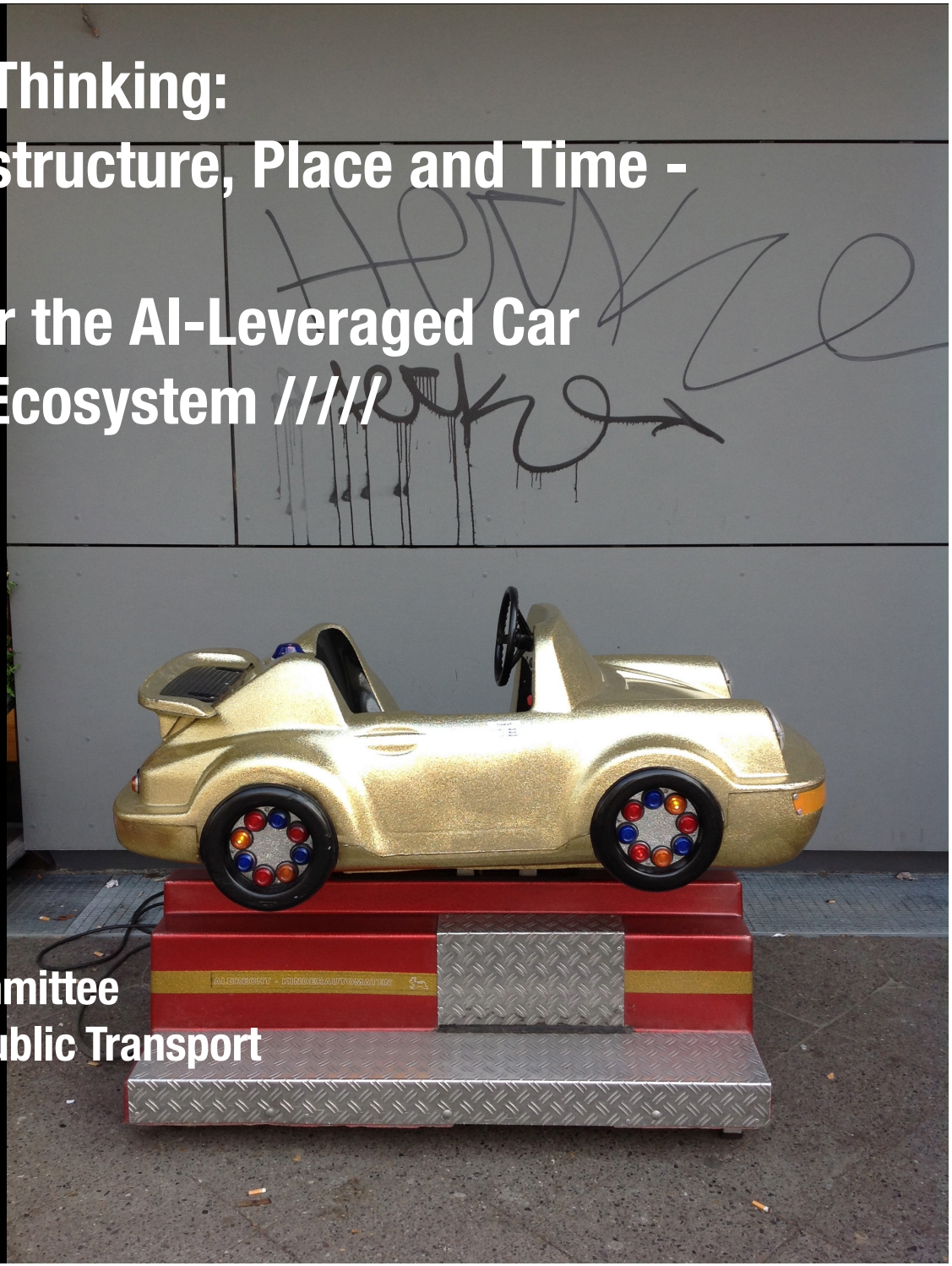
///// Invitation to Further Thinking:
In-Vehicle Systems, Infrastructure, Place and Time -

Shaping Policy Futures for the AI-Leveraged Car within a Shared Mobility Ecosystem /////



Arnd N. Bätzner
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Shared and Connected Mobility Committee
UITP International Association for Public Transport

Mobility Carsharing Switzerland,
Former Director

//// Mobility, Mission, Context ////

/// Strong Shifts in Public Reception of Travels and Mobility ///

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

//// 2021: Swiss Federal Project on Future Autonomous Vehicles Policies ////

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Departement für Umwelt, Verkehr, Energie und Kommunikation UVEK
Département fédéral de l'environnement, des transports, de l'énergie et de la communication DETEC
Dipartimento federale dell'ambiente, dei trasporti, dell'energia e delle comunicazioni DATEC

Bundesamt für Strassen
Office fédéral des routes
Ufficio federale delle Strade

Auswirkungen des automatisierten Fahrens

Teilprojekt 3: Umgang mit Daten

Effets de la conduite automatisée
Projet partiel 3: Traitement des données

Effects of automated driving
Sub-project 3: Handling Data

///// Understanding Data in AV Operations: State of Play /////

„Autonomous Vehicles are coming and nobody knows what to do with them..... we need some forward Thinking here.“

Matthew W. Daus

. President, IATR Intern. Association of Trsp. Regulators
former Chairman, NYC Taxi & Limousine Commission

IATR Conference, Calgary AB, CA 2019

//// How to structure the Problem? ////

/// Understand what an AV System can / should do

/// Understand the Elements
(Technology, Interaction, Roles)

/// Understand the Types of Data

//// How to structure the Problem? ////

/// Understand what an AV System can / should do

/// Understand the Elements
(Technology, Interaction, Roles)

/// Understand the Types of Data

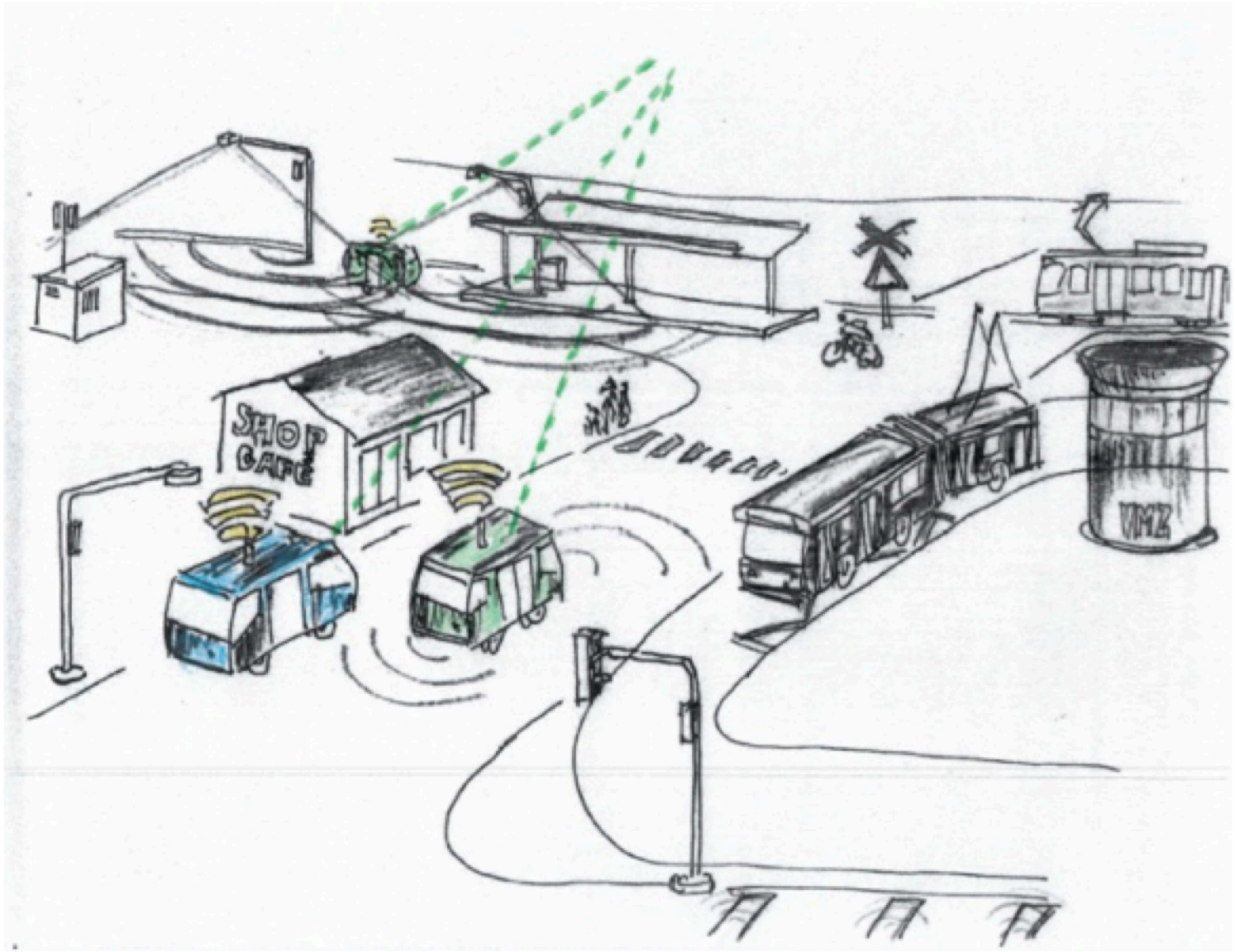
> SWOT Analysis on Tech Elements and Data

> Governance Recommendations

> Tailored to Swiss Context

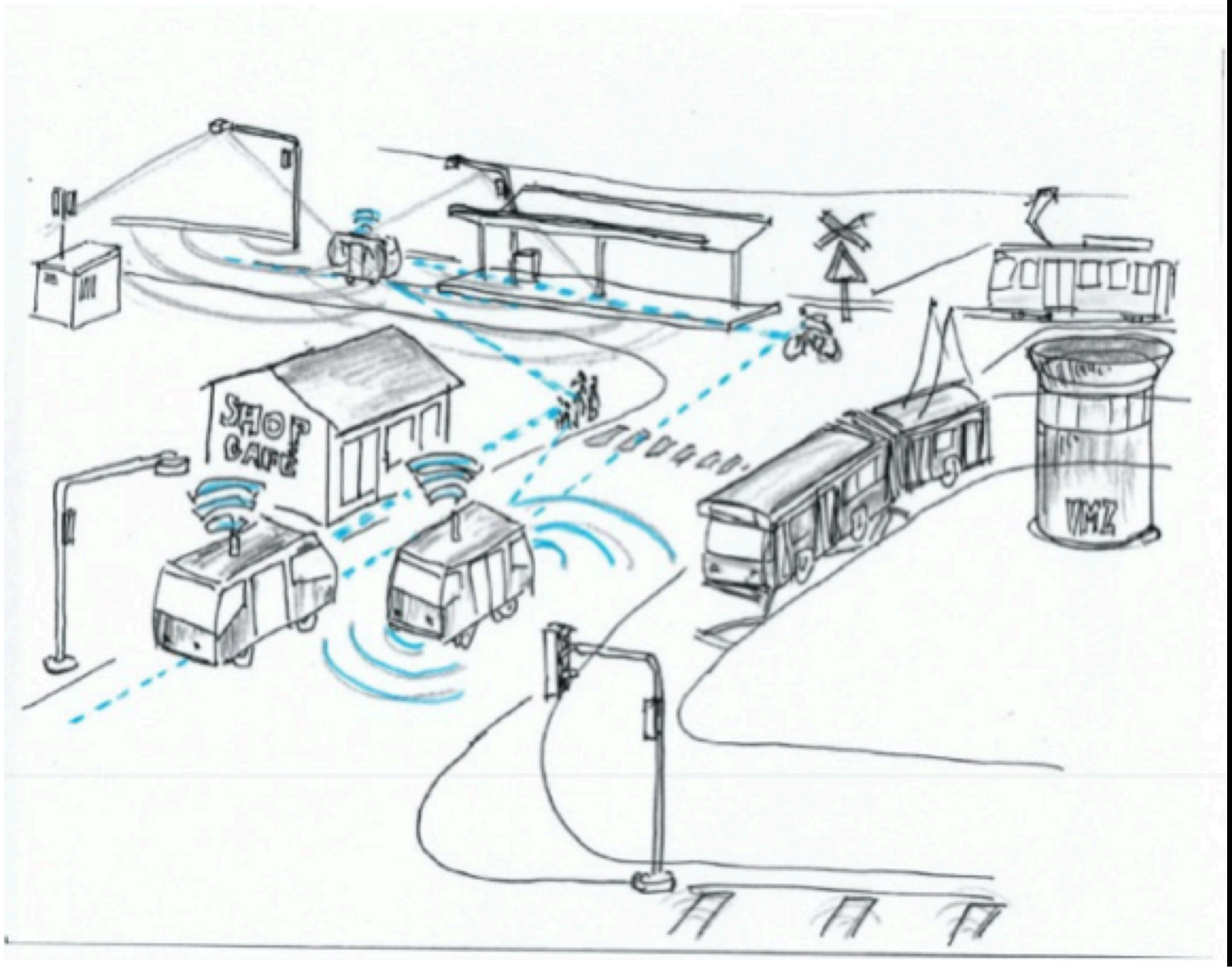
//// Types of Data: Basics ////

Basisdaten / V2B



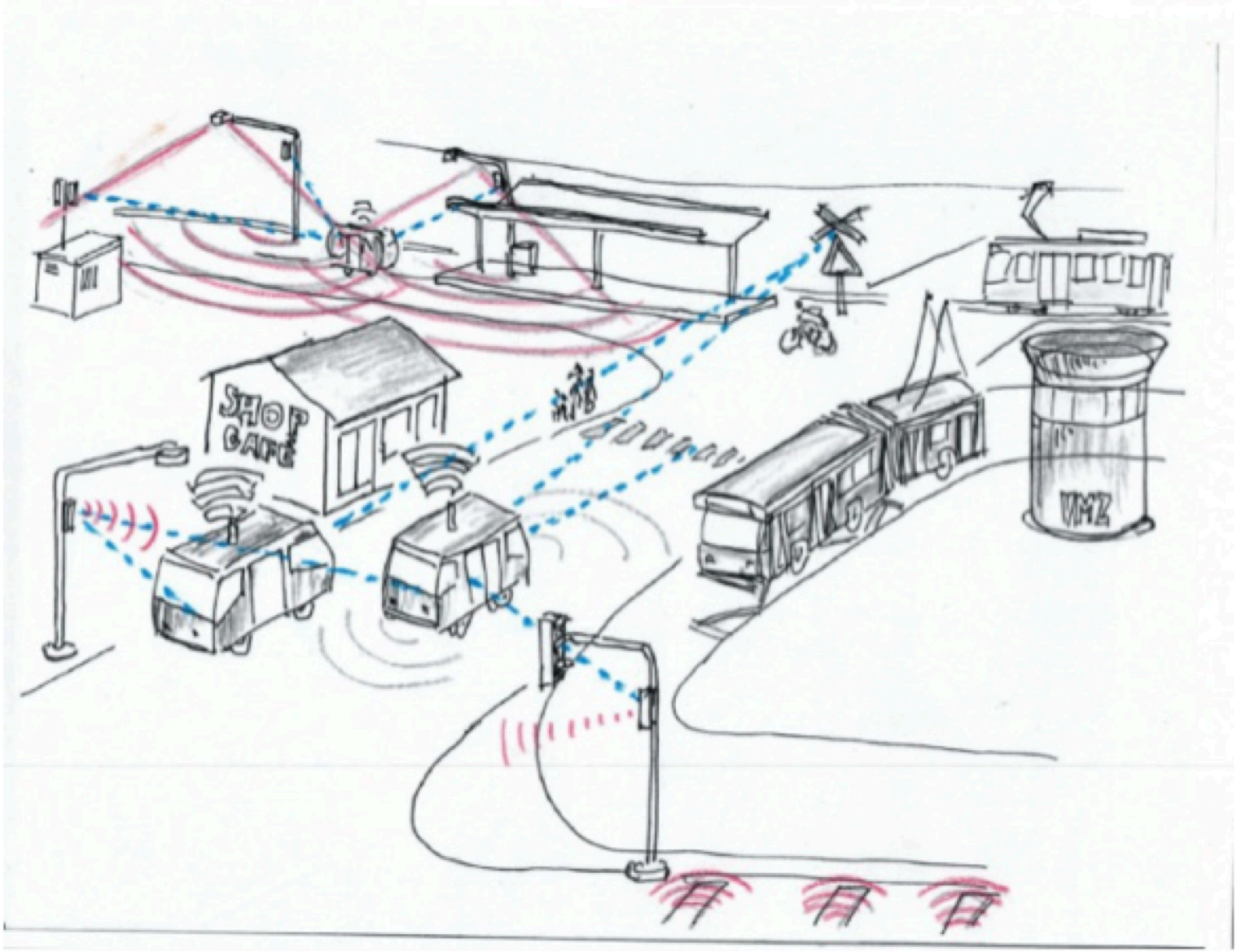
//// Types of Data: Environment ////

Umfelddaten / V2E



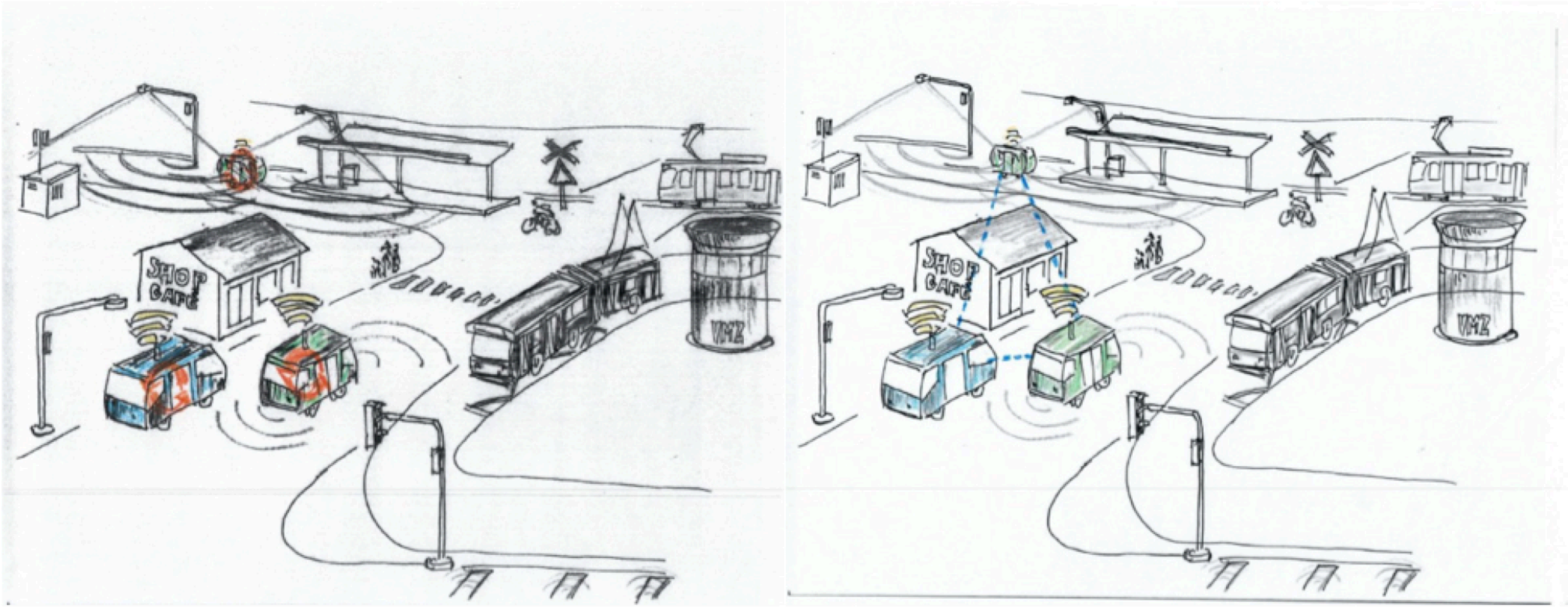
//// Types of Data: Infra ////

Infrastrukturdaten / V2I

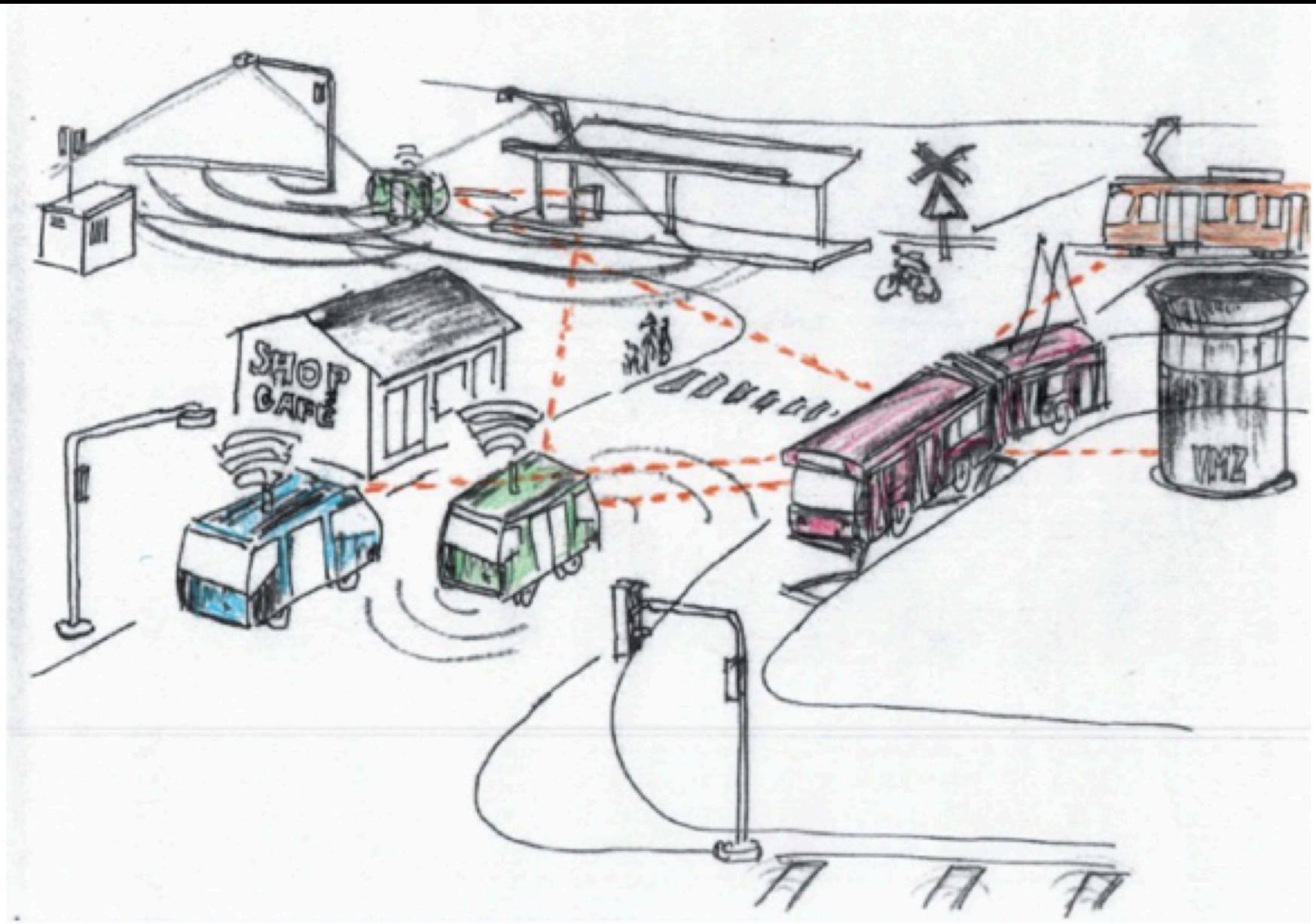


//// Types of Data: Vehicle-internal, V2V ////

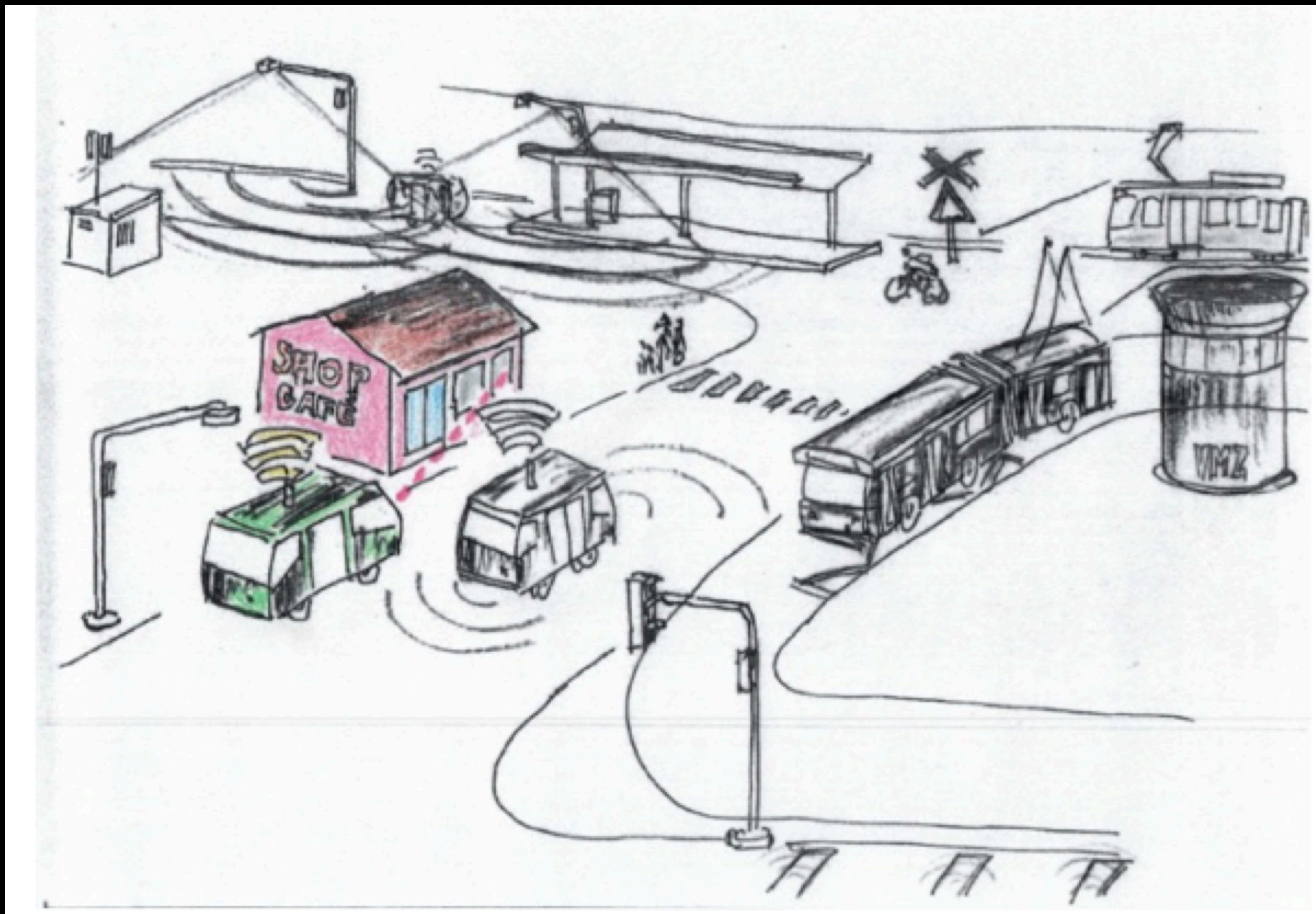
Fahrzeugdaten / V-intern, V2V



//// Types of Data: V2M – Other Modes ////

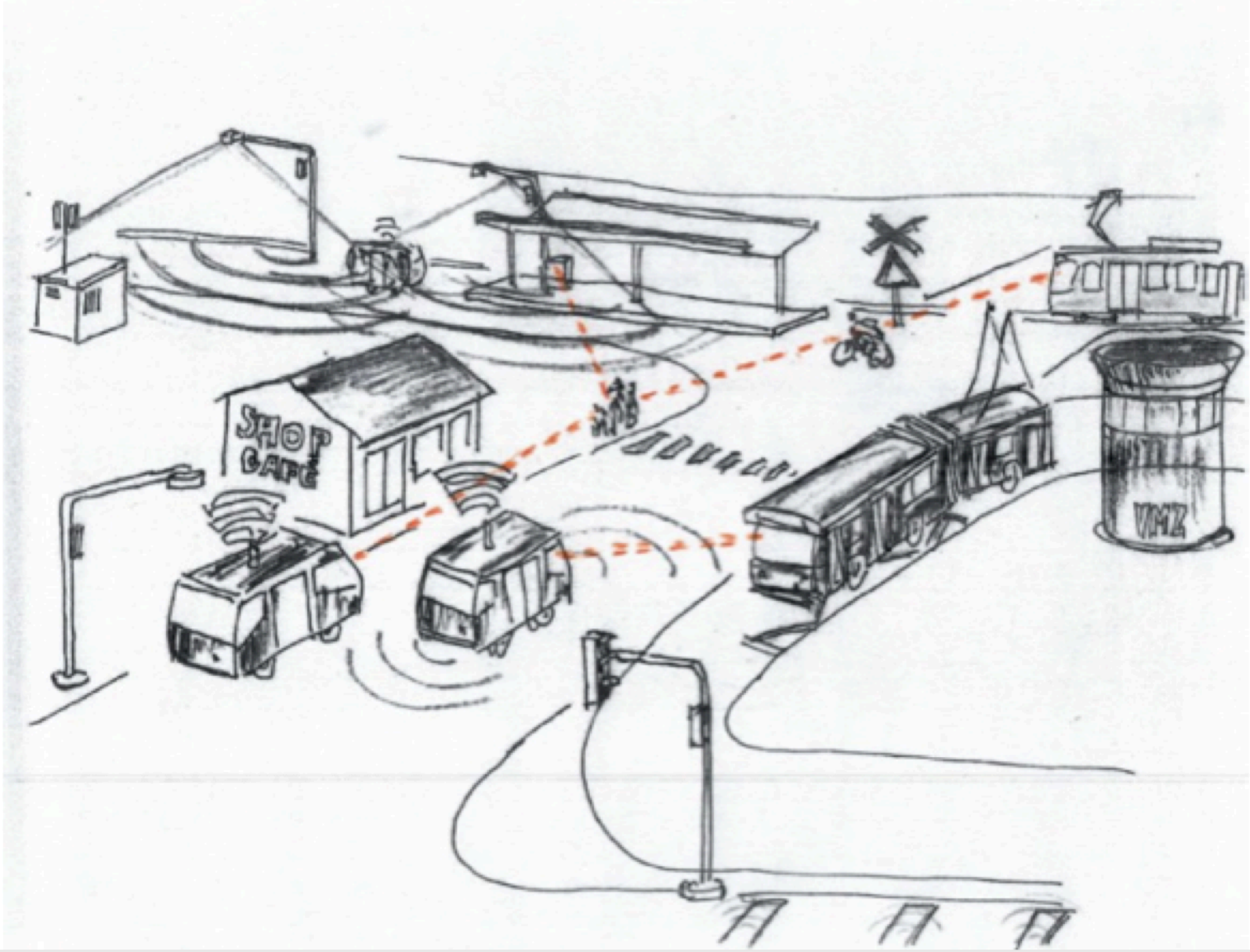


//// Types of Data: V2L - Logistics ////



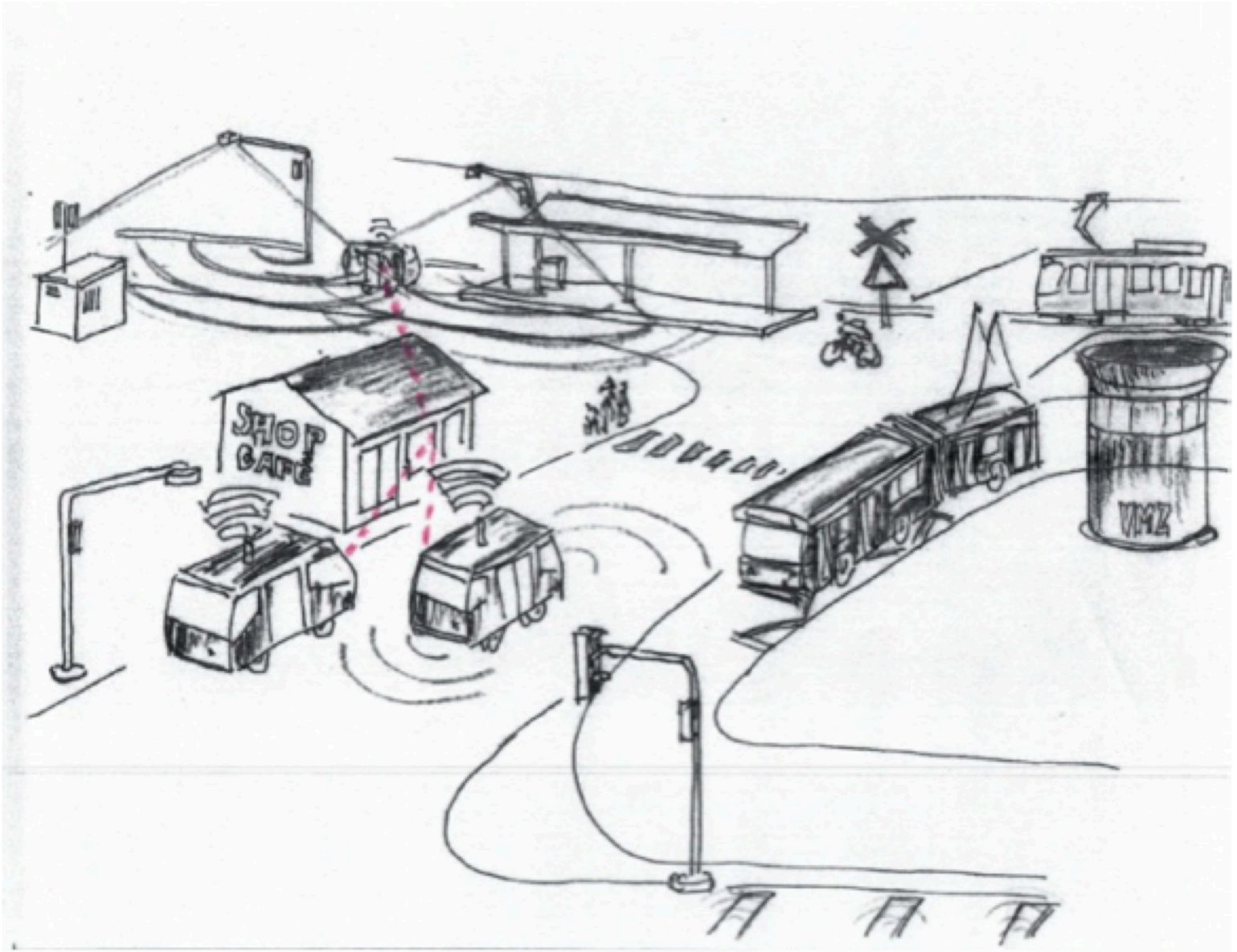
//// Types of Data: Customers ////

Nutzer-/Kundendaten / V2C



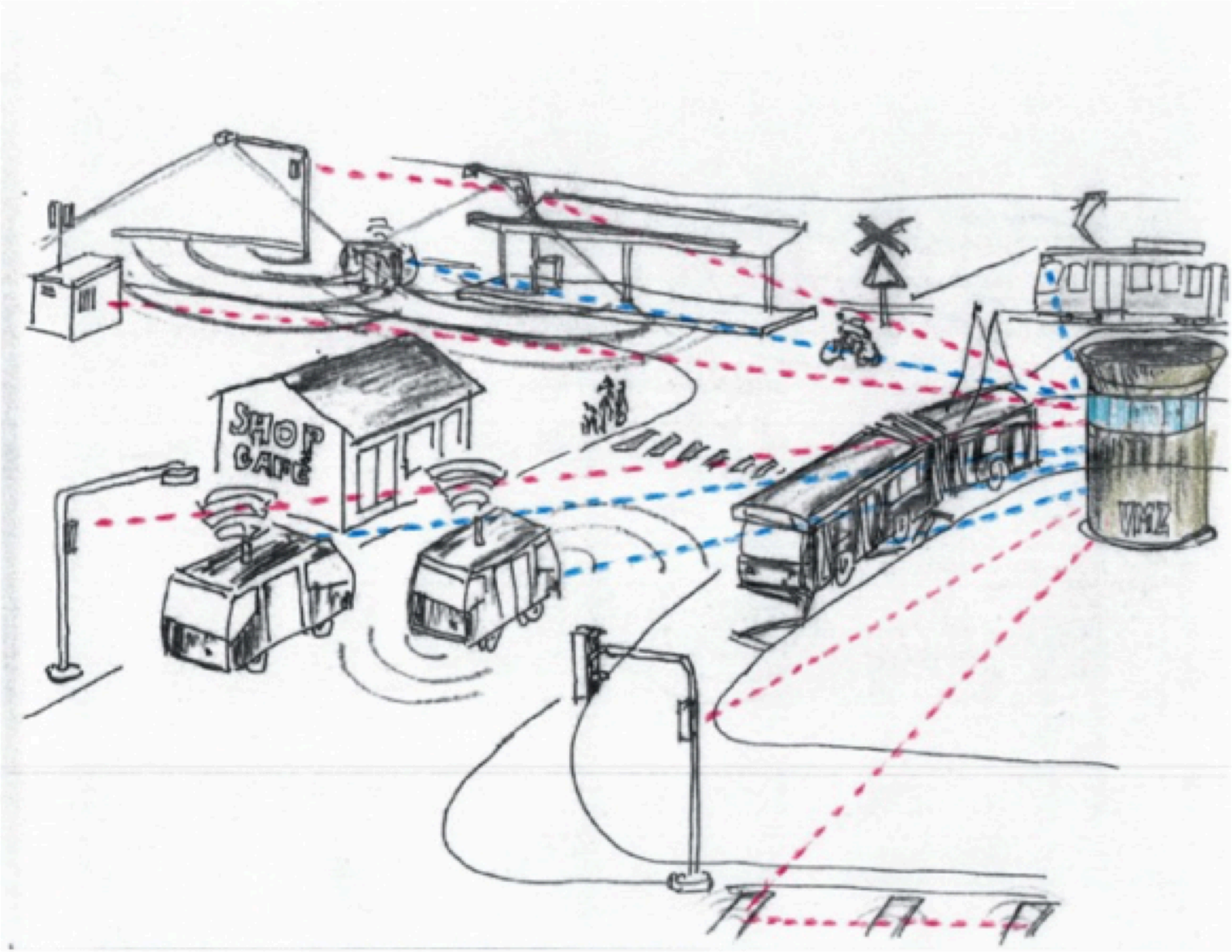
//// Types of Data: V2S – Service Providers ////

Serviceanbieter-Daten / V2S

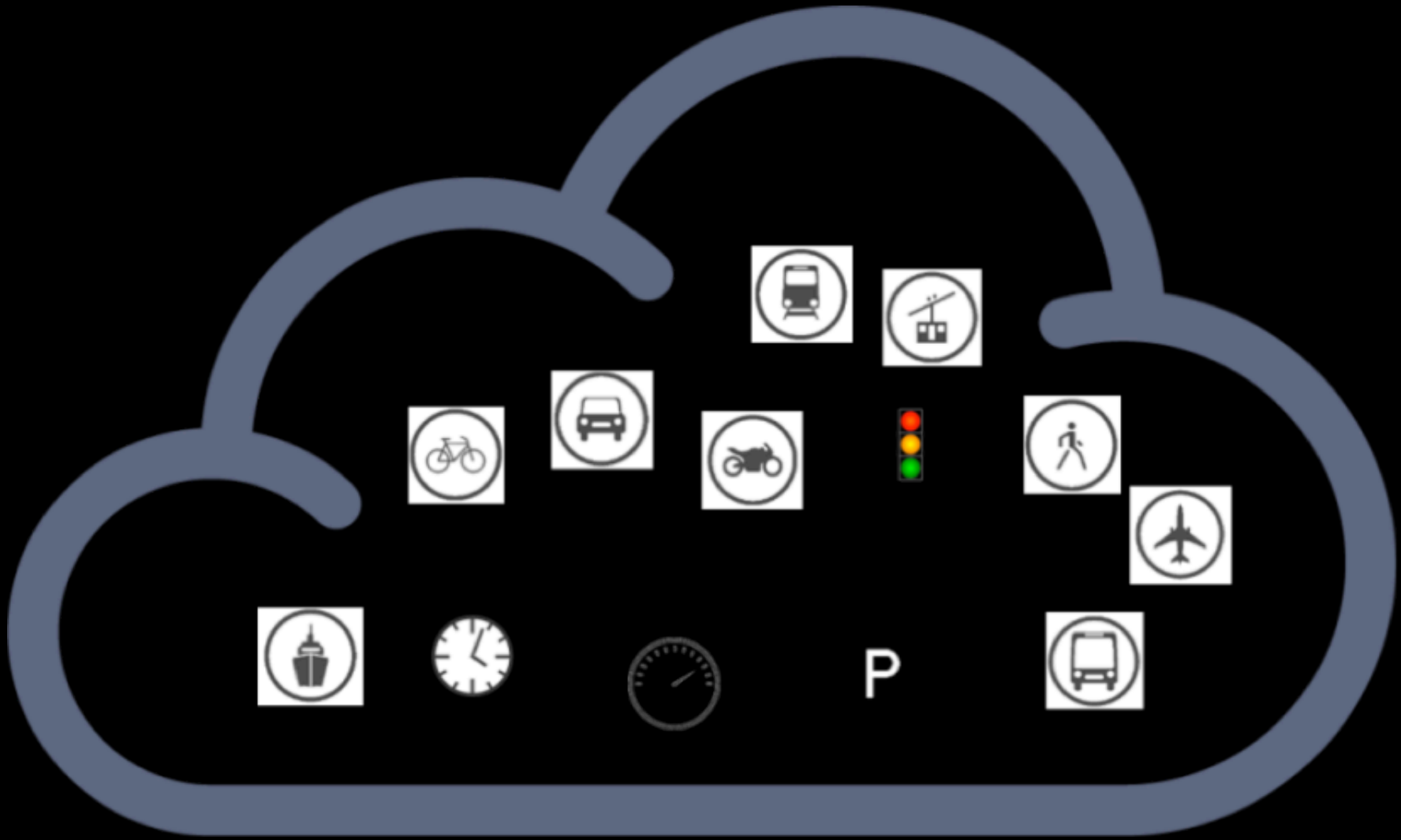


//// Types of Data: Traffic Mgmt Central ////

Daten der Verkehrsmanagement-Zentrale / V2Z, Z2X



//// Linking it All: Cloud ////



//// Linking it All: Infra Level ////

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

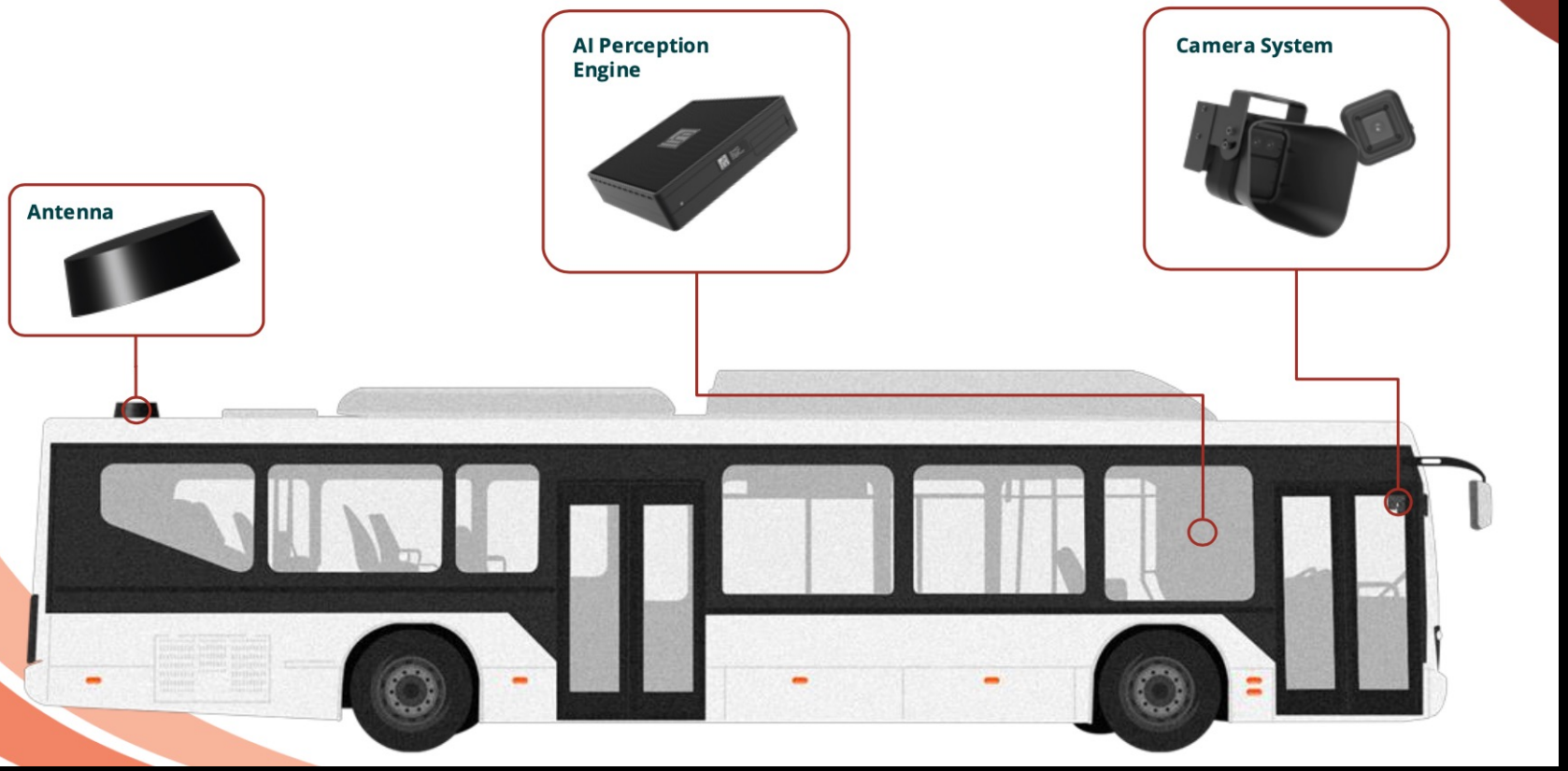
Infrastructure as core Strategic Location Asset!

//// Vehicle Systems Going Beyond the Vehicle: AI Field Test – Bus Stop Violation Enforcement ////

//// 2024: AI-Powered
Bus Stop Violation Detection (U.S.) ////

//// 2024: AI-Powered Bus Stop Violation Detection (U.S.) ////

Hardware | Minimal Footprint



//// 2024: AI-Powered Bus Stop Violation Detection (U.S.) ////

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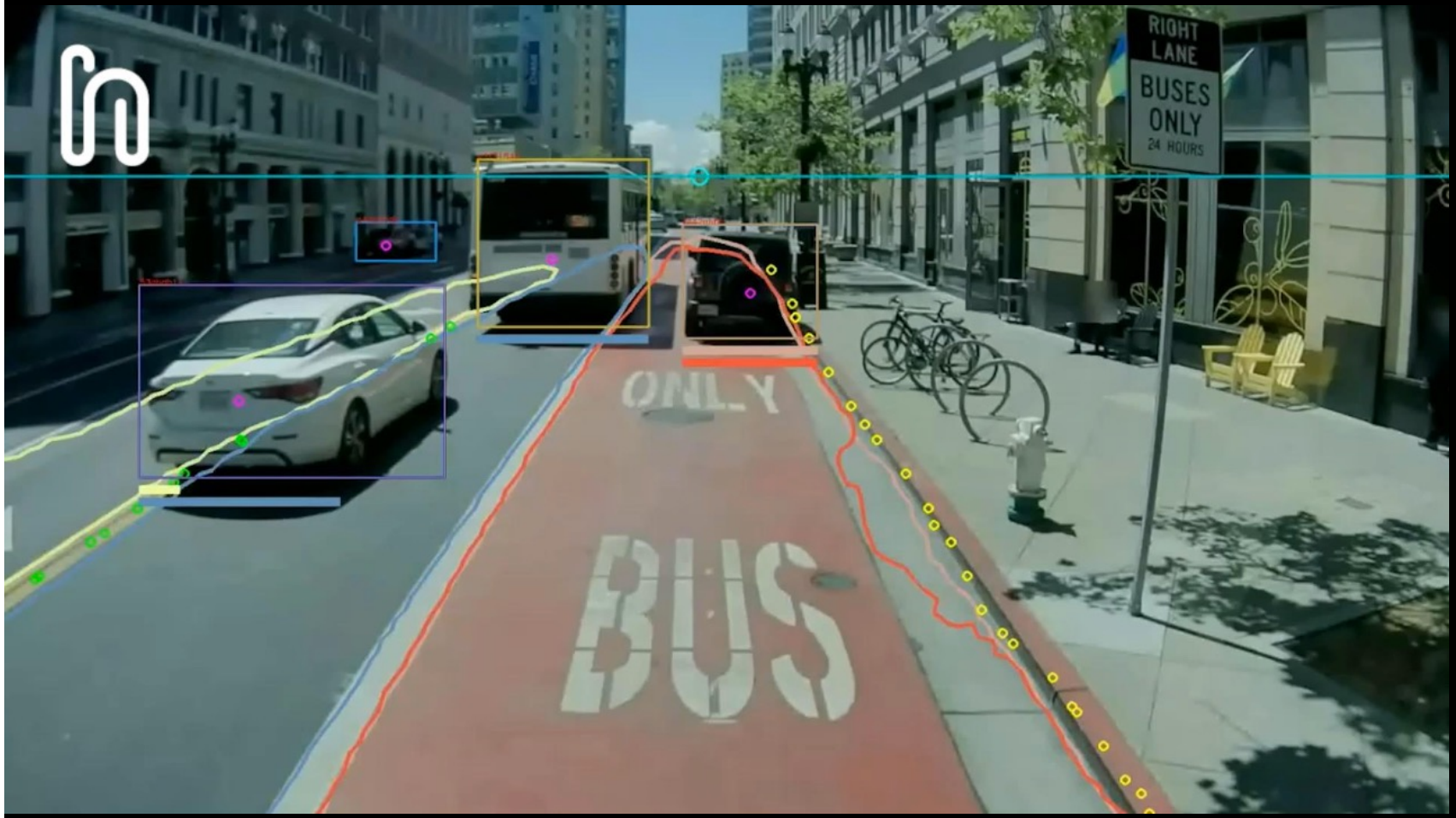
Bus Stop Violation Detection (U.S.) ////



//// 2024: AI-Powered Bus Stop Violation Detection (U.S.) ////

// MTA New York City

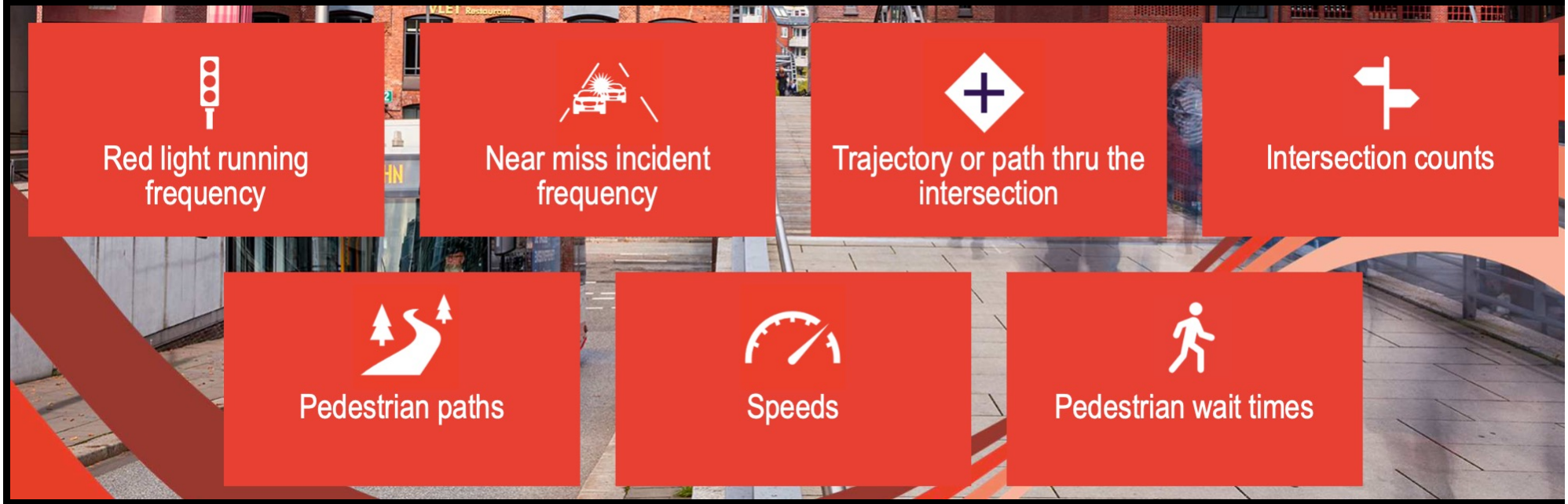
- 5% increase in bus speeds
- 20% fewer collisions on enforced routes
- 91% of violators only receive one ticket, indicating that this technology effectively changes driver behavior

// WMATA Washington, DC

Changing behavior:

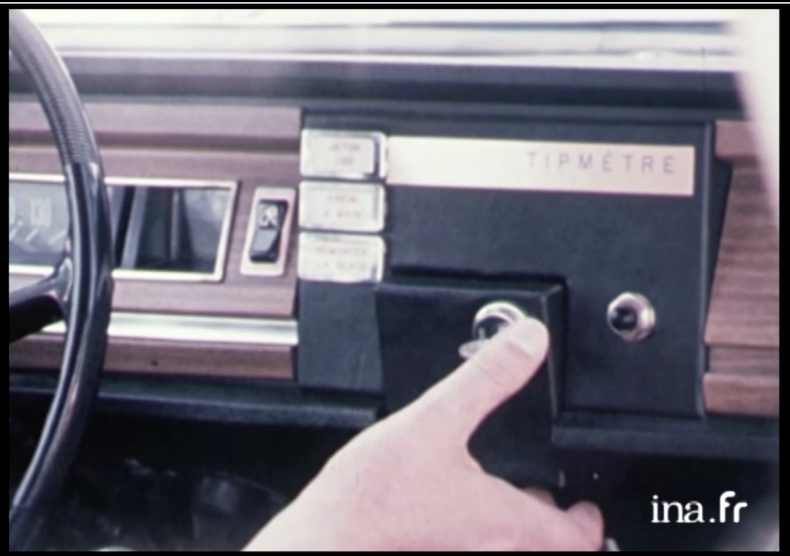
- 32-percent reduction in bus stop violations
- over a one-year period
- Violations decreased from 22,500 in October 2023 to 15,200 in October 2024.

//// Next Steps: Beyond Buses: Intersection Analytics – Towards a Civic Service Approach ////



//// Mobility, Mission, Context ////

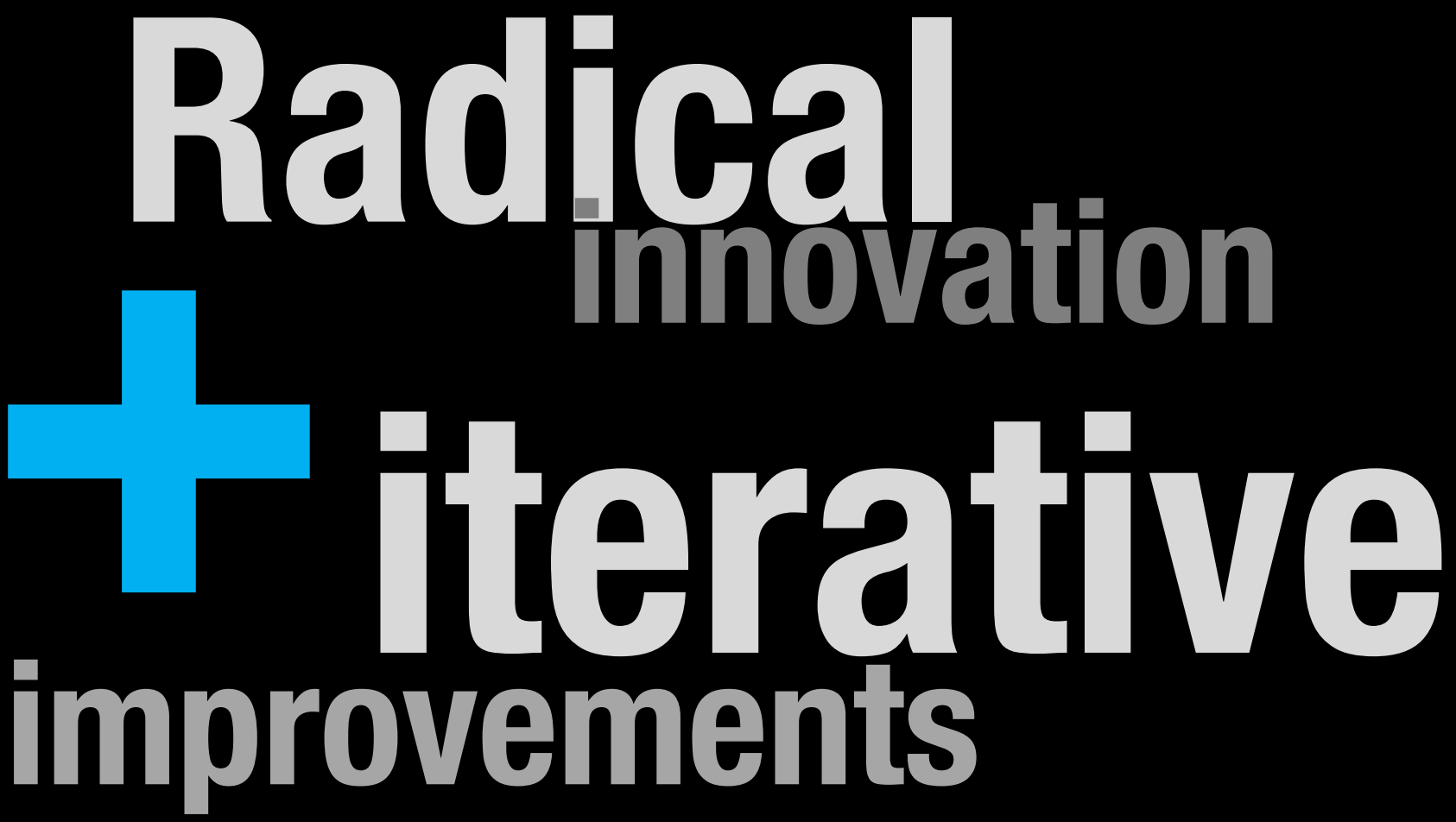
/// Radical Innovation in Mobility has a Tradition: Free-Floating Car Sharing, France (1971) ///




/// TransJakarta (ITDP) ///


/// TransJakarta:
Urban Integration ///

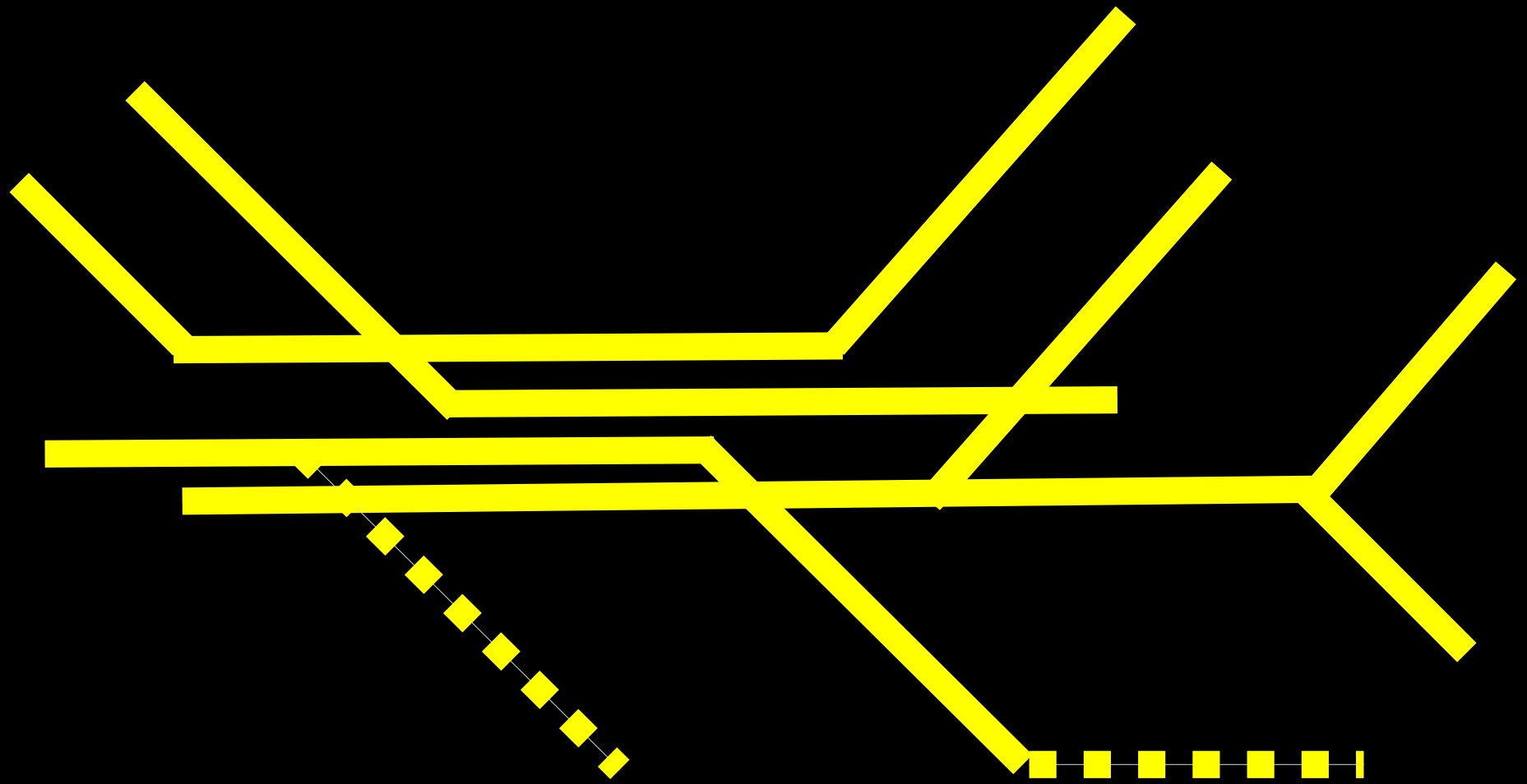
///// Framing Technology through Governance: Econometric Aspects /////



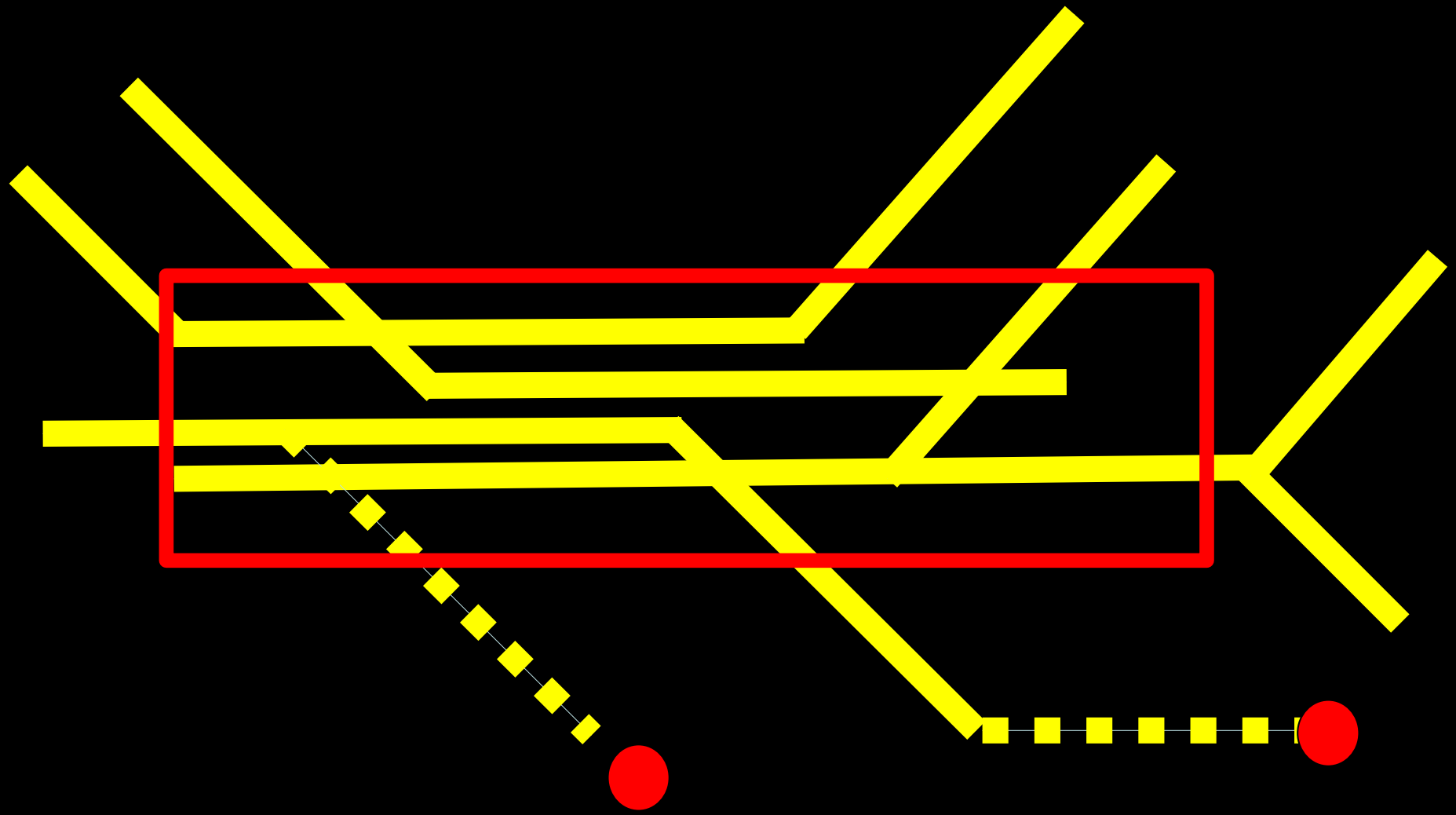
/// TransJakarta:
Midibus Blends Last Mile + Express Functions ///

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

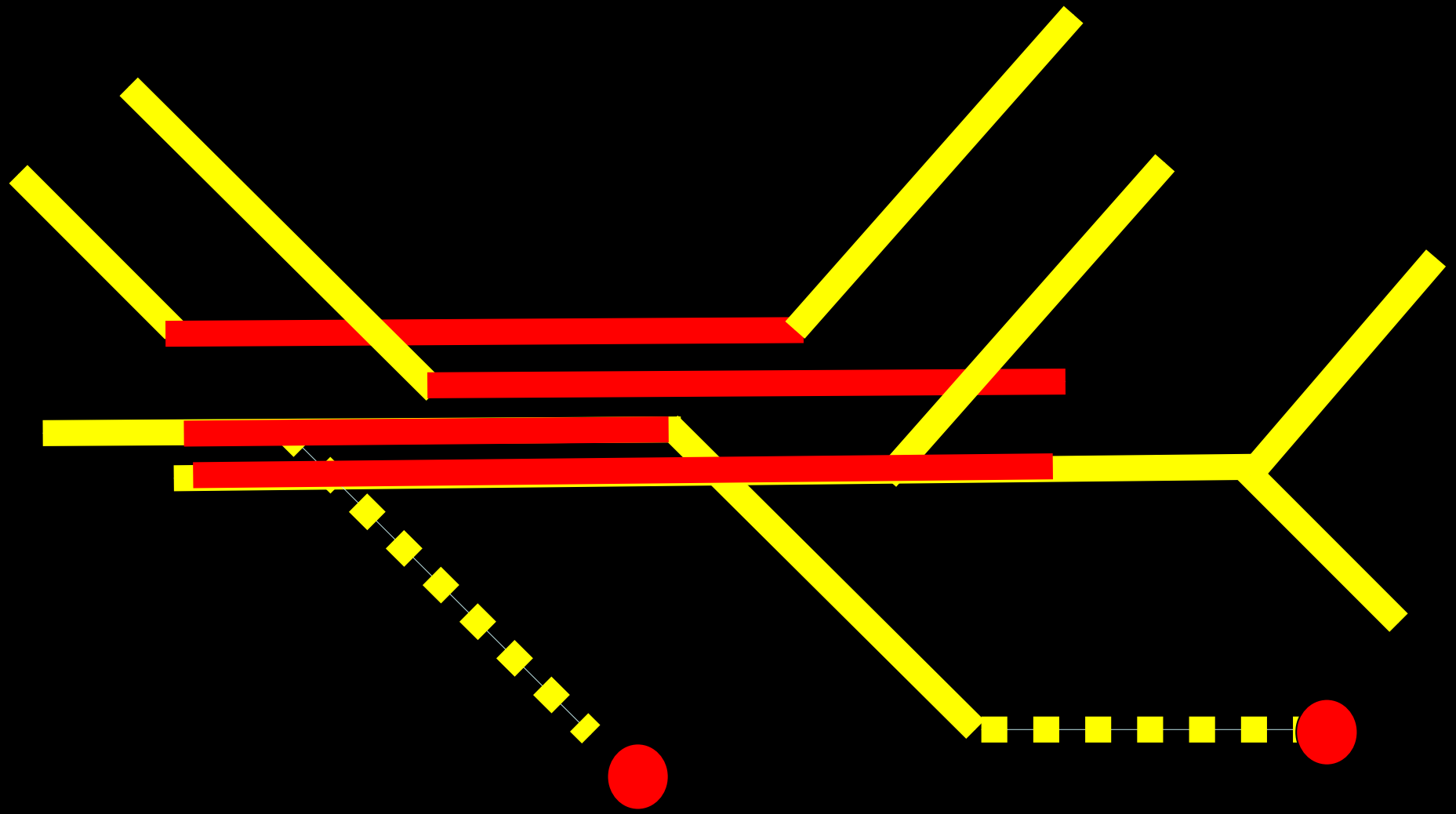
/// The Corridor Concept ///



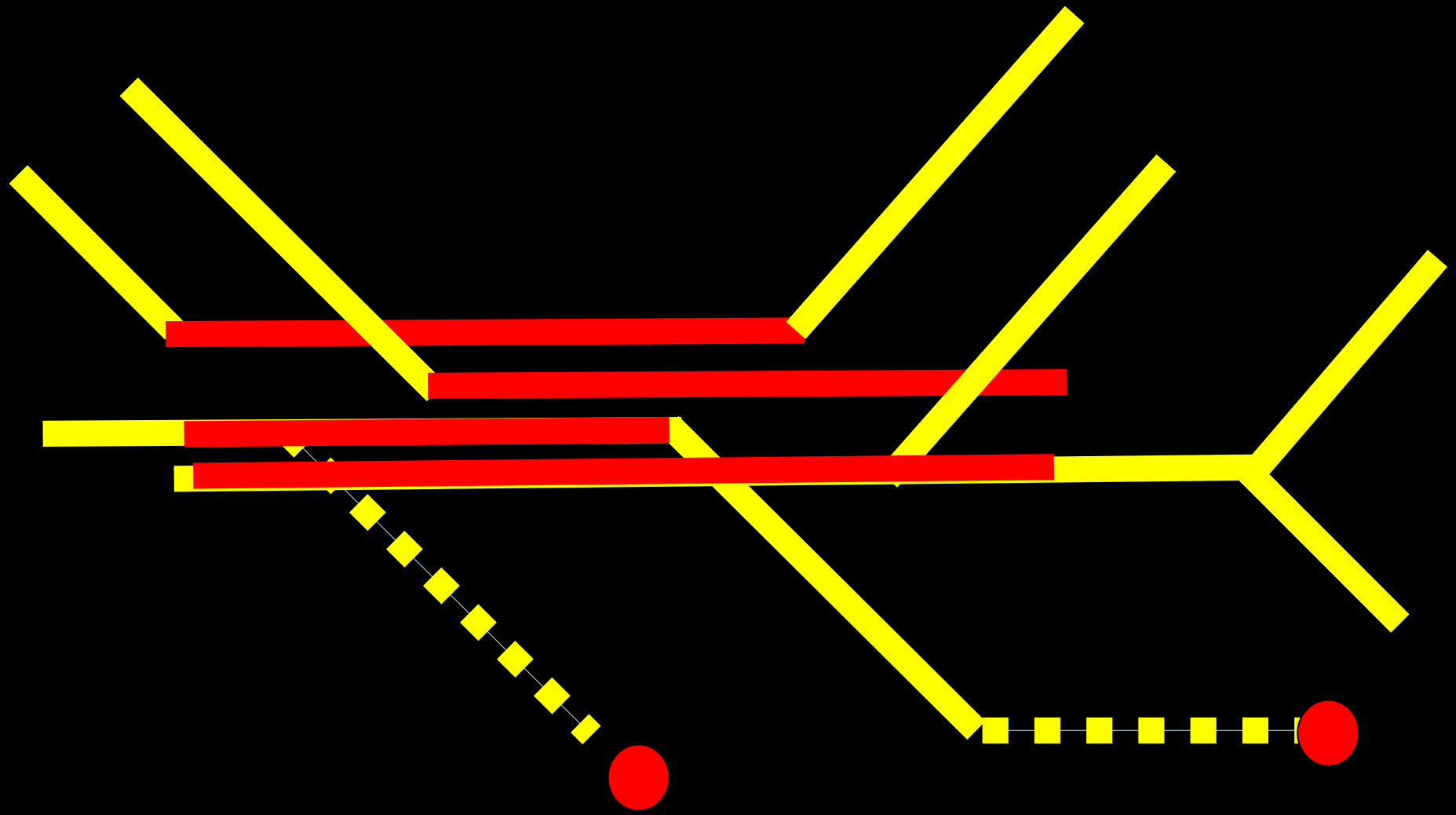
/// The Corridor Concept ///



/// The Corridor Concept ///



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



+ ROW Infrastructure = eBRT

/// Relevant Metrics ? ///

/// Relevant Metrics ? ///

Drivers of Efficiency

ecologic

+ economic?

/// Relevant Metrics ? ///

> Spatial Externalities

/// Relevant Metrics ///

> Spatial Externalities

> Soci(et)al Effects

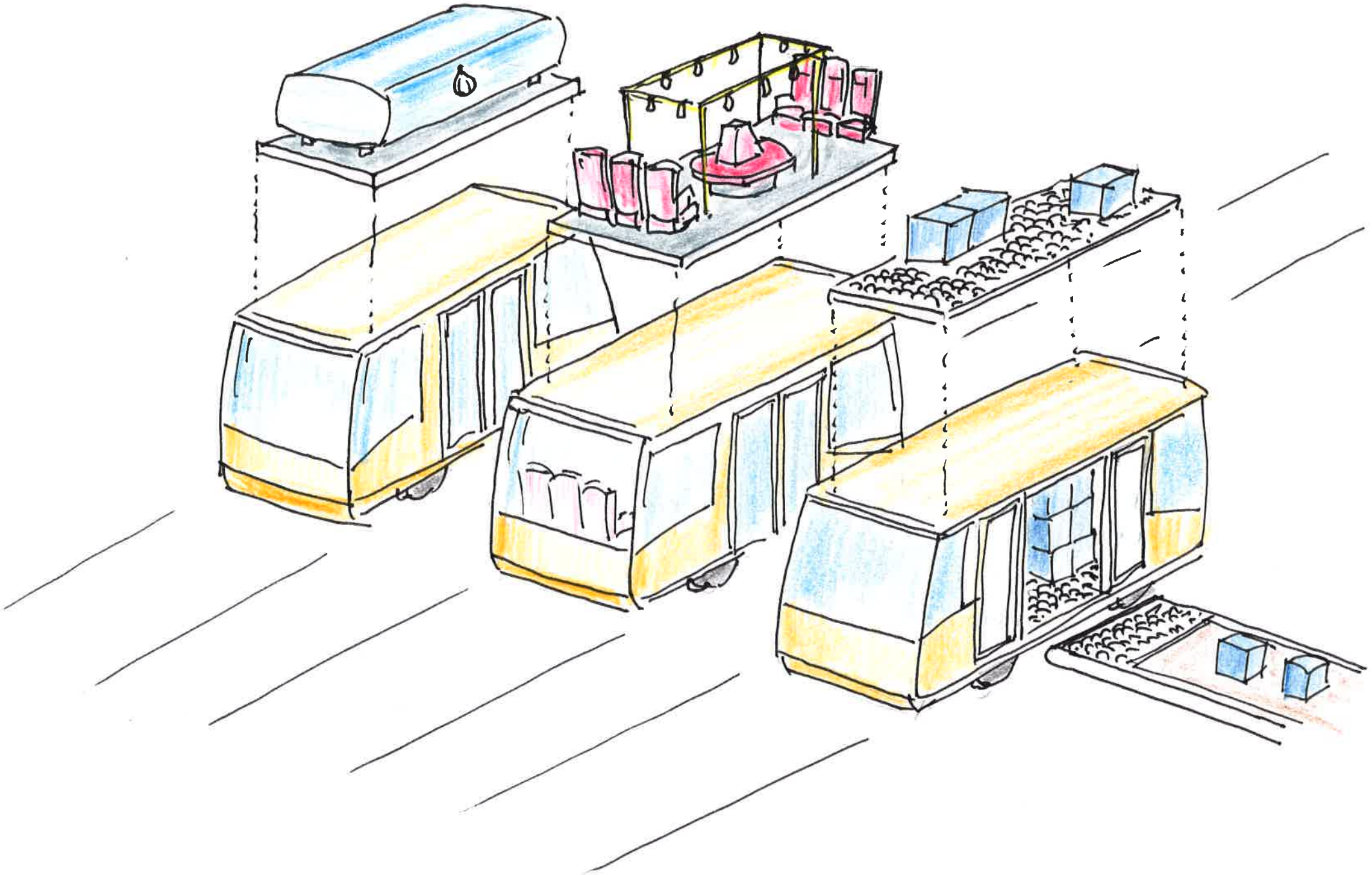
/// Relevant Metrics ///

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

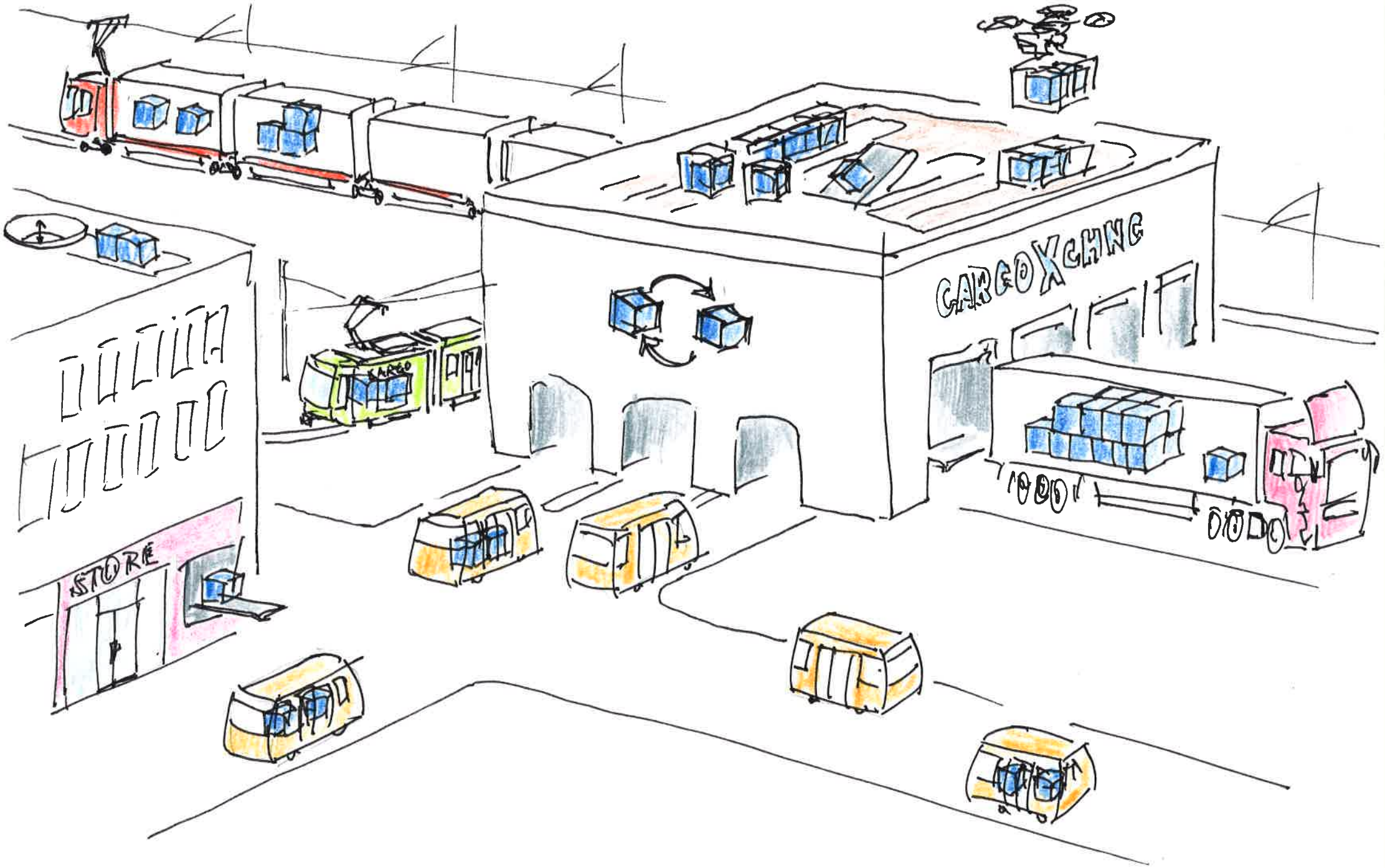
//// Spatial Effects … ////

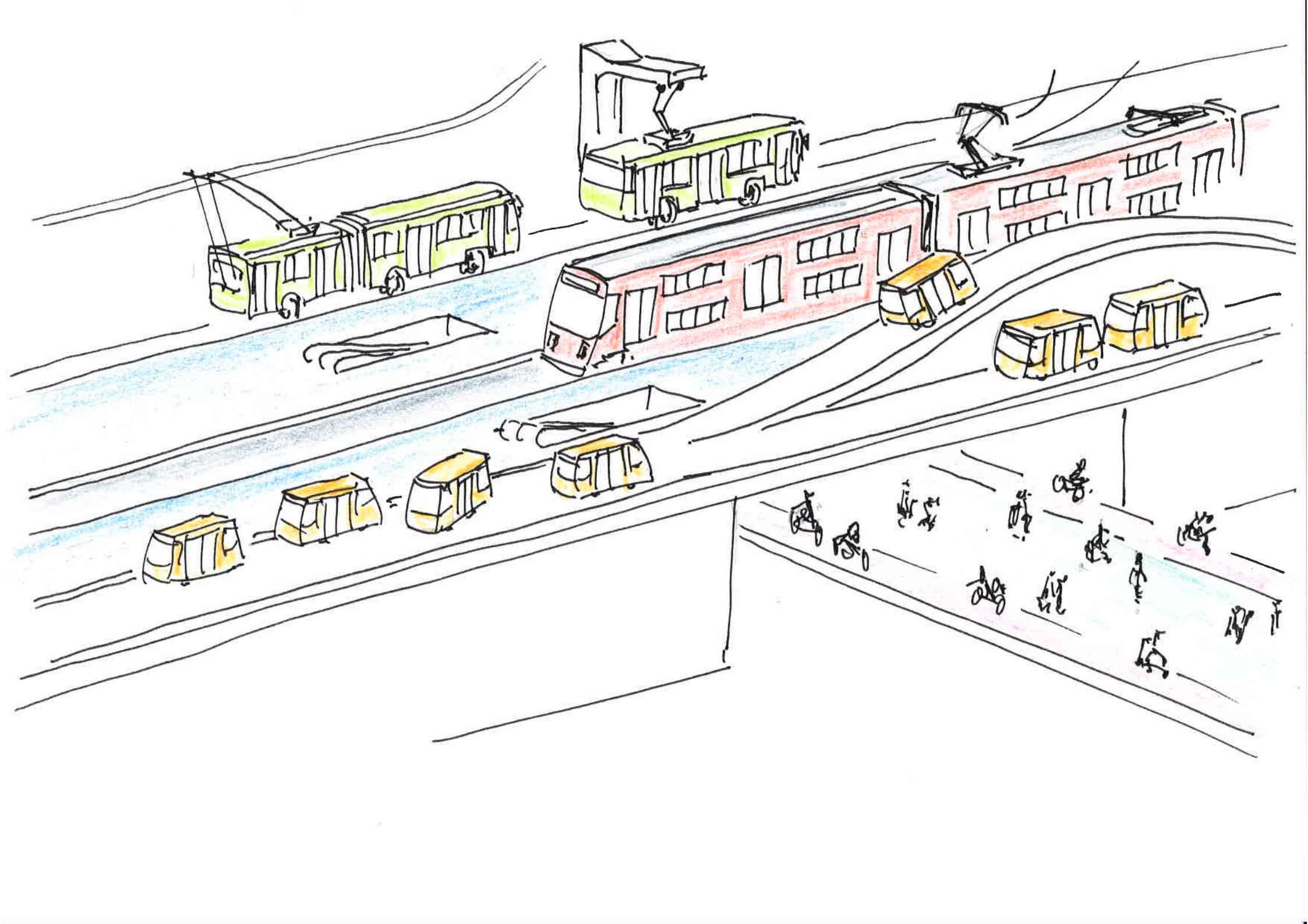

Move
fast and
break
make
things!

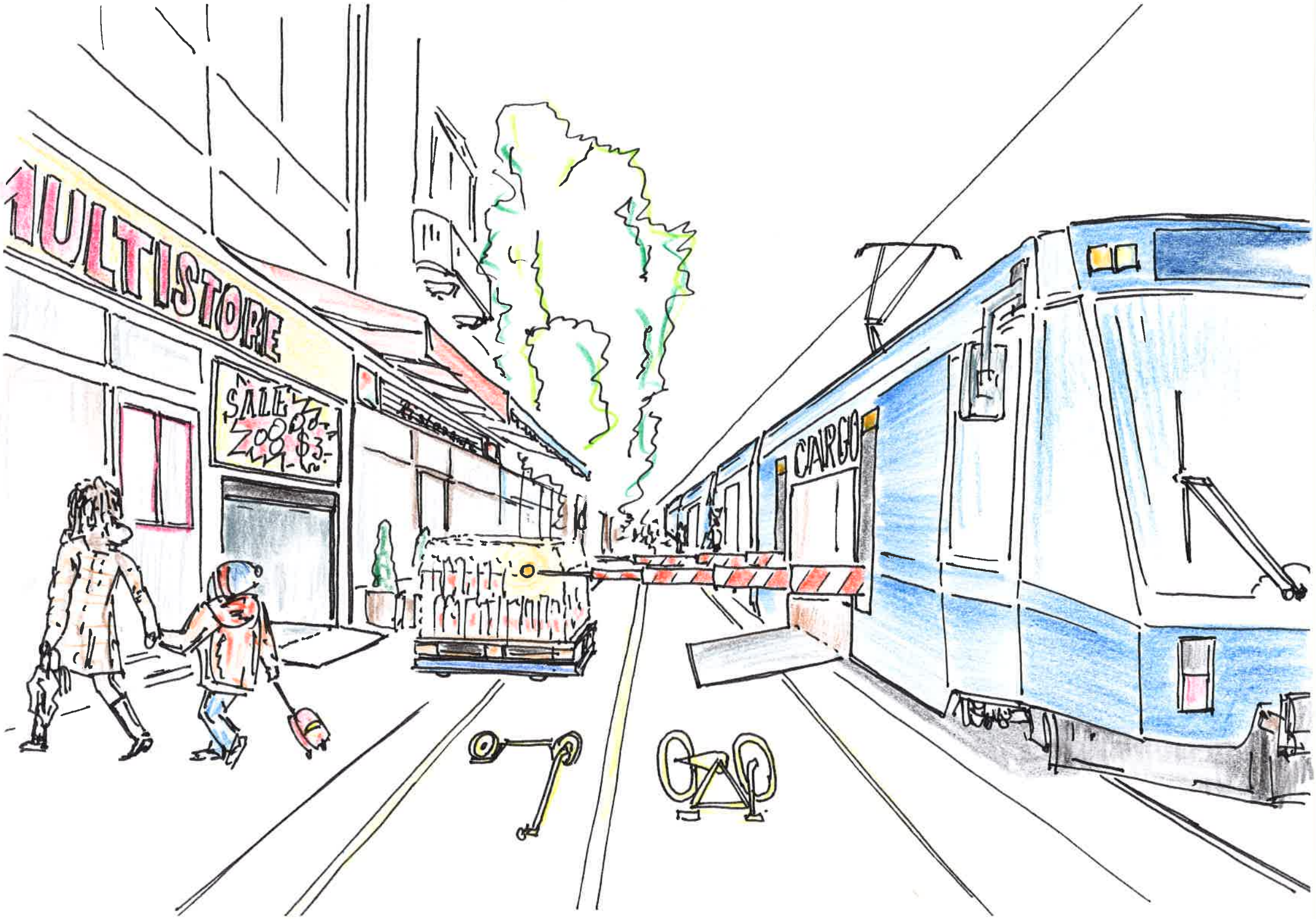
//// What can / should an AV System do? ////

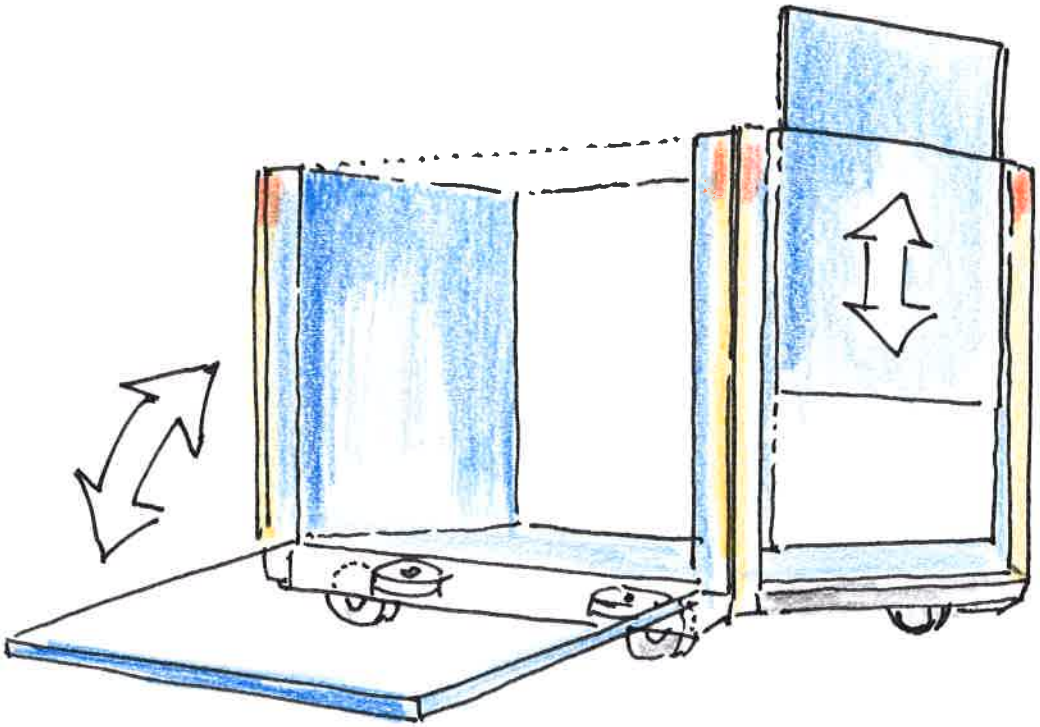


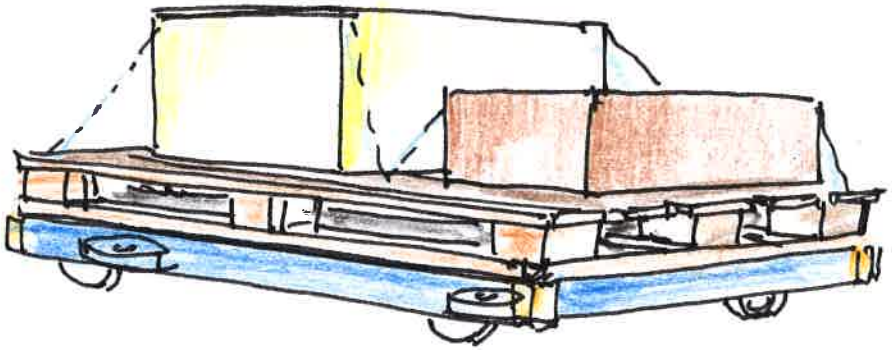

STORE
STORE


CARGO
CARGO EXCHNG
STORE




ULTISTORE
SALE
CARGO






STARBUCKS
1253·2'
0274·4'
3397·8'
CARGO
6247
1253
1253
1253
8694

//// Understanding the Types of Data ////

/// Current Discourse: V2V, V2I, V2X

> insufficient, further detailing needed

> Holistic System Analysis, incl. all Stakeholders

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

//// The Swiss Context – Pre-Requisites ////

Decision of Federal Council and other Federal Authorities:

Decision of Federal Council and other Federal Authorities:

INTEGRATION WITH SPATIAL PLANNING

//// The Swiss Context – Pre-Requisites ////

Decision of Federal Council and other Federal Authorities:

INTEGRATION WITH SPATIAL PLANNING

PUBLIC TRANSIT IS THE BACKBONE

//// Possible Issues – Dynamics of Discourse ////

//// Possible Issues – Dynamics of Discourse ////

/// Needs serious review:

- operating models
- financing
- competence
- clearer separation btw planning/management and operations (tendered out?)

/// What does a civil society expect from future transportation systems?

//// Possible Issues – Dynamics of Discourse ////

/// Not the overall number of trips delivered matter

/// Not the type of vehicle matters

/// but whether users get access to a trip, where and when they need it

/// Get away from misleading financial targets

//// The Tech Bro Solution.... ////

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

> Inclusion

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

> Inclusion

> Simplification / Liberation

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

> Inclusion

> Simplification / Liberation

> Accessibility

//// The Energy Side ////

//// The Energy Side ////

Efficiency

Well-to-Wheel

Sourcing

Vehicle Productivity

///// 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?

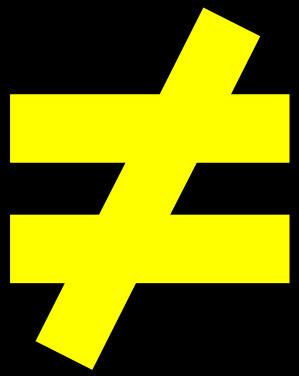
> what's next?

/// 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 /////

uto Werbung - Der neu AUDI A1 - Autobing.de

uto 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

///// 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


/// Fentanyl Epidemic ///
CLASSIC OPTICAL
215 425 EYES
215 425-4033
EYE EXAM GLASSES CONTACT LENSES
ONE HOUR SERVICE
3166 KENSINGTON AVE.
Kensington Ave El, Philly
2. Mai 2023

///// Monopolization of Public Space (III): Inclusion vs. Tribalism /////

// Challenge of the Inclusive Society:

Inclusion goes both Ways

///// Monopolization of Public Space (III): Inclusion vs. Tribalism /////

// **Foster and Impose Inclusion on all Levels**

> Societal Task

> incl. PTAs and PTOs

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

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

// As PTAs, PTOs: Co-Design
the Complexity of Regulated Industries

// Sharing Trips AND Vehicles key to Society

// New Ride Sharing and Ride Pooling Models
as part of a Full Public Transit Ecosystem

> Readiness for Autonomous Future:
= Large & Small Vehicles aligned

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

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

Alignment of economic and ecologic Efficiency

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

Decarbonization
needs
to happen
fast
and scale

///// 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


///// Thank you /////
Arnd N. Bätzner
arnd@baetzner.ch