

UNIFE World Rail Market Study

Status quo and outlook 2020
Executive Summary

Commissioned by *UNIFE, the European Rail Industry*

And conducted by *The Boston Consulting Group*

1 Executive Summary

This is the third "World Rail Market Study" published by UNIFE. Following the success of the previous studies, UNIFE has again set three objectives: Firstly, the study examines the status quo of the market, assessing the average total and accessible market sizes based on order intakes from 2007 to 2009. It presents this analysis following UNIFE's established segmentation: transport segments, product groups, and continents/regions. Secondly, it aims to project a forecast for the future development of the global rail supply market. Market growth until 2015/16 is estimated quantitatively based on UNIFE's proprietary market model. Beyond the forecast period, the study provides a qualitative outlook, based on interviews with more than 100 global experts, on the likely shape of the rail industry at the end of this decade. Thirdly, the study provides new insights and strategic implications combining these qualitative assessments with the quantitative results of the market model. UNIFE commissioned The Boston Consulting Group (BCG) to conduct the study.

Outlook positive

The writing of the study has coincided with great uncertainty as the global economy recovers from a historic financial crisis following the US subprime crisis in 2008. Yet its analysis suggests that the rail supply industry has prospered during the 2007–09 period and should continue to do so over the timeframe used in the study.

- The baseline shows that this industry again grew at a rate above global GDP growth over the 2007–09 period. Recession effects were outweighed by the impact of stimulus packages and continued growth in China
- Given evidence of global recovery and the short-term project outlook, we expect steady growth of 2.0% to 2.5% annually until 2015–16
- The overall outlook until 2020 remains stable. This belief is based on the expectation of a two-speed world. The emerging markets will continue with their above-average growth resulting in the corresponding increase in global trade with growing freight volumes, urbanization with its demands for efficient mass-transport systems, and rising environmental awareness in emerging nations. The developed markets are expected to experience slow growth burdened by their deficits and debt levels after fighting the financial crisis.

The baseline: Beating the recession

The industry's clients were negatively affected by the economic recession in large parts of the world. Rail transportation demand went down, with freight volumes in particular dropping by up to 30% compared to the previous high. This had a direct negative impact on parts of the rail supply industry, most visibly in very low freight wagon orders in the US, Europe, and CIS, especially in 2009.

However, on a global scale these negative impacts were partly offset by the positive impact of economic stimulus packages. All stimulus packages had a component directed at improving rail infrastructure, with by far the largest rail package brought forward by the Chinese government. China assigned approx. €60 billion¹ to the extension and improvement of its rail network in 2009 alone, thus ensuring that—after the rail supply market boom years of 2007 and 2008—the global rail supply market did not fall back behind the volumes of the previous years.

Rail network size increased to approx. 1.6 million kilometres

The installed base of rail track has now reached approx. 1.6 million kilometres—i.e., 40 times the circumference of the earth—with approx. 5.2 million units of rolling stock deployed on this network. Rail networks are key elements in the infrastructure of developed economies and play a pivotal role in the development of emerging markets. Given this huge installed base, it is not surprising that service, replacement, and renewal are key drivers of the global rail supply market. An estimated 39% of the market in 2007–09 was in services. In addition, an estimated 58% of the infrastructure and 44% of the rolling stock segment were replacement orders. These volumes constitute the stable base load for the rail supply industry. A key trigger for growth in the market is the continuing expansion of the rail networks and an increase in the size of the global fleet due to continuously growing demand for rail transport.

Rail supply market estimated at €136 billion

The rail supply market comprises all systems, subsystems, and components applied in urban, conventional, and high-speed rail systems, including infrastructure, rolling stock, rail control, and the services required to install the systems and maintain the infrastructure and rolling stock. The detailed market segmentation is provided in the main part of this study.

The three-year average of the 2007–09 total rail supply market² is estimated at €136 billion. Compared to the baseline of the last study (2005–07), estimated at €122 billion, this implies an increase of 12%, or a compound annual growth rate of 5.8%, over two years.

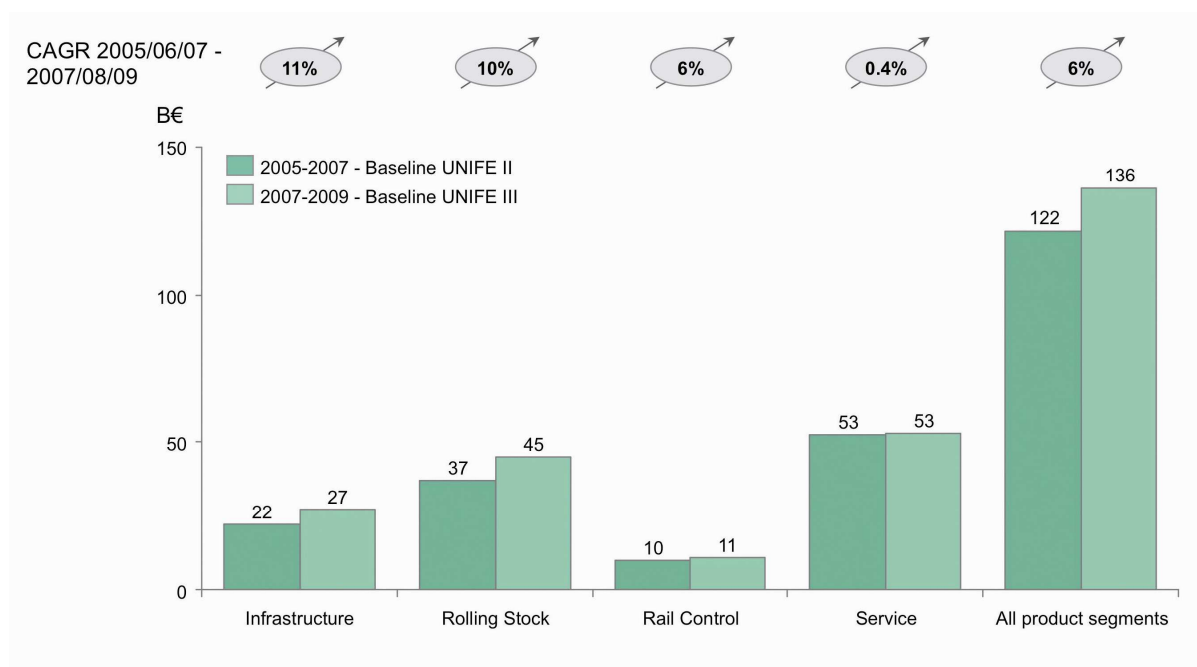
¹ Including investments in products and services not covered in the study, e.g., civil works.

² Order intake; excluding system integration

The largest change was observed in the infrastructure segment, followed by the rolling stock segment. The main drivers are the massive orders for the build-up of the Chinese VHS (very high speed), mainline, and urban metro networks.

In addition to the strong growth, we believe that an improved view for some segments and regions has contributed to the increase in the baseline of 12%. In particular, the visibility on the ROS markets in Japan, India, and Russia has increased.

Figure 1 Comparison between total market baselines of UNIFE II and UNIFE III study by product segment³

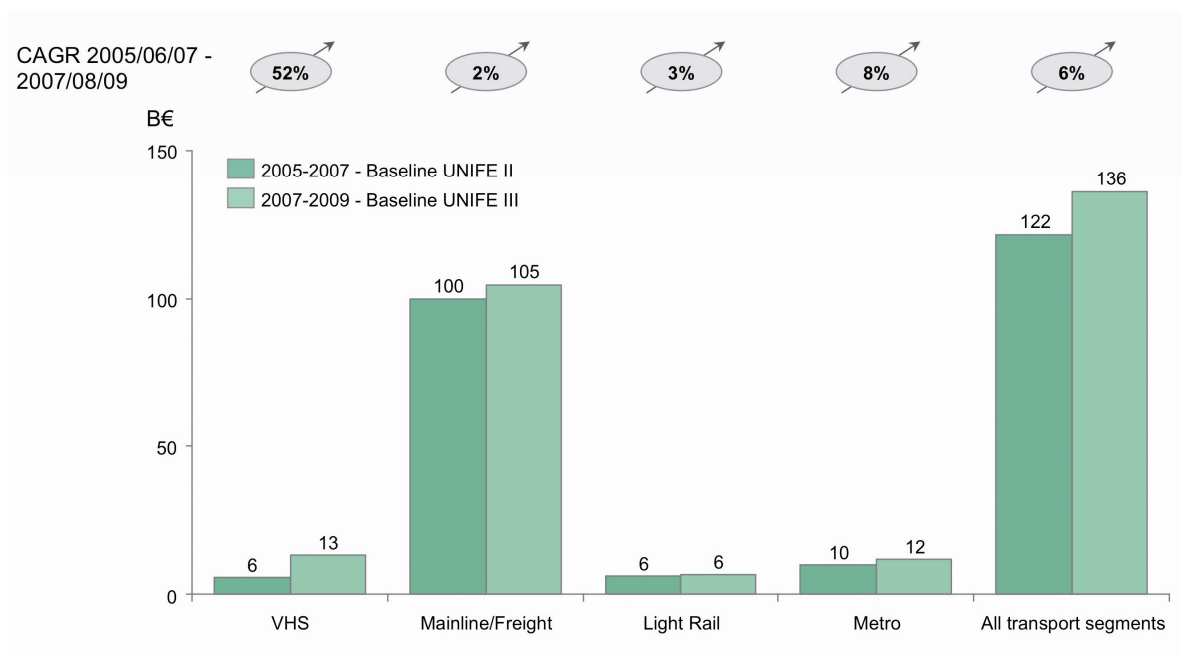


VHS segment with the biggest dynamics in recent years

Many countries—notably France, Italy, and Spain—have expanded their VHS networks consistently in the last few years. Others, such as Turkey and Russia, have initiated the construction of their respective networks. This has laid the foundation for the growth of the VHS segment. Most significant of all was the acceleration of the build-up of the world's biggest VHS network in China, leading to an increase by a factor of 2.3 compared to the last study's baseline. The metro segment also showed above-average growth, driven by the introduction and expansion of metro networks in large urban agglomerations all over the world.

³ Total market; excluding system integration

Figure 2 Comparison between baselines of UNIFE II and UNIFE III study by transport segment⁴



Asia/Pacific already the largest total rail supply market

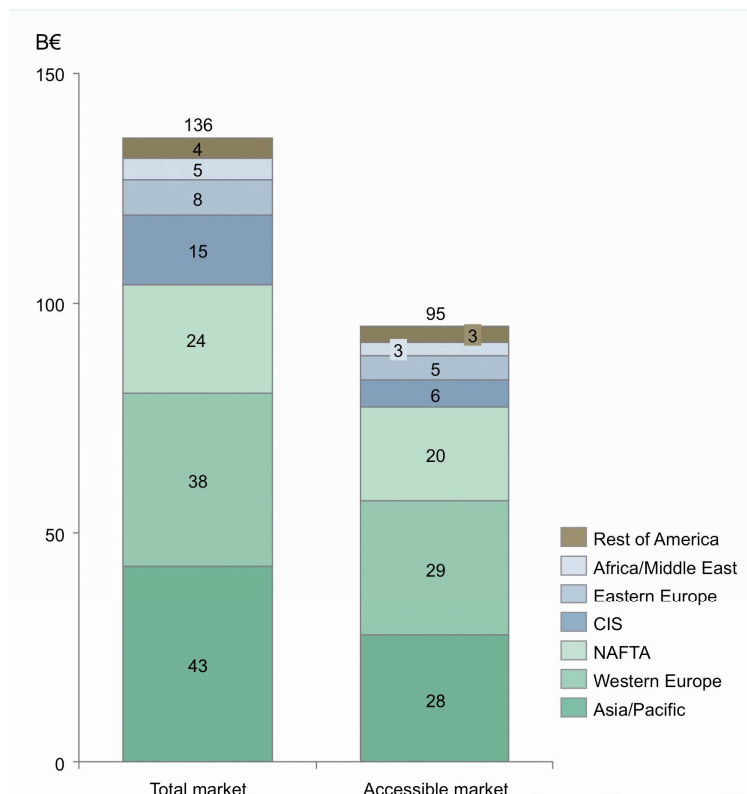
The last report correctly predicted the rising importance of Asia/Pacific, but underestimated its rapidity. World economic forces have so accelerated Asia/Pacific growth that it has already overtaken Western Europe as the largest total market for rail supply, a development not previously expected before 2015/16.

The current study estimates that about 70% of the total market is accessible⁵, with accessibilities clearly differing by region. Measured in terms of accessible markets, Western Europe remains the largest rail supply market in the world, followed by Asia/Pacific—where China and India show low accessibility for some product segments. Overall, CIS exhibits the lowest accessibility rates.

⁴ Total market without system integration

⁵ A market is considered accessible if it is open to any external supplier and is not served exclusively by domestic railways.

Figure 3 Comparison between total and accessible market 2007–09⁶

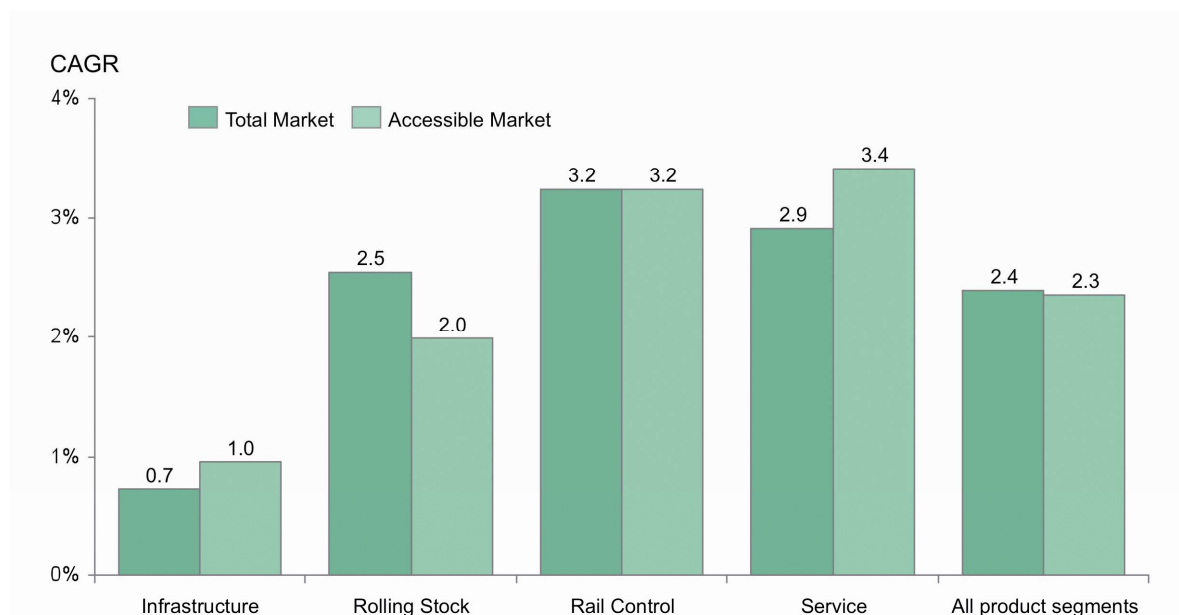


Between now and 2015/16: Steady growth

As described above, one main objective of this study is to provide a forecast for the next seven years, based on drivers and trends in the industry. To achieve this, numerous expert interviews were conducted across the globe and several thousand market segments were analyzed within UNIFE's proprietary market model. Rigorous analysis of the drivers and trends in the market and verification of preliminary results with experts of UNIFE members underpin the forecast. The scope of the study again comprised 50 countries, accounting for more than 97% of global traffic volume, to assess the regional and global market sizes bottom-up. A detailed overview of the methodology is provided in the appendix.

⁶ UNIFE III study; excluding system integration

Figure 4 Compound annual growth rates (CAGR) of accessible and total market 2007/08/09–2015/16



Despite continuing uncertainties, a global recovery appears to be underway. Freight volumes, one indicator of this development, are rising again. Based on the short-term project outlook, we expect the rail supply market to continue growing at 2.0% to 2.5%. Likely effects of the sovereign debt crisis in Europe include the severe reduction of infrastructure investments in Greece, the postponements of VHS projects in Portugal, and delays in the expansion of the network in Spain as PPP financing is explored. Yet healthy mega-trends driving the demand for further extended rail networks, both urban and intercity, should ensure continued moderate growth.

Two product segments are growing faster than average, for the accessible as well as the total market: rail control and services. This is partly due to the time-lag in orders for these systems and services of one to two and three to four years, respectively, following the strong growth of the rolling stock and infrastructure segments, especially in conjunction with the expansion of the Chinese rail networks. Growth in rail control is also driven by the countrywide rollout of PTC in the US, a project with a total budget of over €8 billion.

From a high base, rolling stock is growing in line with the overall market, with all regions contributing. Replacement orders in Western Europe such as IC-X in Germany and regional multiple units in France will positively impact order volumes in 2015/16. In Asia, the Indian and Chinese ROS urban, intercity, and freight fleets will have to be expanded in line with infrastructure expansion and economic growth. In Eastern Europe and CIS, the high average fleet age will require replacement investments, which will have to be initiated in the first half of the coming decade.

Infrastructure is the only segment growing slower than the market. This is mainly due to the development in the VHS orders in China. To achieve the 2020 goal of 20,000 route kilometres, infrastructure orders need to be placed by the end of the next three-year period. This implies a decrease in order volumes for VHS infrastructure after 2012. The planned network size is likely to increase, but at a slower rate than the tremendous build-up of earlier years.

The smaller regions Eastern Europe, CIS, Africa/Middle East, and Rest of America will exhibit above-average growth rates. NAFTA and Asia/Pacific will grow in line with the market, while Western Europe will grow at a significantly slower pace.

Western Europe is expected to lack major growth impulses following the crisis. Replacement orders based on already-signed frame agreements should provide some impulses, but the majority of European rail infrastructure and ROS operators do not expect to increase budgets in the coming years. Western Europe will, however, remain the biggest accessible rail market in the world.

NAFTA will follow its steady growth trajectory, thereby showing stronger growth than Western Europe. It is, like Western Europe, a replacement market. Nevertheless, some new-build projects will contribute to NAFTA growth. The major growth impulse will come from VHS systems expected to be ordered towards the end of the forecast period and from rail control, in particular from the PTC introduction.

Asia/Pacific has lower growth expectations than recent years. The Chinese VHS network expansion will slow, and the strong growth of the Indian market will be insufficient to compensate for slower growth in the single biggest rail supply market in the world. Nevertheless, Asia/Pacific will confirm its position as largest total rail supply market in the world.

With the upturn of the freight market in Eastern Europe and CIS after the crisis, demand for additional rolling stock will increase, with aging fleet generating major replacement needs. Similarly, infrastructure is likely to increase due to debottlenecking and network extension needs.

In Africa/Middle East, urban, freight, and intercity rail network expansion has only recently started, and is expected to continue beyond recent orders. Freight projects under conception include the GCC⁷ rail project in Saudi Arabia, Kuwait, Bahrain, Qatar, and the Emirates, while intercity lines and extensions or installations of new urban rail systems in the region's large cities should also contribute.

Rest of America, though still a small rail market, will continue to grow faster than the market with continuing urban population growth driving the extension of urban rail systems. With some systems increasing passenger numbers at above 6% per year, there is a clear need for continuous upgrading and extension. An additional growth driver is the expansion of freight lines to access natural resource deposits.

Until 2020: Stable demand at a high level

Underlying trends driving the growth of the rail supply market will maintain their momentum in coming years. The most important trends are predicted above-average growth in emerging markets, the corresponding increase in global trade with growing freight volumes, urbanization generating demand for efficient mass-transport systems, and rising environmental awareness.

Rail is better positioned than other modes of transport to play a central role in solutions to future mobility demands. The industry's innovations—from ticket sales to rolling stock to infrastructure maintenance—improve performance of rail operators and infrastructure managers, and make rail solutions more attractive to end customers.

With these trends expected to remain stable over the decade and probably beyond, we are confident that the rail supply market will continue to develop favourably in most regions, particularly those with above-average GDP growth and massive urbanization tendencies. The established networks in Western Europe will only contribute moderately, as the consolidation of public budgets will impact investments in (rail) infrastructure.

Growth in demand is heavily dependent on China, since other markets cannot fully compensate for changes in the single largest rail supply market in the world. A slowing in network expansion, resulting in lower rail investments, can be expected to follow the current phase of rapid expansion in all types of rail networks from VHS to conventional to urban. Since this may fall into the second part of the coming decade, a negative impact on

⁷ Gulf Cooperation Council

an otherwise very positively developing market cannot be ruled out in total resulting in stable world demand at a high level.

Further negative impacts could come from economic developments. A double dip recession could lead to reduced investment in rail and declining transport volumes, jeopardizing the growth perspective.

Set against this is the significant upside potential in VHS and urban rail. The shift in modal split induced by expanded rail transportation may lead to a continuous pipeline of new infrastructure projects. China may not be the only country investing in VHS beyond the 20,000 kilometre target, with strong VHS investments possible in the US, India, and Europe. Analysis of large urban agglomerations without rail systems shows a potential of over 300 new mass transit systems, mainly in Asia/Pacific, Africa/Middle East, NAFTA, and Rest of America.

A unique source of information on the rail market

In this unique study, we provide information on the structure and segmentation of the rail supply industry. We also look at geographic distribution among segments, the current size of the total market, and accessible market segments by region. Finally, we deliver a growth forecast for the next seven years, with indicated growth rates to be understood as the mean of a $\pm 0.5\%$ interval. We are confident that this study will again provide new insights for railway operators, suppliers, and sub-suppliers to enable them to seize the potential in the growing market. The comprehensive and concise nature of the analysis also makes it a valuable source for managers, political decision-makers, investors, and financial analysts.

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UNIFE World Rail Market Study -Status Quo and Outlook 2020-

A study published by UNIFE, the European Rail Industry
in cooperation with The Boston Consulting Group (BCG)

The third edition of the World Rail Market Study of the rail industry will be launched at the InnoTrans Fair 2010, 21 September 2010. It is published by UNIFE, the European Rail Industry, in cooperation with The Boston Consulting Group (BCG).

Based on a survey conducted in the 50 largest rail markets worldwide, the study provides an update on the performance of the rail industry since 2008. Unique market growth predictions are displayed for the short-term and 2015 time horizon per product segment and world region, and a qualitative outlook for 2020 will be provided.

The UNIFE World Rail Market Study elaborates strategic conclusions for the industry and reflects on market developments taking into account the impact of the economic downturn and several possible political and economic scenarios. **It is the largest study of its kind and a major reference for the rail community.**

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