



URBAN FUTURE – SOME LEADS FOR LEEDS

Véronique Ramadi, Leeds, 12.12.2016

STADLER

STRUCTURE OF PRESENTATION

STADLER

-
1. Overview – Stadler Rail Group
 2. Sustainable city development
 3. Project examples

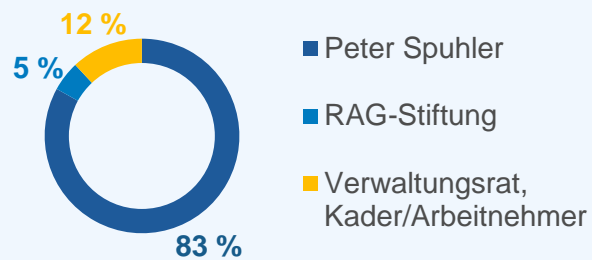
STADLER RAIL GROUP DATA & FACTS

Headquarter

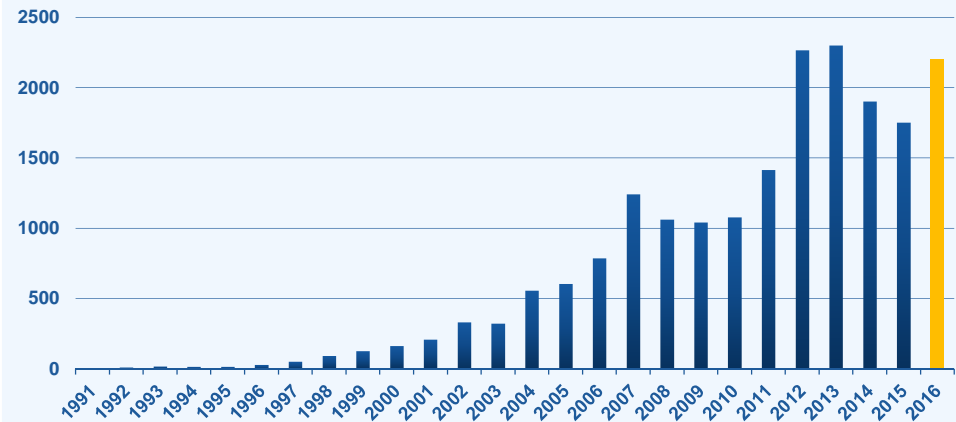
Bussnang (Switzerland)



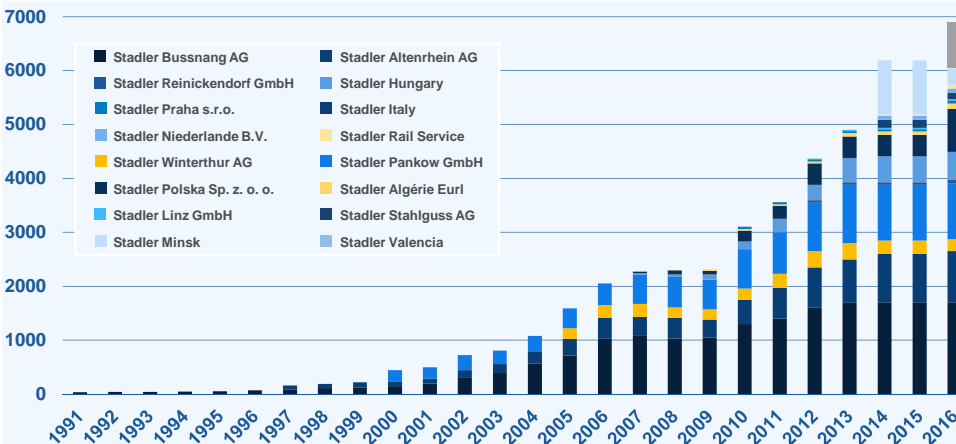
Owner

































Turnover (Mio. CHF)



Employees development



MARKET SEGMENTS

SEGMENTATION			MODULAR CONCEPTS Adhesion engines		TAILOR-MADE CONCEPTS Adhesion and rack engines	
URBAN						
LRV	Tram	≤80 km/h				
	Tram Train	≤100 km/h				
Metro	Metro	≤100 km/h				
RAILWAY VEHICLES						
DMU	Regional / Suburban rail	≤140 km/h				
EMU	Regional / Suburban rail	≤160 km/h				
	Intercity	≤200 km/h			Out of Scope	
	High-speed	≤250 km/h		Out of Scope		
	Very high-speed	>250 km/h	Out of Scope			
Locomotives	Mainline locomotives diesel/dual/elektric					
	Shunters/special purpose vehicles					
Coaches	Passenger coaches and sleepers					
	Freight wagons		Out of Scope		Out of Scope	

STRUCTURE OF PRESENTATION

STADLER

-
1. Overview – Stadler Rail Group
 2. Sustainable city development
 3. Project examples

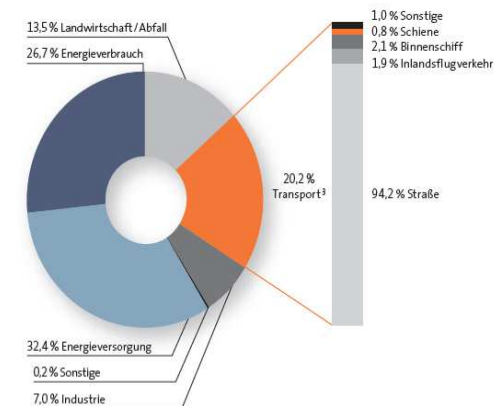
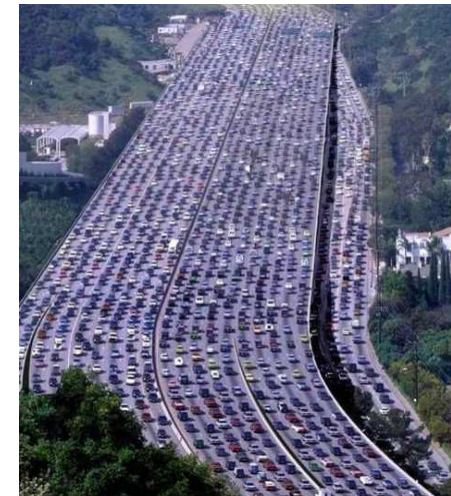
PUBLIC TRANSPORT OFFERS SOLUTIONS FOR THE CHALLENGES OF OUR TIME

– Challenges:

- climate change and environmental protection
- shortage of resources
- structural and demographic change
- increasing traffic volume due to increasing cities
- problematic public budgets

– Characteristics of public transport:

- operate with low specific CO₂-Emission
- high energy efficiency
- use already renewable energy
- offer mobility for everybody
- generate a high macroeconomic benefit



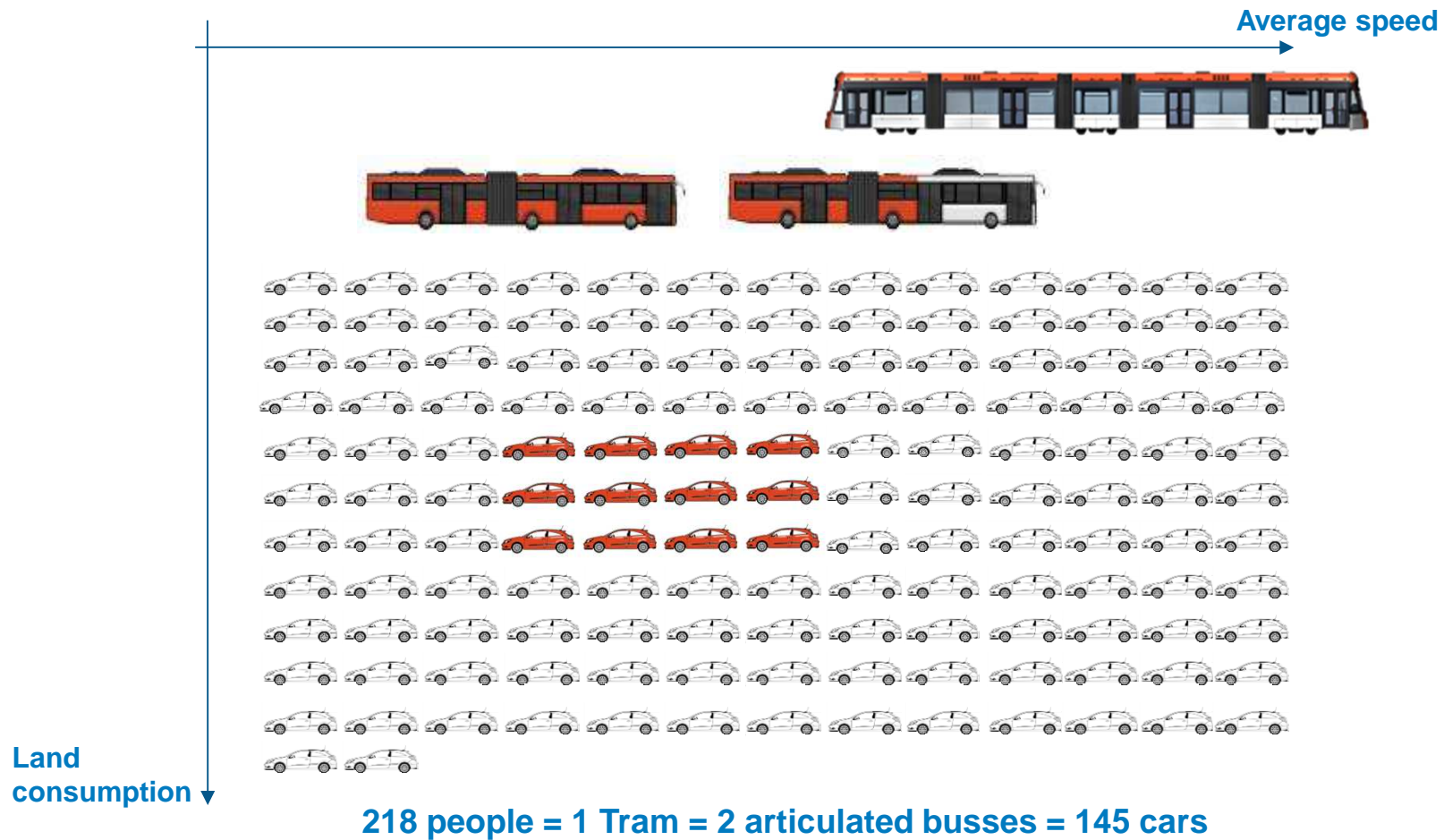
Quelle: EEA Europäische Umweltagentur 2011

1 EU-27

2 CO₂e = CO₂-Äquivalente

3 ohne Berücksichtigung der indirekten Emissionen beim Verkehrsträger Schiene und ohne Berücksichtigung der Treibhausgasemissionen des internationalen Flug- und Seeverkehrs

TRAM VEHICLES COMBINE SPEED AND SUSTAINABILITY BEST



The solutions for the urban problems are on the tracks!

SUSTAINABLE CITY DEVELOPMENT

- Strong economic performance of medium-sized cities is based on:
 - A good quality of and interaction between the city's resources
 - Good conditions for business development
 - A clear strategy for growth and urban development
 - Active leadership and public involvement
- Integrated Strategies for Urban Development are needed, which aim at:
 - Attracting Investments and Enterprises
 - Creating growth
 - Urban transformation
- A tramway is the key for urban development and growth
 - Creation of new urban living areas connected to the city centre
 - Creation of new restaurants, shops along the route
- Investments in fixed tracks result in a more sustainable city development
 - Bus stops / routes can be re-arranged
 - A tram track gives confidence to private investors

STRUCTURE OF PRESENTATION

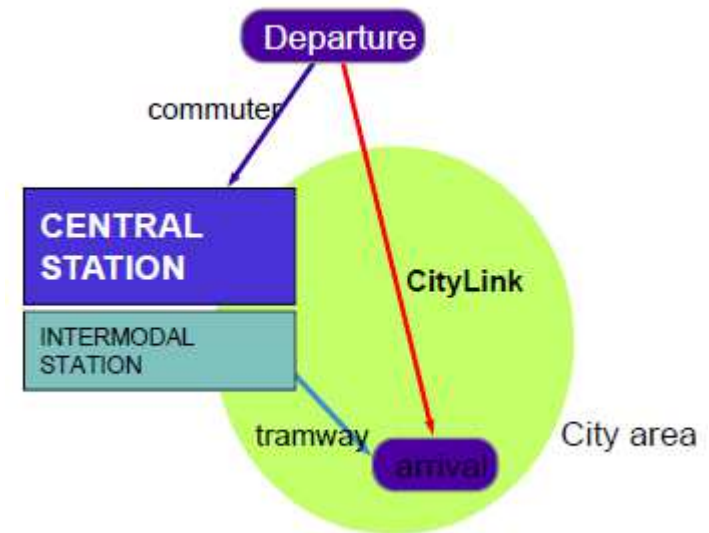
STADLER

-
1. Overview – Stadler Rail Group
 2. Sustainable city development
 3. Project examples



CITYLINK LRV-PLATTFORM

- High flexibility, direct journey
- **Use of existing infrastructure**
- Urban and interurban service
- Design, functionality and performances totally adapted and integrated to the urban area
- High comfort and respect to the environment
- Increase of global efficiency



EXAMPLE BERGEN

- “Bybanen is seen by both politicians and planners as a tool for sustainable urban development and not just a transportation system.”
 - 1. phase: 10 km of tracks with 12 Variobahn, since then constantly enlarged
 - Currently 28 vehicles delivered, headway reduced to 4 minutes
 - Larger vehicles ordered together with the extension of the existing vehicles from 5 to 7 modules
 - 40% financed by toll revenues for cars entering the city
 - 2. line in planning
- Expectations exceeded
 - More passengers than expected
 - More shopping trade brought to the town



VARIOBAHN BERGEN

PROJECT DETAILS



- Project started in January 2008, with the signature of the contract, which includes a **basis vehicle procurement of 12 Variobahnen**, the **maintenance** of them and additional optional vehicle
- Up to now, a **total number of 20 five module Variobahn** and **8 seven-module Variobahn vehicle** had been delivered to Bergen
- **Extension of existing five-module Variobahn vehicles** to seven-module vehicle is in progress
- Extension modules produced in Pankow and Integration into the existing fleet will be done in Bergen
- **Modularity of Stadler tramway vehicle allows prolonging of vehicle to increase capacity**, if the passenger demand increases

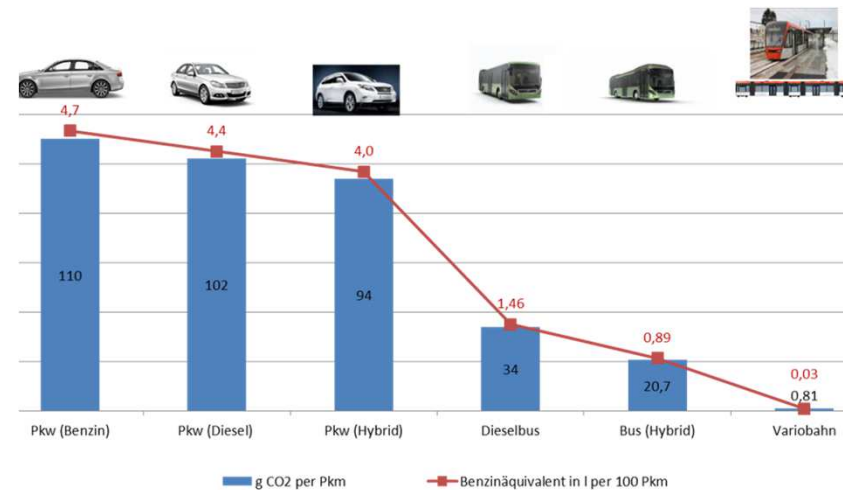
VARIOBAHN BERGEN

Low Life Cycle Costs - EPD

Produkt		TUVRheinland®	
Prüfbericht-Nr. / Test Report No.:	2119901_001	Auftrags-Nr. / Order No.:	3004554
Kunden-Referenz-Nr. / Client Reference No.:	09-542465	Auftragsdatum: / Order date:	23.11.2012
Auftraggeber: / Client:	Stadler Parkov GmbH, Lessingstraße 102, 13158 Berlin		
Prüfgegenstand: / Test item:	Oslobahn Variobahn Bergen		
Bezeichnung / Typ-Nr. / Identification / Type No.:	Variobahn		
Auftragsinhalt: / Order content:	Critical Review der Oslobahnstraße		
Prüfungsnormen: / Test specifications:	DIN EN ISO 14040:2006 und 14044:2006 Umweltmanagement - Oslobahn - Grundrisse und Rahmenbedingungen (ISO 14040:2006), Anforderungen und Anleitungen (ISO 14044:2006) Environmental management - LCC, LCA assessment, Principles and Framework (ISO 14040:2006), Requirements and guidelines (ISO 14044:2006)		
Wartungsdatum: / Date of receipt:	12.03.2013		
Prüfmaster-Nr. / Test sample No.:	N/A	Keine Fotodokumentation erforderlich	
Prüfzeitraum: / Testing period:	12.03.2013 - 22.05.2013		
Ort der Prüfung: / Place of testing:	PCF/CA-Service	No photo documentation required	
Prüfungslabor: / Testing laboratory:	TÜV Rheinland LDA, Products GmbH		
Prüfungsergebnis: / Test result:	Pass		
geprüft von / tested by: kontrolliert von / reviewed by:			
22.05.2013	Patrick Voss / Expert	22.05.2013	Dr. Thomas Bösch / Expert
Stellen: / Positions:	Stellen: / Positions:	Stellen: / Positions:	Stellen: / Positions:
Zustand des Prüfgegenstandes bei Anlieferung: / Condition of the test item at delivery: Details im vorherigen Abschnitt / Details in the previous section			



Produktkategorie	Produktname	Emissionen (g CO2e/kWh)		Emissionen (g CO2e/kWh)		Emissionen (g CO2e/kWh)	
		Produktion	Transport	Produktion	Transport	Produktion	Transport
PKW (Benzin)	PKW (Benzin)	110	4,7	110	4,7	110	4,7
PKW (Diesel)	PKW (Diesel)	102	4,4	102	4,4	102	4,4
PKW (Hybrid)	PKW (Hybrid)	94	4,0	94	4,0	94	4,0
Dieselbus	Dieselbus	34	1,46	34	1,46	34	1,46
Bus (Hybrid)	Bus (Hybrid)	20,7	0,89	20,7	0,89	20,7	0,89
Variobahn	Variobahn	0,03	0,81	0,03	0,81	0,03	0,81

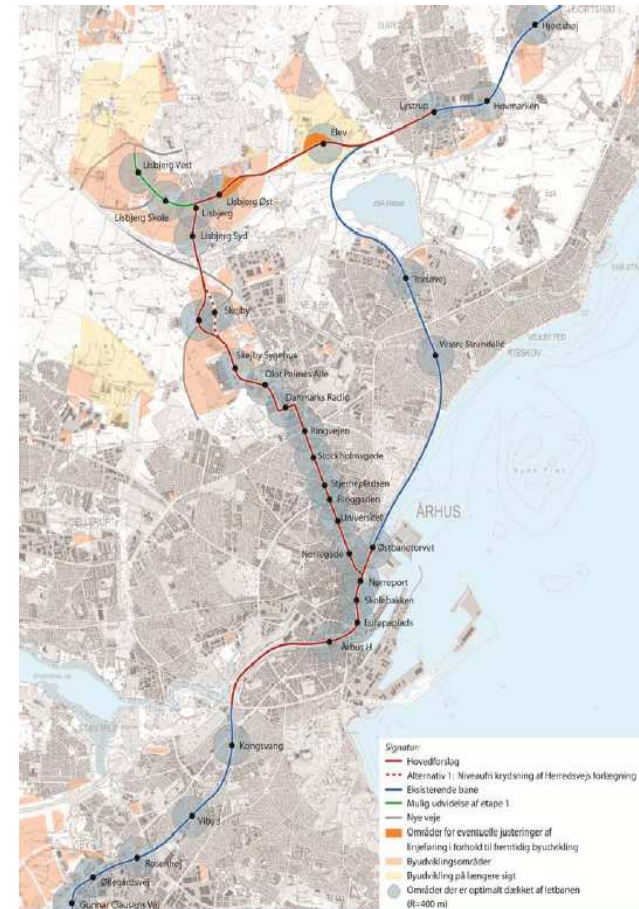


- Environmental Product Declaration for Variobahn Bergen
- Consequent lightweight construction and recuperation leads to low LCC
- Savings of CO₂ emissions as well as lower effort for maintenance

- Comparison with the intermodal competitors show, that the Variobahn has a very low emission of CO₂
- For each passenger carried over 100 km, 0,03 l of gasoline used

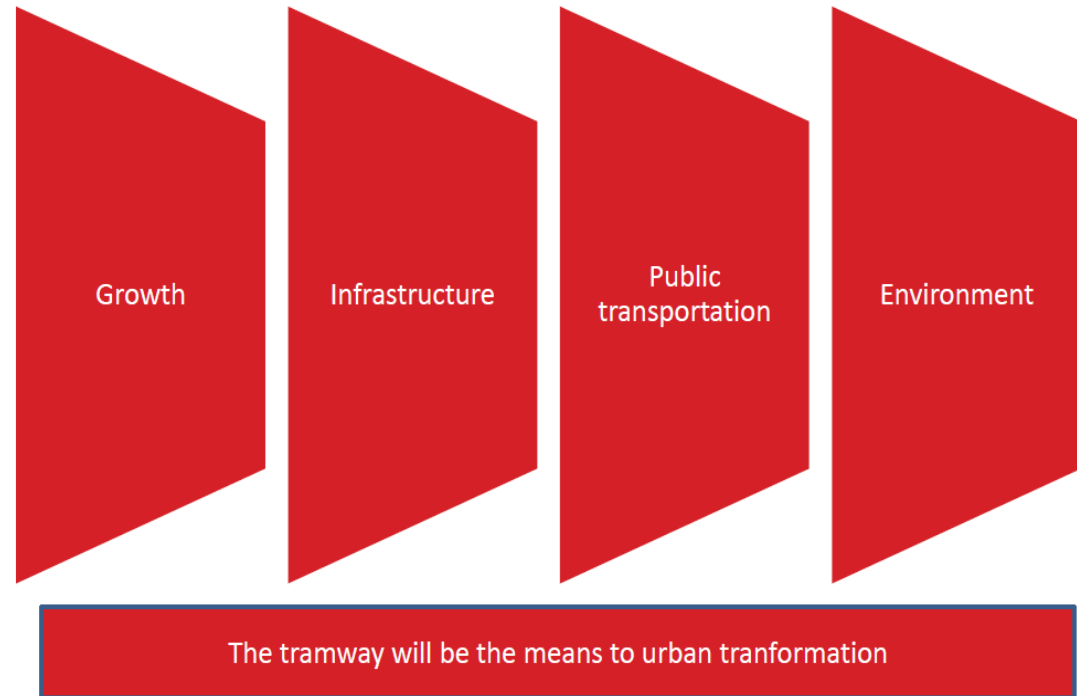
EXAMPLE AARHUS

- Growth expected by around 75.000 habitants in the greater Aarhus region by 2030
- Goal of becoming CO2 neutral by 2030
- The new LRT system will connect
 - the existing city centre including the new developed harbour area with
 - an Agro Food Park,
 - a new hospital,
 - a cluster for IT development and sustainable energy technology



EXAMPLE ODENSE

- Development from town to city
 - Public investment of EUR 3,2 billion planned by 2025
- Sustainable growth expected due to attracting more private and public investment in urban development
 - 38.000 new temporary jobs during construction time
 - 10.000 new permanent jobs
- Congestions problems are faced proactive and not reactive
 - Tramway will become the backbone of the city
- Green traffic solution, with city traffic moved from cars to public transport, which results in less CO2 emissions in the city



- The tramway is expected to give a socio-economic boost to the city
 - increasing property values and business activity
 - New urban spaces will arise along the alignment

FINANCING MODELS AND CONCLUSION

- Financing by public money in order to create growth
- Financing by road users (toll roads and parking charges)
- Financing by businesses, which benefit from public transport (France)

Conclusion

Investments in tram systems are advantageous in relation to

- **Social factors**
- **Ecological factors**
- **Economical factors**



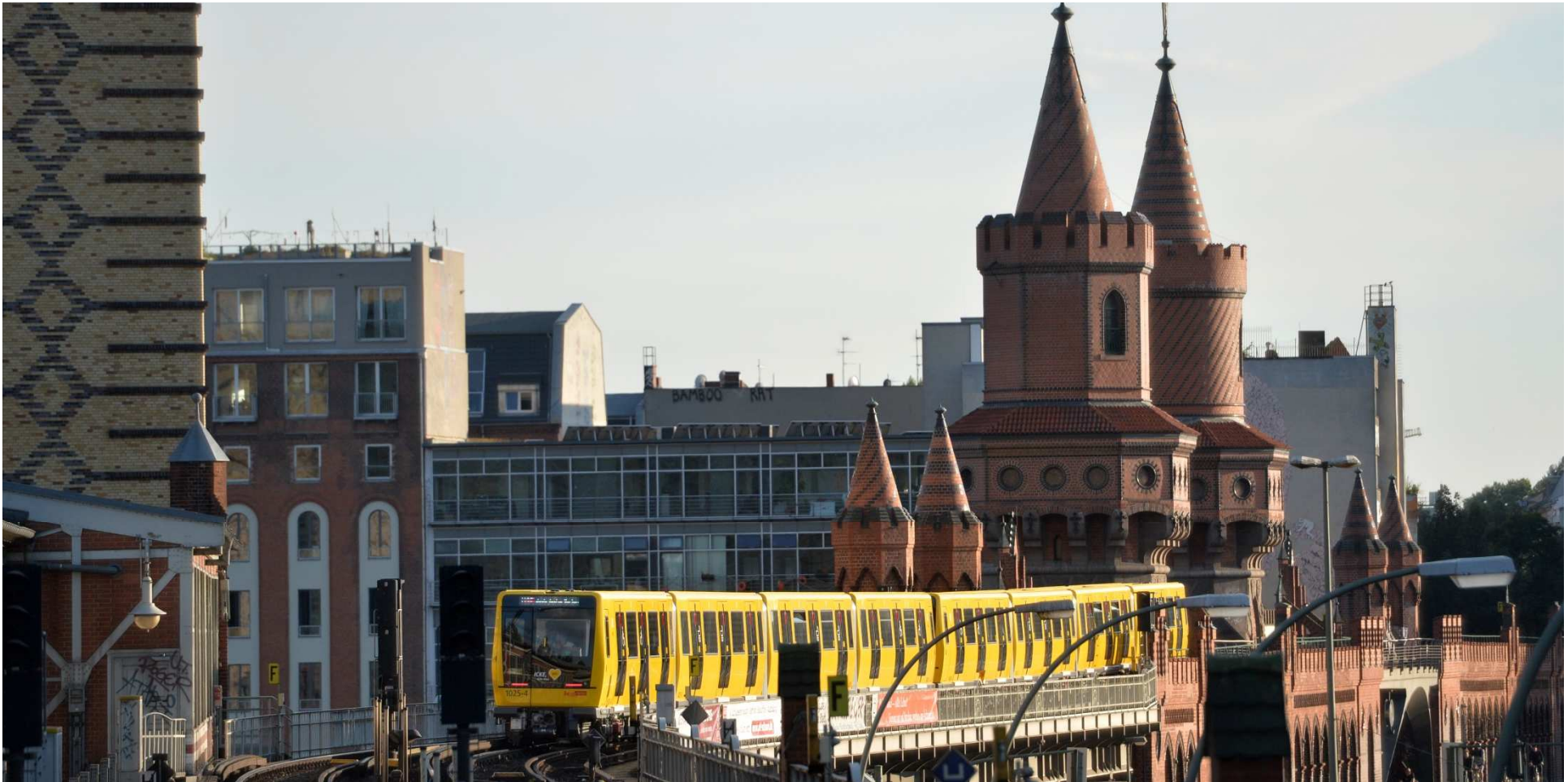
Trams win passengers through modernity, environmental awareness and comfort



Even royal
comfort!



The 'royal way of travelling':
H.M. Queen Sonja of Norway enjoys a comfortable
ride on the new Bybanen tram in Bergen



**THANK YOU
FOR YOUR ATTENTION**

VÉRONIQUE RAMADI

+49-30-9191-3110

VERONIQUE.RAMADI@STADLERRAIL.DE

STADLER