


# INTERNATIONAL RAIL BUSINESS FORUM

Vienna, 22 February 2018

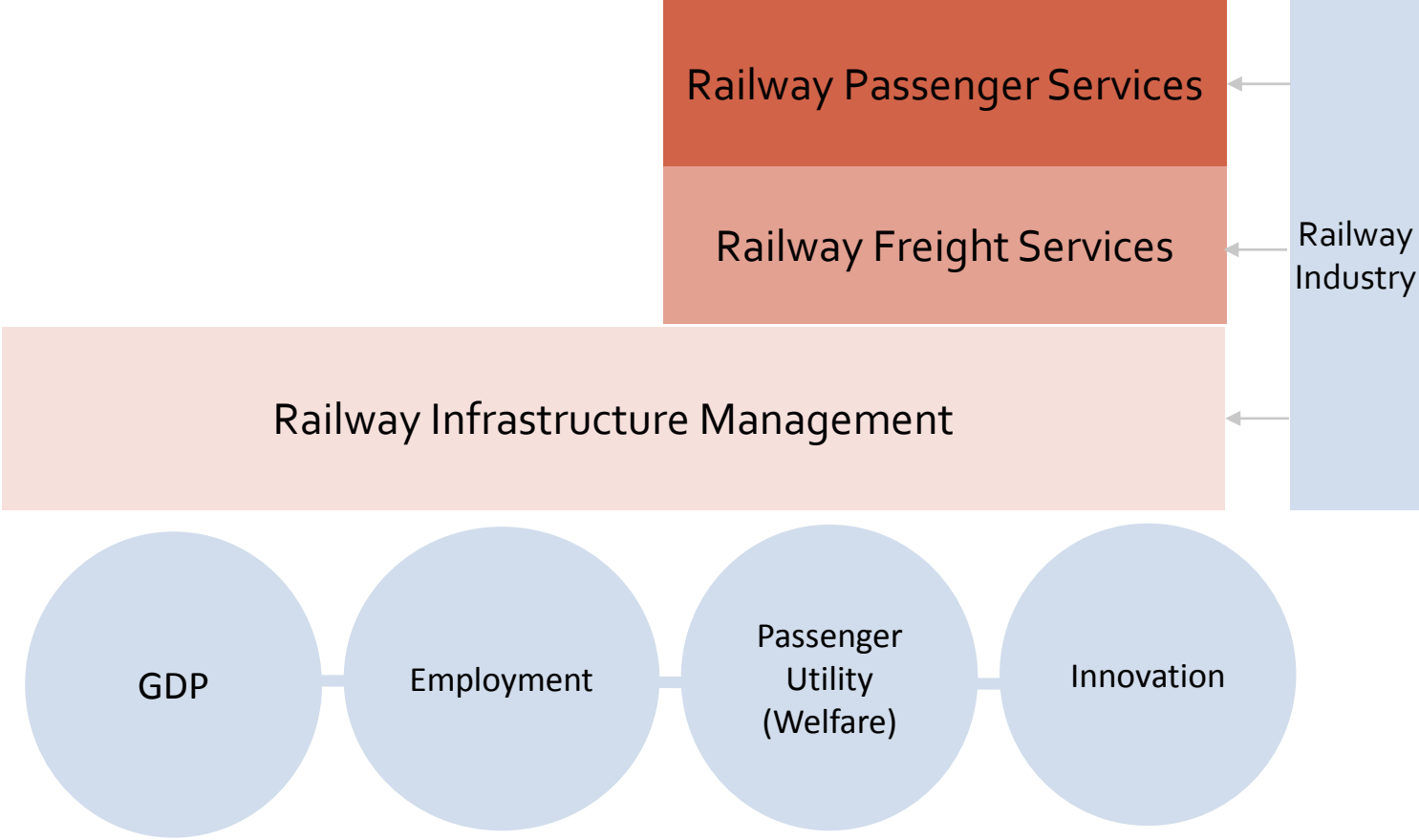




# Macroeconomic Impact: The Contribution of Railways to Growth, Value Added and Employment

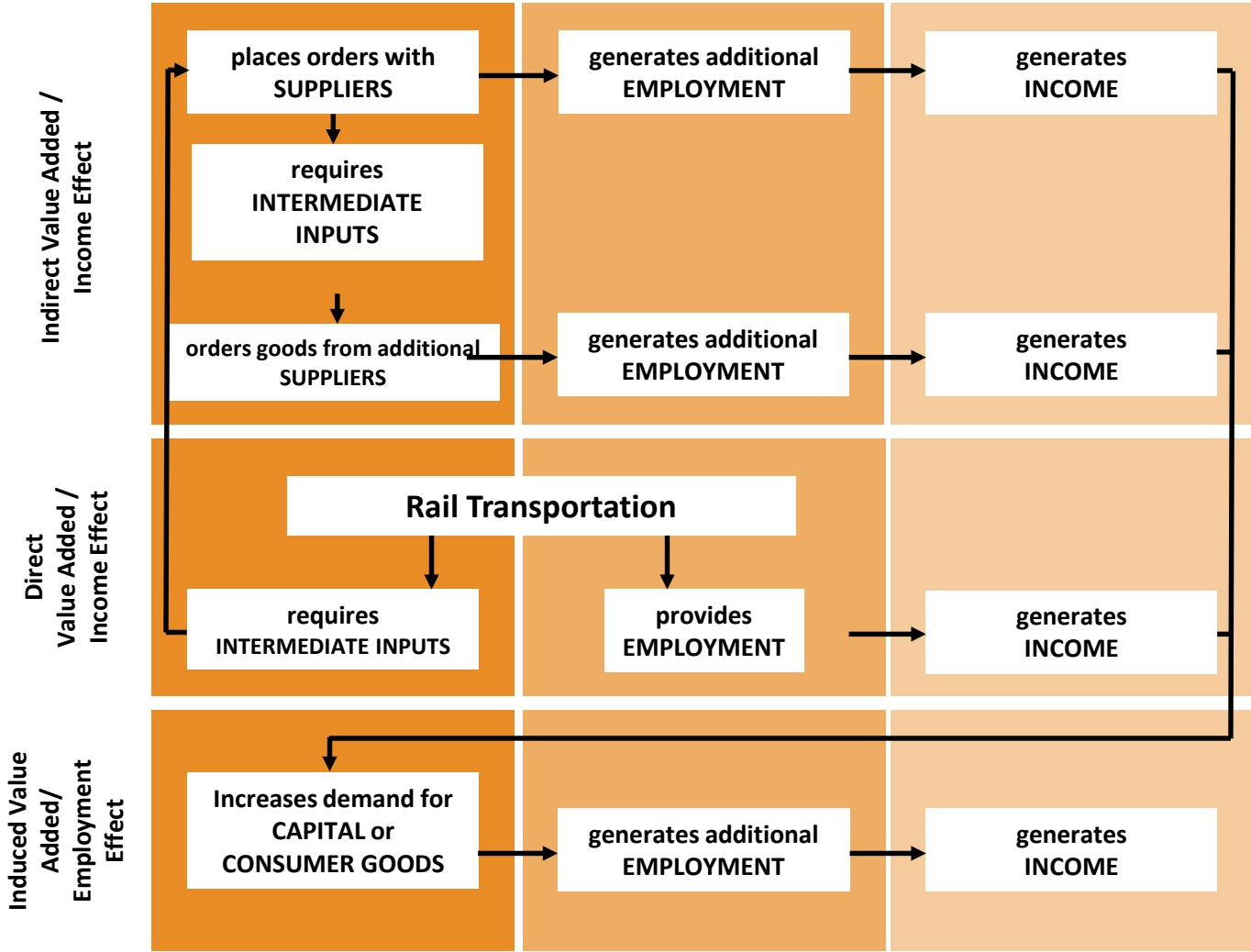
# Railway Transport Sector

## Macroeconomic Impact Dimensions



# Input Output Analysis - Operating Activities

## Direct, Indirect and Induced Effects

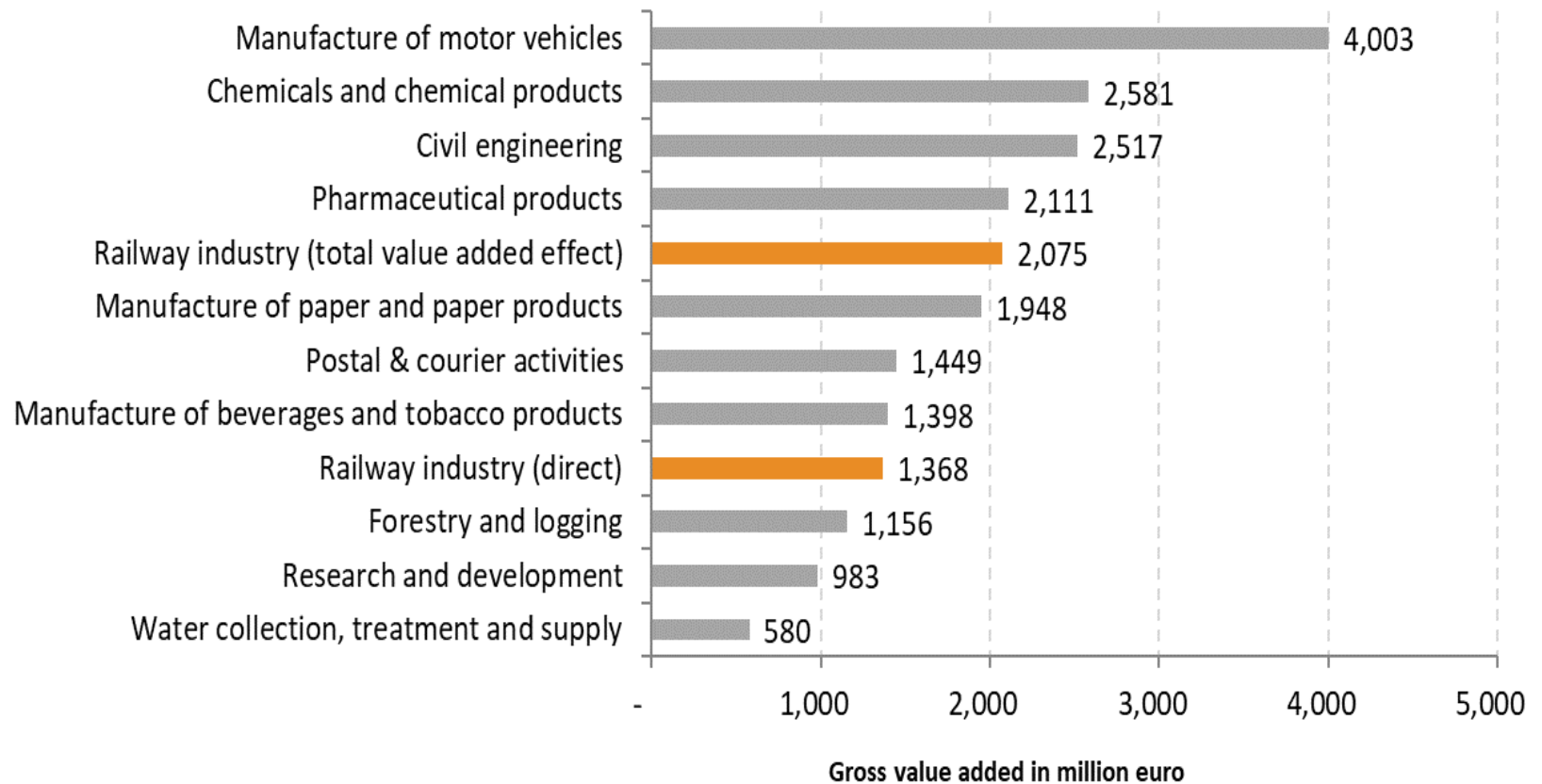


Source: Economica.



# Value Added of the Railway Industry

## An Austrian Sector Comparison



Source: Economica.

Note: The benchmarking values for all sectors except for the railway industry are based on national accounting data from Statistik Austria.

# China is the Railway Industry “Export Champion”, followed by Mexico and the USA

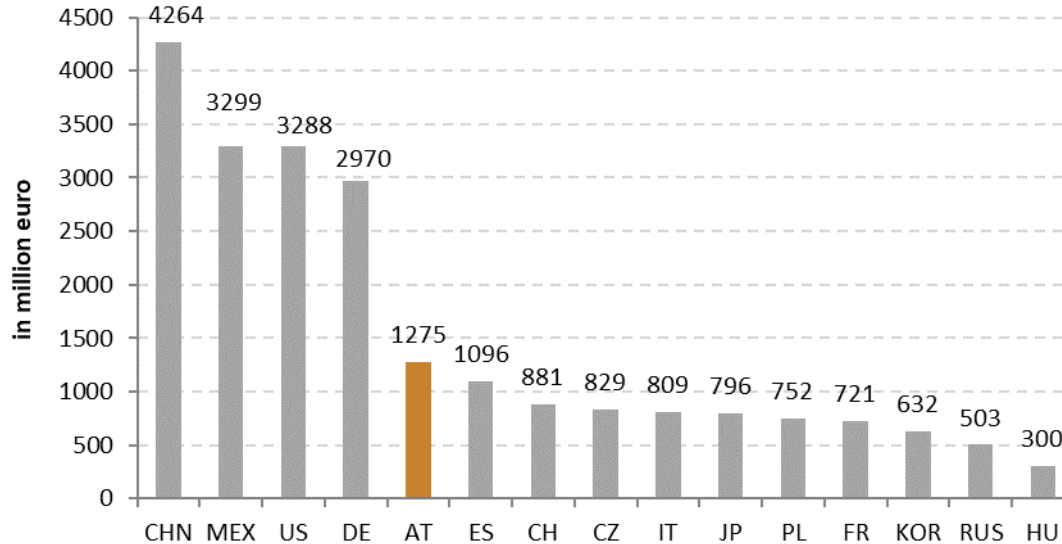


Source: UN Comtrade Database.

Note: The diagram shows exports of “railway vehicles (incl. hover trains) and associated equipment” (791 SITC) in 2015.

# Austria Top-5 Exporting Country of Railway Industry Products

Austrian ranks fifth concerning the exports of “railway vehicles (incl. hover trains) and associated equipment”, despite being a small country.

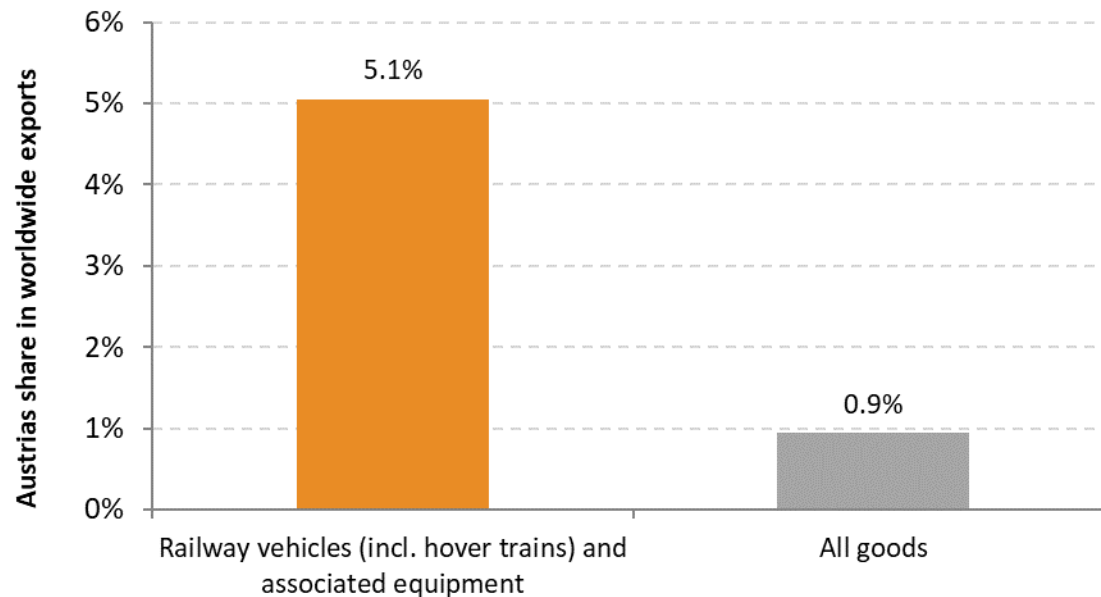


Source: Eurostat, UN Comtrade Database.

Note: The diagram shows exports of “railway vehicles (incl. hover trains) and associated equipment” (791 SITC) in 2015.

# Austria Accounts for 5.1% of Railway Industry Exports

Every 20th euro earned from exporting railway vehicles (incl. hover trains) and associated equipment” can be attributed to exports from Austria. Overall, Austria has an export share of 0.9%.

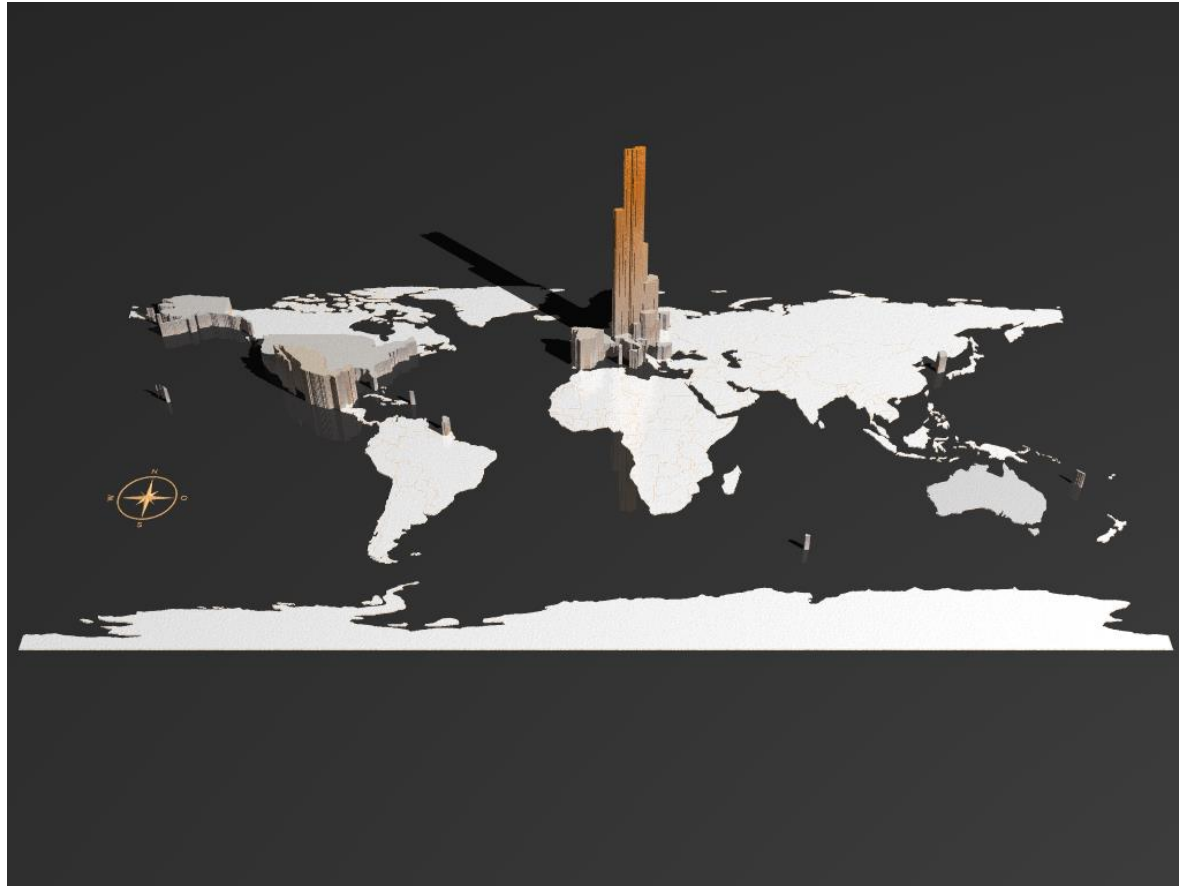


Source: UN Comtrade Database.

Note: The diagram shows exports of "railway vehicles (incl. hover trains) and associated equipment" (791 SITC) in 2015.



# Exports per Capita of Railway Industry Goods

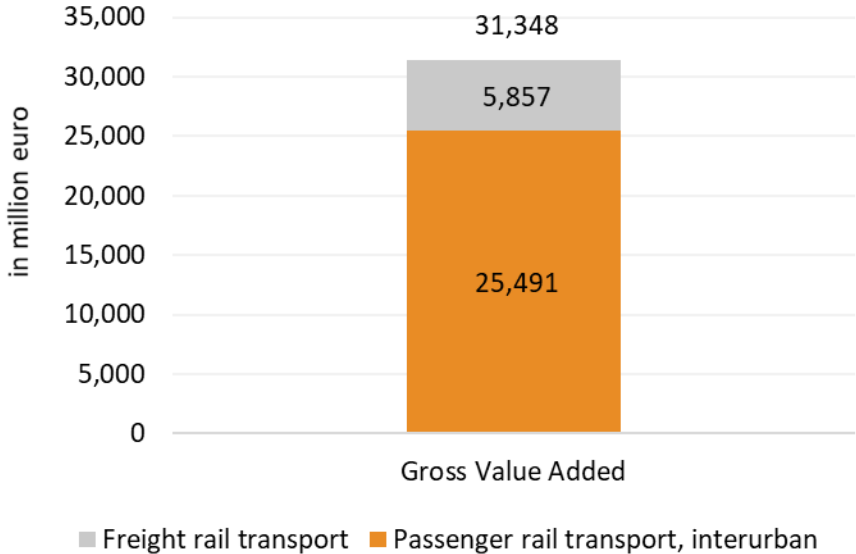


*Source: UN Comtrade Database.*

*Note: The diagram shows exports of "railway vehicles (incl. hover trains) and associated equipment" (791 SITC) divided by the number of inhabitants of a particular country, figures for 2015.*

# More than 31 Billion Euro Value Added in Interurban Passenger and Freight Rail Transport Sector in the EU

Interurban passenger and freight rail transport directly account for 0.24 % of total value added in the European Union. Urban passenger rail transport and rail infrastructure management would approximately double the figure.

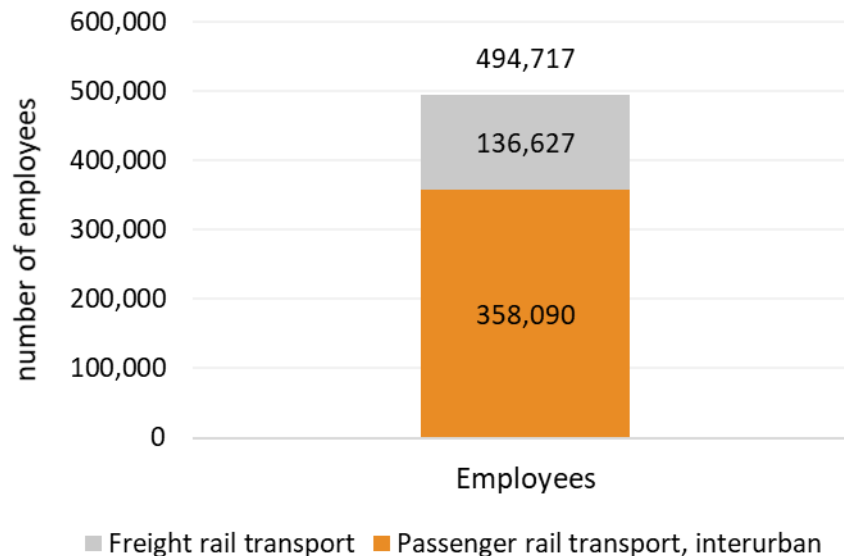


+ indirect effects (suppliers) and income effects add between 0.5 and 0.75 euros for every directly generated euro

Source: Eurostat, Economica.  
Note: Figures for EU28 for the year 2015. This definition excludes urban and suburban passenger rail transport. Rail infrastructure management is also not included.

# 494 700 Employees in Interurban Passenger and Freight Rail Transport Sector in the EU

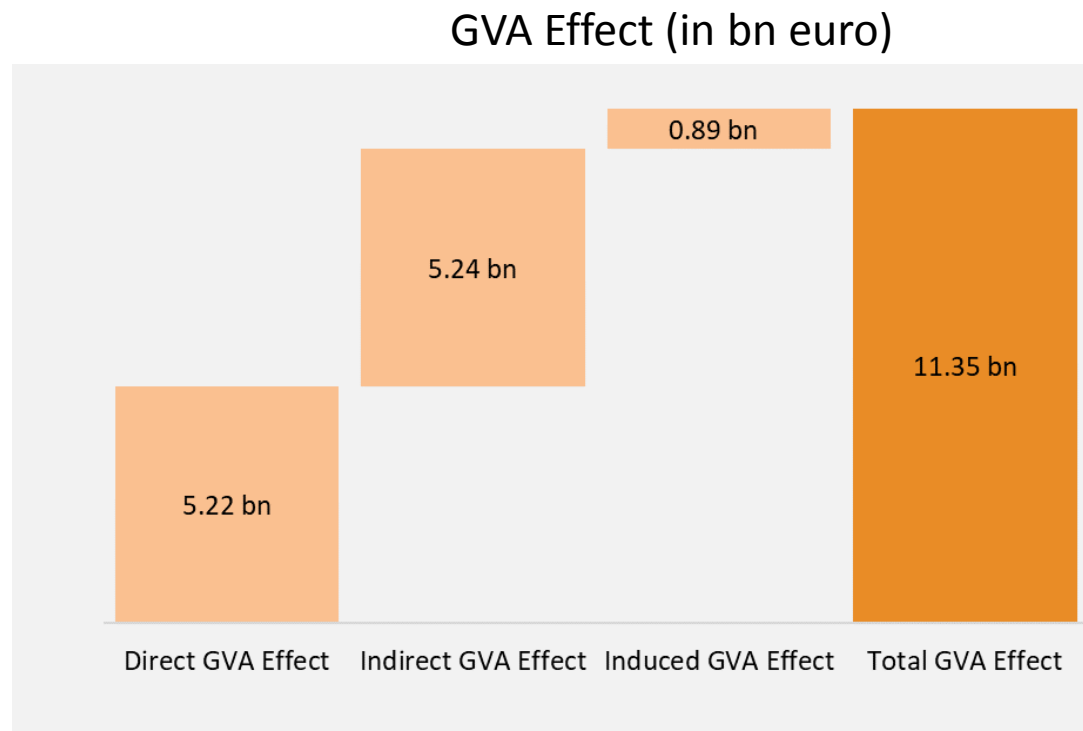
Interurban passenger and freight rail transport are directly responsible for 0.26 % of total employees in the European Union. Including urban passenger rail transport and rail infrastructure management approximately doubles the amount.



+ indirect effects (suppliers) and income effects lead to around one additional job for every directly generated job

# Investment Plan - Austrian Federal Railways 2013 - 2019

The Austrian Federal Railways are investing 13.9 bn euro in the time period 2013 to 2019. This will lead to a total gross value added effect of 11.35 euro over the entire period or (on average) 1.6 bn euro per year. The total employment effect secures 18.733 jobs.

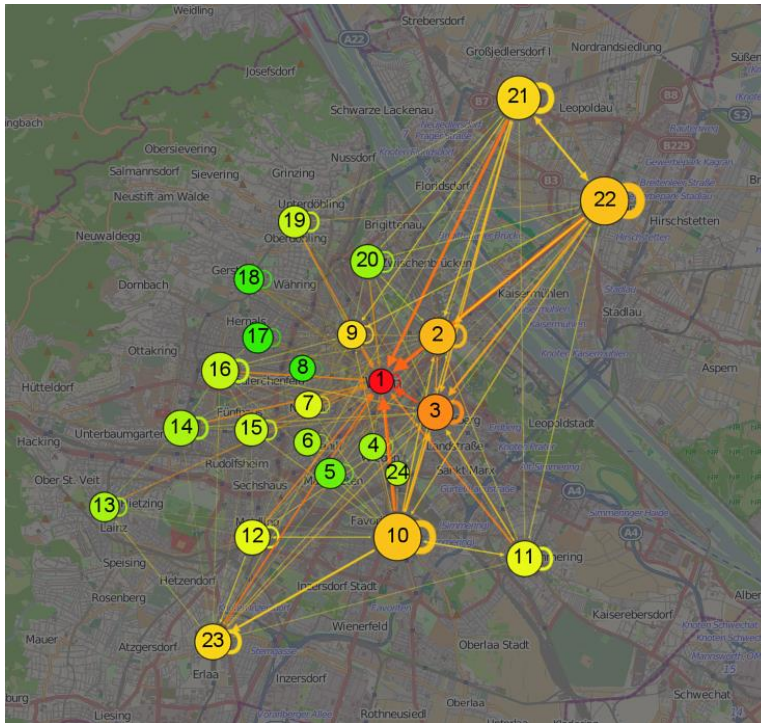


Source: OeBB, Economica.

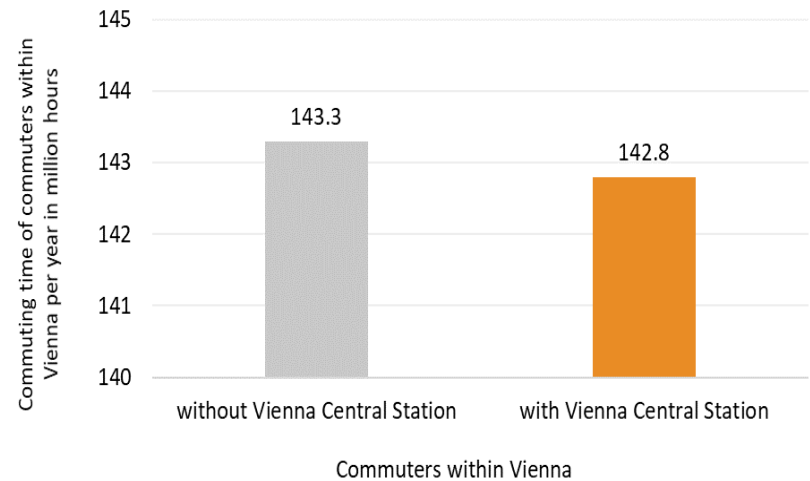
# Microeconomic Impact: the Contribution of Railways to Structural Change and Passenger Utility

# Vienna Central Station: Time Savings of Commuters

The new central station saves time for employees working in Vienna.



**Valuation of the Time Savings:  
Half a million hours saved by  
Viennese commuters.**



The accessibility of the jobs in Vienna is improved, resulting in a reduction of the commuting time. This leaves commuters with more free time and additional utility.

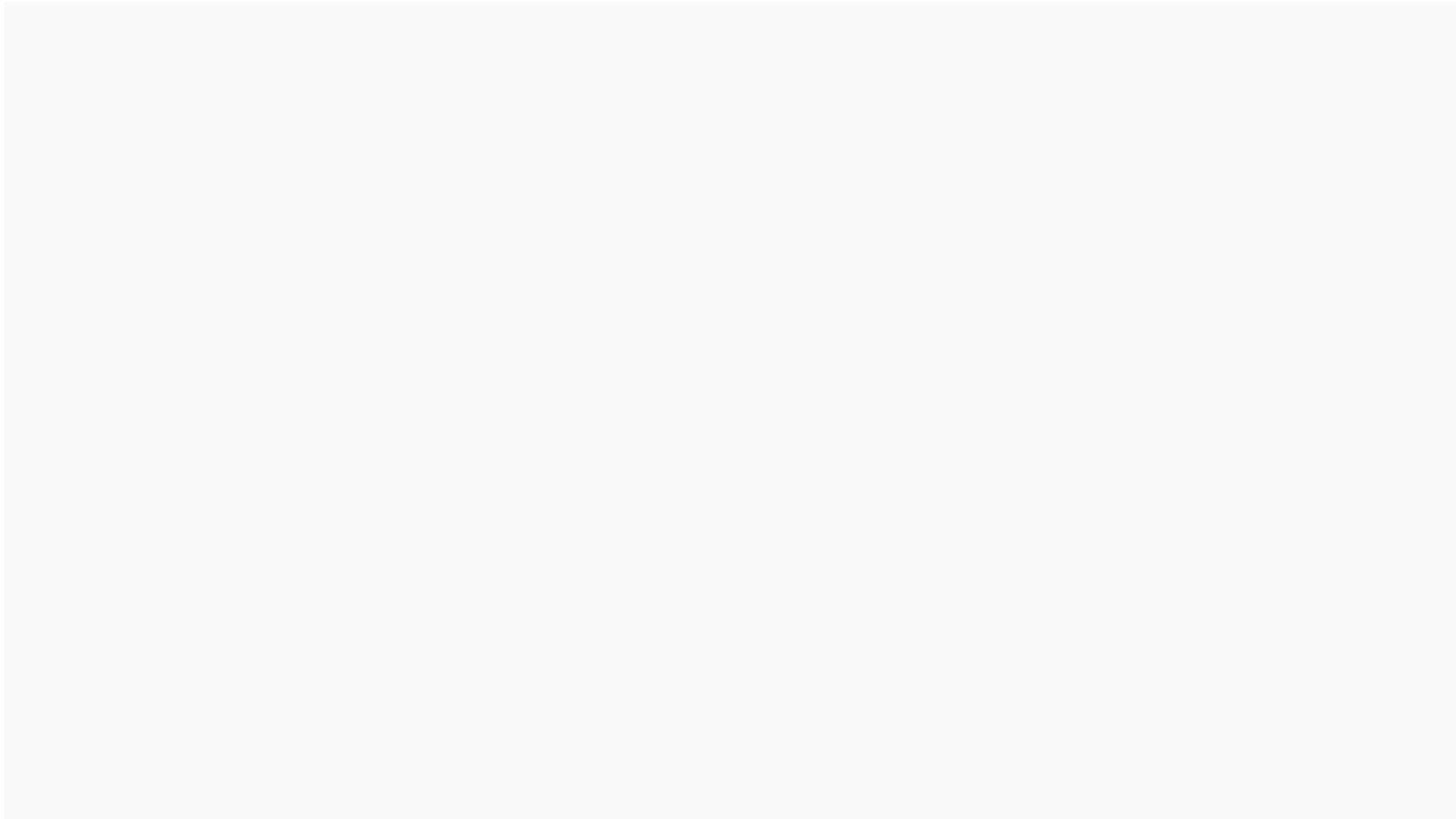
Source: *Economica, Statistik Austria.*

Note (I): The commuter flows of Viennese employees are shown according to the 23 districts in Vienna. The size of the circles reflects the size of the population that is employed.

Note (II): We assume that saving one hour of commuting has a value equal to 8.79 euro per hour. There are 662.845 employees living and working in Vienna.

# The Space-Saving Effect of Urban Transport

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# High-Performance Track Broadens the Labor Market and Increases Value Added

## Labor Market and Productivity Effects of Accelerating Vienna - St- Pölten

Reduction of 15 minutes of travel time

Increases potential number of employees by 0.4% in Vienna and by 0.18% in St. Pölten

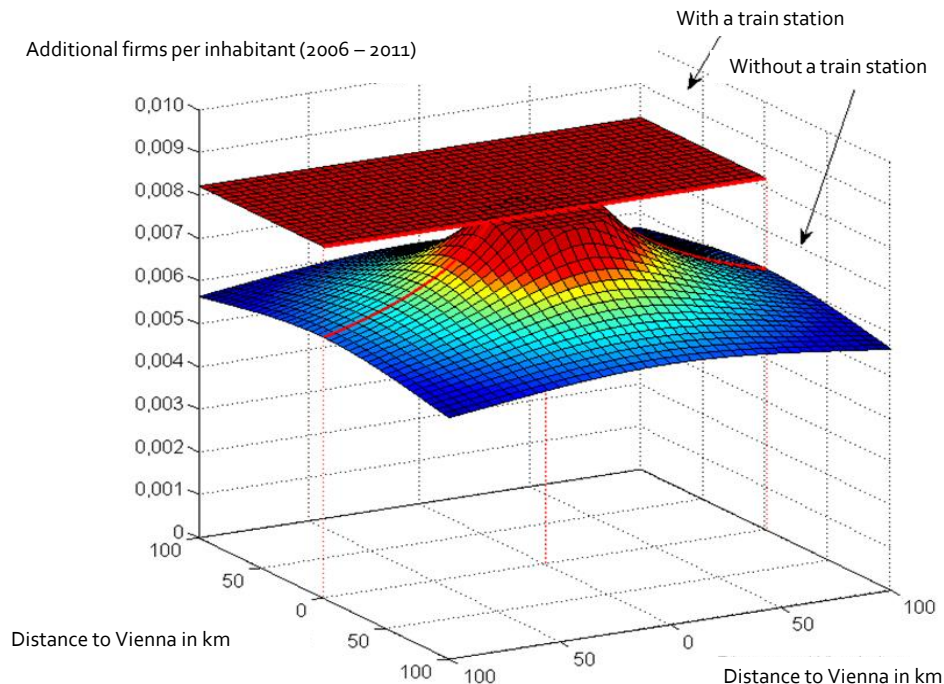
Value Added increases by 0.07% in Vienna and by 0.03% in St. Pölten per year

460 million euro additional value added in Vienna per decade and 14 million euro additional value added in St. Pölten per decade



# Business Creation Dependent on Accessibility

Municipalities with a train station have an above average rate of business creation in comparison to those without a train station.

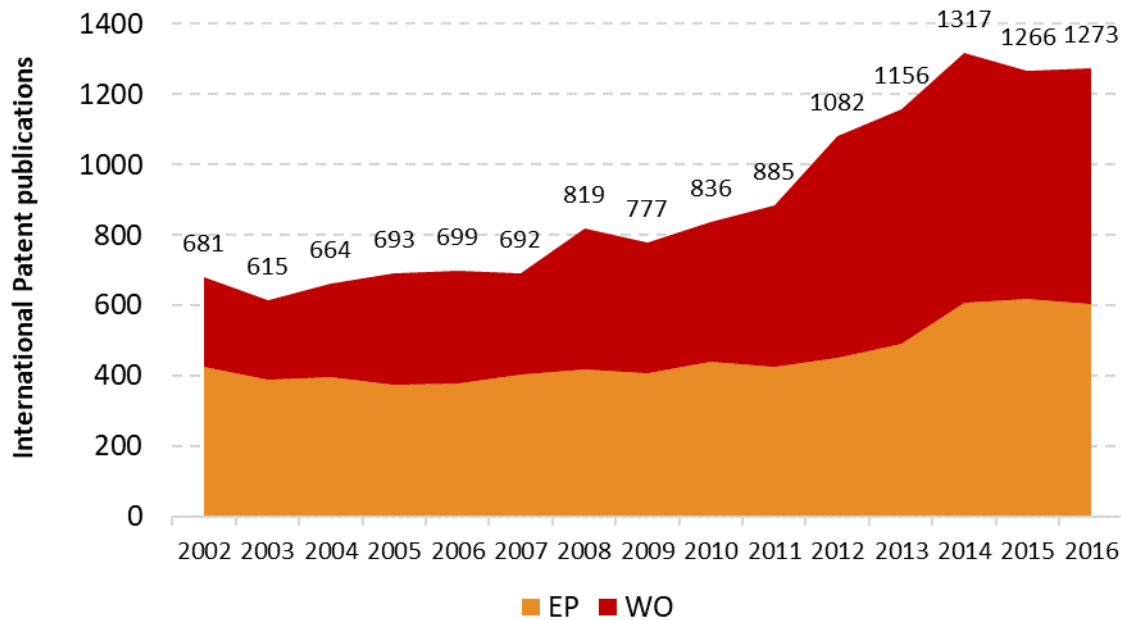


Source: Economica.

Note: Business creation is defined as the number of firms (trade and craft) per inhabitant, in the year 2011 in municipalities in the Lower Austrian region Weinviertel compared with the number in 2006. About 165 000 inhabitants live in municipalities with a train station, thus about 150 additional firms were created.

# European Railways as a Global Innovation Driver

# EP and WO Patent Publications Worldwide: +87% since 2002

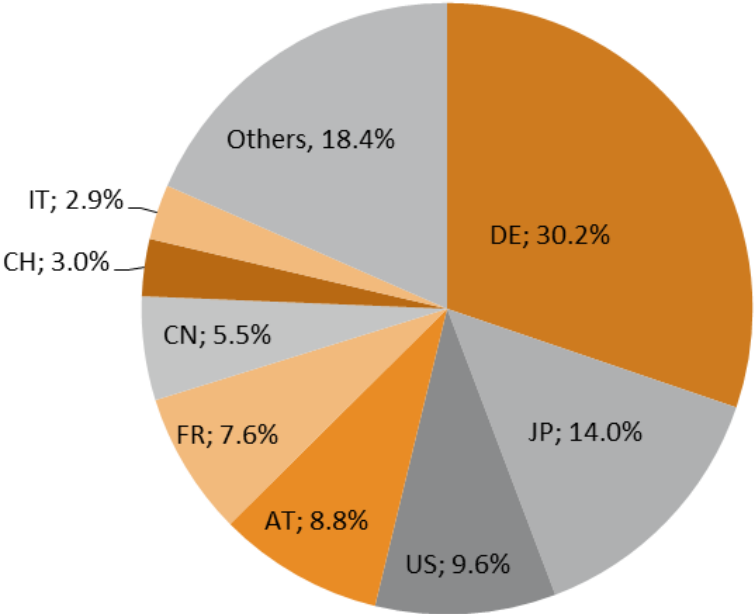


Source: Economica (2017).

Note: The EP/WO patent families in the areas E01B (permanent way; permanent-way tools; machines for making railways of all kinds) or B61 (railways) are shown according to the year of publication.

# Europe Important Contributor to Railway Patents

Germany has the highest share of railway-relevant EP/WO patent publications, followed by Japan, USA, Austria, France and China. EU member states account for 60% of the railway relevant EP/WO patents.

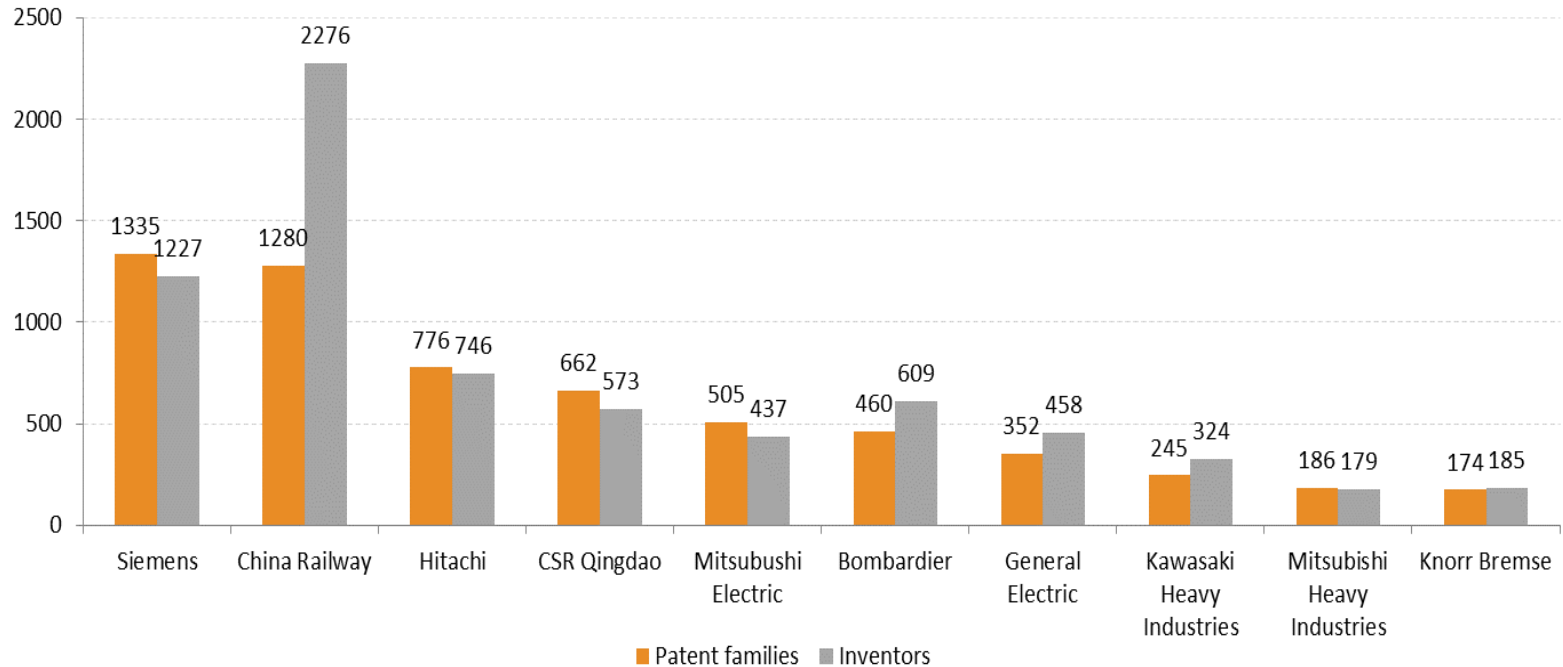


Source: Economica (2017).

Note: The country shares of EP/WO patent publications with at least one inventor from a particular country are shown for the time period 2012 to 2016. International inventor teams consisting of inventors from more than one country are attributed to each inventor country.

# Global Company Ranking

Siemens and China Railway in the lead regarding railway patent families worldwide (not only EP/WO) – CSR Qingdao among Top-10.



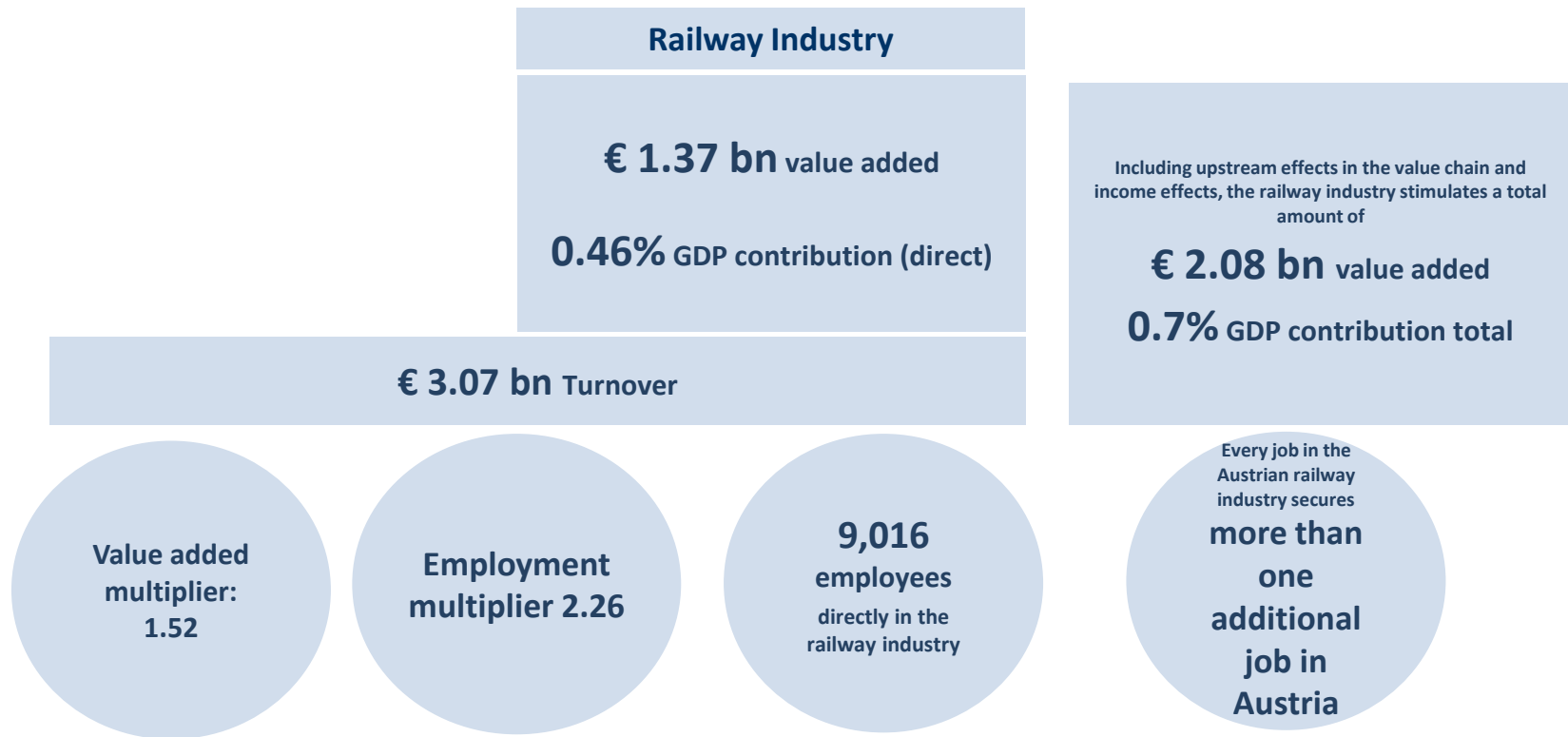
Source: Economica (2017).

Note: All patent families worldwide from over 90 patent offices are included with patent publications in the time period 1/2007-12/2016.

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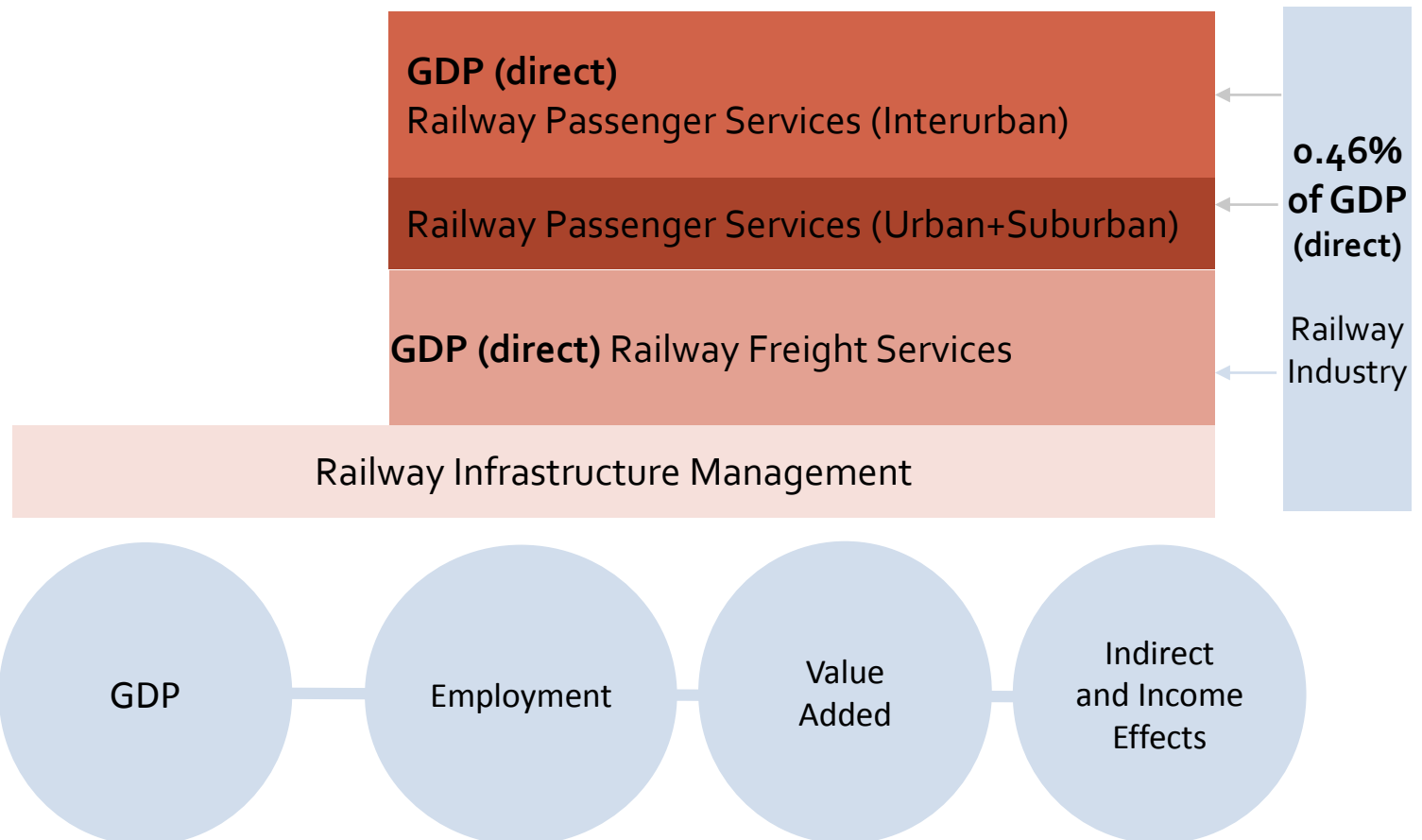
# Macroeconomic Contribution of the Austrian Railway Industry



Source: Economica.

# Macroeconomic Contribution of the Austrian Railway Transport Sector

Economica study forthcoming in Spring 2018





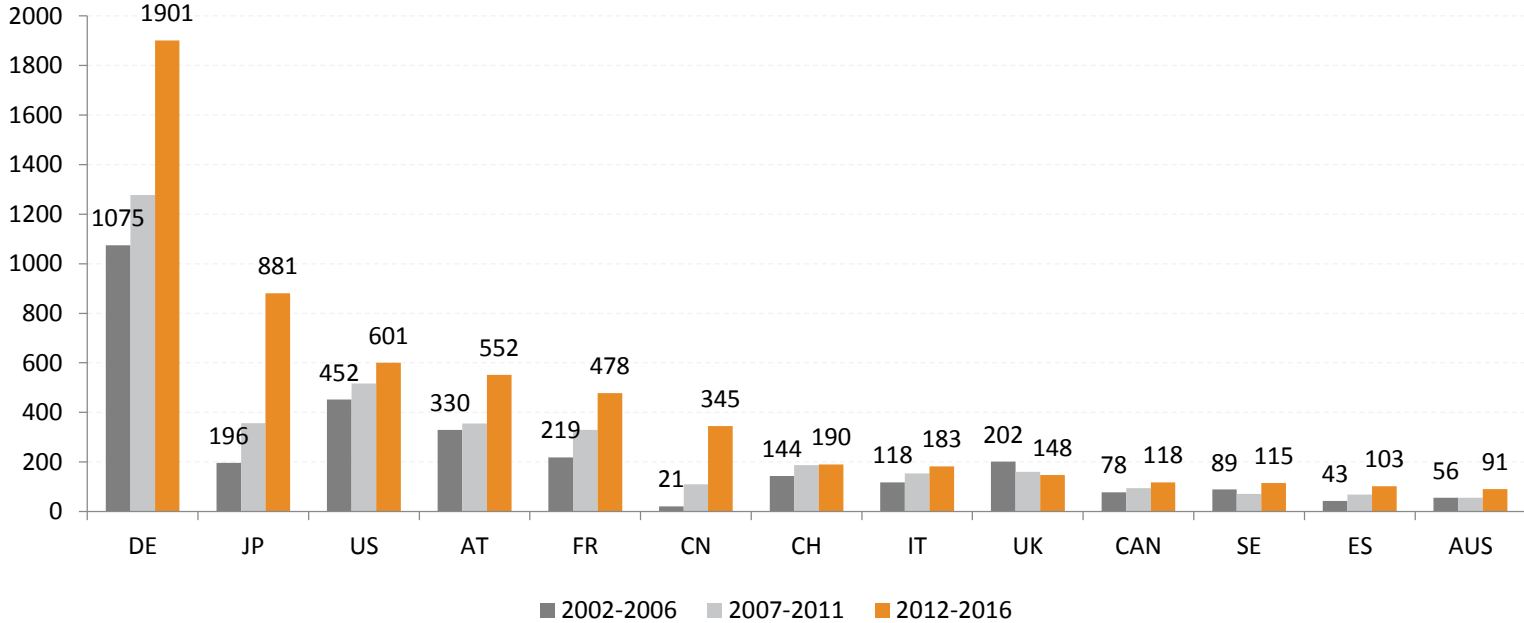
# Better Railway Infrastructure Accelerates the Journey, Generating more Free Time and Utility

## Travel time savings

	Measure	Number of passengers (per year)	Additional passenger utility (in euro per decade)
Vienna-St. Pölten	Acceleration	7.3 million	280 million euro
Salzburg-Innsbruck	Acceleration and additional <i>railjet</i> stops in Kufstein and Wörgl	2.2 million	15 million euro
Graz-Linz	Acceleration and availability of direct trains	120,000	1.8 million euro

# Rise in International Patent Activity

China and Japan have both seen sharp increases in their international patenting activity concerning railways. Germany, the leading railway patenting country, is very dynamic too.



Source: *Economica* (2017).

Note: The country shares of EP/WO patent publications with at least one inventor from a particular country are shown for the time period 2012 to 2016. International inventor teams consisting of inventors from more than one country are attributed to each inventor country.

