IT Sector Investment Potential in Poznań

POZnań

ManpowerGroup™

Report prepared for the City of Poznań by ManpowerGroup.

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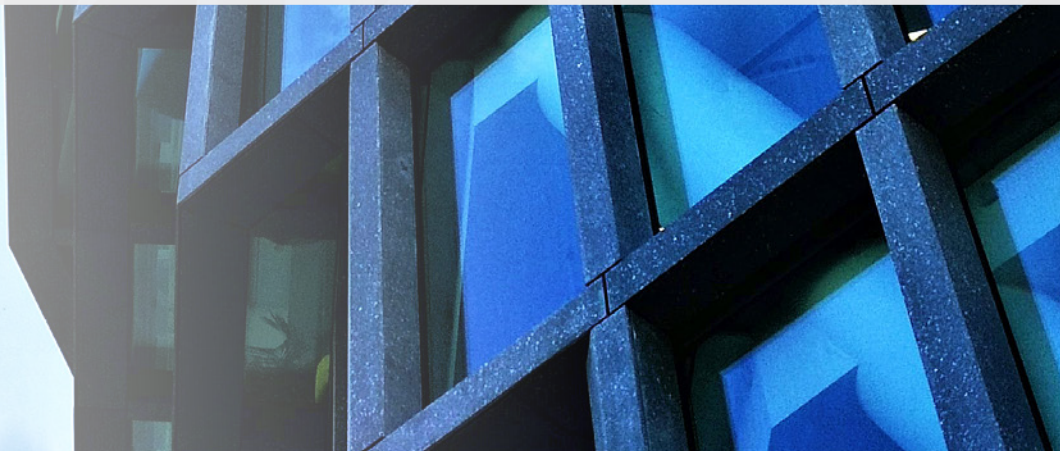
Poland is one of the most attractive locations for IT sector from all over the world. Our country stands out mostly because of the accessibility to qualified specialists who represent not only the best possible education, but – most of all – creativity and the ability to ovecome challenges and create the future. Moreover, Poland surprises with the constant development of its cities that attract new investors with not only modern office space, but also with the quality of life on the highest level.

Poznań is one of the most important business centres in Poland. There are over 118,000 companies registered in the city. *The capital of the Greater Poland region is one of the major centres for foreign investments in our country. The potential of the city has also been discovered by the companies from the IT sector. For several years, there has been a noticeable growth of investments in Poznań coming from this sector. Those companies appreciate the city's academic and scientific character which allows them to have access to a well-educated workforce as well as to scientific staff and tens of research & development facilities. Another advantage of Poznań is its good geographical location, which allows using the transportation network to reach any place in the world. The city does its best to increase the citizens' quality of life and draw new talent.*

2020 was a year when we all have focused on fighting the pandemic of SARS-CoV-2. It had a huge impact on the economy. Also IT - related companies had to face the challenges of remotework, as well as shortfall in new orders. However, the climate of remote work or cybersecurity matters connected to it are nothing new for this sector. There is a noticeable growth of the need for the digital and e-commerce services. A huge opportunity lies ahead of the game development sector, which has always been supported in Poznań. The employers from the IT sector in Poznań continue to develop, expand teams and implement various projects.

Recognising the importance of new technologies, the city's Strategy of Development 2020+ emphasizes their development since we realize how important they are to the innovative economy. We are delighted that Poznań is being distinguished by the investors from the IT sector and all those new projects show that it is worth investing in here.

I'm presenting you this report that will put light on the climate of Poznań's IT market, present its advantages and predictions for the future.



Experis™
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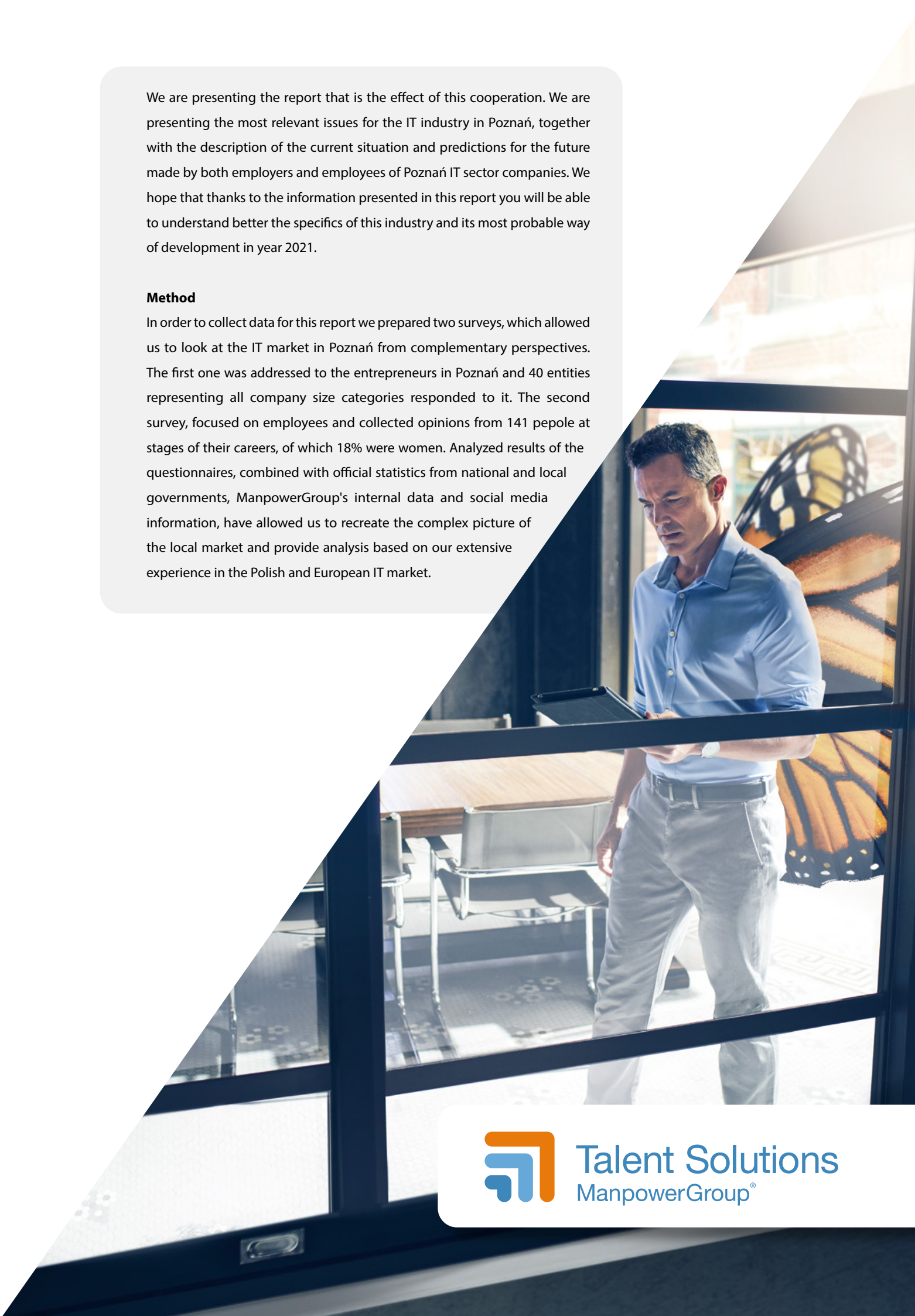
Two connected ManpowerGroup brands – Experis and Talent Solutions thanks to every-day business efforts gather the expertise and knowledge on the recruitment market with specific focus on the IT recruitment in Poland and Europe. The research on the condition of this sector in times of pandemic-caused crisis is a fascinating and responsible mission. Many difficulties and challenges together with new outstanding opportunities have influenced this industry significantly for last twelve months. The IT sector is best prepared for numerous challenges that came together with the pandemic crisis, especially regarding the development of remote ways of work and the need to create new solutions for customers. What we are certain of is that this unusual situation has brought an unexpected and important opportunity to grow for those employers, who are able to adjust. We are proud to have another opportunity to cooperate with the Investor Relations Department of the City of Poznań in order to examine the condition of this industry in the city.

We are presenting the report that is the effect of this cooperation. We are presenting the most relevant issues for the IT industry in Poznań, together with the description of the current situation and predictions for the future made by both employers and employees of Poznań IT sector companies. We hope that thanks to the information presented in this report you will be able to understand better the specifics of this industry and its most probable way of development in year 2021.

Method

In order to collect data for this report we prepared two surveys, which allowed us to look at the IT market in Poznań from complementary perspectives. The first one was addressed to the entrepreneurs in Poznań and 40 entities representing all company size categories responded to it. The second survey, focused on employees and collected opinions from 141 pepole at stages of their careers, of which 18% were women. Analyzed results of the questionnaires, combined with official statistics from national and local governments, ManpowerGroup's internal data and social media information, have allowed us to recreate the complex picture of the local market and provide analysis based on our extensive experience in the Polish and European IT market.



Talent Solutions
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Investment Climate in Poznań

Poznań and Greater Poland in numbers (Source: Central Statistical Office, 2021)

Poznań inhabitants	**533 830**
Poznań metropolitan area inhabitants	**1 400 000**
Students	**102 164**
Graduates	**25 100**
Public Universities	**8**
Private Universities	**17**
Unemployment rate (Poznań)	**2%**
Unemployment rate (Greater Poland)	**3.1%**
Average monthly income (Poznań)	**5 355.57 PLN**
Average monthly income (Greater Poland)	**4 382.96 PLN**
GDP per capita (Poznań)	**103 359 PLN**
GDP per capita (Greater Poland)	**59 355 PLN**

Biggest Private Employers

11,000	**11,000**	**2,717**	**2,000**	**1,300**

Biggest Academic Employers

5,253	**2,241**	**2,304**	**1,400**	**1,141**

Existing IT Market

Central Statistical Office of Poland lists 8 992 companies from the widely regarded IT sector operating in Greater Poland. The majority of them are enterprises offering IT services, which corresponds to the general outlook of the IT market in Poland. A high demand for computerisation is additionally fueled by entrepreneurs from other sectors who, in the light of the pandemic, are increasingly interested in getting with their offer to the consumers via the web.

Experts' predictions regarding the ICT market invariably point to the further continuous growth of demand for IT services – not only on the Polish market, but also on the European one. Many companies headquartered in Poznań work on projects for international customers which is an evidence of technological development and highly qualified talent pool.

Table 1: Poznań's IT sector in numbers.

The number of service centres in Poznań	**115**
The number of employees of IT SCC's in Poznań (including: IT, ITO, R&D, SSC centres)	**8 257**
The share of IT-related service centres in the total number of service centres in Poznań	**26.3%**
The share of Poznań's IT employees in the total number of IT employees in Poland	**6.9%**
The number of companies in Greater Poland engaged in publishing software	**583**
The number of companies in Greater Poland engaged in activities related to software and IT consultancy and related activities	**231**
The number of companies in Greater Poland engaged in data processing and website management	**6 162**
The number of companies in Greater Poland engaged in repairing computers and other IT hardware	**735**
The number of public universities offering IT-related studies	**4**
The number of private universities offering IT-related studies	**3**
The number of IT students (2019)	**6 000**
The number of IT graduates (2020)	**1 500**

Source: City of Poznań, Central Statistical Office

Figure 1. Company profiles

Beyond.pl has been serving the Global and Polish data processing market for over 15 years. It has a 42MW multi-tier campus with available power capacities allowing customers to scale quickly. It operates two data centres (core and edge type) in Poznań, centre of Poland (300 km to Warsaw and Berlin). Their facility – Data Center 2 – is the only location in the European Union that meets the strict ANSI/TIA-942 Rated 4 certificate requirements for the design, building, and operating. It guarantees the highest level of availability - up to 99.9999%, low latency, and power density up to 20kW/rack. Beyond.pl is the country's first carrier-neutral and green data centre campus. High-energy efficiency allows it to achieve a PUE (Power Usage Effectiveness) of 1.2. For customers. It is a guarantee of lower costs and a reduction of carbon footprint for the customers.

Beyond.pl offers the broadest portfolio of services, including colocation, dedicated infrastructure, and cloud computing services in all its forms: private cloud, public cloud, global cloud (Microsoft Azure, AWS, Google Cloud), and multi-cloud hybrid solutions.

Capgemini is the world leader in consultancy, technology services, and digital transformation. The Capgemini Software Centre in Poznań was established in 2016. It employs specialists creating software adjusted to the expectations of the customers from all over the world working in Logistics, Automotive, Telecommunication, or Public sector. Utilized technologies include JAVA, JavaScript, .NET. Experts work in differentiated teams which use the German and English language.

Computacenter Poland is a company operating in Poznań for two years as the only Polish centre of this multinational corporation. With significant successes, it hires and supports the development of people communicating in German and English language. Employees of the company are people striving to begin working in an international environment while using foreign language.

FlexDev is a programming company granted with many international awards and which creates new opportunities in ITO and BPO through building and managing NGDC+ centres (Next Generation Delivery Center). FlexDev cooperates with notable international corporations and advises known and valued world enterprises.

Source: organizations' materials

GFT is an international company specializing in the creation of technology solutions for banks, insurance companies, and industrial organizations. The team of world-class experts of GFT connects the ability to work in regulated surroundings with competence in the field of cloud, Artificial Intelligence, and the Internet of Things. The company employs over 6,000 people in fifteen countries and almost 1,000 in four Polish cities: Poznań, Warsaw, Łódź, and Cracow.

Poznań Tech Hub is the biggest technology centre of GSK, employing 700 experts. Poznań teams deliver advanced IT services worldwide, supporting R&D processes, production, and distribution of GSK products to millions of patients all over the world.

NTT DATA Business Solutions sp.z o.o., SAP Platinum Partner, is a company with over 25 years of experience in the field of SAP and IT consulting, especially in projects for the manufacturing industry. It provides a full range of services related to the implementation, development and maintenance of SAP solutions. Partner for companies facing the challenge of digital transformation, e.g. planning to migrate from SAP ERP to SAP S / 4HANA. It launches its own proprietary products supplementing SAP systems, e.g. for master data management or document flow automation. It has its own data center offering advanced services in the multicloud model.

Lumen is a global company of over 40,000 professionals, dedicated to empowering businesses to produce amazing things. Driven by the challenges and opportunities of the 4th Industrial Revolution, they help to change how people interact and how companies acquire, analyse and act on data with flexible, intelligent, secure, and collaborative solutions built for the next generation of business.

Siemens Digital Industries Software provides solutions and tools for computer-aided design in electronics (Electronic Design Automation - EDA). The company's customers include key global manufacturers of semiconductor chips and microelectronic systems. The company also conducts advanced scientific research in cooperation with the international academic community.

As a world technology leader in a wide range of products, including tools for synthesis of testable digital systems, it is an active sponsor and participant of many conferences of the highest rank. The priority of the Poznań branch are techniques and tools supporting automatic production testing of large-scale digital integration systems.

Source: organizations' materials

Nordcloud specializes in delivering cloud solutions based on AWS, MS Azure, and GCP platforms both in terms of infrastructure as well as in building cloud-native apps, managed cloud services, and UX. The company has been noted twice in Gartner's Magic Quadrant as one of the key players in the network of companies delivering services connected with managing cloud infrastructure.

Nordcloud holds certificates of AWS Premier Consulting Partner, Google Cloud Platform Strategic Partner, and a Microsoft Gold Cloud Partner.

The company has offices in ten countries in Europe and cooperate with corporate customers, supporting them with the transformation of their systems. In Poland, the main office is in Poznań, but offices are also based in Wrocław and Warsaw. Some of employees work remotely.

SNOW.DOG is a Polish company that takes care of delivering innovative e-commerce solutions. It provides support in creating online shops, mobile applications as well as solutions using Machine Learning or robotics in order to strengthen online sales.

Sollers Consulting is an international company that specializes in consulting in the software implementation that supports the finance sector in business transformation. Sollers Consulting teams contributed to enlarging the digital potential of over 80 financial groups. Those companies include: Allianz, AXA, LV=, BNP Paribas Cardif, Basler, Generali, Zurich, Santander Consumer Bank, ING, and many more.

Sollers Consulting focuses on IT systems and supports insurance companies, banks, and leasing companies in the transformation and adaptation of new technologies. The company offers RIFE – a digital platform for e-commerce for the insurance sector. Sollers Consulting cooperates with more than 15 providers of technology, including: Guidewire Software, Tia Technology, Fadata, Oracle AWS, or Microsoft.

STX Next is the biggest Python software house in Europe. At the moment the company employs over 350 employees including 200 Python and JavaScript Developers. Its domain is also DevOps, Machine Learning, Data Engineering, React Native, and UX. Over the 15 years, its interdisciplinary teams have created unique products for the customers, connecting Agile, good practices, excellent quality software, and new technologies.

Source: organizations' materials

TomTom is a leading and independent specialist in the field of geolocalisation technology, creating mobility thanks to high-quality maps, navigation software, information on traffic and services in real-time.

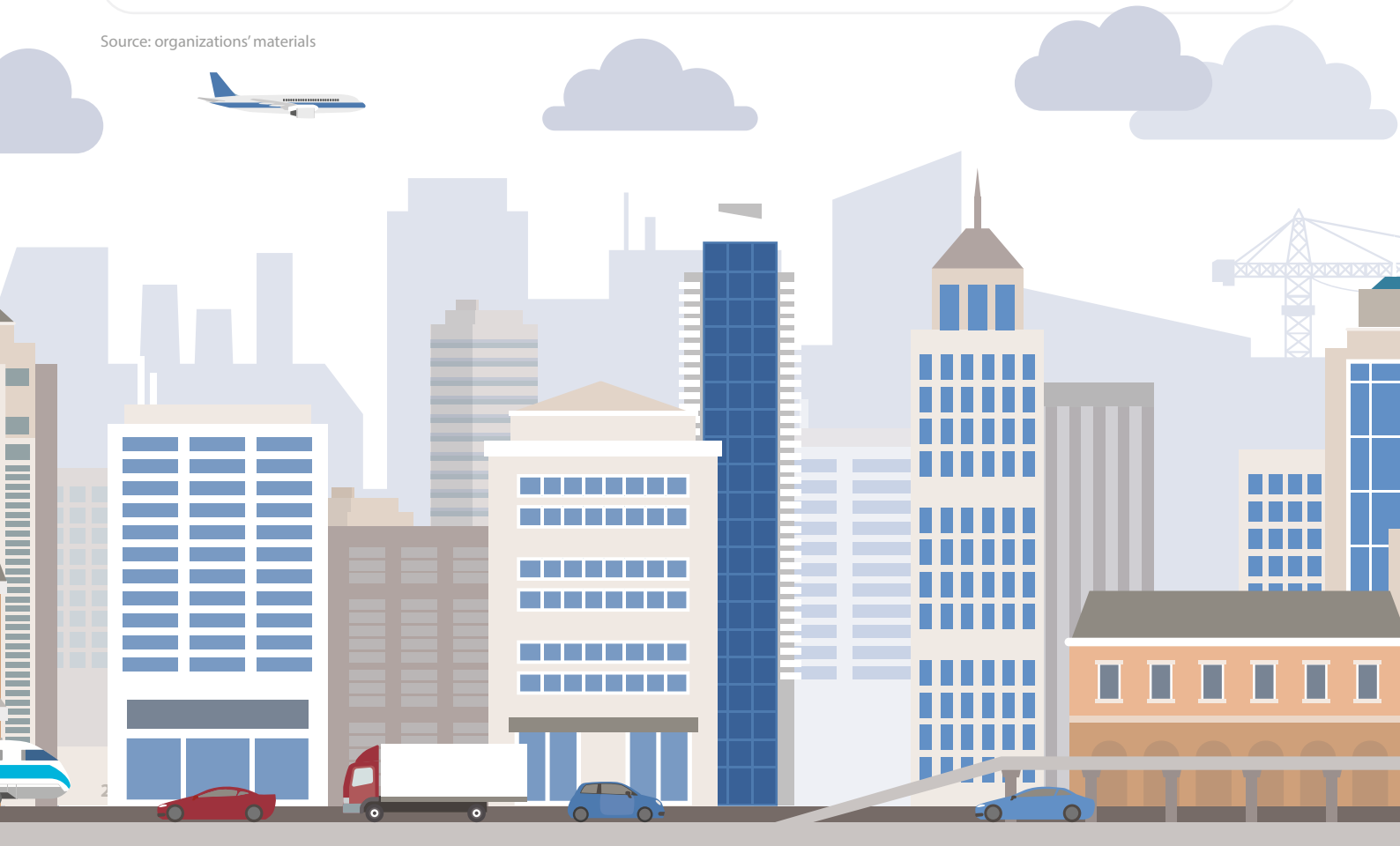
To achieve the vision of the safe world, free from congestion and exhaust emissions, it creates innovative technologies that keep the world moving. Connecting rich experience with leading business and technology partners, the company fuels connected cars, intelligent mobility and in the future autonomic cars.

The company is present in Poland in Łódź and since 2017 also in Poznań, where it builds engineering teams connected with the development of software.

Technologies delivered by TomTom gained the trust of hundreds of millions of people throughout the world.

Greater Poland IT Cluster Association (Stowarzyszenie Wielkopolski Klaster Teleinformatyczny) has been integrating Greater Poland's science and business communities around advanced IT technologies since 2008. The cluster brings together more than 100 members from the IT sector (companies, R&D, NGOs, technology parks, law firms) with which it organizes numerous projects, cross-industry events, hackathons, trade fairs, national and international missions (EU, Japan, USA). By joining the association, members gain invaluable relations and a source of knowledge regarding global and local technological and market trends. The cluster takes up challenges which go beyond the capabilities of individual companies. It focuses on creating growth mechanisms for cluster members, not the association itself.

Source: organizations' materials



Access to the IT Qualifications on the Job Market

Table 2. Number of potential IT employees possessing selected technical skills

C/C++	3 106
HTML	4 332
JavaScript	5 466
Linux	3 874
SQL Server	31
Unix	448
Python	3 687
Spring	1 205
SQL	7 286
Java	4 035
CSS	4 970
C# / .NET	2 455 / 1 298
Oracle	1 275
PHP	2 935
Hibernate	941
Windows Server	1 281
MySQL	3 130
Jboss	265
Ruby on rails	276
Scala	171
Sybase	72
Swift	229
PostgreSQL	1 608
Security Analyst / Consultant / Engineer	2 389
Network Administrator	286
SAP Consultant	216
Scrum Master	749
System Administrator	496
Database Administrator	221
Helpdesk	845
Project Manager	3 733
Product Manager	1 994

Source: declarative values stated by LinkedIn users

Educational Potential of Poznań

Poznań, with its higher education offer, is a unique city on a nationwide scale. As an academic centre it is not only known by the quality of education offered by the local universities, but also by the wide degree offer, incomparable with other cities. This is also applicable to the IT-related majors. On the one hand, prospective students can count on the high education quality at the most popular universities, on the other - on the possibility to develop in highly specialized fields such as Bioinformatics at the Poznań University of Technology.

Public institutions offering IT studies:

- Poznań University of Technology
- Adam Mickiewicz University
- Poznań University of Life Sciences
- Poznań University of Economics and Business

Private institutions offering IT studies:

- WSB University
- Collegium Da Vinci
- The University of Communications and Management Poznań

Table 3. Overview of IT-related degree courses at Poznań's higher education institutions

Poznań University of Technology	IT & Telecommunication Faculty	IT; Bioinformatics; Artificial Intelligence, Teleinformatics
Adam Mickiewicz University in Poznań	Mathematics and IT Faculty	IT; Analysis and processing of data
Poznań University of Life Sciences	Faculty of Environmental Engineering and Mechanical Engineering	Applied IT
Poznań University of Economics and Business	Institute of Informatics and Quantitative Economics	IT and Econometrics
WSB University		IT
Collegium Da Vinci	IT & Visual Communication Faculty	Data Science, IT; IT Project Management; Games Development
The University of Communications and Management Poznań		(Postgraduate studies) Java Programming; Internet Programming Technologies; IT Systems Security; IT Infrastructure Management

(Source: institutions' websites)

Figure 2. Profiles of selected institutions

The Faculty of Mathematics and IT at the Adam Mickiewicz University is the country's leading academic and scientific facility located at Poznań's Morasko campus. IT is a field of study which stands out in its academic offer. In this field, studies are being conducted with the use of modern technological background and by known practitioners of the IT sector.

The Faculty of IT and Telecommunications of Poznań University of Technology is Poland's top in terms of IT and electronics (source: Guide2Research 2020). Leading in the matter of education, through the effective scientific research conducting (the best faculty in Poland, 308th position in the world, 4 members of the Polish Academy of Sciences), realisation of different research and R&D projects, cooperation with enterprises (for example BZ WBK, Allegro, GSK, IBM, Intel, Microsoft, Roche, Samsung, Volkswagen, and many more), implementations, patenting (more than 100 patents in recent years). All that leads to knowledge sharing, development of the region and visible influence upon science in Poland.

The Institute of Informatics and Quantified Economy of Poznań University of Economics and Business employs high-class scientists, specialists in fields of Economy, Management, and Mathematics as well as modern information-communication techniques. The institute leads scientific research on the verge of those areas in cooperation with scientific, financial and other institutions interested in implementing modern business solutions in economic practice.

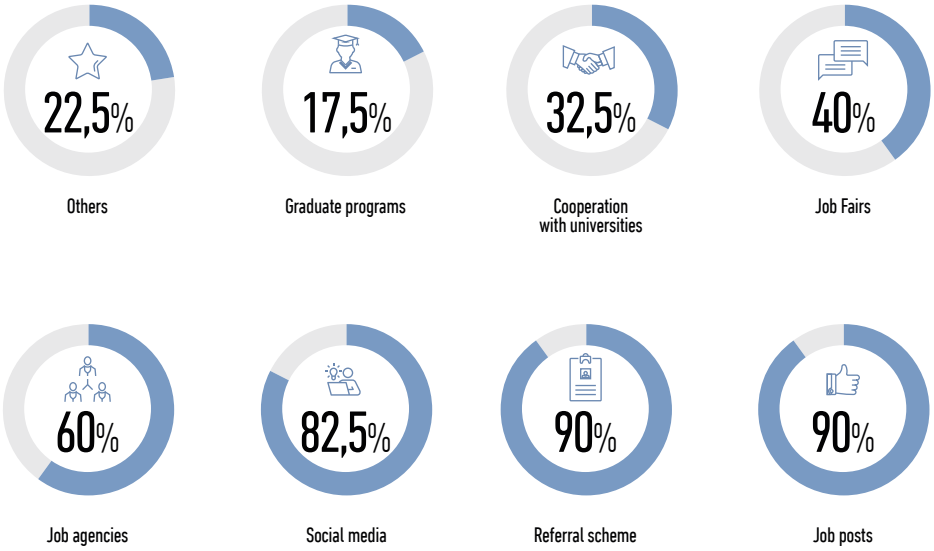
PCSS functions for the development of science as the National Centre of Big Computing Power and as an operator of country's scientific network PIONIER. PCSS stands out with the wide R&D potential in the field of information and communication technologies. Experience gained in almost 300 international and national projects results in many different implementations concerning digitalizing science, economy, and society. These actions are being supported by modern laboratories located in the main facility of CBPIO as well as a living lab in the city – PSNC Future Labs.

Source: organisations' materials


Blonde & Bikini
STOMATOLOGIA

Availability of Acquiring IT Candidates in Poznań

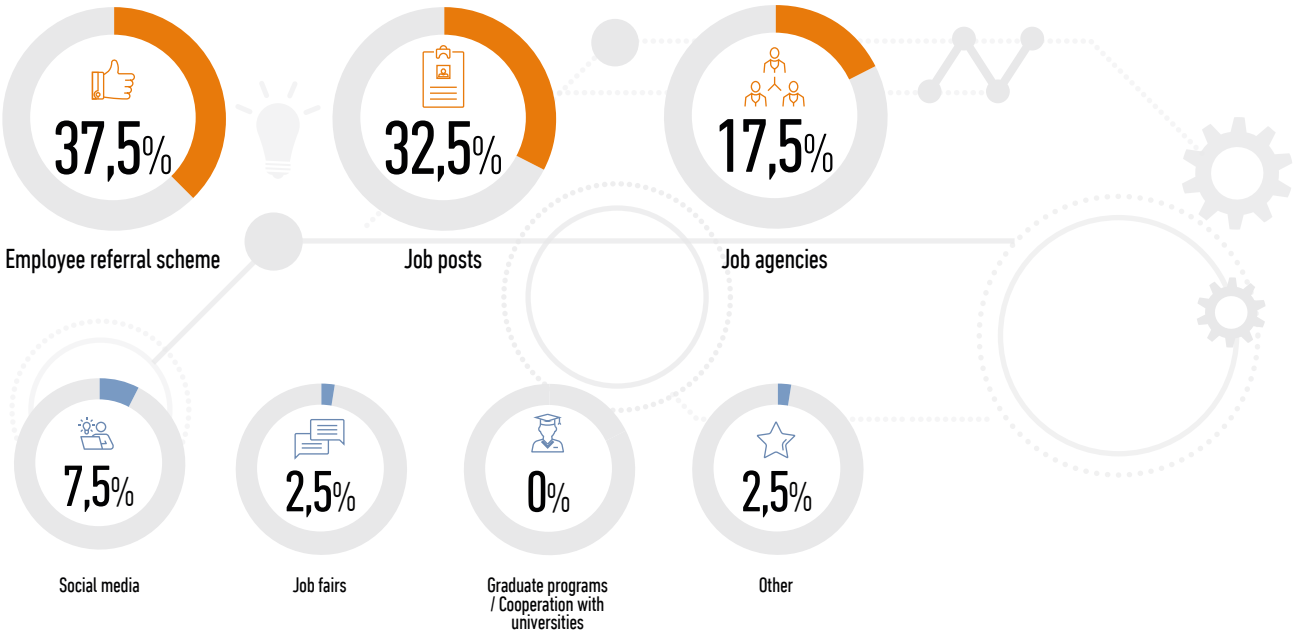
Figure 3. Recruitment methods used by IT employers in Poznań



Source: ManpowerGroup's own elaboration based on the conducted survey

Employees from the IT sector in Poznań use both internal and external ways of recruitment. Besides typical job postings, they actively use social media tools. Almost 2/3 of employers (60.0%) support themselves by cooperating with external agencies. Another important and stable source of new candidates are referral programs (90,0%). Visibly less attention is being paid to the activities designed for younger employees such as job fairs, cooperation with universities, or programs for graduates. One of the reasons for this may be the pandemic that stopped most of the public events from happening last year. The other effect of the COVID-19 crisis may be the employer's need to hire more experienced candidates, who will be able to adapt remotely more easily.

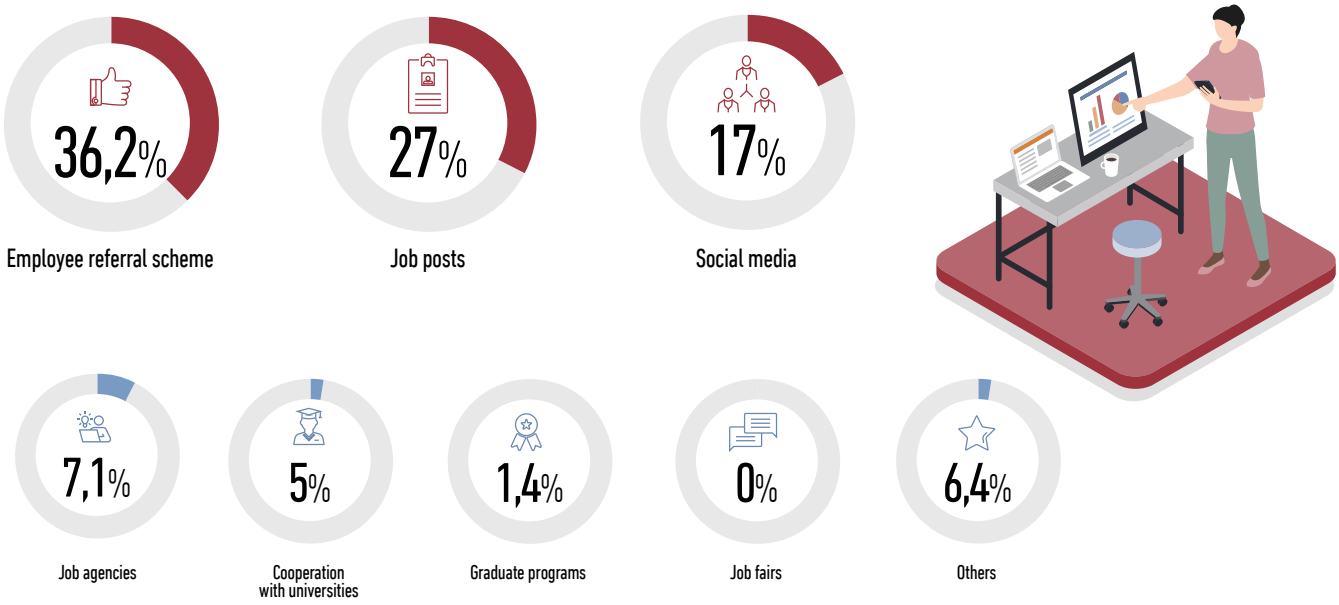
Figure 4. The most effective methods of finding new employees according to Poznań's employers



Source: ManpowerGroup's own elaboration based on the conducted survey

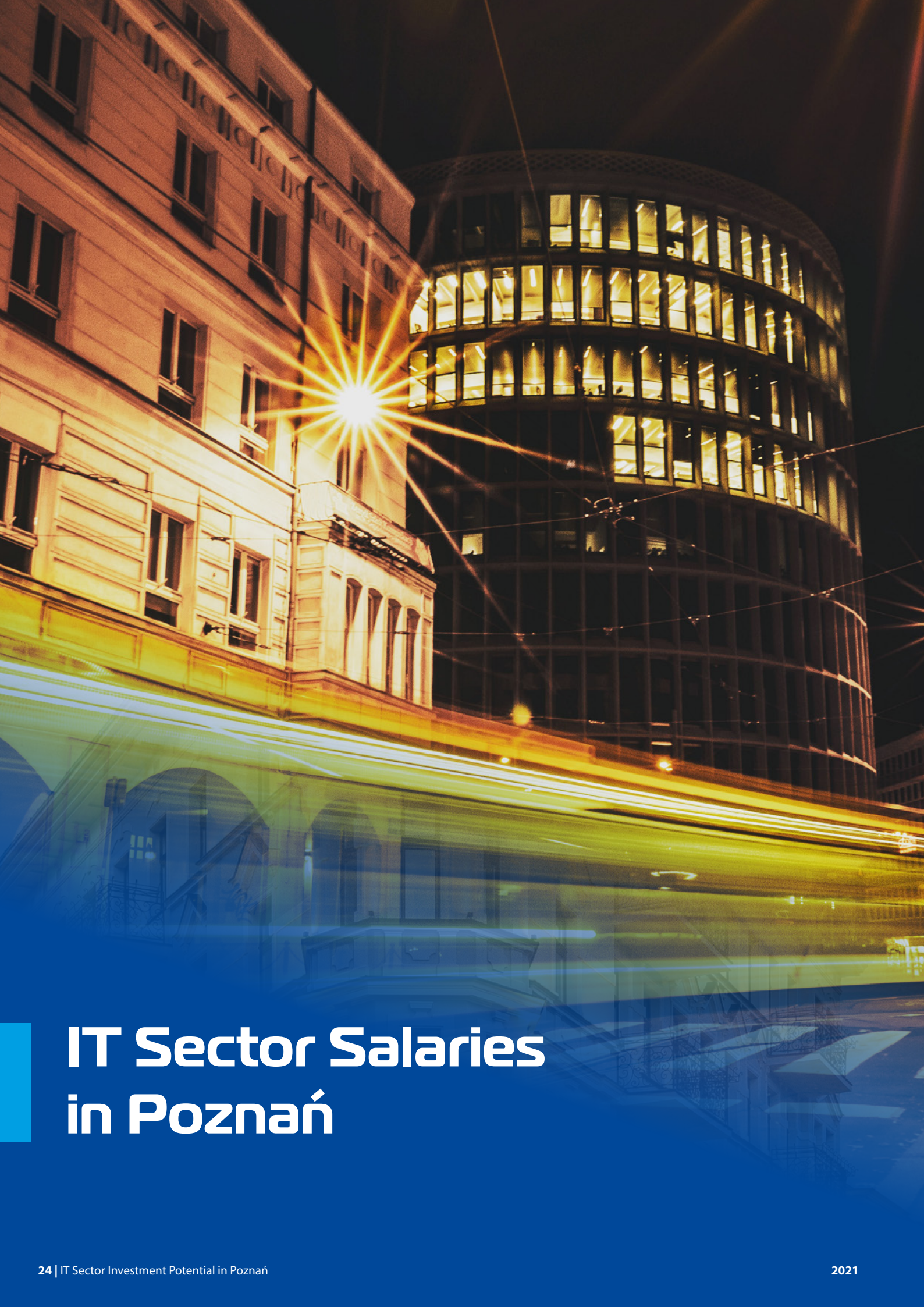
While trying to choose the most successful method of recruitment, employers have pointed out the referral schemes (37.5%) and job posts (32.5%). It is visible that social media are not yet bringing the expected results in terms of recruitment (7,5%). Moreover, actions dedicated to young candidates and graduates are not giving satisfactory results or are not introduced at all.

Figure 5. The most effective ways of IT recruitment according to IT employees



Source: ManpowerGroup's own elaboration based on the conducted survey

The most popular indications among employees in terms of the most effective recruitment methods correspond with those of employers. 36.2% favored the employee referral scheme and 27.0% favored job posts. The prevalence of the former option may be related to the employee's perspective that such schemes can bring additional earnings to the referrer. The lower score for employment agencies (7.1%) may be due to the fact that from an employee's perspective, recruiting via such a company may not differ much from recruiting directly. The result of social media (17.0%) shows the potential of this form in the eyes of the respondents.



IT Sector Salaries in Poznań

Table 4. Salaries in the IT sector in Poznań in PLN and EUR gross per month

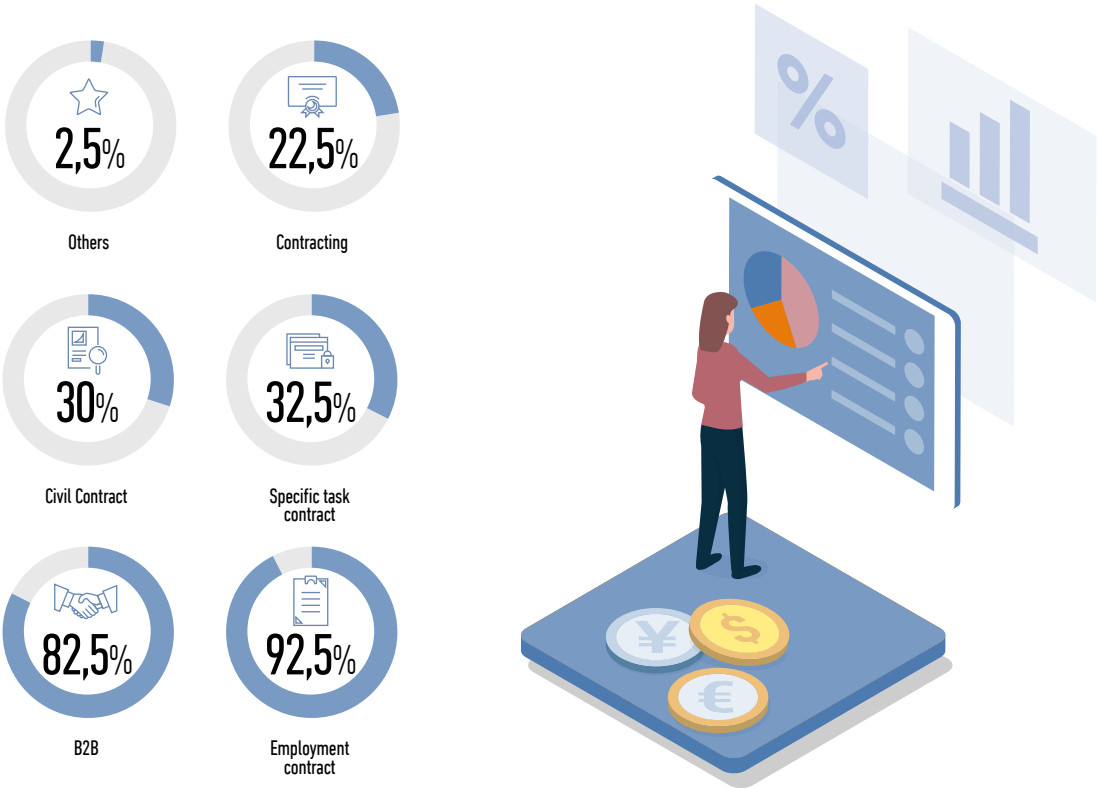
Position	Junior	Specialist	Senior
Java Developer	5 500-7 000 PLN 1 200-1 500 EUR	10 500-14 500 PLN 2 300-3 200 EUR	16 000-19 000 PLN 3 500-4 200 EUR
JavaScript Developer	5 000-6 500 PLN 1 100-1 400 EUR	9 000-12 000 PLN 2 000-2 600 EUR	15 000-18 000 PLN 3 300-4 000 EUR
.NET Developer	5 000-6 500 PLN 1 100-1 400 EUR	8 000-10 000 PLN 1 800-2 200 EUR	11 000-14 000 PLN 2 400-3 100 EUR
PHP Developer	4 500-6 000 PLN 1 000-1 300 EUR	11 000-14 000 PLN 2 400-3 100 EUR	14 000-16 000 PLN 3 100-3 500 EUR
Project Manager	7 500-9 000 PLN 1 700-2 000 EUR	10 000-13 000 PLN 2 200-2 900 EUR	12 500-18 000 PLN 2 800-4 000 EUR
Manual Tester	4 500-5 500 PLN 1 000-1 200 EUR	6 000-7 000 PLN 1 300-1 500 EUR	11 000-12 000 PLN 2 400-2 600 EUR
Automatic Tester	8 000-10 000 PLN 1 800-2 200 EUR	9 500-12 500 PLN 2 100-2 800 EUR	16 000-18 500 PLN 3 500- 4 100 EUR
Help Desk with English	5 600-6 700 PLN 1 200-1 500 EUR	6 000-7 500 PLN 1 300-1 700 EUR	7 000-9 000 PLN 1 500-2 000 EUR
Help Desk with German	6 500-7 500 PLN 1 400-1 700 EUR	7 500-8 500 PLN 1 700-1 900 EUR	9 000-10 000 PLN 2 000-2 200 EUR
Help Desk with Scandinavian language	6 500-7 500 PLN 1 400-1 700 EUR	7 500-8 500 PLN 1 500-1 900 EUR	9 500-10 500 PLN 2 100-2 300 EUR

Source: ManpowerGroup's own elaboration; 1PLN = 0.22EUR

Despite the hardships that many entities felt in the spring of 2020, the upward trend in IT salaries has not faltered, and at some experience levels (especially the higher ones) competition has further intensified. The salary ranges presented also reflect current technology trends, where modern web solutions based largely on JavaScript are particularly popular. Java's strong position also remains unwavering. An Automation Tester, who is more proficient in code, is able to earn even twice as much as a Manual Tester. For the positions related to the Help Desk type of activities, the financial conditions are dictated primarily by the knowledge of a foreign language. Although in terms of salaries Poznań is behind such centers as Warsaw, Kraków or the Tri-City and is closer to Upper Silesia or Łódź, IT workers are able to find a lot of financially attractive offers.

Preferred Forms of Employment and Offered Benefits

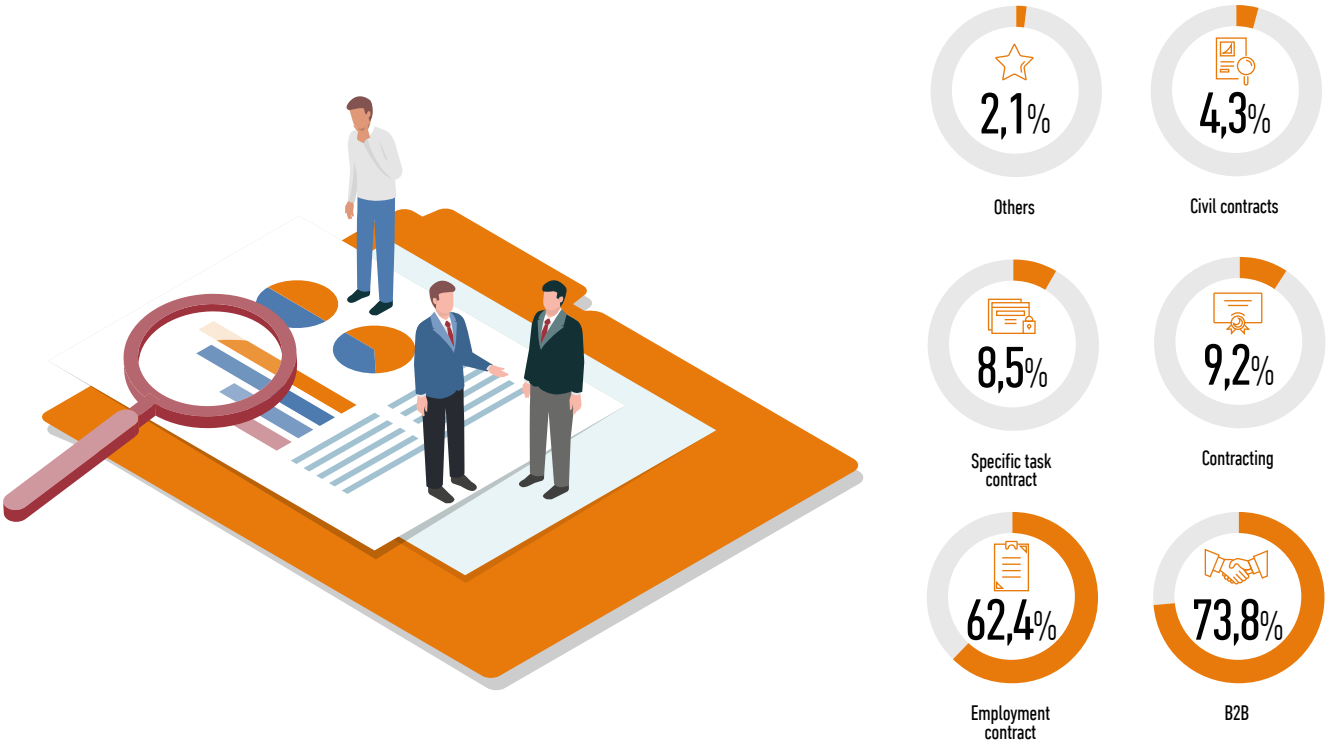
Figure 6. Forms of employment at IT companies in Poznań.



Source: ManpowerGroup's own elaboration based on the conducted survey

The employment contract as well as the contract based on the business-to-business relation (92.5% and 82.5%, accordingly) are contract types most frequently proposed by employers. Nonetheless, about one-third of them still offers specific task contracts (32.5%) or civil types of contracts (30.0%). Out of all the main types of employment, contracting is the least popular one (22.5%). These results present the flexibility of the employers' approach which is characteristic to the IT industry.

Figure 7. Expected forms of employment by candidates in Poznań



Source: ManpowerGroup's own elaboration based on the conducted survey

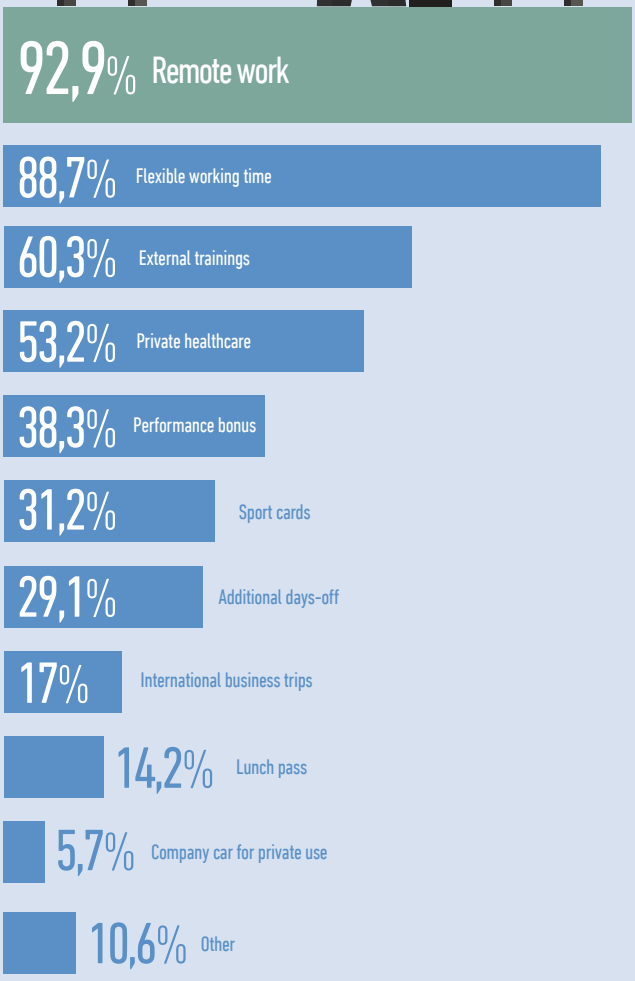
Being able to choose the form of employment most responders would decide on the B2B contract (73.8%) or typical employment contract (62.4.%). These two forms represent either the biggest security for the employee or the lower taxation of income, specifically for more experienced employees. Other forms of agreements and contracts are much less popular. However, employers should have them available as an option when a specific situation occurs.

Figure 8. Benefits offered to employees in Poznań

Source: ManpowerGroup's own elaboration based on the conducted survey

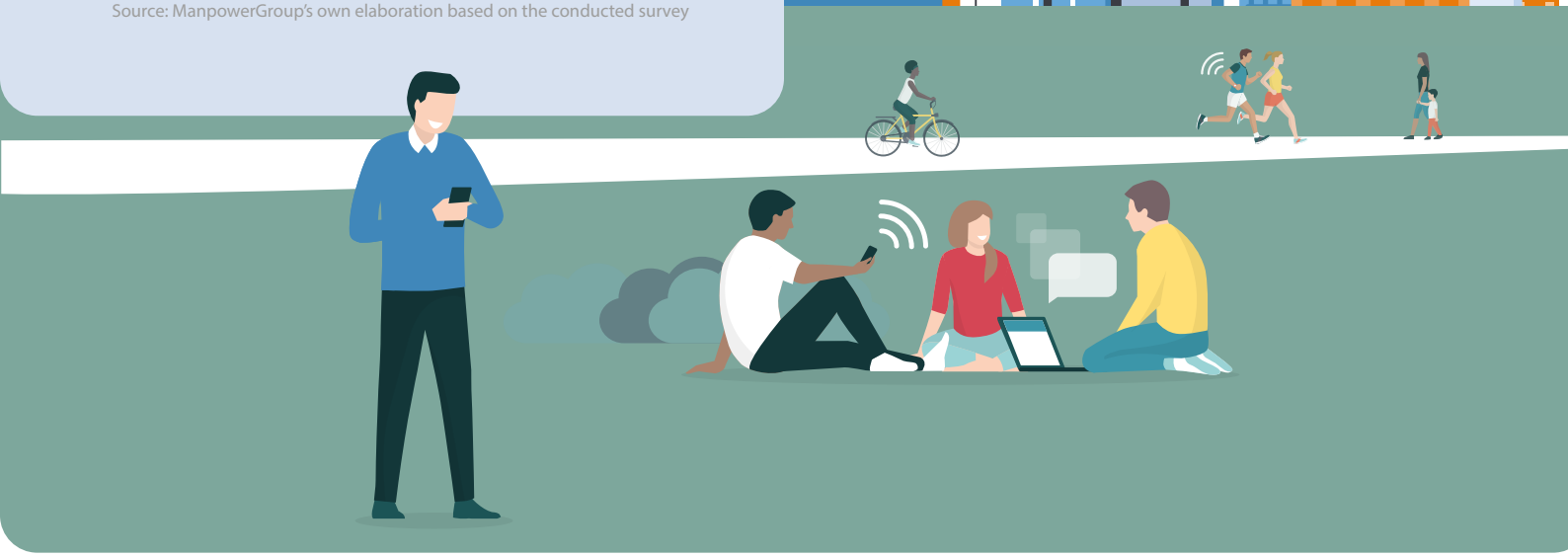
The IT industry, even before the COVID-19 pandemic, was already the one that allowed remote work in many cases. Recent events only made processes related to remote work occur faster in many companies. Therefore, this is the most often mentioned benefit (97.5%). It is closely followed by flexible working time (95.0%) which is strongly connected to the top item from the list. Private healthcare and sportscard (82.5% each) are already considered a standard in the majority of large IT companies, which makes their high positions not surprising. External trainings (62.5%) as well as traveling abroad for work (40,0%) are less popular right now which can also be correlated with the pandemic. Coming back to reality after COVID-19 will show whether these types of benefits will become more (or less) popular.

Figure 9. Benefits expected by IT employees in Poznań



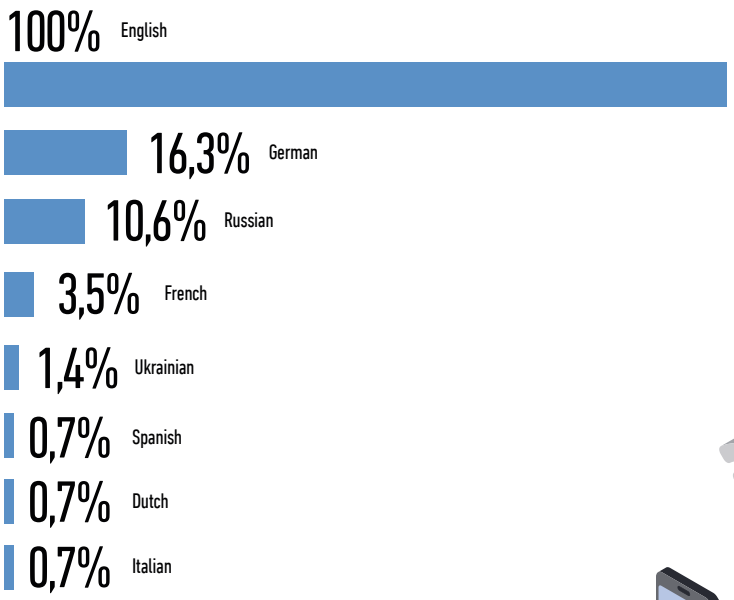
Source: ManpowerGroup's own elaboration based on the conducted survey

Remote working (92.9%) and flexible working hours (88.7%) stand out among the benefits expected by the surveyed employees. The need for development through external training (60.3%) is also important. Most of the other benefits listed in the survey are related to travel and the use of infrastructure closed in the time of the pandemic, which automatically reduced their current attractiveness in the eyes of respondents.



Surveyed IT Companies – Used Technologies and Employees' Competences

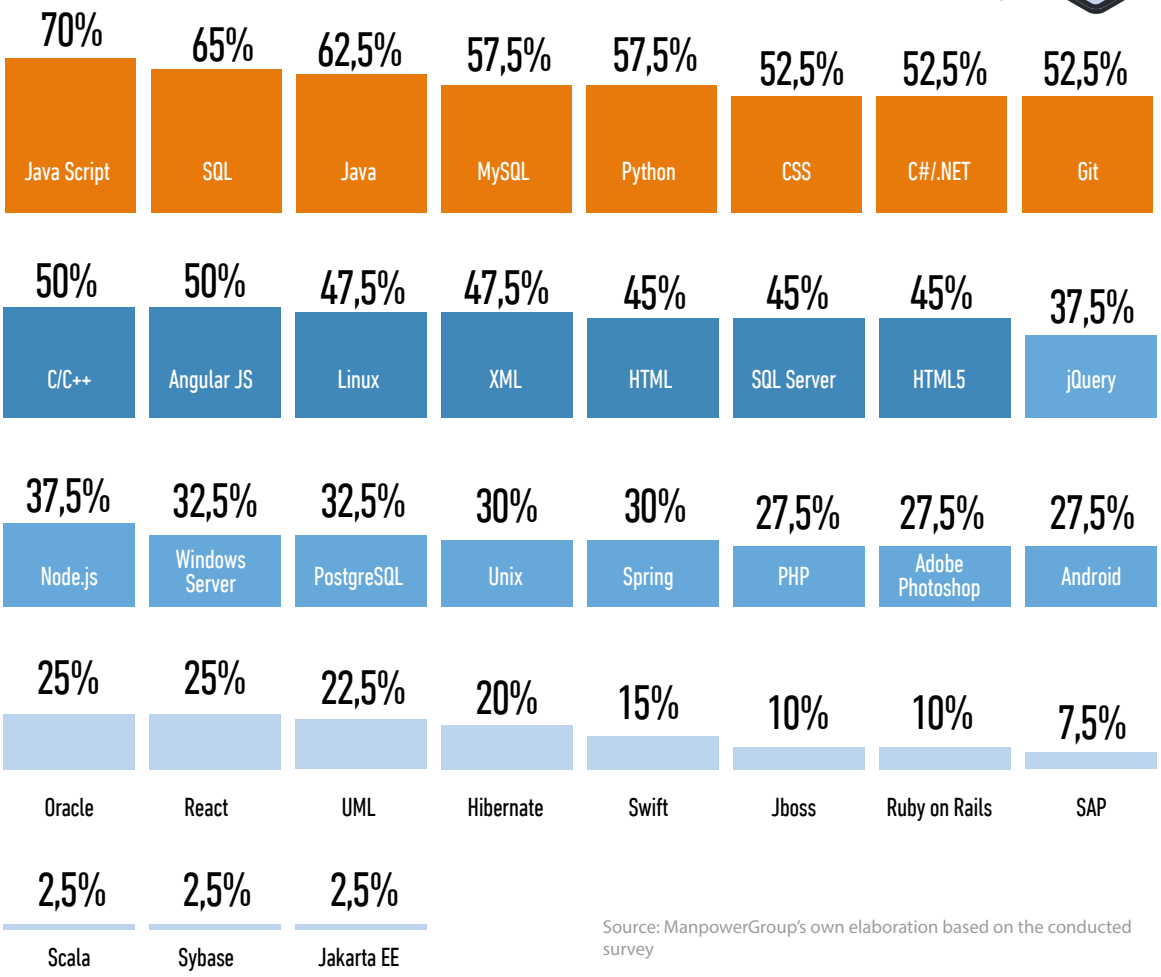
Figure 10. Foreign languages of IT-related employees in Poznań (at least B1)



Source: ManpowerGroup's own elaboration based on the conducted survey

The English language is the lingua franca of the IT industry. All of the respondents have marked that language. The second position is occupied by the language of the most important neighbour and economic partner of Poland - Germany. Its share is however significantly lower. Further positions are occupied by languages of the biggest European countries.

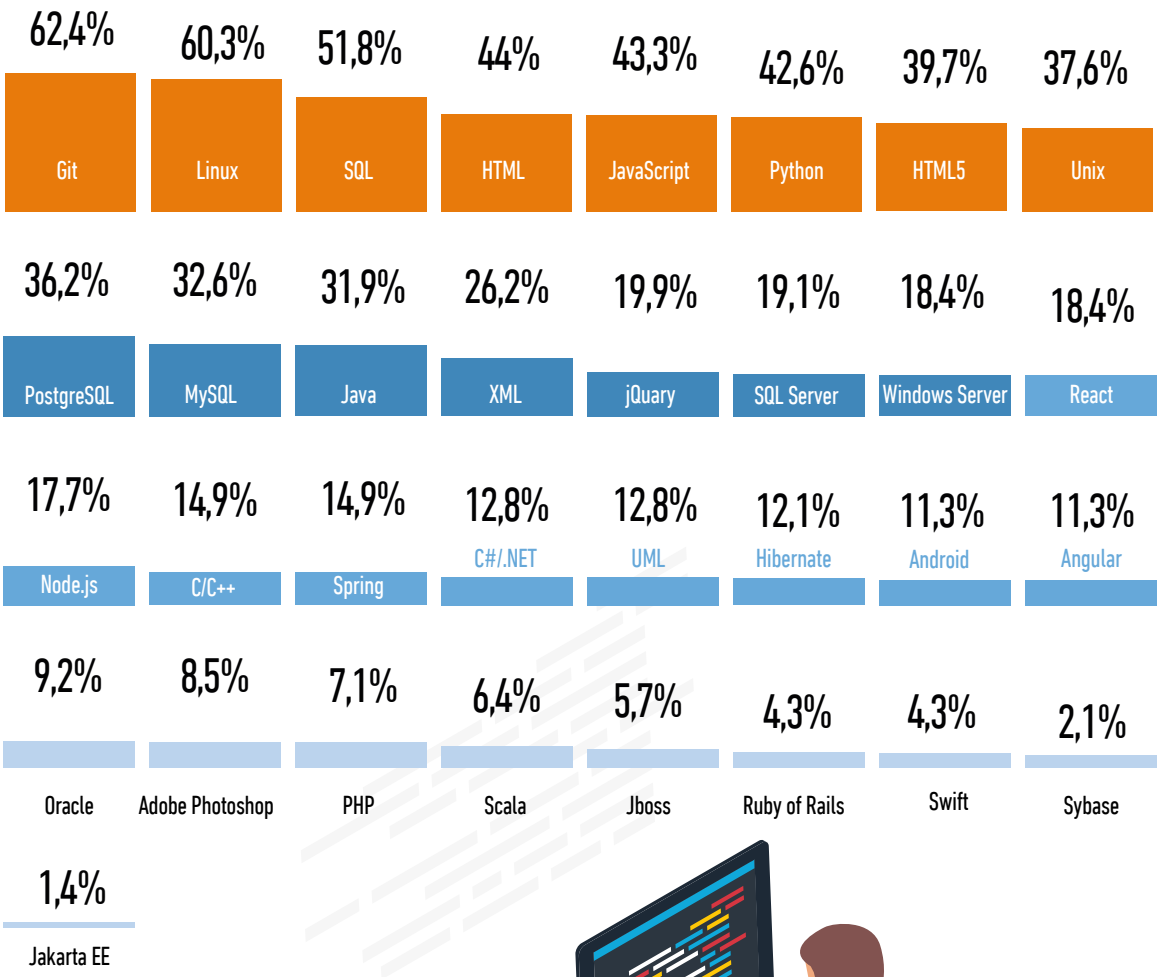
Figure 11. Technical skills of employees of the surveyed IT companies in Poznań



Source: ManpowerGroup's own elaboration based on the conducted survey

According to what employers have stated, the most popular programming language (and technology in general) is JavaScript with 70% of answers. The two runners-up are Java with more than 62% and Python with more than 57% of answers. Out of different database solutions, it is MySQL with more than 57% being ahead of SQL Server with 45% and PostgreSQL with 32.5%. All front-end technologies are very popular.

Figure 12. Technical skills declared by IT employees in Poznań



Source: ManpowerGroup's own elaboration based on the conducted survey

While describing their skillsets, the employees focused more on the general outlook of technologies like Git (more than 62%), Linux (more than 60%) or SQL (almost 52%), that are irreplaceable in the programming routine. Comparing those results to what employers have stated, it is interesting that here Python (with 42.6%) is ahead of Java and that PostgreSQL (32.6%) is the most popular technology for relational databases.

Figure 13. Employees' technical skills most wanted by the employers

62.5%	**JavaScript**	7.5%	MySQL
42.5%	**Java**	7.5%	PostgreSQL
37.5%	**Python**	5.0%	Oracle
35.0%	C#/.NET	5.0%	Jboss
27.5%	Angular	5.0%	Swift
22.5%	Node.js	2.5%	SQL Server
17.5%	HTML	2.5%	Unix
17.5%	Git	2.5%	Hibernate
15.0%	C/C++	2.5%	Scala
15.0%	Linux	2.5%	jQuery
12.5%	HTML5	2.5%	Adobe Photoshop
10.0%	Spring	2.5%	Android
10.0%	SQL		
10.0%	CSS		
7.5%	PHP		
7.5%	Windows Server		

Source: ManpowerGroup's own elaboration based on the conducted survey

The Poznań based IT employers who took part in the survey consider JavaScript as one of the most promising technology. Over 62% of surveyed employers stated that. Other popular programming languages come after with more than 42% of answers for Java and more than 37% of answers for Python. What is very interesting is that the next position is taken by C#/.NET with 35% of answers. Other positions are taken by JavaScript-related technologies like Angular and Node.js which is a natural consequence of the high position of this programming language.

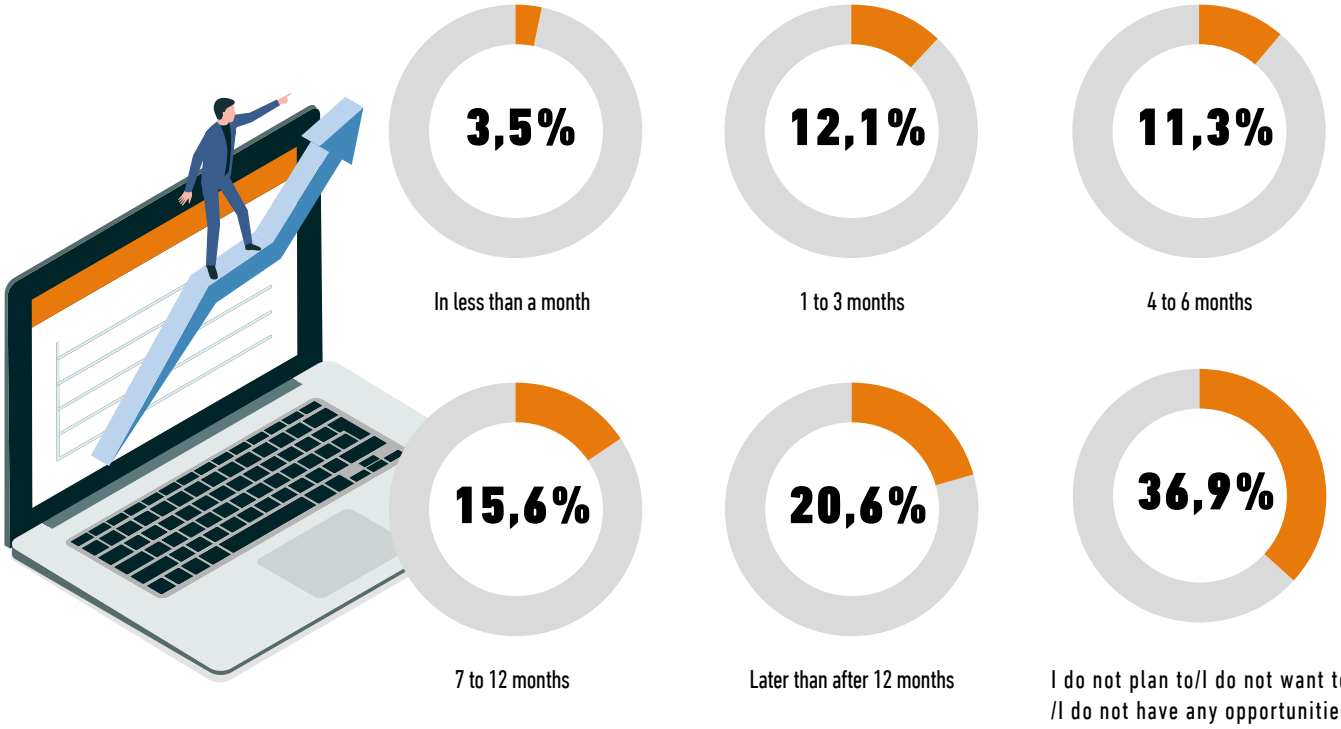
Figure 14. Technical skills most wanted by employers according to employees

58.9%	**JavaScript**	9.2%	Swift
58.2%	**Python**	8.5%	C/C++
55.3%	**Java**	7.8%	PostgreSQL
52.5%	React	7.1%	Oracle
31.9%	Git	7.1%	MySQL
30.5%	Node.js	7.1%	Scala
24.1%	Angular	6.4%	Ruby on Rails
20.6%	Linux	6.4%	jQuery
19.9%	SQL	5.7%	Windows Server
19.1%	C#/.NET	5.0%	SQL Server
17.0%	HTML5	4.3%	Unix
17.0%	Android	3.5%	Hibernate
17.0%	SAP	2.8%	Jboss
12.1%	HTML	2.1%	Adobe Photoshop
12.1%	Spring	1.4%	UML
10.6%	PHP	1.4%	XML
9.2%	CSS	0.7%	Jakarta EE

Source: ManpowerGroup's own elaboration based on the conducted survey

Similarly to the employers, candidates point out that the three most popular programming languages (JavaScript, Python, and Java) will be most demanded in the future IT job market. High positions are also given to other JavaScript technologies (React, Node.js and Angular). Employees however are not as optimistic as employers about C#/.NET.

Figure 15. Promotion perspectives among Poznań IT sector employees



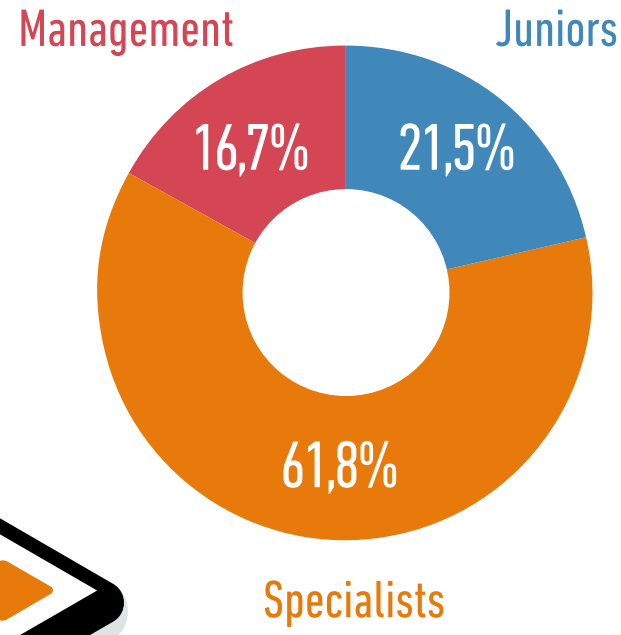
Source: ManpowerGroup's own elaboration based on the conducted survey

In terms of the estimated time period left to receive a promotion to a new rank position in the given company, the employees' answers are rather spread. Almost 37 % of candidates do not plan that or think they have no reasons to believe in such a course of action. Just a little more candidates have replied with one of the answers fitting in 12-month period to be promoted. More than 20 percent do not see that opportunity coming soon. That can be an indicator that the possibility of promotion might be a good incentive for companies to draw the attention of employees.


A

Challenges Faced by the Companies

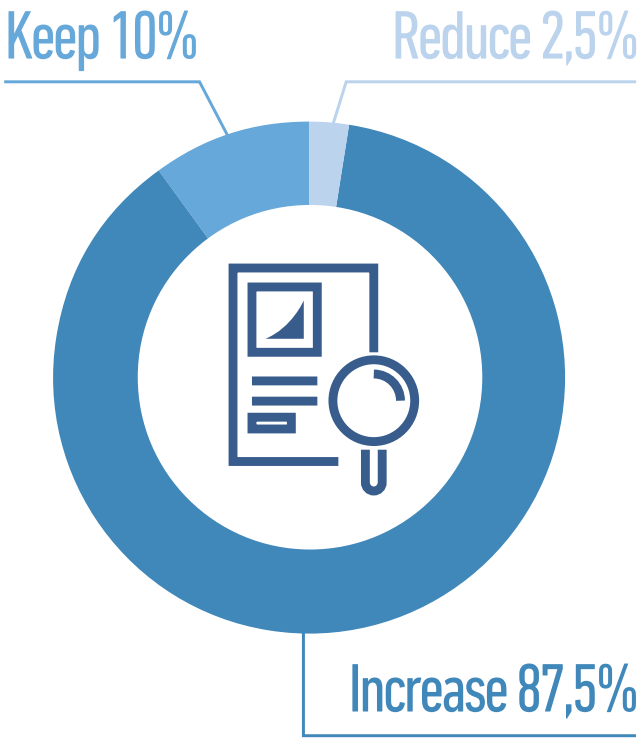
Figure 16. The structure of employment in surveyed companies



Source: ManpowerGroup's own elaboration based on the conducted survey

The vast majority of employees (61.8%) in the surveyed companies are experienced specialists while the juniors constitute approximately 1/5 of the entire workforce (21.5%). The other 16.7% are people taking care of management and coordination of work. Referring to the difficulties with introducing new employees to their duties in view of the prevalent remote work, it is likely that the additional increase in the share of specialists may occur in the near future.

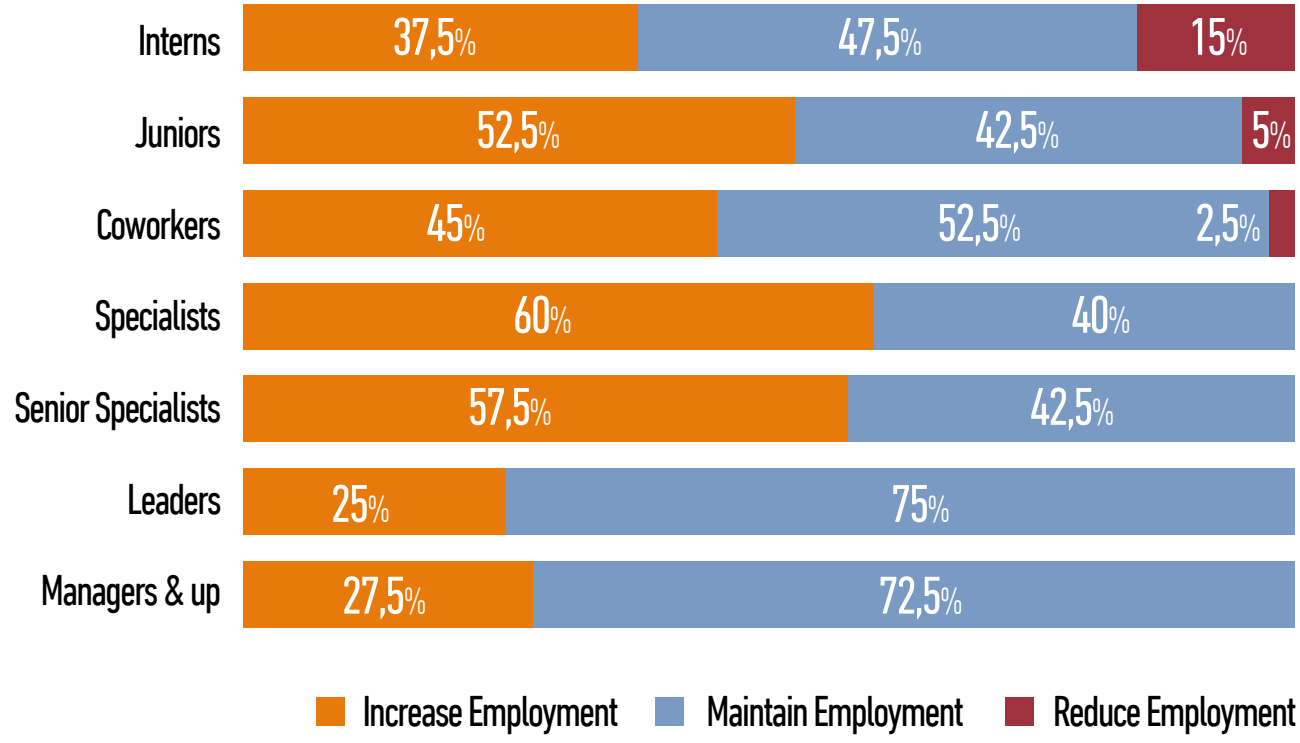
Figure 17. Plans for recruitment for coming 12 months – general.



In connection with the rise of importance of remote work, the IT branch is one of those that - despite the pandemic crisis and economic turbulences associated with it - successfully found the space to grow. That is why it is not a surprise that the vast majority (87.5%) of surveyed employers are planning to go ahead with new job openings in the coming year. Only 1 in 40 employers consider a general reduction of employment in their companies.

Source: ManpowerGroup's own elaboration based on the conducted survey

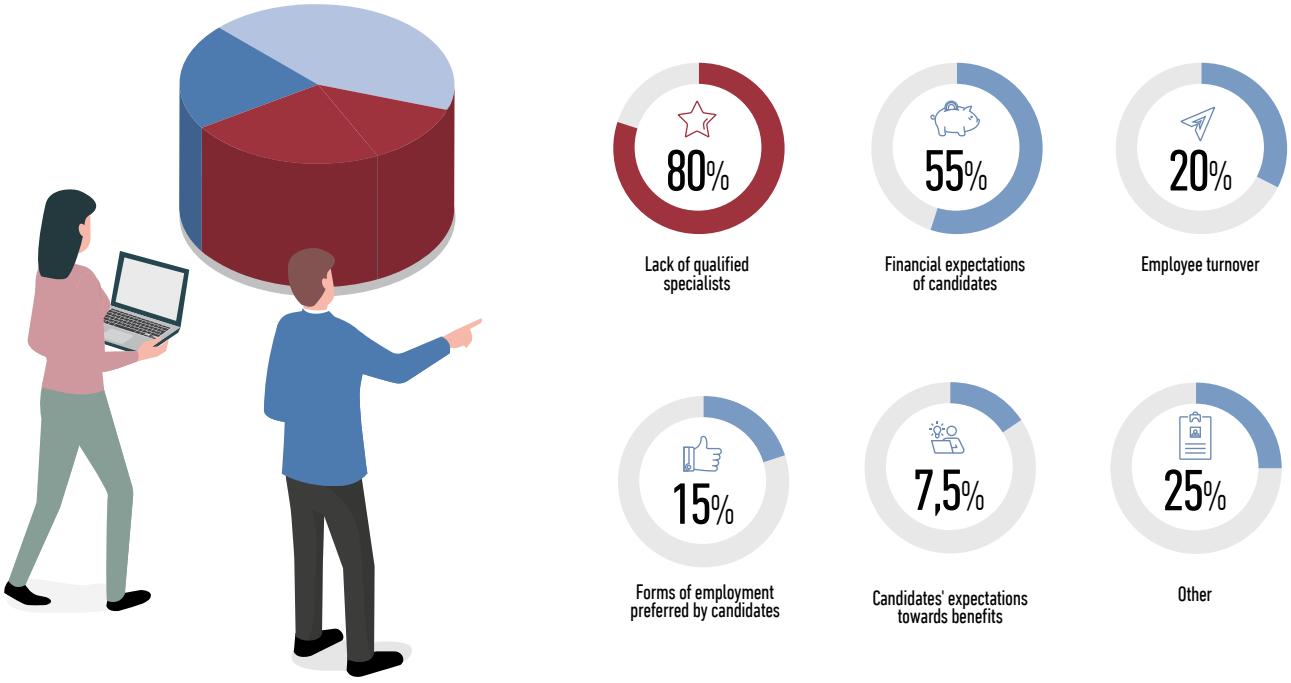
Figure 18. Plans for recruitment for coming 12 months regarding seniority



Source: ManpowerGroup's own elaboration based on the conducted survey

When asked about the plans for recruitment regarding the particular levels of seniority, the surveyed employers want to at least retain the talent they already have on board. The only mentioned plans for reductions are connected with the positions with the lowest levels of experience, like interns or juniors. The pandemic-related crisis in many cases brought more business to IT companies. In order to be able to fulfil the customers' expectations, managers and owners of companies want to switch to more experienced specialists who will be able to integrate fast enough, especially in remote work conditions. Around 60% of employers consider hiring new experienced specialists and senior specialists. In terms of management positions, most employers want to retain their current headcount.

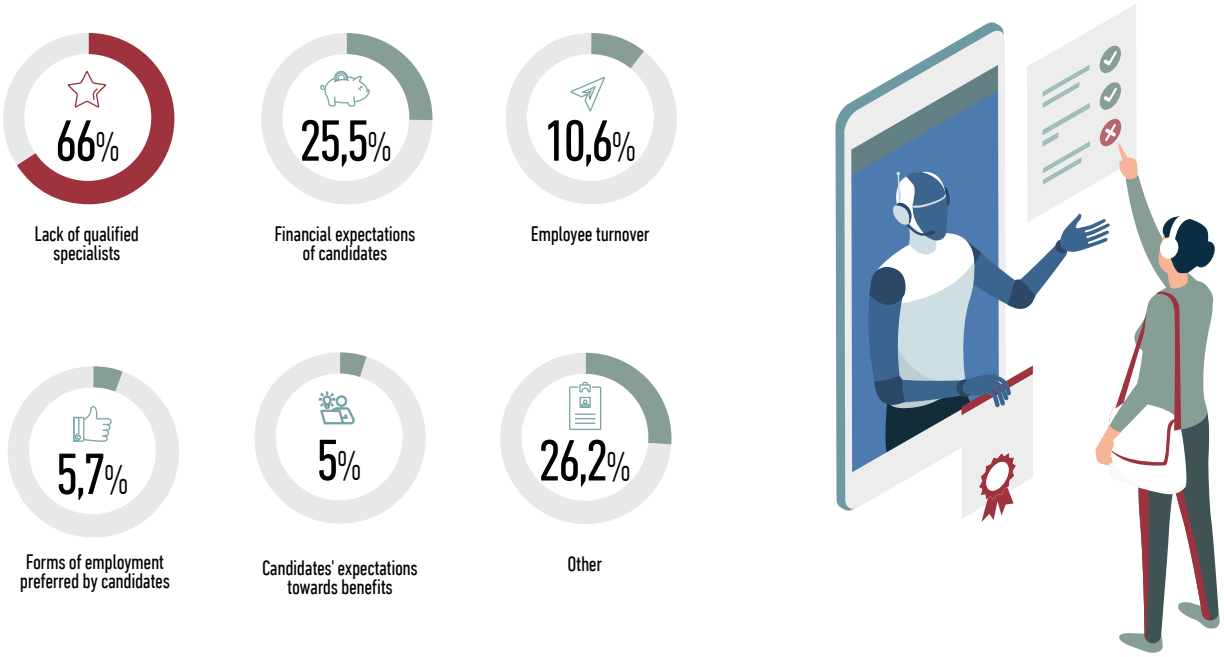
Figure 19. The challenges of companies according to employers



Source: ManpowerGroup's own elaboration based on the conducted survey

The IT sector for a long time has been the employee market. This is reflected in the biggest challenges pointed out by the employers in this survey. The lack of qualified specialists on the market is an obstacle pointed out by 80% of employers. The rising salary expectations is another big challenge that 55% of employers decided to mention. The development of companies in this sector brings a bigger need for new candidates. While the available talent pool is too small, the fast increase in remunerations comes in.

Figure 20. The challenges of companies according to employees



Source: ManpowerGroup's own elaboration based on the conducted survey

Similarly to what employers have said, the main challenge in the field of recruitment mentioned by the surveyed employees is labour shortage (66%). However, in general, while comparing the given options, the employees indicated them less frequently than their employers. This is a consequence of a different point of view on remunerations and expectations towards benefits or employee turnover.

Advantages of Poznań as an IT Investment Location

Access to the skilled and experienced talent;

12,2000 - the number of IT/ICT and engineering/technology students;

Different specialties of IT sector companies (software house, hardware, cloud, e-commerce and digital payment);

Developed IT infrastructure, data centres;

Access to the attractive office space;

Highest quality of life;

City's suport at every step of the investment.

Awards

Emerging Europe Business-Friendly Cities Perception 2020 Ranking

Poznań has been placed at high position in three categories:

• 3rd position: "LOCAL AUTHORITY SUPPORT"

• 4th position: "SMART CITY DEVELOPMENT" (1st position among Polish cities in this category)

• 6th position: "QUALITY OF LIFE"

Local Government Pearls Ranking „Dziennik Gazeta Prawna" 2020 Poznań has received prestigious title of '**Good Practices Leader**' in the "Work" category. Jurors recognized actions focused on attraction and retention of highly-qualified specialists along with image and city promotion strategies based on the development in the wide IT sector. Especially recognized were initiatives led by Investor Relations Department: Pozitive conference and EU-funded project "ZaGRAjmy w Wielkopolsce".

City Rating: A – Fitch Agency Ratings; A3 - Moody's Investors Service Agency

Ranking's perspective is stable. This means that the city has a very high ability to meet its financial obligations.

Forbes 20 best places for Americans to Live

Poznań was included in Forbes magazine's list of the best places for Americans to live, invest and work as one of the greatest cities to live.

Poznań with a Smart City Award

The City of Poznań was selected a winner in the Smart City Contest in the category of cities with over 500 thousand inhabitants.

The jury selected the capital of Greater Poland for the implementation of Smart City concept, utilization of innovative solutions, and successful management of resources, and strategy for betterment of city inhabitants' lives in the fields of transportation, energy, spatial development, and environment.

Support for Investors

Investor Relations Department offers support for entities locating their investments in Poland:

- Choosing a location:
  - Individual service for key investors with Project Manager – an employee delegated to the cooperation with the investor;
  - Providing necessary data;
  - Organising investor's visit in Poznań.

- Help with establishing operations:
  - Offer of available office spaces;
  - Support with obtaining necessary permissions and administrative decisions;
  - Verifying the possibility of receiving grants and financial support.

- Employer Branding and promotional cooperation.

- Post-investment care – ongoing contact with the investor, responding to the investors' needs.

- Financial incentives – financial support for organising internships (scholarships for interns).

- Selected initiatives of Investor Relations Department for the development of the IT sector and job market
  - Pozitive Technologies Conference – event for IT professionals. Conference was created as response to the demand reported by the companies from the sector. Partners of the Second Edition in 2020 were the biggest IT companies operating in Poznań: Allegro, • Capgemini, Egnyte, GSK, and Sonalake. The goal is to promote Poznań as an important centre for IT professionals;
  - Jobicon – first online job fair organised by Pracuj.pl. City of Poznań, as an event partner, promoted Poznań as an attractive place to live and work supported by over 150 job offers from the local companies.
  - BPO/SSC week – the goal of the SSC/BPO Week project is presenting the opportunities created by the modern services sector to the young people. The project comprises two parts. In the first one, company representatives conduct workshops at schools, in the second one, students visit companies to see what the work in those centres looks like

Smart City

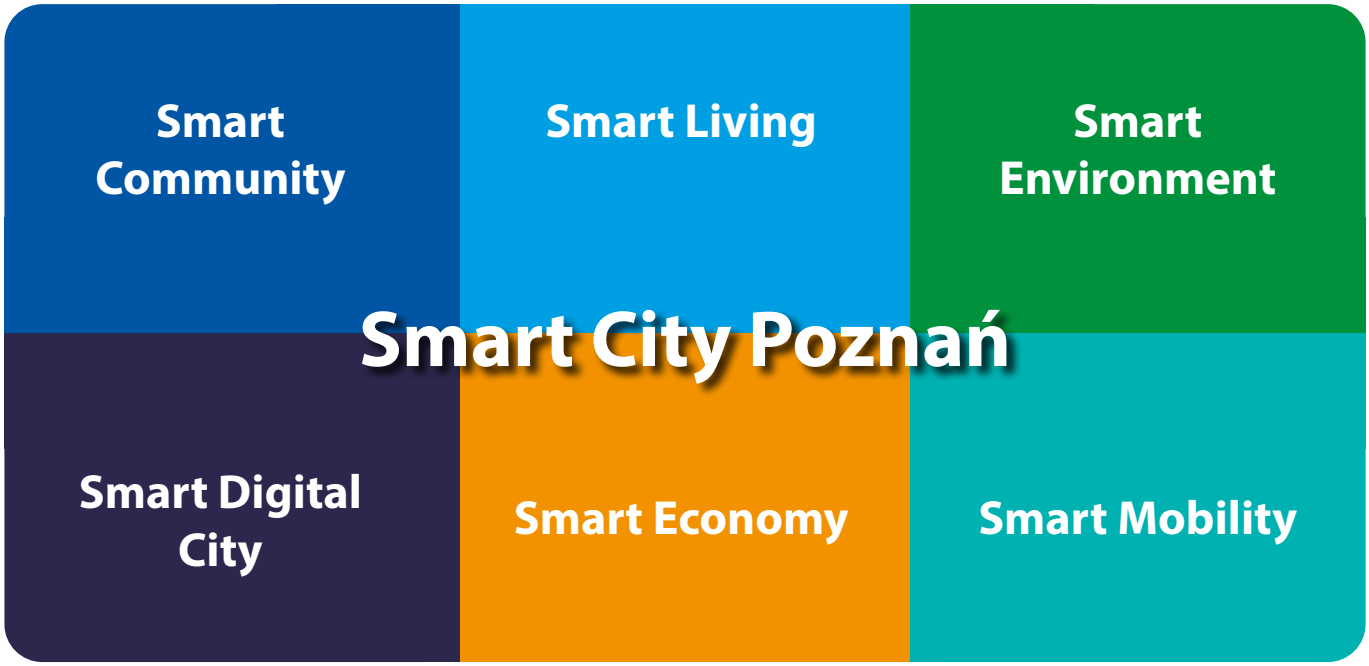
Smart city is a well-functioning city of the future that is based on the activity of independent and deciding about themselves citizens.

Strategy for the City of Poznań 2020+

Smart City Poznań

The Poznań model of Smart City is characterised by the quality, widely understood savings (of time, energy, and place) and pragmatics. It is about universal solutions and ideas out from which all social groups can benefit. These need to be aligned with Smart City criteria such as integration, innovation, connectivity, and technological advancement. All actions are contained in six mutually interpermeating areas:

- Smart Living
- Smart Environment
- Smart Economy
- Smart Community
- Smart Mobility
- Smart Digital City



PROJECTS IN EACH AREA:

Smart Living

Chatbot is a tool that makes communication with the city easier. An innovative solution that makes the functioning of the city's contact channels better and shortens the time to reach important updates from home. With every conversation, the Chatbot gets even better thanks to machine learning.

Smart Environment

The agreement between the city and the company Veolia optimizes the delivery of heat to schools and kindergartens. The set of sensors and other specialized equipment makes energy management more efficient.

The calculations were made for every roof in the city and now it is known how much solar power reaches the given surface throughout the year.

Smart Economy

Space Plus One is a pre-incubator for young start-up businesses from ICT, creative, marketing, graphics, architects, and other sectors connected with advanced technology use. Space Plus One is also an organiser and a place for different specialist trainings and workshops that support doing business in those sectors.

Smart Community

The Poznań Citizen Budget is a platform dedicated to social consultations in the matter of the city's spendings. The Citizen Budget functions in Poznań since 2013. The process of service is being done completely automatically via one of the city's online platforms.

Smart Mobility

ITS is a traffic support system, whose most known elements include electronic information boards on tram and bus stops.

Pilot project: the timetable using the technology of electronic paper, multifunctioning display – timetable, updates on traffic, delays in real-time and voice updates.

Smart Digital City

Free of charge, the Smart City Poznań application is about to make communication between the city and the inhabitants easier. Thanks to this app the citizens have access to the city's updates. People can use it to report any sort of disorder in their neighbourhood. The application ensures the ability to file people's own ideas and vote for the ideas of others.

The Programme for Digital Transformation was introduced to orientate the development of technology enabling to realize the idea of the intelligent city. The main goal of this document is to identify the processes and tech initiatives. The programme-defined goals are what is believed to be the response to the growing expectations concerning digitalization of the city's services and providing the appropriate level of security of processed information.

In June 2020, the City of Poznań was qualified for the 100 Intelligent Cities Challenge, organized by the European Commission. Poznań is one of the four Polish cities selected by the organisers. The city, together with the supporting entities (Capgemini, PSNC, and Altum Foundation), is working on improvements in the field of e-services. Digitalization in the city is a key element for efficient management as well as development of services provided to residents. Therefore, it is necessary to undertake changes in the way of organizing the implementation of tasks in the area of IT in order to maximize the potential of internal resources and minimize the use of external entities.

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