



# Public transport: creating green jobs and stimulating inclusive growth

## Introduction

With green growth and jobs among their top priorities, governments worldwide are embracing ambitious reform agendas. Mainstreaming urban public transport in these policies will help governments achieve their objectives more quickly and efficiently.

Cities are the powerhouses of the economy. They concentrate 80% of world economic output and more than 50% of the world's inhabitants. Efficient mobility in cities creates economic opportunities, encourages social integration, enables trade, facilitates access to markets and services, and makes effective use of resources. As public transport is the backbone of efficient urban mobility, the adequate provision of public transport helps make cities more dynamic and competitive; this means the creation of more jobs.

Urban public transport is an important economic sector in itself. It represents about 20% of the output of the wider transport sector. About 13 million jobs are linked to the provision of public transport services and the public transport supply chain worldwide.

This Focus Paper demonstrates that public transport is an essential ingredient of green and inclusive growth. It highlights the characteristics of jobs in the public transport industry (operators, authorities, and supply chain) and shows how the development of public transport supports the local economy. Recommendations are provided on how to optimise the potential of public transport to foster green growth and job creation.

## Part 1: Boosting the local economy: employment at public transport operators and authorities

Public transport companies and authorities offer green local jobs that cannot be offshored or moved out of the local area. These jobs are therefore less affected than jobs in other sectors in the event of an economic downturn.

The 2011 survey carried out by the UITP Observatory of Employment demonstrated that urban public transport

operators provided employment to about **7.3 million people worldwide**. Public (mainly local) authorities in charge of public transport employ about **300,000 people worldwide**.

Due to its local and sometimes fragmented nature, public transport does not always get the recognition it deserves in terms of its role as a major job provider. In European cities such as Paris, Berlin, Vienna, Amsterdam, Barcelona and Dublin public transport operators are among the largest city employers.

## 1. Public transport companies: best-in-class providers of green jobs and inclusive growth

According to the United Nations Environment Programme (UNEP) and the International Labour Organization (ILO), green jobs are defined as follows:<sup>1</sup>

*“We define green jobs as work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high efficiency strategies; de-carbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution.”*

Due to its nature and mission, the public transport sector, like other soft mobility modes, is a creator of green jobs. Any job in the public transport sector helps reduce greenhouse gas emissions, save energy and alleviate congestion, and therefore preserves and restores environmental quality.

For example, Brazil is the best in class in Latin America regarding green jobs. According to ILO data for 2010, there are approximately 2.9 million ‘green professionals’ in Brazil; of these, only 6.6% are in the formal market.

In all countries, growing public transport helps fight unemployment and boost the economy. Providing skilled jobs for unqualified people encourages social integration and helps stabilise living conditions, which in turn leads to the creation of a middle class.

In most European countries, jobs in the public trans-

port sector offer a good level of remuneration compared to other jobs requiring similar qualifications and in particular in comparison to national minimum wages.

## 2. Innovation and maximising productivity lead to labour productivity gains

As is the case for any other services sector, the public transport industry is a labour-intensive sector. Labour costs represent 60 to 80% of the total costs of a public transport company.

In the public transport sector, productivity gains are a permanent preoccupation in existing companies. To maximise productivity, both internal and external productivity need to be addressed.

To achieve significant results in terms of internal productivity, some expenditure will be required in order to develop new tools. These can include IT systems, innovative management tools (Operational Support Systems), new ticketing technologies, and modernised operations such as automated metros, but also investment in human capital (training programmes), so as to create new organisational structures and business models.

External productivity gains on public transport networks can be achieved by improving the way road space is shared between collective transport modes and individual transport modes. The use of dedicated bus corridors and priority at traffic lights makes it possible to improve a bus’ commercial speed by 10 to 15% or even 20%. This means additional capacity and a better service can be offered using the same means of production.

Innovation, quality management and corporate social responsibility help public transport companies improve labour productivity. Public transport intrinsically serves the public interest and brings major social and societal benefits. Irrespective of whether they are publicly or privately owned, public transport companies are therefore one of the spearheads of corporate social responsibility, including quality management. Initial and vocational training programmes are also efficient tools for social advancement and key indicators of corporate performance. Thanks to technological innovation, it is now possible to create public transport networks that

consume fewer human resources while reducing the burden on the environment.

Delivering a high-quality public transport service requires high-quality internal performance standards. The performance capacity of an organisation only grows by improving the quality of working life and nurturing employee competences. Initial and vocational staff training programmes are key factors that help increase a company's productivity. Well trained employees who are confident and competent in their roles and satisfied with their working conditions help boost productivity, increase passenger satisfaction, and ultimately increase a company's performance.

### 3. A growing number of formalised jobs in Asia-Pacific, Africa and Latin America

In OECD countries, existing jobs are under pressure as companies seek to optimise productivity in order to decrease production costs and deal with budget cuts. The situation is rather different in BRIC and emerging economies, where any development of the public transport sector creates systematically skilled and more stable jobs.

In countries currently lacking formal public transport infrastructure, the development of organised public transport leads to a drop in the number of informal jobs. Formal public transport operations help offer employment opportunities for people currently employed in insecure or vulnerable forms of employment in the informal sector.

Beyond their green credentials, formalised jobs in public transport companies are skilled jobs that provide better conditions for stable, possibly full-time permanent jobs, a decent level of remuneration and long-term employability in accordance with the definition of green jobs given by the ILO.

In Latin America, public transport employment has undergone major changes and made progress towards formalisation. The sector drives an important part of the economy and is estimated at around 2% of the total GDP of the region.

The labour market in Latin America is largely informal and this is also reflected in the public transport sector.

However, it is important to highlight the relatively high rate of formalisation in the public transport sector compared to other sectors. In Argentina for example, according to the 2011 National Plan for the Regularization of Labor (PNRT), the amount of informal jobs in the public transport sector (20%) is half that of the wider national economy (40%).

### 4. Public transport: resilient in the face of economic and financial crisis

Regardless of the financial and economic situation of a city, public transport has a fundamental mission, which is to ensure everyone's basic right to mobility. This public service mission is linked to the objectives of social inclusion, accessibility for all, and quality of life, all of which are crucial for the sustainable development of urban areas. Moreover, growing awareness of environmental issues, rising energy costs, and growing mobility needs mean that a certain level of public transport services must be maintained. This therefore enables local authorities to provide relative stability in the service offered by the public transport sector.

Currently, this public service mission has led to relative employment stability in the public transport sector in Europe. This shows that, even in times of crisis, the public transport sector seems to be more resilient than others. In 2012, the UITP Commission on Business and Human Resources Management led a survey called 'Attractiveness of the job of driver'.<sup>2</sup> Based on the survey findings, it appears that the most common measures implemented when faced with budget reductions and cost cutting are limited service cancellations (lines), productivity and working time increases, and recruitment freezes. Dismissals are reported as rare even in countries such as Portugal, Spain and Italy.

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<sup>1</sup> 'Green Jobs: Towards decent work in a sustainable, low-carbon world', a report commissioned and funded by UNEP, as part of the joint UNEP, ILO, the International Organisation of Employers (IOE) and the International Trade Union Confederation (ITUC) Green jobs initiative, and published in September 2008.

<sup>2</sup> 'Attractiveness of the job of driver' survey, June 2012, UITP Working Document, Commission on Business and Human Resources Management – Report 2 Observatory of Employment available on Mobi+ via [www.uitp.org](http://www.uitp.org).

This clearly demonstrates that the cyclical context has a partial impact on the number of driving jobs; ridership does not decrease significantly and therefore driving jobs are less affected than other industry employment. This is all the more important given that in a large majority of companies, regardless of their geographical location, drivers account for between 50 and 95% of total staff.

## Part 2: Employment in the public transport supply chain: a dynamic, innovative and growing sector

The public transport supply chain is involved in the provision of goods and services for public transport operators and authorities. This notably includes the manufacturing of vehicles and the building of infrastructure, and the integration of vehicles and infrastructure into the urban fabric.

Any estimation of the number of jobs in the public transport supply chain will vary according to where boundaries are set. A conservative estimate made by UITP puts the figure at about 5 million jobs worldwide. Beyond this figure, the public transport supply chain can be characterised as a job-intensive industry that involves a variety of competences and is at the cutting edge of innovation. Investment in public transport infrastructure and services has a direct impact on the creation of jobs in the supply chain. A better understanding of the above characteristics of the supply chain can help make the case for investing in public transport.

### 1. A job-intensive industry

Research conducted in Austria, Canada and the US has shown that, per amount invested, investing in public transport creates from 50% to 100% as many jobs as investment in other areas, such as roads. Why is this so? As collective modes of transport are more space efficient than individual motorised modes, public transport projects tend to require fewer resources for land acquisition. Moreover, these are often more complex projects which

require extensive expertise, engineering, and design efforts. Finally, they are often linked to the acquisition of new public transport vehicles. It thus appears that a significant proportion of the extra jobs created when investing in public transport are in the supply chain.

In particular, the design and manufacturing of public transport vehicles is a highly job-intensive activity. There is much less automation than in the private car industry. Vehicles are produced in smaller series and follow specific criteria defined by operators and authorities. Even though the rate of standardisation and automation is likely to increase in the coming years, public transport vehicle production will remain a job-intensive activity.

Infrastructure and vehicles also generate jobs throughout their life cycle, notably for maintenance and renewal.

### 2. A variety of competences and companies

The production of public transport vehicles (both bus and rail) involves a large number of suppliers. The end-product market is shared between a few large, and well known, integrators, which rely on parts from a wide range of suppliers. It is estimated that between 50% and 75% of the parts used in public transport vehicles are produced by subcontractors. Hundreds of suppliers are actually involved in the production of one public transport vehicle.

**Figure 1: Parts involved in the construction of a bus**

Air system and air conditioning	Clutch	Gearbox	Steering
Alternators	Cooling systems	Hubs	Suspension
Body parts	Demister/heater	Instruments	Transmission
Brakes	Driveline	Radios	Tyres
Chassis	Engines	Seats/upholstery	Windows

The variety of parts required to assemble a public transport vehicle (see Figure 1) accounts for the wide array of specialist suppliers involved. It also explains the wide

range of expertise required and different disciplines that come into play, from mechanical engineering to IT and ergonomics, for example. Suppliers have their own suppliers and, at the end of the day, public transport supports a dense network made up of tens of thousands of engineering, design and manufacturing firms worldwide. In this respect, public transport is an important and growing part of the wider automotive industry.

Suppliers in the public transport supply chain range from old family businesses to start-ups, and from small- and medium-sized enterprises to multinational companies.

The supply of goods and services for public transport is a dynamic market with players in many countries and regions. This wide distribution of suppliers also helps maintain a network of industries throughout the territory. Public transport plays a role in the development of poles of excellence where similar industries join forces.

### 3. At the leading edge of innovation

Public transport often drives innovation in different parts of its supply chain. This benefits not only public transport but also other parts of the industry with related job creation opportunities. Innovation is at the very heart of public transport for a number of reasons.

Firstly, policy-driven innovation is important in public transport. With mounting environmental concerns, energy efficiency requirements have stimulated research and industrial developments, supporting the development of future applications, and thus new jobs, within and beyond public transport, for instance in the areas of energy recuperation, hybrid propulsion and fuel cells.

Secondly, increased customer focus and rising expectations from customers in terms of quality, comfort, and personalisation have prompted innovation and new services in public transport.

Finally, the integration of public transport in built-up and busy urban environments also requires innovation, not only from the engineering point of view (new materials, innovative tunneling, ITS, etc.), but also from the urban design point of view. This is prompting new concepts,

ideas and developments in that area of activity and this benefits both public transport and urban planning more generally.

Positioning itself at the centre of a 'world of innovation' also creates a virtuous circle for public transport. Attracting the most talented people to the sector will lead to the promise of more innovation and more new developments, which in turn will fuel the need for more talented people, and so on.

New and innovative ways of providing public transport services are being explored, and new types of services are being developed. This is creating high-tech jobs in high added-value industries. These are exactly the sort of jobs that underpin employment and growth strategies in many OECD countries.

## Part 3: Beyond employment in public transport: the huge benefits of public transport investment for local economies and growth

### 1. Public transport investment: the potential to generate local jobs

Public transport infrastructure investments are an important employment generator in cities, be they investments in metro, light rail or high-quality bus services, public transport stations, or the implementation of mobility plans. All of these investments have a significant impact on job creation in cities as they stimulate the economy and contribute to economic recovery as well as long-term green growth.<sup>3</sup>

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3 Cities and Green Growth: a Conceptual Framework. Hammer, S. et al., OECD Regional Development Working Papers 2011/08, OECD Publishing. <http://dx.doi.org/10.1787/5kg0tflmzx34-en> (accessed 14 December 2012)

The OECD report clearly indicates that "economic growth in urban areas is driven by endogenous factors such as human capital, physical capital (i.e. infrastructure), and innovation, as well as spatial factors such as agglomeration economies and proximity to markets". This places mobility firmly amongst those sectors of the economy that encourage sustainable growth and generate employment.

Referring to definitions used in a Swiss study,<sup>4</sup> this paper demonstrates the economic and employment effects of public transport investments over different timescales, ranging from the short to the long term. The following categories account for employment linked to public transport infrastructure:

**Direct effect:** jobs that are immediately generated by transport projects in feasibility studies and infrastructure works;

**Indirect effect:** jobs in the supply chain and in the services that are involved in the construction phase of public transport infrastructure;

**Induced effect:** jobs generated in the local economy through the commercial activities surrounding public transport infrastructure;

**Catalyst effect:** jobs linked to urban regeneration and urban development around public transport infrastructure that allows for improved connectivity and accessibility.

## 2. An investment, better than a cost

The investments made in public transport infrastructure bring wide-ranging benefits to society, both immediately and in the longer term. These include improved health as a result of reduced congestion and pollution, reduced travel time, improved social equality, and energy savings, which together help improve the quality of life in the city. With the current trend of urbanisation and the anticipated continued rise in people's mobility around the world, public transport investments will play a vital role in helping to reduce economic, environmental and social costs in the long term and generate savings for society as a whole in terms of the positive impact on traffic accidents, public health, energy, congestion, parking areas, travel costs, access to education, jobs and leisure activities, etc.

## 3. The important impact of public transport investment on the creation of local jobs (direct, indirect, induced and catalyst)

One significant effect of investments in public transport is the effect on local job creation, be it direct, indirect, induced or catalyst.

According to a German study carried out in the cities of Cologne and Nuremberg, every euro invested in public transport generates EUR 5.30<sup>5</sup> and EUR 5<sup>6</sup> respectively of added economic value.

For each of the 3,200 people employed by the Cologne public transport authority (KVB), **one additional job is created in the local economy** (induced effect).

In Switzerland, each job created within the Geneva public transport operator TPG creates **3.3 additional jobs in the regional economy**.

Outside of Europe, the recent completion of the South African mass rapid transit railway Gautrain has led to the creation of **29,500 local direct jobs** and an estimated total of **103,300 direct, indirect and induced jobs**, according to 2011 figures.

Crossrail, South East England's major new railway project due to open in 2018, is a major employment creator in the region that will have provided 70,000 jobs in construction only. Moreover, it will enable more people to work in central London by bringing an additional 1.5 million people within 45 minutes of commuting distance. This will increase the pool of potential employees and customers for central London businesses, and allow for greater concentration of businesses (which is known to be associated with greater productivity) in the Central Business District. In addition to user and business time savings, Crossrail will contribute an additional GBP 40 million worth of GDP benefits to the UK economy. By including the wider economic benefits of the project the benefit to cost ratio increased from around 2:1 to 4:1. Moreover, the project is predicted to increase property values by GBP 5.5 billion.

This wide range of data demonstrates that public transport is a successful job creator in cities in different parts of the world, irrespective of legislative, political or cultural circumstances.

#### 4. From public transport investments to economies of agglomeration and urban prosperity

The significant potential of public transport investments in terms of employment is confirmed by a diverse range of studies from across the globe. These studies relate to different time and spatial scales and deal with different levels of investment.

A study on several French cities<sup>7</sup> that reinstalled the tramway into the urban fabric demonstrates how the installation of the new tramway lines contributes to a more economically, socially and environmentally sustainable city. These investments are not only a response to mobility problems, but also include 'factors of urban renewal' impacting the general economic system of the city. These include an increase in property value due to improved accessibility, the development and differentiation of commercial activities, urban renewal, and more sustainable mobility offer for residents and commuters.<sup>8</sup>

Public transport can thus facilitate the creation of vibrant urban environments (for example through the design of high-quality public spaces around tramway stops) and facilitates access to centres of mixed activities (commercial, residential, leisure, culture, education). The coordination of mobility and urban planning is crucial in order to maximise the above-mentioned side effects.

Acute social exclusion problems are increasingly prevalent in today's urban environments. Their causes and their consequences vary according to the level of economic development of the region or country concerned. Re-connecting socially excluded citizens to the social and economic structures of society can be made possible through affordable, accessible public transport. By providing mobility for all, public transport supports the delivery of social inclusion policies.<sup>9</sup>

## Conclusion

Public transport contributes to green growth and jobs in many different ways: it is a source of a diverse range of green and local jobs; it offers good training and qualifications (notably for drivers); it provides new opportunities for specialist suppliers; and it encourages better connectivity within cities. Nevertheless, some common features emerge when considering jobs associated with public transport.

**Density** - Public transport is a job-intensive industry both for the operation of services and in the supply chain. By increasing connectivity, public transport also increases job density in urban areas.

**Diversity** - Operating public transport services requires, and provides, different types of qualifications. The supply industry covers various disciplines. Public transport supports the development of all types of urban activities.

**Innovation** - Operators make use of innovation to develop productivity. The supply chain supports innovation, which in turn benefits other sectors. Public transport is an integral part of new lifestyles and new ways of experiencing the city.

UITP's strategy for the public transport sector sets out the aim to double the market share of public transport worldwide by 2025. Achieving this aim would further develop employment in the public transport sector- it would for instance double the number of jobs at public transport operating companies- and would support the healthy development of cities.

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4 Volkswirtschaftliche Bedeutung des öffentlichen Verkehrs in der Schweiz, Verband des Öffentlichen Verkehrs (Swiss Public Transport Union, VÖV/UTP), 2004, Switzerland.

5 Mobilität in Köln: Regionaler Nutzen der Kölner Verkehrs-Betriebe, KVB, Germany.

6 Nutzen des ÖPNV in Nürnberg, VAG, 2009, Germany.

7 Stambouli Jacques, Les territoires du tramway moderne: de la ligne à la ville durable, Développement durable et territoires (en ligne), Dossier 4: La ville et l'enjeu du Développement Durable, 11 June 2007. <http://developpementdurable.revues.org/3579> (accessed 14 December 2012)

8 See also: Linking the business community and public transport, UITP Focus Paper, 2011.

9 See also: Tackling social exclusion: the role of public transport, UITP Focus Paper, 2007.

This Focus Paper has been prepared by the Steering Committee of the Observatory of Employment, comprising the Chairpersons and Managers of the UITP Commissions involved in the project, namely:

- the Business and Human Resources Management Commission;
- the Transport & Urban Life Commission;
- the Transport Economics Commission.

The text refers to four Position Papers published by UITP:

- Linking the business community and public transport, UITP Focus Paper, 2011;
- Integrating public transport & urban planning: a virtuous circle, UITP Focus Paper, 2009;
- Assessing the benefits of public transport, UITP Focus Paper, 2009;
- Tackling social exclusion: the role of public transport, UITP Focus Paper, 2007.

Visit the UITP website to download the Focus Papers, <http://www.uitp.org/publications/positions.cfm>.

## Recommendations

- Acknowledge the quality and diversity of the jobs offered by public transport operators and the related benefits for the economy
- Professionalise public transport in transition economies
- Support initial and vocational training
- Promote public transport's contribution to innovation
- Map the public transport supply chain more comprehensively in order to better highlight its quantitative and qualitative importance
- Monitor and highlight the contribution of public transport to job and growth strategies and industrial policies at national and international level
- Mainstream public transport in urban development policies
- Integrate public transport in the development of business districts

This is an official position of UITP, the International Association of Public Transport. UITP has over 3,400 members in 92 countries throughout the world and represents the interests of key players in this sector. Its membership includes transport authorities, operators, both private and public, in all modes of collective passenger transport, and the industry. UITP addresses the economic, technical, organisation and management aspects of passenger transport, as well as the development of policy for mobility and public transport world-wide.

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Responsible editor  
UITP  
Rue Sainte-Marie 6  
BE-1080 Brussels  
Belgium

Tel: +32 2 673 61 00  
Fax: +32 2 660 10 72  
info@uitp.org  
www.uitp.org