

- No Integration or Coordination
- Low Efficiency, no Oversight
+ Highly Flexible
+ Good Knowledge of Local Terrain

FORMAL

+ Integrated and Regulated
+ Real-Time Tracking, Optimized Operations
+ Highly Flexible > Customer Responsive
+ Structured, Flexible Work on Local Terrain

/// Learning from Informality ///

// From Jitney to Self-Driving Shuttle:



Manila, Philippines (2015)



Zug, CH (2017)

/ How to Formalize the Advantages of Informality?
/ How can the Downsides of Informality be compensated by Technlogy?

// Autonomous Vehicles: Taking over Taxi Services and Car Sharing from 2027 on //





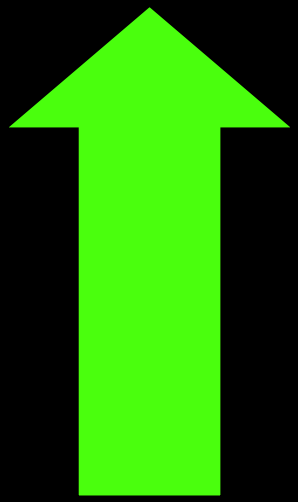
/// AV Deployment and Added Value: Suburbia, Exurbia, Rural ///


//// AV Deployment: Ruter, Oslo, Norway ////

// Formalisierung und Deformalisierung //

FORMALISIERUNG

- Zugänglichkeit für Pax als ÖV hergestellt
- im Gegenzug für Infra-Nutzungsprivilegien



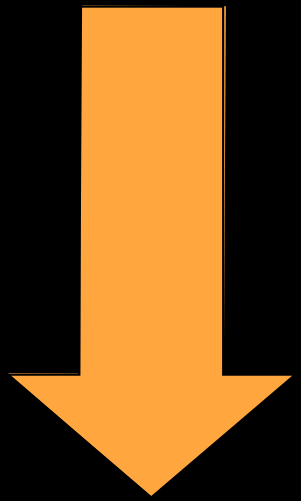
Bedarfsverkehre

Shared Taxis

Coroporate Transport

Bus-Lokalverkehre
(Quartierbusse etc.)

Neue Fern-Sammelverkehre



DEFORMALISIERUNG

- Integration in ÖV-Netzinfra
- Einführung Real-Time Tracking
- Instantane Reaktion auf Pax

//// Formalization and Deformalization
Example: Marshrutki ////





INFORMAL

- No Integration or Coordination
- Low Efficiency, no Oversight
+ Highly Flexible
+ Good Knowledge of Local Terrain

FORMAL

+ Integrated and Regulated
+ Real-Time Tracking, Optimized Operations
+ Highly Flexible > Customer Responsive
+ Structured, Flexible Work on Local Terrain

/// Learning from Informality ///

// From Jitney to Self-Driving Shuttle:



Manila, Philippines (2015)



Zug, CH (2017)

/ How to Formalize the Advantages of Informality?
/ How can the Downsides of Informality be compensated by Technlogy?

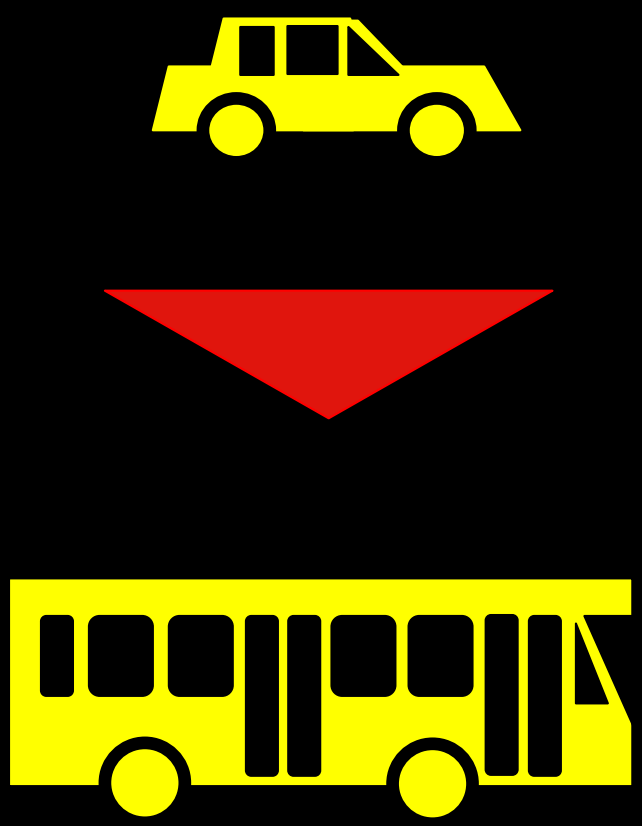
//// AV Deployment in Subruban Space ////



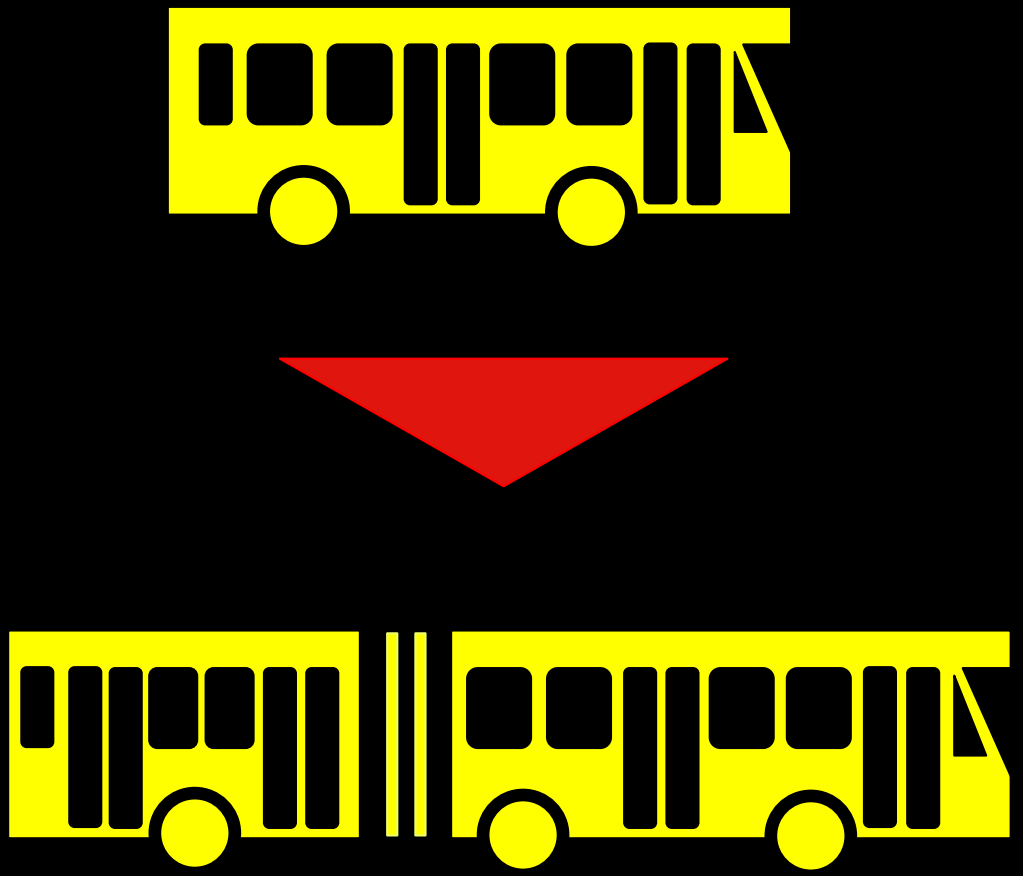
9

Una nuova Modalità: il Filobus a Ricarica in Movimento (IMC)

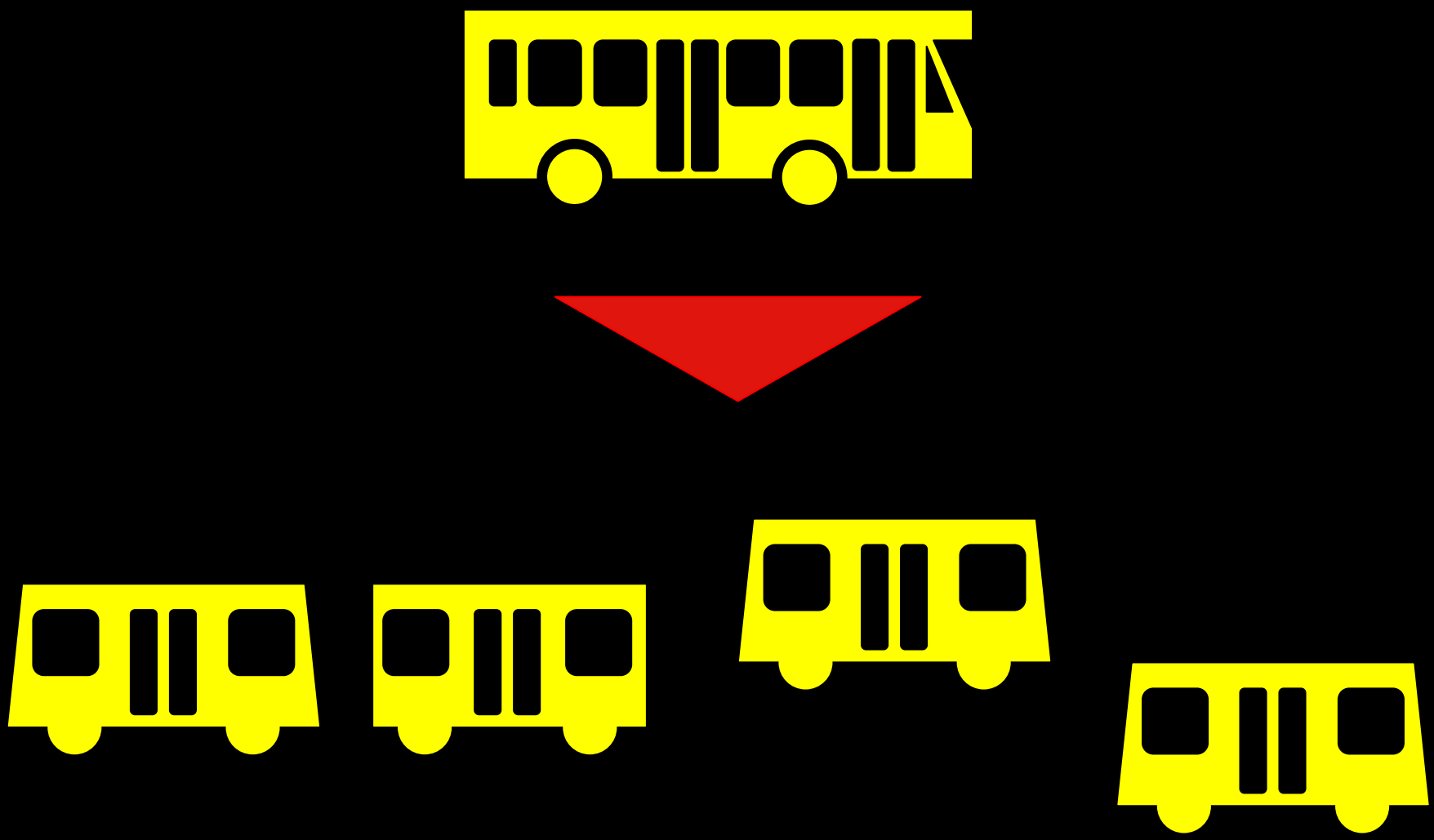
/// Mode Assignment in an AV Age: The Dilemma of Vehicle Size ///



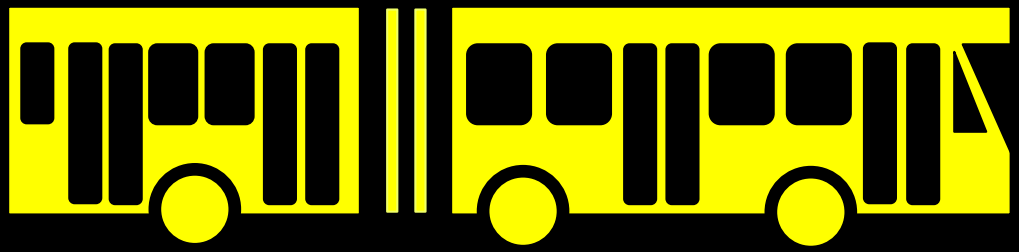
/// Mode Assignment in an AV Age ///



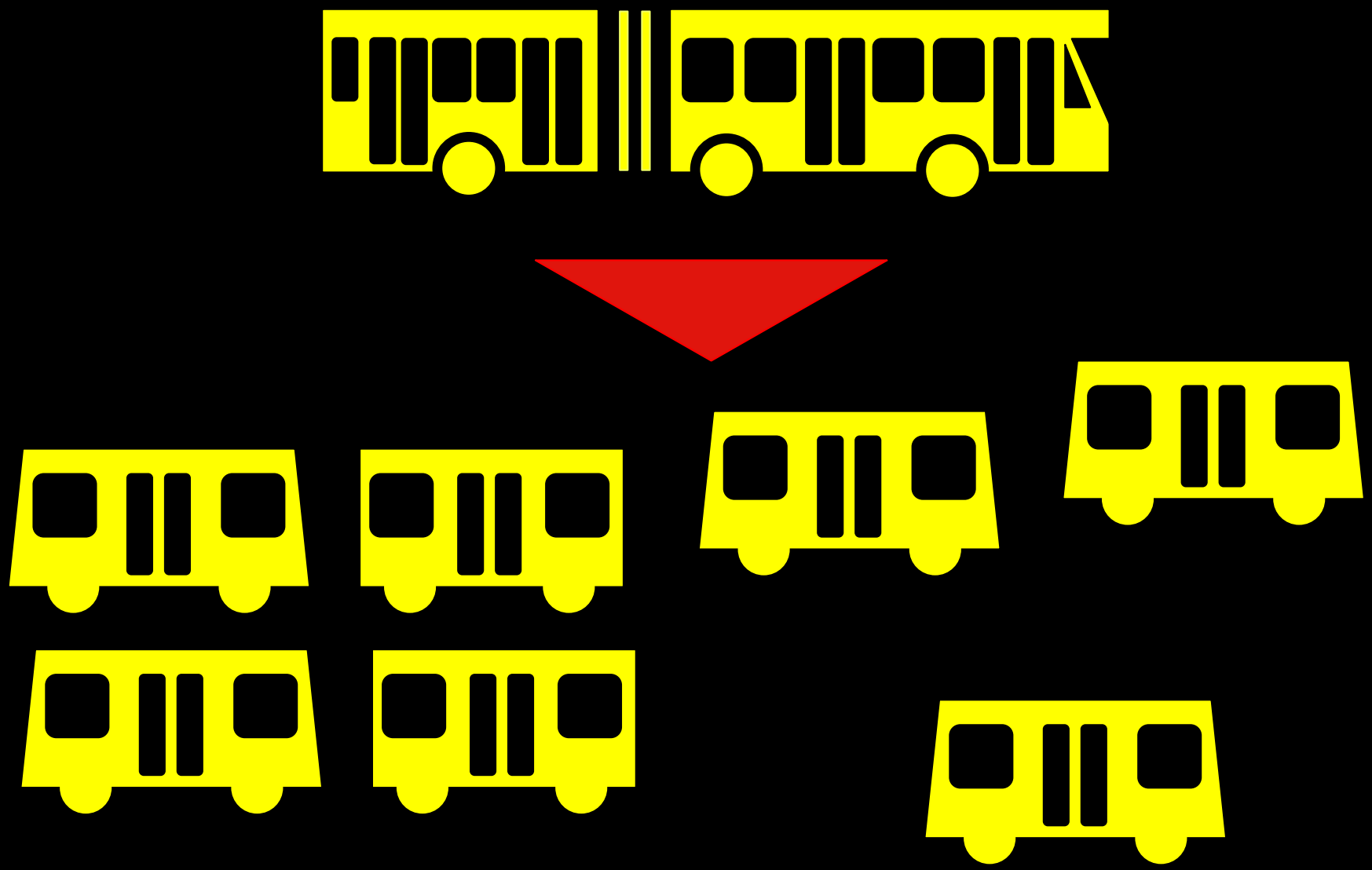
/// Mode Assignment in an AV Age ///



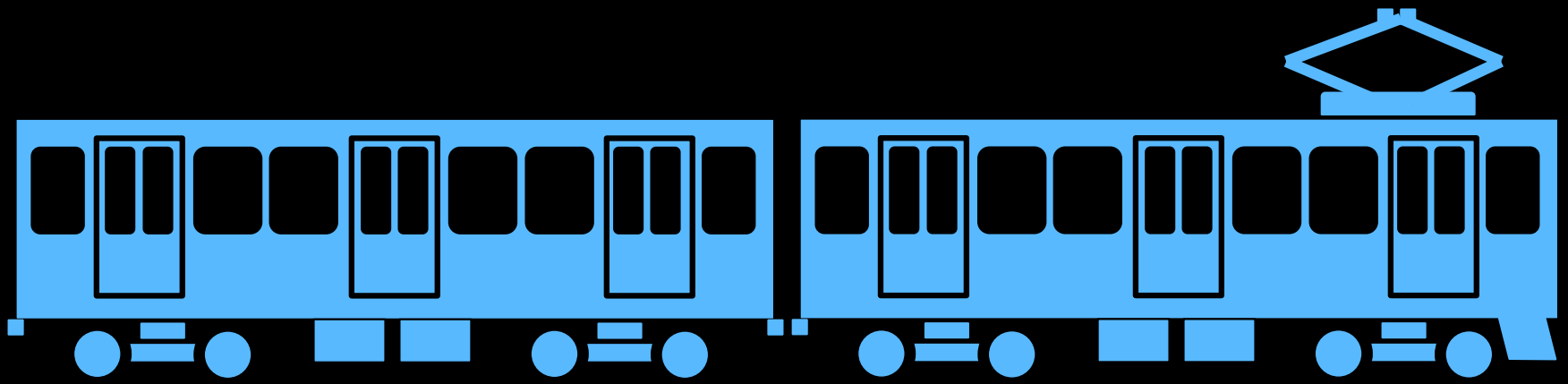
/// Mode Assignment in an AV Age ///



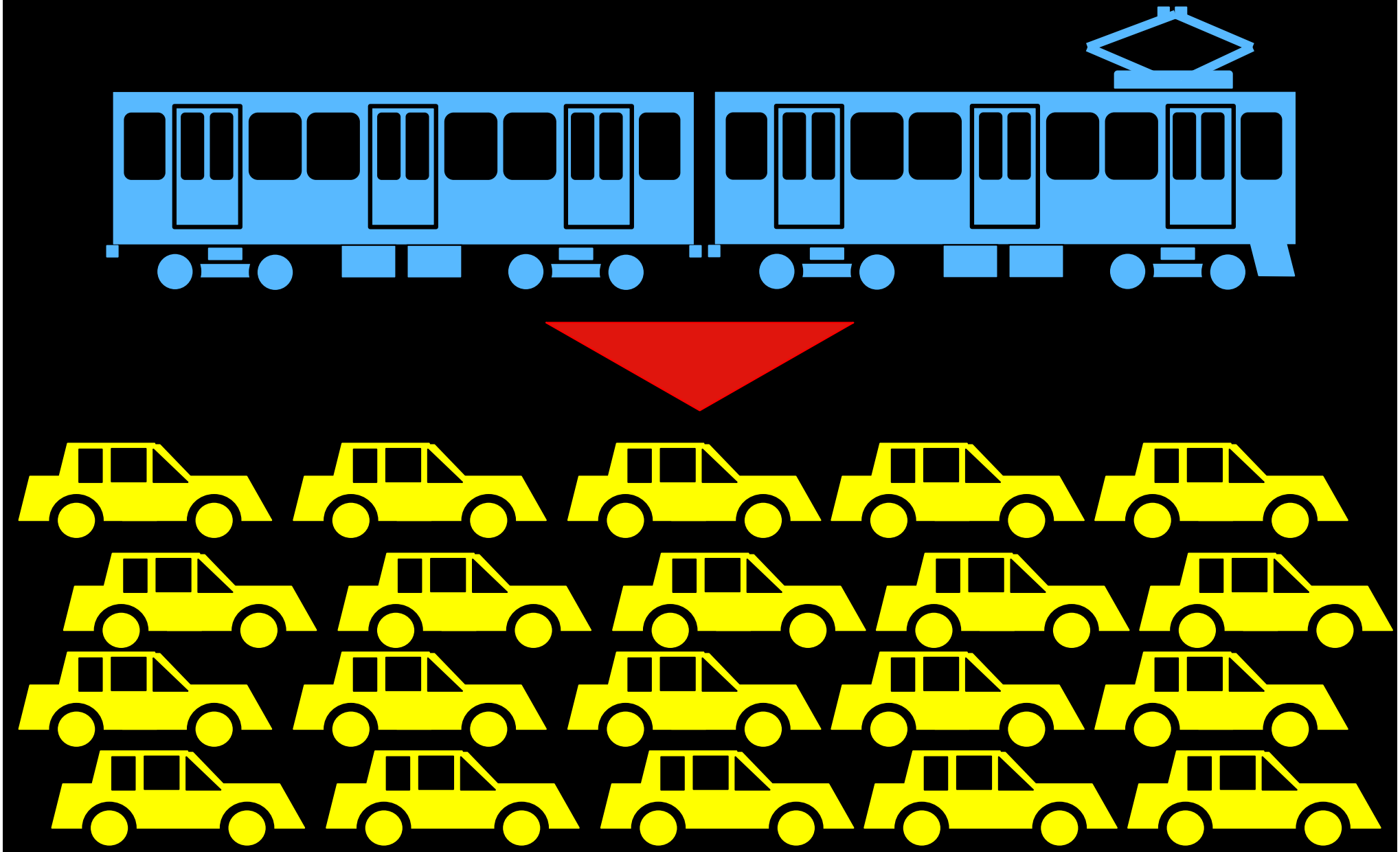
/// Mode Assignment in an AV Age ///



/// Why we need larger AVs ///



/// Why we need larger AVs ///



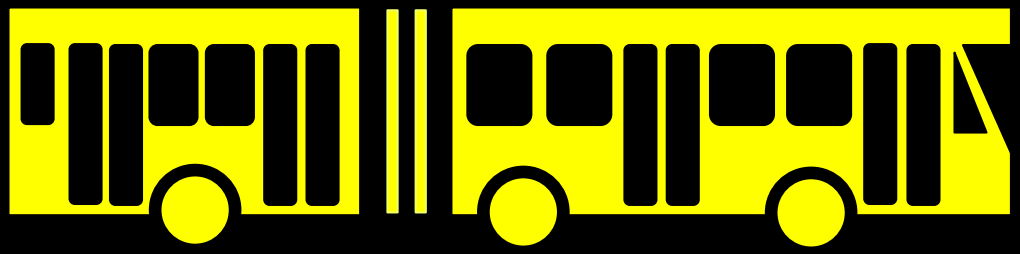
/// Why we need larger AVs ///



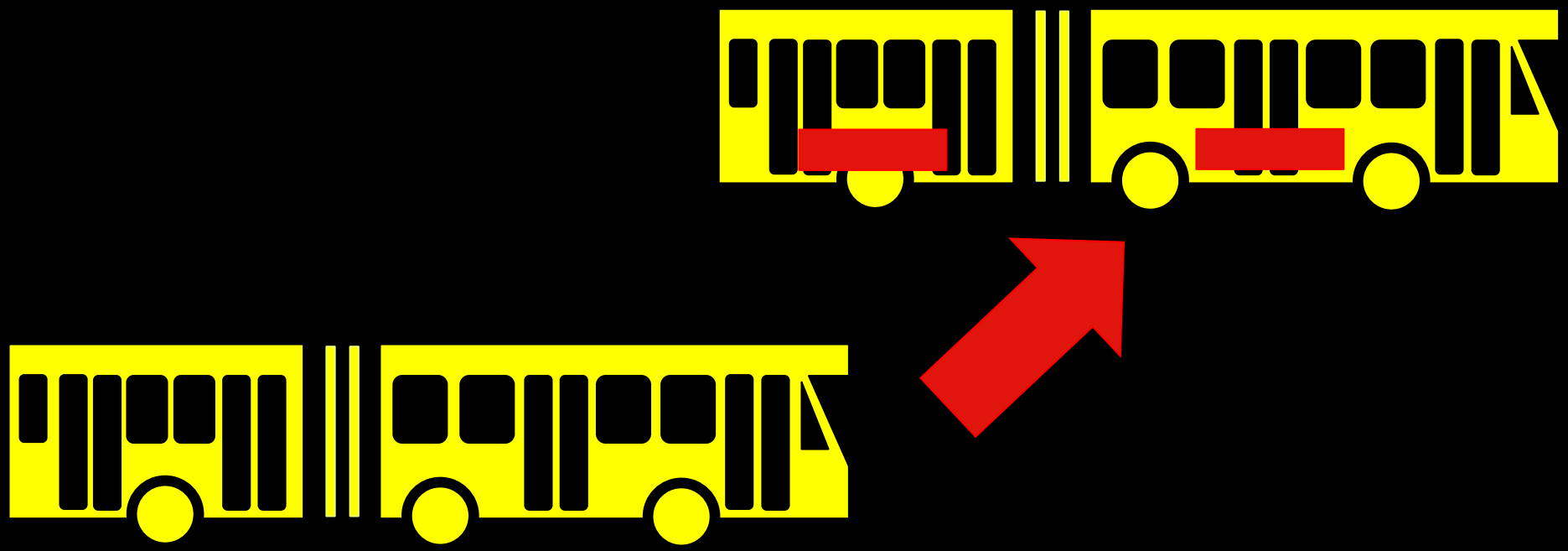
/// Why we need larger AVs ///



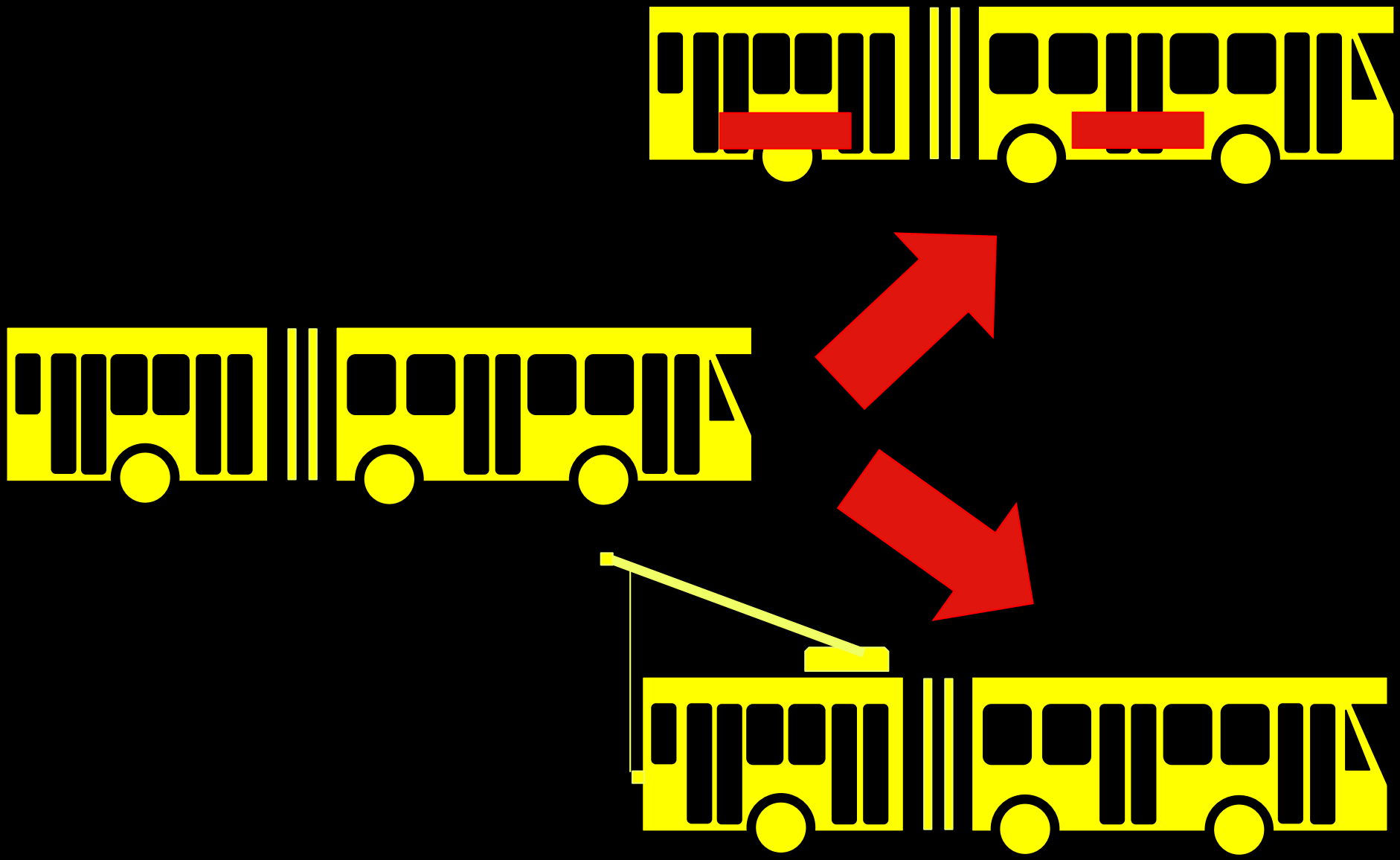
/// Mode Assignment in an AV Age ///



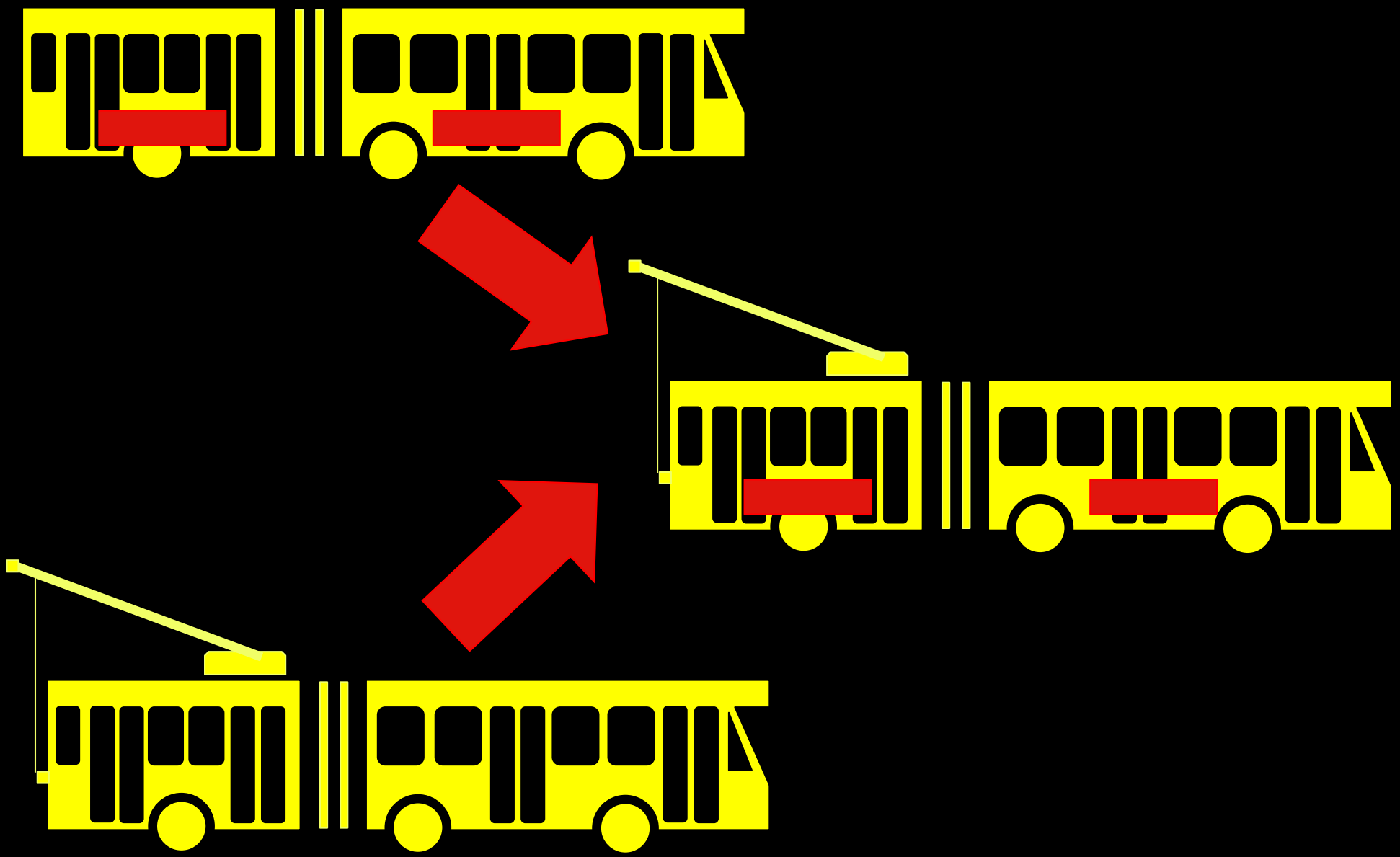
/// Mode Assignment in an AV Age ///



/// Mode Assignment in an AV Age ///

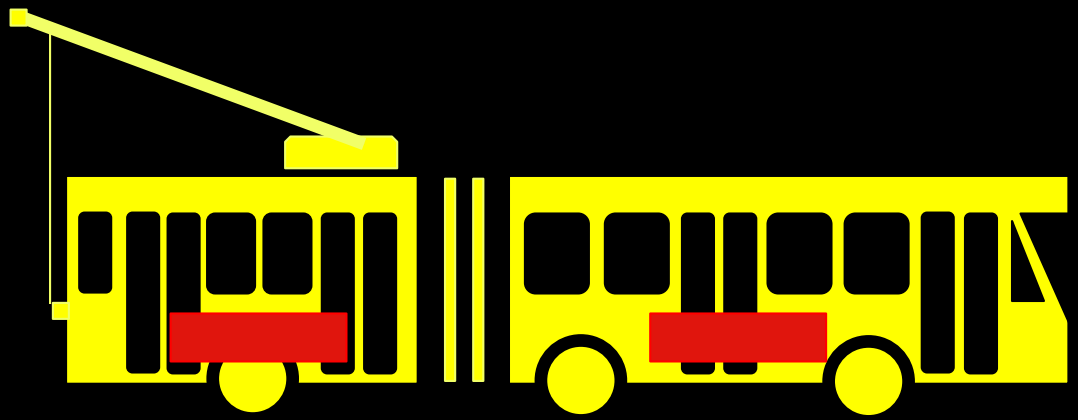


/// Mode Assignment in an AV Age ///



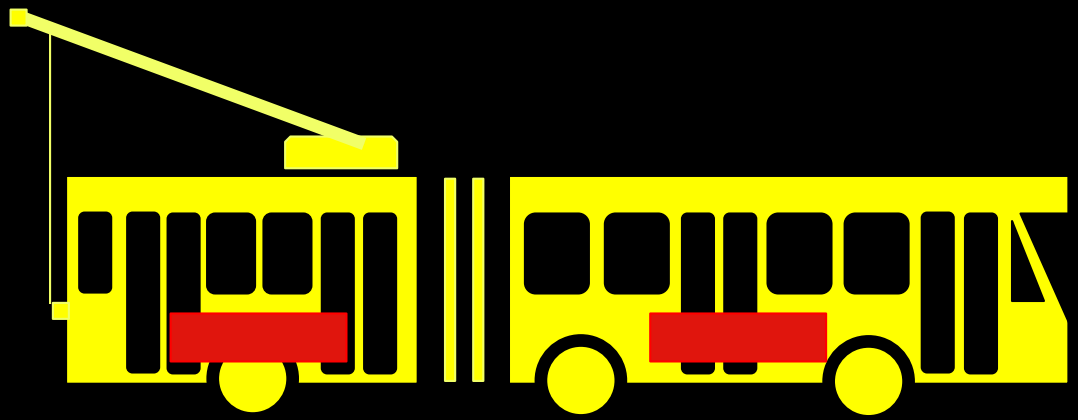
/// Battery Overhead Bus:
The New Climate Superhero ///

- **Flexible Capacity:**
  Medium- to High Capacity Tool



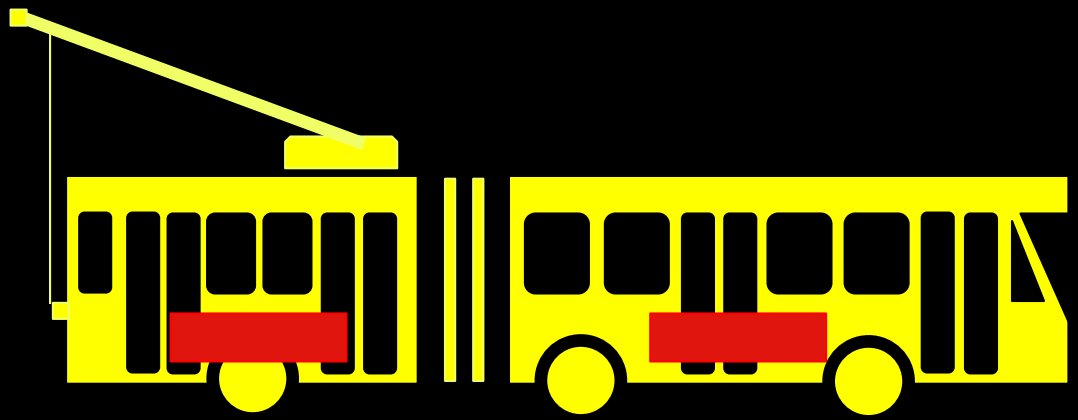
/// Battery Overhead Bus:
The New Climate Superhero ///

- **Flexible Capacity:**
  Medium- to High Capacity Tool
- **Zero Emission**
- **Low Weight**
  > Energy Efficient



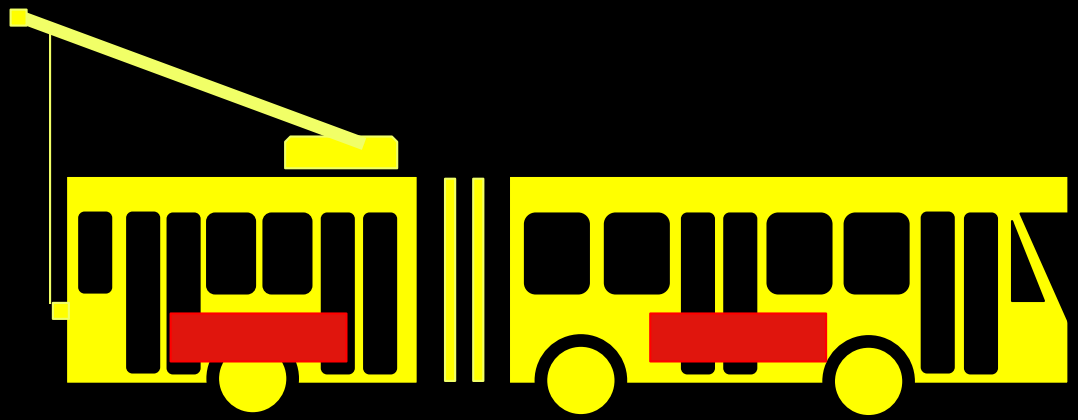
/// Battery Overhead Bus: The New Climate Superhero ///

- Flexible Capacity:
  Medium- to High Capacity Tool
- Zero Emission
- Low Weight
  > Energy Efficient
- In-Motion Charging
  > actively Balances Power Grid
- No wires where delicate or technically challenging



/// Battery Overhead Bus:
The New Climate Superhero ///

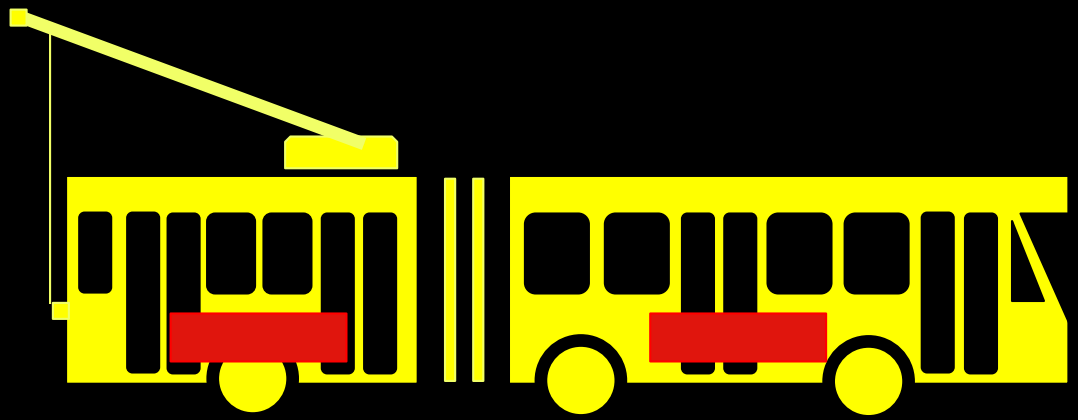
- Flexible Capacity:
  Medium- to High Capacity Tool
- Zero Emission
- Low Weight
  > Energy Efficient
- In-Motion Charging
  > actively Balances Power Grid
- No wires where delicate or technically challenging



- FLEXIBLE operations
Runs off-grid 20 kms

/// Battery Overhead Bus: The New Climate Superhero ///

- Flexible Capacity:
  Medium- to High Capacity Tool
- Zero Emission
- Low Weight
  > Energy Efficient
- In-Motion Charging
  > actively Balances Power Grid
- No wires where delicate or technically challenging



- **FLEXIBLE operations**

Runs off-grid 20 kms

Blends

- **fixed route,**
- **DRT**
- **Efficiency per Pax carried**


Move
fast and
break
make
things!

/// Comparative Trials in Biel/Bienne (CH): IMC Trolley vs. Opp. Charger – Route 9 Test ///



/// Comparative Trials in Biel/Bienne (CH): IMC Trolley vs. Opportunity Charger ///



/// Comparative Trials in Biel/Bienne (CH): IMC Trolley vs. Opportunity Charger ///



Trolleybus à batterie pour Bienne

Erich Fehr, président du conseil d'administration des Transports publics biennois, déclare à ce sujet : « Les transports publics se déplacent déjà à 50 % à l'électricité. Grâce à l'expérience acquise sur la ligne 9 depuis 2021, nous avons une idée concrète de la manière d'électrifier l'ensemble de la flotte et de **contribuer ainsi à une plus grande durabilité dans la région biennoise. »** On s'est rendu compte que les stations de recharge entraînent une augmentation de 50 % du prix de l'électricité et que l'extension vers les bus électrifiés coûte nettement plus cher que prévu. Pour cette raison, les Transports publics biennois resteront fidèles à leur réseau de trolleybus déjà bien développé et miseront pour l'avenir sur **des trolleybus fonctionnant avec des batteries.** « Nous disposerons ainsi des meilleures conditions pour faire évoluer notre flotte de bus », explique Christine Maier, directrice des Transports publics biennois. Dans un premier temps (en 2026), 21 bus seront remplacés par 18 nouveaux trolleybus à batterie. Des investissements d'environ 25 millions de francs sont attendus.

Le choix s'est porté sur des trolleybus à batterie, car les batteries sont nettement plus petites et ont une durée de vie plus longue. De plus, ils sont plus respectueux des ressources et donc plus durables sur le plan écologique. Sur la base de ces résultats, l'électrification de l'ensemble du réseau local actuel de Bienne se fera exclusivement avec des trolleybus à batterie.

Les bus à batterie de la ligne 9 seront transformés en trolleybus afin d'éviter des coûts supplémentaires (de véhicules et de personnel supplémentaires) et d'atteindre la standardisation souhaitée.

Seite 1 von 2

Verkehrsbetriebe Biel

/// Comparative Trials in Biel/Bienne (CH): IMC Trolley vs. Opportunity Charger ///

« Learnings from [Battery-Electric] Route 9 operations since 2021 gave us a good idea of ***how to electrify the full fleet*** *and thus contribute to raising sustainability standards in our region.*

[…] Part of these insights are a ***total cost of energy supply around 50% higher*** *[than for IMC trolleybuses], much higher than expected.*

[…] Thus, further urban network ***electrification will happen through battery trolleybuses only.*** *This will set a good framework for future* ***scaling of the fleet*** *electrification.»*

//// eBRT Key to
Governance of Transportation Infrastructure ////

Infrastructure as core Strategic Location Asset!

BEIJING (CN) CHARGING ROAD



Shanghai (CN) Route 71



BEIJING (CN) CHARGING ROAD




北N
东单北大街
DONGDAN North St
(东 四)
东单三条
DONGDANSANTIAO Alley
(王府井大街)
东单三条东口

BEIJING (CN) CHARGING ROAD



NEUCHâtel (CH)



ZURICH pRE-BRT



São Paulo (BR) e-TROL



ATTENZIONE – FAIL: Venice (it) Translohr



FAIL: Trackless tram (CN)



10

Approccio olistico: Gestire le transizioni, potenziare i punti di forza

/// Mobilities and Land Use ///

// Andrew Salzberg, Head of Transportation Policy and Research, Uber

„There is not ONE Public Interest“

//// What makes Future Transit be Transit? ////

/// Ask the right questions: What will matter in a car-lite world?

/// Do we want «Capsule Transportation»?

/// What can Robotaxis do to our public spaces, positive and negative?

/// Do we want full Door-to-Door?

/// How do we provide «Guaranteed Ride Home»?

Meta-Takeaways

20 seconds, 5 Overarching Visions

Bottom Line:
It's about Our Future, Stupid!

/// **Efficient + Sustainable Transport**
is Key Factor in buidling and securing Wealth

/// Future of PTAs is to
- Negotiate
- Apply
- Enforce

the **Societal Manadate for Public Transport**

/// **Transit Ecosystem is accountable to Society:**
Service Level Requirements to be Defined
by Social + Economic Externalities

///// Bottom Line:
Towards a Political Economy of Place /////

/// Extending the Mainstream Debate

- Governance and Policy Questions are ultimate Points of Convergence and major Drivers of changing Mobility
- Any Urban Context Debate is ALWAYS about Programming Space

/// The City and its Framework – Suburban, Exurban, Rural as a Societal Growth Machine:

- Placemaking as a concept for Efficiently Leveraging Sites

/// Takeaways: Governance Outlooks for an AV Age ///

/// AVs: Heaven or Hell? ///

// Robin Chase, Co-Founder Zipcar (2014):
„It‘s the Use Scenario of AVs that determines their value“

/ Scenario A: Dispatched Robo-Taxi Fleets that pick up and drop off on-demand:
> Massive Reduction of private Car Ownership, possible positive repercussion on land use

AVs = Heaven

/ Scenario B: Private Automobiles fitted with self-driving technology:
> Massive Increase of Attractivity of Private Car Ownership = Worst-Case

AVs = Hell

/// Integrated, Networked Mobilities in an AV Age ///

// Jay Walder, ex-CEO MTR Corp. Hong Kong, now CEO Motivate

„We need to take the Mass out of Mass Transit“

/// Infrastructural Challenges ///

// Use of 3rd Dimension:

/ 3D Urbanism> link Horizontal and Vertical Transport

/ Core Questions for Use of New Modes:

> What Services are Desirable, and Why?

> What are the overall Systemic Repercussions?

> What's the Big Picture, fitting Society?

> „New Realism“ > Policymaking.

/// Mobilities and Land Use ///

// Andrew Salzberg, Head of Transportation Policy and Research, Uber

„There is not ONE Public Interest“

///// Governance and Policy:
Key Challenges Ahead /////

/// **Suburban, Exurban, Regional and Rural Spaces**
> HERE is where the War on Transforming Transportation is WON or LOST

/// **Assess the Role of AI beyond the Connected Car** as **Fast-Deployment** Strategic Tool with **Long-Term** Impact

/// **Policy AS MUCH AS Tech** is Critical Factor

/// Comprehensively **Understand Externalities in Policy Debate**
> Align Economic and Ecologic Efficiency

///// Bottom Line:
Beyond In-Vehicle Systems /////

/// Mainstream Revisited

/// What's wrong with the debate?

- **Governance and Policy Questions are ultimate Points of Convergence and major Drivers of changing Mobility**
- Any Urban Context Debate is ALWAYS about Programming Space

/// The City and its Framework
as a Societal Growth Machine:

Placemaking as a concept for efficiently leveraging Sites

> Towards a Political Economy of Place

///// Point of Convergence /////

Understanding and Shaping the Political Economy of Urban Territories


//// Let‘s Go! ////
Arnd N. Bätzner
arnd@baetzner.ch