„CONVEGNO GREEN“

Riduzione CO2 – il contributo della mobilitá

kyklos
mobile. integrated. sustainable.

ing . Philip Kleewein
KYKLOS srl , Bolzano

Chi siamo

kyklos raggruppa competenze e servizi nel campo della mobilità sostenibile e dell'uso dello spazio, dall'idea alla pianificazione specialistica e all'implementazione tecnica.

kyklos
mobile. integrated. sustainable.

Maggiore distanza – maggiore mobilità?

La mobilità cresce

No. I percorsi effettuati dalle persone rimangono pressochè invariati. Dapertutto.

Quello che aumenta è il TRAFFICO e le DISTANZE!!

distanze delle vie giornaliere

In tutta Europa fino alla metá dei viaggi ha lunghezza minore di 5 chilometri.

Confermato da uno studio pubblicato di recente, dove addiritura un quarto é minore a 2km/tragitto.

Se si calcola con una velocità media 20km/h in cittá 6 minuti in macchina

12km/h risultano 10minuti in bicicletta

4-5km/h - 20-30 minuti a piedi

Sono tutte distanze fattibili, che farebbero bene al nostro benessere e alla nostra salute

Indicatori selezionati	Torino	Milano	Venezia	Genova	Bologna	Firenze	Roma	Napoli	Bari	Reggio C.	Palermo	Messina	Catania	Cagliari	*Media Italia*
Tasso di mobilità di prossimità (%)	8,1	5,5	10,1	6,2	5,0	6,2	6,6	7,0	5,2	7,2	6,8	7,7	7,2	9,0	*6,5*
Lunghezza media degli spostamenti (km)	8,7	9.9	9,1	10,3	12,7	10,4	9,9	9,0	12,9	9,0	8,8	9,7	10,8	7,6	*11,0*
Quota spostamenti fino a 15 minuti (%)	43,4	43,8	52,5	49,7	48,9	48,9	41,9	43,2	51,6	54,9	46,7	53,8	50,6	51,0	*52,1*
Quota spostamenti fino a 2 km (%)	27,7	26,5	25,1	33,1	26,3	27,8	28,4	28,6	32,7	33,0	37,2	33,3	27,9	26,9	*28,5*

CO2 in Eurozona 2023

Si mira a una riduzione del 55% rispettivo emissione del 1990

Anche se ribasso, siamo con il 6% oltre la traiettoria

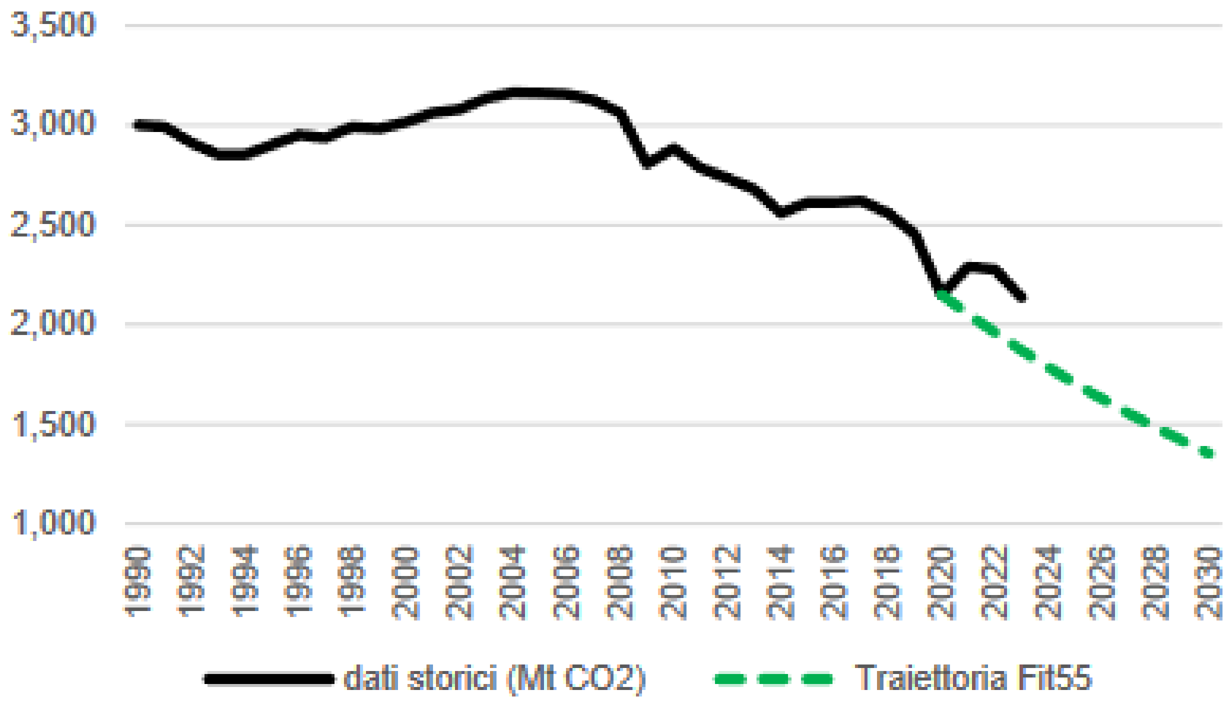
→Dobbiamo ridurre di più i consumi!!!

Riscaldamento

Trasporti / mobilitá

Tematiche che possiamo influenzare direttamente

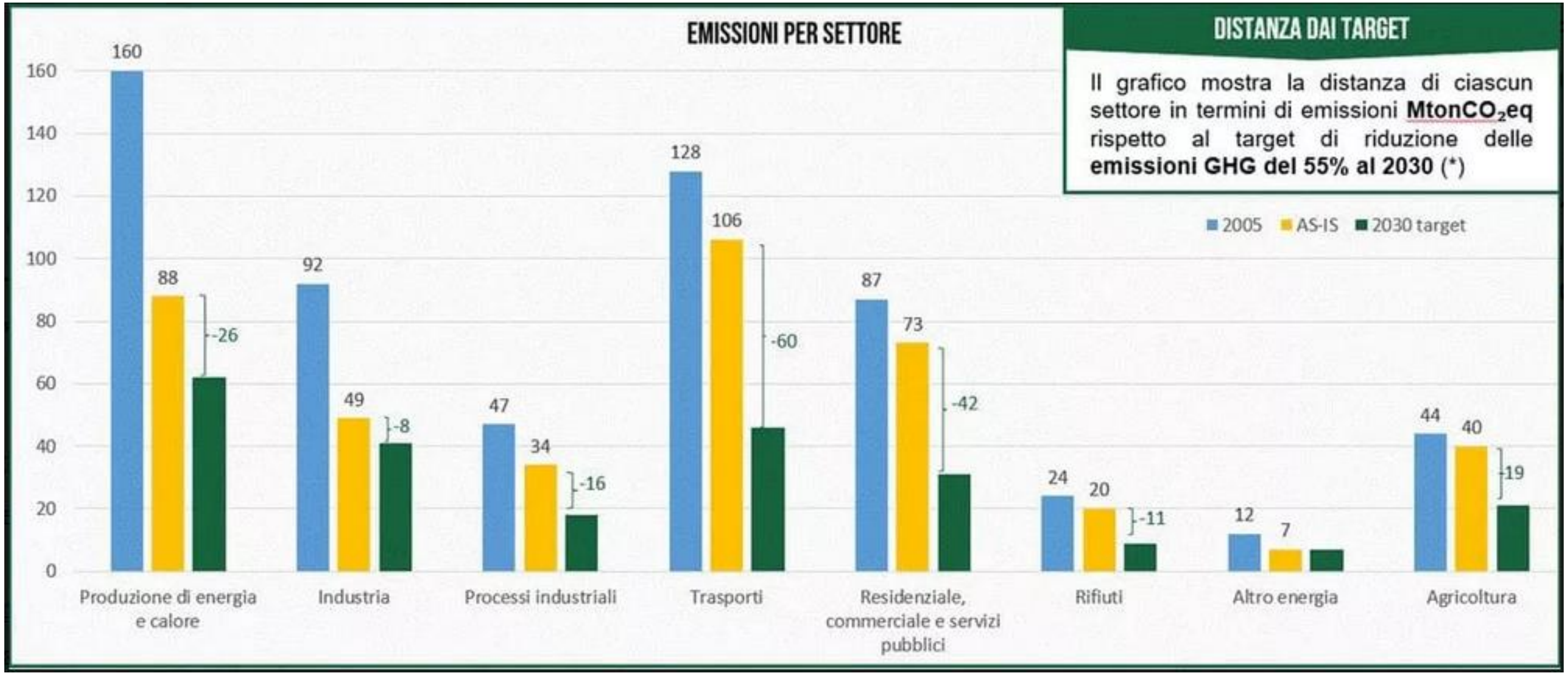
Figura 1-2 - Emissioni di CO_2 nell'Eurozona – dati storici e traiettoria 2030 Fit for 55 (Mt)



CO2 in Italia 2023

La Repubblica online 18/10/2023

Il **gap da colmare** per l'Italia da qui a otto anni resta quindi enorme, pari a **125 milioni di tonnellate di CO2 equivalente** - ben 15 milioni di tonnellate in più rispetto alle stime dello scorso anno - sul target prefissato, e i settori che dovrebbero contribuire maggiormente sono proprio quelli più in difficoltà: i trasporti e l'edilizia residenziale, commerciale e dei servizi pubblici sono infatti i comparti più lontani in termini assoluti dai target al 2030, data entro cui dovrebbero calare rispettivamente del 33% e del 23%, al ritmo del 4% e del 3% l'anno, mentre quelli più vicini al raggiungimento degli obiettivi sono l'industria e la gestione dei rifiuti, dove il nostro Paese eccelle.



TRASPORTI come ridurre CO2 in Italia 2023

Aumentare flotta dei mezzi elettrici:

Oltre il 50% della energia elettrica viene prodotta da fonti petrolifere

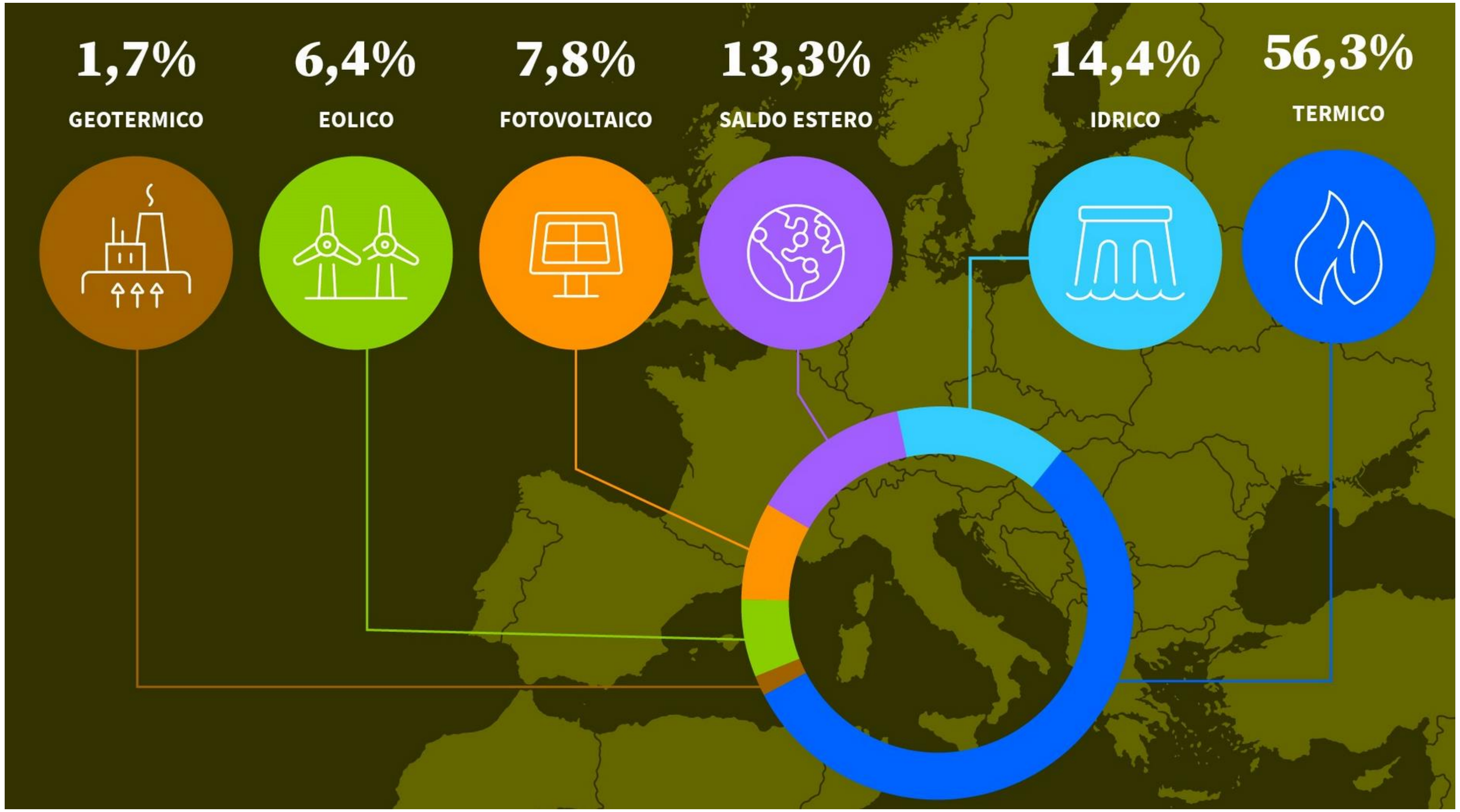
Energie alternative:

Idrogeno > ancora in fase evolutiva
Potrebbe essere alternativa per nicchie di mezzi pesanti (treni, navi, camion)

Riduzione potenze motori

Riduzione chilometri!!

Però … come???:



kyklos
mobile. integrated. sustainable.

POSSIBILITÀ DI RIDURRE CHILOMETRI

SMART WORKING – risparmio chilometrico + leggero cambiamento nei movimenti extra-lavorativi (bicicletta,…)

82h/a **3500km/a**

Città	Persone in lavoro a distanza (n)	Giorni di lavoro a distanza (n)	Distanza evitata percorsa in auto (km/giorno)	Emissioni evitate di CO_2 (kg/giorno)
Bologna	371	2.3	34.1	5.9
Roma	281	2.8	39.2	6.8
Torino	306	1.8	27.7	4.8
Trento	311	1.7	40.9	6.5
Totale per le 4 città	**1269**	**2.1**	**35.4**	**6.0**

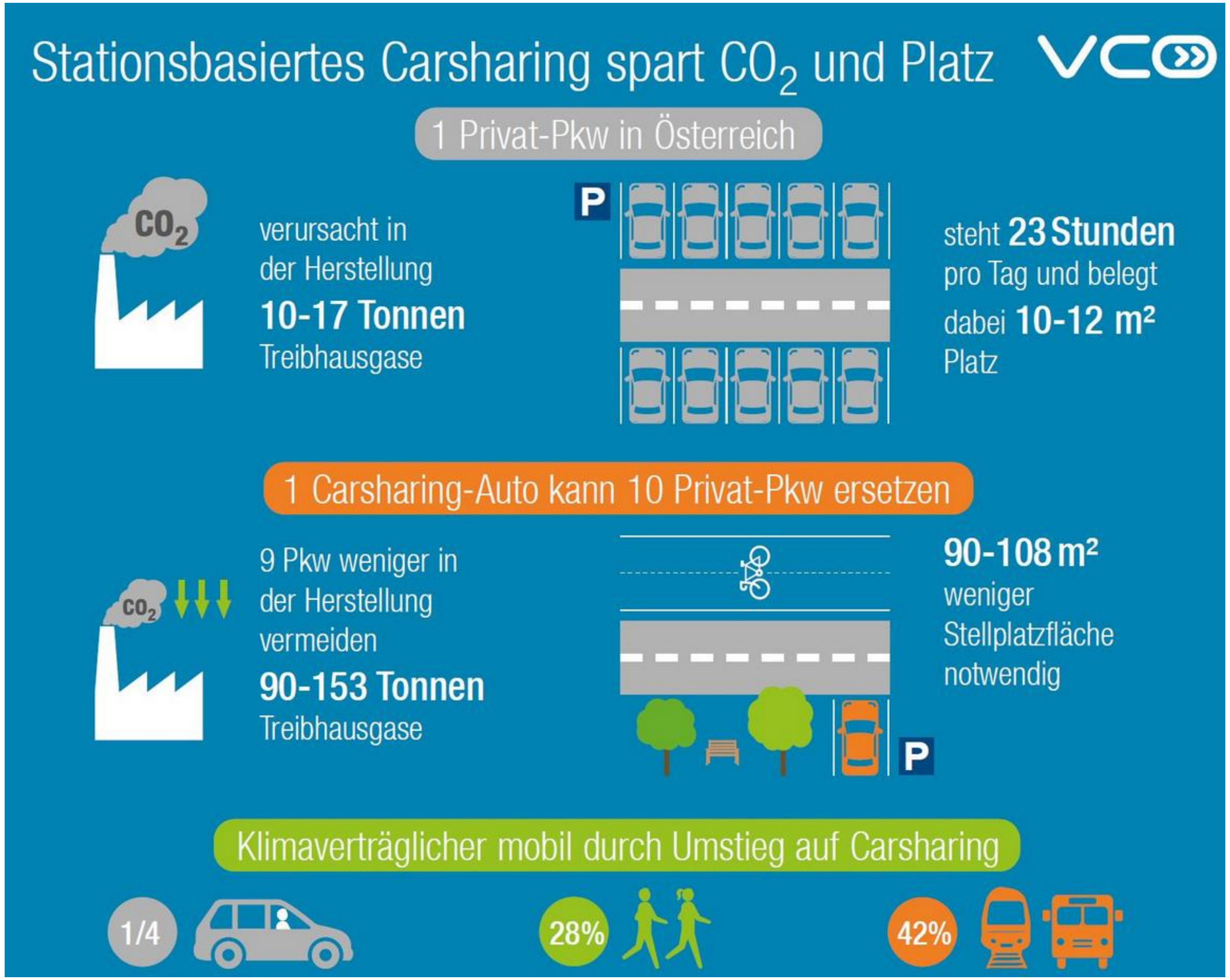
POSSIBILITÀ DI RIDURRE CHILOMETRI

SMART WORKING

CAR SHARING

BREVI DISTANZE CON MEZZI ECOSOSTENIBILI

CITY LOGISTIC



kyklos mobile. integrated. sustainable.

POSSIBILITÀ DI RIDURRE CHILOMETRI

SMART WORKING

CAR SHARING

INTERVENTI DI URBANISTICA

BREVI DISTANZE

Cittá a 15 minuti (Barcelona, Parigi, cittá nordiche)

Ostacolare il transito delle macchine

Aumentare qualitá di permanenza sulle strade urbane

Piú verde e ombra aiuta a combattere
le temperature alte nelle cittá

kyklos mobile. integrated. sustainable.

POSSIBILITÀ DI RIDURRE CHILOMETRI

SMART WORKING

CAR SHARING

BREVI DISTANZE CON MEZZI ECOSOSTENIBILI

CITY LOGISTICS E LOGISTICA IN GENERALE

kyklos
mobile. integrated. sustainable.

POSSIBILITÀ DI RIDURRE CHILOMETRI

SMART WORKING

CAR SHARING

BREVI DISTANZE CON MEZZI ECOSOSTENIBILI

CITY LOGISTICS E LOGISTICA IN GENERALE

PIANIFICAZIONE URBANA PER L'UOMO E NON PER VEICOLI

Tra 20anni 2/3 della popolazione mondiale vivrá nei centri urbanizzati

kyklos
mobile. integrated. sustainable.

PHILIP KLEEWEIN

Kyklos srl, Bolzano

www.kyklos.bz

philip.kleewein@kyklos.bz

kyklos mobile. integrated. sustainable.

Mito 4

Guadagniamo tempo?

Strade „veloci“ ci regalano tempo

- **Dove si trova tutto il tempo „guadagnato“?**

Mito 5

Strade, strade, strade

La gente lo vuole così!

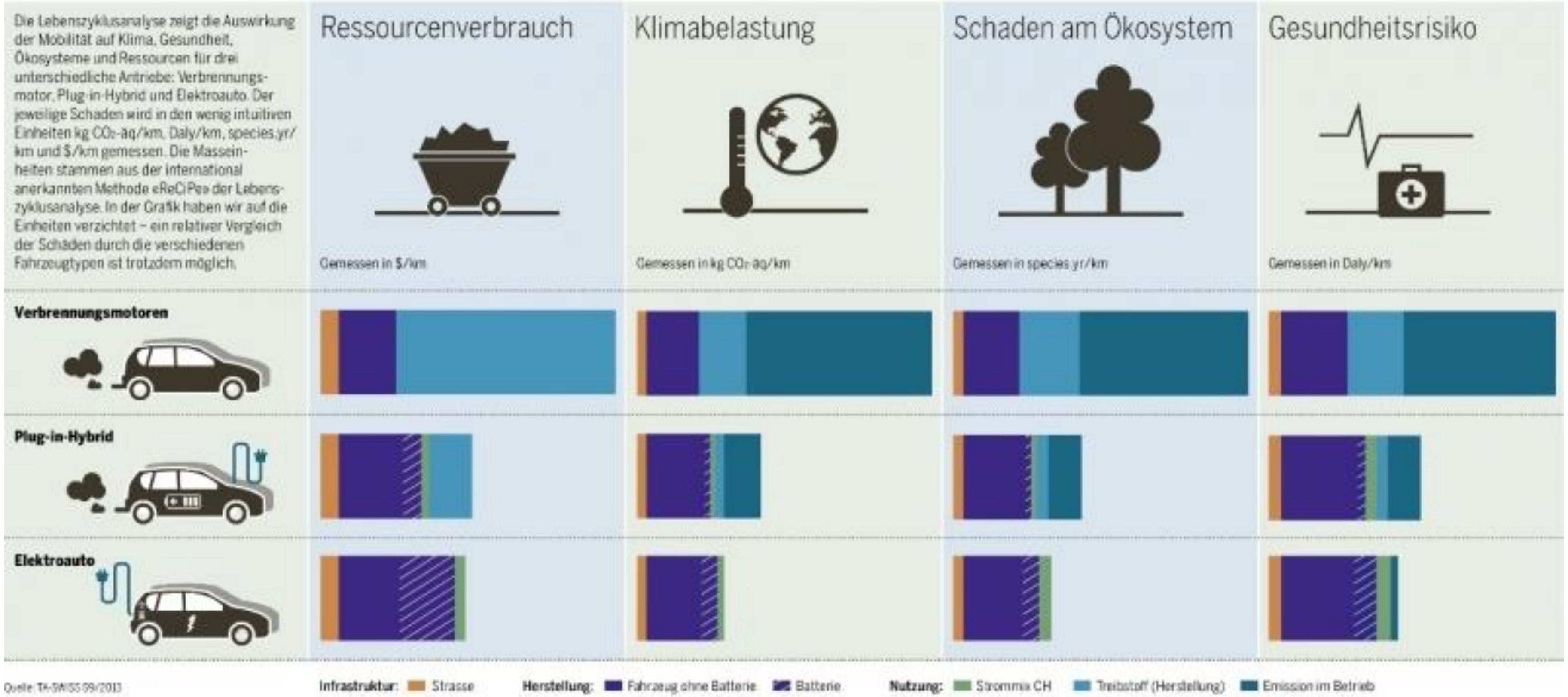
Sbagliato. Sono le strutture nello spazio che determinano il comportamento mobilitario.

Mito 8

I miracoli di domani?

L‘elettromobilità risolverà tutti i problemi

No. Il traffico motorizzato indivudiale comporta tutta una serie di sfide e problemi.



kyklos
mobile. integrated. sustainable.

EUROBIKE TRAVEL TALK

Zero percento emissioni – cento percento emozioni

La bicicletta e la sua storia




„La bicicletta è il mezzo di trasporto più civile che conosciamo. Gli altri mezzi di trasporto si comportano ogni giorno in modo più da incubo. Solo la bicicletta conserva il suo cuore puro.“

Iris Murdoch

kyklos
mobile. integrated. sustainable.

The benefits of cycling

Unlocking their potential for Europe

ECF gratefully acknowledges financial support from the LIFE Programme of the European Union

ECF gratefully acknowledges financial support from the cycling industry via Cycling Industries Europe

ECF

The systematic classification of the benefits of cycling is based on the "Active Mobility Agenda", which has helped us to identify nine 'key issues' where the benefits of cycling become tangible. As shown in the matrix below, these key issues are based on the three dimensions of sustainable development: the environment, the economy and social affairs.

Environment + Climate	Business	Social Affairs
Energy + Resources	Technology + Design	Mobility
Health	Time + Space	Diversity of cultures

Source: Neun, M. 2015. Preface, in: Gerike, R. and Parkin, J. 2015 (Eds.). Cycling Futures – From Research into Practice. Ashgate, Surrey (UK) and Burlington (US), p. xxiii-xxxiii.

Which benefits can we measure today?

Benefit	Estimated Value (billion euros)
CO2 emissions savings	0.6 – 5.6
Reduction of air pollution	0.435
Reduction of noise pollution	0.3
Fuel savings	4.0
Longer and healthier lives	73
Less sickness absence at the workplace	5
Bicycle market	13,2
Cycle tourism	44
Easing of road congestion	6,8
Saving on construction and maintenance costs for road infrastructure for motorised vehicles	2,9
Total annual benefits	**150 - 155 bn euros**

Source: Steenberghen T. et al. 2017. Support study on data collection and analysis of active modes use and infrastructure in Europe

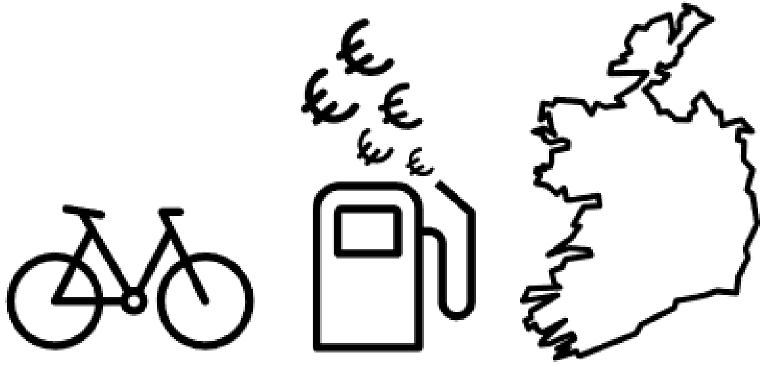
kyklos mobile. integrated. sustainable.

ECF EUROPEAN CYCLISTS' FEDERATION

Energy and Resources

02

02 . 1



Fuel Savings

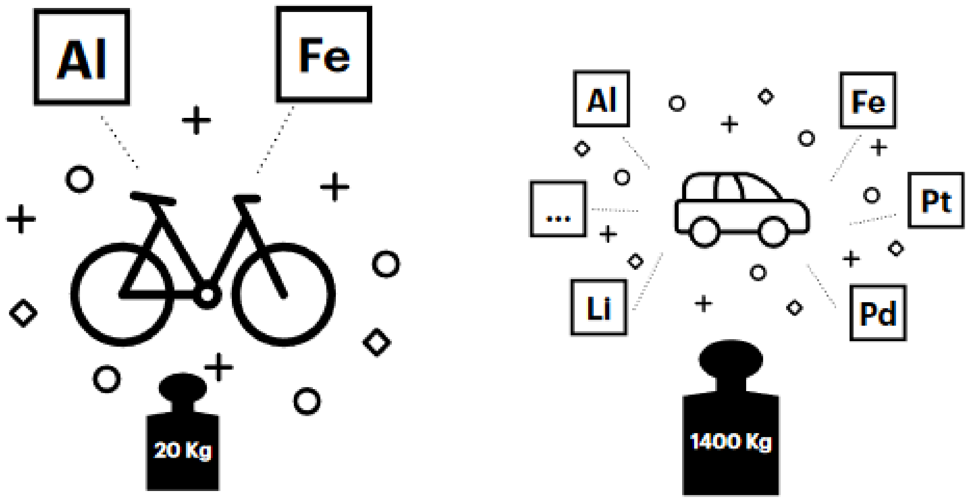
- The current levels of cycling in the EU correspond to fuel savings of more than **3 billion litres** per year, **which corresponds to the fuel consumption for road transport of a country like Ireland.**
- The value of these fuel savings is almost **4 billion euros.**

Sources: ICCT (2017): From Laboratory to Road; Central Statistics Office Ireland

Energy and Resources

02

02 . 2



Vehicle Production

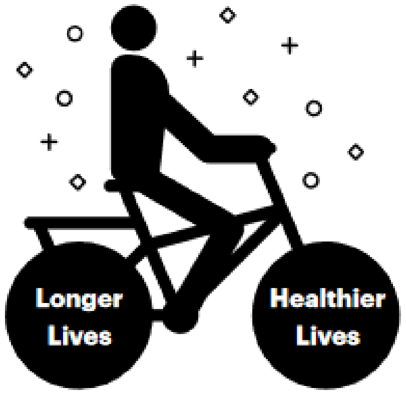
• The average weight of a car in the EU in 2017 was almost **1400 kg**, a bike rarely weighs more than **20 kg**, or **1.5% of the weight of a car.** This means that much less resources are needed for its construction. Some of the resources are the same, but used in much less quantities (e.g. steel, aluminium, different polymers), others, like platinum or palladium for catalytic converters which cause significant emissions and environmental damage during their extraction, are not used at all for the manufacturing of bicycles.

Source: European Environmental Agency

Public Health

03

03 . 1



Longer + healthier lives: Reduced mortality + morbidity

• Cycling prevents **18 110 premature deaths** per year in the EU-28. This corresponds to an economic value of **EUR 52 bn** per year.

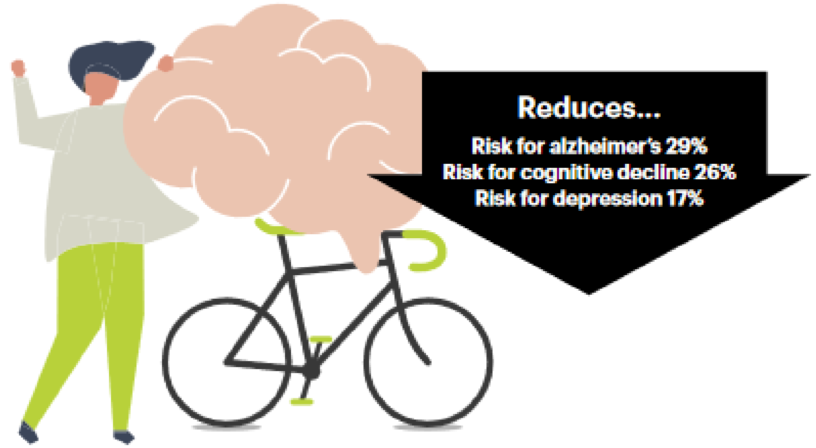
• Cycling also contributes to healthier lives by helping to prevent a large number of severe and chronical diseases, for example:

+ cardio-vascular diseases
+ diabetes (type 2)
+ breast cancer
+ colon cancer
+ osteoporosis.

Public Health

03

03 . 2



Mental health benefits

- Engaging in moderate physical activity **reduces the risk for Alzheimer's disease by 29% and for cognitive decline by about 26%.**

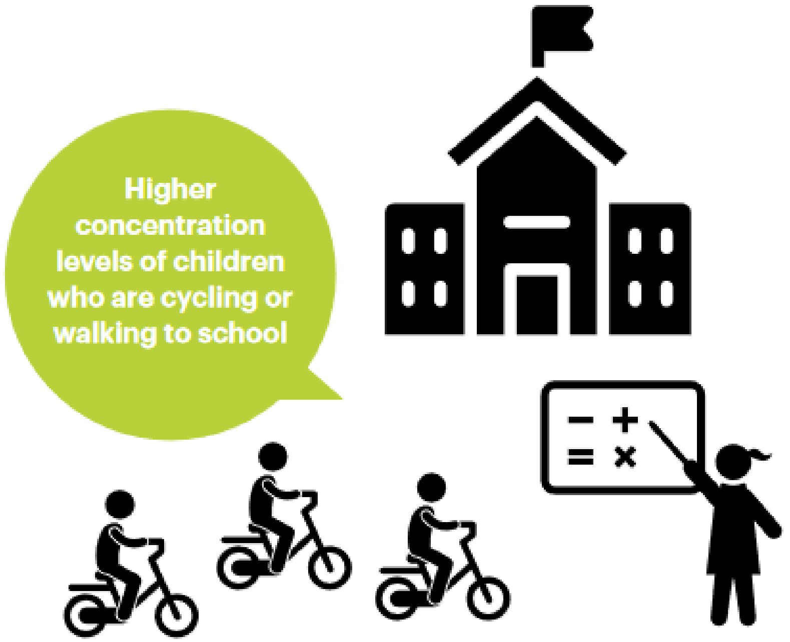
- Physical activity was also linked to **17% lower odds for developing depression** in a large meta-analysis of relevant studies.

• Sources: + Guure et. al. 2017: Impact of Physical Activity on Cognitive Decline, Dementia, and Its Subtypes: Meta-Analysis of Prospective Studies
+ Schuch et. al. 2018: Physical Activity and Incident Depression: A Meta-Analysis of Prospective Cohort Studies

Public Health

03

03 . 3



Health benefits for children

• 4 hours after arriving in the classroom, **concentration levels of children who are cycling or walking to school are 8% higher** than for those who are getting a lift by car.

Source: Masseeksperiment 2012, Denmark.

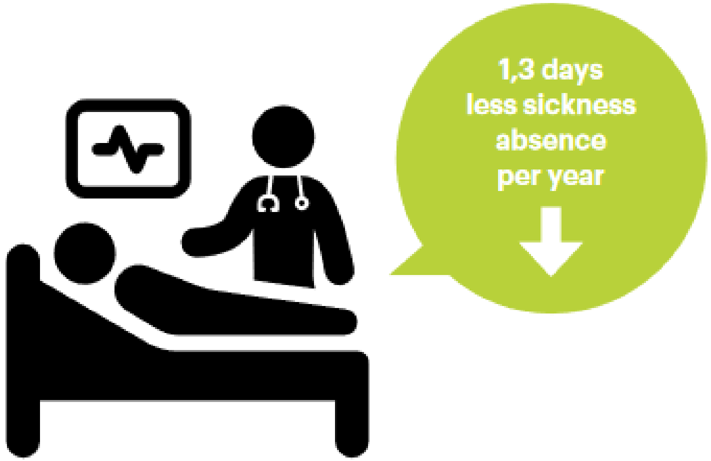
kyklos mobile. integrated. sustainable.

Public Health

03

Environment + Climate
Energy + Resources
Health
Economy
Technology + Design
Time + Space
Social Affairs
Mobility
Diversity of cultures

03 . 4



Reduced absenteeism from work

- Employees that cycle to work regularly have on average **1.3 days less sickness absence** per year.
- This means a gain of **almost 5 bn EUR per year** for employers around the EU.
- This amount roughly corresponds to the direct and indirect cost of sickness absence **to the Austrian economy.**

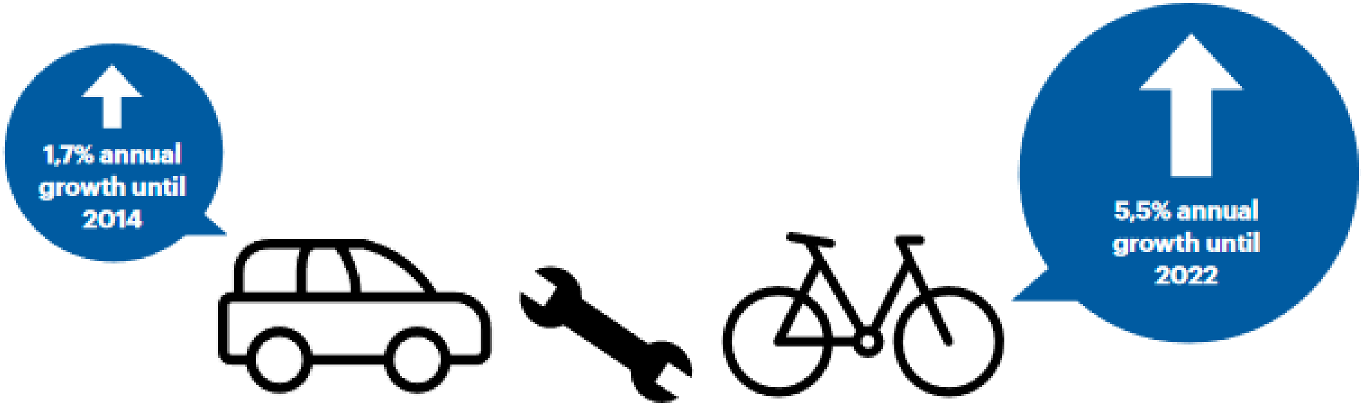
Source: Hendriksen et. al. 2010: The association between commuter cycling and sickness absence.

EUROPEAN CYCLISTS' FEDERATION

Business

04

04 . 1



Bicycle manufacturing and related industries

- The **value of the bicycle market in Europe** was estimated at **13.2 bn EUR** in 2016.
- It is expected to grow with **an annual rate of 5.5% until 2022.**
- In comparison, the **European car market** is expected to grow **by only 1.7%** until 2024.

Sources: + GAI Global Bicycle market study 2016 + Global Automotive Outlook 2017

kyklos mobile. integrated. sustainable.

ECF EUROPEAN CYCLISTS' FEDERATION

Business

04

04 . 2

	cruise tourism	cycle tourism
economic value jobs	38bn euros 326.000	44bn euros 525.000

Cycle tourism

- There is an estimated number of **2.3 billion cycle tourism trips per year** in the EU, which stand for a **total economic value of 44 bn EUR.**
- Cycle tourism is linked to ca. **525 000 jobs in the EU.**
- In France, cycle tourists spend **almost 20% more** than the average for all tourists.
- In comparison, the cruise tourism industry stood for an **economic value of 38 bn EUR and 326 000 jobs** in 2012.

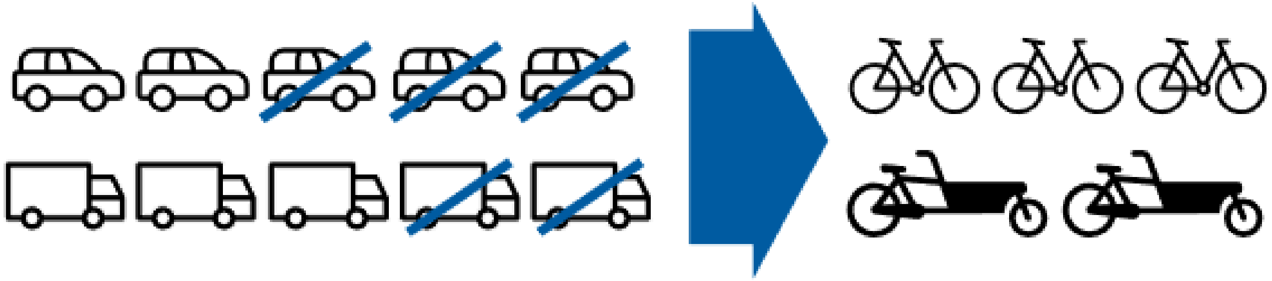
Sources: + European Parliament, Directorate General for Internal Policies, 2012: The European Cycle Route Network EuroVelo. Study.
+ ATOUT FRANCE, 2009: Spécial économie du vélo + CLIA Europe Economic Contribution Report (2013 edition)

Environment + Climate
Energy + Resources
Health
Business
Technology + Design
Time + Space
Social Affairs
Mobility
Diversity of cultures

Business

04

04 . 3



Cyclelogistics

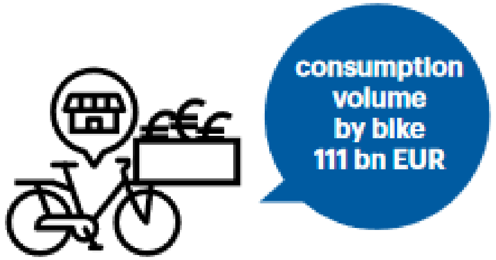
- Cargo bikes have the **potential to replace the following share of motorised trips** in urban areas:
  - + **23-25"% of the commercial deliveries** in cities
  - + **50"% of the commercial service and maintenance** trips
  - + **77% of private logistics trips** (shopping, leisure, child transport)

Sources: + CycleLogistics Baseline Study, 2014 + DLR- Study, 2016

Business

04

04 . 4



Shopping by bike

- Customers using their bike to go shopping account for **a total volume of consumption of 111 bn EUR** in the EU.
- **Clients coming by bike spend more than those coming by car**, be it during a certain time period or related to the parking space that has to be provided for them: Per square metre, **cycle parking delivers 5 times higher retail spend** than the same area of car parking. Cyclists do their shopping **locally**, and are more **loyal customers.**
- Retailers **often under-estimate the share of clients that go shopping by bike**, and over-estimate the share of car users among their customers.
- If a street is transformed in a way that gives more space to cyclists and pedestrians and less to cars, the absence of clients that came by car before is **more than compensated for by the clients that come by foot or by bike** afterward. In London, **retail vacancy was 17% lower and retail rental values 7.5% higher** after active mobility improvements in shopping streets and town centres.

Sources: + ECF, 2015. Shopping by bike: Best friend of your city centre. + Carmona et. al. 2018. Street appeal. The value of street improvements + Rajé, Fiona and Saffrey, Andrew. 2016. The value of cycling.

Time and Space

06

06 . 1

Quality of Time Spent Cycling

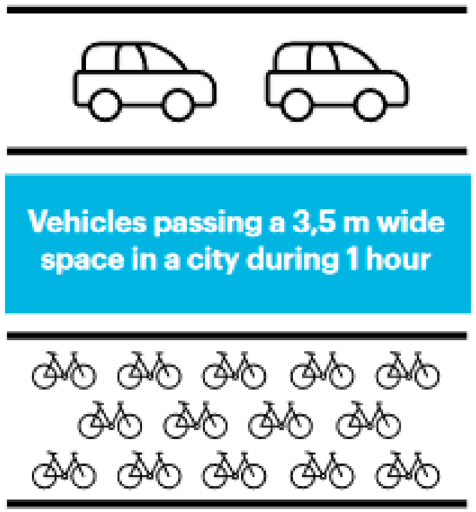
• Studies from London, Montreal, the US and Colombia show that **cyclist commuters are the most or among the most satisfied with their trips to work.**

Source: + St Louis, E., Manaugh, K., van Lierop, D., & El Geneidy, A. (2014). The happy commuter: A comparison of commuter satisfaction across modes. + Morris, E. & Guerra, E. (2015). Mood and mode: Does how we travel affect how we feel? + Sutton, Mark (2018): Cyclists are the happiest commuters, says new YouGov poll + Hidalgo, Dario (2018): Siembra infraestructura bici, cosecha felicidad.

Time and Space

06

06 . 2



Public Space

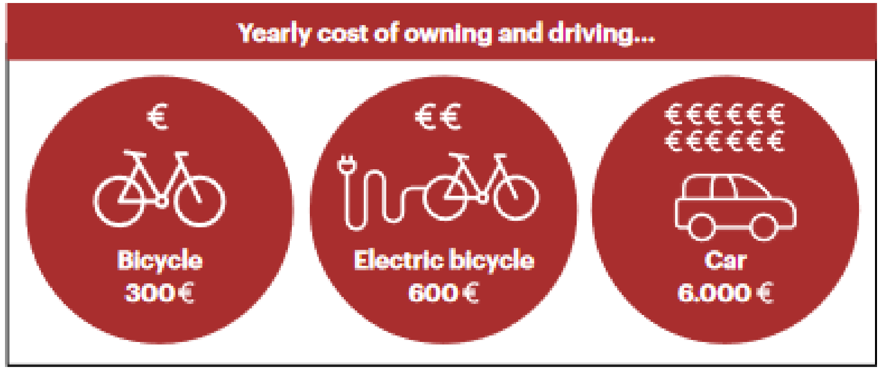
- The bicycle is very space-efficient: During 1 hour, **7 times more bikes than cars** can cross a 3.5m-wide space in an urban environment.
- The place that is needed for a single car-parking spot **can fit up to 15 bicycles.**

Source: + European Commission. 1999. Cycling: The Way Ahead for Towns And Cities
+ Bruun and Vuchic.1995. The Time-Area Concept: Development, Meaning and Applications. Transportation Research Record 1499

Social Benefits

07

07 . 1



Equality

- The yearly costs for owning and using a bike **only amount to around 5% or 10% (for electric bicycles) to the costs for owning and using a car.** By providing a cheap transport option, cycling can help to make jobs and participation in social life better accessible to disadvantaged population groups.

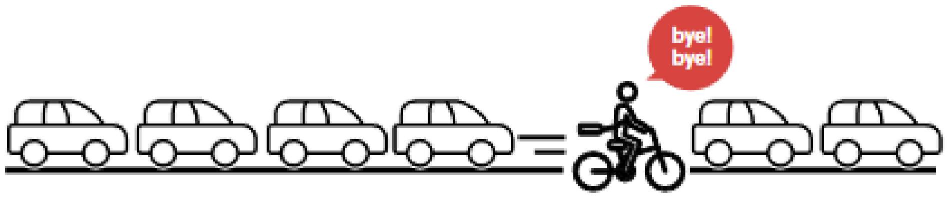
- In the United States, **the lowest-income households** — Americans making less than $20,000 per year — **are twice as likely as the rest of the population to rely on bikes for basic transportation** needs like getting to work.

Source: + Intelligent Energy Europe/Together on the move project, 2012: Costs of owning and driving a car; own calculations
+ Andersen, Michael/People for Bikes. 2015. Assumption Busters: 12 Facts About Race, Ethnicity, Income & Bicycling

Mobility Benefits

08

08 . 1



Congestion easing

• The **value of congestion easing through cycling** for the EU can be estimated at **6.8 bn EUR** per year.

• The **total costs of congestion** for the EU economy have been estimated at over **240 bn EUR per year or almost 2% of EU GDP.**

• A number of **local studies from Europe and the US** also show the benefits of cycling for reducing congestion:

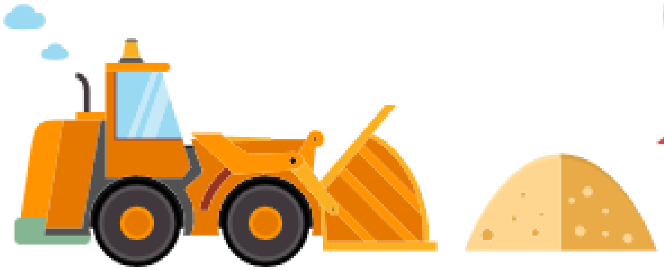
+ Cycling improvements lead to 45% less car traffic and faster public transport (Copenhagen, Denmark).
+ Cycle highways reduce time spent in congestion by 3.8 million hours (The Netherlands).
+ Cycle highway network reduces the need for 50,000 car journeys daily (Ruhr area, Germany).
+ Bike share programme eases congestion during city works (Bordeaux, France).
+ Bike share programme reduces congestion by 4% (Washington DC, USA).

Source: + UK WebTAG database (2018) + European Commission, CE Delft (2018): Sustainable Transport Infrastructure Charging and Internalisation of Transport Externalities. First Results. + EU FLOW project (2018): Walking, Cycling and Congestion. 15 Quick Facts for Cities.

Mobility Benefits

08

08 . 2



2.9 bn EUR per year saved through cycling in the EU

Construction / Maintenance of Road Infrastructure

- The annual **costs for the construction and maintenance of infrastructure for motorised transport that are saved through cycling** amount to **2.9 bn EUR per year** in the EU.

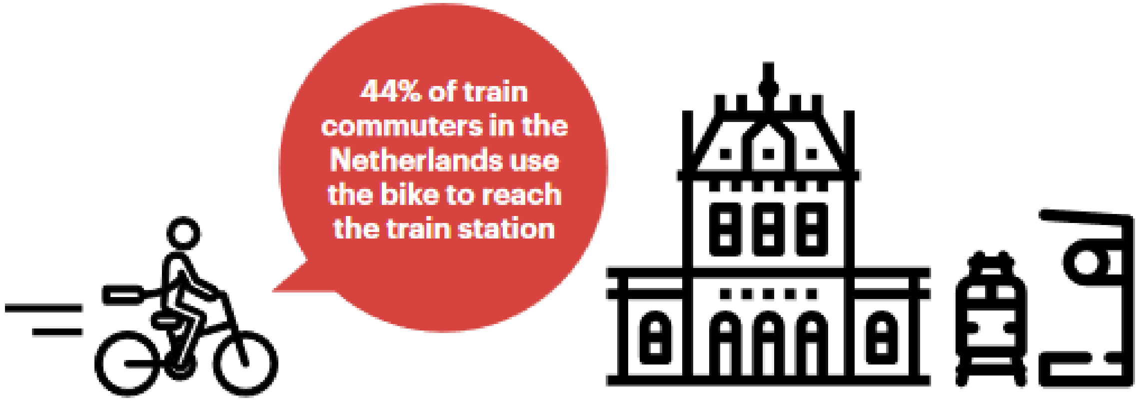
- In the United States, one mile of a high-quality protected bike-lane is estimated to cost 0.25 million USD, whereas an urban freeway costs 60 million USD per mile, or **240 times as much.**

Source: + ITF/OECD Database on Road Infrastructure Investment and Maintenance Costs (2018)
+ ETSC Annual Road Safety Performance Index Report (2018) + Blue, Elly (2013): Bikenomics: How Bicycling Can Save the Economy

Mobility Benefits

08

08 . 3



Multimodality and Connectivity

- Cycling helps to create **sustainable mobility chains.** Dutch research shows that **44% of train commuters in the Netherlands use the bike to reach the train station** from their home. **People combining bike and train also use their car less.**

Source: Kennisinstitut voor Mobiliteitsbeleid. 2018. Waar zouden we zijn zonder de fiets en de trein?