European Commission

European Construction Sector Observatory

Country profile Austria

March 2018

In a nutshell

Austria's **construction sector** is returning to growth, driven by the overall growing economy and crucial rail infrastructure investment. The **workforce** in the broad construction sector rose by 8.9% between 2010 and 2016. This was accompanied by a 1.2% increment in **production** in construction of buildings and a 10.8% growth in production in civil engineering over 2010-2016. The total **turnover** of the broad construction sector amounted to EUR 80.4 billion in 2016, a 13.2% increase compared to 2010 and the highest ever since, while the gross operating surplus of the broad construction sector amounted to EUR 13.8 billion in 2014, 9.8% below the 2010 level.

Production in the construction of buildings increase between 2010 and 2016 ↑ 1.2%

Total turnover of the broad construction sector increase between 2010 and 2016 ↑ 13.2%

The **housing market** is showing the clearest signs of revival. Indeed, increasing disposable incomes coupled with the improving consumer confidence are boosting the purchasing power of households and consequently the demand for housing. The residential house price index in Austria has experienced a continuous increase, growing by 41% over 2010-2016, evidencing a restart in the housing market.

> The Council of Ministers introduced the so-called Wohnbauoffensive ('Housing Initiative') in 2015, a housing supply programme supported by the EIB, dedicated to the construction of 30,000 additional dwellings until 2022, with a total budget of EUR 5.75 billion.

The outlook for the industry remains modest with an average annual growth rate of 1.17% over the period of 2016-2020, mainly driven by **investments in inland infrastructure**. Notably, Austria's federal government recently approved Austrian Federal Railways' (ÖBB) infrastructure investment plan for 2017-2022, which seeks to spend EUR 15.2 billion on ongoing construction projects, the rail network and the modernisation of stations over the next five years. Moreover, Austria is part of four TENT-T (Trans-European Transport Network) corridors and will receive EUR 698 million for the development of transport projects from the Connecting Europe Facility.

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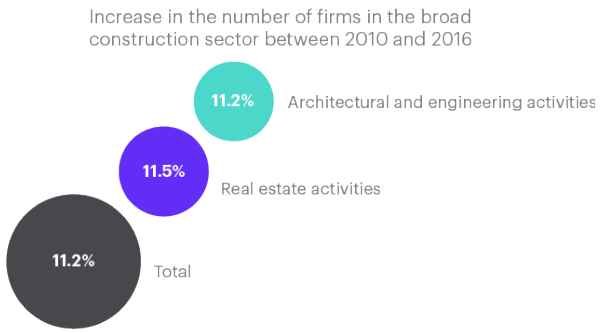
While Austria presents a well-functioning **vocational education and training (VET)** system with high participation rates, a shortage of construction-related professions is presented on the list of shortage occupations for 2017. Furthermore, Austria is investing in enhancing the green skills of its workforce through the klima:aktiv initiative which focuses, among others, on providing advanced vocational training in the fields of renewables, energy efficiency and mobility.

1
Key Figures

The **number of enterprises** in the broad construction sector in Austria totalled 74,614 in 2016[1] (Figure 1), with the construction sub-sector (NACE F) accounting for 46.5% of the total firms. Overall, the number of enterprises in the broad construction sector increased by 11.2% between 2010 and 2016, mostly driven by the 11.5% growth in real estate activities, followed by 11.3% in the narrow construction and 11.2% in architectural and engineering activities.



Production in construction of buildings experienced a 5.9% increase between 2010 and 2013, followed by a 4.5% drop by 2016, however a 1.2% increment is recorded over the period of 2010-2016. Similarly, production in civil engineering rose up by 14.4% in 2014, which was the highest since 2010, followed by a slight decrease of 3.1% in 2016 keeping a 10.8% increase since 2010 (Figure 2).

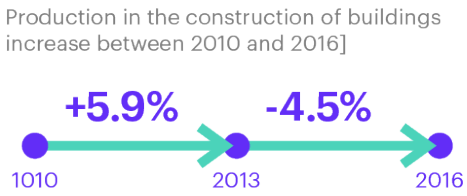
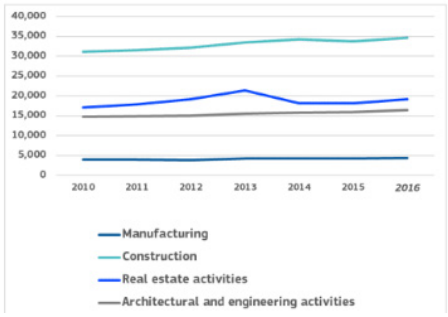
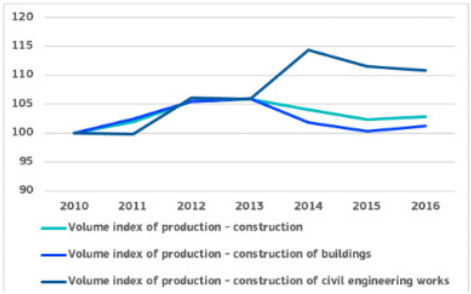


Figure 1: Number of enterprises in the Austrian construction sector between 2010-2016



Source: Eurostat, 2017.

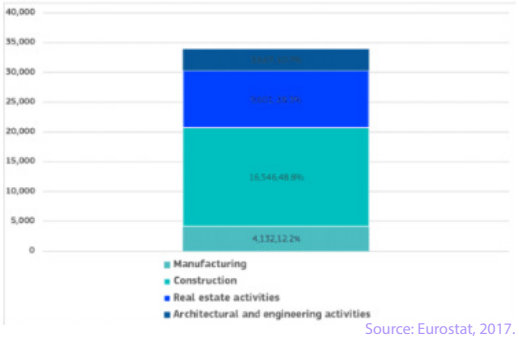
Figure 2: Volume index of production in the Austrian construction sector over 2010-2016 (2010=100)



Source: Eurostat, 2017.

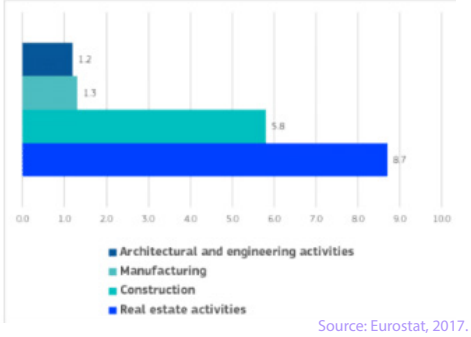
The **total added value** of the broad construction sector amounted to EUR 33.9 billion in 2016[2], with the narrow construction subsector contributing to 48.8% of the total added value[3], followed by real estate activities (28.3%), manufacturing (12.2%) and architectural and engineering activities (10.7%) (Figure 3). The share of gross value added of the broad construction sector in the GDP reached 17.0% in 2014, slightly above the EU-28 average of 16.9%, with real estate activities having the largest contribution (8.7%) (Figure 4).

Figure 3: Value added in the Austrian construction sector in 2016 (EUR m)



Source: Eurostat, 2017.

Figure 4: Gross value added as a share of GDP in the Austrian construction sector in 2014[4] (%)



Source: Eurostat, 2017.

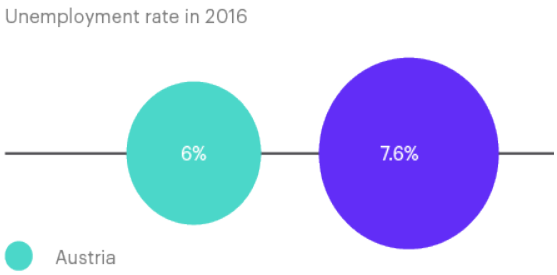
2
Macroeconomic Indicators

Austria's economy emerged relatively unscathed from the financial crisis possessing the one of highest per capita income in the EU, however economic growth has been modest in the recent years[5]. Austria's **GDP** reached EUR 315.1 billion in 2016, 1.5% higher than the previous year. The GDP has been steadily growing with a 6.9% increase since 2010 (EUR 294.6 billion). The potential GDP in 2016 was EUR 317.6 billion, resulting in a minimal negative output gap. However, the GDP is expected to grow in 2017 and 2018 by the average of 1.5%, driven by an expected acceleration of private consumption following the 2016 tax reform that will also stimulate investment activity[6]. The **inflation rate** remained at 1.0% in 2016, slightly higher than in 2015 (0.8%), bust supporting the declining trend over the last 6 years. The inflation is expected to rise in 2017, in line with the recovery of the economy and increase of energy prices[7].

In 2016, the average **unemployment rate** in Austria reached 6%, below the EU-28 average of 7.6%[8]. However, this is higher than in 2008 (4.1%) and the highest since 2010. Regarding youth unemployment (15 to 24 years old), Austria reached 11.2% in 2016, below the EU-28 average of 18.7% and significantly improved from 2010 (21.4%). In terms of the **total population**, Austria amounted to 8.7 million people in 2016. It is projected to increase by 3.6% by 2030 and by 18% until 2050, reaching 10 million. In parallel, **net migration** reflects a higher number of immigrants than emigrants, which has largely increased from 21,978 in 2010 to 112,507 in 2015[9]. Indeed, the number of immigrants reached 166,323 in 2015, which is likely to constitute an additional driver for housing demand. Austria's **working age population** made up 66.3% of the total population, slightly over the EU-28 average of 65.8%. By 2050, this share is expected to decrease to 58.7%, foreseeing a substantial ageing of the country's population. This will drive the need for barrier-free and adapted housing for the elderly (see Policy schemes).

In 2016, the general government expenditure represented 51.1% of GDP, below the 2010 level (53.1%) and higher than the EU28 average of 46.6%[10]. The **general government deficit** amounted to 1.6% of GDP in 2016, below both the 3% threshold of the EU's Stability and Growth Pact (SGP) and the EU28 average of 1.7%[11]. In addition, **general government gross debt** amounted to 84.6% of GDP in 2016, higher than 2010 (82.8%) and slightly above the EU28 average of 83.5%, and is projected to gradually decline in coming years if, as arranged, the assets of nationalised banks incorporated in government accounts are sold off[12].

Access to finance in the general economy has continued decreasing over the past years. SMEs, especially start-ups, high-growth and innovative SMEs, are still reporting difficulties in obtaining credit from banks. For instance, the number of new loans for SMEs has decreased by 1.5% in 2015 mainly due to a contraction in short-term lending. In addition, there has been a tightening of lending criteria and their credit standards, which affect both large firms and SMEs. **Loans to non-financial corporations** in the general economy only increased by 1.3% between 2010 and 2015[14], from EUR 135.4 billion to EUR 137.2 billion, having actually experienced a 2.2% decline from the peak in 2012 (EUR 140.4 billion). In order to improve financial support, a number of institutions are currently providing loan guarantees or lending to SMEs. The **Austrian Wirtschaftsservice**[15] offers support in the form of loans, guarantees and grants, but also through the provision of consulting services. The **Forschungsförderungsfonds Österreich**[16], Austria's central funding organisation for research, provides support for applied research and development through a series of funding programmes, whereas the **Österreichische Kontrollbank**[17] provides financial and information services to the export industry. Moreover, the EIF has committed EUR 111 million in equity and EUR 300 million in guarantees and securitisation between 2011 and 2016, with expected mobilised resources of EUR 579 million and EUR 1 billion, respectively[18].



> Austria is ranked 30th out of 137 economies in terms of financial market development, according to the 2017-2018 Global Competitiveness Report[13].

Restrictive labour regulations and inefficient government bureaucracy are considered as the most problematic factors for doing business in Austria[20].

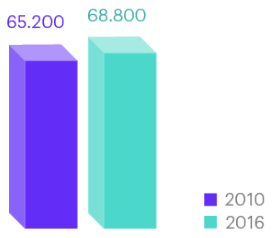
> Finally, according to the 2017 Doing Business Report Austria ranked 111th in 2017 out of 190 in terms of **starting a business**, faring worse than the previous year (106th in 2016), requiring eight procedures which take 21 days to complete[19].

3

Key economic drivers of the construction sector

Productivity

The **labour productivity** in the broad construction sector has experienced a 5.5% increase between 2010 and 2013, from EUR 65,200 to EUR 68,800, which remained constant in 2014[21] (Figure 5). Architectural and engineering activities experienced a 6.3% increment in productivity, from EUR 55,500 in 2010 to EUR 58,970 in 2016[22], the lowest among all sub-sectors. On the contrary, the manufacturing sub-sector reported a 11.3% growth in productivity, from EUR 59,200 to EUR 65,900 in 2016, the highest among all sub-sectors. This is followed by the narrow construction sector, which experienced a 10.7% growth in productivity, from EUR 50,700 to EUR 56,100 over the same period, the second highest. Similarly, real estate activities grew 7.1% from EUR 169,400 to EUR 181,400 in 2016.



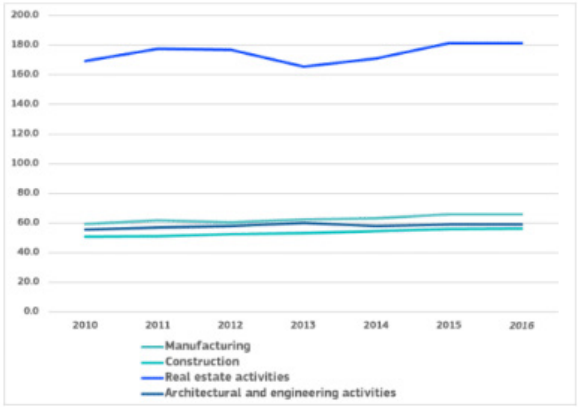
Labour productivity in the broad construction increase (Euros)

According to the Economic Chamber of Commerce in Austria (Wirtschaftskammer Österreich), there is a growing fragmentation of productivity in the construction sector industry. Regulation burden and slow policy decision-making will slow down productivity in coming years. However, development of innovation will improve productivity, if there is better planning before starting construction works, and in this way it would help to reduce construction waste and cost, so called lean construction.

Profitability

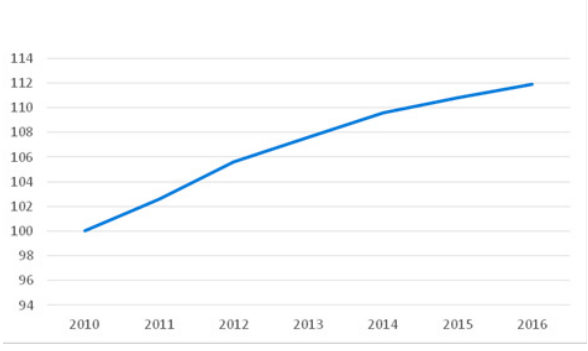
The **total turnover** of the broad construction sector amounted to EUR 80.4 billion in 2016[23], a 13.2% increase compared to 2010 and the highest ever since. The construction sub-sector accounted for more than the half of the total turnover (55.2%), followed by real estate activities (21.2%), manufacturing (14.9%) and architectural and engineering activities (8.7%). The **gross operating surplus** of the broad construction sector amounted to EUR 13.8 billion in 2014, 9.8% below the 2010 level. The gross operating rate of the broad construction sector[24] was17.8% in 2014, 0.1% higher than 2010 (17.7%) and 0.1% lower than the EU-28 average (17.9%) in 2014[25]. In parallel, construction costs have been increasing, with the construction cost index rising by 10.0% over 2010-2016 (Figure 6), due to increases in input prices for materials (+6%) and labour costs (+13%) (Figure 7). This augmentation is in line with the general economy, with wages increasing faster than a productivity since 2010, therefore resulting in rising labour costs[26].

Figure 5: Labour productivity in the construction sector in Austria over 2010-2016 (EUR k)



Source: Eurostat, 2017.

Figure 6: Construction cost index over 2010-2016 (2010=100)



Source: Eurostat, 2017.

Employment

In 2016, the broad construction sector **employed** 471,859 people[27]. The number of people employed in the broad construction sector rose by 8.9% between 2010 and 2016. The construction sub-sector employed 62.5% of the total workforce in 2016 (294,734 people) and has experienced a 7.5% increase (Figure 7). However, real estate activities have reported the largest increase in workforce, increasing by 18.8% over 2010-2016, followed by architectural and engineering activities, which rose up by 18.0%. The manufacturing sub-sector saw only a 0.7% growth in the number of workers over the same period.

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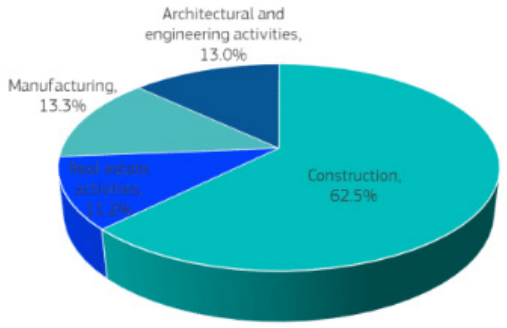
Figure 7: Percentage of people employed by construction sub-sectors in Austria in 2016



Source: Eurostat, 2017.

As for **employment by specific occupation**, the manufacturing sub-sector experience a sharp decrease in elementary occupations (-40.7%), managers (-11.0%) and clerical support workers (-10.8%) in 2010-2016. Contrary the demand in workforce has increased for professionals (+137.2%) and, services and sales workers (+78.6%). The structure of employment in narrow construction sector shows decreasing demand for managers (-62.9%) and craft and related trades workers (-2.9%) and increasing employment for professionals (+101.5%) and technicians and associate professionals (+47.9%).

In addition, the number of **self-employed** workers in the construction sub-sector has increased since 2010, reaching 33,700 employees in 2016 (+7.3%). This represented 7.5% of all the self-employed in the general economy in 2016, compared to 7% in 2010 and to 1.1% of the EU-28 average in 2016. There has been only a 2.6% increase in full-time employment in the construction sub-sector between 2010 and 2016, from 301,800 to 309,700 employees, in contrast of part-time employment, which has risen by 23.5% (from 32,700 to 40,400 employees). Finally, 83.7% of the entire workforce of the broad construction sector was employed by SMEs in 2014[29], although this share in other EU countries often exceeds 90%.

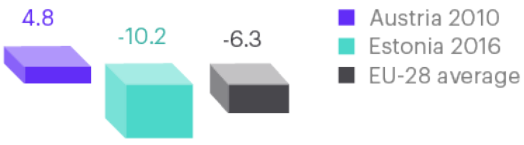
↑ 7.3%

Increase of self-employed workers in the construction sub-sector 2010-2016

Business confidence

The economic crisis affected the **business confidence** in the general economy in a significant manner. As a result, the **consumer confidence indicator** fell from 4.8 in 2010 to -10.2 in 2016, which is lower than the EU-28 average of -6.3. The **industry confidence indicator** improved from -28.6 in 2009 to -5.6 in 2010, however it slightly dropped by 1.8% and reached -5.5 in 2016. This is well below the EU-28 average of -2.5 for the same year. The **construction confidence** has stood at -14.7 in 2010 followed by a decline to -16.2 in 2014. However, it subsequently improved in 2016 reaching -4 in 2016, overtaking the EU-28 average of -13.9. In addition, the investment ratio has followed a positive trend, going upwards from 2010 (21.6%) to 2016 (23.0%). Contrary, investment per worker experienced a 5.5% decline over 2010-2014, reaching a bottom low of EUR 78,300.

According to the Timetric report 2016, business, including investors and consumers and confidence in the construction industry in Austria, is predicted to have a promising outlook in the coming years as government investments in the industry are rising and both domestic and global economy is improving[30]. According to WKÖ, the promotion of housing construction adds value domestically and has an important anti-cyclical regulatory function in terms of response to economic fluctuations[31].



Consumer confidence indicator in 2016

Domestic sales

The ranking of the **most domestically sold construction products** in Austria has remained constant since 2010. The value of domestic sales has seen generally experienced moderate increases between 2010 and 2015, except for "other structures and parts" and "Windows, French windows and their frames", which decreased by 52.6% and 4.5% in its domestic sale value respectively in 2015. "Ready-mixed concrete", "Prefabricated wooden buildings" and "Doors, windows and their frames" have experienced a 11.4%, 11.7% and 7.3% increase respectively in the same period of time. The top 5 most domestically sold construction products are presented in Table 1, including a comparison with the most sold in the EU-28. These represented 54% of total domestic construction product sales in 2015.

Table 1: 5 most domestically sold construction products in Austria and in the EU in 2015

Austria			EU-28
Product	Value (EUR m)	Share in construction product domestic sales (%)	Product
Ready-mixed concrete (group 236310)	925.9	14.3	Other structures (group 251123)
Other structures (group 251123)	889.9	13.8	Doors, windows, etc. (group 251210)
Windows, French windows, etc. (group 162311)	637.3	9.9	Ready-mixed concrete (group 236310)
Prefabricated wooden buildings (group 162320)	604.9	9.4	Prefabricated buildings of metal (group 251110)
Doors, windows and their frames (group 251210)	450.7	7.0	Prefabricated structural components (group 236112)

Source: PRODCOM, 2017

Export of construction-related products and services

The ranking of the most exported products has remained relatively stable since 2009, with the exception of "Other plywood, veneered panels, etc.", which was replaced by "Assembled parquet panels" in 2015[32]. The **top 5 most exported construction products** from Austria and the EU-28 are summarised in Table 2. Together, these made up 70.0% of all construction products exports in 2015.

Table 2: 5 most exported construction products in Austria and in the EU in 2015

Austria			EU-28
Product	Value (EUR m)	Share in construction product domestic sales (%)	Product
Other structures (group 251123)	672.1	19.0	Ceramic tiles and flags (group 233110)
Builders' joinery and carpentry of wood, etc. (group 162319)	664.4	18.7	Other structures (group 251123)
Particle boards and similar boards of wood (group 162113)	572	16.1	Fibreboard of wood or other ligneous materials (group 162114)
Fibreboard of wood or other ligneous materials (group 162114)	348.1	9.8	Marble, travertine, etc. (group 237011)
Assembled parquet panels (group 162110)	198.8	5.6	Doors, windows, etc. (group 251210)

Source: PRODCOM, 2017

In terms of **cross-border provision of construction services**, Austria exported EUR 695 million worldwide in 2016, higher than 2012 (EUR 585 million) and in line with improving conditions of the general economy after the crisis. Specifically, exports to the EU-28 accounted for 85% of this total (i.e. EUR 588 million), higher than 2012 (76%), whereas exports outside the EU-28 amounted to EUR 107 million, suggesting the dominance of the EU-28 export market. In parallel, Austria imported a total of EUR 607 million in construction services in 2016, 89% of which from the EU-28, thus achieving a **trade surplus** of EUR 88 million. As for the cross-border provision of architectural services, Austria exported EUR 41 million to the EU-28 and 11 million outside the EU-28 in 2015[33]. At the same time, it imported EUR 45 million in architectural services from the EU-28 in 2015, which is 59% of total imports to the EU-28, and EUR 31 million outside the EU-28, experiencing a total **trade deficit** of EUR 24 million.

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Access to finance in the construction sector

Credit extended to companies in the construction sector has not been immediately affected by the crisis within the years following 2008. **Outstanding loans** to the sector experienced an increasing trend between 2008 and 2010[34], from EUR 6.7 billion to EUR 7.0 billion. Nevertheless, Austrian construction companies have been affected by the tighter lending conditions and capital requirements applied by banks following the crisis. Capitalisation plays an important role when assessing a company's creditworthiness. Generally, equity ratios above 30% are considered 'good'[35]. However, the average equity ratio of construction SMEs in Austria is 26%[36], with almost a quarter of Austrian construction contractors having an equity ratio of less than 6.3% in 2013. This undercapitalisation has affected their creditworthiness towards banks[37].

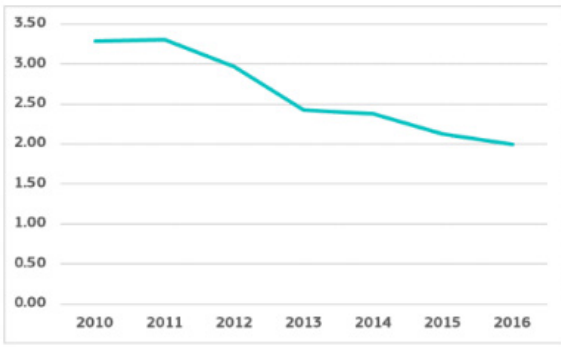
According to the Economic Chamber of Commerce in Austria (Wirtschaftskammer Österreich), Austrian construction companies are still having difficulties to access to finance due to BASEL3 and high collaterals imposed by banks. There has not been any improvement during and after the crisis.

Access to housing

The number of **households** in Austria has experienced a continuously increasing trend since 2010, having grown by 6.7% between 2010 and 2016, from 3.6 million to 3.8 million.

Moreover, the share of total population living in cities and greater cities went up from 28.6% in 2008 to 30.3% in 2013[38]. Similarly, the **mean equivalised net income** has gone up by 10.1% over 2010-2015, reaching EUR 25,958, slightly lower than in 2014 (EUR 26,080) and vastly above the EU-28 average of EUR 18,463. Coupled with the improving consumer confidence, this is boosting the purchasing power of households and consequently the demand for housing. Furthermore, the decreasing **interest rates on mortgages**, which reached a bottom low of 1.99% in 2016 (Figure 8) constitute a further boost. Thus, total **outstanding residential loans** have increased by 21.1%, from EUR 80.0 billion in 2010 to EUR 96.9 billion in 2015.

Figure 8: Mortgage rates for loans for over 5 years original maturity (%) (2010-2016)



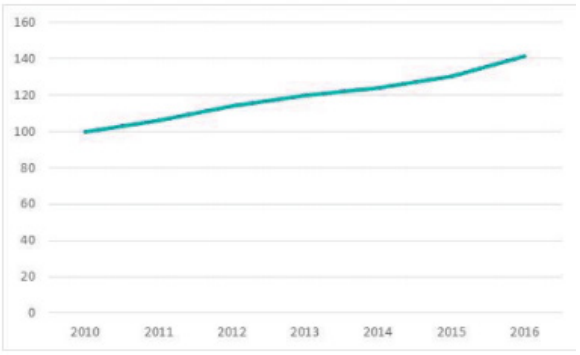
Source: ECB MFI Interest Rate Statistics, 2017.

In parallel, the **house price index** in Austria has experienced a continuous increase since 2010, growing by 41% over 2010-2016, evidencing a restart in the housing market (Figure 9). This phenomenon is even more marked in Vienna, where house prices have been increasing consistently since 2003. In fact, the capital saw a housing boom between 2003 and 2013, with prices soaring by 99.6%[39]. During 2015 , the house price index in Vienna saw a 3.4% increment[40]. In addition, real estate sales continued to rise achieving a record of more than 60,000 real estate sales in the first half of 2017, which has increased so far by 1.4% compared to 2016[41].

↑ **41%**

House price increase
between 2010 and 2016

Figure 9: House price index in Austria between 2010-2016[42] (2010=100)



Source: Eurostat, 2017.

From the supply side, the average number of new dwellings built yearly was about 66,000 units in the 1990s, but this fell to around 40,000 per year over 2001-2014. The year 2011 marked the reversal of the decline in supply, with building permits reaching 50,396. This increased to 52,637 in 2012, 59,149 in 2013 and 61,521 in 2014[43]. In 2015, 64,600 dwellings were authorised for construction[44]. Moreover, the **housing cost overburden rate**[45] was relatively low, at 6.4% in 2015, well above the EU-28 average of 11.3% and the lowest value recorded since 2010 (7.5%), showing a generally good housing affordability situation[46], whereas the share of population living in overcrowded households[47] stood at 15.0%, below the EU-28 average of 16.7% in 2015[48]. Nevertheless, the growing influx of migrants will put pressure on the housing stock in the country, particularly in larger cities. As of 2016, there will be a need for 8,000 to 10,000 new homes to be built, especially low-cost, every year in order to address the demand for an increased population. Vienna required extra 11,000 new dwellings to be built in 2016 alone[49].

Similarly, 22,000 new dwellings will be needed in Salzburg until 2030[50]. Vienna's local government plans a 30.0% increase in housing construction meaning that about 13,000 new homes will be built every year, starting in 2017, in order to address housing issues[51]. According to the Austrian Chamber of Commerce's Trade Association of the Austrian Construction Industry (WKÖ Bundesinnung Bau Schaumburgergasse), the housing sector is the driving force for the construction industry and has a high employment effect in the coming years.

Infrastructure

Austria ranks 14th out of 137 in terms of its infrastructure, according to the 2017-2018 Global Competitiveness Report[52] published by the World Economic Forum. In particular, Austria ranks 9th regarding the quality of roads, and 9th regarding the overall infrastructure, being one of the first European countries in the ranking. Nevertheless, according to Mobilität mit zukunft, a non-profit organisation dedicated to improving transport policy, Austria still needs to improve its transport infrastructure by diversifying its transport network while promoting more sustainable forms of mobility[53].

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4

Key issues and barriers in the construction sector

Company failure

The business demography in the broad construction sector has generally seen a decrease in the number of company births and an increase in deaths across all sub-sectors between 2010 and 2014[55]. Namely, **company births** in the construction sub-sector declined by 0.5%, from 3,341 in 2010 to 3,325 in 2014, whereas the **number of deaths** grew by 4.7%, from 2,753 to 2,883. Similarly, the architectural and engineering activities sub-sector experienced a 17.39% drop in company births (from 1,248 in 2010 to 1,031 in 2014) and an 8.7% increase in deaths (from 1,009 to 1,097). Company births in real estate activities also fell (-47.3%), from 1,018 to 537, whereas company deaths went down from 763 to 657 (13.9%).

As for bankruptcies in the construction sector, these experienced a 5.9% decline between 2014 and 2015, from 1,011 to 951, signalling the improvement of the economic situation and of the construction sector. Nevertheless, the construction sector reported the second highest number of bankruptcies in the general economy, after the trade sector[56].

Trade credit

Austria seems to be the country with the lowermost preference for **trade credit** in business-to-business (B2B) transactions. An average of 26.6% of the total value of B2B sales was made on credit, well below the 41.2% average for Western Europe and the lowest in Western Europe. This low propensity for granting credit is also found in countries such as Germany and Switzerland, indicating a similar approach to taking risks in B2B transactions. In Austria, trade credit terms are granted almost equally to foreign and domestic B2B customers, with 28.6% and 24.7% of the total value of domestic and foreign B2B sales being made on credit, respectively, underscoring a similar perception of risk from both types of trade[57].

Austria seems to be the country with the lowermost preference for trade credit in business-to-business (B2B) transactions.

Late payment

According to the European Payment Report 2017, Austria ranks within the top 25.0% of European countries assessed in terms of its payment practice. It presents high payment stability, very low risk and a payment risk index of 0.49, the third best across members of the European Union[58]. The average contractual payment terms allowed to customers in 2017 was 22 days for B2B and 27 days and public administration-to-business transactions (PA2B), respectively. The figure for B2B slightly improved compared to 2016 (24 days), whereas PA2B deteriorated (25 days in 2015). Conversely, the average time actually taken by customers to pay became better in 2017 compared to 2016. This took 24 days in 2017 for B2B transactions (27 in 2016), still well below the 60-day target of the Late Payment Directive (LPD), and 32 days for PA2B clients (38 in 2016), above the 30-day target imposed by the LPD[59]. Nevertheless, according to a survey by the Kreditschutzverband (KSV - Austria's largest association for the protection of creditors), 72% of B2B clients and 76% of public sector clients settled their invoices within the agreed payment terms in 2016[60].

In the construction sector specifically, the amount of receivables lost in 2015 due to late payments was equal to 2.5% of the turnover, the second worst in the general economy, followed by the insurance, real estate and business services sector (3.0%)[61]. Despite the bad reputation of the industry, 74.4% of corporate customers in the construction sector settle their invoices within the contractually agreed payment terms, which average 26 days. Invoices are actually paid within 32 days, i.e. with a delay of 6 days. The insurance, real estate and business services sector reports the shortest agreed and actual payment terms, which average 17 days, but the payment delay is the highest, averaging 11 days. As for public sector clients specifically, 71.9% of them pay the construction sector within the agreed terms (33 days), while for the remaining transactions are paid in an average of 39 days, resulting in a 6-day delay[62].

Time and cost of obtaining building permits and licenses

The number of procedures required to build a warehouse (11) is lower than the OECD high-income average (12.1), but the time needed to complete them stands at 222 days, considerably above the OECD high-income average (152.1) (Table 3). The cost of building a warehouse represents 1.3% of the value of the warehouse, below the OECD high-income average of 1.6%. In particular, obtaining the building permit takes 80 days and costs EUR 300.

Austria ranked 49th in 2017 with respect to '**Dealing with construction permits'** according to the World Bank Doing Business 2017, slightly lower than in 2016 (45th)[63].

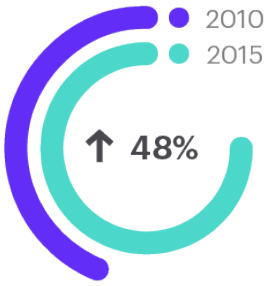
Table 3: Construction procedures timing and costs in Austria

	Time to	Associated
1. Obtain industrial	80 days	EUR 300
2. Obtain approval of heat and noise insulation	30 days	EUR 5,000
3. Obtain proof of land ownership	0.5 days	EUR 14
4. Obtain expert opinion on structural engineering	11 days	EUR 5,000
5. Obtain energy pass (Energieausweiss)	10 days	EUR 700
6. Receive on-site inspection prior to issuance of building	1 day	EUR 46
7. Hire a licensed engineer for construction supervision	1 day	EUR 4,800
8. Obtain building permit	80 days	EUR 300
9. Request and receive on-site inspection prior to commence-	1 day	no charge
10. Request and obtain water and sewage connection	60 days	EUR 8,478
11. Notify the municipal authority about completion of	1 day	EUR 22

Source: Doing Business overview for Austria, Word Bank, 2017.

Skills shortage

According to the Economic Chamber of Commerce in Austria (Wirtschaftskammer Österreich), Austria lacks high-skilled labour and faces difficulties in attracting young people to work in the construction sector, mostly due to a poor image of the sector. The total number of **tertiary students** in engineering, manufacturing and construction has increased by 48% between 2010 and 2015[64], from 11,297 to 16,450, although reached 17,343 in 2014. Specifically, the number of students in architecture and building activities has grown by 48.8% from 2,775 in 2010 to 4,129 in 2015. Moreover, adult participation in education and training in the broad construction sector has been fluctuating since 2010. In the construction sub-sector, the participation rate went down from 12.1% in 2010 to 11.9% in 2016, declining to 1.7% by 2016. In real estate activities, the participation rate was peaking at 21.7% in 2010 followed by a decline to 15.4% in 2016.



Number of job vacancies increase between 2010 and 2015

The labour market situation in the Austrian construction sector reflected the stagnation of the market following the crisis. However, from 2016, construction output will be increasing and housebuilding is gaining pace, with an increment in employment expected by 2018. Namely, renovation is going to grow, boosting demand for tinsmiths, construction site workers, roofers, plumbers and installation technicians[65]. According to the Austrian Ministry for Agriculture, Forestry, Environment and Water Management, investments in energy efficient renovation and conversion of heating systems have the potential to create up to 35,000 additional jobs by 2020[66]. Prospects of apprenticeships in these professions are therefore good.

Nevertheless, the government has recognised a shortage of construction-related professions. The list of shortage occupations for 2017 includes technicians in mechanical engineering and power engineering technology, mechanical engineers, including installation engineers, air conditioning system engineers, building services engineers (heating, ventilation, sanitary), CAD design engineers and construction machinery engineers, but also roofers (including master roofers)[67].

Sector & sub-sector specific issues

Material efficiency and waste management

In 2013, Austria reported a total amount of approx. 8.3 million tonnes of **construction and demolition (C&D) waste**, a 42.9% increase since 2010 (5.6 million tonnes), due to recovery of the slowdown in construction activities after the crisis. As of total waste of C&D, 96.2% was non-hazardous, with the remaining 137,000 being hazardous[68].

According to the Waste Framework Directive (2008/98/EC) and the Austrian Federal Waste Management Plan (Abfallvermeidungsprogramm:), 70% of non-hazardous construction and demolition waste has to be reused or recycled by 2020[69]. Austria is already a leader among European countries in terms of the management of CDW.

In fact, several non-legislative instruments, such as the Federal Waste Management Plan updated every six years, and the Austrian building material recycling association's guidelines for recycled building materials are in place[70]. Moreover, the Federal Minister for Agriculture, Forestry, Environment and Water Management published the new Recycled Construction Materials Ordinance in 2015 and enforced it in January 2016. Its objective is to ensure the high quality of the waste generated during construction and demolition activities in order to promote its recycling. It sets specific requirements during the construction and demolition of structures, such as the implementation of a pollutant investigation, an organised and recycling-oriented demolition of structures and a duty to separate the waste generated. Quality requirements for the manufacture and use of recycled construction materials are also defined[71].

Climate and energy

Emissions of greenhouse gases (carbon monoxide and dioxide, methane and nitrous oxides) from construction and real estate activities in Austria amounted to 3,059,442.8 and 56,777.8 tonnes in 2014[72], respectively. Emissions in the construction and real estate sub-sectors have increased by 0.6% and 2.4% during the period 2010-2014 accordingly. Greenhouse gas emissions from manufacturing industries and construction represented 13.4% of total emissions in 2014[73]. Nevertheless, the construction sector is considered key for addressing climate change due to the energy savings potentials of the building stock, as discussed in TO 3 - Resource efficiency / Sustainable construction.

5

Innovation in the construction sector

Innovation performance

The current relative strengths of Austria in terms of its innovation capacity are the following: Firm investments, Attractive research systems and Intellectual assets. However, the drawbacks in the business sector are Employment impacts, Sales impacts, and Finance and support.

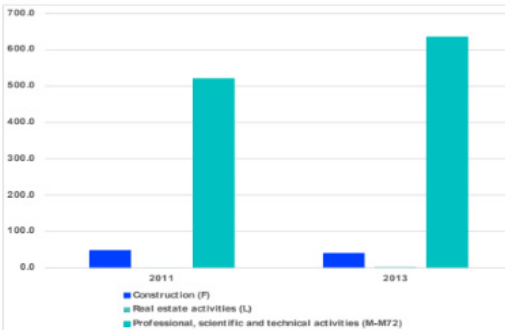
Austria is a **Strong Innovator**, according to the European Innovation Scoreboard 2017, with its innovation performance increased by 8.9% relative to that of the EU in 2010[74]. Austria is the first country in Europe that introduced a **National Open Innovation Strategy** in 2015, which came into force in 2016[75]. The strategy consists of 3 action areas and 14 concrete policy measures influencing the overall quadruple helix ecosystem supported by two national innovation ministries, the Federal Ministry of Science, Research and Economy (BMWFW) and the Federal Ministry for Transport, Innovation and Technology (BMVIT). The aim is exploring the potential of Open Innovation 2.0 for the country in order to increase Austria's future competitiveness by 2025 by involving governmental institutions and a number of stakeholders. In addition, the current relative strengths of Austria in terms of its innovation capacity are the following: Firm investments, Attractive research systems and Intellectual assets. However, the drawbacks in the business sector are Employment impacts, Sales impacts, and Finance and support.

In the construction sector, **business enterprise R&D expenditure (BERD)** is highest for professional, scientific and technical activities, accounting for an expenditure of EUR 634.9 million in 2013[76] and marking a 22.1% increase with respect to 2011 (Figure 10). BERD in narrow construction declined by 15.4% from 2011 to 2013, but remains the second highest at EUR 40.1 million. Finally, BERD in the real estate segment is the lowest (EUR 2.2 million in 2013) but saw a 300% increase since 2011, although it remains marginal.

In parallel, the **total R&D personnel** (full-time equivalents – FTE[77]) in the broad construction sector increased in all three sub-sectors from 2011 to 2013. Similar to BERD, the professional, scientific and technical activities sub-sectors present the highest levels of R&D FTE, which amounted to 3,794 in 2013 and increased by 18.1% from 2011. The

Two Austrian Construction & Materials firms rank within the top 1,000 EU companies by R&D (industrial sector ICB-3D), according to the 2016 EU R&D Scoreboard[78].

Figure 10: Business enterprise R&D expenditure (BERD) per construction sub-sector in Austria (EUR m)



Source: Eurostat, 2017.

construction sub-sector also saw a 24.4% increase in R&D FTE, from 316 in 2011 to 393 in 2013, despite the decreasing BERD. Again, the largest increase was experienced by the real estate sub-sector (+144.4%), although from very low levels, i.e. 9 FTEs in 2011, growing to 22 in 2013.

Furthermore, since 2010, Austria has been filing an average of 117 **construction-related patent applications** per year. In 2016, this figure stood at 106, slightly below this average.

Eco-innovation and digitalisation

Austria is considered a leader in ecological construction and particularly with respect to passive house building, according to the European Commission, Eco-innovation Observatory Report of 2015[79]. Indicatively, passive houses have reached a 25% market share in the construction of new buildings since the mid-1990s[80] In terms of policies dedicated to innovation in the energy efficiency and building sector, the Ministry of Transport, Innovation and Technology (BMVIT) launched the R&D programme **Building of Tomorrow and City of Tomorrow**, which aims at developing new technologies and technological systems, as well as urban services for the city of the future[81]. The programme builds on results of previous research, notably the predecessors 'House of the

Future' and 'Energy systems of the future'. Some successful innovative projects were implemented in other countries using the Austrian experience. The Passive House office building built in Zhuozhou/China used sustainable, energy-efficient construction, Zero Carbon Resorts conserving resources and energy self-sufficiency and Sheikh Zayed Desert Learning Center built in United Arab Emirates used technology that allows saving up 80% of water and 40% of energy consumption[82].

Furthermore, Austria has traditionally held a strong position in recycling and waste management, moving towards a circular economy. With respect to construction waste, it has carried out pilot projects on waste prevention in buildings, as well as developed a **building-passport concept** that would link together architects, suppliers and statistical registers with the goal of improving recycling, as well as preventing waste creation[83].

> Austria is considered a leader in ecological construction and particularly with respect to passive house building, according to the European Commission, Eco-innovation Observatory Report of 2015[84]. Indicatively, passive houses have reached a 25% market share in the construction of new buildings since the mid-1990s[85].

The **Austrian Society for Construction Technology**, which brings together construction companies, developers, engineering firms as well as academia, aims at developing a state-of-the-art concrete and construction technology. Among other activities, it set up working groups together with the **Austrian Research Promotion Agency (FFG)** to launch research projects around the themes of materials technology, construction process and building construction. Since carrying out a research is costly effort and lacking economic means, Economic Chamber of Commerce in Austria (Wirtschaftskammer Österreich) launched a research company called the **Competence Centre for Construction Research ("Kompetenzzentrum Bauforschung")** to carry out research on the current trends and topics related to innovation and sustainability.

Finally, it is considered that potential in eco-innovation in the construction sector lies in control techniques of the building (e.g. air ventilation system), the heating system or the bearing structures (e.g. by implementing wood or recycled materials[86].

6

National & Regional Policy & Regulatory Framework

Policy schemes

Austria has a tradition in social housing being relatively successful at providing stable and affordable housing to its population, without creating a significant increase in home ownership[87]. The Austrian housing policy is split between the three layers of government, i.e. national, regional and local, leading to a lack of a unified approach to housing policy and housing subsidies[88]. Overall, direct instruments for housing policy, i.e. subsidies, grants, etc., are more common compared to indirect instruments, such as tax reductions[89]. In mid-2017 the Austrian government introduced a reform plan, which will replace **"Social Assistance" scheme** and establish the coordination of minimum income schemes of 9 federal provinces, that will come into force as from 2018. This will be common minimum standards for the minimum incomes schemes (Bedarfsorientierte Mindestsicherung – BMS) which will be grant social benefit vis-à-vis housing[90]. A **Housing Promotion Fund Scheme** is the most impactful unique initiative, in which public money collected through taxes will go to into the fund (0.5% of taxes) and will be provided to a private sector and people, who would like to build a house. The money is distributed by the government to the 9 states, which then allocate it to beneficiaries, who apply for it. This initiative would help to improve housing affordability. However, the last year the fund faced turmoil as the money had to be invested into housing appropriation, which was abolished in 2008 because the allocated money did not serve its purpose. Consequently, as of the next year, the states will collect and distribute money to its beneficiaries however there are still some scepticism regarding investments going into housing.

> **Housing subsidies** for the construction and modernisation of dwellings (Wohnbauförderung) are one of the main instruments for social housing.
> These fall under the competencies of the federal states. Furthermore, **limited-profit housing associations (gemeinnützige Bauvereinigungen)** play an important role in social housing policy.

These associations typically build social housing dwellings (often with the financial support of housing subsidies) and subsequently rent under conditions defined under the Limited Profit Housing Act (Wohnungsgemeinnützigkeitsgesetz)[91]. Furthermore, **building loan banks (Wohnbaubanken)** provide an additional option for financing of social housing. Approximately 70% of large-scale limited-profit housing projects are co-financed by building loan banks[92]. In addition, under the Federal Act on special tax measures for supporting housing construction and the Act on non-profit housing, which came into force in 2016, funds are available for commercial and non-profit building contractors to acquire long-term and low-cost loans in order to generate construction of new housing provided by the housing investment bank (WBIB)[93].

> Another housing policy instrument used in Austria is the **building society saving contract (Bausparen)**, whereby households receive state bonus worth 1.5 to 4% on a total amount to be saved (up to EUR 1,200 per year) within a pre-defined time period[94]. The saving contract gives access to **building society loan (Bauspardarlehen)** at favourable conditions.

Typically, housing subsidies addressed to low- and middle income groups, while specialised subsidies at regional level also target **barrier-free housing** for elderly or disabled. The Ministry for Social Affairs also grants support for barrier-free housing on an individual basis[95].

To give new impulses for reforming housing policy and others, the **Forum Wohn-Bau-Politik** was created as a non-partisan and interdisciplinary initiative in 2014. In particular, it serves as a platform for launching ideas on reforming a number of policies and regulations, such as spatial planning policy, tenancy law, social housing subsidies, as well as research policy in the field of housing[96].

> The **Future Business Austria** constitutes a further non-partisan initiative to strengthen Austria's infrastructure and competitive position as a business location. On an annual basis, it publishes an infrastructure report and gathers key decision-makers at national and international level to reflect and further develop Austria's infrastructure policy[97].

Insurance and liability related regulations

In Austria, professional indemnity insurance is mandatory for architects and engineers. Moreover, additional insurance is also widespread, with common products including third party liability insurance for construction firms, Contractor's All Risk insurance (CAR), insurance of civil liability of the building owner, combined insurance packages for property developers and insurance of damage to building machinery and equipment[98].

Liability of contractors in Austria is governed by the **Civil Code** (Allgemeines Burgerlishes Gesetzbuch - ABGB) and the **General Code of Construction** (Baugestetzbuch-BauGB) as well as subjected to the Austrian Trade Act (section 94, No. 5 for national contractors and article 373a for foreign contractors of the EU). The Civil Code defines two main liability regimes and durations. Under the first, a specific legal warranty applies to real estate and construction works, under which the supplier guarantees that the good provided is free from defects and is compliant with the contract. The warranty period lasts for 3 years starting from the completion of the works. Under the second, the general liability regime, the client can claim damages and interests in order to obtain compensation, but must be able to demonstrate that the builder has committed a fault. The limitation period under this regime is 3 years from the day the client discovered the damage, but with a limit of 30 years from the construction handover[99]. In terms of liability insurance, companies are obliged to pursue mandatory liability insurance for contractors which covers personal and material damage. As a new regulation came into effect in 2013, liability insurance encompasses also financial losses. The insured amount per insured event of damage has to be at least €1 million however not limited depending on the company's revenue. The insurance company or party has to be officially permitted to offer liability insurance in Austria in order to comply with the required regulations. In some cases liability can be excluded, for all kinds of circumstances in connection with warfare, earthquakes, errors that had to be known by the building contractors at the time the contract was agreed[100].

The insurance and liability framework is also shaped by standard-form contracts (General Conditions for Construction Contracts) designed for the construction sector by the Austrian Standards Institute. The most common is the **ÖNORM B2110 contract**, applicable to all types of construction works. Other available Austrian standard-form contracts are adapted versions of the B2110, for instance the B2118 contract for large-scale infrastructure projects. Similar to the Civil Code, ÖNORM B2110 also stipulates a performance security of 20% of the contract price, 5% retention money until the taking over of the works, and a 2% warranty security for three years[101].

Building regulations

In Austria, laws and regulations governing the construction sector fall under the competence of the nine Federal States (Bundesländer), with the exception of electrical installations and large transport infrastructure (e.g. railways and roads) which fall under federal law. Thus, each State has its own building code composed of laws and directives. In general, the main ones include the Construction Law (Bauordnungsgesetz), Technical requirements in Construction (Bautechnikgesetz), the Land-use law (Raumordnungsgesetz), Technical requirements in Energy (Energietechnikgesetz) and the Heating and combustible materials directive (Heizanlagen- und Brennstoffverordnung)[102]. According to Economic Chamber of Commerce in Austria (Wirtschaftskammer Österreich), these building regulation are seen an obstacle to construction sector companies because in each of 9 states there are a different set of their own regulations, which administratively burdens companies operating across different states.

Moreover, in 2008, the building codes were amended in most States with a view to harmonise technical requirements. Technical regulations are based on 6 guidelines from the **Austrian Institute of Construction Engineering (OIB)**, which cover mechanical stability, safety in case of fire, hygiene, health & environment, noise protection and energy economy, respectively. Since the OIB Guideline 6 on energy is legally binding across all States, the energy certificate for buildings (Energieausweis) has also been standardised in a legal norm (see TO 3 - Resource efficiency / Sustainable construction)[103]. OIB also aims to take nine different legal systems and reform them in way of combining them into one, which is still ongoing. Last year, the event took place on **Finanzausgleich** where the Austrian government negotiated it with the authorities of 9 states how to distribute the public income. With respect to construction, the discussions were about one common building regulation instead of 9 separate regimes, which did not result in very concretely formulated actions but it is on the Austrian government agenda.

> In addition, standards from the Austrian Standards Institute also shape the regulatory environment. For instance, the revised standards series **ÖNORM B 1600 to B 1603** were published in 2013 but came into force in 2016, defining structural measures, equipment and installations but also signs and markings for the planning and design of buildings without accessibility barriers for people with disabilities[104].

Overall, all new buildings and renovations of buildings have to comply with **ÖNORMen standards**, which are in line with European Directives and International Conventions such as the Framework Convention on Climate Change (Kyoto Protocol). After a building or renovation is complete, an energy certificate (Energieausweis) has to be presented under the Act on the Presentation of Energy Certificates 2006 (Energieausweisvorlagegesetz), which state how much CO2/m2 will be emitted. In order to reduce CO2 emissions and achieve the objectives of the Kyoto Protocol, the Austrian federal and the provincial governments offer subsidies for building and renovating buildings under certain circumstances which are laid out in the Act on Emission Certificates 2004 (amended in 2010) (Emissionszertifikategesetz). This Act controls CO2 reduction in the industrial sector and aims to promote the reduction of greenhouse gas emission in a cost-efficient and economically efficient way[105].

7

Current Status & National Strategy to meet Construction 2020 Objectives

TO 1 - Investment conditions and volumes

Total **investment by the broad construction sector**[106] has been relatively stable since 2010 (Figure 11). In fact, investment by the narrow construction sector increased by 3.9%, from EUR 1.32 billion in 2010 to EUR 1.37 billion in 2015. On the other hand, investment by the real estate sub-sector dropped slightly (-3.1%) from EUR 19.59 billion in 2010 to 18.99 billion in 2015.

Figure 11: Investment by the Austrian broad construction industry between 2010-2015 (EUR m)

Source: Eurostat, 2017.

Total **investment in construction**[107] has been relatively flat over 2010-2016 with an increased by 4% (Figure 12). In particular, investment in non-residential construction and civil engineering increased by 6% over the same period, signalling the difficulties faced by this segment after the crisis. On the other hand, the investment level in dwellings remained almost constant over last two years with an increase of 2% between 2010 and 2016. In absolute terms, investment in construction amounted to EUR 35.7 billion in 2015, out of which EUR 14.6 billion were invested in dwellings and EUR 21 billion were spent on non-residential and civil engineering[108].

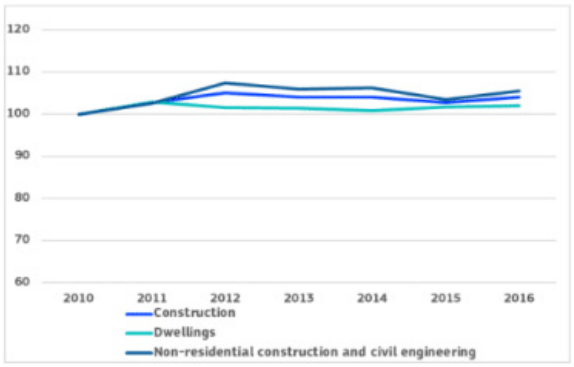
↑ 4%

investment in construction 2010-2016

↑ 9.7%

investment in dwelling 2010-2015

Figure 12: Investment in the Austrian construction sector between 2010-2016 (2010=100)



Source: AMECO, 2017.

Total **inland infrastructure investment** as a share of GDP has seen a decreasing trend since 2010. It stood at 0.8% in 2010 and dropped to 0.6% in 2014. Over the period 2010-2014, investment in rail dropped by 19.1%, reaching EUR 1.6 billion, whereas investment in road infrastructure recovered and increased by 16.5%, reaching EUR 453 million.

In contrast, **investment for rail and road infrastructure maintenance** showed the opposite trend and increased over 2010-2014, even though the volumes are overall smaller. Specifically, rail maintenance grew by 46.5% over the same period, from EUR 344 million to EUR 504 million, whereas road maintenance marked an increase by 19.3%, from EUR 559 million in 2010 to EUR 667 million in 2014.

Household renovation spending has also seen an increasing trend. Spending on renovation of dwellings has grown up by 9.7% over 2010-2015, from EUR 2.3 billion to EUR 2.6 billion. However, as a share of disposable income, renovation spending decreased slightly, from 1.26% in 2010 to 1.25% in 2015, however still remaining above the EU-28 average of 0.8%.

The **Transport Plan for Austria** (Gesamtverkehrsplan für Österreich) defines the country's policy and sets the goals and priorities until 2025[109]. In particular, the initiative **Target Network 2025+** (Zielnetz 2025+) launched in 2011 is dedicated to the upgrade of the railway network and constitutes a key element of overall transport strategy. The planned investments in railroad modernisation aim at

increasing railroad capacity by 30%, thus allowing more transport of people and goods to run on rails[110]. Furthermore, Federal Ministry for Transport, Innovation and Technology financed connection tracks for a total worth of EUR 100 million between 2007 and 2011 and additional investments are planned in the future[111]. In addition, after the successful implementation of the modernisation of "Weststrecke" (Modern West Route), Südstrecke will be modernised by 2026 in the line with the contract signed between ÖBB and the European Investment Bank (the value of EUR 1.8 billion)[112]. Recently, Austria's federal government approved Austrian Federal Railways' (ÖBB) infrastructure investment plan for 2017-2022, which seeks to spend EUR 15.2 billion on ongoing construction projects including the Semmering Base Tunnel, Koralm Line and Brenner Base Tunnel, the rail network and the modernisation of stations over the next five years[113]. **Cross-border transport** is another area of investment, meant to strengthen Austria's positioning as hub in central Europe. An agreement to strengthen the road connection between Austria and Hungary was introduced in 2014. A further expansion of the cross-border rail network is planned by 2020, requiring investments of EUR 216 million[114]. Moreover, in 2014, Austria's publicly-owned motorway operator ASFINAG invested EUR 909 million on the road network, whereby EUR 382 million went to the construction of 285 km of new motorways and EUR 456 million were devoted to maintenance works[115]. Between 2016 and 2020, C-ITS pilot sites will be also installed across Europe, in which a part of the **C-Roads Platform** will be implemented in Austria. Austria will act as coordinator in implementing overall platform[116].

> Austria is part of four **TENT-T corridors**, namely Baltic-Adriatic, Scandinavian-Mediterranean, Orient-East Mediterranean and Rhine-Danube. Under the **Connecting Europe Facility**, Austria secured EUR 698 million for the development of transport projects, of which EUR 590 million will be spent for the construction of the **Brenner Base Tunnel**[117].

Important investments in Austria's infrastructure are supported by the European Investment Bank (EIB), which provided a EUR 600 million loan to Austria's national railway company OEBB in 2014 for the rehabilitation of the train network. Another EUR 29 million loan went to a Public-Private-Partnership in Lower Austria to finance a bypass[118].

The total budget of this housing investment programme amounts to EUR 5.75 billion[120]. To support the construction of 30,000 new dwellings, a new special purpose housing investment bank (Wohnbauinvestitionsbank) was established in 2015. This will benefit from state guarantees up to EUR 500 million[121]. The shareholders of the housing investment bank are building societies (Bausparkassen) as well as the Austrian Hotel and Tourism Bank (OEHT). The **housing investment bank** will channel funds from the EIB, specifically a EUR 700 million framework loan, for the construction of new housing[122]. This will allow private developers, housing associations, as well as local authorities to access cheap funding for the construction of the planned dwellings[123].

> Last but not least, in 2015 the Council of Ministers decided on the implementation of a number of housing measures (the so-called Wohnbauoffensive), notably the creation of 30,000 additional dwellings over the coming five to seven years, which will provide affordable housing for 68,000 people[119].

TO 2 – Skills

In Austria, the **vocational education and training (VET)** enjoys one of the highest rates of participation EU-wide, namely 70% in 2014, compared to the EU average of 48%[124]. The good quality of the VET system is also a key contributor to low levels of unemployment for recent upper secondary graduates. In Austria, the share of young people (15-29) not in education, employment or training (NEET) is at 6.8%, one of the lowest across the EU[125].

> In Austria, the vocational education and training (VET) enjoys one of the highest rates of participation EU-wide, namely 70% in 2014, compared to the EU average of 48%[126].

A recent reform to the vocational training act (Berufsausbildungsgesetz) introduced quality objectives and quality-related measures in education. Furthermore, it makes the VET curriculum more flexible by allowing partial qualifications and easier access to the continuation of vocational education, especially focusing on integrating young refugees. This is part of the strategy **"Education till 18"** ("Ausbildung bis 18"), which aims at allowing young people to continue their educational path beyond compulsory education until the age of 18[127]. Another goal of the vocational training reform is to simplify the introduction of pilot initiatives by educational institutions, thus fostering a more innovative approach to VET education. This 2015 education reform is funded and implemented by the Austrian government and came into force in 2016[128].

> Vocational training in construction is well-established in Austria, presenting an education system composed of three main pillars, namely school, workplace and the Construction Academy (Bauakademie)[129]. The Construction Academy is a leading provider of VET education with locations throughout the country and offers specialised skills training to young people and adults[130].

Importantly, as a means to incentivise apprenticeships, the Association of the Building Industry (Fachverbandes der Bauindustrie) gives a bonus of EUR 2,000 per year and per apprentice to their members that take on an apprentice[131]. Moreover, the PORR Group, which is the biggest Austrian building contractor in the building industry,

also offers **commercial trainee programmes** (ufBAU Business) for the university graduates to get the first hands-on experience in the construction sector[132].

There is also another incentive launched by the government to give EUR 2,000 to companies to hire apprentices. The aim of the bonus is to stabilise a number of apprentices entering the construction industry and counteract the decline. In addition, in the line of initiative, there is also regulation called "**Bad Weather Regulation" (Schlechtwetter-Verordnung)** for construction companies and employees to attract companies to employ young people. So if a company sends workers home due to a bad weather, they could apply and get 60% reimbursement from the government due to a bad weather. As from the last year, this regulation also applies to apprentices who could be reimbursed under this regulation, which became beneficial for both employer and employees.

> Several initiatives have been launched to strengthen the participation of young people. For instance, the ongoing initiative **"Build Your Future"** (Bau Deine Zukunft), launched in 2004, serves as informational platform for students interested in a career in construction.

It intends to motivate youngsters in starting a traineeship in construction as well as improving the overall image of the industry among the younger generation, especially considering the fact that construction traineeships are often considered 'low-skilled'[133]. The so-called **Master Builder Campaign** (Baumeisterkampagne) is another campaign designed to enhance the image of the industry by running TV-spots as well as Youtube videos[134].

Finally, Austria is investing in enhancing the green skills of its workforce through the programme **klimaaktiv** (see also TO 3 - Resource efficiency / Sustainable construction). The initiative focuses on providing advanced vocational training in the fields of renewables, energy efficiency and mobility by working in partnership with relevant professionals, such as plumbers, architects, building masters, etc. Pilot training courses have been designed with the support of universities, technical colleges and the chamber of commerce. Ultimately, stakeholders are expected to benefit from increased knowledge and the application of higher quality standards[135]. In order to implement Energy Performance of Buildings Directive and achieve the European and national climate protection targets for 2020, Austria participates in the project **"NEWCOM"** and seeks to increase the number of blue collar workers and building inspectors with special nZEB competence, who could gain knowledge and skills about quality renovations works with energy saving impact, and develop missing qualification and certification in the line of a Horizon 2020 project[136].

TO 3 - Resource efficiency / Sustainable construction

> The **Federal Energy Efficiency Act** (Energieeffizienzgesetz - EEffG) was passed in 2014 and will be in force until end of 2020, implementing the Energy Efficiency Directive (EED) 2012/27/EU. The law sets an energy consumption target for Austria of 1,050 Petajoules (PJ) for the year 2020, corresponding to final energy savings of 310 PJ. To reach the target, a series of measures are detailed, including the renovation of federal buildings.

The latter is expected to achieve energy savings of 48.2 Gigawatt/hour (GWh) and corresponds to a renovation rate of 3% per year[137]. The Energy Efficiency Act is enforced by the **Energy Efficiency Guidelines Regulation** (Energieeffizienz-Richtlinienverordnung), entered into force in 2016, which specifies the duties of the national energy efficiency monitoring body, and lays down the provisions to be followed for the purposes of enforcing the Energy Efficiency Act with respect to documenting, reporting, assessing and classifying energy efficiency measures[138]. As the EED additionally requires an annual renovation rate of 3% of buildings owned and occupied by national government, Austria aims at implementing the requirement by 2020 and establishing Energy Efficiency Obligation Scheme to achieve the target of energy savings[139].

Instances of the measures adopted to achieve the targets include the **Sanierungsscheck** (Renovation voucher), launched in 2009 and ongoing, which aims to support the thermal refurbishment of residential and commercial buildings built over 20 years ago. The budget for granting subsidies in 2015 was EUR 80 million, with the subsidies covering up to 30% of the costs of the rehabilitation[140]. The interventions eligible for support include the insulation of outer walls, ceiling, floors and roof; the replacement of windows, doors and heating systems (installation of solar thermal panels, biomass boilers, heat pumps, etc.); and the installation of heat recovery systems and shading systems (in commercial buildings only). For 2016, the available funds are EUR 43.5 million and a particular focus is put on the use of new innovative technologies[141]. The programme is expected to result in energy savings of 8,000 TJ by 2020.

An additional subsidy supports the installation of **new wood-fired central heating systems**, replacing existing fossil fired boilers or electrical direct storage heaters. The subsidy also covers the replacement of old biomass heating systems and the installation of wood-fired fireplace inserts. The programme had a budget of EUR 5 million in 2015, with subsidies varying between EUR 500 and EUR 2,000, depending on the intervention[142].

The **Energy Performance Certificate Law** (Energieausweisvorlagegesetz - EAVG), adopted to implement the Directive on the Energy Performance of Buildings, stipulates that an **Energy Performance Certificate (Energieausweis)** must be provided during every building transaction (sale, lease, rental, etc.)[143]. The certificates should contain information such as the building type, location, specific

heating and cooling demand, primary energy demand, final energy demand, carbon dioxide emissions and energy efficiency classes (A ++ to G)[144].

Several sustainable construction initiatives have been launched in Austria. These include the Austrian Society for a sustainable buildings economy (ÖGNI), the Austrian Programme on Technologies for Sustainable Development and **Klima:aktiv**, among others[145]. Namely, Klima:aktiv, a climate protection initiative set up by the Austrian Ministry of Agriculture, Forestry, Environment and Water Management, launched the programme **Bauen & Sanieren** (Building and Refurbishment), aiming to foster energy-efficient building and utilisation of renewable sources of energy. As part of the scheme, the Klimaaktiv building standard was developed to promote ecological construction by assessing energy performance; quality of planning and implementation; quality of building materials and construction; and core aspects of comfort and indoor air quality[146].

> Finally, the energy efficient renovation and sustainable construction of buildings is also being supported by the EIB through a **EUR 150 million framework loan to the Bausparkasse der Österreichischen Sparkassen AG ("Erste BAU")**. Funds will be available for both private and public sector projects resulting in documented energy savings and increased use of renewable energies, thus improving the quality of housing in the country[147].

TO 4 - Single Market

Austria continues to have a generally good performance relative to the metrics of the EU Single Market Scoreboard, particularly in terms of Internal Market Information System and trade integration in the Single Market for goods and services. Austria's performance in terms of joint procurement between public authorities and reporting quality is also satisfactory[148]. However, its overall performance in Public Procurement is average. The share of public contracts for works, goods and services published under EU procurement legislation was only 2.2% of GDP in 2015, well below the EU average of 4.2%[149].

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In terms of access and practice requirements for regulated professions, Austria presents a very restrictive regulatory framework, which creates barriers in business services, including the construction and craft sectors. Indeed, Austria has the second most restrictive regulation in the EU in relation to professions such as accountants, architects, engineers and electricians, which constitute a significant share of the business service sector[151].

> Namely, access to the profession of architects and civil engineers is strictly regulated by the **Federal Civil Engineers Act** (Ziviltechnikergesetz - ZTG), which lays down the conditions required to practice these activities[152].

Moreover, obtaining membership in the professional body is required in order to ensure control over professionals and guarantee that activities are performed appropriately. Thus, architects and civil engineers must be members of the provincial chambers for civil engineers, whereas an obligatory membership with the Austrian Economic Chambers (Wirtschaftskammer) applies to electricians (electrical engineers)[153]. Furthermore, authorisation to access and practice these professions is often subject to a specific exam, in addition to professional qualification requirements, thus creating additional administrative burden for cross-border service providers wishing to operate in Austria[154]. For instance, a Czech service provider wanting to perform bricklaying work in Austria, must undergo a series of procedures. In particular, since bricklaying is a regulated profession, a "certification of professional qualifications and performance of the activity in question" with an official German translation is needed. The recognition procedure takes approximately two months and requires an administrative fee of EUR 50[155].

On the grounds of public safety, security and health, which are provided as the main reasons for regulating these professions, no substantial reforms are envisaged in this respect, since Austria wishes to maintain the current system[156].

Nevertheless, in terms of international equivalence of voluntary certification schemes, the SCC (Safety Certificate Contractors) and the VCA (Veiligheid Gezondheit en Milieu Checklist Aannemers - a certification for occupational safety) schemes are mutually recognised in Austria, Belgium and the Netherlands. The recognition of such schemes facilitates the provision of services by cross-border providers, in line with the requirements of simplification and mutual recognition in the Services Directive[157]. Moreover, General Assembly of the Chamber of Civil Engineers planned amendments to the Civil Engineers Act (Ziviltechnikergesetz) in mid-2016, which will ease the access restrictions to regulated professions by late 2017[158].

Finally, with respect to the implementation of **Eurocodes**, all EN Parts are published as National Standards. National Annexes are published to only 5 Parts (the EN 1999 series), and are not available in English. Although the use of Eurocodes is not compulsory, they are the only means for structural design in Austria and are enforced in Public Procurement by the Federal law on the award of public contracts (BVergG 2006). However, the application of Eurocodes in structural design is restricted to authorised qualified professionals only[159].

TO 5 - International competitiveness

Austria ranks 18th out of 137 economies in the 2017-2018 Global Competitiveness Index[160]. Austria scores above the EU average in four areas such as Internationalisation, Environment, Skills & Innovation and Single market. In terms of the administrative costs for exporting and importing Austria performs above the EU average, without any additional fee in comparison to the EU average of USD 16.43 (EUR 13.83) and USD 6.61 (EUR 5.56) in 2016, respectively. Similarly, it took 1 hour to export and import for documentary compliance in 2016 (against the EU average of 1.39 and 1.07). Therefore, Austria's overall performance in terms of internationalisation of its SMEs remains unchanged since 2008 and well above the EU average161.

The internalisation of construction products in the Austrian construction sector has shown moderate signs of growth since 2009. The export values of all construction-related products increased from EUR 3.1 billion in 2009 to EUR 3.5 billion in 2014 (+11.5%), with their share in the total value of production growing from 39.9% to 50.6% in 2009-2014. Conversely, the value of exports of architectural services fell from EUR 10.1 million to EUR 2.2 million over the same period, accounting for only 0.1% of the turnover of the architectural services sub-sector in 2014, compared to 0.7% in 2009.

Austria ranks 18th out of 137 economies in the 2017-2018 Global Competitiveness Index[162]. Austria scores above the EU average in four areas such as Internationalisation, Environment, Skills & Innovation and Single market.

In order to support the competitiveness of Austrian exporting companies on the international market, the Ministry of Science, Research and Economy launch in 2003 the **Internalisation initiative** (Internationalisierungsoffensive). The initiative seeks to open up new export markets, in particular extra-EU, and improve the technology and knowledge intensity of exported goods and services[163]. As part of the initiative, the **Austrian external trade policy statement** on 'shaping globalisation – success through openness and innovation' was adopted in 2008. It aims to address the threats and understand the opportunities of internationalisation, focusing specifically on education, research, innovation, infrastructure, sustainable development and corporate social responsibility as the key success factors for ensuring successful future internationalisation[164].

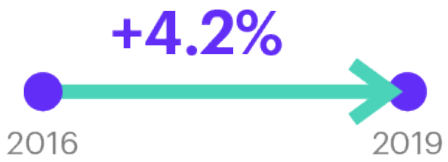
The largest and most important component of the Internationalisation initiative is the **'go international' programme**, managed by the Austrian Economic Chamber (WKO). Under the scheme, potential exporters receive information, advice and financial support for market entry costs such as events, trade fairs and missions. The strategic aim of the programme is to keep Austria within the five top pro-capita exporters in the EU. Specifically, for the current 2015-2019 edition, the scheme aims to create 8,000 new exporters, 6,000 exporters in new markets and help 2,000 service providers and 1,700 investors enter foreign markets[165]. The scheme has a budget of EUR 56 million for 2015-2019 and provides support for potential exporters through 25 different measures organised under five clusters. Namely, these clusters aim to 1) motivate and train Small and Medium-Sized Enterprises (SMEs) to start exporting **(Get Going)**; 2) accompany established exporters into new markets and assist Austrian companies in investing abroad **(Keep Going)**; 3) focus on the export of know-how, consulting, creative services, and education programs **(Going Special)**; 4) create platforms for communicating Austria's economy abroad (Going Strong); and 5) provide direct grants to companies **(Go Get It)**[166].

In addition to the above, the National Foundation for Research, Technology and Development introduced the **tec4market** funding programme in cooperation with Austria Wirtschaftsservice Gesellschaft (aws), the Austrian federal promotional bank. The scheme supports the internationalisation of technology firms, particularly SMEs active in the field of **innovative building technology**. Namely, the programme focuses on supporting projects related to intellectual property rights, prototype development and construction of pioneering demonstration buildings and equipment, using Austrian technology, aiming to help participating firms grow in overseas markets[167]. The available funding covers up to 50% of the costs of external consultants, translation and R&D, as well as tangible and intangible investment costs, up to a maximum of EUR 100,000[168].

Overall, in 2016 Austria boosted internationalisation strategies through organic sales and through mergers & acquisitions (M&A) that were taken on by the main Austrian construction companies as the key part of their business growth processes[169].

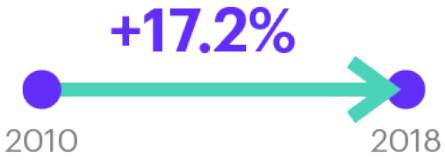
8
Outlook

After several years of sluggish growth, which have resulted in a slow-down of the construction activities, the outlook for the industry remains modest. The economy is going to display a moderate growth, with GDP being forecast to increase by 1.7% in both 2017 and 2018. Similarly, 2016 will mark a reversal of the contraction in construction, with the total construction output predicted to experience a growth, rising by 1.6% in 2017, 3.1% in 2018 and 4.2% in 2019[170]. In the longer run, the industry's outlook for the 2016-2020 period will see an average annual growth rate of 1.2%. This increase can be attributed to a rise in government investment, the starting recovery of the national and global economy, and improvements in both consumer and investor confidence[171] and growing residential construction activities. Similarly, according to Economic Chamber of Commerce (Wirtschaftskammer Österreich) in Austria, one initiative called **Housing Investment Bank**, a tool which provides money to the construction sector, non-profit building promoters and public housing associations through a EUR 500 million loan from EIB. This initiative is expected to attract investments worth EUR 5 billion to be channelled in housing and EUR 750 million in infrastructure. These are the estimates of the scheme which is not yet live but has already seen as creating positive economic environment and confidence for the sector.



Total construction output prediction

The **number of workers** employed in the broad construction sector in Austria is projected to increase by 12.8% in 2017 and 17.2% in 2018 relative to 2010, reaching 488,664 and 507,667 people respectively. Similarly, the **number of firms** operating in the broad construction sector is expected to grow to 77,677 in 2017 and to 81,124 in 2018, which is an increase of 15.8% and 20.9% respectively above the 2010 levels. Comparing the forecast to 2014 numbers, the increase is slightly lower than in 2010: 7.2% in 2017 and 11.9% in 2018. Positive developments are also expected for the **value added** of the broad construction sector, which will grow by 11% in 2017 compared to 2014, and by 16.1% in 2018 (from 2014 levels), amounting to EUR 36,687. In parallel, **turnover** will see an 8% increase in 2017 compared to 2014, and an 12.3% growth in 2018, reaching EUR 86.7 billion.



The outlook for number of workers in broad construction sector

The **residential construction market** will be the main driver for growth in the construction sector over the next couple of years. For the first time in three years, construction investments are expected to grow as of 2016, predominantly due to housing construction. Investments will also be accelerated by federal residential construction initiatives such as the housing investment bank WBIB (see Policy schemes)[172]. Moreover, foreign investors are increasingly interested in Austria, also due to the high quality of life that it offers, and this is set to stimulate the demand for residential units by 2020, particularly in larger cities. In this context, Vienna's local government plans to achieve a 30% increase in housing construction starting from 2017, which should result in the construction of 13,000 new homes in Vienna every year. In addition, the growing flow of migrants is expected to contribute to the demand for dwellings. Thus, residential property prices are expected to continue to rise in 2016, although at a modest rate, whereas total housing construction should experience an 1% increase from 2016[173].

Non-residential construction has suffered from the weakened economic climate, particularly in terms of office premises. Nevertheless, the outlook for the Austrian office market is relatively positive, especially in Vienna, due to a number of investment deals in the pipeline, which have the potential to attract new international investors. However, the imbalance between rising demand and diminishing supply of quality space means that rents in prime locations are expected to rise[174]. Furthermore, the improving private consumption could positively affect office, as well as retail and warehouse construction[175]. The strong tourism sector and the rising number of tourists are also likely to attract investments, supporting the growth of leisure and hospitality building construction over the 2014-2018 period[176]. Thus, total non-residential construction is expected to grow yearly by an average of 2.2% until 2018[177].

Prospects in the **civil engineering sector** are less positive, being constrained by planned consolidation measures and budget cuts. The energy and water work markets are also under pressure, with low energy prices threatening the investments thus the sector is only expected to stagnate in 2017 and 2018[178]. Nevertheless, the outlook for the transport infrastructure segment, particularly railway infrastructure, is more positive. Programmes such as the Target Network

2025+ (Zielnetz 2025+), adopted in response to the predicted 42% and 17% increase in freight and passengers by 2025, are expected to drive investments in the maintenance and new construction of rail infrastructure[179]. Planned investments in this area amount to EUR 2.31 billion in 2017 and EUR 2.28 in 2018[180]. Moreover, the planned expansion of cross-border road and rail networks will further contribute to the revival of this segment with real growth of 2.5% in 2017 and 2.6% in 2018[181].

In conclusion, despite the fact that the Austrian construction industry remains constrained by tight public sector budgets, the sector is returning to growth, driven primarily by significant rail infrastructure investment, residential construction and the overall improving economy.

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