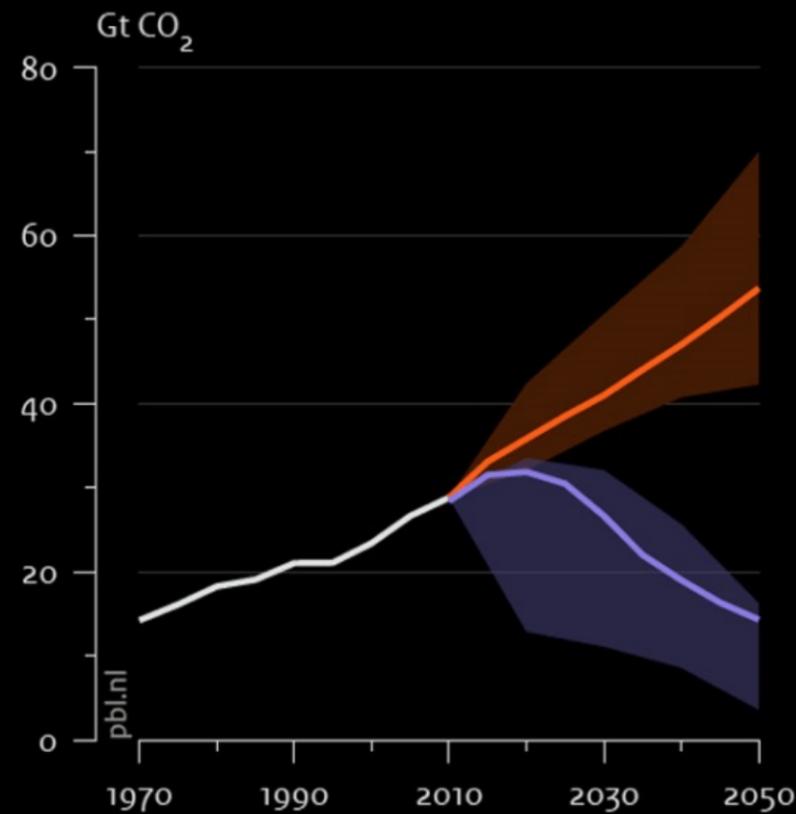


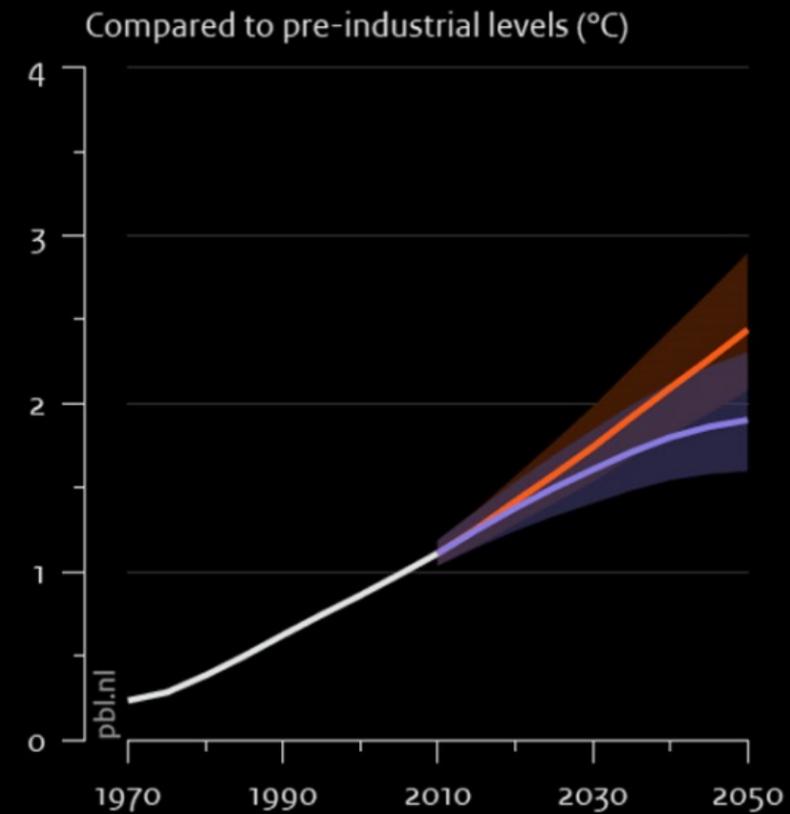


## Global greenhouse gas emissions and temperature changes

Emissions



Temperature increase



- History
- Trend scenario
- Challenge pathways
- Range from literature (10 - 90%)
- Range from literature (10 - 90%)

Source: PBL and literature range from Clarke et al. (2010) and Van Vuuren et al. (2008)







# BIG DATA

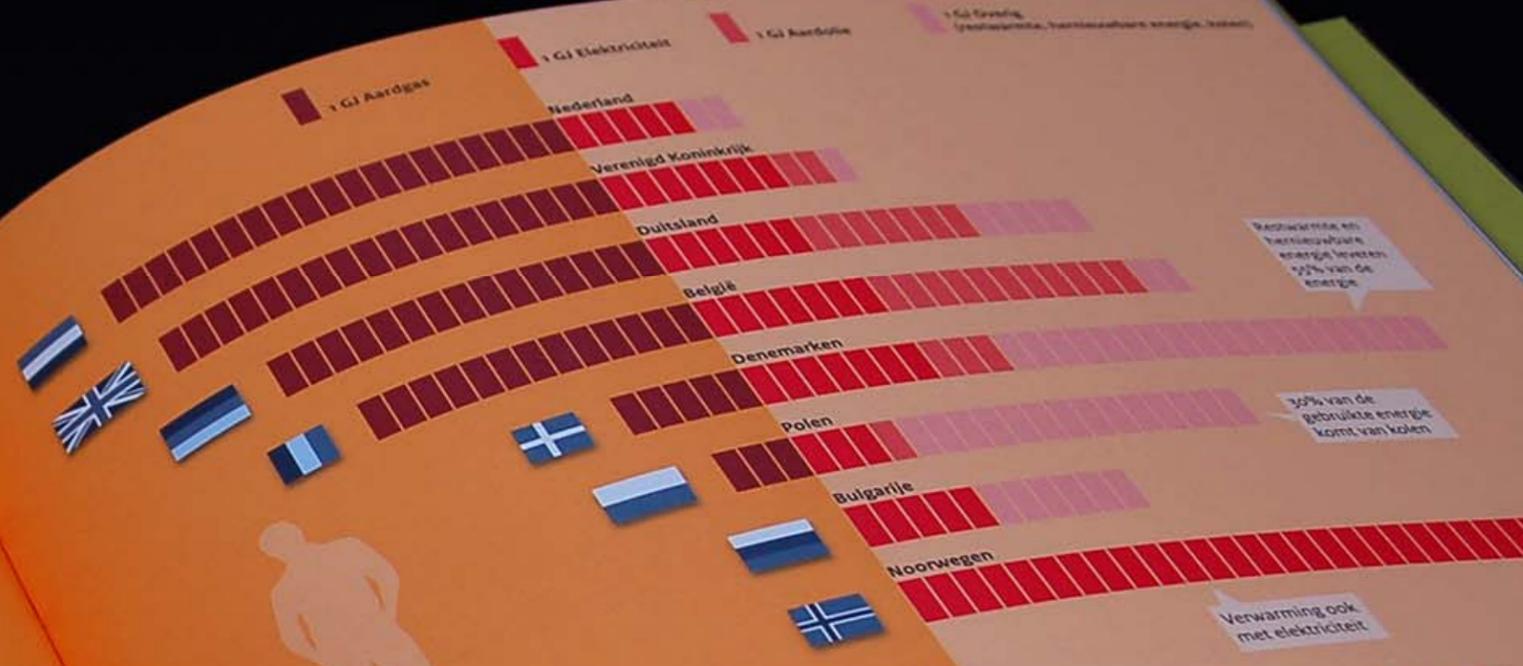


# Thuis verbruiken we veel aardgas

De structuur van onze economie is energie-intensief. Voor energiezuikerheid in de toekomst en om klimaatverandering tegen te gaan, moeten we zuiniger omgaan met energie, en andere, hernieuwbare bronnen gaan zoeken.



Energieverbruik per sector in PJ in 2011



Energieverbruik huishoudens per persoon in GJ in 2009

Verwarmde en verlichtingsenergie moeten 25% van de energie

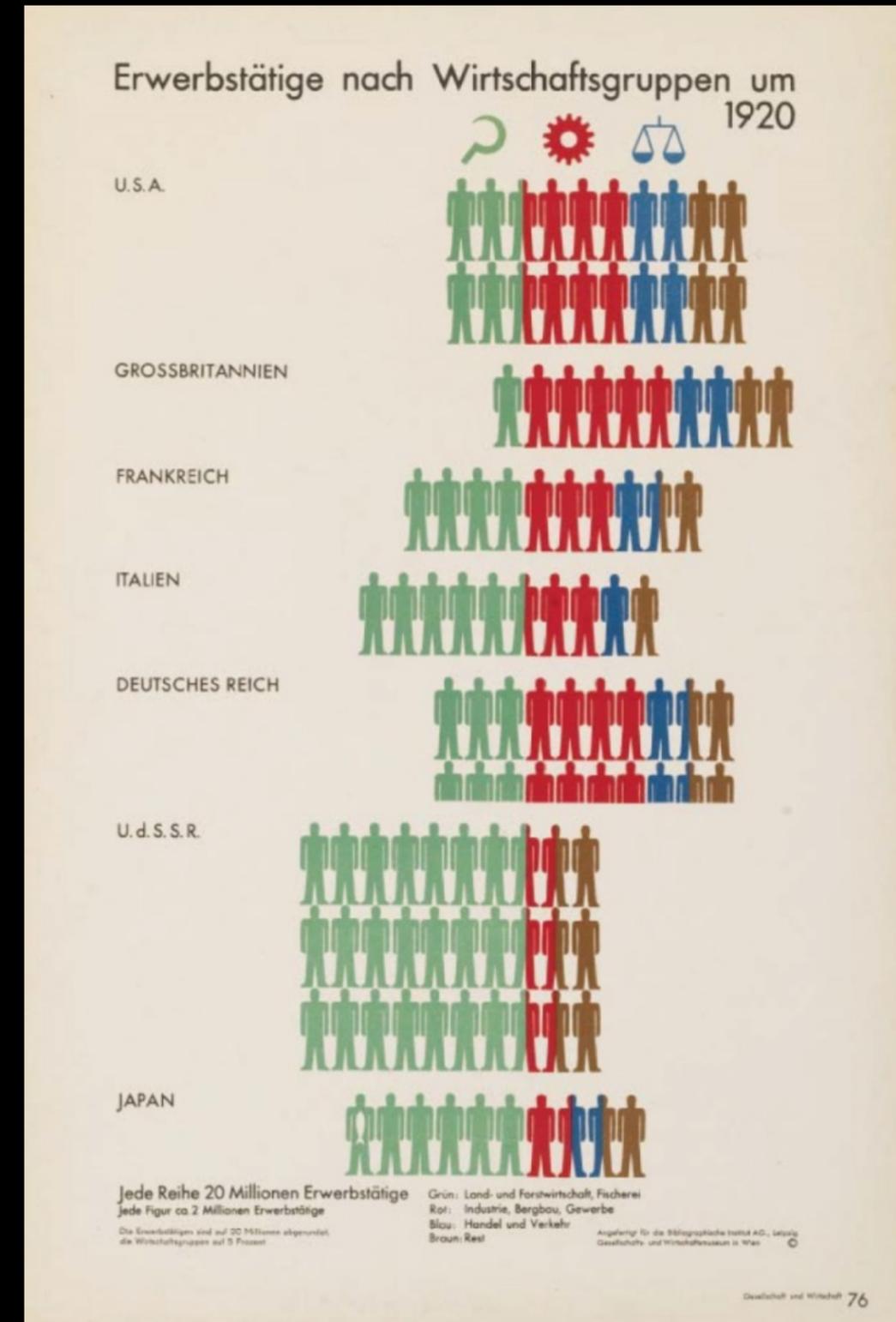
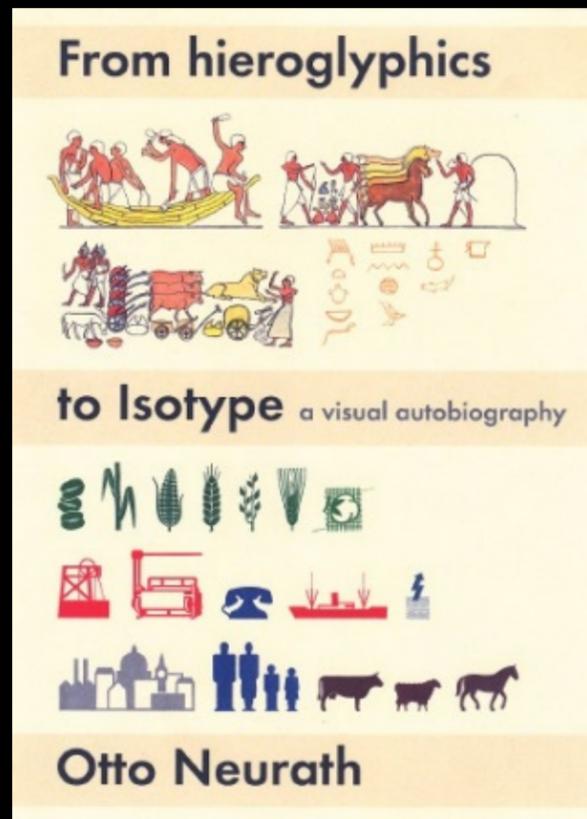
30% van de gebruikte energie komt van kolen

Verwarming ook met elektriciteit





- **Otto Neurath, Marie Reidemeister en Gert Arntz**







PBL Netherlands Environmental  
Assessment Agency

# Urban Agenda for the EU

# Urban Age

22 June 2016 | Cities in Europe | Kersten Nabielek

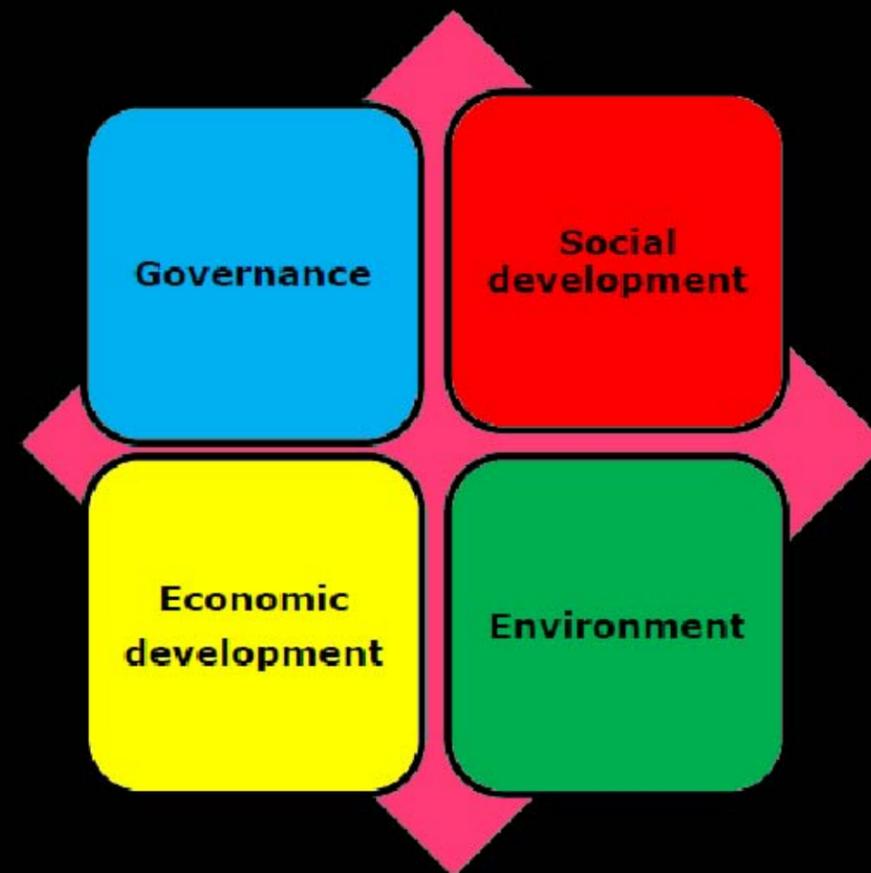


## Working towards political commitment on the Urban Agenda in 2016





## Key principles shared approach



**Integrated approach**



**Multilevel cooperation**



# #PleaseExplain

## EU Urban Agenda

Priority of EU2016NL & means to stimulate collaboration between EU cities on growth, quality of life & innovation

## Pact of Amsterdam

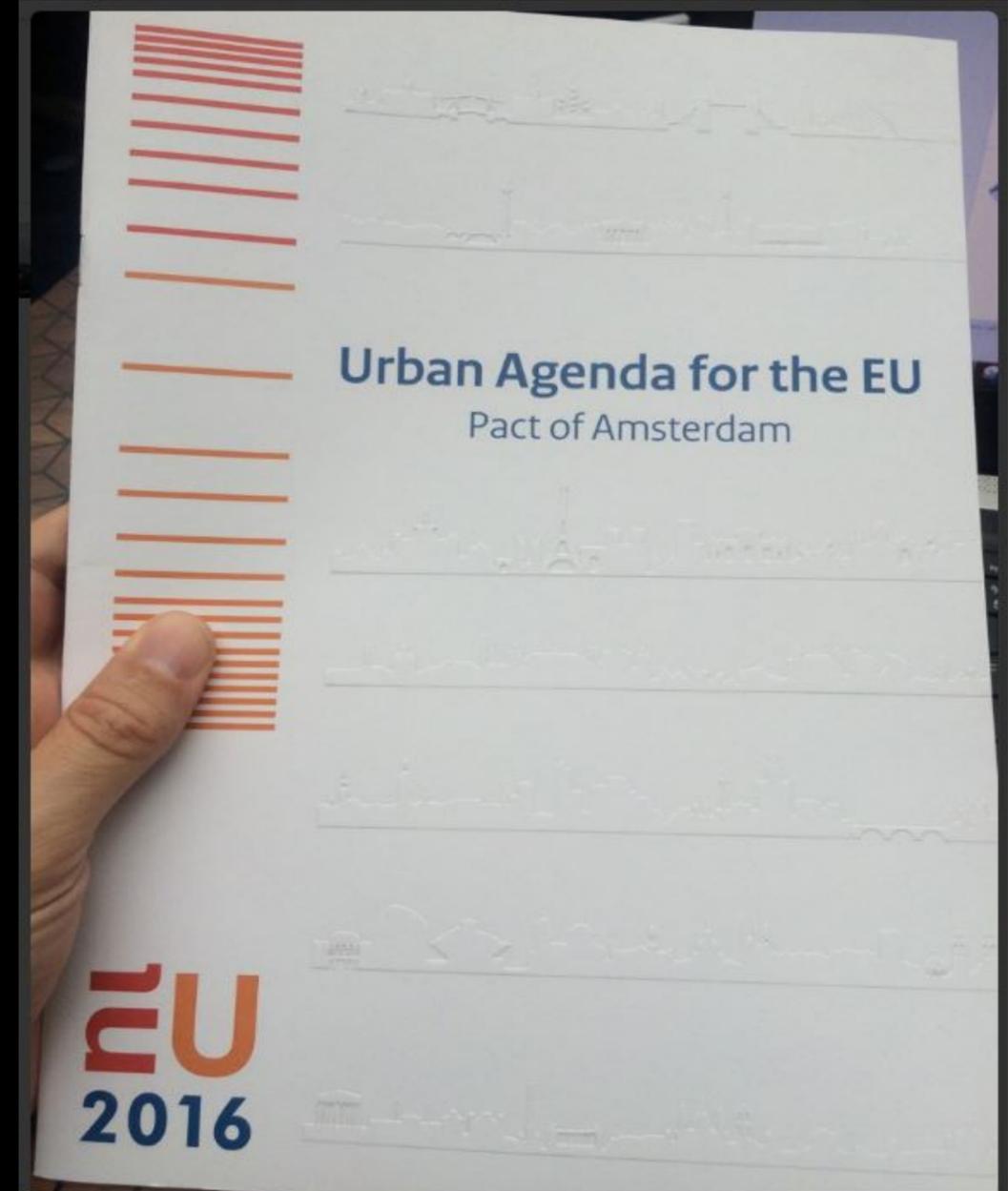
Policy document on EU Urban Agenda, to be signed at informal ministerial meeting in Amsterdam

## Informal ministerial meeting on EU Urban Agenda

Informal meeting of EU ministers responsible for urban policy, taking place in Amsterdam on 30/05, chaired by NL Minister Plasterk, with EU Commissioner Crețu and Committee of the Regions president Markkula

@MinBZK | @RPlasterk | @EUUrbanAgenda | #EUUrbanAgenda





**EU Urban Agenda** @EUUrbanAgenda · 3 uur  
Video of #citymakers shown at the informal Ministerial on #EUUrbanAgenda #eu2016nl @Charlotschans

**EU Urban Agenda** @EUUrbanAgenda · 30 min  
And here it is! #PactOfAmsterdam #EUUrbanAgenda Congratulations to all involved



## Urban Agenda for the EU 2016:

- Better regulation
- Better funding for EU cities
- Better knowledge exchange between EU cities

12 themes of priority  
4 partnerships (pilots)

[www.urbanagendaforthe.eu](http://www.urbanagendaforthe.eu)

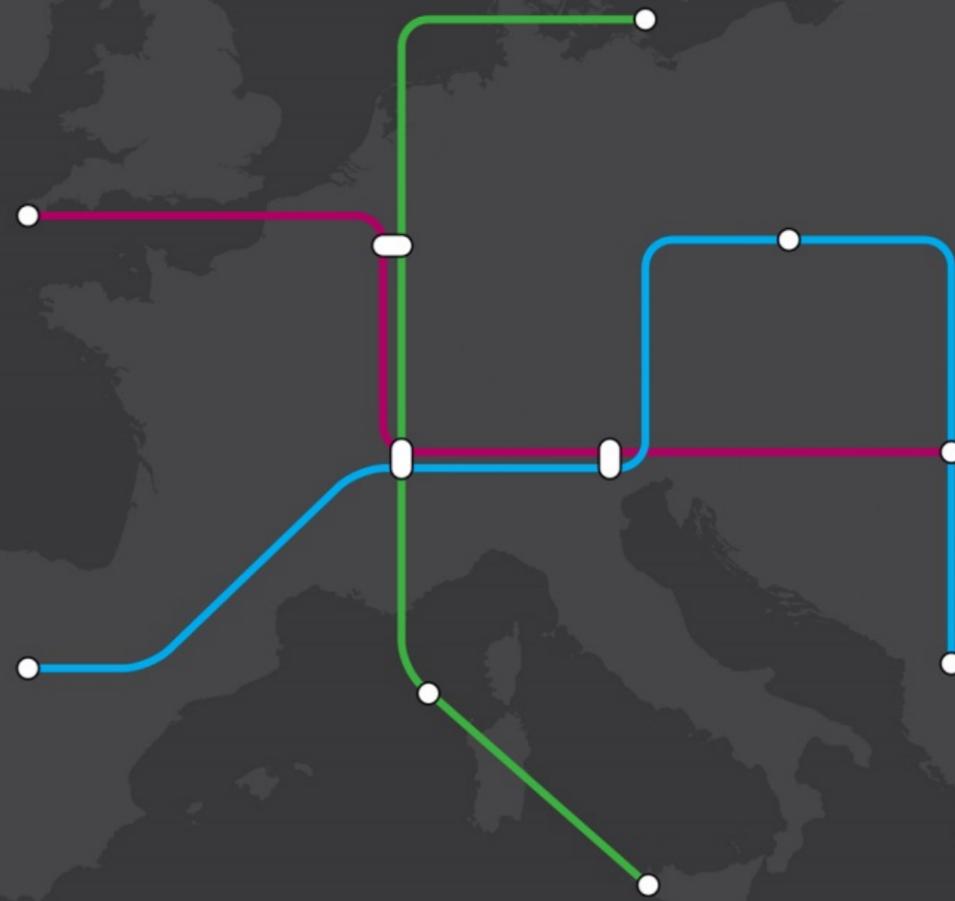




PBL Netherlands Environmental  
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# Cities in Europe

Facts and figures on cities and urban areas





## Cities in Europe:

- Facts and figures on urban areas (Eurostat, OECD,...)
- Related to Europe 2020 strategy (smart, green and inclusive growth)
- Show development/trends through time
- Compact publication (selective)



Cities\_in\_Europe\_01



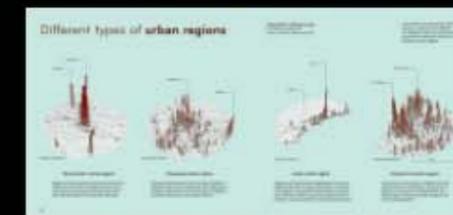
Cities\_in\_Europe\_02



Cities\_in\_Europe\_03



Cities\_in\_Europe\_04



Cities\_in\_Europe\_05



Cities\_in\_Europe\_06



Cities\_in\_Europe\_07



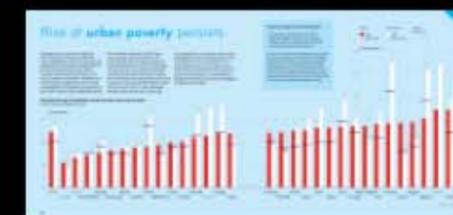
Cities\_in\_Europe\_08



Cities\_in\_Europe\_09



Cities\_in\_Europe\_10



Cities\_in\_Europe\_11



Cities\_in\_Europe\_12

Smart growth

Green growth

Inclusive growth



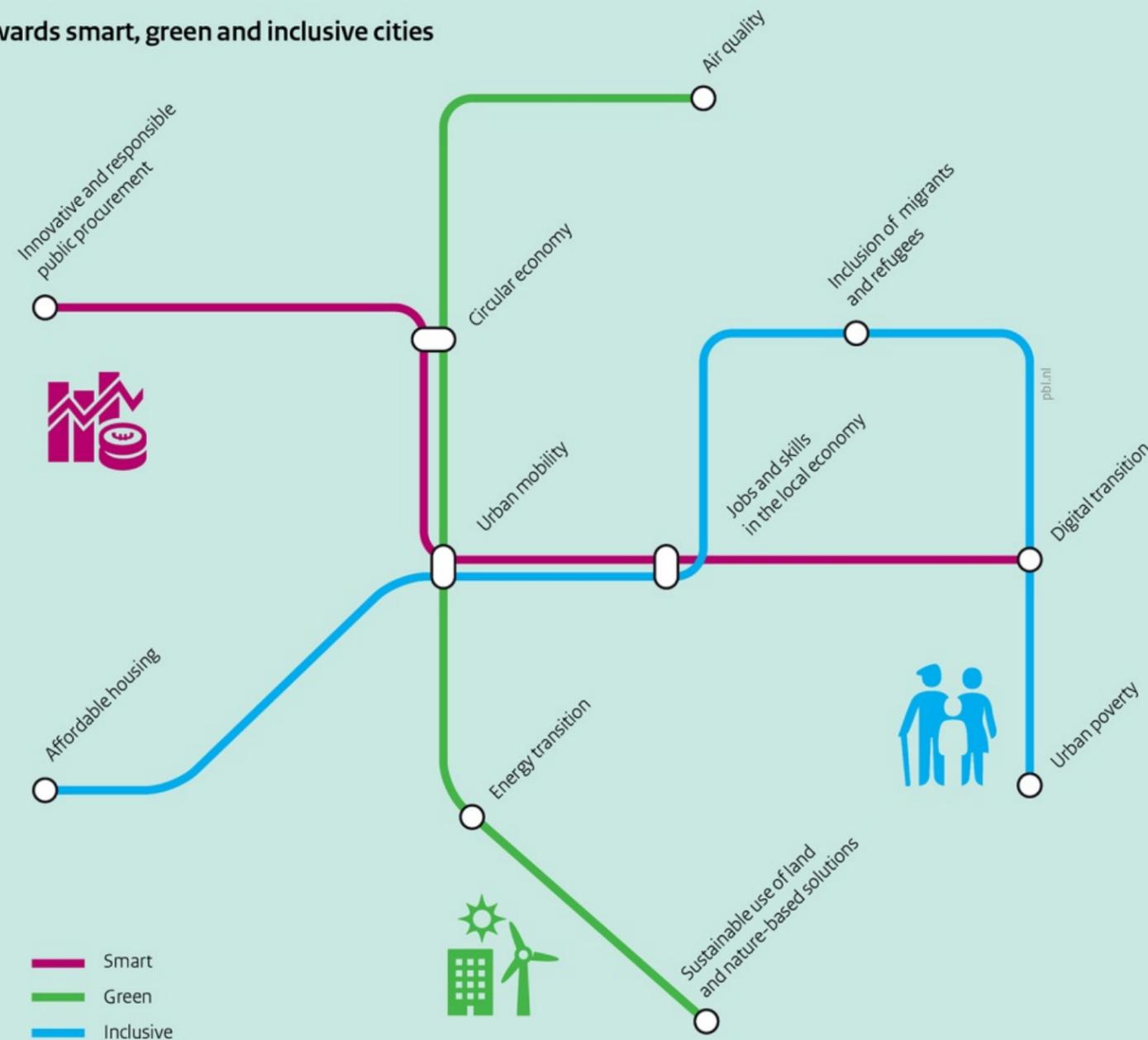
# Urban Agenda for the EU

Cities are expected to play a key role in delivering the Europe 2020 strategy for smart, green and inclusive growth (European Union, 2015). Therefore, the EU's cohesion policy for the 2014–2020 period seeks to support towns and cities through a range of European investment priorities, such as urban mobility, economic and social regeneration, the digital agenda, improvements in research and innovation capacity, and the low-carbon economy. In the past years, the European Commission, EU Member States and

European cities have collaborated to develop an Urban Agenda for the EU. The core objective of the Urban Agenda for the EU is to involve cities in the design of EU policy, to mobilise cities for the implementation of EU policies, and to strengthen the urban dimension in these policies. Under the 2016 Dutch EU Presidency, the Urban Agenda for the EU aims to strengthen the urban dimension in EU policies by: (1) improving the development, implementation and evaluation of EU legislation ('better regulation'); (2) ensuring

better access to and utilisation of European funds; and (3) by improving the EU urban knowledge base and stimulating the sharing of best practices and cooperation between cities. In 2016, the Urban Agenda for the EU is focussing on 12 priority themes (see infographic), as well as aiming to promote stronger cooperation between the European Commission, EU Member States and cities in order to stimulate smart, green and inclusive growth in the cities of Europe.

## Towards smart, green and inclusive cities



### Smart growth

The Europe 2020 strategy envisions the transition towards smart growth through the development of an economy based on knowledge, research and innovation. Concerning smart growth, cities are at the forefront of innovation. Moreover, the physical concentration of people and capital means that cities are more productive than other places.



### Green growth

The green growth objective relates to the promotion of more resource-efficient, greener and competitive markets. Healthy, compact and energy-efficient cities are key to green growth in Europe. Many European cities are currently developing or expanding their networks for sustainable transport, waste management, district heating and green infrastructures.



### Inclusive growth

The inclusive growth priority of the Europe 2020 strategy encompasses policies aimed at fostering job creation and poverty reduction. Cities can contribute to inclusive growth by combating social polarisation and poverty, by providing affordable housing and by integrating refugees and migrants into urban society.



Urban poverty

pbl.nl



# The European urban landscape

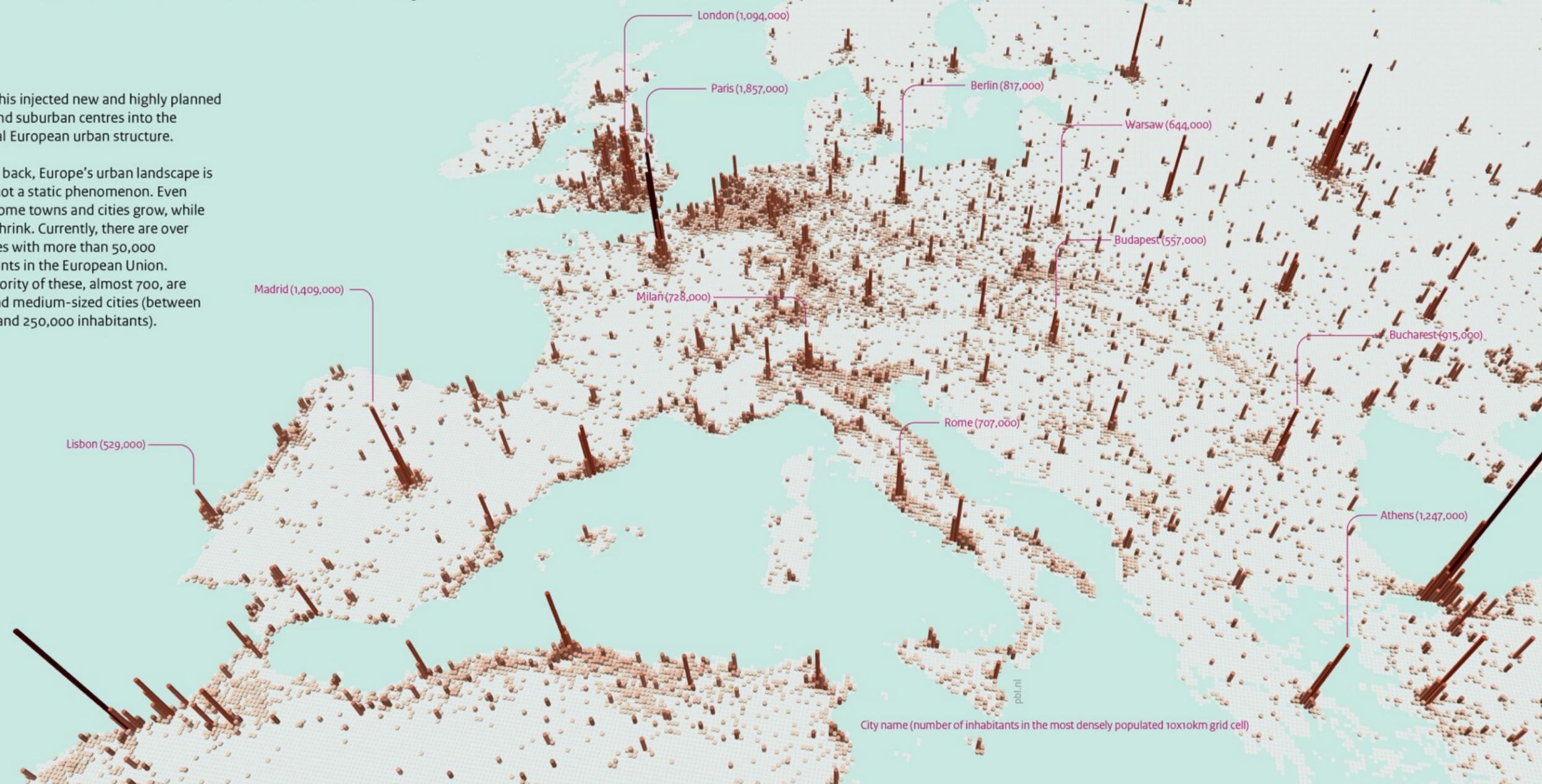
Population density 2014  
On a grid of 10x10 kilometres  
Source: LandScan, adaptation by PBL

The urban landscape of Europe is characterised by a large diversity of small, medium-sized and large cities. Compared to other parts of the world, many urban regions in Europe have a polycentric structure where multiple towns and cities are in close proximity to one another. In other cases, a single large city – typically a nation's capital – dominates its surrounding region, resulting in a more monocentric pattern. In a few regions, a linear urbanisation pattern can be discerned, such as in areas bordering the Mediterranean Sea and Italy's Adriatic coast.

Europe's urban structure is the result of many underlying factors. Some settlements date back to the Roman Empire, where they functioned as administrative centres. Other towns and cities developed during the Middle Ages as regional marketplaces at strategic locations along trade routes, often close to a river or harbour. As a result of political, demographic and economic developments, towns and cities flourished (and therefore expanded) in some periods, whereas other periods were characterised by decline (Benevolo, 1995; Rutte and Abrahamse, 2016). Over the course of the 20th century, cities spilled over into their surrounding regions. Several countries built so-called new towns. Milton Keynes in the United Kingdom, Almere in the Netherlands and Nowa Huta in Poland are examples of

these. This injected new and highly planned urban and suburban centres into the historical European urban structure.

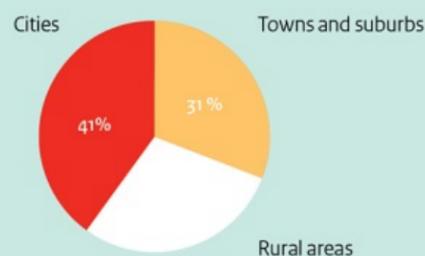
Looking back, Europe's urban landscape is clearly not a static phenomenon. Even today, some towns and cities grow, while others shrink. Currently, there are over 800 cities with more than 50,000 inhabitants in the European Union. The majority of these, almost 700, are small and medium-sized cities (between 50,000 and 250,000 inhabitants).



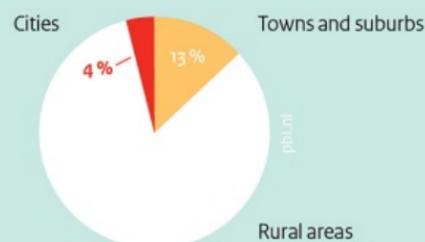
City name (number of inhabitants in the most densely populated 10x10km grid cell)

# Most Europeans live in urban areas

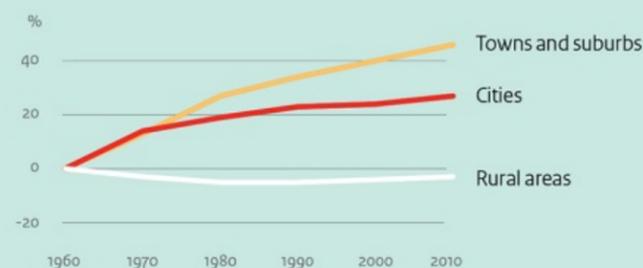
72% of the EU population lives in urban areas...



...on 17% of the land area.



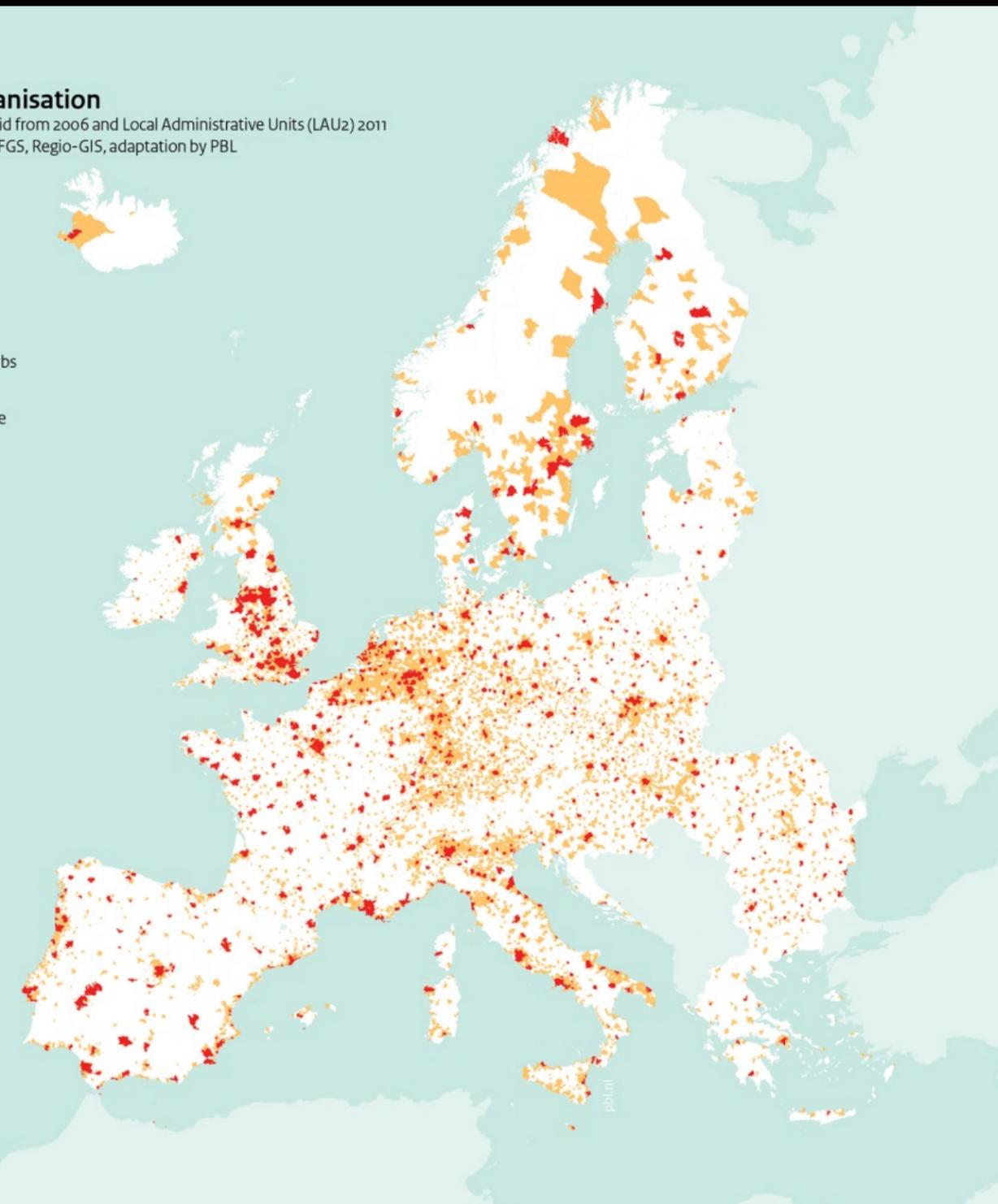
The urban population is growing.



## Degree of urbanisation

Based on population grid from 2006 and Local Administrative Units (LAU2) 2011  
Source: Eurostat, JRC, EFGS, Regio-GIS, adaptation by PBL

- Cities
- Towns and Suburbs
- Rural Areas
- Data not available



According to the harmonised definition by Eurostat and the OECD, urban areas — defined as cities, towns and suburbs — provide a home to 72% of the EU-28's population; 41% live in cities and 31% in towns and suburbs. Over the past 50 years, the urban population has continued to grow. However, the strongest growth took place in towns and suburbs. Many people have settled in the newly developed residential areas surrounding the existing cities. In contrast to the urban growth rates, the rural population showed a steady decline throughout the past decade. The share of people living in rural areas has decreased from 35% in 1960 to 28% in 2010.

### What is the degree of urbanisation?

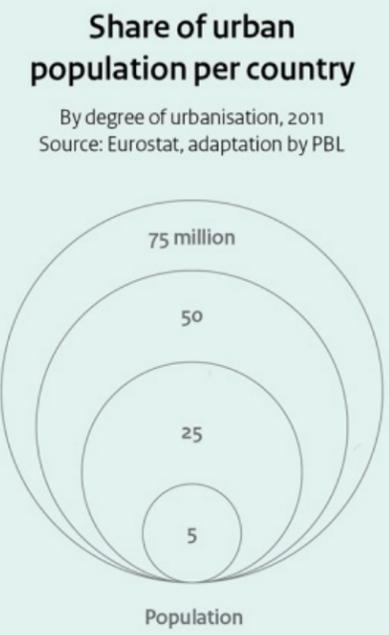
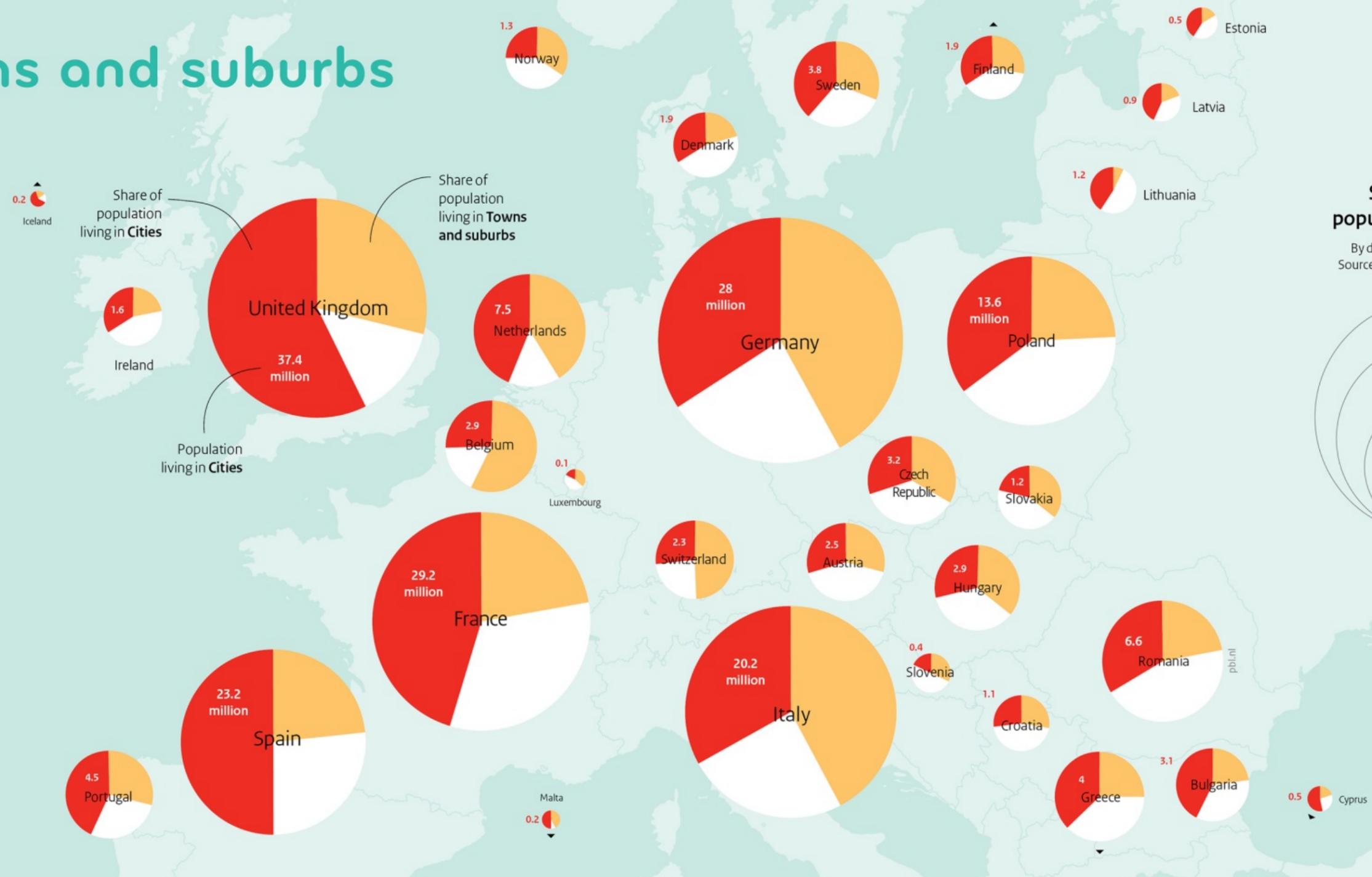
The degree of urbanisation is a density-based classification originally introduced in 1991 to distinguish densely populated areas with more than 50,000 inhabitants (cities), intermediate urbanised areas (towns and suburbs) and thinly populated areas (rural areas). In 2011, work carried out by the European Commission, Eurostat and the OECD resulted in a harmonised definition of the degree of urbanisation which is based on more precise population data (see appendix).



# Cities, towns and suburbs

Compared to other parts of the world, Europe is highly urbanised. However, urbanisation levels vary from country to country. In general, western and northern Europe are more urban than the rest. The most urbanised region of Europe is sometimes called the Pentagon because it lies between the cities London, Paris, Milan, Munich and Hamburg. Over three quarters of the population live in urban areas in Germany, the United Kingdom, the Netherlands and Belgium. Eastern Europe, in contrast, is less urbanised. In Poland, Slovenia, Slovakia and Romania, over 40% of the population still lives in rural areas.

Eurostat and the OECD subdivide urban areas into two main categories: cities, and towns and suburbs. The share of the population living in cities is largest in the United Kingdom, Iceland, Malta and Spain, whereas in Slovenia and Slovakia it is the smallest. In the category of towns and suburbs, Belgium and Switzerland have the largest share, but also in Germany, the Netherlands, Italy and Malta over 40% of the population lives in towns and suburbs.







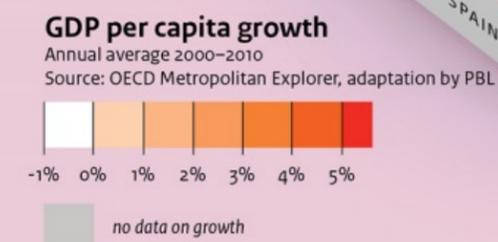
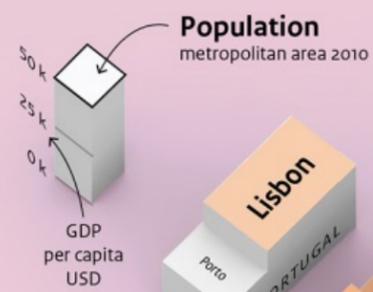
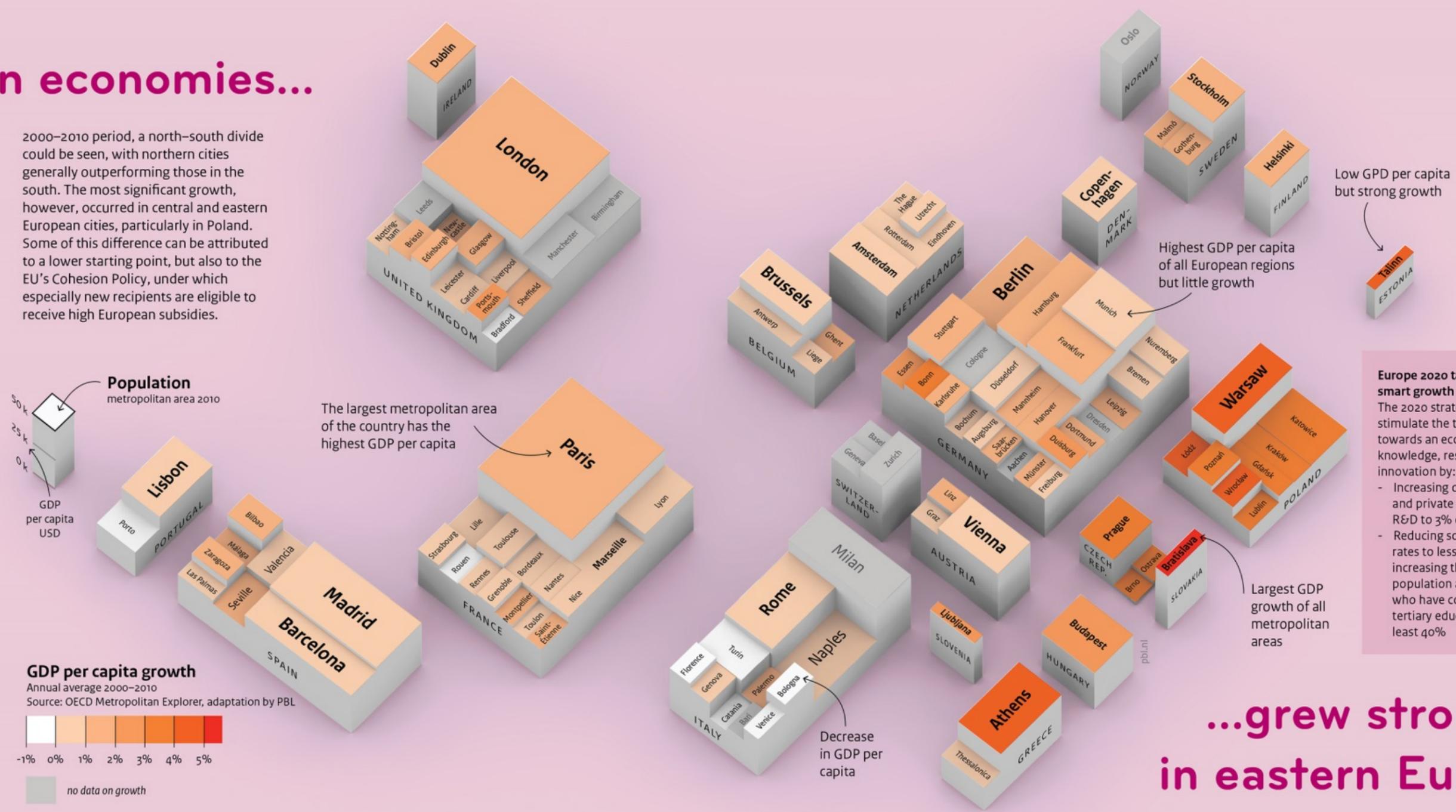
# Metropolitan economies...

Cities are the engines of the economy. Metropolitan regions contain 59% of the EU population, but they hold 62% of its jobs and represent 67% of GDP (European Commission, 2014). The concentration of people, capital and business opportunities means that cities are more productive than other places. It is therefore not surprising that cities figure prominently in the EU strategy for jobs and growth. The Urban Agenda for the EU, in particular, aims to ensure maximum utilisation of the growth potential of cities.

2000–2010 period, a north–south divide could be seen, with northern cities generally outperforming those in the south. The most significant growth, however, occurred in central and eastern European cities, particularly in Poland. Some of this difference can be attributed to a lower starting point, but also to the EU’s Cohesion Policy, under which especially new recipients are eligible to receive high European subsidies.

Many of Europe’s largest cities are also its most affluent. The megacities of Paris and London rank among those with the highest GDP per capita ratios of the EU, such as Munich, Stockholm and Frankfurt. Still, there is not a clear linear relationship; Helsinki is smaller than Naples, but shows a higher GDP per capita and a stronger economic growth rate. Bigger is therefore not always better. There is much more at stake, such as the national economy of the country in which they are situated. To a large extent, the geographical distribution of GDP per capita of cities reflects that of regions and countries in Europe.

Cities also differ in growth rate; just as real engines, they are running at different speeds. Again, size not necessarily matters – although Paris and London appear to perform above average – as much as geographical location. In the



Low GDP per capita but strong growth  
Tallinn

Highest GDP per capita of all European regions but little growth  
Munich

The largest metropolitan area of the country has the highest GDP per capita  
Paris

Decrease in GDP per capita  
Naples

Largest GDP growth of all metropolitan areas  
Warsaw

**Europe 2020 targets for smart growth**  
The 2020 strategy aims to stimulate the transition towards an economy based on knowledge, research and innovation by:

- Increasing combined public and private investment in R&D to 3% of GDP
- Reducing school dropout rates to less than 10% and increasing the share of the population aged 30 to 34 who have completed their tertiary education to at least 40%

## ...grew stronger in eastern Europe



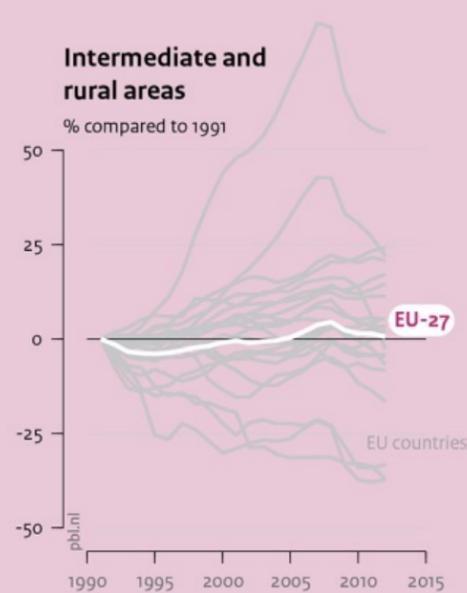
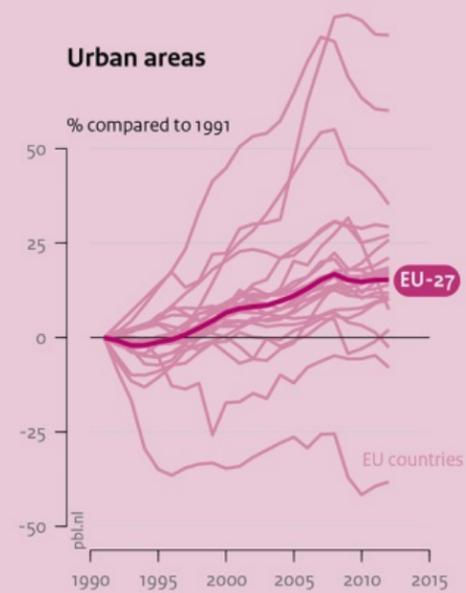
# Stronger job growth in urban areas

For centuries, people have migrated to cities to find work, and this trend continued into the 21st century. In the first decade of this millennium, European cities, on balance, outperformed rural areas in terms of job growth. The gap between urban and rural areas is widening; the difference in job growth in the 1990–2012 period in both area types across Europe (EU-27) was almost 15% (PBL, 2016).

Monitoring this trend is important in the context of both the European Union's smart growth and inclusive growth agendas. With these agendas the EU aims, among other things, to raise Europe's employment rate (75% employment rate for people aged 20 to 64, by 2020). This requires not only the creation of more jobs, especially for women, young people and older and low-skilled workers, but also a modernisation of labour markets, and investment in education and skills training.

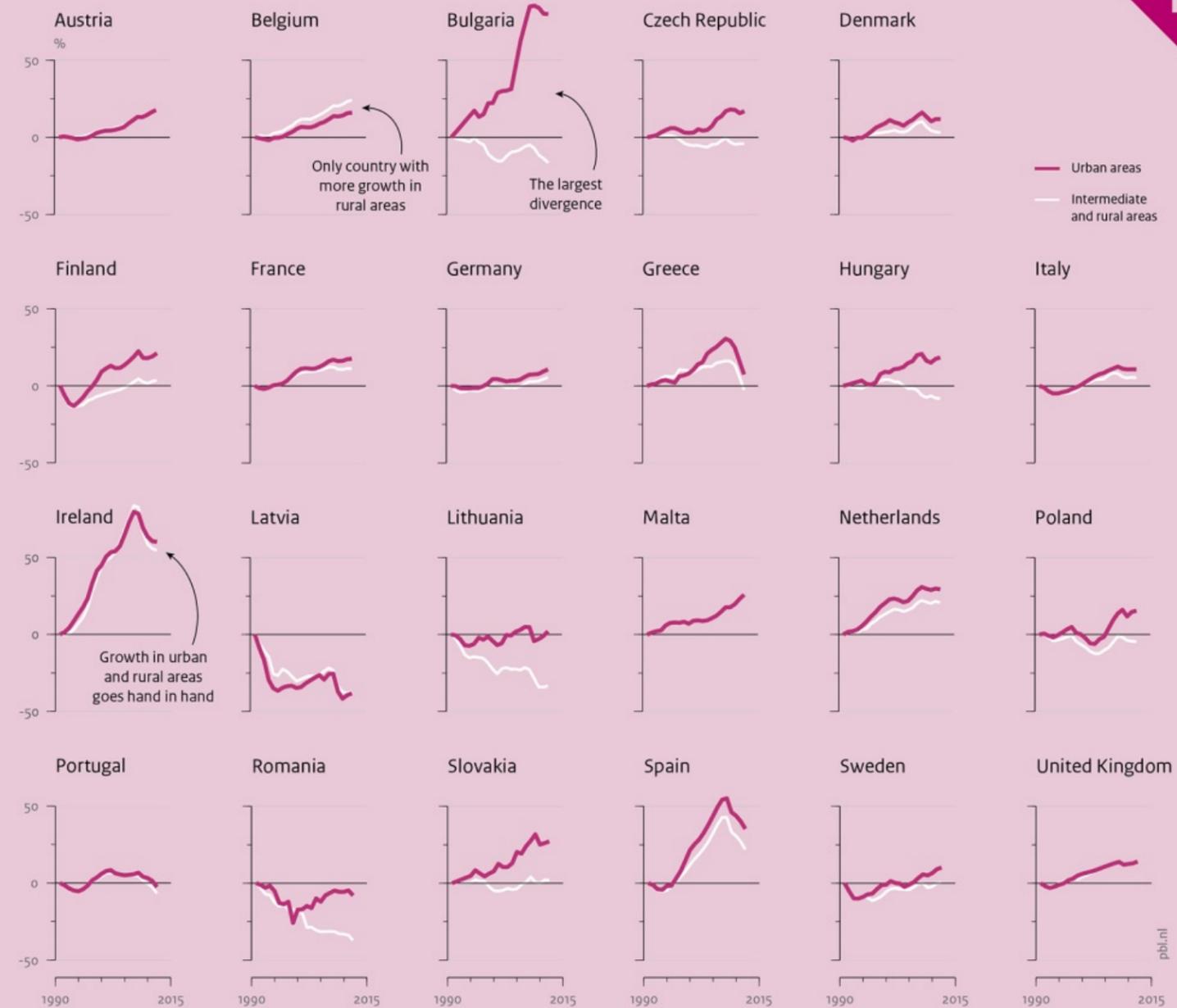
As 'engines' of the European economy, cities have a key role to play in translating EU and national smart and inclusive growth policy objectives into concrete action. In terms of job growth, different European urban areas show different developments. Geography and differences in the structure of national economies matter. In the 1990–2012 period,

## Change in the number of jobs in the EU-27



job growth in rural and urban regions virtually went hand in hand in Ireland, Portugal, Austria and the United Kingdom. At the other end of the spectrum, urban regions in Bulgaria, Romania, Poland, Slovakia, Hungary and Lithuania performed far better than their rural counterparts over the same time period. Romanian and

Lithuanian rural regions, for instance, lost over 30% of their jobs. The Netherlands follows the EU average, albeit somewhat less pronounced in its divergence and at a higher overall growth rate. The only country which seems to defy the trend is Belgium; here, rural job growth outperformed that of the cities.



Source: Cambridge Econometrics, adaptation by PBL



# Towards greener cities

With the growing awareness of the consequences of climate change, the EU has committed itself to limiting greenhouse gas emissions and reducing the consumption of fossil fuels (European Union, 2015b). The Europe 2020 strategy has renewed the EU's commitment to become a 'low-carbon' economy where, by 2050, greenhouse gas emissions will be 80% to 90% lower than they were in 1990. Among other initiatives, European

Cohesion Policy funding is being reallocated to support the production of renewable energy and improve energy efficiency. Cities can be instrumental in the transition towards a low-carbon economy. They are significantly more efficient in terms of energy use and land use than other areas (European Commission, 2014). Household energy consumption in cities tends to be lower because a larger proportion of people

live in apartments or terraced housing, both of which are more efficient in terms of heating than freestanding houses. Cities are also more energy efficient as regards transportation. Due to the shorter distances, walking and cycling are more attractive options in towns and cities than in other areas. There is also a higher demand for public transport which makes it more cost-effective to offer high-quality services, such as

underground rail. A growing number of European cities and urban regions are already making serious efforts to reduce their greenhouse gas emissions; for example, by implementing more renewable energy or expanding their district heating networks. Despite the lofty ambitions of Europe's cities to become greener, simply reducing emissions in urban areas will not be sufficient to stop global warming.

Cities provide fertile ground for innovation and creativity (UNEP, 2013), but because large-scale energy infrastructures are interconnected and government and governance structures are interdependent, coordinated multi-level innovation strategies are needed so that lessons can be shared with other metropolitan regions and across national borders.

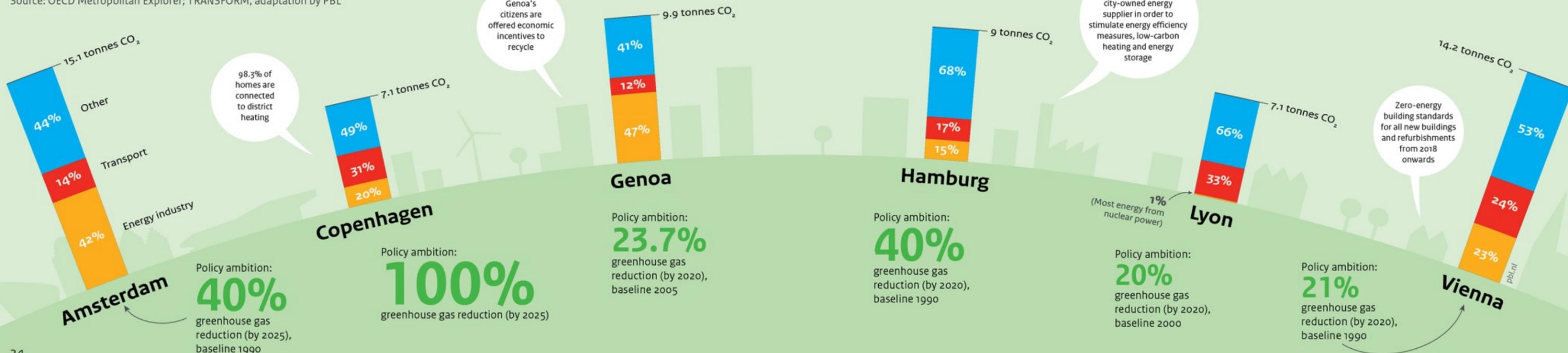
### Europe 2020 targets for green growth

The Europe 2020 strategy sets three objectives for climate and energy policy, to be reached by 2020:

- Reducing greenhouse gas emissions by at least 20% compared with 1990 levels
- Increasing the share of renewable energy in final energy consumption to 20%
- Moving towards a 20% increase in energy efficiency

## CO<sub>2</sub> emissions per metropolitan area

Per inhabitant in 2008  
Source: OECD Metropolitan Explorer; TRANSFORM, adaptation by PBL





# Cycling the city

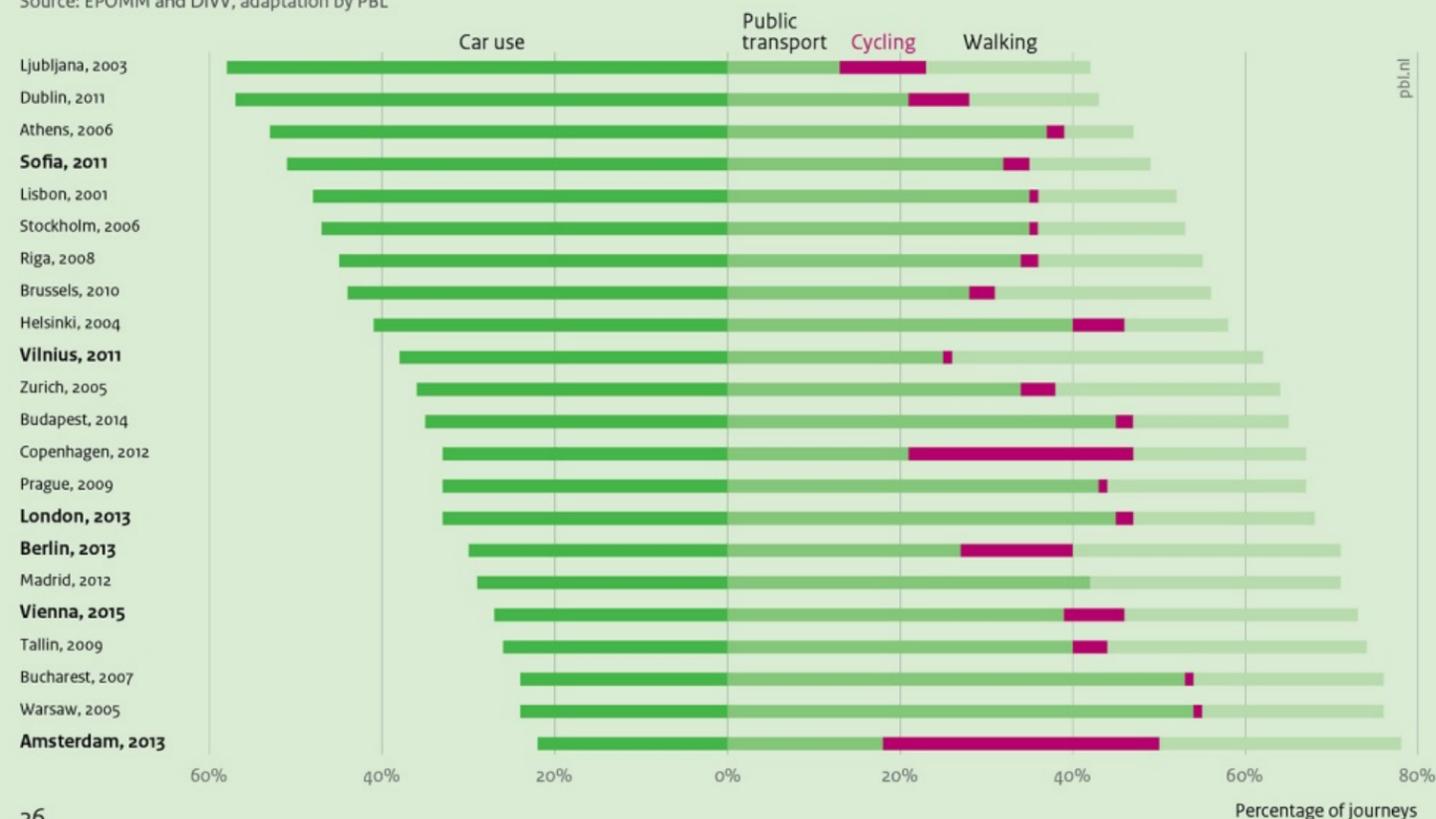
Most trips begin and end in cities. Increasing demand for travel has led to severe congestion, poor air quality, undesirable levels of noise pollution and high levels of CO<sub>2</sub> emissions, in many European cities. The European Commission has pledged its support to cities to promote sustainable modes of transport, such as cycling, walking and public transport, as well as clean

and energy-efficient vehicles (European Commission, 2013). In recent years, bicycle use has increased in many European cities. For short distances, bicycles tend to be the fastest mode of transport. Cycling can help relieve traffic congestion, car parking problems and air pollution, while providing social benefits such as health and liveability. Moreover, it is an inexpensive solution;

bicycles are relatively inexpensive to buy and large parts of the infrastructure are already in place. Considering the fact that about half of all private car journeys and over half of all lorry trips in European cities are under five kilometres, there is significant room to improve the share of cycling (European Union, 2015c).

## The cycling capitals of Europe are easy to spot

Source: EPOMM and DIVV, adaptation by PBL



## Changes over time differ between cities



Source: EPOMM and DIVV, adaptation by PBL



# Risk of urban poverty persists

Growing socio-economic inequalities within Europe are widely considered a major challenge for cities. Not just because inequalities may threaten competitiveness, but also because of the social impact on urban communities (Tamaru et al., 2015). Inequality can refer to differences in income levels, employment rates as well as segregation (the separation of groups in space, for instance urban neighbourhoods).

One of the key objectives of the Europe 2020 strategy is inclusive growth. This means growth that increases employment while reducing poverty and social exclusion. The ultimate aim is to spread the benefits of economic growth to all levels of society. Recent statistics show that poverty and social exclusion are concentrated in different types of areas across the EU. In less-developed Member States, these issues tend to be

more prevalent in rural areas, while in more developed countries, they typically are more of a problem in cities. Furthermore, the gap between urban and rural poverty and social exclusion also varies from country to country; for example, it is considerable in Bulgaria and Romania, but almost negligible in Sweden and Finland.

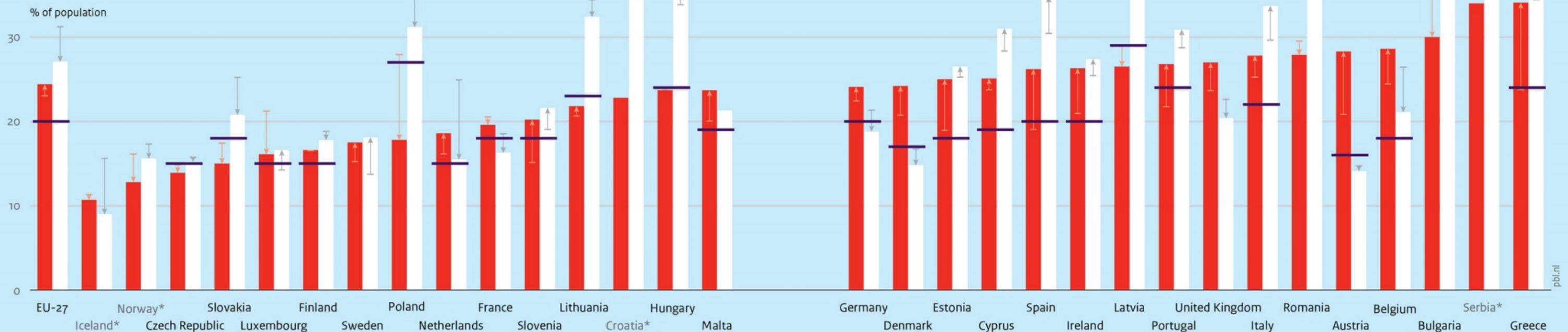
## Europe 2020 targets for inclusive growth

- Increasing the employment rate of the population aged 20 to 64 to at least 75%
- Lifting at least 20 million people out of the risk of poverty and social exclusion

In order to monitor the development of poverty and social exclusion, the Europe 2020 strategy (European Commission, 2014) has introduced three indicators: (1) being severely materially deprived; (2) living in a household with zero or very low work intensity; and (3) being at risk of poverty (households with an income below 60% of the national median disposable income).

## Population living in households at risk of poverty and social exclusion

Source: Eurostat, adaptation by PBL



\* Not in EU-27

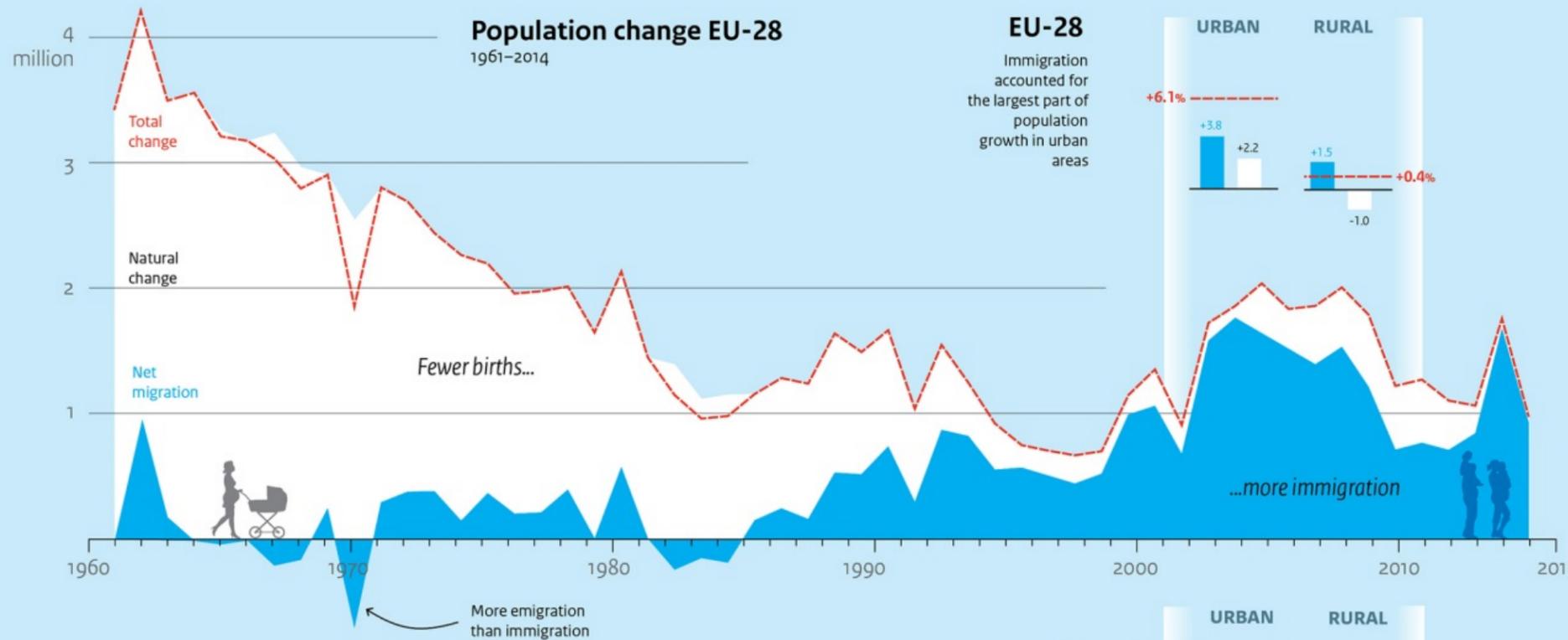


# Migrants move to cities

Europe's population is growing, not only as a result of natural processes (more births than deaths), but also because of immigration (from outside Europe). Over the last few years, Europe has experienced a large influx of people. As a consequence of the geopolitical instability in the Middle East and Africa, immigration and refugee flows into Europe have increased, and this has had a significant impact on European countries and cities. People also migrate within the EU. For example, because of disparities in employment and income levels, inhabitants of central and eastern Member States have moved to those in the west (Espo, 2015; European Commission, 2014).

Migration, in general, and the current refugee flows into Europe, in particular, have clear territorial and urban dimensions. The main cause of the EU's population growth is net immigration. Between 2001 and 2011, the EU's total population (EU-28) increased by 3.8%, with net immigration accounting for 3% of this. Natural population change was only 0.7% (European Commission, 2014).

Over the centuries, cities have received immigrants, both those with a residence permit as well as asylum seekers and undocumented immigrants. In the EU-15, net immigration accounted for the largest share of population growth in urban areas. In the EU-13, net immigration more



than offset the natural decline in urban population (European Commission, 2014). Cities can benefit from newcomers; for instance, because they bring new skills and knowledge. However, a large influx of people can also pose major challenges with respect to housing and public services. Not every city is affected in the same way. Even within cities, challenges may differ between neighbourhoods.

Especially so-called 'arrival city' neighbourhoods (Saunders, 2011) can suffer from an accumulation of social, economic, cultural and individual problems that impede the establishment of a local sense of community, of belonging. This can limit the opportunities for people to develop new talents and skills.

## By urban-rural typology 2001-2011

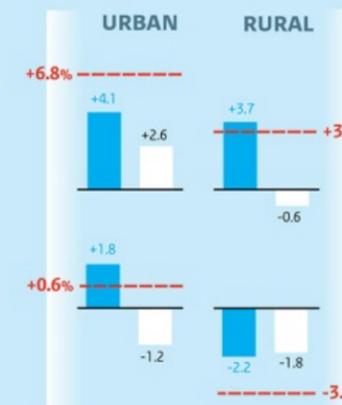
**EU-28**  
Immigration accounted for the largest part of population growth in urban areas



**EU-15**  
Older Member States

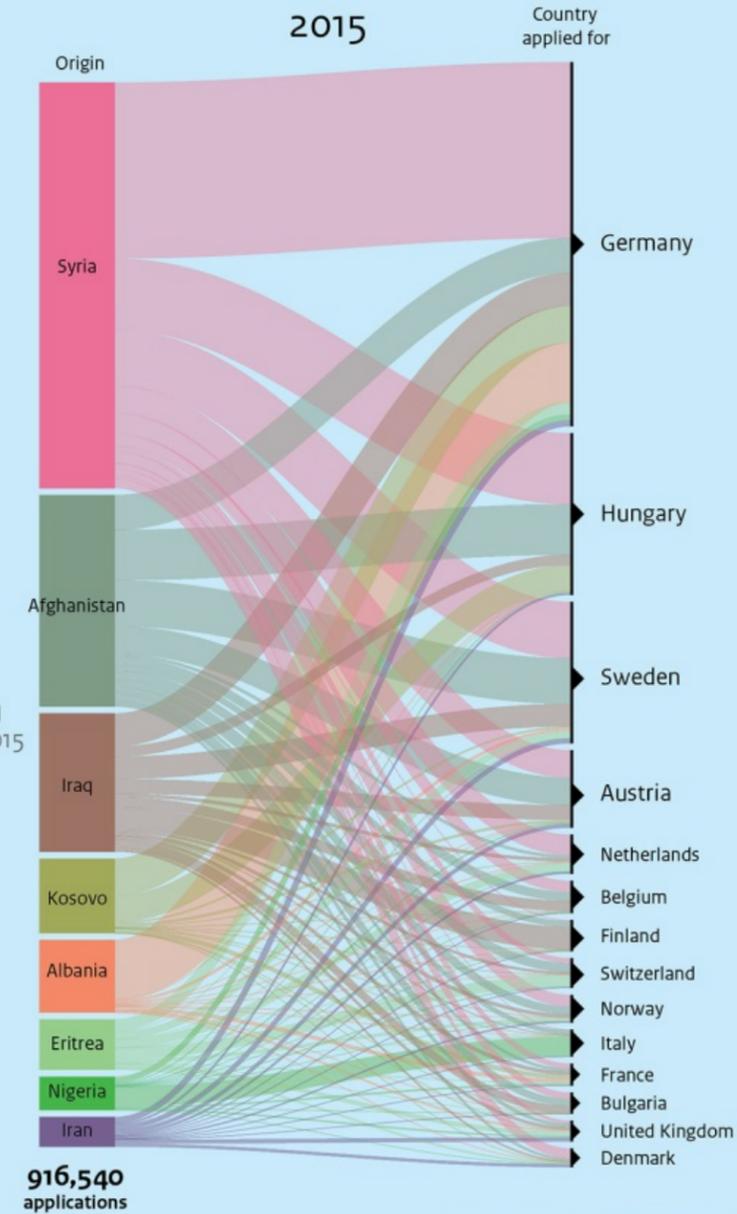


**EU-13**  
Newer Member States  
Without immigration the urban population would have been declining in the EU-13



## First-time asylum applications

Top 8 countries of origin and top 14 receiving countries, 2015

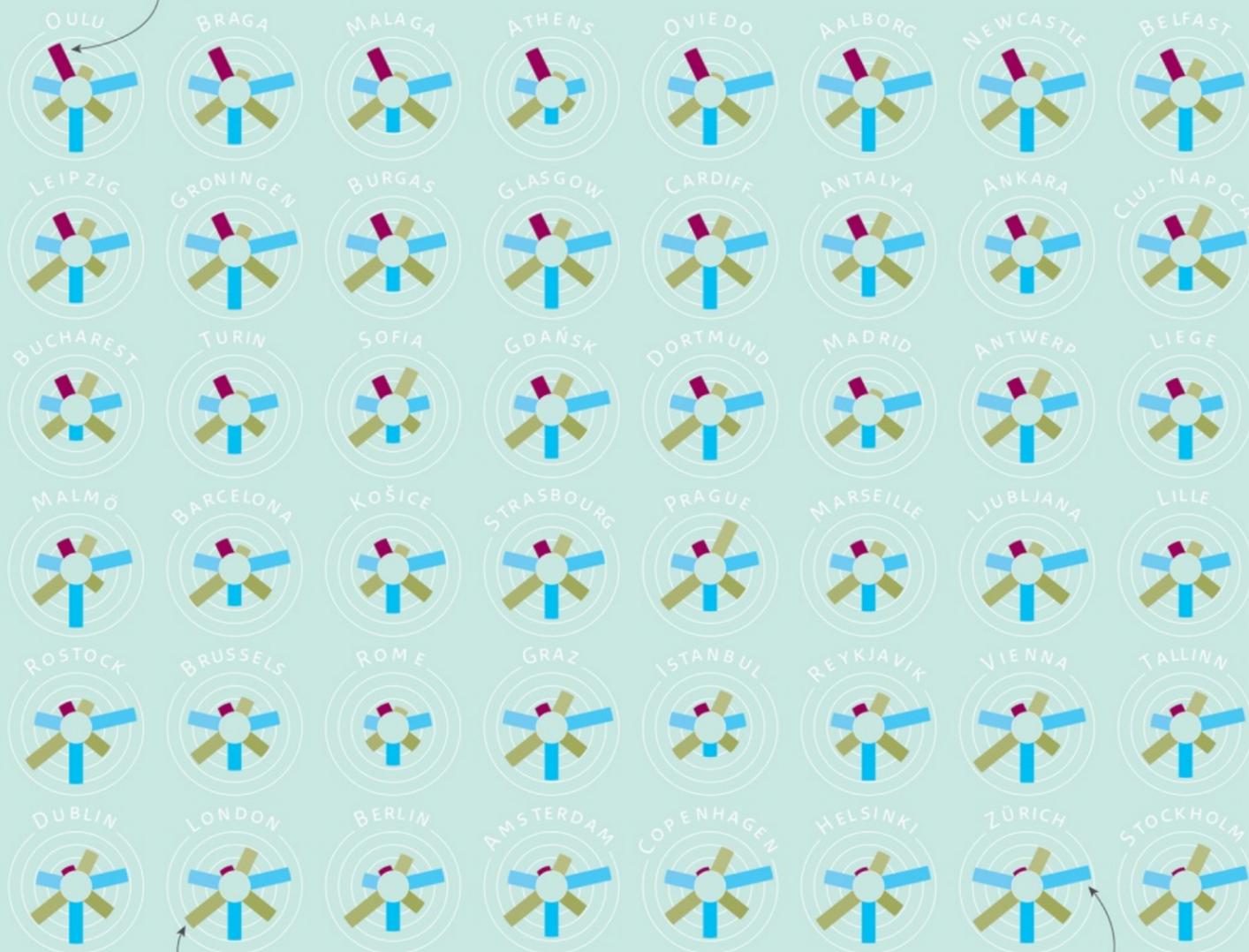


Source: Eurostat, adaptation by PB



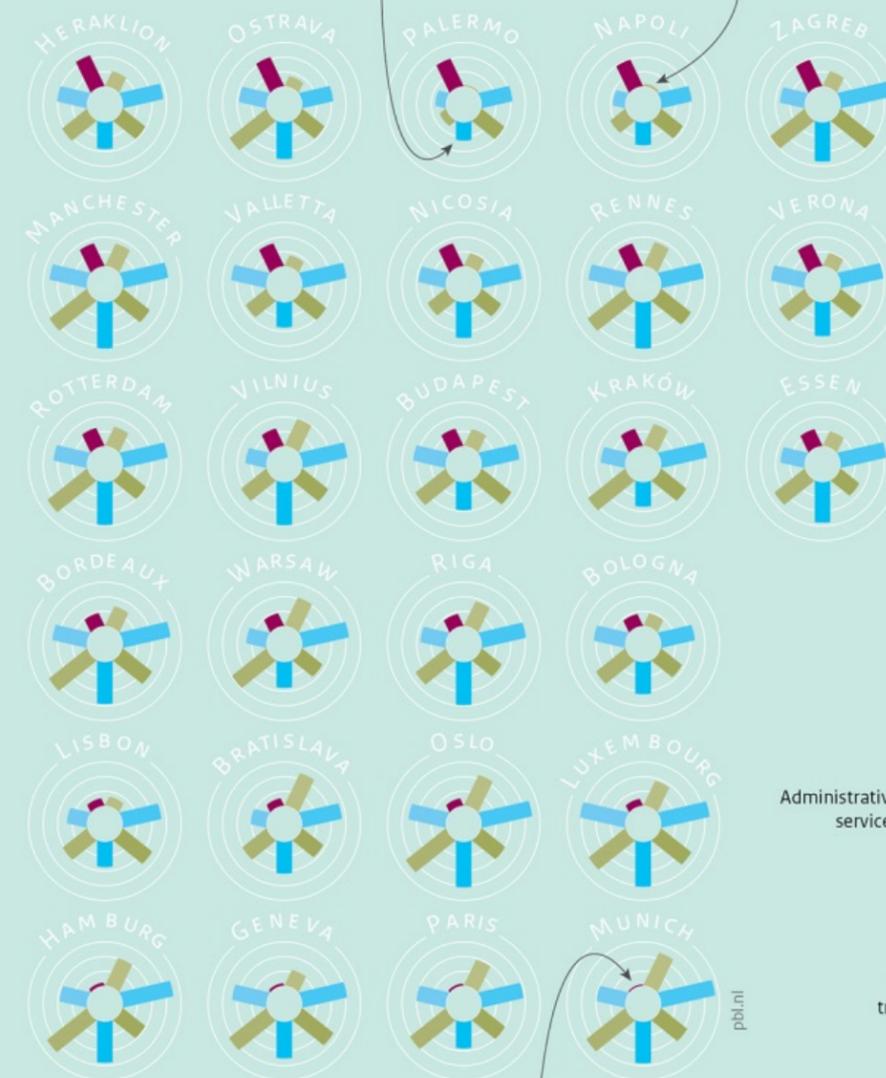
# Quality of life in cities

Highest level of satisfaction concerning affordable housing



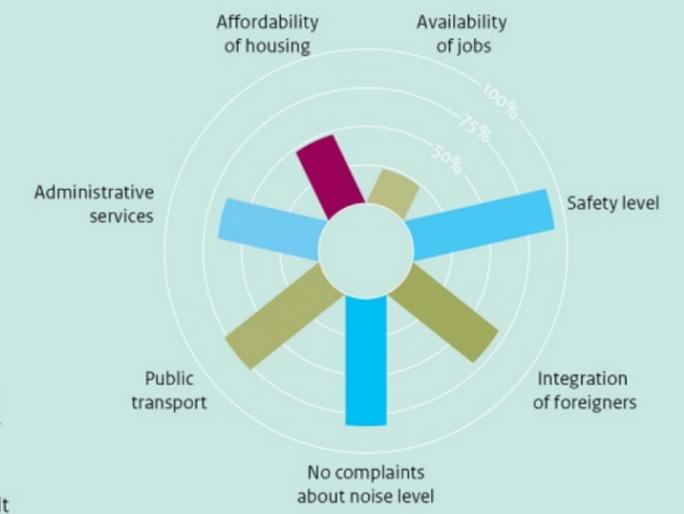
A lot of noise here

Quite hard to find a job in this city



How do Europeans rate the quality of life in their city? To answer this question, the European Union regularly conducts an extensive survey of almost 80 cities of varying sizes (European Union, 2016). This infographic shows the level of satisfaction according to seven indicators. This allows for interesting comparisons between cities. For example, many capital cities, such as London, Paris, Vienna, Amsterdam and Copenhagen, offer a high quality of life, but score much lower on affordable housing. In some smaller cities, such as Aalborg, Braga, Groningen, Zagreb and Oulu, the score on housing prices is more in line with the other indicators.

## Level of satisfaction



High level of satisfaction with public transport

People feel safest here

High overall satisfaction, but difficult to find affordable housing



Interactive website:

<http://themasites.pbl.nl/cities-in-europe/>

Request printed publication:

<http://www.pbl.nl/en/publications/cities-in-europe>