

The background of the slide is a light gray color. Overlaid on this is a complex, abstract pattern of thick, red, winding lines that resemble a maze or a network of paths. Scattered throughout this network are several small, stylized icons: green trees with brown trunks, blue rectangular blocks representing buildings, and small orange cones. The overall aesthetic is modern and graphic.

Comparing Cycling Cities: 100 years of Policy & Practice

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Oldenziel, Emanuel, De la Bruhèze, Veraart, 2016
www.cyclingcities.info

Title:	Cycling	Walk	PT	Cars	Modal Share Tool			
Beijing	32%	21%	2	Amsterdam Centrum	62%	no data	22%	13%
Shanghai	20%	27%	3	Amsterdam	38%	4%	30%	28%
Munich	17%	28%	2	Utrecht	32%	3%	25%	40%
Berlin	15%	29%	2	Aarhus	27%	7%	19%	43%
Tokyo	14%	23%	5	Copenhagen	26%	10%	36%	28%
Barcelona	12%	35%	3	Malmö	25%	6%	18%	51%
Delhi	12%	21%	4	Eindhoven	24%	3%	8%	65%
Hamburg	12%	28%	1	The Hague	22%	5%	30%	43%
Vienna	7%	26%	3	Bremen	19%	7%	24%	50%
Mumbai	6%	27%	5	Dresden	17%	24%	21%	38%
Portland	6%	6%	1	Cologne	15%	7%	28%	50%
Taipei	4%	15%	3	Frankfurt	15%	11%	30%	44%
Paris	3%	61%	2	Göteborg	14%	12%	21%	52%
San Francisco	3%	10%	3	Rotterdam	14%	5%	25%	56%
Seattle	3%	8%	2	Bonn	13%	9%	21%	57%
Brussels	3%	25%	2	Freiburg	13%	11%	12%	63%
Bogota	2%	15%	6	Hanover	13%	9%	29%	49%
Boston	2%	14%	3	Bern	11%	11%	54%	24%
Budapest	2%	22%	3	Bristol	8%	19%	12%	55%
Daejeon	2%	26%	2	Christchurch	8%	6%	9%	78%
London	2%	21%	4	Nuremberg	7%	11%	30%	52%
Melbourne	2%	4%	1	Stockholm	7%	15%	43%	33%
Philadelphia	2%	9%	2	Seville	7%	13%	18%	62%
Toronto	2%	7%	3					



Why do the Dutch Cycle?

An Answer from Europe and History

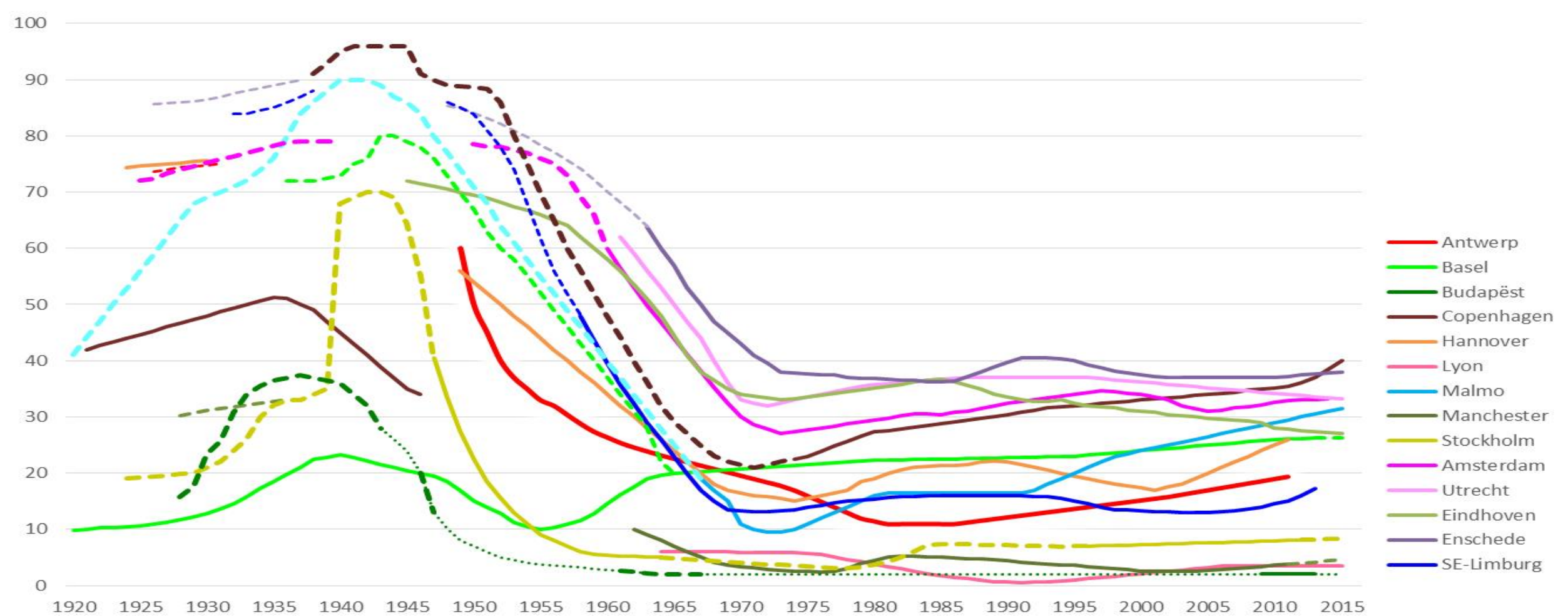
How to become a Cycling City?

1. Urban Form
2. Mobility Alternatives
3. Traffic Models
4. Social Movements
5. Cycling's Cultural Status



16 cities
9 countries
100 years

EU Bicycle Share in Modal Split, 1920-2015



1. Urban Form

- I. **Compact City ++++:**
Amsterdam/Utrecht/Nijmegen

II. Suburbanization ++/--::

1890s-1950s, Tram/Train/Metro-Based Suburbanization (Manchester)
Walking/Cycling Distances

1950s-present Car-Based Suburbanization
Car/PT vs. Cycling Distances: Manchester, Eindhoven

III. TOD Transit Oriented Development ++/-

1980s SE,NL, Curitiba: Cycling + Public Transit

1. URBAN FORM



1. Mobility Alternatives



Modal Split

1. 1890s-1960s Pedestrianism vs. Bicycles; PT vs. Bicycles
2. 1950s-present Bicycles vs. PT; Bicycles-Cars;
3. 2000s PT-Cars; Walking & Bicycle Sharing Schemes

2. Mobility Alternatives; Public Investment



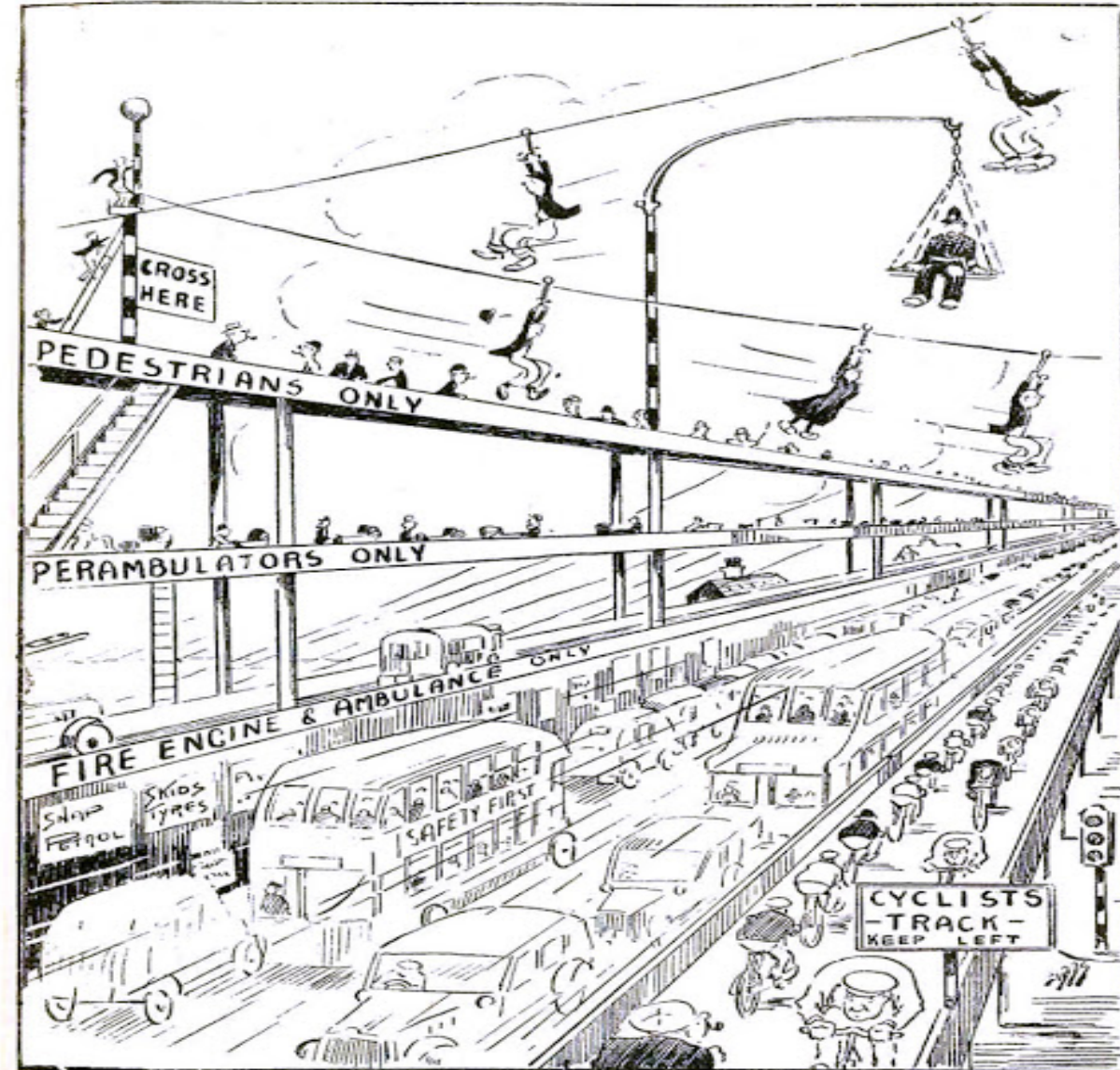
3. Traffic Models



- A. Separation; Car-Based Traffic Flow/ Speed/ Concept Fast vs. Slow
 - 1. Marginalization
 - 2. Separation (Cyclists/Ped.)
 - 3. Separation & Bicycle-Paths Infra

- B. Traffic Calming; Living Street
 - 1. Right of Way
 - 2. Shared Space w/out speed limit
 - 3. Shared Space w speed limits

3. Traffic Models: Separation & Making Automobility

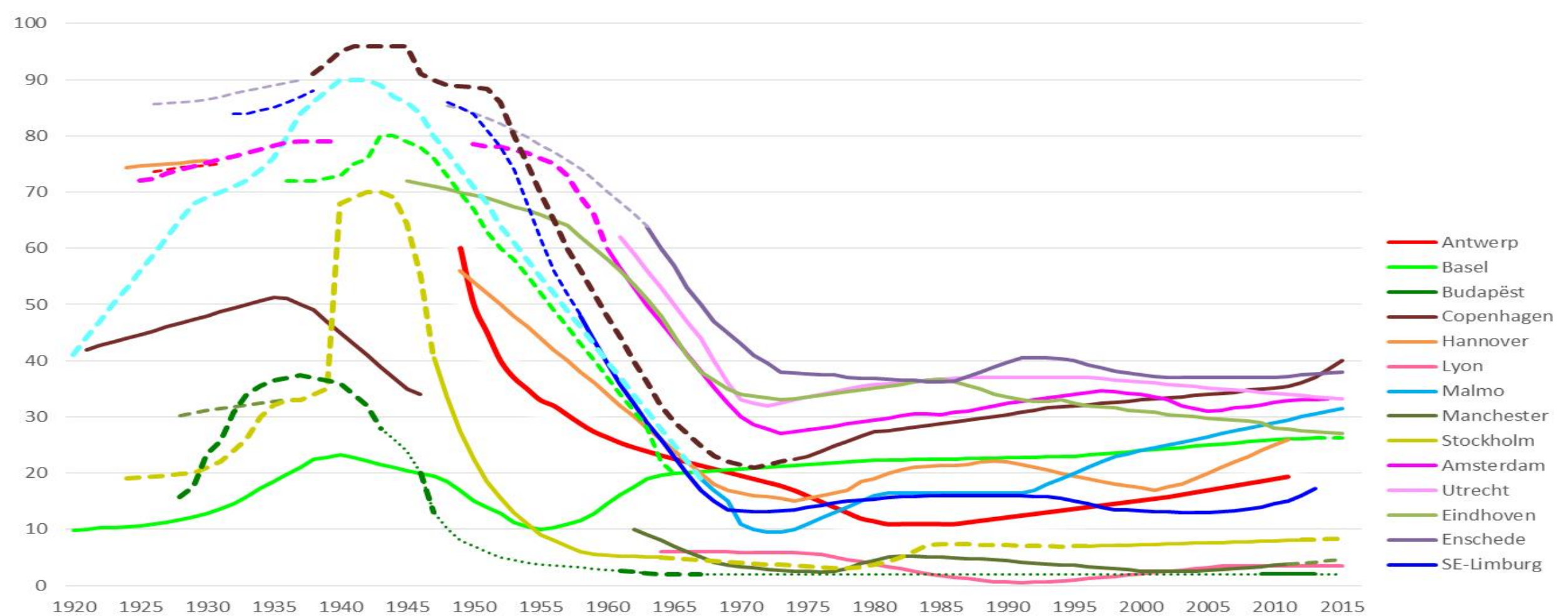


Year	% Cyclists		% Motorists	% Tax Contribution Cyclists	% Tax Contribution Motorists	% Allocated Funds to Bicycles Infra		% Allocated Funds to Cars Infra	
General Revenues 1924-1926									
1924	95		1.7						
1925									
1926				28	72				
Road Fund 1927-1934									
1927				42	58				
1928	96		1.8	47	53				
1929	95		2.2	41	59				
1930	95		2.4	39	61				
1931	95		2.6	36	64				
1932	94		2.7	35	65	5	95		
1933	94		2.8	35	65	5	95		
1934	94		2.8	34	66	5	95		
Traffic Fund 1935-1941									
1935	94	2.7		25	75	5	95		
1936	95	2.5		29	51	5	95		
1937	95	2.5		33	67	5	95		
1938						5	95		
1939	94	2.6				5	95		
1940						5	95		

Traffic Models: Calming & Multi-modal



4. Social Movements & Modal Split Demise



Tit Social Movements & Governance

Developing Bicycle-Based Governance Knowledge

- ✓ NL; FR; SE
- Lyon, Southeast-Limburg, Manchester

Collaborating Policymakers & Grass-Roots Movement

- ✓ NL, Copenhagen, Basel
- Antwerp, Manchester

Mobilizing National-Regional, Local Funding, Expertise, Governance

- ✓ Grenoble, Strassbourg
- ✓ London
- ✓ Arnhem-Nijmegen, Enschede
- Lyon;
- Manchester;
- Southeast Limburg

Delegating Mobility Governance: Public-Private Partnership (PPP)

- ✓ Lyon

Governance

Governance-by-Technocracy

Governance-by-Protest

Governance-by-Invitation

Governance-by-Delegation



5. Social Movements & Governance



5. Cycling Cultural Status



- 1. Policy Pride vs. Pariah;**
- 2. Utility vs. Sports/Leisure;**
- 3. Bottom Up vs. Branding**
- 4. Middle-Class/Gender vs. Poverty**

5. Cycling Status & Social Justice



How to Be Cycling City, Since 1920?	Urban Form	Mobility Alternatives	Traffic Concept	Social Movement	Cycling Status
AMSTERDAM	+++	++	+++	+++	+/-
NIJMEGEN	+++	++	+++	+++	+++
UTRECHT	+++	++	+++	+++	+++
ARNHEM	++/-	+++	++	+	+
EINDHOVEN	+/--	+/-	----	+/-	
ENSCHEDE	+++/----	++	+++		+++
HEERLEN	---	+	-	---	
COPENHAGEN	++	++	+++	++	+++++
ANTWERP	+/-	----		+/-	----
MANCHESTER	---	----	_____		---
HANNOVER	--	--	----	++	
BASEL	++	+++	----	+++	+
STOCKHOLM	---	+++			
MALMÖ	+++	---	+++	+	+++
BUDAPEST		+++		++	
LYON	----	-----		---	_____

No Silver Bullit

Urban Developments

Mobility Alternatives

Traffic Models

Social Movements

Cultural Status

Policy Matters

Collaboration Matters



You Can Be Dutch Too

One Country,
Different Experiences



Dutch Cities: Different Experiences You Can

Amsterdam 40%

Policy Accidents; Perfect Storm

- Urban Form:
 - Historic preservation
- Mobility Alternatives
 - Late automobility & PT Contested
- Traffic Model
 - Political Stalemate
- Social Movements
 - Provo, Stop-the-Child Murder, Lennon
- Cycling Status
 - Core Identity

Eindhoven 26%

Separate Paths

- Urban Form:
 - Early Suburbanization (Car-governed)
- Mobility Alternatives
 - High Automobility; Low PT; Declining Cycling
- Traffic Model
 - Separation; High Bicycle Infra as Accident
- Social Movements
 - 1970s strong
 - collaboration cyclists union & (marginal) bicycle civil servant
- Status
 - Car Governed City; Marginal

What is Next?



III. Questions for the Future

1. MultitModality: Where is Cycling in the Chain and MaaS?

2. Data: Whose Accounting Tricks?

3. Status: Whose Mobility?

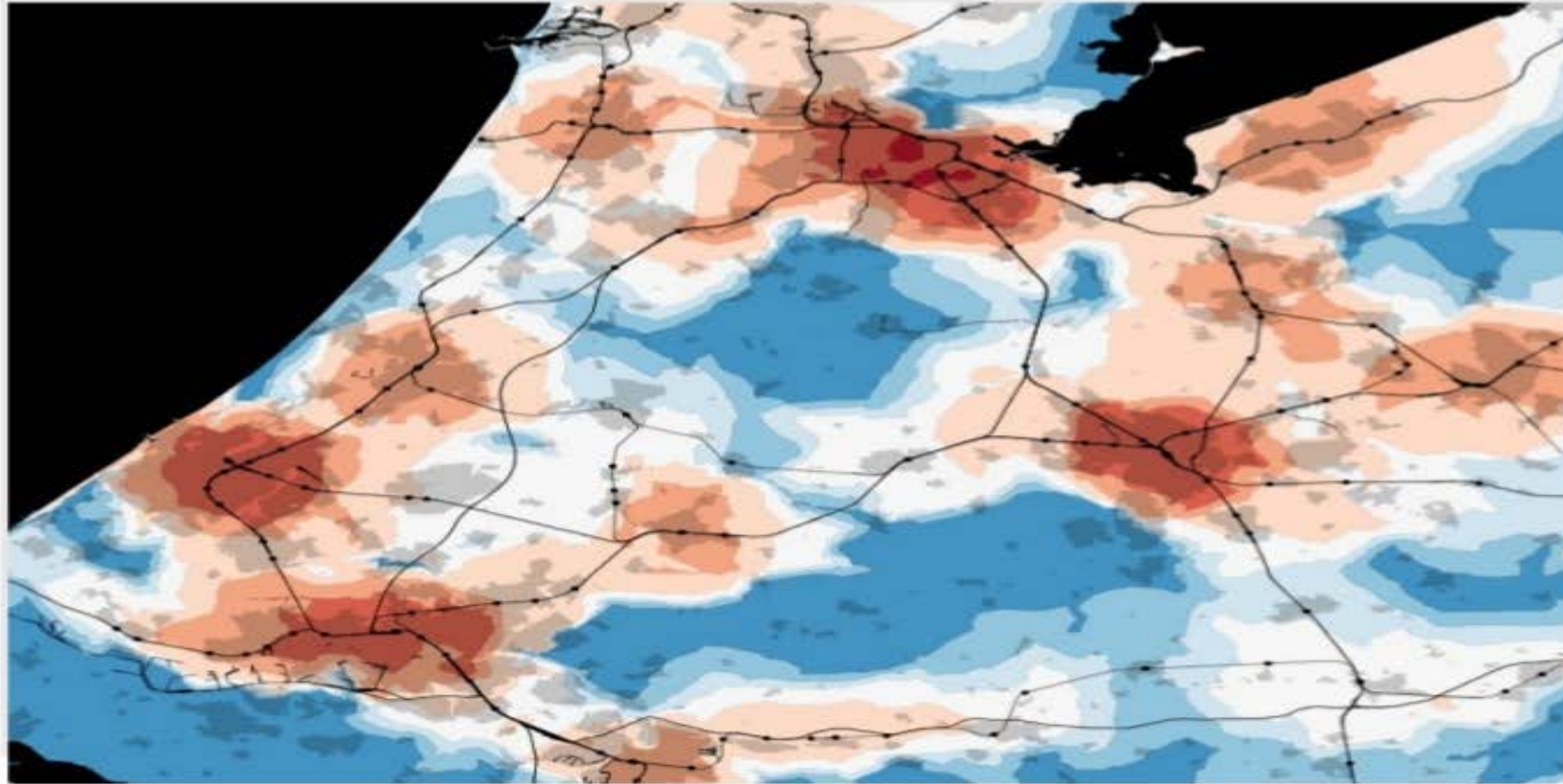
4. Governance: Where does Bicycle Belong?

1. Scale, Urban Form & Bike-Train-Bike Chain & ICT



UNIVERSITEIT VAN AMSTERDAM

Number of departing trains per hour within 20 minutes of cycling



2. Dis/counting Cyclists & Traffic Modelling since 1920

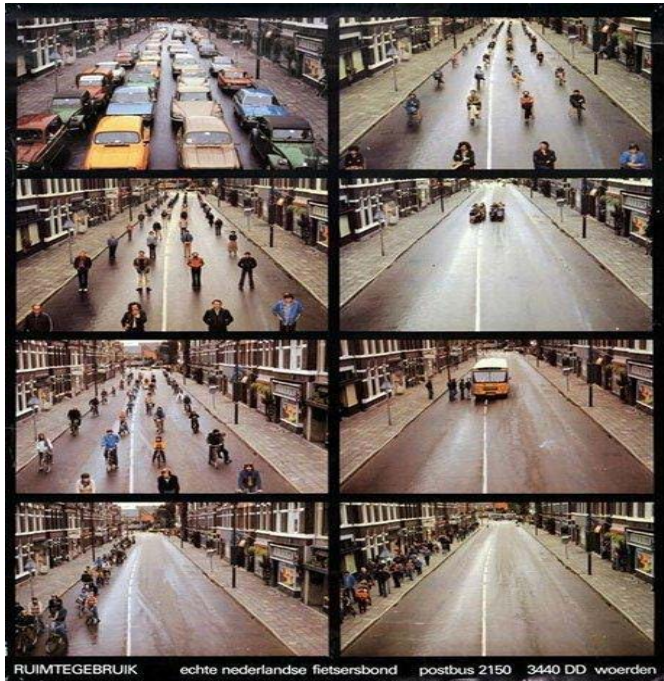
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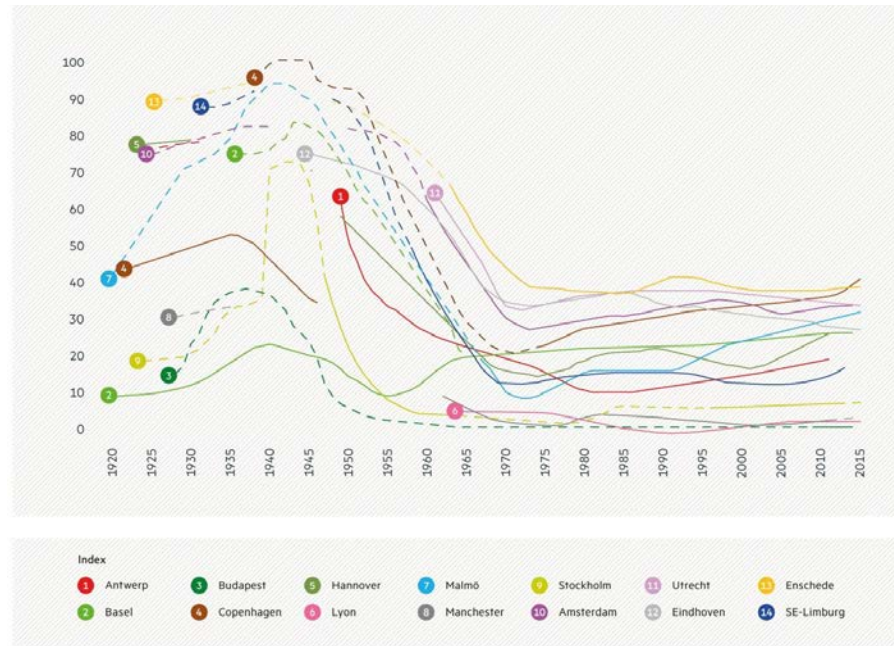
Cycling & Paris Accords

Developing Urban Mobility Sustainability Indicators

Modal Split on the Street



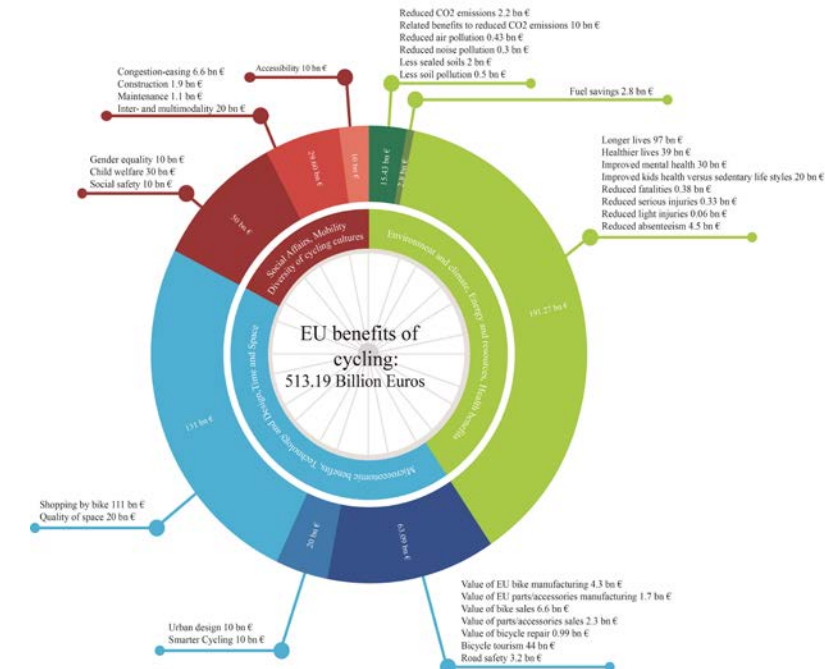
Bike Share Modal Split, 1920-2015



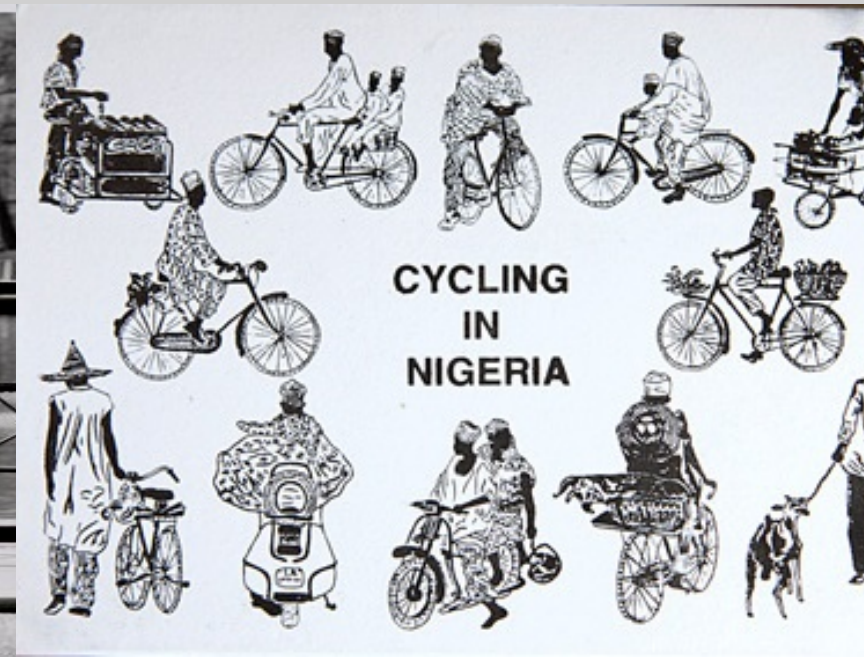
Trend Line Europe
Cycling's share of traffic (counts – dotted lines) and trips (travel surveys – solid lines) excluding pedestrians.

Sources: Ruth Oldenziel, Martin Emanuel, Adri Albert de la Bruhèze, and Frank Veraart (editors). *Cycling Cities: The European Experience. Hundred Years of Policy and Practice* (Eindhoven: Foundation for the History of Technology / LMU Rachel Carson Center for Environment and Society, 2016). For more information see: www.cyclingcities.info

ECF Benefits in Billions Euros



3. Cultural Status, Social Justice, Mobility Poverty



3. Governance: Where the Bicycle?



Join Us

- * Developing Sustainable Urban Mobility Indicators
- * Publishing *Your City Next?*
- * Developing “Biography of a Street” Educational Tool
- * Building Webplatform

