

Bulgaria: Mismatch priority occupations


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Summary

ICT professionals belong to high shortage occupations for Bulgaria.

Looking at past, current and future trends (3-4 years), a number of occupations have been identified as **high mismatch for Bulgaria**, 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 suitable candidates. **Surplus occupation:** an occupation for which there are plenty of suitable

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 **Bulgaria**. The occupations presented are not given any rank. All of them present high mismatch.

The infographic features a central illustration of a man in a suit holding a lightbulb, a megaphone, a document, and a server rack. The background is split into a blue top section with the title and a dark grey bottom section with the lists of occupations.

Mismatch priority occupations

Bulgaria

Shortage occupations

- ICT professionals
- Teachers
- Health professionals
- Engineering professionals
- Financial and mathematical professionals
- Sales and purchasing agents and brokers
- Administration and business services professionals

Surplus occupations

- Street workers
- Labourers in mining, construction, manufacturing and transport
- Refuse workers
- Agricultural, forestry and fishery labourers
- Cleaners and helpers

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Shortage Occupations

ICT professionals ^[1]

The Bulgarian ICT sector has significant potential for innovation and export oriented growth. In September 2013, the sector employed 40 thousand persons and contributed 3% to the GDP. ^[2] It is one of the few sectors in the Bulgarian industry that has not been affected by the world economic crisis. Key occupations include 'Software and application developers and analysts' and 'Database and network

occupations include 'software and application developers and analysts and database and network professionals' (one third of all jobs). [3] One of the main reasons for skills shortage is the **rapid development** of the ICT sector and the **slower pace** at which the tertiary education system **supplies graduates** with relevant skills. Other reasons include outdated university curricula and the need for **new teaching methodologies**. There is also a need to foster the acquisition of **soft skills** such as project management and entrepreneurship skills. The growing number of start-ups in the sector during the last few years is an additional indicator for **increasing job demand**. In 2013, the most required skills by employers related to JavaScript and the most popular certification programmes included Computer Networking; Information Security; IT Governance; ITIL; Business Intelligence; Project Management; Agile; Scrum etc. [4]

Several initiatives address the insufficient skills supply. For example, the Software Engineering Management Program (SEMP) focuses on building local capacity by 'train-the-trainer' component. The successful implementation of the programme (2010-2014) provided for the introduction of an internationally recognised master degree program. A similar measure relates to the 'Telerik Academy'. It was designed to complement and extend the education in the ICT field offered by Bulgarian schools and universities. In September 2012, the Bulgarian [Centre for Women in Technologies](#) was established with the aim to bring together stakeholders from the business sector, the government, the academia and non-governmental organisations, in order to support and encourage women's professional participation in ICT. [5] In 2013, the Centre launched the 'Entrepregirl' award - the first competition in Bulgaria for young girls interested in entrepreneurship, technologies and innovations. The implementation of more programmes based on public-private partnerships (e.g. university-employer) may contribute to the update of university curricula as well as the upskilling of existing employees.

Teachers [6]

In 2014, the education sector had the highest number of jobs requiring higher education (approx. 130 thousand) and it is expected that by 2018, the number of jobs will increase by 4%. [7] The key occupations within the sector are secondary education teachers and early childhood teachers. Skills shortages relate to **increase in demand** and **decrease in supply**. While in 2000, graduates in education science accounted for 10% of all graduates in bachelor and master programmes; in 2014 they dropped to 8%. [8] The decline in supply relates to the fact that the teaching profession has become **less attractive** for young people. This can be explained by relatively **low wages**, high requirements, stressful working environment [9] and outdated legislation, which does not raise the status of Bulgarian teachers. Another reason for skills shortages is the **ageing** of teaching staff.

The shortage of teachers in Bulgaria is a well-known problem that exists for years. It is addressed by the [National strategy for the development of teaching staff 2014-2020](#), which aims to introduce measures for the recruitment, retention and competence development of teaching staff up to 35 years old in secondary education. Additionally, the Strategy identifies the need for development and implementation of up-to-date programs for teacher qualification. This is supported also by the [National Strategy for Lifelong Learning for the Period 2014-2020](#) (LLL strategy). Some of the priority areas of the LLL strategy include: a) ensuring 'effective' basic qualification and ongoing, continued qualification of teachers and educators; b) transforming the profession of teacher and educator into an attractive career choice; c)

upgrading of the funding system. In relation to teachers in vocational training, the strategy foresees the introduction and development of a system of ongoing update of competences through effective cooperation with businesses and universities to carry out trainings in working environment. ^[10]

Health professionals ^[11]

The health sector is among the top sectors requiring higher education. It is expected that by 2018 the number of jobs will be approx. 48 thousand. ^[12] The key occupations are nurse and midwifery professionals and medical doctors. Nursing professionals are identified as bottleneck occupations in the report 'Mapping and Analysing Bottleneck Vacancies in EU Labour Markets' (2014). ^[13] Skills shortages are explained with increasing number of older patients (due to **ageing population**); **emigration** of health professionals, **high turnover** of staff because of unfavourable working conditions (night shifts, working on weekends, negative real wage growth). Many hospitals in **small towns** face difficulties in recruiting health professionals.

Turning to policy measures, one of the priorities of the [National Strategy in the field of Migration, Asylum and Integration 2011-2020](#) is to attract 'highly qualified Bulgarian nationals – emigrants, as well as foreigners of Bulgarian origin, to permanently establish and settle in the country'. This may be a potential resource for overcoming skills shortages of doctors and nurses. In the past few years foreigners increasingly choose Bulgaria as a place to study, acquire qualifications and seek professional fulfilment. In this context, the attraction of highly skilled migrants in combination with the establishment of quick procedures for recognition of foreign qualifications could be a potential resource for tackling skills shortages of health professionals.

Engineering professionals ^[14]

According to the report 'Mapping and Analysing Bottleneck Vacancies in EU Labour Markets' (2014), Bulgaria has the highest number of bottlenecks (among the countries included) within the occupation group of science and engineering professionals. ^[15] Particular, reasons for the shortages in these occupations include:

1. **Increase in demand** for highly-skilled professionals (e.g. in emerging sectors such as green construction ^[16], production of electric vehicles ^[17]);
2. Creation of **new occupations** (e.g. specialist in engineering ecology ^[18]);
3. **Decrease in the supply** e.g. due to low motivation among students to turn to science and research careers as well as decline in the number of STEM (science, technology, engineering and mathematics) VET graduates;
4. **Deficiencies of job-specific skills** (e.g. ability to decipher a technical drawing) of university graduates in engineering study programmes. ^[19]
5. Growing preference among young Bulgarians to receive higher education **abroad** and a **lack of a 'positive image'** and success stories in relation to the engineering profession. ^[20]

Mechanical engineering companies face shortages of technicians with upper secondary education such as turners and fitters. ^[21] This relates to the fact that only half of the graduates of vocational technical high schools enrol in programmes at technical universities, one third emigrate abroad and the rest start

working in another field. [22] In this way, it is difficult to replace employees that retire.

Regarding policy measures, the 'Skills for the Future' initiative aims to tackle with the decrease in skills supply through the promotion of greater understanding and awareness among young people about STEM skills. The initiative includes the organisation of 'master classes', where teachers and students from vocational schools gather with representatives of the business community in a one-day event in order to discuss and suggest the best approach in training young people in the acquisition of STEM skills. More awareness-raising measures promoting engineering professions among secondary students may be considered. One possible measure could be the cooperation between universities and secondary schools. The Operational Programme (OP) 'Innovation and Competitiveness 2014-2020' puts an emphasis on increase of investments, development of innovative technologies and their practical uptake. It envisages support for clusters, technology transfer offices, technology centres. This may contribute to upskilling of engineers. Furthermore, OP 'Science and Education for Smart Growth 2014-2020' aims to gradually increase the funding of R&D and innovation, improve the research capacity of higher education institutions and research organisations and increase the number of researchers. A sustained skill shortage in engineering occupations may be an obstacle to reach the government's R&D target rate of 1.5% of GDP in 2020 and a hindrance for Bulgaria's innovation potential and international competitiveness. [23]

Financial and mathematical professionals; Sales and purchasing agents and brokers [24]

The finance and insurance sector is expected to be one of the top sectors by number of jobs requiring higher education (more than 49 thousand jobs) by 2018. [25] 'Finance and mathematical associate professionals' and 'Sales and purchasing agents and brokers' account for one fifth of all jobs in the sector. [26] On the other hand, in 2014, graduates in mathematics and statistics fields comprised less than 1% of all graduates in bachelor as well as in master programmes. [27] The **decline in skills supply** may be one of the main reasons creating skills shortages for such occupations.

In 2008, a centre for vocational training was founded within the [International Banking Institute Ltd \(IBI\)](#) in Sofia. The centre provides various courses for those wishing to update and improve their professional qualifications, as well as those who want to acquire a new profession within the banking and financial sector. Increasing the offer of similar programmes, making them compatible with everyday working life may encourage the competence development of employees within the sector.

Administration and business services professionals [28]

Administration professionals are a key occupation group within the public administration sector (one third of all jobs). Business services and administration professionals account for 8% of all jobs within the public administration sector. In addition, this occupation group comprises 6% of all jobs within the finance and insurance sector. [29] By 2018, public administration is expected to be one of the top sectors regarding the number of jobs requiring higher education (approx. 88 thousand jobs). [30] Skills shortages for such professionals mainly relate to **high turnover** of employees due to **unfavourable working conditions**.

Thus, a possible solution for tackling skills shortages in public administration may relate to offering more attractive working conditions in terms of, for example, possibilities for continuous training.

Other shortage occupations

The widespread use of e-commerce, the entry of a number of international retail chains as well as the creation of new personal services has led to the emergence of **new occupations** that are not yet covered by the educational system e.g. brand manager; merchandiser; specialist 'Center Customer Service'; manager 'Key clients'. These occupations have a key role in the Bulgarian labour market; however, the corresponding competences are acquired either through training paid by the employer or by education acquired abroad. ^[31] Other occupations in demand include welders and lift technicians and this can be explained by the **closure of some vocational schools** ^[32]

The implication for the Bulgarian economy in general is that businesses will increasingly need human resources with the necessary knowledge, skills and competencies to be able to cope with the challenges of modern technological innovations. ^[33] A possible measure could be the development of study programmes related to new occupations.

Surplus Occupations

Several unskilled surplus occupations have been identified, including: street workers (shoeblocks, distributors of free newspapers and leaflets) ^[34], labourers in mining, construction, manufacturing and transport ^[35], refuse workers (sweepers, couriers, doorkeepers, seasonal workers) ^[36], agricultural, forestry and fishery labourers ^[37] as well as cleaners and helpers ^[38]. The surplus can be explained by the polarisation of the Bulgarian labour market e.g. most of the newly created jobs will require medium or high level of education; by contrast there is almost zero growth in employment opportunities for people with no or low education levels. ^[39] In relation to skilled occupations, surpluses are observed for legal, social and cultural professionals. ^[40] The reason for surpluses is that **skills supply outstrips** labour market demand. For example, in 2014, the number of graduates in humanities and social and behavioural science represented 22% of all graduates in bachelor programmes and 14% of all graduates in master programmes. ^[41]

The expected minimum increase in the number of jobs for persons with low education levels requires rapid and integrated solutions for the most vulnerable groups among them, in particular young people and people of pre-retirement age. The **regional programmes** of the Bulgarian Public Employment Service are an example for existing measure. One of the activities of these programmes relate to the provision of training for part of vocational qualification to: a) unemployed young people under 29 years old who are neither students, nor employed; b) unemployed over the age of 50; or, c) unemployed with low level of education or with qualifications that are not required by the labour market. The regional programmes can provide subsidised employment for up to six months.

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 Bulgaria.

References

[1] Software and application developers and analysts (ISCO 251); Database and network professionals (ISCO 252)

[2] Analysis of the workforce competence in the IT sector 2013<http://en.competencemap.bg/>

[3] Labour supply and demand forecasts for Bulgaria for the period 2014-2028 www.mlsp.government.bg/index.php?section=POLICIESI&l=246

[4] Analysis of the workforce competence in the IT sector 2013<http://en.competencemap.bg/>

[5] In 2014 the [gender pay gap](#) in the IT sector was 14.3%. The gender pay gap represents the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. Read more: <http://www.nsi.bg/en/content/6457/gender-pay-gap>

[6] Secondary education teachers (ISCO 233); Primary school and early childhood teachers (ISCO 234)

[7] Labour supply and demand forecasts for Bulgaria for the period 2014-2028

[8] National statistical institute (NSI), online statistics: [Graduates tertiary education by educational-qualification degree and narrow field of education](#), Read more: www.nsi.bg/sites/default/files/files/data/timeseries/Edu_3.6.2_en.xls

[9] According to a study on the health, performance capacity and safety at work of teaching staff (carried out in 2013 by the Bulgarian Union of teachers), the illness rate among teachers is more than 45%. The stressful working environment contributes to this high incidence Read more: [knsb-](#)

flexicurity.org/docs/pdf/Analysis_1.4_03.pdf

[10] Ministry of Education and Science 2014. [National strategy for Lifelong Learning for the Period 2014-2020](http://mon.bg/?go=page&pagelid=74&subpagelid=143) mon.bg/?go=page&pagelid=74&subpagelid=143

[11] Medical doctors (ISCO 221); Nurses and midwifery professionals (ISCO: 222)

[12] Labour supply and demand forecasts for Bulgaria for the period 2014-2028

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

[14] Engineering professionals excluding electrotechnology (ISCO 214); Electrotechnology engineers (ISCO 215)

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[16] [Analysis of workforce competence in the economic sector of specialized construction activities – 2013](http://en.competencemap.bg) en.competencemap.bg

[17] [Analysis of the workforce competences in the electric vehicles sector – 2013](http://en.competencemap.bg). en.competencemap.bg

[18] [Analysis of the workforce competence in the economic sector of Chemical products manufacturing – 2013](http://en.competencemap.bg), Read more: <http://en.competencemap.bg/>

[19] Based on a validation interview.

[20] Does the EU need more STEM graduates? Case study Bulgaria. Order 120, European Commission/DG EAC, 2015, Author: Dzhengozova, Mariya. Unpublished.

[21] Based on a validation interview.

[22] Many engineering professionals are employed in the field of research and development, however Bulgaria has one of the lowest R&D expenditure level (in EU28) as a percentage of GDP. See Deloitte (2013). Researchers' Report 2013. Country Profile Bulgaria.

[23] [Europe 2020 indicators - research and development](http://ec.europa.eu/eurostat/statistics-explained/index.php/Europe_2020_indicators_-_research_and_development) http://ec.europa.eu/eurostat/statistics-explained/index.php/Europe_2020_indicators_-_research_and_development

[24] 'Financial and mathematical associate professionals' (ISCO 331) includes: brokers, dealers, mortgage specialists, senior bank officials, supervisors in financial institutions, accountants, associate

professionals in mathematics and statistics, insurance claim inspector, real estate evaluators; 'Sales and purchasing agents and brokers' (ISCO 332) includes: insurance representatives, commercial sales representatives, buyers and trade brokers.

[25] Labour supply and demand forecasts for Bulgaria for the period 2014-2028

[26] as above

[27] National statistical institute (NSI), [online statistics: Graduates tertiary education by educational-qualification degree and narrow field of education](http://www.nsi.bg/sites/default/files/files/data/timeseries/Edu_3.6.2_en.xls). www.nsi.bg/sites/default/files/files/data/timeseries/Edu_3.6.2_en.xls

[28] 'Administration professionals' (ISCO 242) includes: business, engineering, logistic and trade experts, business and management consultants, auditors, civil servants, recruitment experts, experts in career guidance, HR management specialists, training and qualification experts, etc. 'Business services and administration professionals' (ISCO 121) includes: finance managers, HR managers and policy and planning managers.

[29] Labour supply and demand forecasts for Bulgaria for the period 2014-2028

[30] as above

[31] Independent Trade Union Federation of Employees in Commerce, Cooperatives, Tourism, Credit and Social Services (ITUFECCCTCS). [Analysis of the analytical information provided by the study on the current status and trends in skills of workers employed in the field of trade and services](http://qualification-strategy-project.org/index.php/en/materiali). qualification-strategy-project.org/index.php/en/materiali

[32] Based on a validation interview.

[33] as above

[34] Street and related sales and service workers (ISCO 95)

[35] ISCO 93

[36] Refuse workers and other elementary occupations (ISCO 96)

[37] ISCO 92

[38] ISCO 91

[39] Labour supply and demand forecasts for Bulgaria for the period 2014-2028

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[41] NSI, online statistics: Graduates tertiary education by educational-qualification degree and narrow field of education. www.nsi.bg/sites/default/files/files/data/timeseries/Edu_3.6.2_en.xls

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