

# Austria: Mismatch priority occupations

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## Summary

*STEM scientists and engineers belong to high shortage occupations for Austria.*

Looking at past, current and future trends (3-4 years), a number of occupations have been identified as **mismatch priority occupations for Austria**, i.e. they are either in shortage or surplus. **Shortage occupation**: an occupation that is in short supply of workers, and for which the employers typically face difficulties finding a suitable candidate. **Surplus occupation**: an occupation for which there are plenty of suitable workers available but low demand. The employers have no problems filling such posts.

The list below is based on an assessment of the labour market of **Austria**. The occupations presented are not given any rank. All of them present high mismatch.

## Mismatch priority occupations

# Austria



Shortage occupations	Surplus occupations
STEM scientists and engineers	Garment and related trades workers
Nursing and midwifery professionals	Plant operators
Medical doctors and other health professionals	Labourers in mining, construction, manufacturing and transport
ICT professionals	Handicraft and printing workers
Teachers	Elementary occupations

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### Shortage Occupations

#### STEM scientists and engineers <sup>[1]</sup>

Various scientists and professionals in STEM areas (e.g. mathematics, physical and earth science, electro-technology, engineering) are in demand. The increase in employment is expected to be higher than 3.5% per year up to 2020. <sup>[2]</sup> Reasons for skills shortages relate to **insufficient supply of graduates** of vocational technical schools (HTLs) and higher education on the one hand, and increasing public expenditures for research and higher education (growing demand) on the other hand. Additionally, the **increase in demand** relates to the variety of occupations in which scientists can be employed e.g. scientific research at universities or other organisations, pharmaceutical, biochemical and agricultural

industry, environmental protection, construction, electronics, mechatronics, public services, banking and insurance. In relation to scientists employed at universities, the working conditions have become less attractive due to job insecurity (e.g. short-term contracts), which has led in some cases to emigration to countries offering better employment prospective.<sup>[3]</sup> The **participation of women** in technical occupations is still relatively low, which can be explained by patterns in skills supply - with the exception of 'Life science', where around two thirds of the graduates are female, graduates in 'Mathematics and statistics' as well as 'Engineering and technical occupations' are predominantly male.<sup>[4]</sup>

The initiative '[Frauen in Technik](#)', run by the Public Employment Service (AMS), addresses the low participation of women in technical occupations. AMS funds relevant training of beneficiaries including apprenticeship training, training in a university of applied sciences or in a technical college. In 2014 the Styrian Chamber of Commerce launched the '[Technical experts](#)' project targeting upper secondary school drop-outs or graduates who do not intend to continue their studies at higher level. Within the project, vocational study programmes for mechatronic engineers and metal technicians have been created. The immigration scheme under the '[Red-White-Red Card](#)' aims to facilitate the immigration of qualified third-country workers with a view to permanent settlement in Austria. Each year the government (in cooperation with the social partners) approves a list of shortage occupations. Engineers are included in the list for 2016.<sup>[5]</sup> A sustained skill shortage in STEM occupations may be an obstacle to reach the government's R&D target rate of 3.76% of GDP in 2020 and a hindrance for Austria's innovation potential and international competitiveness.<sup>[6]</sup>

## **Nursing and midwifery professionals** <sup>[7]</sup>

Between now and 2020, employment of nursing and midwifery professionals is expected to increase by 3.6% per year<sup>[8]</sup> due to an increase in the number of older patients, reduction of family care capacities, and increase in the provision of mobile care. The biggest demand is expected in the **care of older people in long-term care** (including domestic care services and home nursing) and inpatient care. Besides the growing demand the health and care sector faces **insufficient supply**, due to for instance, young people being less willing to be trained in these occupations. The insufficient supply reflects the less attractive working conditions for nursing occupations: high staff turnover, high amount of working hours per week (night shift, working on weekends, holidays), risk of infection, permanent contact with patients (in mobile care), patience and understanding of age-related diseases, physical and mental endurance.<sup>[9]</sup> Another reason for skills shortages relates to increasing job requirements and there being a lack of people meeting these.

The implication of skills shortages relates to undersupply of services within the health and care sector. The regional initiative '[Ways to Nursing](#)' targets labour reserves to tackle insufficient skills supply. The Municipality of Vienna, for example, has funded the qualification of unemployed adults interested in working as nursing and midwifery professionals. Other federal provinces may consider the allocation of budgets for conducting similar initiatives. 'Graduate nurses' is included in the 2016 list of skills shortage occupations related to the [Red-White-Red Card](#). Measures can be considered for accelerating (by making less bureaucratic) the procedure related to assessment of competences acquired abroad. There is a need of upskilling nursing and midwifery professionals in relation to digital skills; too, for example IT application skills as well as skills in using assistive technologies are increasingly required by employers.

## Medical doctors and other health professionals<sup>[10]</sup>

Key occupations among 'other health professionals' include dentists, pharmacists, physiotherapists, dieticians and nutritionists, and speech therapists. An increase in employment (1% per year for medical doctors and just fewer than 4% for other health professionals) is forecast up to 2020.<sup>[11]</sup> As a result of the reduction of working hours, an **increase in demand** for medical doctors in hospitals is observed. Due to decrease in supply, a shortage of general practitioners is expected for rural areas in particular. Furthermore, young doctors increasingly go to work abroad (e.g. Germany) because of higher salaries and shorter duration of study programmes.<sup>[12]</sup>

A number of training provisions for health professionals (physiotherapists, dieticians and nutritionists, speech therapists) have been upgraded to higher education, which makes these professions more attractive for learners.<sup>[13]</sup> Adjustments in education provision (Lehrpraxis) may be undertaken.<sup>13</sup> For example, training for general practitioners can be made less scientific and more practice-oriented.<sup>[14]</sup> Measures that promote the employment of young doctors in hospitals in rural areas and in the regions of Vorarlberg, Salzburg and Upper Austria can be taken into account.<sup>12</sup>

## ICT Professionals<sup>[15]</sup>

The expected increase in employment is between 3.5% and 4% per year up until 2020.<sup>[16]</sup> Software engineering and programming is the largest subsector within ICT occupations. Despite good career chances and high income opportunities, a significant shortage of skilled workers has been observed over the last five years. For example, over 65% of employees involved in ICT projects are over 40 years old and around 17% are over 50 years old.<sup>[17]</sup> In comparison, less than 21% of employees are under 30 years old. Women are still underrepresented among IT professionals.<sup>[18]</sup> The main reasons for skills shortages relate to **insufficient skills supply; increasing demand** of ICT skills in other economic sectors (for example, medicine); and, increasing need of professional maintenance of enterprise internal data.<sup>[19]</sup>

ICT-sector experts recommend the provision of more training opportunities and measures for young IT professionals.<sup>[20]</sup> The initiative [younFIT](#) provides funding for girls and young women between 15 and 21 years of age, who are interested in completing apprenticeship training in technical occupations including 'IT technician'. The initiative is funded by the Public Employment Service (AMS) and provides possibilities for progression to higher education in similar fields. In order to make the IT profession attractive for more young people, the University of Applied Sciences UAS Technikum Wien introduced in 2014 the first short studies (3 semesters) in web development and applications development. The studies aim at graduates of upper secondary education or drop-outs of higher education who wish to complete a vocational study programme at an academic level that is in demand in the labour market.<sup>[21]</sup>

## Teachers<sup>[22]</sup>

Employment of teachers is expected to grow by approx. 2% per year in the period 2013–2020.<sup>[23]</sup> Skills shortages relate to increasing number of **retirements** in the coming years, which implies a high demand for teachers in all education sectors on the one hand, and **insufficient supply** on the other hand. The increase in demand for early childhood teachers can be related to increasing number of children in day-care due to higher female employment.<sup>[24]</sup> Skills shortages are concentrated in certain regions. Vienna

care due to higher female employment. Skills shortages are concentrated in certain regions. Vienna is expected to have high demand for compulsory teachers due to continuous population growth; by contrast, in Carinthia and in regions with decreasing population numbers, the demand will be lower. Skills shortages of teachers in special needs education are expected for all provinces except Vienna.

The professionalization of the teaching profession could make it more attractive for young people. For example, according to a recent reform [PädagogInnenbildung NEU](#), study programmes for primary teachers have been upgraded to higher education including bachelor and master degrees. [25] The upgrading of study programmes has been followed by a new civil service law, which provides for higher entry salaries for teachers. [26] Implications of skills shortages relate to undersupply of childcare and education services. The increasing demand for early childhood teachers can be addressed through the allocation of more budgets for the expansion of childcare facilities. This will also ensure kindergarten placement for more children. In relation to children and pupils with migrant backgrounds, the need for teachers speaking foreign languages will grow in the coming years. The provision of intercultural training may also be taken into account.

## Other shortage occupations

Other shortage occupations refer to so called 'Facharbeiter' (skilled) occupations, for which a qualification in VET is required. There is evidence [27] of bottlenecks among metal turners and milling machinists [28] as well as roofers [29]. The bottlenecks were identified for the regions of Steyr, Lower and Upper Austria, which are characterised by intensive industrialisation. 'The high concentration of industrial production combined with the rural characteristics of the region make recruiting difficult, as potential applicants are mainly trained in urban centres and reluctant to relocate to the rural areas.' [30] Furthermore, a combination of school- and firm-based apprenticeship training has traditionally been the backbone of the Austrian VET system. Therefore, the decrease in the willingness of firms, especially small and medium-sized ones, to offer VET, (which has been observed for the past few years) may negatively affect skills and labour supply.

Metal turners, milling machinists as well as roofers are included in the 2016 list of skills shortage occupations related to the [Red-White-Red Card](#). In order to alleviate the decrease in the willingness of companies to offer VET, the Public Employment Services organises so-called '[Überbetriebliche Lehrausbildung](#)' targeting apprentices that cannot find a placement for firm-based training. The solution found is in that the apprentice signs a contract with a training institution and is provided with firm-based training either by this institution or by companies it cooperates with.

## Surplus Occupations

Surpluses have been identified for the following occupations: 'Garment and related trades workers' [31], plant operators [32], labourers in mining, construction, manufacturing and transport [33], elementary occupations [34] and handcraft and printing workers. [35] These occupations are expected to have the highest decrease in employment (between approx. -4% and -2% per year up until 2020). [36] Reasons for skills surpluses relate to **significant declines in the labour force** in specific sectors such as agriculture and industrial manufacturing. The high production costs in Austria resulted in the relocation of production abroad, which has led to decrease in employment e.g. simple manual jobs and activities on

the conveyor belt without qualification will continue migrating to countries with a lower wage level or will be replaced by technological solutions (automation). In order to survive on the market many companies reduce the number of their staff and/or prefer to hire workers on a temporary basis. Surpluses can be explained also by increasing skills requirements e.g. in relation to machine and plant operators, employers increasingly require knowledge in operating electronically controlled systems, expertise in innovative material technology and 'smart textiles'.<sup>[37]</sup> This can leave a surplus of workers with lower skills if they do not keep up with the requirements.

'Implacement foundations' is a policy instrument implemented by AMS. It brings together jobseekers with lacking or outdated skills and companies which are willing to educate them as they cannot fulfil their skills needs. The instrument is widely used in different regional contexts. The activities involve careful development and implementation of individualised (re-)integration processes by career guidance, various training measures, active job searches, and work experience programmes.<sup>[38]</sup> The success rate of beneficiaries (e.g. finding regular employment after completing a work experience programme) is estimated to be above 80%.<sup>[39]</sup> A similar measure relates to the 'AQUA' (*arbeitsnahe Qualifizierung*) project, also funded by AMS. The project is implemented in several federal provinces and targets unemployed persons. It combines theoretical with practical training for a specific job in an enterprise, which an employer cannot fill.<sup>[40]</sup> AMS also funds 'new skills courses' aimed at skilled workers who wish to update their knowledge and skills. New skills courses are provided for several economic sectors including construction and manufacturing.

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## Note on the methodology

The list has been compiled by Cedefop in the first half of 2016 combining quantitative and qualitative methods. In particular, a list of mismatch occupations was formulated following quantitative analysis of labour market indicators. Country experts were then asked to build on and scrutinise this list. Their expert assessment and knowledge of the country's labour market has provided rich insights about the reasons behind the skills shortages or surpluses at occupational level. These are also accompanied by measures and policies that aim to tackle such mismatches. Country's stakeholders have also been included in validating the final list of occupations.

Find here more [data](#) and [information](#) about Austria.

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## References

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[1] Physical and earth science professionals (ISCO 211); Mathematicians, actuaries and statisticians (ISCO 212); Electrotechnology engineers (ISCO 215); Engineering professionals excluding electrotechnology (ISCO 214)

[2] Austrian Institute of Economic Research – WIFO (2014) 'Mittelfristige Beschäftigungsprognose für Österreich und die Bundesländer. Berufliche und sektorale Veränderungen 2013 bis 2020'. [www.wifo.ac.at/jart/prj3/wifo/resources/person\\_dokument/person\\_dokument.jart?publikationsid=57914&mime\\_type=application/pdf](http://www.wifo.ac.at/jart/prj3/wifo/resources/person_dokument/person_dokument.jart?publikationsid=57914&mime_type=application/pdf)

[3] Based on a validation interview.

[4] Statistik Austria (2014). Hochschulprognose 2014 [www.statistik.at/web\\_de/statistiken/menschen\\_und\\_gesellschaft/bildung\\_und\\_kultur/formales\\_bildungswesen/index.html](http://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/bildung_und_kultur/formales_bildungswesen/index.html)

[5] Skilled workers in shortage occupations. Find more information here: [www.migration.gv.at/en/types-of-immigration/permanent-immigration-red-white-red-card/skilled-workers-in-shortage-occupations.html](http://www.migration.gv.at/en/types-of-immigration/permanent-immigration-red-white-red-card/skilled-workers-in-shortage-occupations.html)

[6] Bundeskanzleramt Österreich. <https://www.bka.gv.at/site/7763/default.aspx>

[7] Nursing and midwifery professionals (ISCO 222); Nursing and midwifery associate professionals (ISCO 322). According to WIFO Forecast, 'Nursing and midwifery associate professionals' are expected to have the strongest increase in employment e.g. 4.3%.

[8] WIFO, 2014

[9] AMS Skills Barometer [bis.ams.or.at/qualibarometer/berufsfeld.php?id=212&show\\_detail=1&query](http://bis.ams.or.at/qualibarometer/berufsfeld.php?id=212&show_detail=1&query)

[10] Medical doctors (ISCO 221); Other health professionals (ISCO 226)

[11] WIFO, 2014

[12] AMS Skills Barometer [bis.ams.or.at/qualibarometer/berufsfeld.php?id=211](http://bis.ams.or.at/qualibarometer/berufsfeld.php?id=211)

[13] AMS Skills Barometer [bis.ams.or.at/qualibarometer/berufsfeld.php?id=216&show\\_detail=1&query=](http://bis.ams.or.at/qualibarometer/berufsfeld.php?id=216&show_detail=1&query=)

[14] Based on a validation interview.

[15] Software and application developers and analysts (ISCO 251), Database and network professionals (ISCO 252), Information and communication technicians (ISCO 351), Information and communications technology operations and user support technicians (ISCO 352).

[16] WIFO 2014

[17] AMS Qualification Barometer [bis.ams.or.at/qualibarometer/berufsbereich.php?id=88&show\\_detail=1&query=](http://bis.ams.or.at/qualibarometer/berufsbereich.php?id=88&show_detail=1&query=)

[18] AMS Skills Barometer [bis.ams.or.at/qualibarometer/gender.php?id=88](http://bis.ams.or.at/qualibarometer/gender.php?id=88)

[19] AMS Skills Barometer [bis.ams.or.at/qualibarometer/berufsfeld.php?id=295&show\\_detail=1&query=](http://bis.ams.or.at/qualibarometer/berufsfeld.php?id=295&show_detail=1&query=)

[20] AMS Qualification Barometer [bis.ams.or.at/qualibarometer/berufsbereich.php?id=88&show\\_detail=1&query=](http://bis.ams.or.at/qualibarometer/berufsbereich.php?id=88&show_detail=1&query=)

[21] Information related to the short study programme in [web development](#) is available here: [www.technikum-wien.at/studium/kurzstudien/web\\_development](http://www.technikum-wien.at/studium/kurzstudien/web_development), information on the study programme in [app development](#) is available here: [www.technikum-wien.at/studium/kurzstudien/app\\_development](http://www.technikum-wien.at/studium/kurzstudien/app_development).

[22] Primary school and early childhood teachers (ISCO 234); Other teaching professionals (ISCO 235)

[23] WIFO 2014

[24] AMS Skills Barometer [bis.ams.or.at/qualibarometer/berufsfeld.php?id=244&show\\_detail=1&query=](http://bis.ams.or.at/qualibarometer/berufsfeld.php?id=244&show_detail=1&query=)

[25] Primarstufe <http://www.lehramt-so.at/lehramtsstudium-neu/primarstufe>

[26] AMS Skills Barometer [bis.ams.or.at/qualibarometer/berufsbereich.php?id=80&show\\_detail=1&query=](http://bis.ams.or.at/qualibarometer/berufsbereich.php?id=80&show_detail=1&query=)

[27] European Commission (2014) [Mapping and analysing vacancies in the EU labour markets](#) Prepared by Rambøll and Seor Erasmus School of Economics. [www.ec.europa.eu/social/BlobServlet?docId=12625&langId=](http://www.ec.europa.eu/social/BlobServlet?docId=12625&langId=)

[28] ISCO 7223

[29] ISCO 7121

[30] European Commission (2014). [Mapping and analysing vacancies in the EU labour markets](#) Prepared by Rambøll and Seor Erasmus School of Economics. [www.ec.europa.eu/social/BlobServlet?docId=12625&langId=](http://www.ec.europa.eu/social/BlobServlet?docId=12625&langId=)

[31] ISCO 753

[32] Mining and mineral processing plant operators (ISCO 811), Metal processing and finishing plant operators (ISCO 812), Chemical and photographic products plant and machine operators (ISCO 813), Wood processing and papermaking plant operators (ISCO 817), Other stationary plant and machine operators (ISCO 818) and Mobile plant operators (ISCO 834)

[33] Agricultural, forestry and fishery labourers (ISCO 921). Mining and construction labourers (ISCO



931), Manufacturing labourers (ISCO 932) and Transport and storage labourers (ISCO 933).

[34] Refuse workers (ISCO 961) and 'Other elementary occupations' (ISCO 962).

[35] Handicraft workers (ISCO 731) and Printing trades workers (ISCO 732).

[36] WIFO 2014

[37] [AMS Qualification Barometer bis.ams.or.at/qualibarometer/berufsfeld.php?id=248&show\\_detail=1&query=](https://www.ams.or.at/qualibarometer/berufsfeld.php?id=248&show_detail=1&query=)

[38] An example for implacement foundation offered by AMS Vienna is available here: [www.ams.at/\\_docs/900\\_implacementstiftung.pdf](http://www.ams.at/_docs/900_implacementstiftung.pdf)

[39] According to a feedback of a validation expert.

[40] Updated information regarding the AQUA project is available for the federal province of Styria. [AQUA - Arbeitsplatznahe Qualifizierung. www.ams.at/stmk/service-unternehmen/foerderungen/aqua-arbeitsplatznahe-qualifizierung](http://www.ams.at/stmk/service-unternehmen/foerderungen/aqua-arbeitsplatznahe-qualifizierung)

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