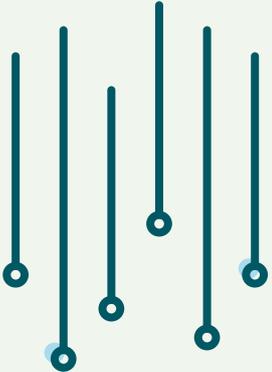


# W♀men in IT

A 2018 STUDY

ANALYSIS OF THE SITUATION OF WOMEN IN THE IT INDUSTRY IN POLAND



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It is no secret that the IT industry employs fewer women than men. Does it matter? Of course! Numerous studies show that more gender or socio-demographic diversity within teams contributes to boosting innovation and better economic results for the companies. In 2015, MSCI ESG Research conducted an analysis on financial results

of 4200 companies listed on the stock market and proved that the ones whose board and employment structure are more diverse in terms of gender achieve better results by 36.4%. New technologies, IT are not isolated sectors of the economy but intrinsic elements of most industries ranging from food production and agriculture to medicine. When creating technological products and services we create the reality for ourselves and the future generations. We have to do this thoughtfully, taking into account the pace at which new technologies introduce themselves into every aspect of our lives, changing our habits, relationships with loved ones, and the way we work.

We also have to do this together, women and men, in teams representing different experiences, ways of thinking, and social roles, if only we want our reality to change for the better.

Marian Wright Edelman, a children's rights protection activist, said that you can't be what you can't see. In accordance with these words, the mission of the Geek Girls Carrots community is to show that women co-create the avant-garde of innovation. Promoting role models and inspiring to take new paths of professional and personal development are tools allowing to change the status quo.

However, in order to be able to contribute effectively to a change of the current situation in the IT industry and increase women's participation in it, we have to get to know their current situation better.

What does women's work in IT look like today? Who are the women who have decided to take this career path? What motivated their choice? What are their expectations towards employers? How do they find their way in teams that are often composed of more than 86% of men? How do they talk about themselves, and finally, how are they perceived by the media?

You will find the answers to these and other questions in the present study Women in IT. I wish you pleasant reading!

**Małgorzata Ratajska-Grandin**  
**President of the Carrots Foundation**

## METHODOLOGY

The aim of the study was to gather information about women working in the IT sector in Poland. It covered a wider group (women working in other fields and unemployed) in order to detect possible characteristic traits of our group of interest.

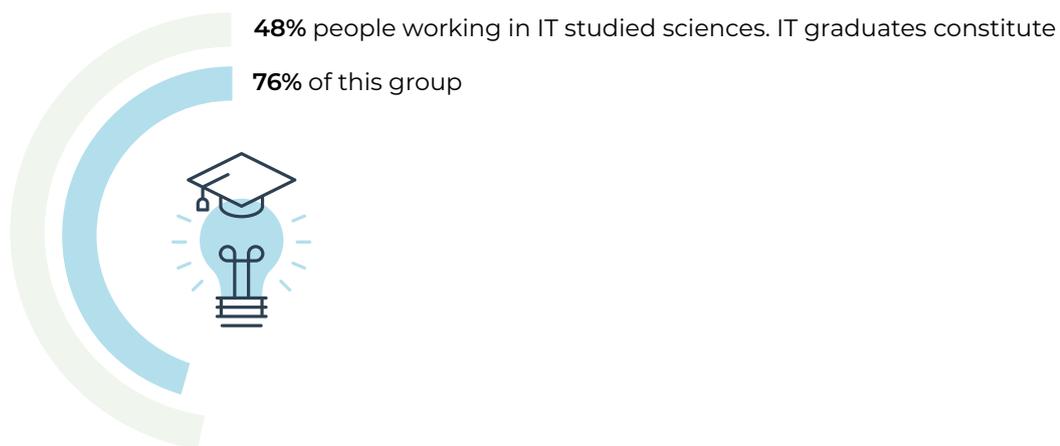
In total, we received 2048 questionnaires. The percentage rate is different for answers to specific questions, as their scope depends on the selected options. The data from incomplete interviews is also presented.

The study was conducted between January 26th and February 19th by SW Research Agency through web interviews (CAWI) on the SW web panel (SW Panel). Information about the research was widely accessible through online channels of all entities engaged in the preparation of this report as well as groups gathering women working in IT. The collected information has become a base for the diagnosis of the situation of women whose professional lives involve new technologies.

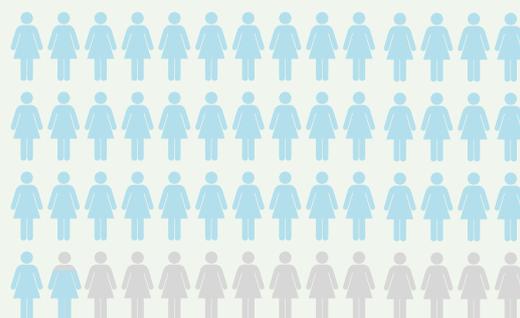
The analysis of media reports from 2017 relevant to our subject of interest has been added to the report together with commentaries by experts from the IT sector.



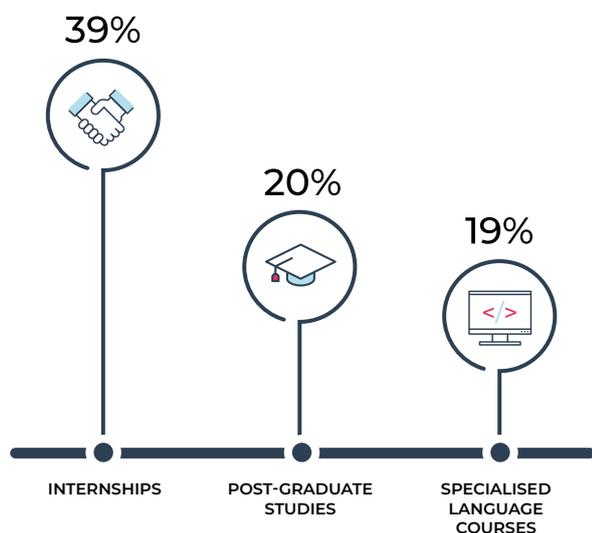
## KEY CONCLUSIONS



85% of women who studied IT are pleased with their choice



78% would have chosen the same field of studies again



From all additional forms of education, women are most inclined to choose internships (39%), post-graduate studies (20%) and specialised language courses (19%).

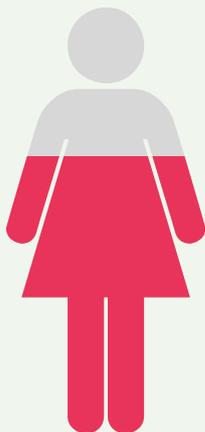


Female programmers are relatively unwilling to relocate (**54%** compared to **58%** of women outside IT and **68%** of the unemployed).

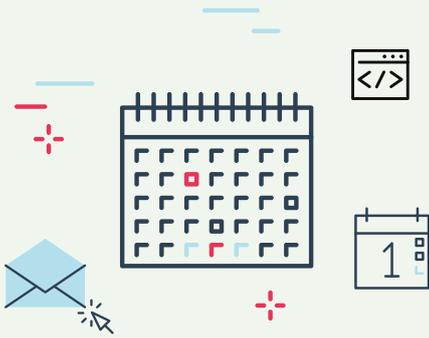
Job satisfaction is higher in women working in IT (**72%**) than in women outside IT (**55%**). Despite their satisfaction, they're more willing to change jobs.



**63%**



As much as **63%** of women in IT deal with software development.



As much as  $\frac{3}{4}$  of the respondents have worked some time outside IT – their average employment time there is almost 4 years. The average working experience in IT is more than 4.5 years

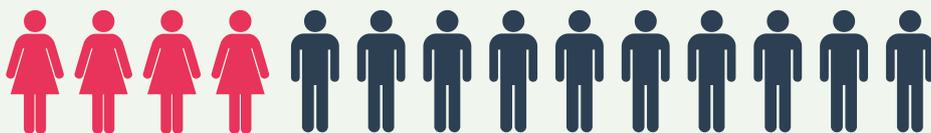
The technologies known by most people are **PL/SQL (56%)**, **JavaScript (50%)** and **Java (46%)**. The respondents also judged them as subjectively best-known.

56% PL/SQL

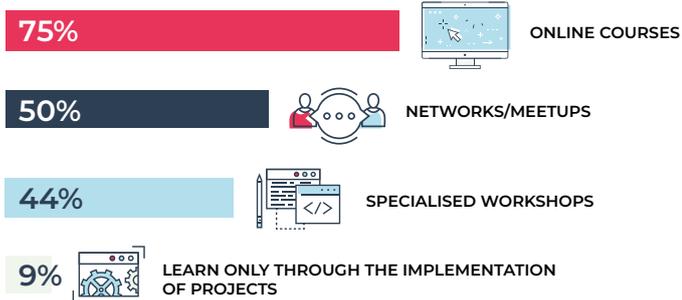
50% JavaScript

46% Java

3,4♀/10♂



On average, in teams comprising of women, there are 3 times more men than women (3.4 women/10 men).

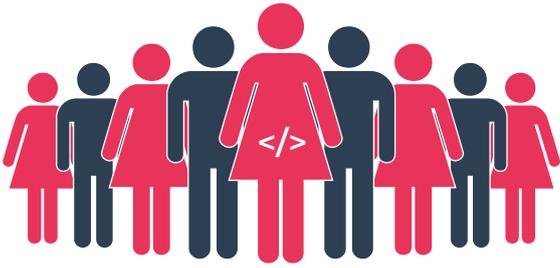


The most popular forms of professional education are **online courses (chosen by 75% of the respondents)** and **networks/meetups (50%)** as well as **specialised workshops (44%)**. Only 9% of respondents declare they learn only through the implementation of projects.

Employers most often **finance specialised (64%)** and **online (22%) courses**. Post-graduate studies are **most often paid for by the respondents themselves (83%)**.



$\frac{2}{3}$  of women working in IT have taken part in a professional conference – 5 times on average.

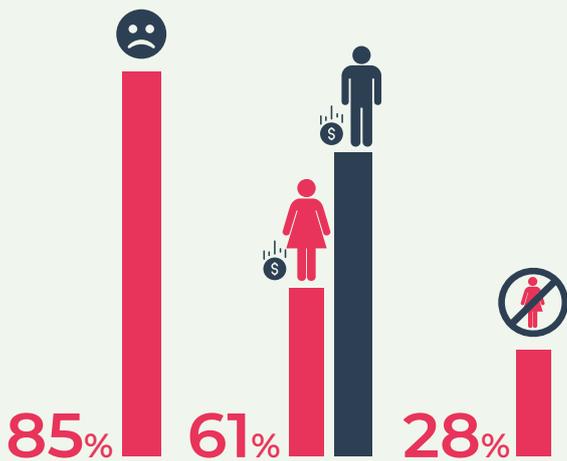


1/5 of the respondents belong to a community gathering employees from the field of IT.

Women working in IT used the computer for the first time a little earlier than women from outside the industry (8.9 y.o. vs 9.6 y.o.). The same goes for getting free access to a computer (12.9 y.o. vs 13.6 y.o.) and developing an interest in computers (15.7 y.o. vs 16.2 y.o.). The most common factors indicated by the respondents as stimulating their interest in computers were their own curiosity, peer group, and family.



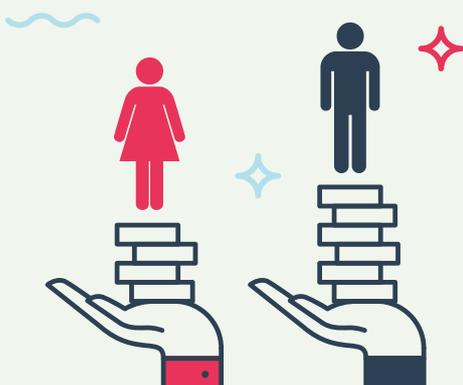
Only **9% of women from the IT sector have worked abroad.** Women who have, indicate mostly the following countries: Great Britain, Germany, and the USA. **The main motivation to take up a job like this are: willingness to learn and master a language (41%), salary levels right after employment (33%), and new challenges (32%).**



The percentage of women who have experienced gender-based discrimination is lower among IT employees than in other fields. However, among those women who have such experiences, as much as 85% occurred in the workplace. 85% were treated in a stereotypical way, 61% earned less than a man in the same position, 28% have seen their application rejected due to their gender.

53% of women working in IT and as much as 61% of women from outside IT think that it's harder for a woman to cope in the field of new technologies than for a man. 24% do not see gender as a distinguishing factor.

The most important reason for worse perspectives for women provided by the respondents is the fact that **women undermine their own possibilities due to the existing stereotypes and social roles (76%)**.



Half of the female IT employees think that men earn a higher salary (on average 24% more) for the same work.



The main advantages of working in IT indicated by women are: **salary levels (89%)**, **possibility to take up work from any place, at any time (80%)** as well as **relaxed atmosphere and casual working culture (77%)**.

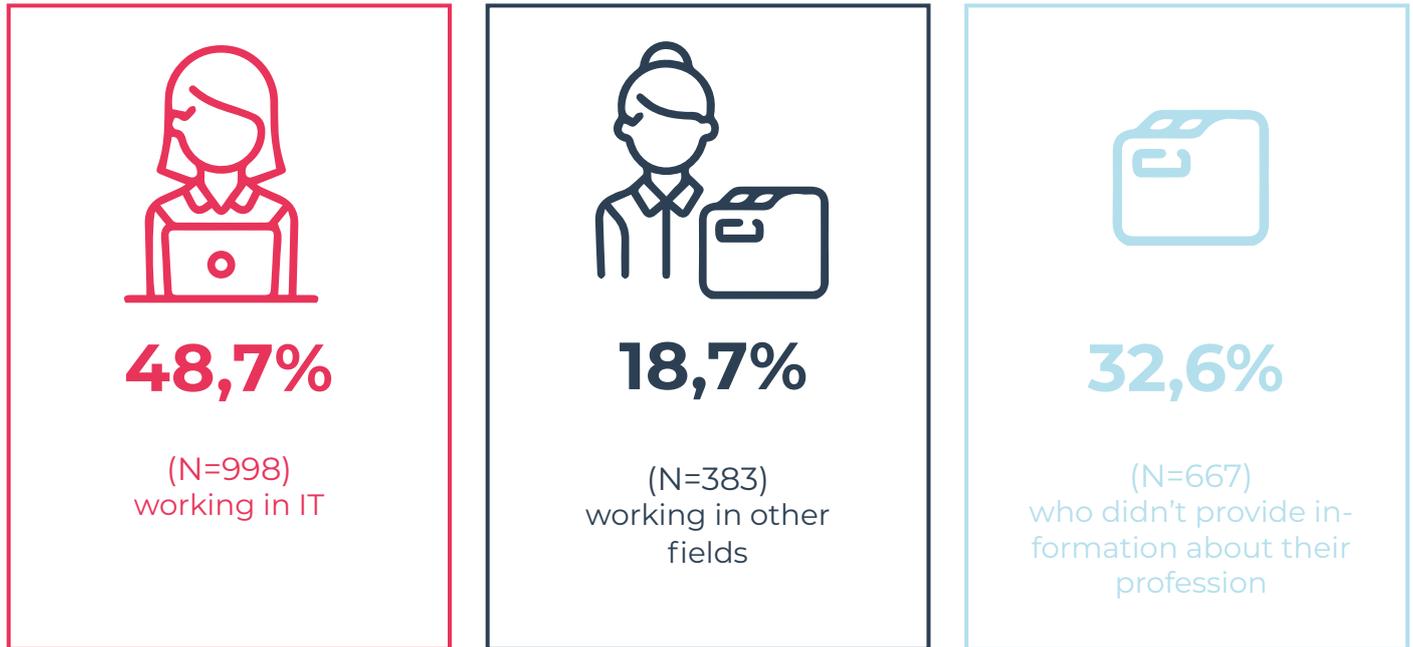
One in five respondents has children. **56% of mothers assess that reconciling professional life with motherhood is easy** (this opinion is shared by 40% of women working in other fields). 50% of women without children think that reconciling these two aspects of life would be easy.



The salary of women working in IT constitutes on average **57% of the household budget** (compared to 54% of the budget in families where the woman works outside IT).

## PROFILE

### SAMPLE CHARACTERISTICS



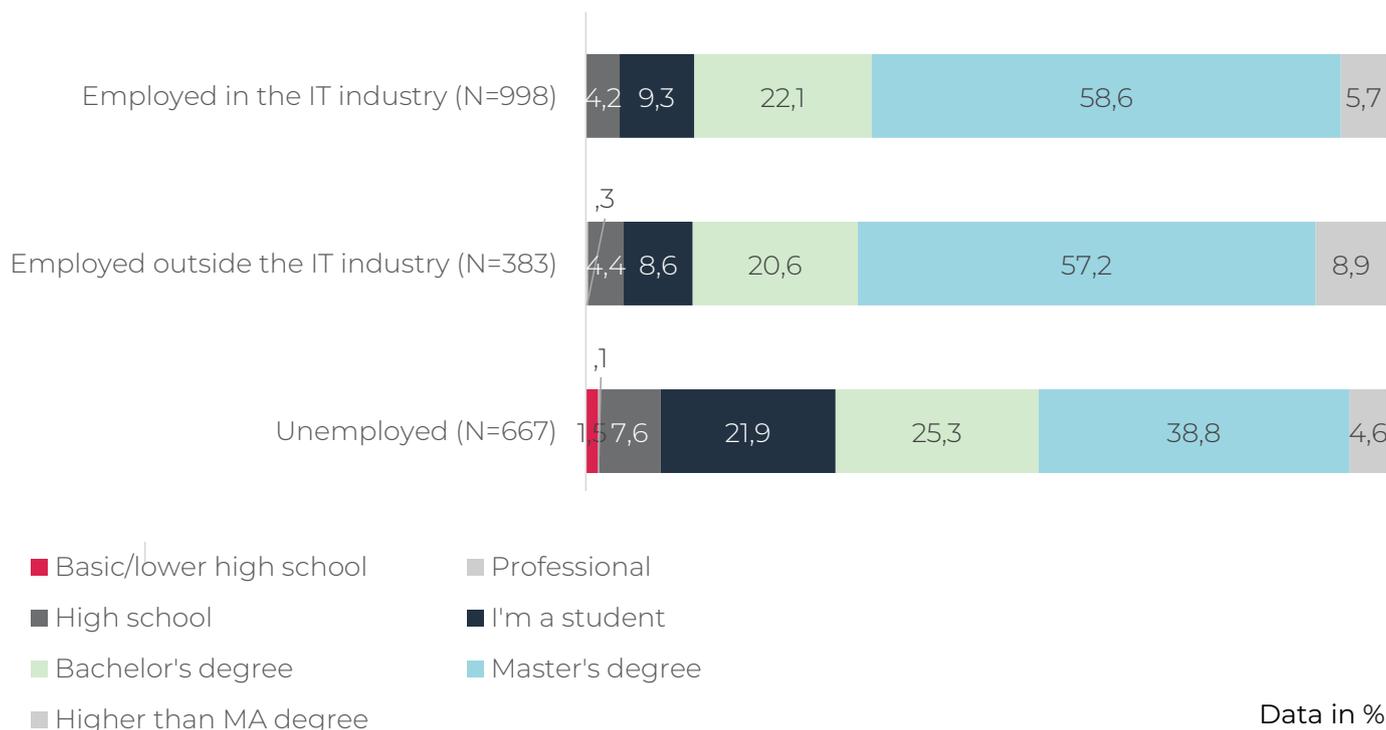
The sample can be divided into 3 groups: women working in IT (48.7%), those working in other fields (18.7%) and unemployed or those who didn't provide information about their profession (32.6%).

### AGE

**The average age of the respondents working in IT is slightly over 29 years.** They can be easily described as young and new on the job market. Changes in the worldview that have been taking place in the society in recent years contributed to a greater number of girls entering the field, which is still dominated by men. Increasingly often, young women choose a profession guided by their own interests and not their families' or society's expectations. Activities aimed at increasing their presence in IT are also a contributing factor.



What is your education level?

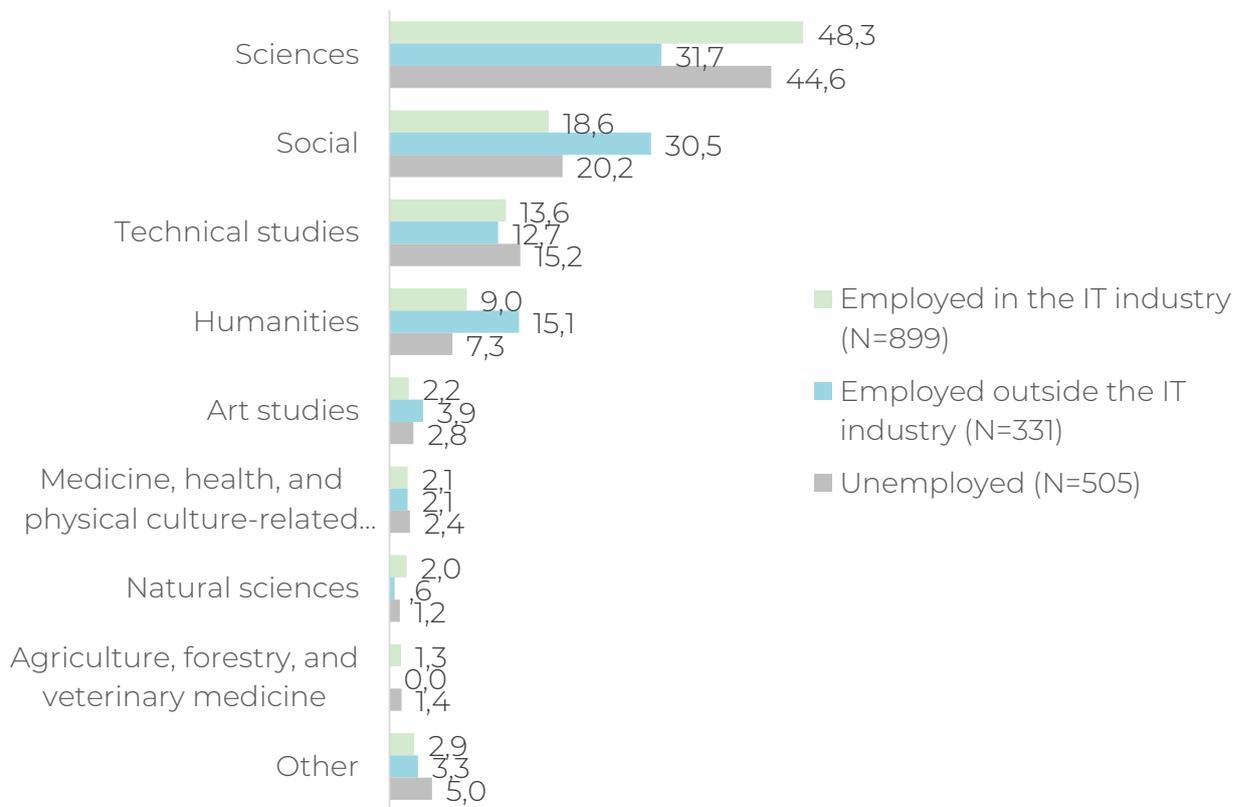


**MAGDALENA KACZMAREK, HR BUSINESS PARTNER AT KOMPUTRONIK BIZNES**

The study „Women in IT” shows that only 48% of women working in this field studied sciences. Komputronik Biznes is no different, even though women who work as programmers or IT architects do have a degree in engi-

neering. However, we do have an analyst who’s obtained a degree in Humanities – psychology. She gained her IT skills at courses and post-graduate studies. This set of competencies is extremely helpful in the case of complicated analyses and talks with clients. As many as ¾ of the respondents once worked outside of the IT industry for some time – their average employment time was almost 4 years. Our female employees also come from various backgrounds. At Komputronik Biznes we can see examples of some very interesting changes in career orientation, which prove that IT is for everyone who has suitable competencies and willingness to learn. At Komputronik Biznes, just like in the entire industry, 70% of specialists, engineers and programmers are men, but this trend is changing more and more dynamically. Furthermore, men really appreciate the presence of women in their teams. There’s no doubt that apart from dealing very well with tasks stereotypically referred to as ‚manly’, we ease tensions and facilitate communication. And this translates directly into the results obtained by the entire company and atmosphere at work. When selecting male and female candidates we look at their skills: both soft and hard, as well as their motivation and actual will to improve, not gender. We are pleased to see applications of women who defy stereotypes, show interests in given areas of IT, and believe in their potential.

**What field did you study in?**  
 If you studied in more than one field, choose the one you consider as the main one.



Data in %

**Almost 60% of women working in IT have an MA degree. It's a quota comparable to the group of employees from other sectors but still a little higher (1.4 pp).** Almost half of the respondents working in new technologies studied sciences, among whom 76% studied IT.

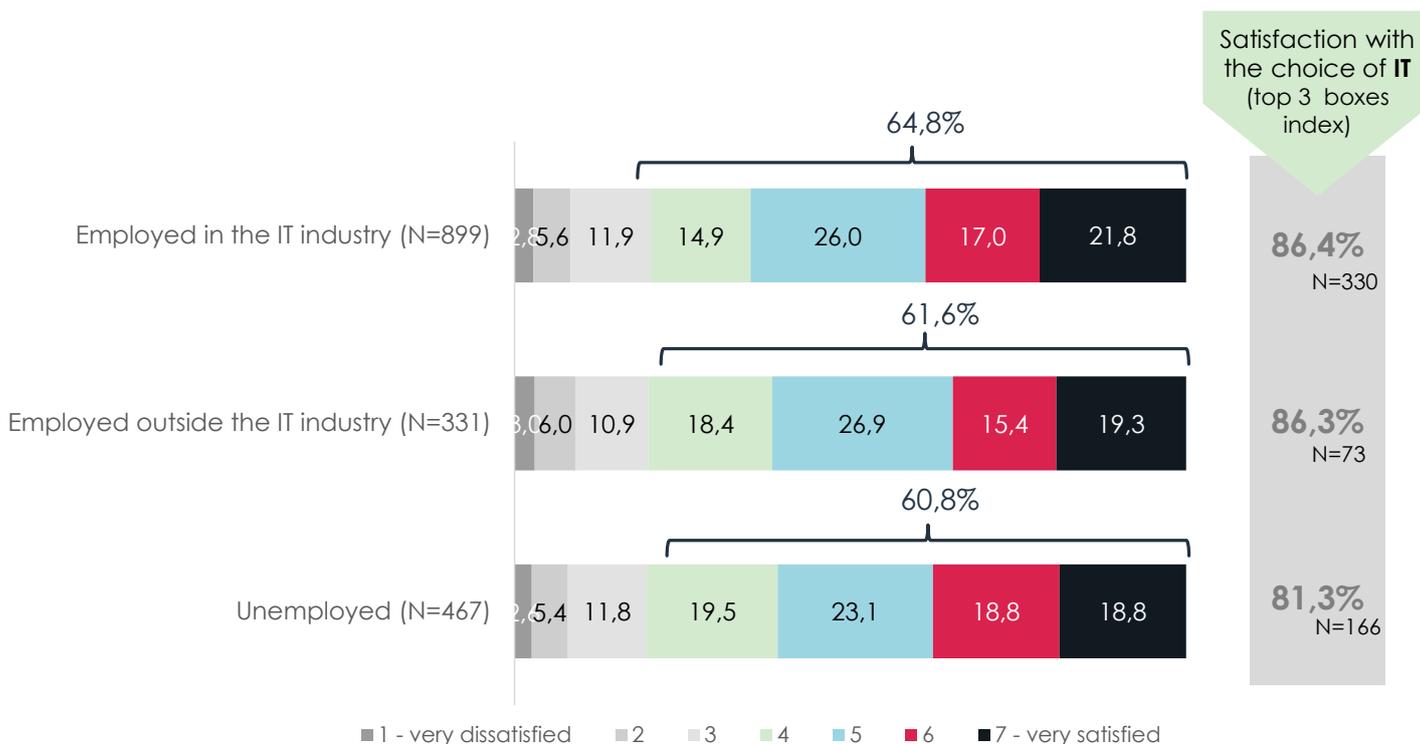
Trends observed in the job market encourage more and more women to start education in fields related to IT. A huge demand for female and male specialists, high salaries and opportunities to accomplish interesting projects are a real incentive. It's worth stressing that what employers value most are concrete skills and experience and not professional education or certificates.

Due to the existing social conditions, many women didn't choose studies in science, even if they do have predispositions. **As much as 20% of our respondents studied social sciences. Thanks to the interesting perspectives, after many years they return to their old interests.**



## SATISFACTION WITH THE SELECTED FIELD OF STUDIES

How satisfied are you with your choice of the field?



Data in %



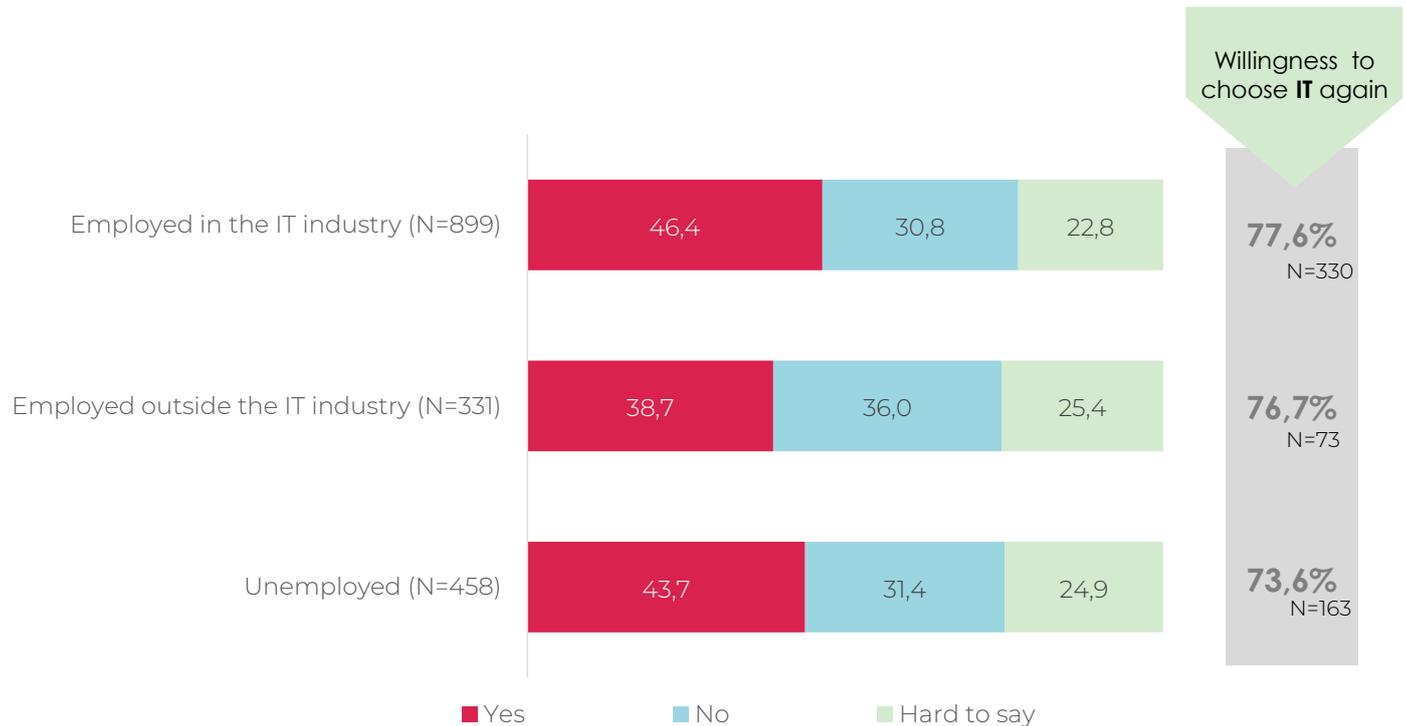
### ROBERT STALMACH, CEO AT NEWSPPOINT

All of society, the labour market, and the IT field are going through changes linked to the increasing role of women. The percentage of women among technical universities students is constantly increasing – more and more women are deciding to take up programming.

The fact that the search ‚work for women‘ is 10 times more popular than ‚work for men‘ in the Google search engine may be a sign that women remain unsure about their competencies that allow them to compete with the representatives of the opposite sex on the professional ground. It seems, though, that women’s awareness is rising and, as a result, more of them are going to enter the job market without insecurities. Additionally, together with the increase in women’s participation in IT, some of the stereotypes (still true as our research shows) will weaken, which will have a positive effect on the entire IT industry. There are already many employers who understand that competences come first, not gender. As a CEO at Newspoint, a technological company, I can undoubtedly state that women do as well as men in an IT team. Our experience shows that employing women in IT brings positive results in terms of the profession and culture.

## CHOOSING THE SAME FIELD OF STUDIES AGAIN

If you had a choice, would you choose the same field again?



Data in %

**Almost 65% of the respondents working in IT are satisfied with the selected field of studies, about 22% of them declare a very high level of satisfaction.** Job satisfaction is much higher in women who studied IT – more than **86% assess the studies they got a degree in as satisfactory.**

The results are quite different when we look at the readiness to choose the same field again. Less than a half of women from the IT sector wouldn't have changed their educational path after high school. The percentage is a lot higher among female IT graduates (77.6%), but they still express many reservations in relation to this field of study.

Answers to the question: „**Why wouldn't you choose this field of studies again**” were as follows:

- ✓ The technologies we are taught are obsolete. Teachers don't have up-to-date knowledge. I would learn much more if I stayed home at that time.
- ✓ Waste of time. Zero knowledge that would bring fruit in the future. Even more so, lack of incentives or focus on entrepreneurship.
- ✓ Very theoretical approach to programming.
- ✓ Studies only showed me that the path I chose is very interesting for me.

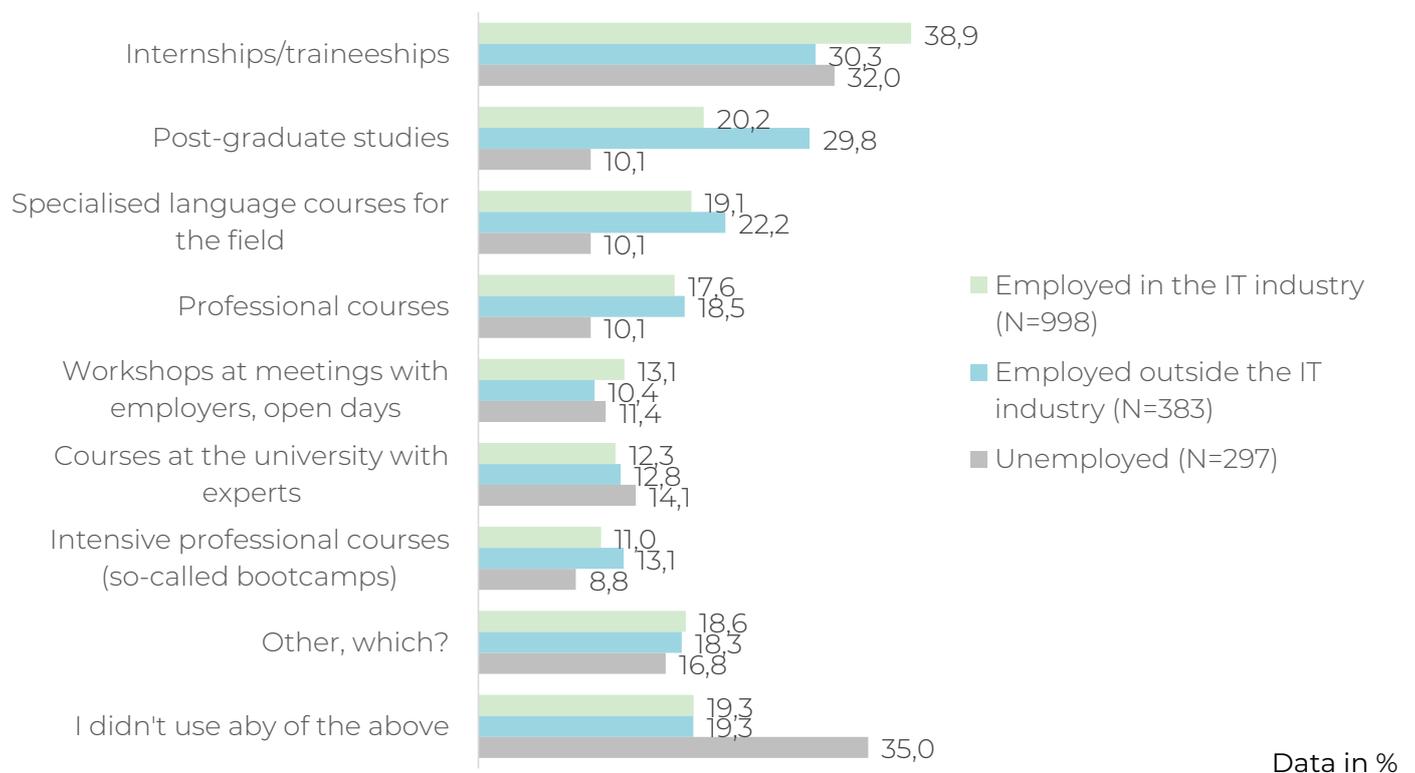
Unfortunately, they didn't give me an opportunity to obtain knowledge that is presently required on the job market.

✓ They were totally detached from reality.

At the same time, many people who study in fields unrelated to IT would gladly choose it if only they were offered such an opportunity.

## ADDITIONAL FORMS OF EDUCATION

What additional forms of education did you use and in which areas/subjects?



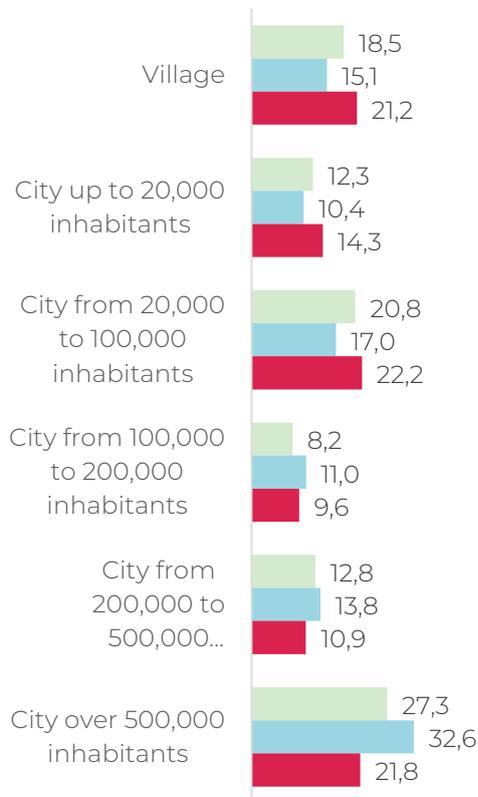
**An additional form of education selected by women from the IT sector are most often internships and traineeships.** Almost 40% of the respondents decided to take such an opportunity. They involved UX, programming, software testing, marketing, and psychology. The respondents often referred to them as internships and traineeships in the field of IT. They were more popular among girls working with new technologies than among those dealing with other subjects. Many respondents decided to take up specialised language courses. The least popular are intensive professional courses, so-called bootcamps.



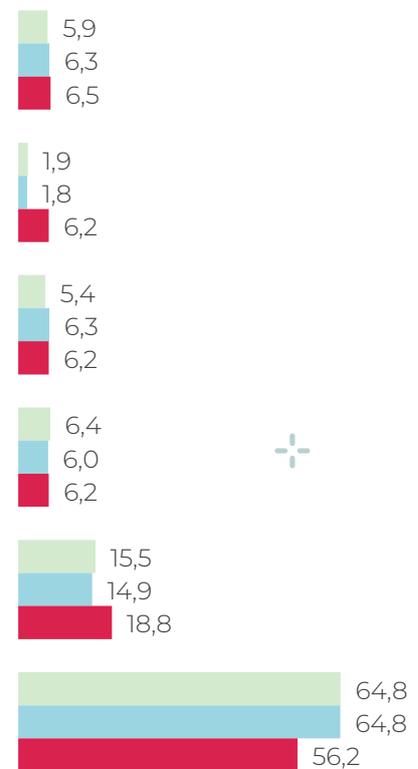
## WHERE WERE YOU RAISED



What is the size of the city you grew up?



What is the size of the city you currently live in?



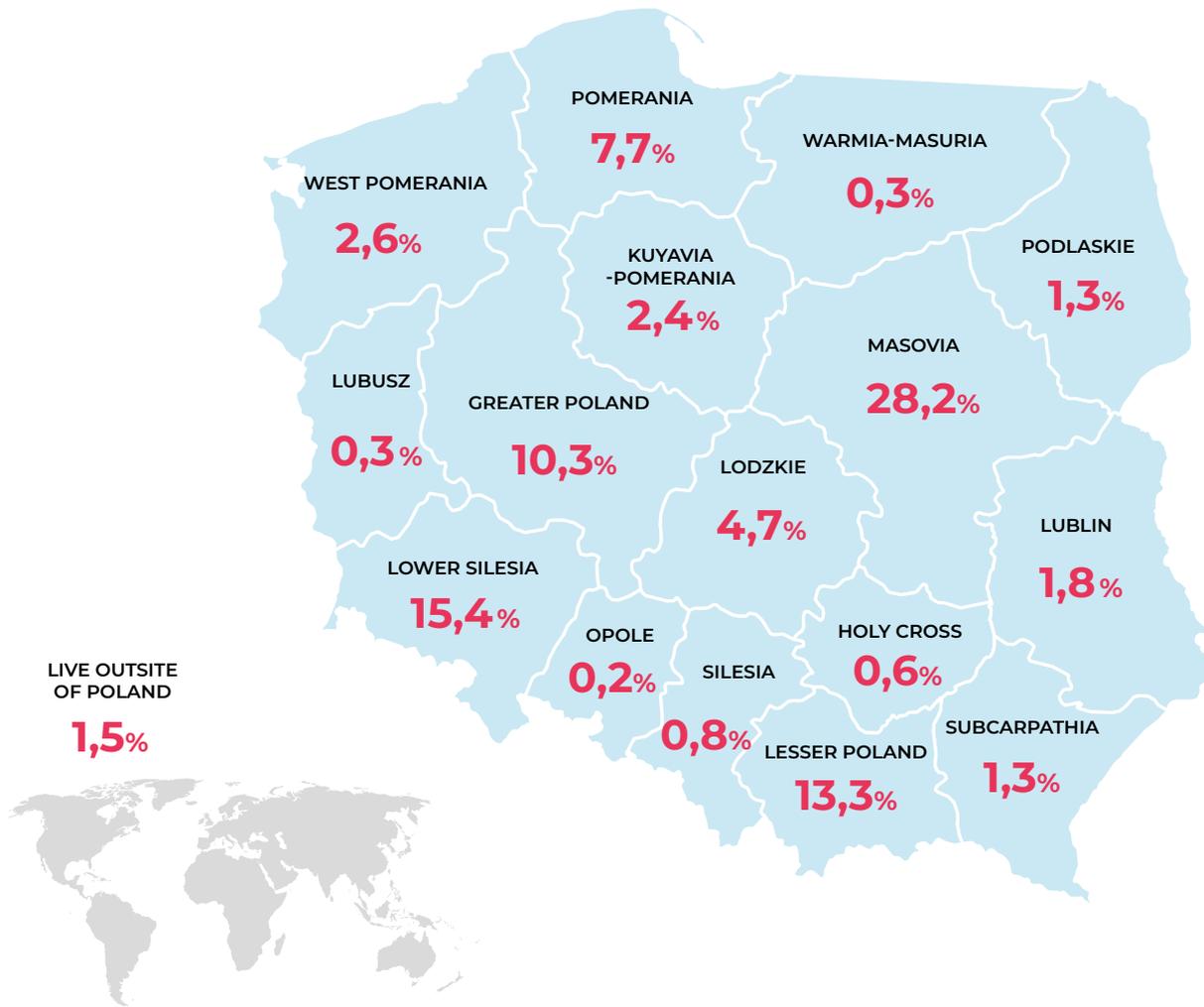
■ Employed in the IT industry (N=998)  
■ Employed outside the IT industry (N=383)  
■ Unemployed (N=293)

Data in %

**As much as 27% of women working in IT come from cities of more than 500.000 inhabitants.** It may prove the theory that people from bigger towns have better perspectives and their inhabitants perpetuate fewer stereotypes and social constraints, which would make it harder for women to develop professionally in new technologies. Almost 65% of the respondents live there presently and only 6% of technology companies employees live in the countryside (in relation to 18.5% that chose it as a place of origin). This data shows how frequent relocation is.

The biggest groups of respondents live in Masovian Voivodeship (28%), Lower Silesian Voivodeship (15%) and Lesser Poland Voivodeship (13%). Big urban areas in these regions offer a wide and diverse range of possibilities for employees, especially in IT. It's where the seats of international corporations as well as smaller companies employing female programmers and other specialists are located. Polish biggest cities are where technology and programming communities meet, which provides an opportunity to see new trends and create contact networks.

## In which voivodeship do you live?



### PIOTR ZIMOLZAK, CHIEF ANALYSIS OFFICER & CO-FOUNDER AT SW RESEARCH

Even though the profession of a programmer still seems to be highly male-dominated (3 men to 1 woman), the study indicates certain changes. Some of them are taking place before our eyes, and some are just a question of time.

Still, the basic barrier to the development of women in IT is self-stereotyping, meaning a fixed and perpetuated division of social roles, rooted in the collective consciousness. Paradoxically, it's the field of IT and more precisely, the contact of women with this field that reduces the effects of harming stereotypes. Compared to women working in other professions, female programmers experience higher job satisfaction and have higher self-esteem both with regard to the qualifications they already have and the possibility to obtain new ones. In IT, it's the content that matters and this makes factors such as gender and gender-related ideas less important. Female programmers rarely experience gender discrimination at work, when compared to representatives of other professions. Also, they are more optimistic when assessing the chances of female candidates in the recruitment process in IT. Their confidence in professional life translates into the feeling of safety in everyday, family life – most women in IT assess entering the role of a mother-programmer quite easy.



### KATARZYNA STEMPNIAK, GEEK GIRLS CARROTS BIAŁYSTOK

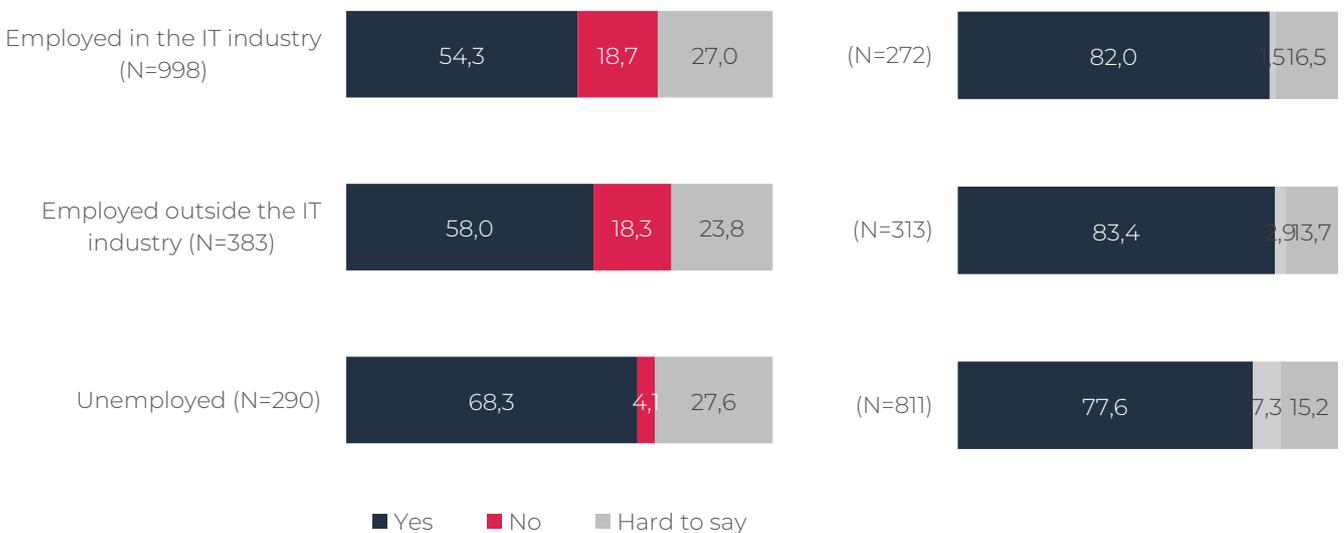
After 5 years of organising meetings for women in IT, I'm sure of one thing – we do need them. IT is one of the fields where women experience less gender-based discrimination than in other professional groups

– it's fantastic! But there is still a long way to go to balance things out. Women working in IT, including team leaders and specialists taking part in recruitment, believe that this challenge is not only about women's knowledge and skills but about what they have in their heads. More precisely: the lack of confidence in their competences, the right to have a voice, the 'impostor syndrome'. I can also see how much can be done in this area thanks to, for example, GGC meetings. First, it's a space to talk about mechanisms, feelings, beliefs, which allows women to experience the cathartic moment: 'hey, this is how I feel!'. Also, the important role of the leaders/mentors/role models who cannot only be an example of success but additionally understand and support younger (by work experience) colleagues. We have all this at our meet-ups with women. There's no ruffling the feathers here – even though we talk about some very advanced projects. We talk about successes but also the path leading to them, not always free from failures. There are no stupid questions, wrong answers, and unnecessary digressions. There's openness, knowledge, support and an unsweetened image of the field – everything the girls need to take their first steps in this 'manly' business.

### OPENNESS TO RELOCATION, ALSO DUE TO WORK – WHY DECISIVE FACTORS FOR TAKING UP A JOB IN ANOTHER CITY

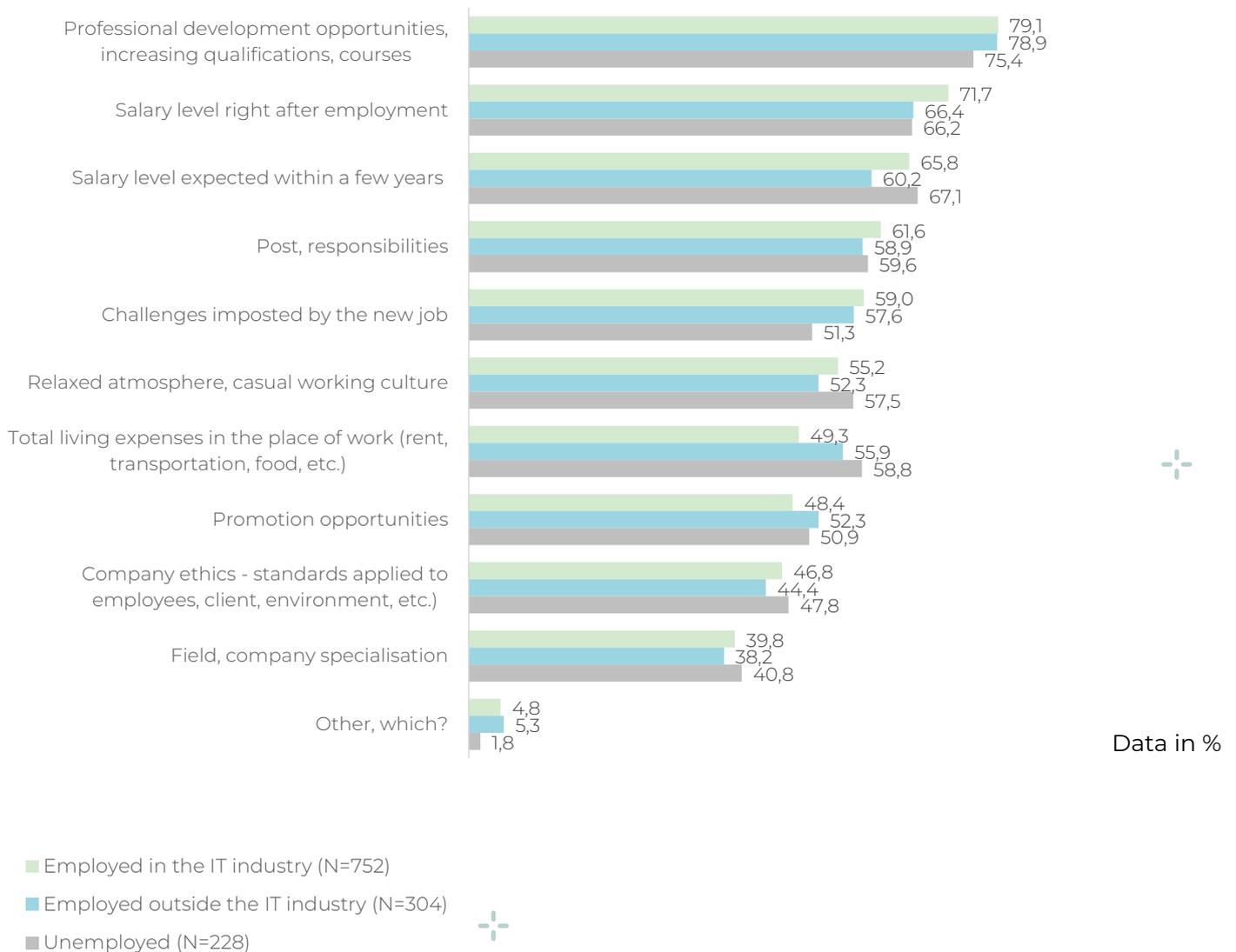
Do you consider changing your place of residence?

Could your decision of changing your place of residence be related to changing jobs?



Data in %

**Which of the factors below / new jobs features would be important when taking the decision of changing your place of residence: [TOP 10]**



**More than 54% of women working in IT allow the possibility of changing the place of living. As much as 82% of them due to professional reasons.** It's a lower level of openness than the one presented by female employees in other fields, though. The technology sector often offers remote working, therefore place of living is of minor importance. This may influence a greater reluctance to change, also when it comes to one's private life.

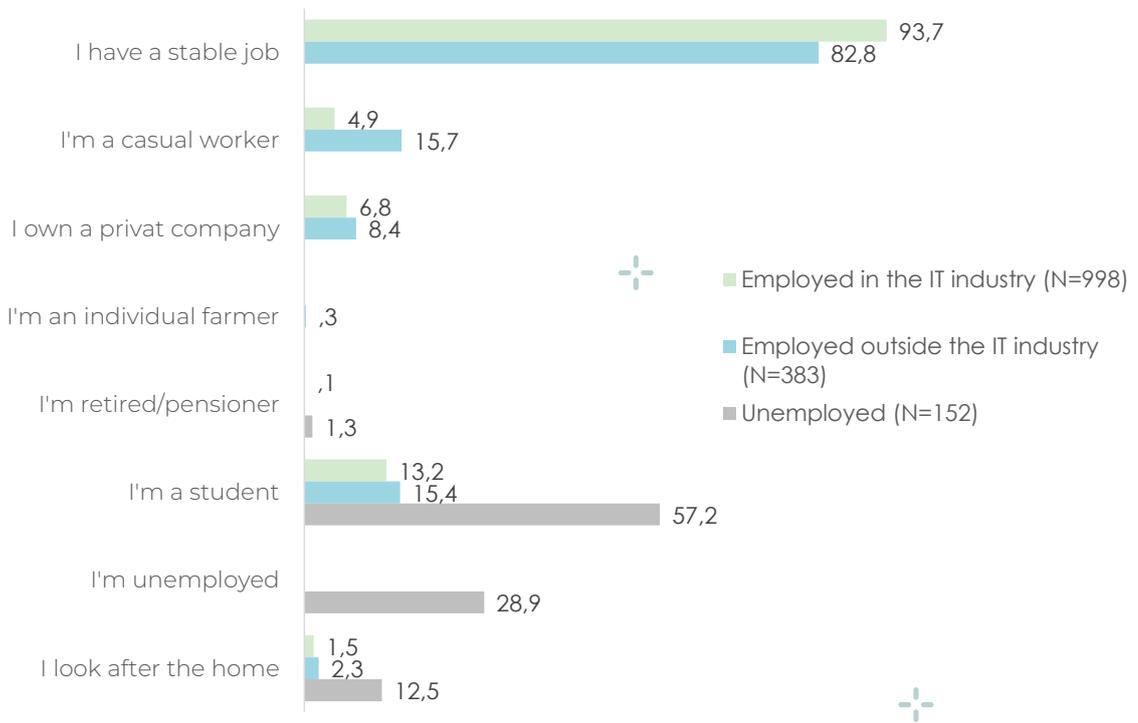
The most influential factors in a decision about relocating as provided by the respondents from the IT sector are: 1) professional development opportunities, improvement of qualifications, courses 2) salary level right after employment 3) salary level expected within a few years. The salary level right after employment was indicated as the most important factor.

Total living expenses in the place of residence (rent, transportation, food, etc.) and promotion opportunities are of lesser importance to IT girls when compared to the representatives of other sectors and the unemployed.

# WORK

## PRESENT PROFESSIONAL STATUS

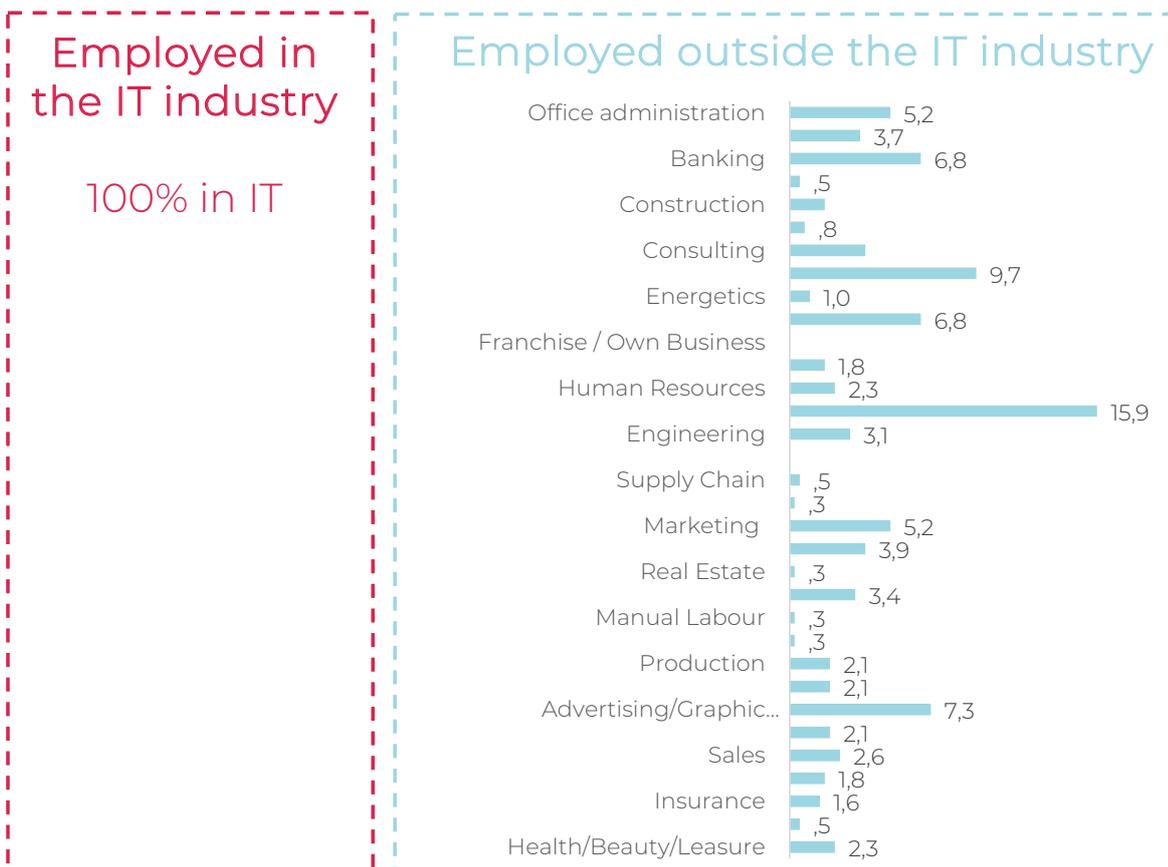
What is your present professional status?



## SECTOR

Data in %

What industry do you work in?



Data in %

## COMPANY SIZE

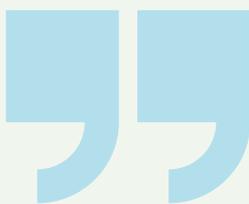
### How many people does your company employ?



Data in %

Almost 94% of all the respondents from the IT sector have a stable job. Approx. 5% are casual workers. Almost 68% of women working in new technologies run their own company. Most women who work outside IT are employed in IT-related sectors: Internet / E-commerce / New media (almost 16%) and Education / Courses (9.7%), as well as Advertising / Graphic design / Creation / Photography (7.3%).

More than a half (53.3%) of women employed in technological companies work for big corporations employing more than 250 people (compared to 45.4% of the respondents working in other sectors). Technological companies are often big, international corporations employing hundreds of female programmers, testers, and other female and male IT specialists. Organisations with 10 to 49 employees come second. About 20% of the respondents work in companies employing from 50 to 99 employees (about 10%) and from 100 to 249 employees (another 10%). The smallest representation of IT women is those working in micro companies employing less than 9 people.



#### IWONA GRUSZKA AND URSZULA SKIEPKO, GEEK GIRLS CARROTS CRACOW

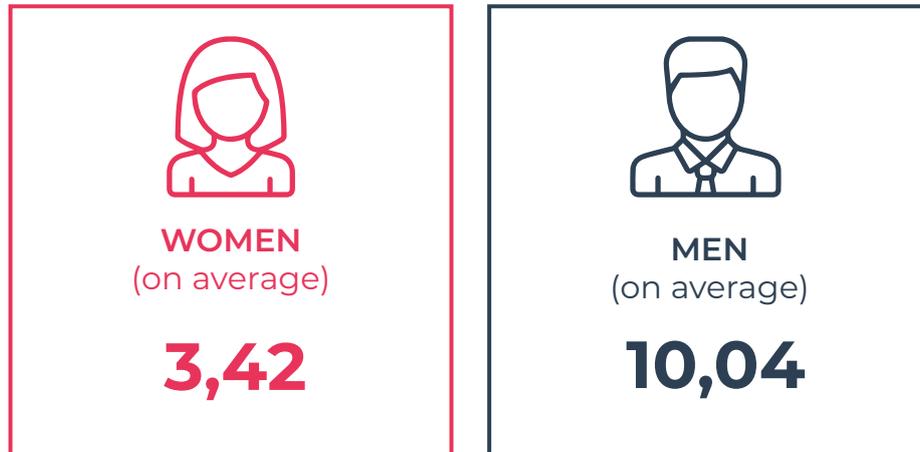
The research results show a very positive trend that keeps on strengthening. More and more women see a chance for building their carrier in IT. Undoubtedly, work in the areas related to new technologies is an opportunity for women who often have to reconcile a professional carrier with motherhood. Thanks to the possibility of performing tasks remotely and the high need for specialists, not only programmers, IT doesn't distinguish between the sexes and provides development opportunities regardless of where we live (urban-rural area).



Employers take it into account and willingly support their employees' development. By organising Geek Girls Carrots meetings in Cracow or being in the environment of new technologies, we notice that the number of women who come to the meetings is increasing. Programming and other workshops also related to IT are extremely popular among the participants who are eager to get involved.

## GENDER QUOTAS IN COMPANIES

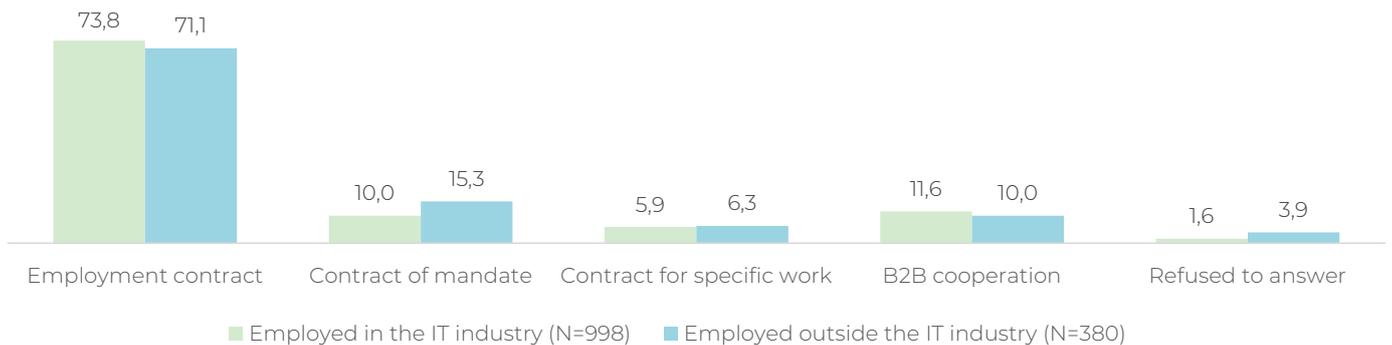
How many women and men work in your team?  
(N=925)



It's more than clear that IT companies and teams working on IT solutions are still dominated by men. On average, in groups our respondents cooperate with directly, there are 3.5 women to 10 men. It's far from balanced, but the female element is already present there.

## FORM OF EMPLOYMENT

What is the form of your employment?

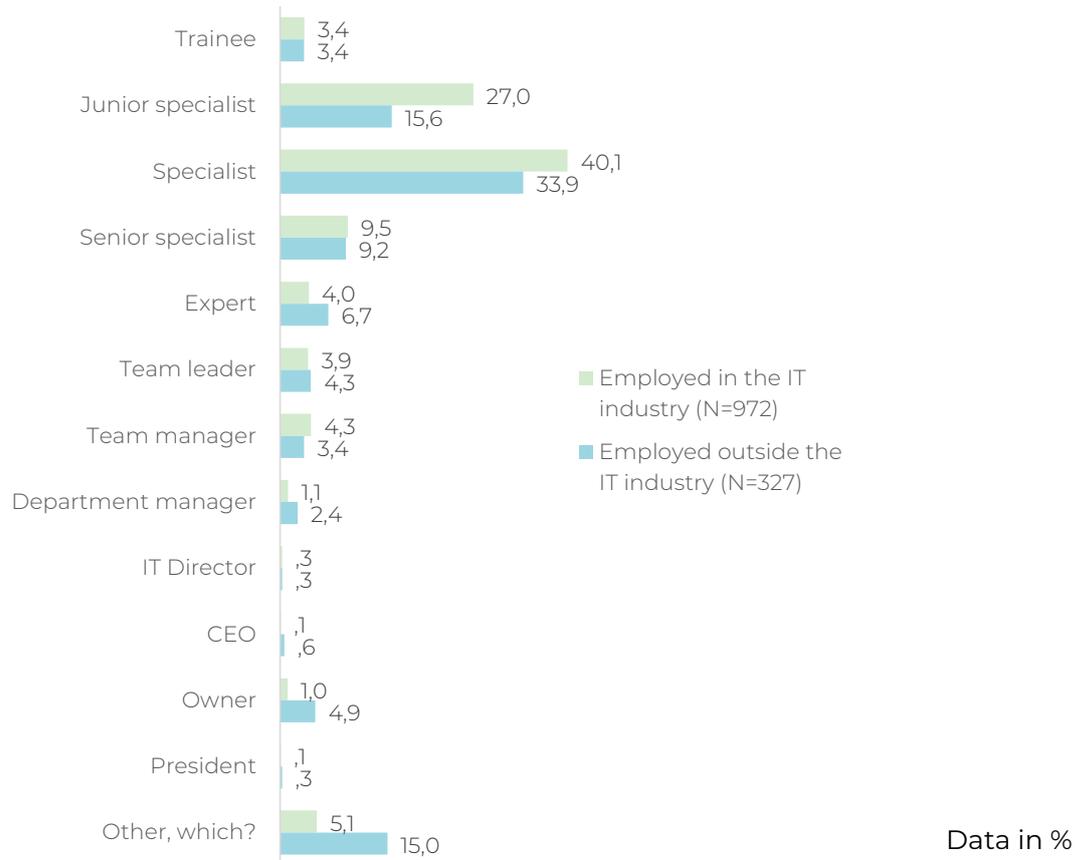


Data in %

IT is no different from other fields when it comes to the most popular forms of employment. Almost 74% of women who work in new technologies have signed an employment contract with their employers. The next most frequent form of employment is B2B cooperation, whereas contract for specific work is the least popular. The biggest discrepancies between IT and other sectors are found in the case of a contract of mandate – 10% and 15% of the respondents respectively have concluded it with their employer.

## POSITION LEVEL

### What position are you employed in?



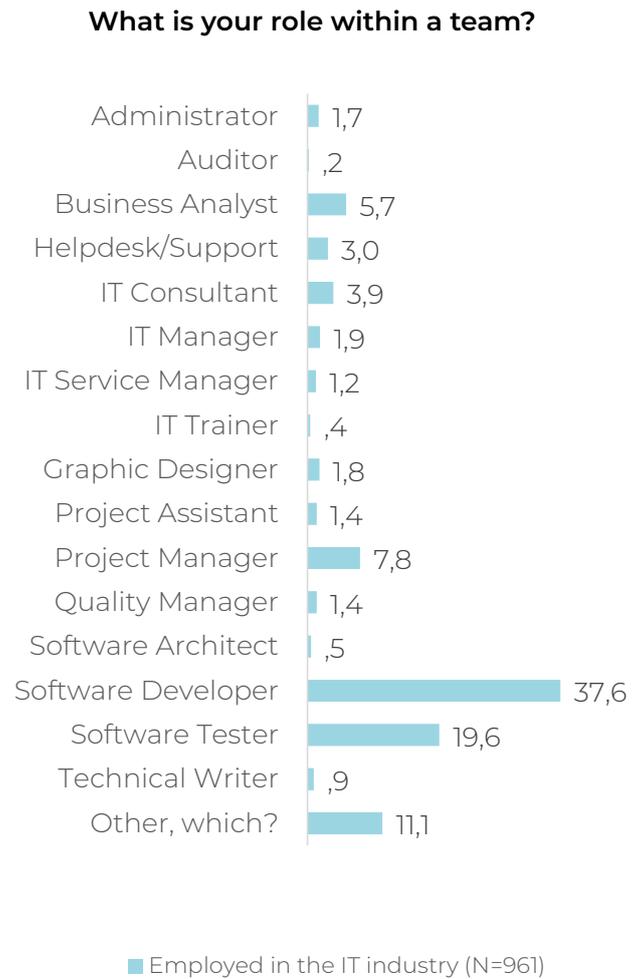
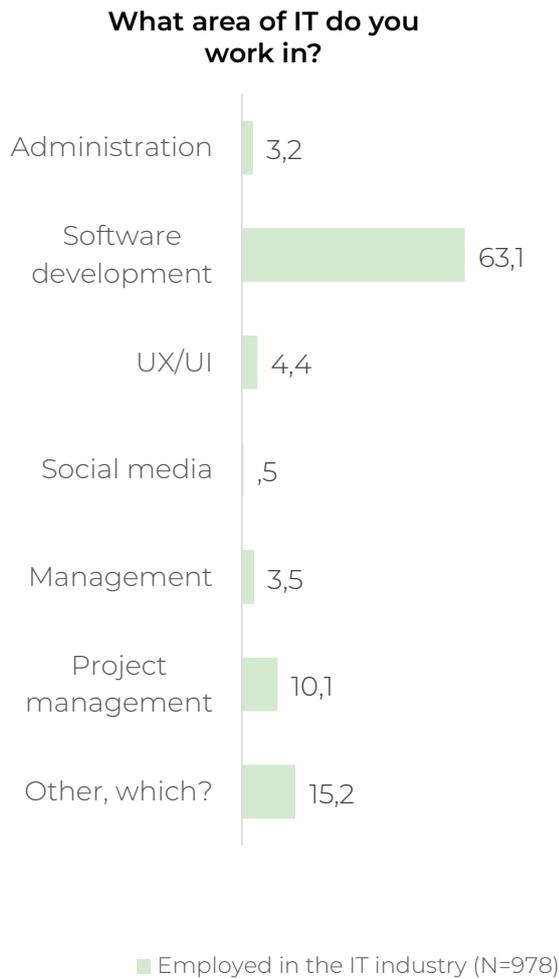
### KAMILA SIDOR, CARROTS FOUNDATION FOUNDER

Actions in favour of women in IT are part of a bigger movement for real equal rights for women in all areas of professional, public, and private life. When Geek Girls Carrots was launched many people asked us if it's really needed to offer women in IT additional

time or workshops. Today, after almost eight years nobody asks such questions and the number of social and commercial organisations supporting women and girls is increasing each year. These are not single actions – we have created a social movement. In a moment, the world will have a new face, more feminine, diverse. The development and improvement of technologies won't be possible without the serious involvement of women who not only use them but are also becoming their creators. A huge lack of new talents in ICT forces companies to revise male-oriented organisation cultures. Diversity is becoming a must and women are profiting from it, they are learning, evolving and moving to tech from almost all professions. The revolution is here! Forward, ladies!



## IT AREA

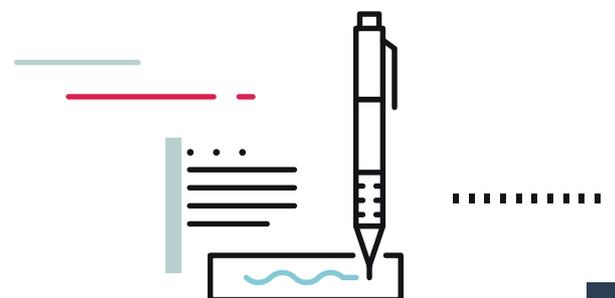


Data in %

The biggest group of respondents from the IT sector works in specialised positions as a junior specialist (27%), specialist (40%) or senior specialist (9.5%). Only 3.4% of the respondents do internships. The sample included also company owners and CEOs. 5% of the responders from the IT sector selected ,other'. The list of indicated professions included: Programmer, Software Tester, Product Owner, Scrum Master, Project Manager, Analyst.

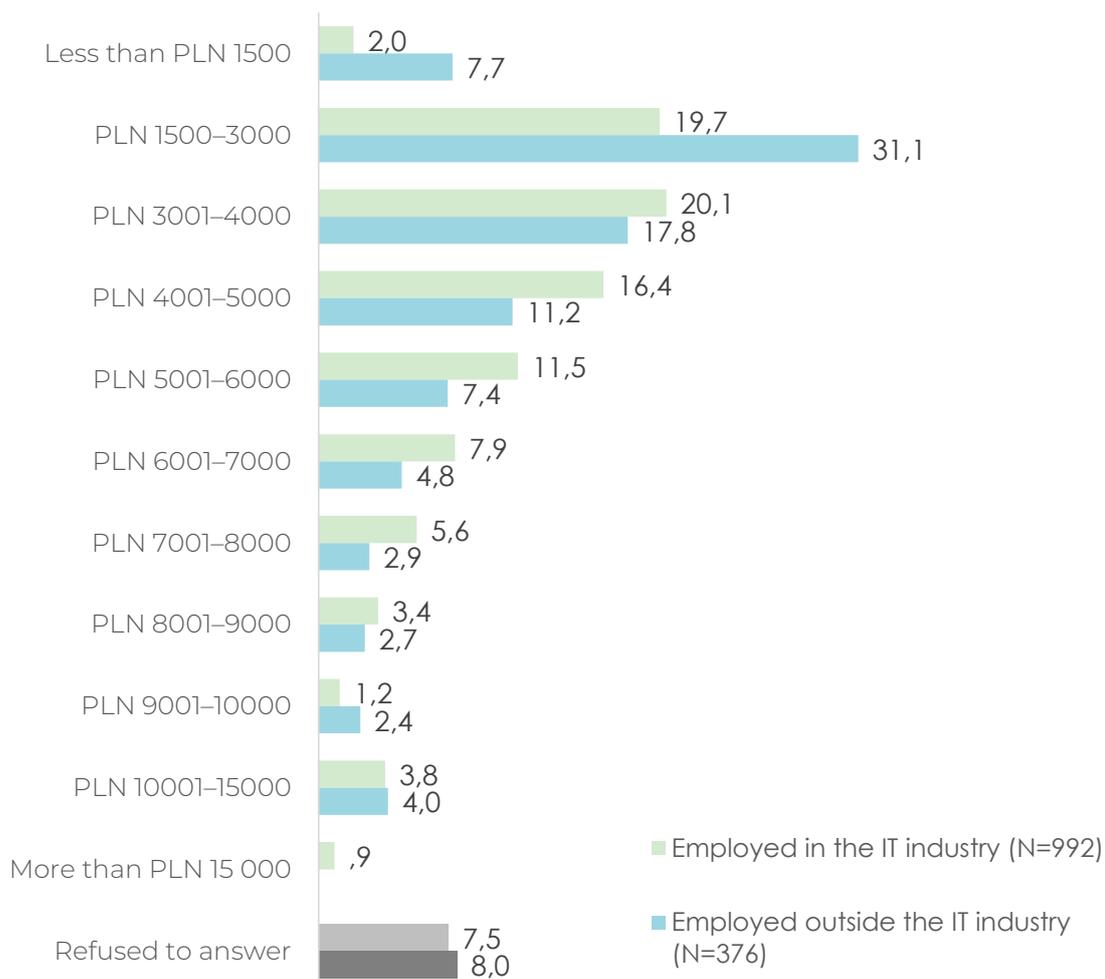
According to the answers to the general question about the area of IT the respondents deal with, 63% work on software development and 10% manage projects – these are the most popular options. Answers provided as ,other': testing, application maintenance, telecommunication, support, service desk, quality assurance, security, client service, HR, Business Intelligence, databases.

This is reflected in the answers to the question about the role within a team.



## SALARY LEVEL

What is your average monthly net salary (take-home salary)?



Data in %

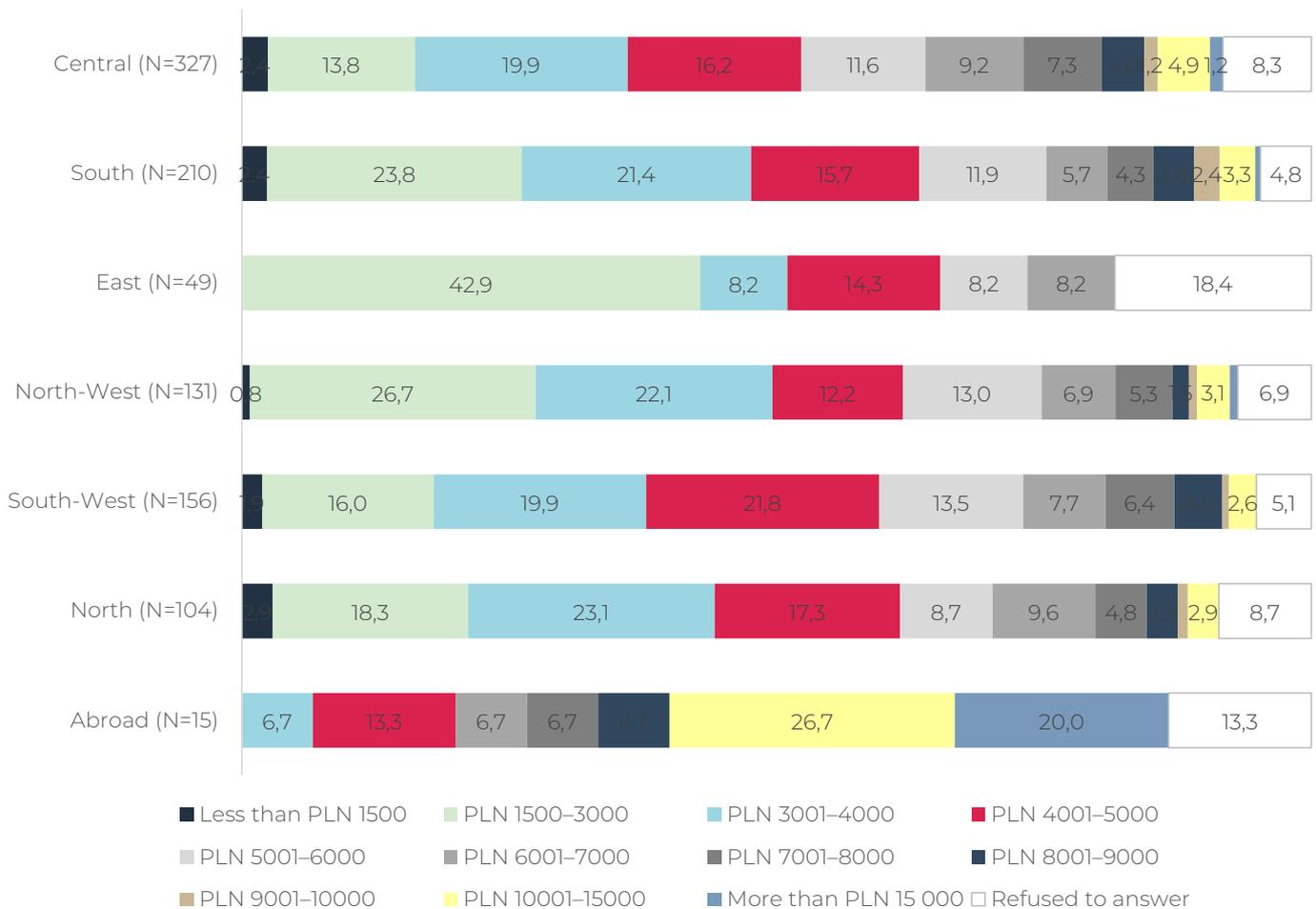


### ALEKSANDRA JAROŃKIEWICZ, HEAD OF DIGITAL AT CONNECTIS\_

The world of programming is dominated by men, but it hasn't always been the case. For a very long time, programming was the domain of women. A woman – Ada Lovelace – created the first algorithm to be used by a computer.

The term 'computer girl' was then a synonym for a computer 'geek'. Today, there are three times more men working in IT than women, even though it's the perfect environment for women, who often need to reconcile family duties with their work. I hope that the report 'Women in IT' will encourage at least a few of them to take up programming. The main advantages of working in IT indicated by women are salary (89%), the possibility to take up work from anywhere, at any time (80%) as well as the relaxed atmosphere and casual working culture (77%). Fifty-six percent of women say that it's easy to reconcile their job with motherhood. Isn't it tempting?

## Salary levels in IT by region



Data in %

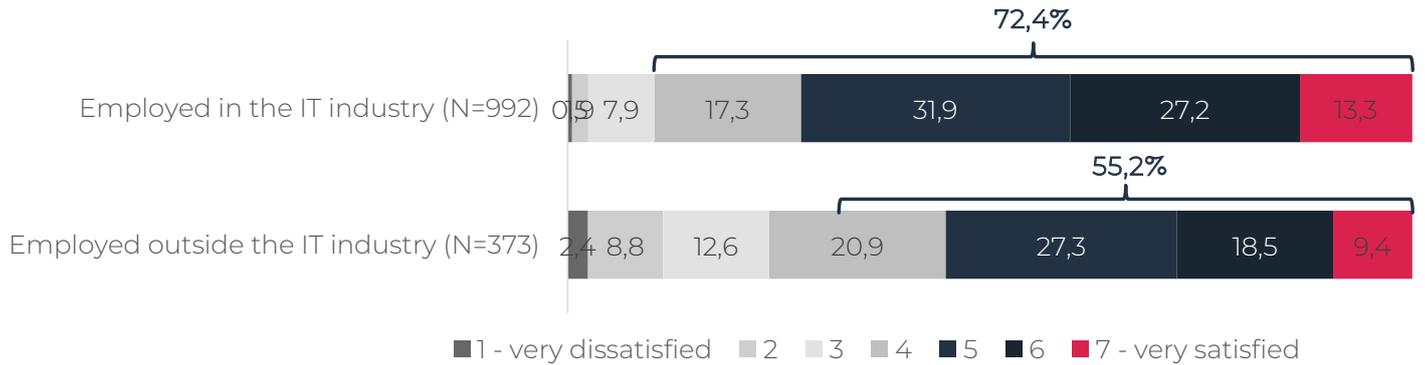
Answers provided by the respondents show that salary levels in IT are higher than in other sectors. Only 2% of women in IT earn less than PLN 1,500 net. 19.7% earn between PLN 1,500 and 3,000 net, 20.1% - between PLN 3,000 and 4,000 net, 16.4% between PLN 4,000 and 5,000 net, and 11.5% between PLN 5,000 and 6,000 net. Among women working in other sectors, the results are, respectively: 7.7%, 31.1%, 17.8%, 11.2% and 7.4%.

The chart 'Salary levels in IT by region' shows big discrepancies between different Polish regions. As much as 42% of the respondents from the regions referred to as 'eastern' (Lubelskie, Podkarpackie, Podlaskie, Świętokrzyskie Voivodeships) earn between PLN 1,500 and 3,000. It's a huge quota when compared to the women from the central region (Masovian and Łódzkie Voivodeships), among whom 13.8% indicated such values. It's also the employees from these voivodeships who earn the highest salaries in Poland: almost 40% of them earn more than PLN 5,000 net and more than 11% earn more than PLN 8,000.

People who live and/or work abroad reach much better salary levels.

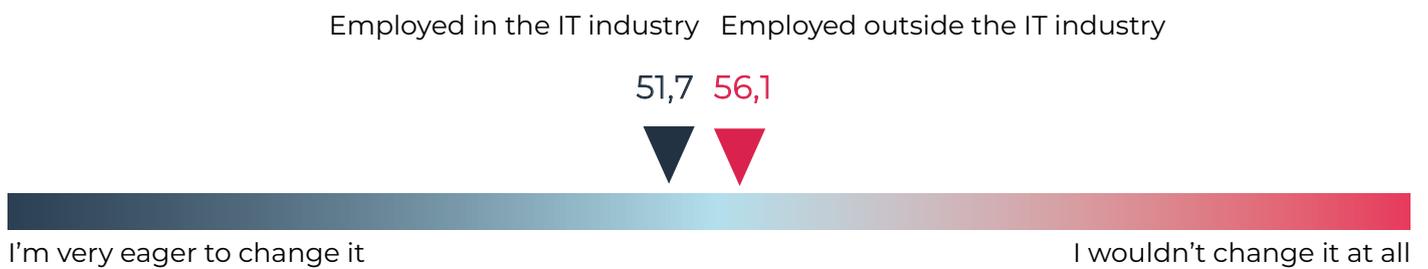
## JOB SATISFACTION

How satisfactory is your job? How pleased are you with it?



Data in %

Would you like to change your job? How much would you like to do it?



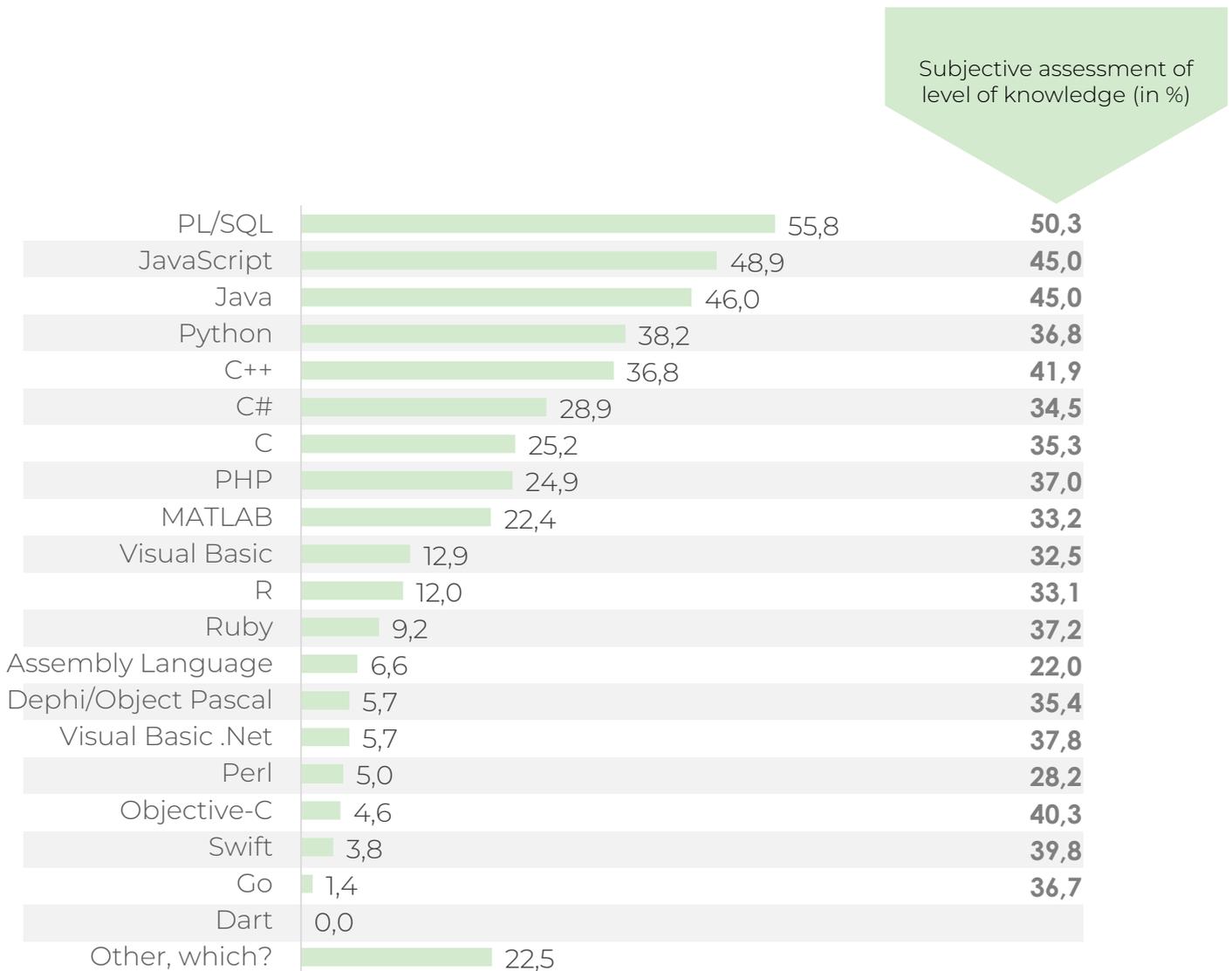
Data in %

Women working in IT like their work. As much as 72% rated their job satisfaction at 5 on a 7 point scale. It's worth noticing that there's 17% more of them when compared to female employees in other fields.

However, almost half of the women dealing with new technologies think about changing their jobs.

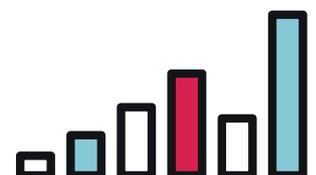


## Which of the following technologies do you know at least at the basic level?



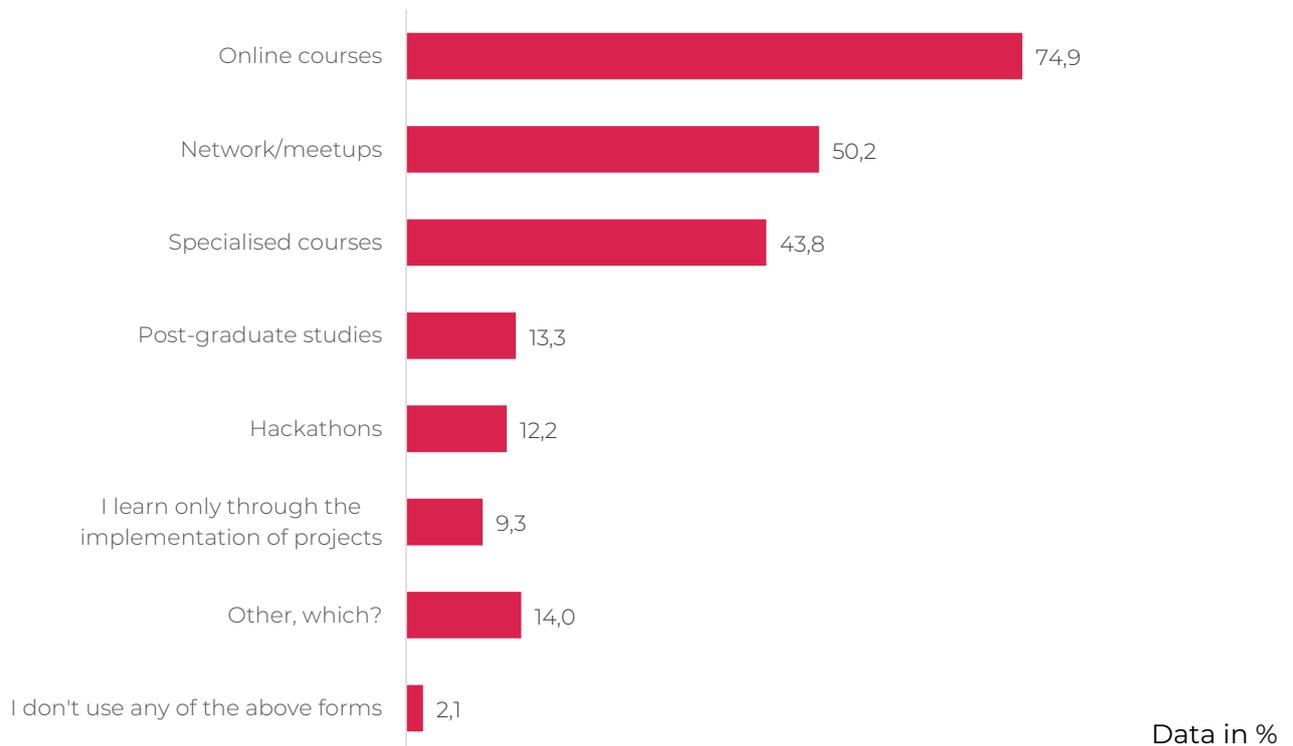
Data in %

Technologies known by most respondents from the IT sector are: PL/SQL (50.3%), JavaScript (45%), and Java (45%). At the same time, these are the best known languages in the respondents' subjective view. A big part of female respondents are no stranger to Python and C++. Technologies known by the fewest women (less than 5%) are: Objective-C, Swift, Go, and Dart. More than 22% of women indicated some technologies from outside the list of the most frequently used technologies in 2017, among others: SQL, XML, SAP, Scrum, Scala, HTML, CSS, TypeScript, and ABAP.



## PROFESSIONAL DEVELOPMENT

### What forms of professional development in IT do you use / have used?

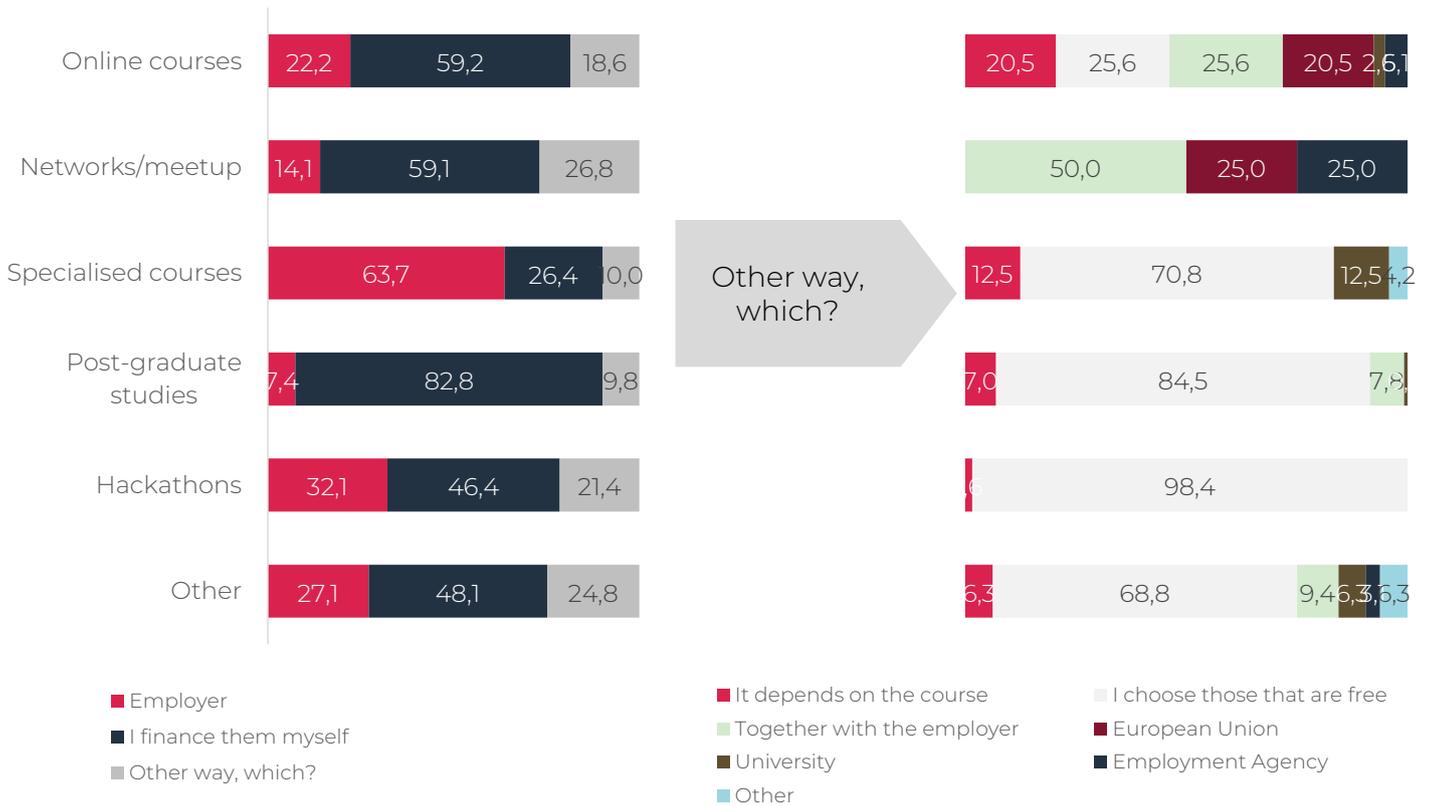


#### ALEKSANDRA PSZCZOŁA, CEO AT BEE TALENTS

Unequal treatment at work is largely a question of individual beliefs and stereotypes. However, from the HR perspective, a lot depends on organisational culture – whether it's built in a conscious way. Organisations built on trust, where employees are invited to take part in an

open discussion, give constructive feedback, and develop their soft skills are places where unequal treatment is a rarity, not a rule. Research results show that the situation of women in IT is quite good and that skills come first, not gender. Girls in IT are satisfied in their roles, they're ambitious and willing to gain new knowledge not only by creating projects but also taking up online courses or even post-graduate studies. Even though discrimination is marginal when compared to other fields, I believe that the popularisation of women's roles in IT is still very needed. It turns out that women themselves often succumb to stereotypes, which hinders their development. It's high time for women to stop criticising themselves and start to believe in their abilities. This power to prove that the presence of women in IT is a norm has to come from within us, without waiting for praise and distinctions. I think that the subject that needs to be focused on most is women in management. Judging from the research, there seems to be a lot of room for improvement in this particular area. It's rare to see women at CTO or CEO positions in IT. Taking into account the number of ambitious girls working in new technologies, I think it's just a question of time.

## Who finances your participation in these courses?

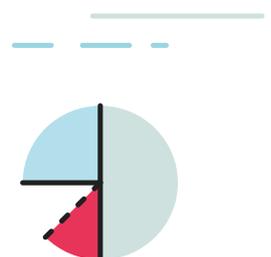


Data in %

Only 9.3% of IT employees develop their skills only through working on the project and do nothing apart from this. The most popular way of acquiring new qualifications and improving the existing ones are online courses. They are selected by 75% of the respondents. The second most popular way is meet-ups and networking. As much as 50% of women choose them.

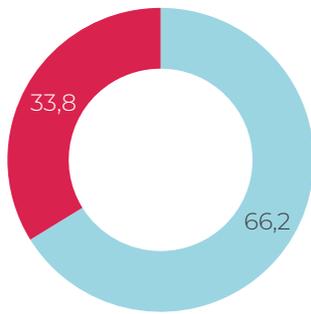
Apart from the educational opportunities included in the chart, others have been indicated: knowledge exchange with experts from the same company, workshops, internal and external courses, conferences, books, the Internet, e.g. blogs.

These activities are most often undertaken at the employees' own expenses, apart from the specialised courses employers invest in covering at least some part of the expenses. Women also profit from numerous free meetings, workshops, and courses available on the market.



## CONFERENCES

Have you ever taken part in a conference related to the IT industry?



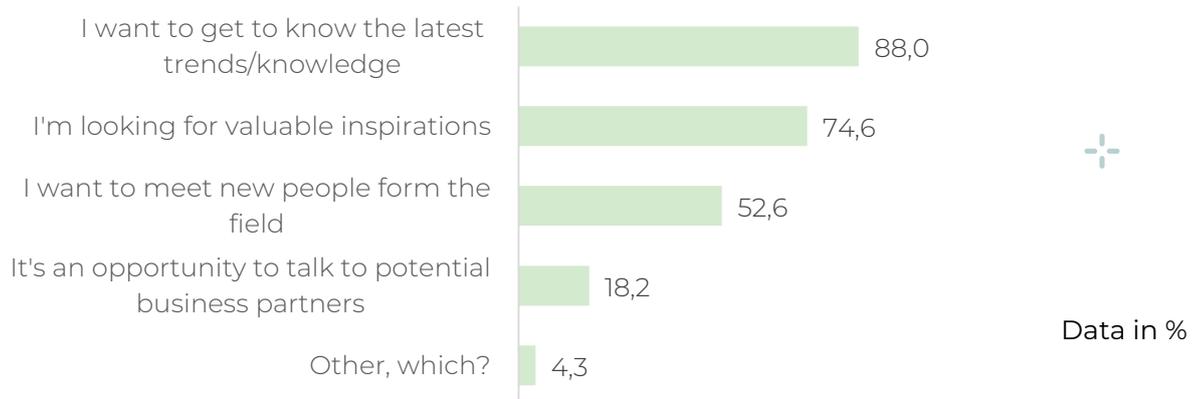
■ Yes ■ No

On average 5 times

How often do you take part in such events? (N=606)



What are the reasons behind your participation in conferences related to the IT industry? (N=599)



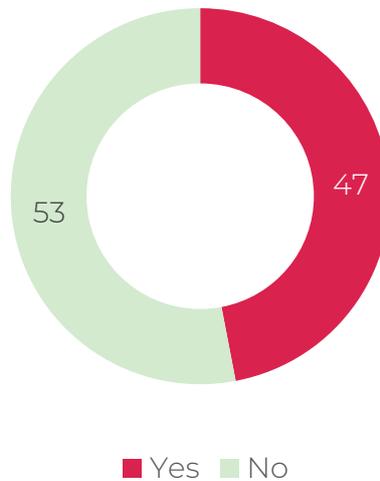
Conferences are quite popular among women working in IT. More than 66% of the respondents have participated in them at least once. There are more than 4.5 conferences per one respondent who declared her presence at such events. It's a very high quota.

More than 26% of conference participants attend once every few months and 29.4% do so once a year. More than 5% of the respondents go to such events once a month or even more frequently.

Why do they go there? They are attracted by the opportunity to see the latest trends and broaden their knowledge (88%), find valuable inspirations (74.6%) and extend their professional network (52.6%). More than 18% of the respondents also see the opportunity to talk to potential business partners there.

## CERTIFICATES

Do you hold any certificates or other documents (especially form the field of IT) that prove that you achieved a certain level of qualification?



Data in %

How do you assess the advantages stemming from being a part of these organisations/communities?  
Use a scale from 1 to 7 where 1 stands for 'completely useless' and 7 - 'indispensable'.

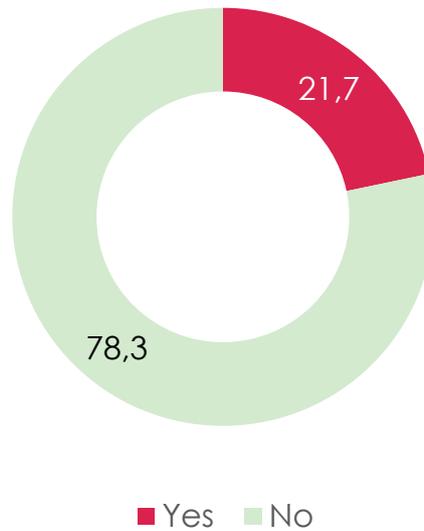


Almost half of the respondents (47%) hold a certificate(s) proving their qualifications. Examples of the listed certificates: Professional Scrum Master, Prince2 Foundation and Practitioner, ITIL Foundation, AgilePM, PMP, RHCE, REQB, ISTQB Foundation Level, certificates related to SAP, Salesforce, Oracle, Microsoft products. Many respondents indicated IT courses, including specialised ones in which they participated but also other, unrelated to IT, like a summer camp tutor course. There were some answers like: 'unimportant' and 'irrelevant'. On a scale from 1 to 7, the average usefulness of certificates in everyday work is 4.2, which can be interpreted as 'useful'.



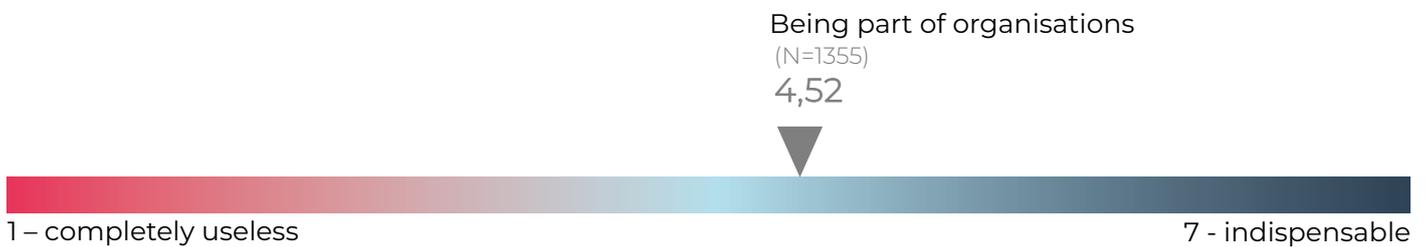
## ORGANISATIONS

Do you hold any certificates or other documents (especially from the field of IT) that prove that you achieved a certain level of qualification?



Data in %

How do you assess the advantages stemming from being a part of these organisations/communities?  
Use a scale from 1 to 7 where 1 stands for 'completely useless' and 7 - 'indispensable'.

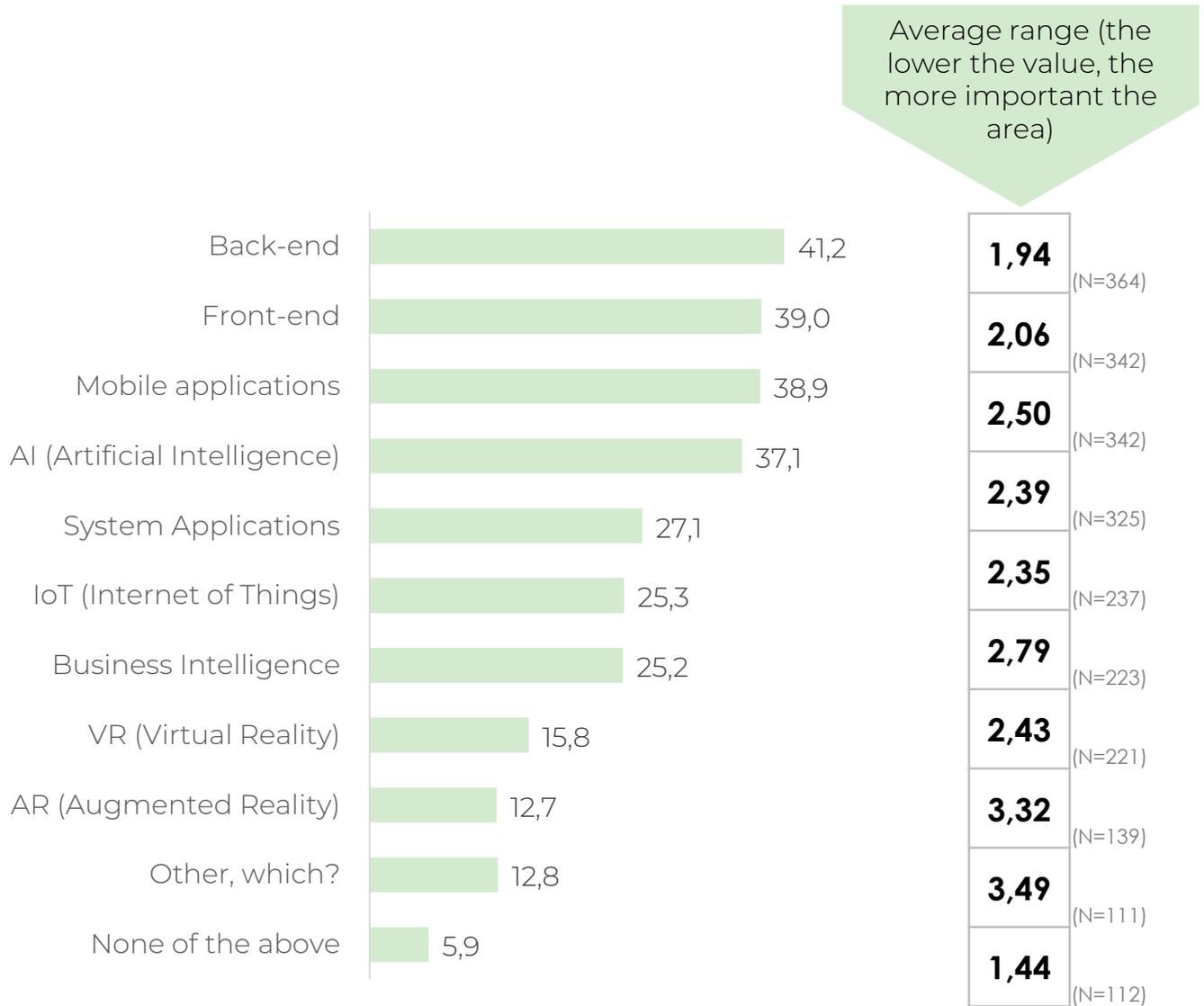


Less than 22% of the surveyed women belong to an organisation or a community gathering female and male IT employees. On a scale from 1 ('completely useless') to 7 ('indispensable'), the influence of membership in such groups on a professional career and development is rated at 4.52 on average and can be interpreted as 'useful'.

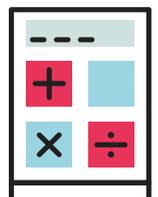


## POTENTIAL AREAS OF PROFESSIONAL DEVELOPMENT

Which areas of professional development are attractive to you? (N=885)  
 Make a ranking list of the selected areas from the most to the least attractive.

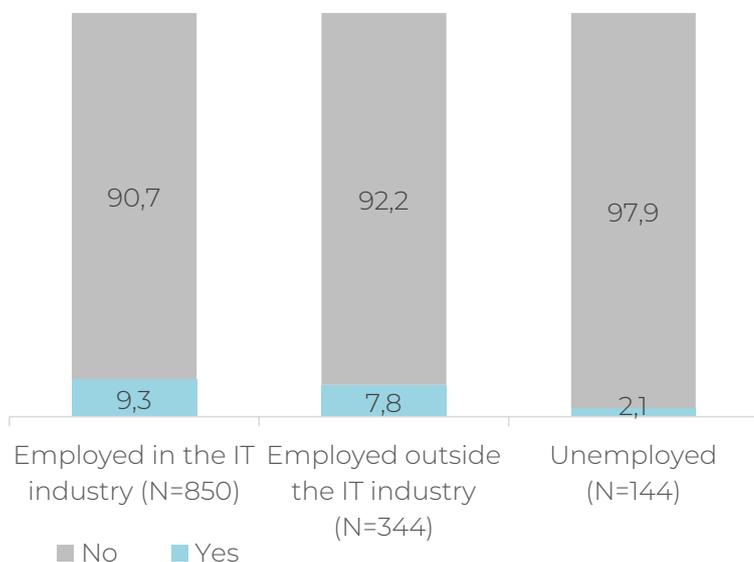


When asked about potential areas of professional development they'd like to focus on, women mostly indicate the four below, from the most popular to the least: Back-end, Front-end, Mobile applications, AI (Artificial Intelligence). Other indicated areas from outside the provided list were: UX, UI, manual and automatic tests, Machine Learning, project management, Data Science, Big Data, business analysis, Agile. They are characterised by women as the most attractive.

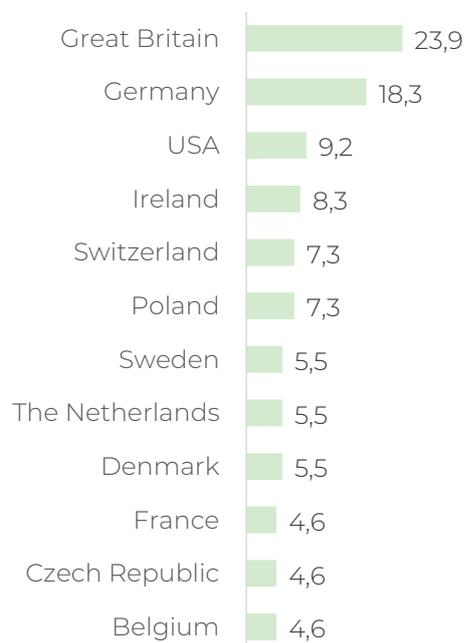


## WORK ABROAD

Have you ever worked abroad in the IT industry?



What countries did you work in? (results above 4%, N=109)



Data in %

A little more than 9% of the responders from the IT sector have worked or work abroad. The most popular destinations are Great Britain and Germany. The important factors when facing the possibility of working abroad are: the opportunity to learn and master the language (40.5%), salary right after employment (32.9%, especially valued by women in IT when compared to employees from other fields), challenges imposed by their work (31.6%), international company profile (31.6%), and professional development opportunities (27.8%).



**MAGDALENA WIERZBICKA, MANAGING DIRECTOR AT FILTRR**

The study 'Women in IT' allows us to see a real perspective for the distinct minority constituted by women in the IT world. It's disturbing to still see such a high percentage of women who feel they're treated unequally at work

due to their sex (49.4%). It's important, though, that this value is lower than in the case of women working outside IT (59.1%). The main factor, in this case, is not, as it could be expected, salary, but stereotypical treatment at work, experienced by more than 85% of women in IT. This data should undoubtedly motivate employers, and above all managers, to reflect on their ways of communication. This kind of treatment can lead directly to losing valuable employees – female specialists in IT – who are so hard to find, as well as hindering the willingness of women to work in this field.



## MARIA POŁOMSKA, CEO AT KREATIK, GEEK GIRLS CARROTS POZNAŃ

The increase in the number of women in IT will be beneficial not only for women themselves but also for all of society. While different jobs unrelated to IT are declining or even disappearing, the demand for specialists in new technologies is rising, which translates into very good earnings. I think that the present situation on the market is, in fact, a huge opportunity for women. If we want to drive an innovative economy, we need to increase employment, which requires attracting new talents to the industry and investing in their development regardless of their sex. Technology is becoming involved in more and more aspects of our lives, so that solving new problems requires a vast understanding, empathy and variety of experiences from people who create it. We can guarantee that thanks to an equal participation of women and men in the development of this industry. The study shows important areas which have to be supported in order to increase women's interest in IT. We need to work on two levels: education (the earliest possible access to computers and the Internet for girls) and worldview (Women give up on their careers themselves due to the existing stereotypes, social roles). I hope that this study will be continued – it will be interesting and important for the industry to see the pace of changes that GGC have managed to map in this study.

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## WORK OUTSIDE IT

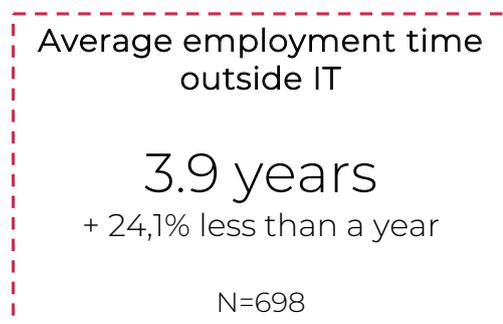
Have you ever worked outside the IT industry?  
(N=960)



■ Yes

■ No

Data in %



More than 73% of the respondents currently working in IT have worked in other fields in the past. The average employment time outside IT is 4 years. The average career length for respondents working in IT for more than 12 months is more than 4.5 years. Moreover, about 160 of the respondents have worked in this sector for less than a year.

## BEGINNINGS

### FIRST CONTACT WITH A COMPUTER

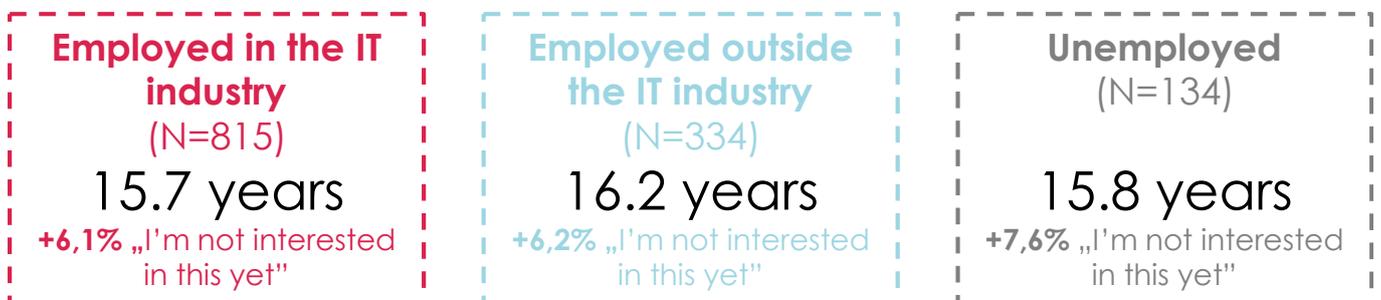
When did you use the computer for the first time, regardless of what you did on it?



When did you obtain free access to a computer i.e. you could use it on your own at any time?



When did you discover your interest in computers?

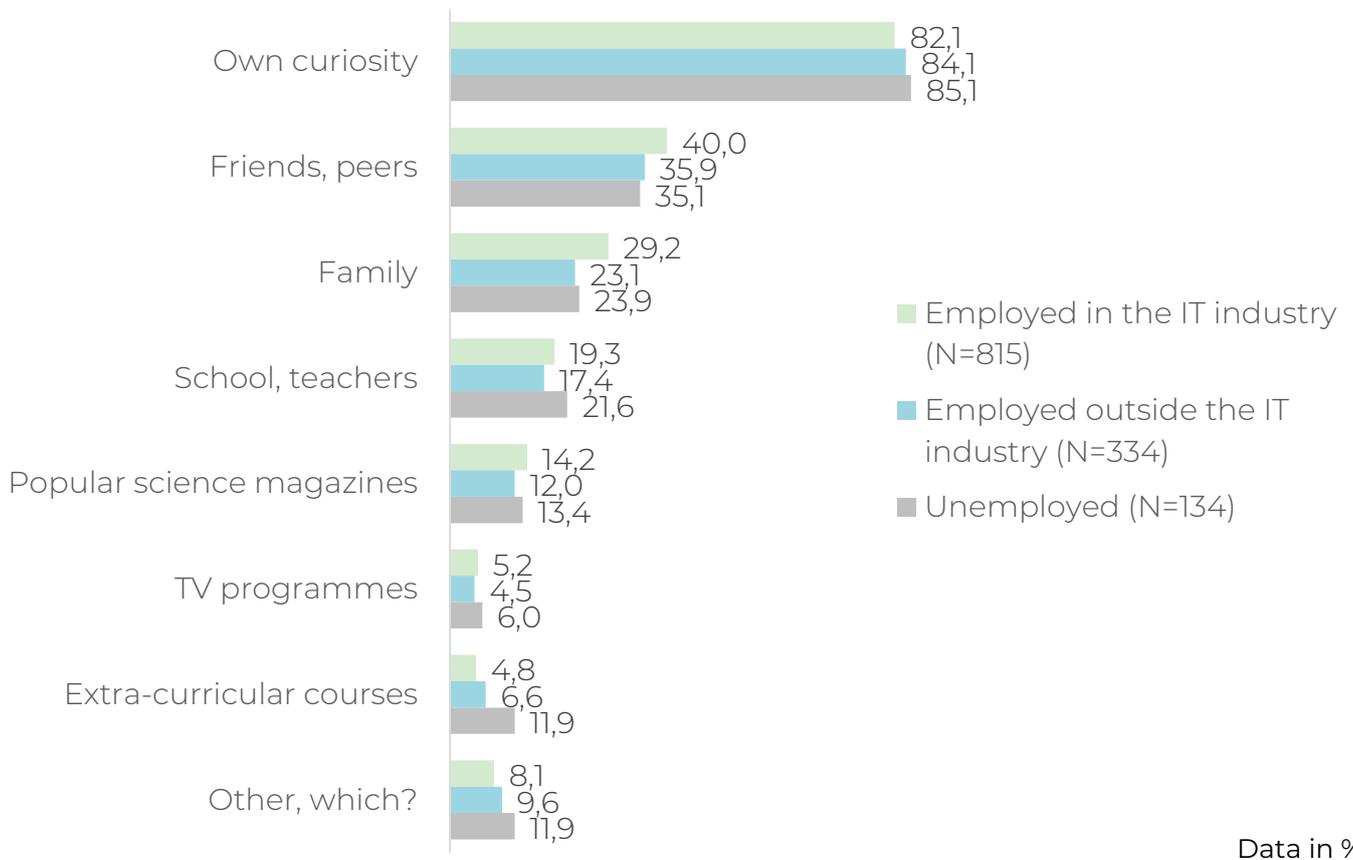


The age at which the respondents used a computer for the first time and obtained free access to it has no influence on the later professional career. Even though it can be observed that IT employees started their adventures with new technologies earlier than women from other sectors, it's those who are currently unemployed who had their first contact with new technologies six months or even a year earlier. The data may be influenced by the age of the unemployed respondents, many of whom are students, people younger than 20, who were born and raised in times when computers and the Internet had already become more accessible.

Nonetheless, it's women who professionally deal with IT who saw interest in computers the earliest – before the age of 16 on average.

## FACTORS AFFECTING INTEREST

Which of the factors below had an influence on your interest in computers?



Women indicated their own interest as the major factor for getting them interested in computers, regardless of their career path – it's the same for women from the IT sector, other sectors, and the unemployed. According to the respondents, sources of influence were also peers and friends (mostly among women in IT – 40%) and family (mostly among women in IT – 29.2%).



# ASSESSMENT OF THE FIELD

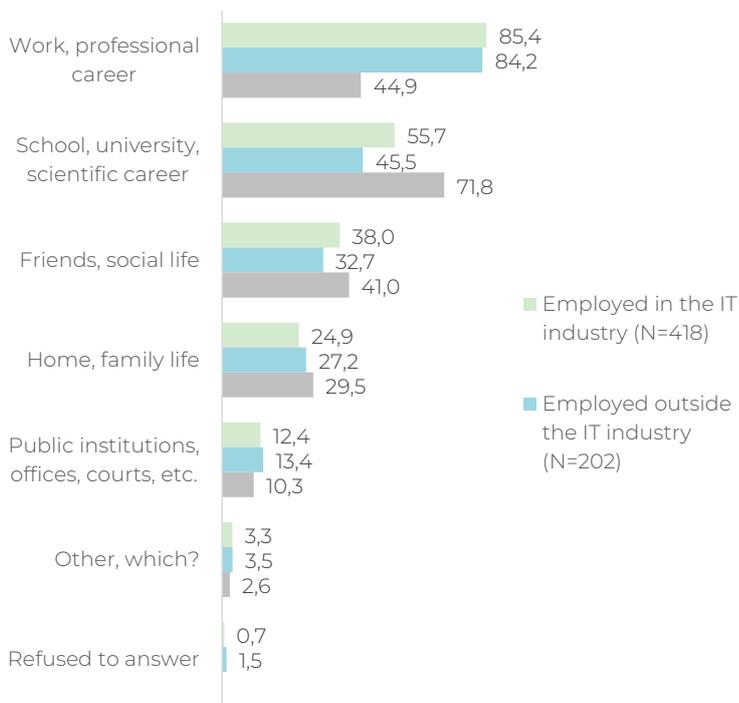
## UNEQUAL TREATMENT – EXPERIENCES

Have you ever experienced unequal treatment due to the fact that you're a women?



■ Yes ■ No ■ Refused to answer

What were these experiences related to? What areas or situation?



Data in %



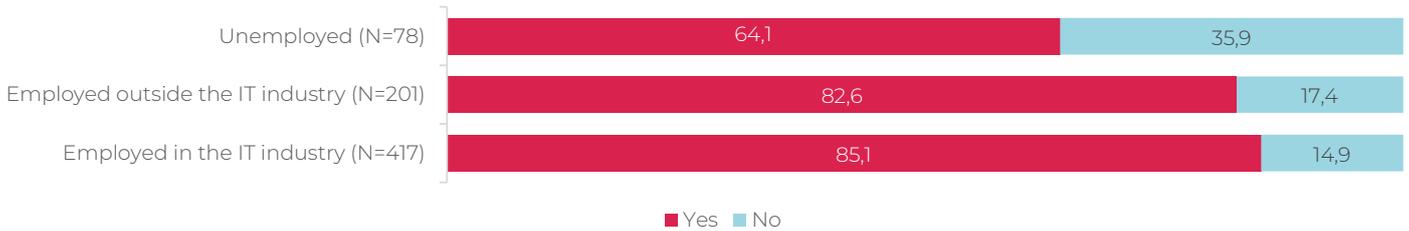
### ILONA SKARBOWSKA, CARROTS FOUNDATION

During my last 4 years at Geek Girls Carrots, I have witnessed a big change in the IT market in Poland. Corporations and large companies see the diversity policy as a fixed and important element of their growth. They value the advantages of creating mixed teams. Leaders are

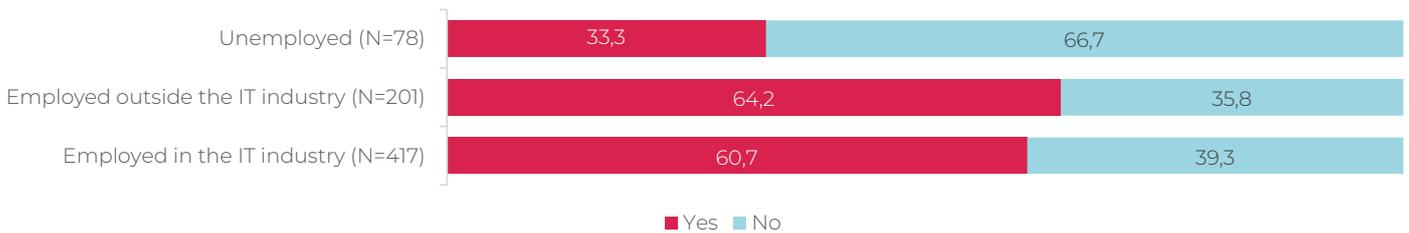
increasingly creating teams composed of people possessing different skill levels or experience. They are aware that it is possible to maintain employees statistically longer than other companies only thanks to interesting projects and by giving them the opportunity to develop their skills through learning. Rotation in technological companies is always greater than in other industries, which has been confirmed in the report's results. I was most surprised by the low willingness to change the place of residence for new career possibilities. This may be related to the increasingly popular ability to work remotely. ściej

## Have you ever personally experienced any situations below?

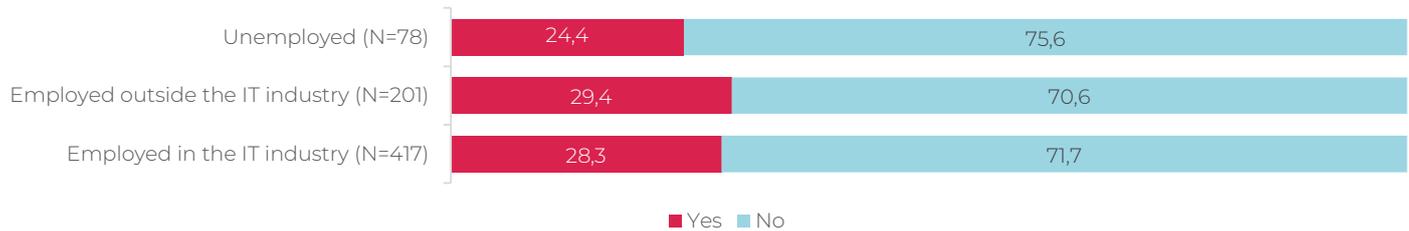
### Lower salary than men's in the same position



### Gender-related stereotypical treatment at work



### Rejection of your job application due to your gender



Data in %

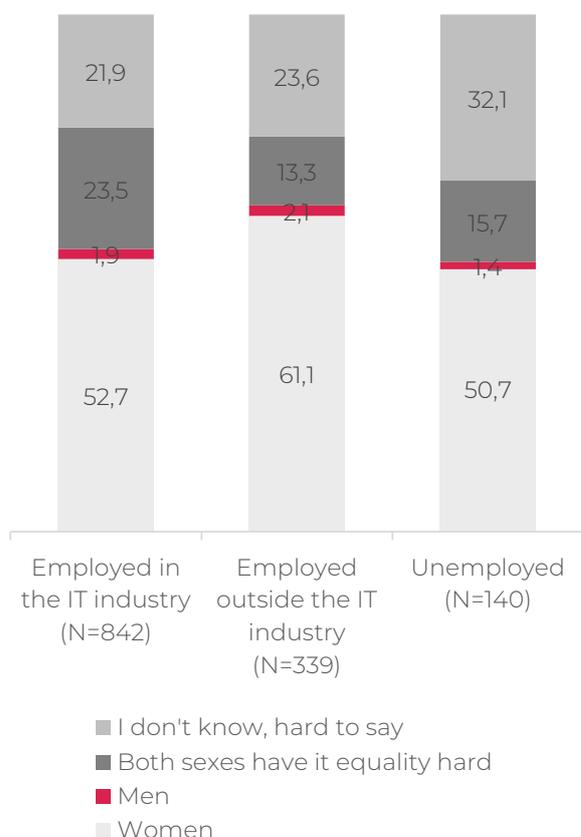
Despite the continuous work of many international organisations, women are still discriminated against, also on the labour market. As much as 49% of women from the IT sector, 59% from other sectors and almost 55% of the unemployed have at least once experienced unequal treatment due to the fact of being a woman. The positive information is that the percentage of respondents from the new technologies sector is the lowest, but it's still not enough to cause satisfaction – almost half of the women were viewed and treated in a different (worse or better) way than a man due to their sex.

The signs of unequal treatment are most often observed in the environments related to the professional and educational spheres of life but also among friends and family. The most common sign is stereotypical treatment at work, and outside IT – lower salary when compared to men's.

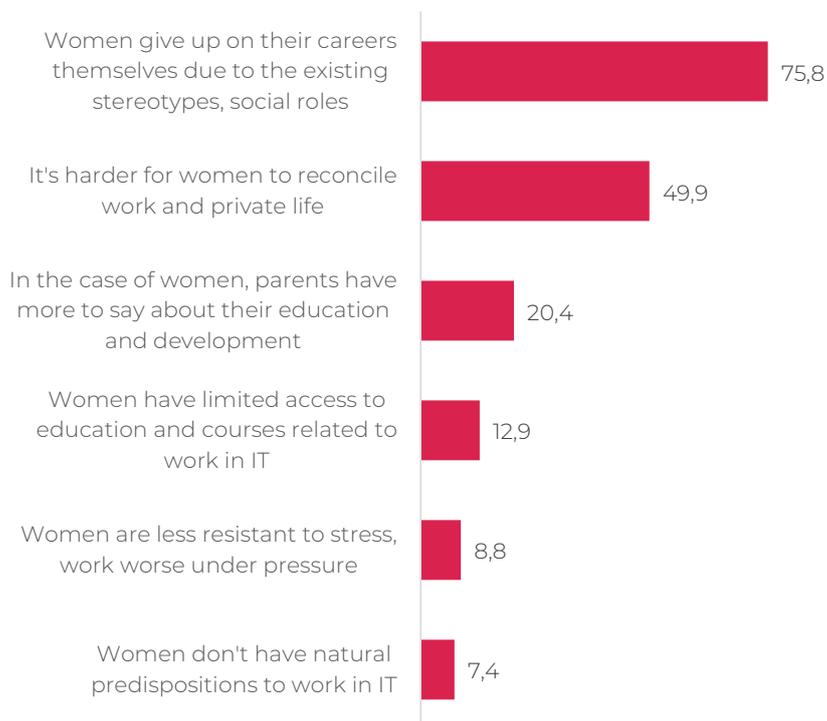


## CAREER IN IT AND GENDER – OPINIONS

**In your opinion, for whom is it harder to make a career in IT in Poland?**



**Which of the reasons below can make it harder for women to make a career in IT than for men? (N=707)**



Data in %

The majority of women, regardless of the sector they work in, think that it's harder for a woman to make a career than for a man. However, more than 75% observe that it's not necessarily related to the external barriers but rather internal ones. The respondents say that women impose restrictions on themselves and don't take up the challenge of working in the environment considered highly male-dominated. Almost 50% of the surveyed women think that it's caused by the difficulties reconciling professional and family life they care about.



**The answers to the open question: ,Why do you think it's harder for a woman to make a career in IT' were as follows:**

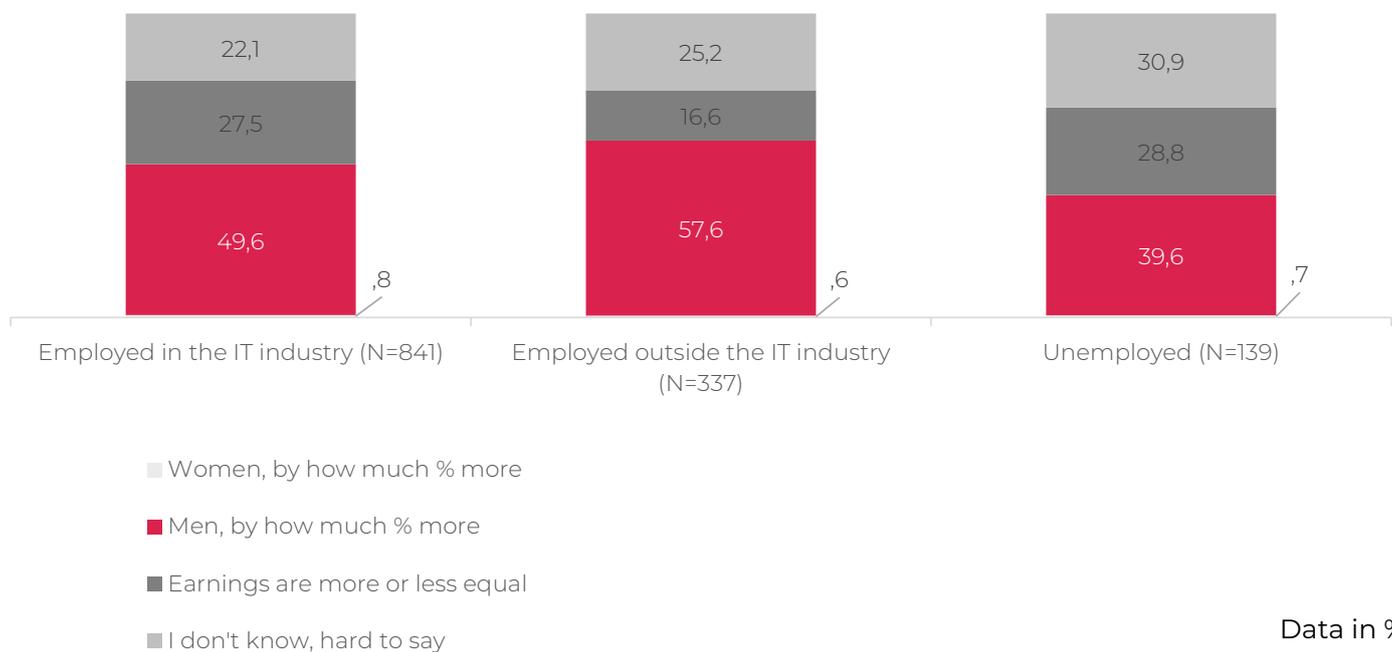
- ✓ *Because of stereotypes. When a man gets angry, it means he's powerful. When a woman gets angry, she's just hysterical.*
- ✓ *Their role is undermined, even unconsciously – in a group of several/several dozen men and one or two women, they will be seen as a phenomenon.*
- ✓ *Because of the view that a woman can't deal with logical issues of the same level as men do.*
- ✓ *Many people think that our interests are limited to beauty, cosmetics, fashion, etc.*
- ✓ *Because of experiencing actions that discredit women's knowledge: suggesting that a woman who has achieved success didn't do it through her hard work but, for example, a romance. Also because of statistically lower self-esteem, lack of belief in one's qualifications, and good role models.*
- ✓ *Because of the stereotype that a woman can't know how to work with computers. And girls' lack of confidence to get into it.*
- ✓ *Because of women's fears.*
- ✓ *Nobody supports girls' development in this field, presents learning opportunities or IT studies.*
- ✓ *We don't believe in ourselves and our skills. We deny our successes. We don't have personalities that are strong enough to function in a male world.*
- ✓ *The stereotype that boys naturally get it. Raising girls in the spirit of perfectionism and boys with the ,it's ok to fail' attitude. Discrimination in lower schools and the fact that STEM teachers are also men or women who've had nothing to do with programming.*
- ✓ *They're less cheeky and arrogant. They're rather humble and inclined to undermine their achievements.*
- ✓ *People pick up the view about the inferiority of women in sciences at university. It's the older teachers whose way of treating students is most biased.*
- ✓ *Women in IT are mostly those who have changed their field, so they had a later start. Even if they've always been IT specialists, they're going to fall victim of stereotypes anyway, even those who have already been broken.*
- ✓ *Men in typically female professions experience similar treatment.*

- ✓ *A woman is judged competent once she's proved it. A man is competent unless he proves otherwise.*
- ✓ *Because due to motherhood she may fall out of a dynamically developing field for some time. Women often give up on themselves, because the mother's role is the most important for them.*

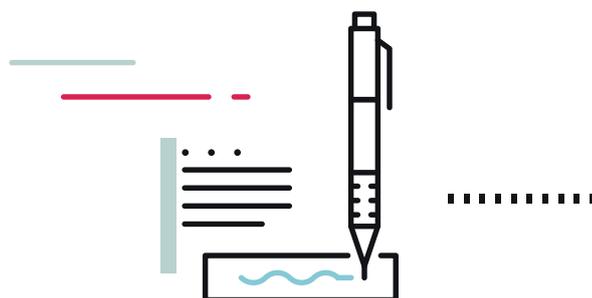


## SALARY AND GENDER – OPINIONS

In your opinion, whose average earnings in IT are higher?

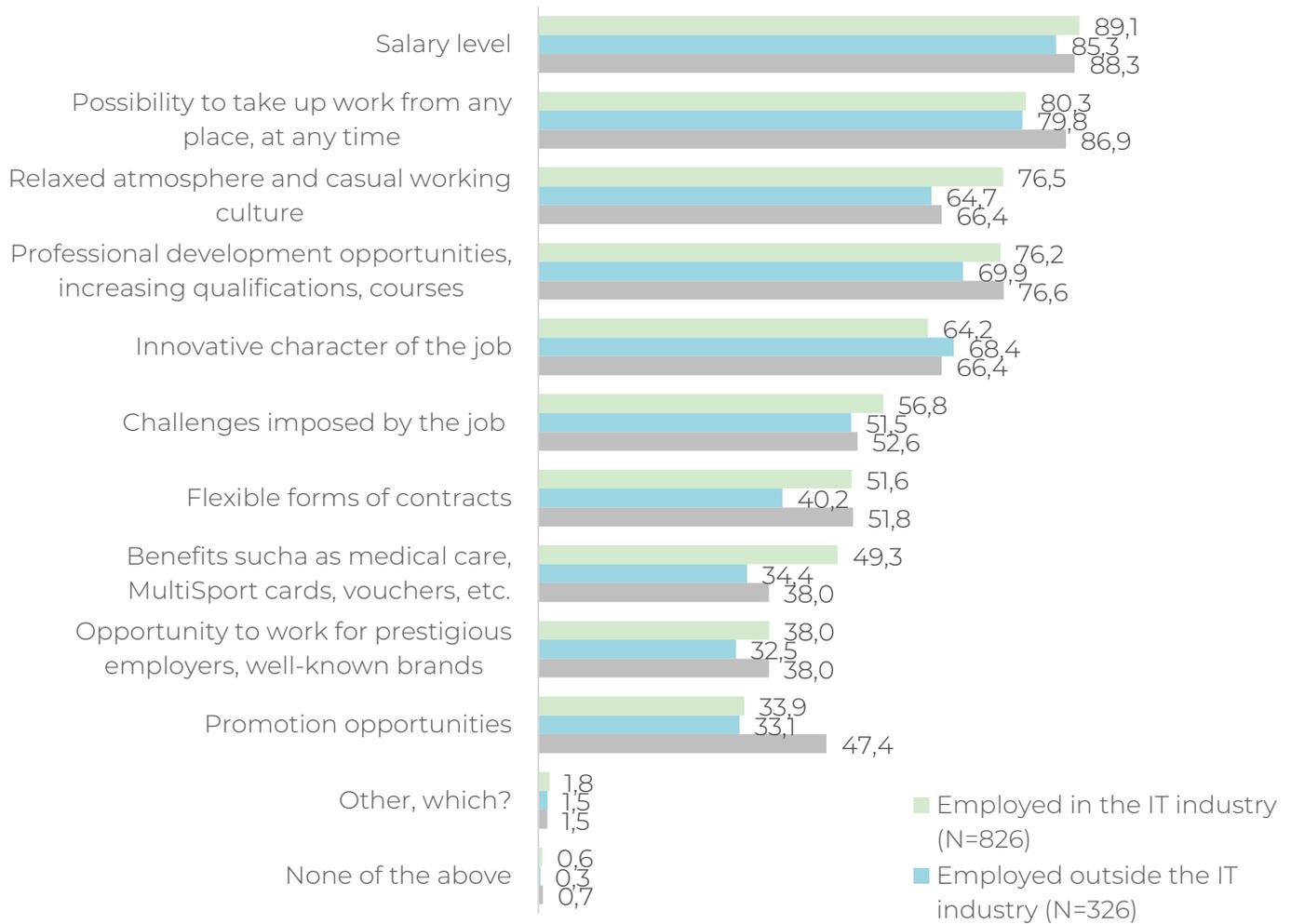


A big group of respondents thinks that men earn most in IT. This opinion is shared by almost 50% of women from the IT sector, more than 57% from other sectors, and 40% of the unemployed. They claim that men's earnings are on average 23.8% higher than theirs. More than 20% of the representatives of each of the surveyed groups are not able to say if there are any differences in salary levels.



## ADVANTAGES OF WORKING IN IT – OPEN ANSWERS

In your opinion, which of the advantages below seem to describe the IT industry?



The most popular characteristic trait of working in IT is the salary level. Women also appreciate the possibility of working from any place at any time, which allows them to reconcile the professional and private life. Another advantage of working in the technology sector is the casual working atmosphere and opportunities for professional development. Promotion opportunities are least important for the respondents from IT, whereas they're much more important for the unemployed (33.9% vs 47.4%).

**Some of the spontaneous answers to this question, excluding the ones that also appeared in the closed questions section, included:**

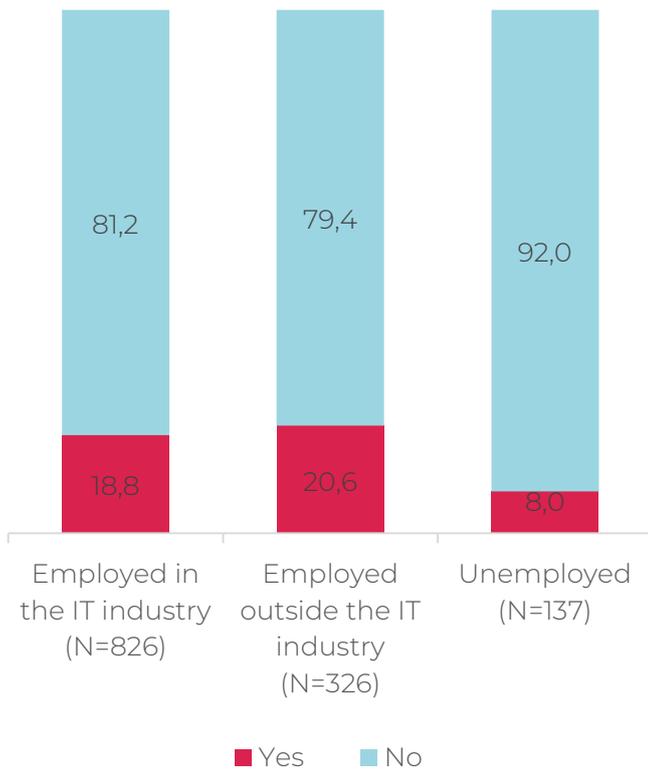
- ✓ You'll always find a job.
- ✓ Higher respect for an employee, no dress code.
- ✓ No routine.
- ✓ Possibility to move and find a job abroad.
- ✓ Modern organisational and management schemes.
- ✓ Variety of projects.
- ✓ Employers investing in their employees.
- ✓ I haven't seen a stressed programmer yet ;)
- ✓ Possibility to create new things (being influential and useful), internationalism (using foreign languages), numerous opportunities to develop your skills and verify your knowledge.
- ✓ Task-oriented approach, dynamically developing sector.
- ✓ Possibility to work individually and in a team at the same time.
- ✓ Flat organisational structure.
- ✓ Business trips abroad.
- ✓ Work according to SCRUM.
- ✓ They're willing to employ women!
- ✓ Everyone can find something for themselves in IT.
- ✓ Social prestige.
- ✓ I like the fact that different communities are formed that are very supportive in sharing knowledge and experience.
- ✓ I changed a project twice and the workplace three times over the course of 3 months. There's a lot going on and it's hard to predict how things will go – I have come to like it.
- ✓ Another view on using IT in everyday life.
- ✓ It's both an advantage and a disadvantage – the fast development of the field.
- ✓ Challenges and issues closely linked to reality and people's real needs.

- ✓ *Universal skills that can be used anywhere in the world.*
- ✓ *Great environment that is focused on growth and likes abstract problems.*
- ✓ *Experts in IT are very independent on the job market – it's possible to develop many skills without working in a concrete profession. Many skills required in IT are satisfactory in themselves.*
- ✓ *Fulfilling yourself in creative actions.*
- ✓ *It's a sector that rewards those who think and are motivated.*
- ✓ *I like to create products that reach many users and I'm happy to see that they make their lives easier or give pleasure.*
- ✓ *Working in IT allows you to know more and faster than others.*
- ✓ *Relatively low production costs (you can make something very profitable by using open source tools).*
- ✓ *Participating in interesting events related to IT.*
- ✓ *Ability to work even during the first years at university.*
- ✓ *Possibility to choose an area of interest (tourism, bookkeeping, medicine).*
- ✓ *There's no need to participate in a rat race, suck up to your boss, wear a suit and have a coffee with the right people – all you need is to be a good programmer.*
- ✓ *As I listen to people from other sectors, I think that everything: human relationships, working culture based on skill and not some shady deals and agreements, passionate people at work, accommodation and logistic conditions, nice workplace, good equipment provided.*
- ✓ *IT is interesting!*
- ✓ *It's a great opportunity to find your niche and specialisation.*
- ✓ *A fun (and increasingly less sexist) nerd culture ;)*

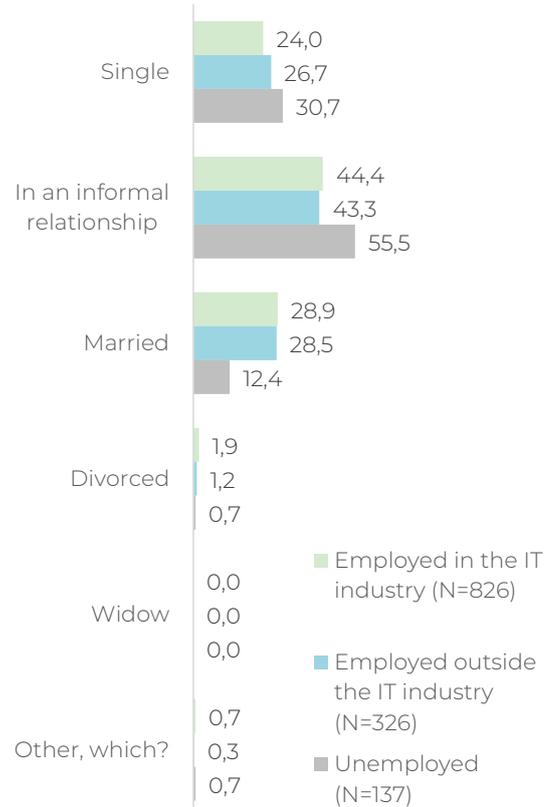


## FAMILY SITUATION

### Do you have children?

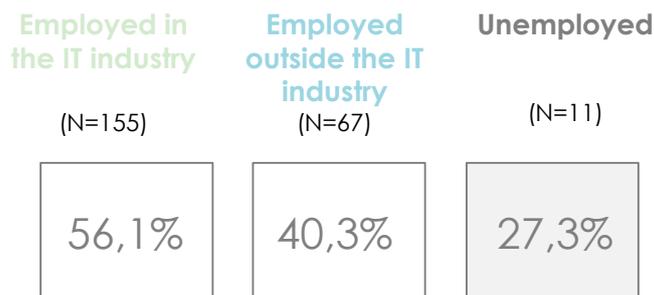


### What is your marital status?



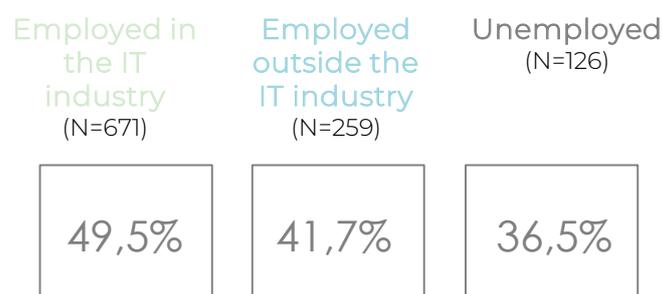
Data in %

### Do you think that reconciling your present professional life with having children is: (top 3 boxes on a scale from 1 to 7: 5, 6, 7, where 7 – very easy)

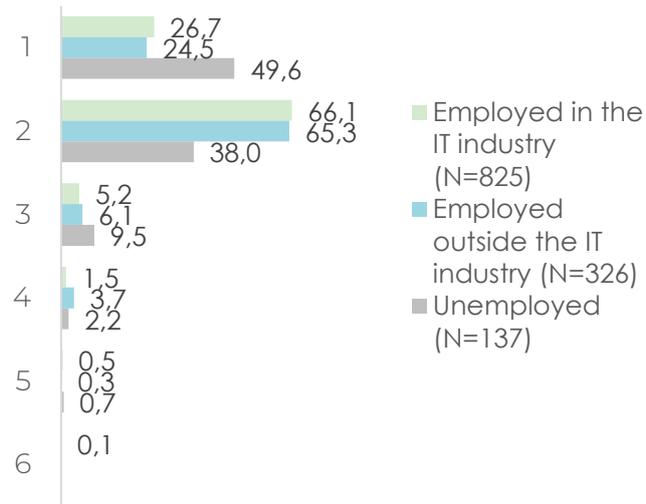


### If you decided to have children, do you think that reconciling your present personal life with having children in the future would be:

(top 3 boxes on a scale from 1 to 7: 5, 6, 7, where 7 – very easy)

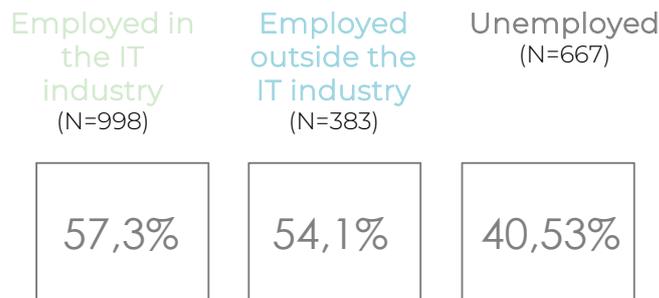


## How many people in your household work?

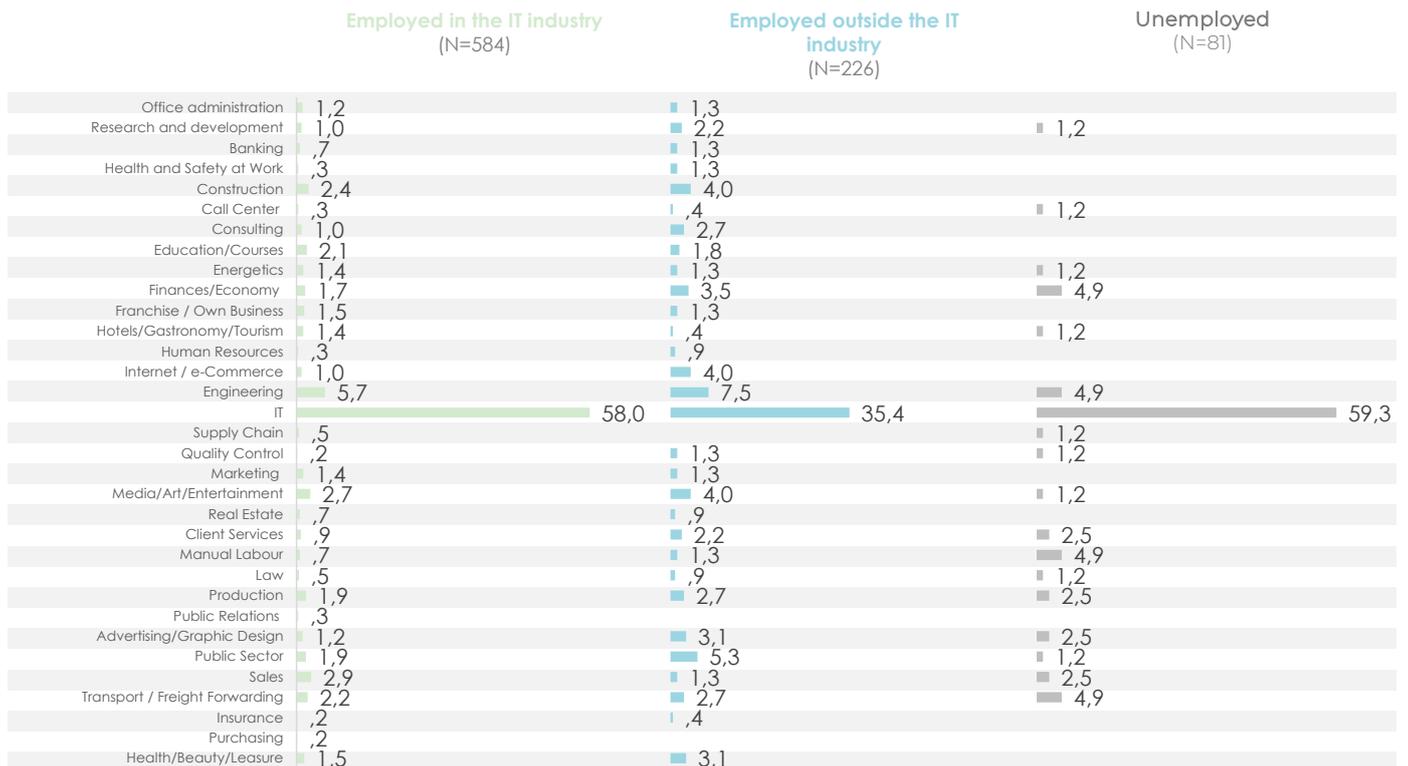


Data in %

## What % of the total household is constituted by your salary?



## What industry does your partner work in?



Data in %

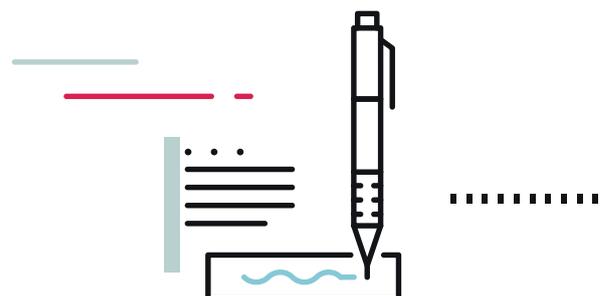
The IT sector is growing and is very inclusive. A lot of IT employees are young people. This is why the percentage of mothers among our respondents is so low. Less than 20% of women from IT have children – on average, there are 1.6 children to one mother.

IT employees think that reconciling professional life with having children is easy, a lot easier than in other sectors. Factors characteristic of the field indicated earlier in the report such as flexible employment and working time, task-oriented working style, the possibility of working remotely, and relatively high salary level certainly have an influence on this situation.

The biggest group among our respondent is constituted by women who live in informal relationships (44.4% of the female IT sector employees). Married women represent as much as 28.9% of the IT employees and single women – 24%.

Salary of women in IT constitutes a bigger part of the family budget than in the case of women from other sectors. Their salary makes up 57.3% of the income.

It's interesting to see the answers to the question about the sector our respondents' partners work in. Almost 60% of them are related to IT. It can be inferred that these are relationships that started in the workplace or that the partners inspired each other to take up a job in a field related to new technologies. Also, a big number of unemployed women have partners from the IT sector.



## A FEW WORDS FROM WOMEN IN IT

At the end of the questionnaire, our respondents were asked to write a few words on their own, for example, give advice to girls who are thinking about starting a career in IT.

Some of the answers are presented below:

- ✓ *I know some cool female programmers, analysts, test leaders, project managers. They're liked, respected, valued. There's many more of them than people tend to think. It doesn't matter what you have in your pants but what you have in your head.*
- ✓ *I've always thought that it's a kind of magic, that it's not for me, that I can't do this. I happened to have a stubborn employer who said to me when I was hired: don't worry, we'll teach you, and then he taught me to the bitter end till the magic was exposed – it's not that bad after all.*
- ✓ *Start learning on your own. Go to meetings and get to know new people. It will allow you to convince yourself that this is the right job for you. To work in IT, education or an academic degree are not relevant. What matters is skills, the willingness to learn, and openness.*
- ✓ *Send your resume, even if you don't meet all the requirements.*
- ✓ *Step out of the shadows!*
- ✓ *More self-confidence.*
- ✓ *Don't pretend to be stupid just to please other team members.*
- ✓ *Age is not a barrier if you want to change your field to IT.*
- ✓ *It's worth it. The field is becoming increasingly more open to women, there's no need to be afraid. It's the most promising profession in the world.*
- ✓ *It's good to invest in English.*
- ✓ *It's good to search for meet-ups and try your chances in different areas, even if you're a beginner in this field.*
- ✓ *I need female colleagues on my team ;)*
- ✓ *Trust yourself, count on yourself, don't step back too easily. Do your thing and don't worry about anything. And above all – don't give up.*
- ✓ *Believe in your possibilities. I changed fields quite late in the game, I was 35, but it's never too late for a change. I don't regret it because the job satisfaction is huge.*
- ✓ *Have your voice, don't be afraid to ask, don't undermine your achievements. More self-confidence!*
- ✓ *Just start! Code, grow, try. Meetings with other enthusiasts are motivating. Use this motivation and start doing something.*

- ✓ *It's great that there are so many initiatives encouraging girls to take up programming and showing how to do it. When I wanted to study IT, everyone discouraged me and said that it's reserved for boys. Only now did I get my second degree.*
- ✓ *Don't be afraid of changes.*
- ✓ *There's nothing to worry about. The IT sector is open to new, fresh ideas. Entering into this field is worth taking the risk as it gives a lot more opportunities than any other.*
- ✓ *Don't be afraid to step out of your comfort zone and build a solid LinkedIn profile – in English, of course. I get several job proposals a year.*
- ✓ *Working in IT requires constant growth, it presents challenges every day but also gives a lot of satisfaction.*
- ✓ *IT covers many different areas, – not only programming – on which so many campaigns for girls focus on. It's good to check out different options because you can transfer your skills from other fields to IT.*
- ✓ *Working in IT is simply interesting and satisfactory. And you can earn a lot, which gives you the feeling of security.*
- ✓ *Working in IT is great – the community is open and the sector stands for change, individualism, and proactivity.*
- ✓ *Believe in yourself! And aim higher than you think you should. Worst-case scenario, you just won't get a better job or a higher position. But you probably will, and once you get up the courage, you will quickly realise how good you are.*
- ✓ *IT needs girls. They help develop teams and deal very well with clients.*
- ✓ *There's nothing to be afraid of. Men are not better at IT by default, they're just constantly told that they can do it. That's why I'd like to say that you CAN learn anything, but you need to want it. Don't pay attention to stereotypes, just break them.*
- ✓ *Nobody says it's going to be easy but working in IT is worth it.*
- ✓ *It's never too late to turn your life upside down and try something totally new. Have courage!*
- ✓ *Don't enter the field only because it's cool now. You need to have a knack for technology and programming. But if you've got it, be daring. IT doesn't bite! :) Just get rid of the feeling that it's a losing battle only because of your sex.*
- ✓ *Don't back down!*
- ✓ *Don't put yourself lower than men. Choose companies that treat you seriously. Why is working in IT so great? People are growth-oriented. You learn something new every day.*
- ✓ *Women are the future of IT ;)*

- ✓ *Go, Girls! The more women there are in the sector, the more welcoming companies will be towards us.*
- ✓ *I'd like to be part of space exploration but programming is easier for me than physics. I think that programming will soon become a must for everyone, so there's no escaping from IT.*
- ✓ *80% of success is being present at events related to IT. I recommend it!*



# MEDIA ANALYSIS

## METHODOLOGY

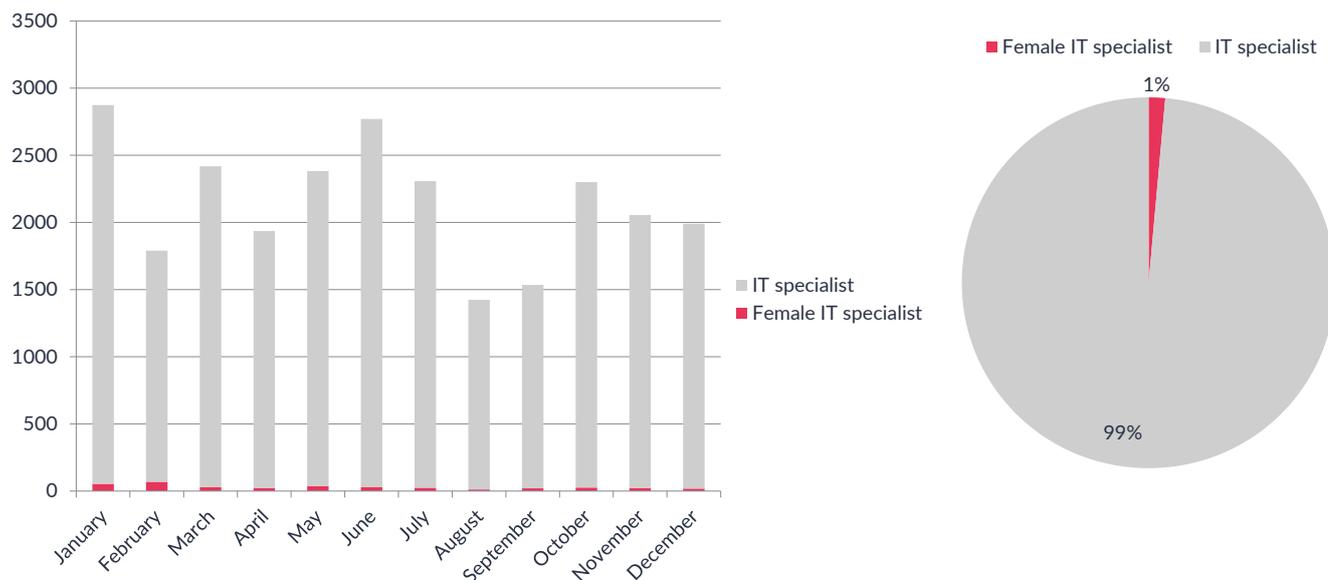
The analysed material comes from web portals, forums, blogs and micro blogs, social media, and services where web users can publish and rate images and videos. This is content published between January 1st and December 31st, 2017, searched automatically for quantitative analysis, and manually for quality analysis (1,500 posts).

Thanks to automatic filtering, posts classified as job or training offers were excluded from the quantitative analysis. Manual filtering was used for the quality analysis. The analysis included only individual posts and not those published by companies or initiatives.

The keywords for the quantity analysis were: informatyk [IT specialist], informatyczka [female IT specialist], programista [programmer], programistka [female programmer], tester oprogramowania [software tester], testerka oprogramowania [female software tester], (front-end) developer, (front-end) developerka [female developer], deweloper [developer], deweloperka [female developer], IT manager, IT managerka [female IT manager]. Words and phrases taken into account in the quality analysis were: informatyczka [female IT specialist] and programistka [female programmer] or woman in the context of IT. The analysis included words with and without diacritical marks, with capital and small letters, conjugated, declined, in singular and plural, in different tenses.

Data has been gathered by the Newspoint tool.

IT specialist / female IT specialist – content distribution over time



More than 25,000 posts met the research criteria as they included the words „informatyk” [IT specialist] / „informatyczka” [female IT specialist]. In all of 2017, the feminine form of the word „informatyk” appeared in about 1% of the content. The disproportion is huge – men from the field were mentioned 25417 times, whereas women only 365 times. Most often in February (in 69 posts) and January (in 53 posts), the least often in August and December (the feminine form appeared in 12 and 18 posts, respectively).



**BOŻENA LEŚNIEWSKA, EXECUTIVE VP ORANGE POLSKA**

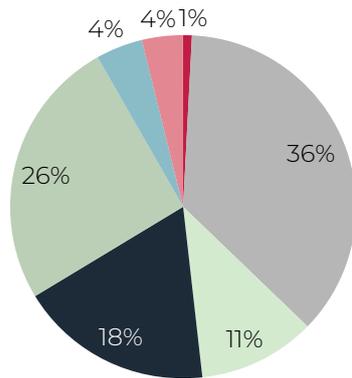
I'm shocked by the research results. They show there's still a lot to do when it comes to the situation of women in IT. On the other hand, they're also promising, because they confirm that women who have chosen this field are satisfied, they grow, and they are better at reconciling their job with the responsibilities of motherhood. A new model is thus created that encourages other women not to be afraid of entering this, thus far, male-dominated world.

In these times of the digital transformation of business, we often talk about the need to build a culture of innovation that has a direct influence on business effectiveness and constitutes one of the pillars of contemporary business management. The basis for building an innovation culture is providing employees with suitable working conditions, where they will be able to expand their creativity. Years of work in one of the biggest telecom companies in Poland have taught me that the more diverse the project teams, the bigger their potential to find favourable solutions. I don't mean here the diversity of competences but also experiences and ways of perceiving the reality. Even though the research conducted in the biggest companies on the Fortune 500 list clearly shows that companies employing more women have better financial results, they are still underrepresented in IT. Modern technology has ceased to be a bastion of men – its further development requires a creative approach. In my opinion, nothing stimulates creative thinking as much as diversity. Digital technology is so deeply embedded in our everyday life that women and men have become its equal users. This is why I think that in the near future women will participate in the creation of complex technological solutions as much as men. However, the percentage of men applying for jobs in the IT sector is almost three times higher than the percentage of women. In my opinion, this is the biggest challenge of the industry – how to attract more women. It would be good to deal with it at the stage of children's education. In 2016, Orange Foundation set up the educational programme for schools: #SuperCoders. It's a nationwide project whose most important goal is to teach how to code. During the workshops, children aged 9 to 12 learn programming, the basics of robotics, and they get to know the world of new technologies not only at IT classes but also in biology, history, Polish or music. Orange provides schools not only with the unique know-how but also offers the means to buy robots for children to learn how to programme and other teaching aids. I strongly believe that educating children in technology at the stage when they are developing their interests, as well as initiatives such as #SuperCoders are the best way to break with the stereotype that IT is a field typically for men.

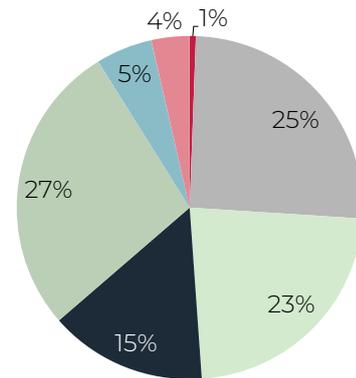
<sup>1</sup>Deloitte, Report, Kobiety i władza w biznesie <https://www2.deloitte.com/pl/pl/pages/kobiety-w-biznesie/articles/kobiety-i-wladza-w-biznesie.html> [dostęp: 25.04.2018].

<sup>2</sup>CBR, Tech City UK: Women left behind as men favour a career in technology, <https://www.cbronline.com/news/tech-city-uk-women-left-behind-men-favour-career-technology> [dostęp: 25.04.2018].

### Female IT specialist



### IT specialist



The word „informatyczka” [female IT specialist] was most common on Internet forums (36% = 133 times) and social media (26% = 93 times). It was used the least on blogs (1%), comments on videos and images (4% in each).

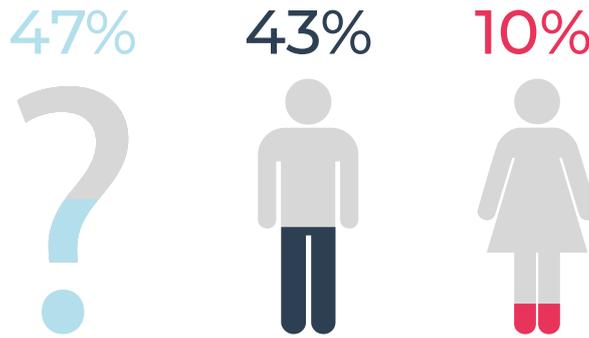


### MAGDALENA TACZANOWSKA, ENTERPRISE COMMERCIAL LEAD AT MICROSOFT POLSKA

I have to admit that when I was asked by Geek Girls Carrots to comment on the research on women in IT, I was immensely pleased. Finally! - I thought to myself. After almost 30 years in Polish IT, I finally understand why there

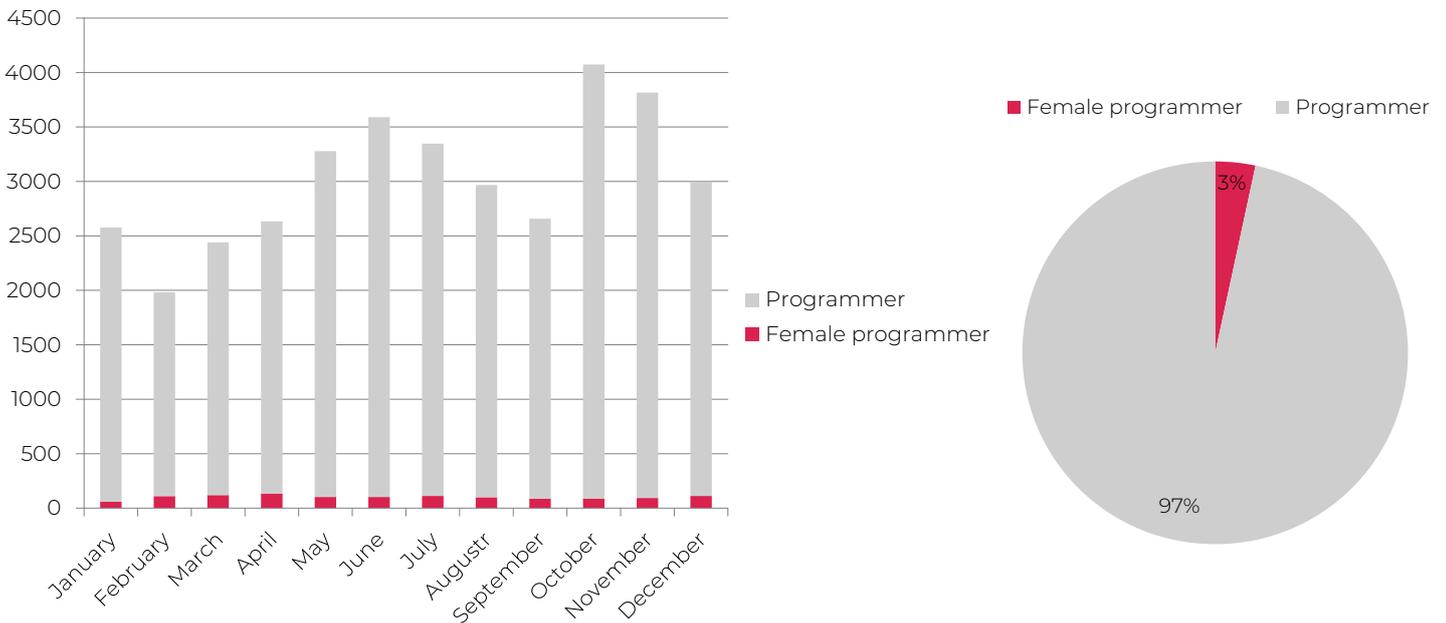
are so few women in it! I've been active in many organisations that promote IT as a desired work field among women and girls, but still the percentage of girls in IT is growing very slowly. After studying the results, though, my initial enthusiasm dimmed a little. It includes everything my colleagues and I talk about at panels and conferences. Women who work in IT know that the earnings are higher, that they need to constantly develop their skills and broaden their knowledge, they know that it's easier to reconcile work and family life here than in any other field, that the work is more satisfying, and that it's easier to gain a promotion. At the same time, however, the same research shows that more than a half of these women (53%) think that it's harder for women than for men to work in the field of new technologies. Yet the most important reasons given by the female respondents for worse perspectives for women are popular stereotypes and social roles (76%!). In that case, let me say this: Dear women in IT, those thinking about entering IT, and those unrelated to IT. It's 2018. A lot has changed. There is no reliable scientific research that proves women to be 'worse' than men in IT. It's up to us to change these stereotypes through our own actions and by encouraging others to act. If not us, then who? If not now, then when? Every time you think it is impossible, find three examples proving that it is possible. Women already occupy posts that you think are 'impossible' to reach. Just browse through LinkedIn to find some examples. I've been professionally active since 1989. From sales assistant in an IT company, I climbed up to the board of IT corporations. I never thought it to be impossible and I encourage you to do the same. Think also about the kids, because it's at this age that beliefs are formed and it's you who can model them. The next time you talk to your daughter or niece ask her how she's doing at maths and what she's programmed lately. The time for women in IT is now!

## INFORMATYK [IT SPECIALIST] / INFORMATYCZKA [FEMALE IT SPECIALIST] – „JESTEM INFORMATYKIEM” [„I’M AN IT SPECIALIST”]



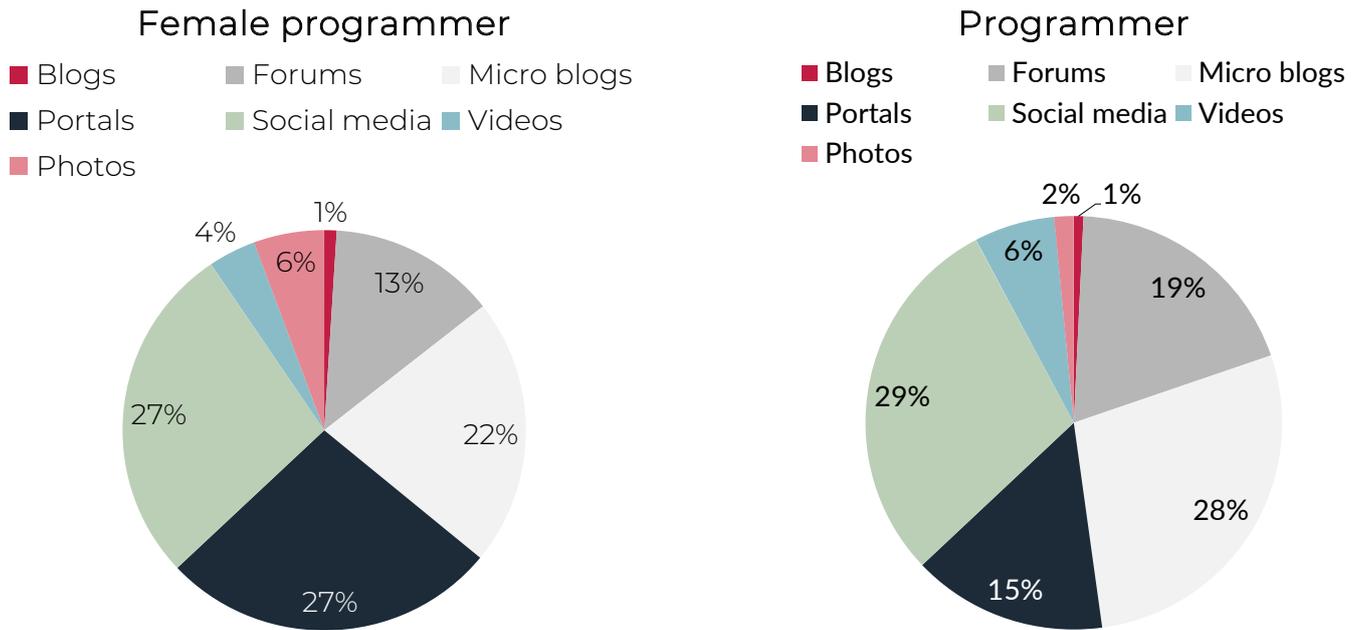
The phrases „jestem informatykiem” [„I’m an IT specialist”] / „jestem informatyczką” [„I’m a female IT specialist”], „pracuję jako informatyk” [„I work as an IT specialist”] and the like were found in 400 posts. The authors of 10% of them were automatically qualified as women (compared to 43% attributed to men).

## PROGRAMISTA [PROGRAMMER] / PROGRAMISTKA [FEMALE PROGRAMMER] – CONTENT DISTRIBUTION OVER TIME



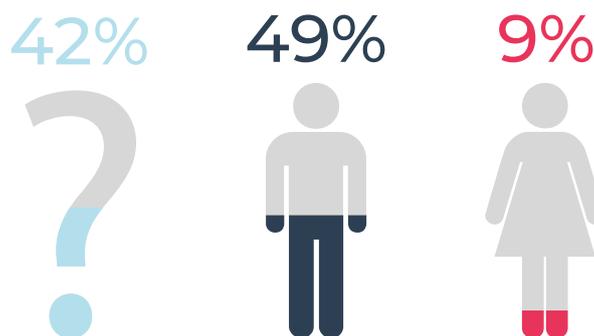
More than 36,000 posts met the research criteria as they included the words programista [programmer] / programistka [female programmer]. In 2017, the feminine form of the word programista [programmer] appeared in 3% of the content (1223 hits). The feminine form was most used in April (135 hits) and least in January when the word programistka [female programmer] was found in almost 60 posts.

## PROGRAMISTA [PROGRAMMER] / PROGRAMISTKA [FEMALE PROGRAMMER] – TYPES OF MEDIA



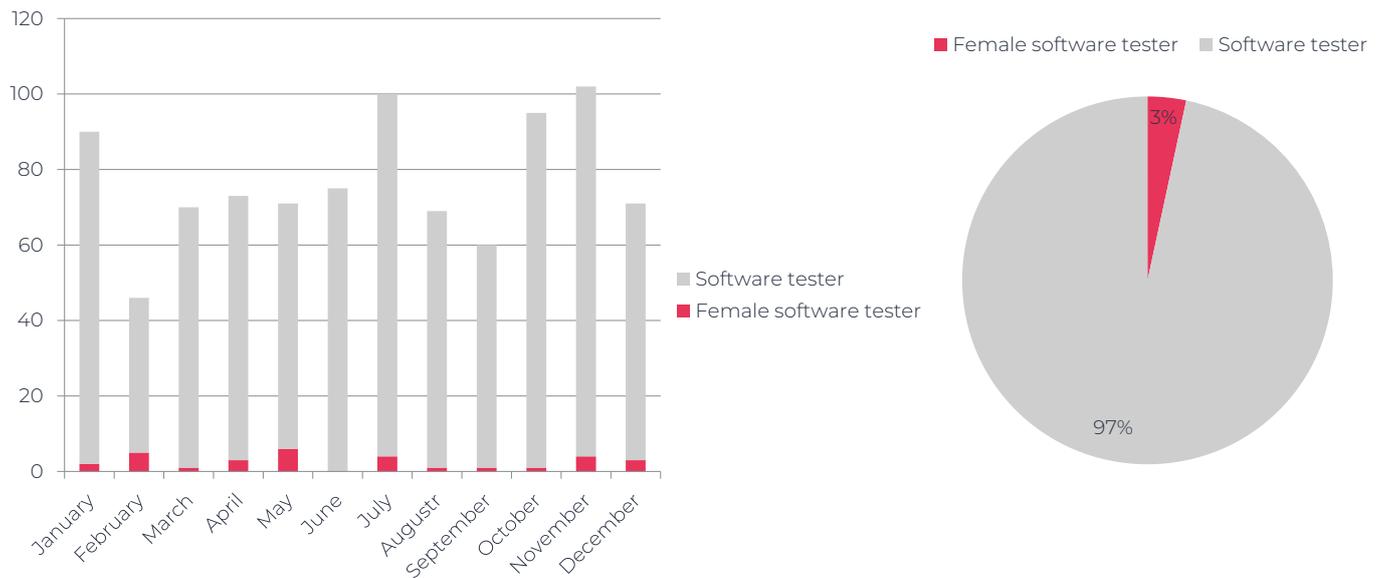
The word „programistka” [female programmer] was most common in social media and websites whose content is published by professional editors (about 27% in both media, which gives about 330 hits in each). The word was the least popular on blogs (1%) and video hosting services (4%).

## PROGRAMISTA [PROGRAMMER] / PROGRAMISTKA [FEMALE PROGRAMMER] – „JESTEM PROGRAMISTĄ” [„I’M A PROGRAMMER”]



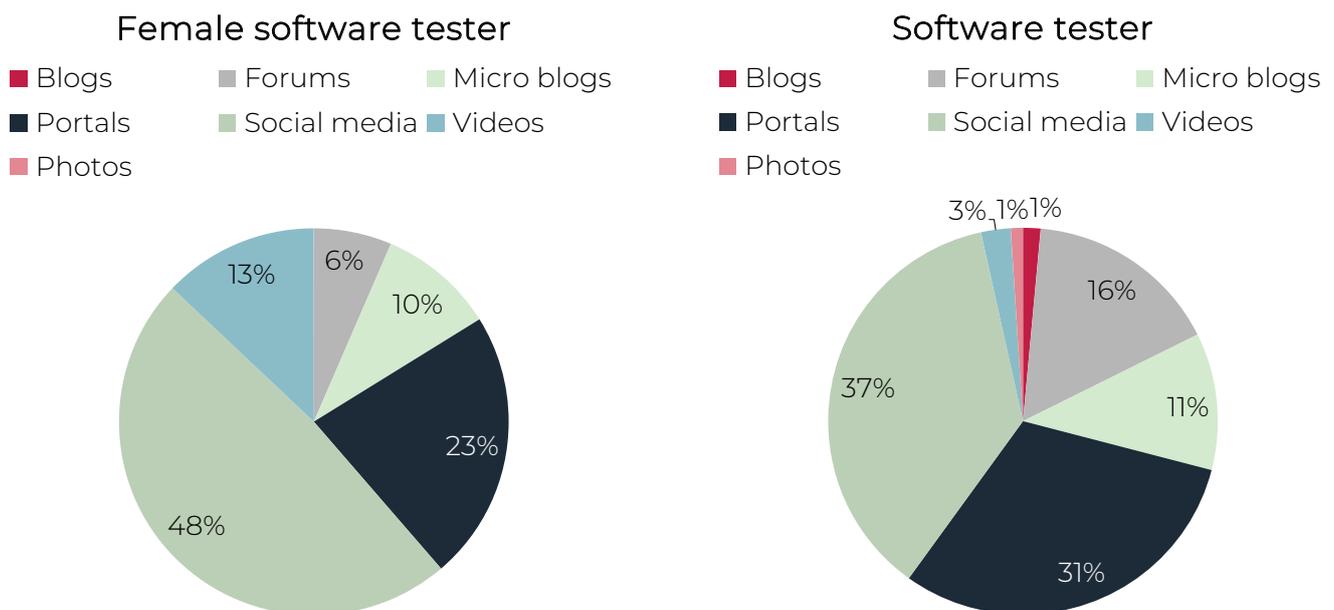
The phrases „jestem programistką” [„I’m a female programmer”] / „jestem programistą” [„I’m a programmer”], „pracuję jako programista” [„I work as a programmer”] and the like were found in about 1,200 posts. The authors of 9% of them were automatically qualified as women (compared to 49% attributed to men).

## TESTER OPROGRAMOWANIA [SOFTWARE TESTER] / TESTERKA OPROGRAMOWANIA [FEMALE SOFTWARE TESTER] – CONTENT DISTRIBUTION OVER TIME



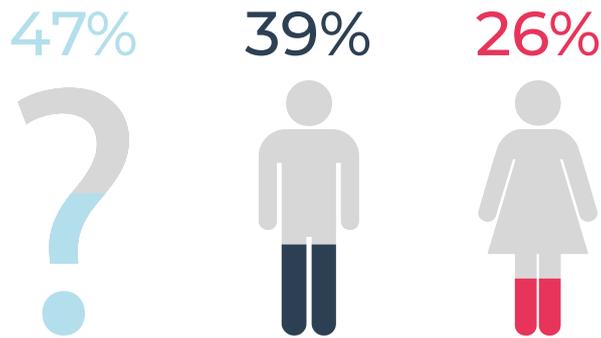
More than 900 posts met the research criteria as they included the words „tester oprogramowania” [„software tester”], „testerka oprogramowania” [„female software tester”]. In 2017, the feminine form of the word „tester” [„tester”] appeared in 3% of the published content, that is 31 times. It was most used in May (6 hits), whereas in June nobody referred to female testers using this word in the media.

## TESTER OPROGRAMOWANIA [SOFTWARE TESTER] / TESTERKA OPROGRAMOWANIA [FEMALE SOFTWARE TESTER] – TYPES OF MEDIA



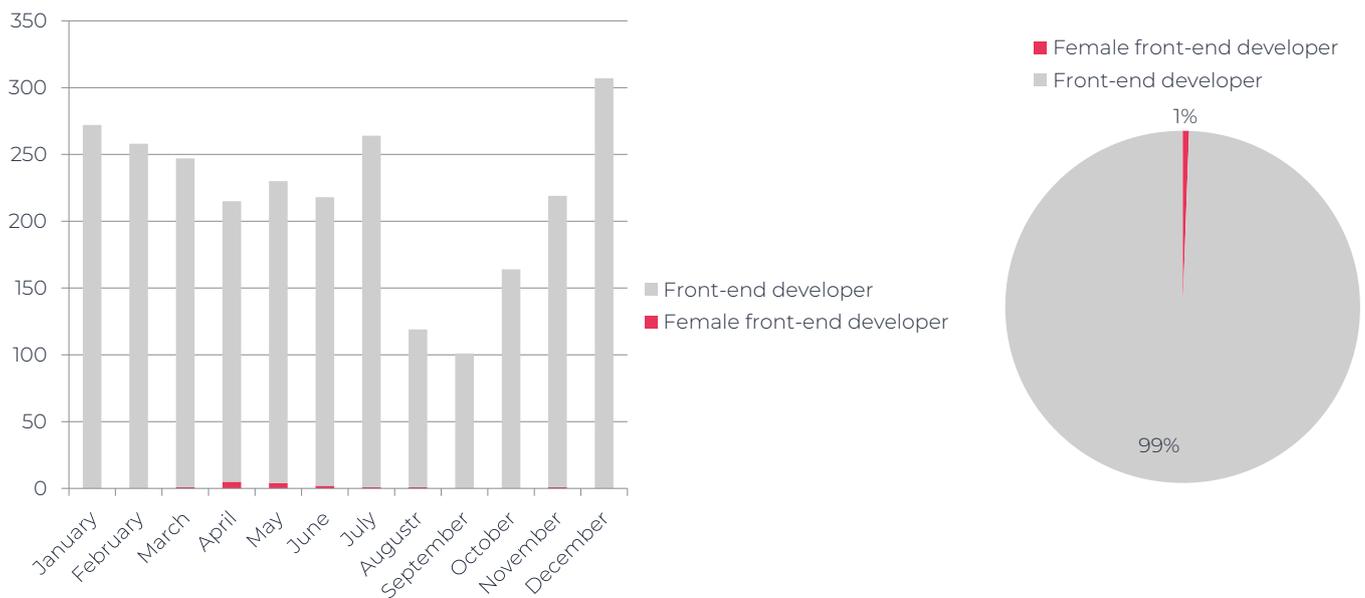
The phrase „testerka oprogramowania” [„female software tester”] was most common in social media (48%, 15 times). It wasn't published on any blog even once.

## TESTER OPROGRAMOWANIA [SOFTWARE TESTER] / TESTERKA OPROGRAMOWANIA [FEMALE SOFTWARE TESTER] – „JESTEM TESTEREM” [„I’M A TESTER”]



The phrases „jestem testerem” [„I’m a tester”] / „jestem testerką” [„I’m a female tester”], „pracuję jako testerka” [„I work as a female tester”] and the like were found in about 50 posts. The authors of 26% of them were automatically qualified as women (compared to 39% attributed to men).

## FRONT-END DEVELOPER / DEVELOPERKA [FEMALE DEVELOPER] – CONTENT DISTRIBUTION OVER TIME



Specialists dealing with website creation are not mentioned very often. In 2017, the phrase was used 2614 times, and only 15 times the feminine form was used. Most publications were from April.





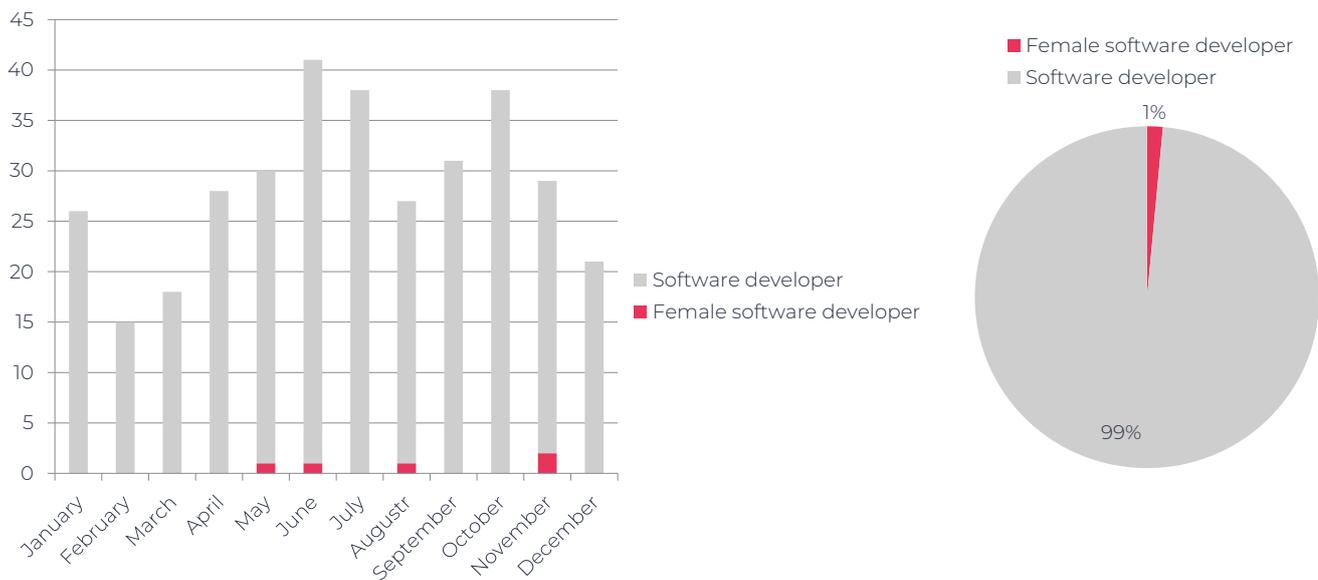
## KINGA PIECUCH, CEO AT SAP POLSKA

Madeleine Albright said once that there's a special place in hell for women who don't help each other. I like this quote very much. Fortunately, in my everyday environment, I can experience the mechanism of positive mobilisation and mutual support. It's especially important in

a field like new technologies that is dominated by men. At SAP Polska, women are CEOs, deputy CEOs, HR managers, they manage marketing and communication departments – these are just a few positive examples. However, statistics speak for themselves. As many as 53% of women surveyed by Geek Girls Carrots think that it's more difficult for them to work in IT than for men. When asked why this is the case, they point mostly to the stereotypes (76%). The higher the position we occupy in the company's structure, the worse it gets – at some point, many of us have to face the so-called glass ceiling. In 2017, only 6.4% of CEOs from companies included in the Fortune Top 500 list were women. It's the same when you look at another male bastion – politics. According to the UN, in 2016 only 23% of parliamentarians were women. We need to support women in fulfilling their professional ambitions both in formal and informal ways – all to balance out these alarming proportions. It's good to work on laws and other legal solutions that will allow women to reconcile careers with family life and personal development. As the research by Geek Girls Carrots shows, women working in IT used a computer for the first time a little earlier than women from outside the industry (8.9 y.o. vs 9.6 y.o.). The same goes for obtaining free access to a computer (12.9 y.o. vs 13.6 y.o.) and developing interest in computers (15.7 y.o. vs 16.2 y.o.). The most common factors indicated by the respondents as stimulating their interest in computers were their own curiosity, peer group, and family. I'm aware of the importance of education – this is why SAP has been engaged for years in the popularisation of coding among children and teenagers. More than 7,000 young people in Poland took part in our initiatives organised as a part of the "Meet and Code" programme last year. We also organise coding courses for our employees' children during summer and winter holidays. As a mother of 5 daughters, I know how important the role of a parent is in supporting a child's development. Stimulating, inspiring, presenting a wide range of possibilities, but, in the end – leaving the child to chose their own way. It's not that every child has to become a 'geek'. Two of my daughters show great interest in new technologies, but the others have chosen another path. Regardless of the frightening statistics, I'd like to stress that women should always be treated exactly like all other specialists – neither better nor worse. Transparency is all we need to build even stronger careers in the world of business and technology.



## DEVELOPER OPROGRAMOWANIA [SOFTWARE DEVELOPER] / DEVELOPERKA OPROGRAMOWANIA [FEMALE SOFTWARE DEVELOPER] – CONTENT DISTRIBUTION OVER TIME



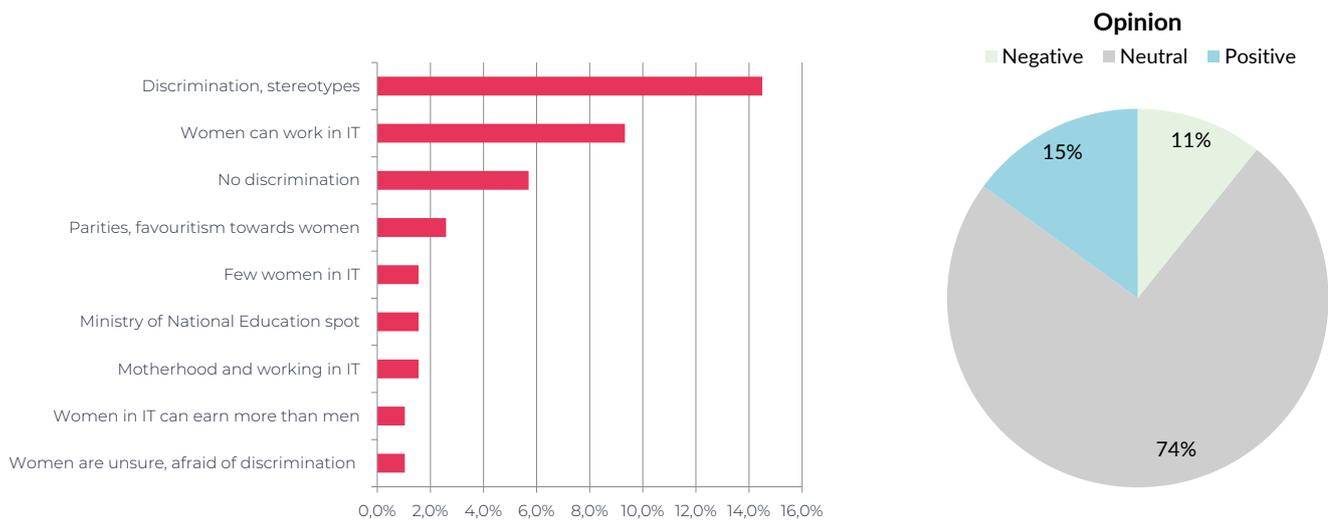
The phrases „developer oprogramowania” [„software developer”] and „developerka oprogramowania” [„female software developer”] were very rarely found in the Polish web. Among 342 hits, only 5 were in the feminine form.

## IT MANAGER / IT MANAGERKA [IT FEMALE MANAGER] – CONTENT DISTRIBUTION OVER TIME



The phrase „IT managerka” [„IT female manager”] was almost nonexistent in the texts published in the Polish web in 2017. Among 1239 hits, the feminine form was found only twice.

## QUALITY ANALYSIS – WOMEN ABOUT WOMEN IN IT



The main subject discussed by women was the situation of women themselves in IT, their willingness to learn, study or work in IT without defining additional barriers or advantages dependent on gender. The emotional answers mostly included complaints about discrimination and gender-based stereotypical treatment. The other most popular subjects were the unlimited possibilities of women working in IT (even without specialised education) and declarations of women who've never experienced discrimination at work.

Of all the women's posts, 74% were neutral, whereas only 15% were positive.



## SELECTED ANSWERS:

*I.: I work in IT and I often realise that I get a higher salary than men for doing the same job. I'm a total stranger to the problem of women earning less for doing the same job as well as men. The feminists are probably just imagining something again. Or they just have trouble counting and they really should earn less for this reason ;)*

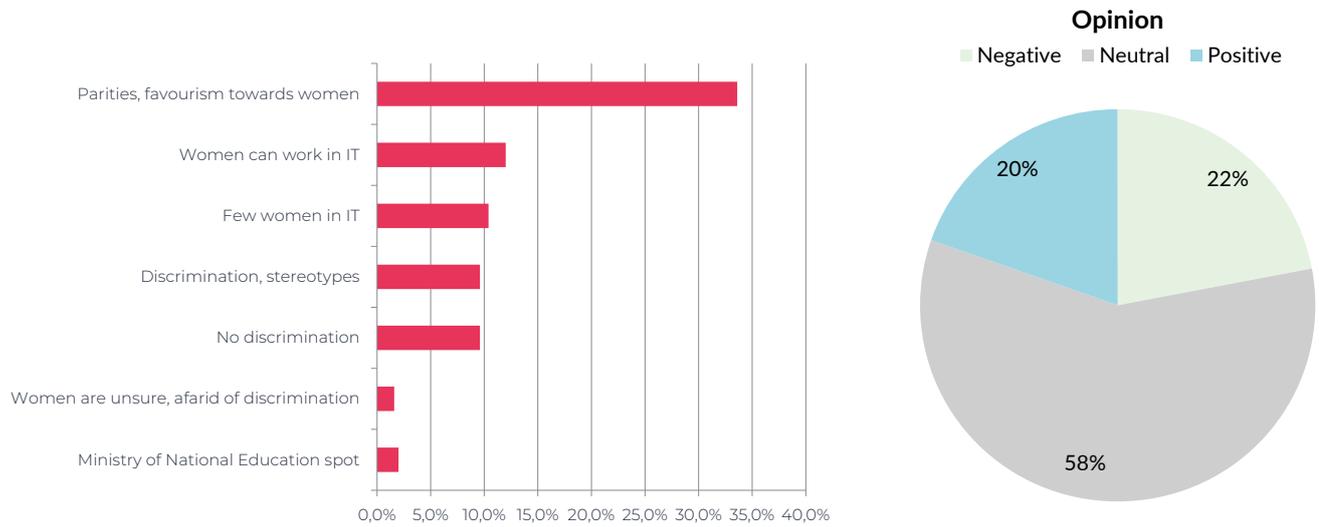
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*P.: Actually, I was thinking lately – such talk about being discriminated is very harmful... for those who are reportedly discriminated against! Because what is more harmful – real discrimination or living with a conviction that you're bound to be discriminated against and you can't do anything about it? In my opinion – the latter, by far! Even when you're experiencing real discrimination you may not link it to your sex or skin colour but think that you're just dealing with a moron /jerk. But if you are – let's say, a woman – who's convinced that she CANNOT be successful in IT because men will DEFINITELY think that you're more stupid, less competent and that you'll have to fight hard for your position within a team... then you may really do worse while working under self-imposed pressure and seeing discrimination in every critical remark.*

*It's like clipping someone's wings vs supporting their dreams – it's possible to achieve success despite someone's clipping your wings, but it's very difficult and if you have nobody to support you and balance things out it may even be impossible. For me, talking in public about the victims of discrimination is nothing more than clipping their wings. Why would a woman go to the office with an idea that she may be molested or judged as stupid because she's too pretty to be smart? Isn't it better if she went to the same office convinced that she can do great, because there are no reasons to believe that she'd do worse???*

*Feminists talk a lot about women's equality, but it's talk like: you need to prove that you're worth as much as a man!!" as if it wasn't obvious. When I look at it now, I think it's just brainwashing... When agitating for women's rights we should provide positive examples like the engineer Marris Ann Mayer – one of the 50 most powerful women in business according to Forbes, whose transfer from Google to Yahoo was labelled 'transfer of the year' and who after giving birth to a child... came back to work after only two weeks IMO proving that for a motivated woman the desire to have a family doesn't need to result in a career break.*

## QUALITY ANALYSIS – MEN ABOUT WOMEN IN IT



The main subject in men's discussion about the situation of women in IT were parities and favouritism towards women at the expense of men (especially the initiatives aimed only at women). The web-users claimed that knowledge and qualifications should be looked for in job candidates and that men should not be discriminated because of their sex. Other issues raised most often were, just like in the women's group, the unlimited working possibilities for women in IT and relatively small number of women working in this sector. However, unlike in the case of women, men who commented on the small number of women in IT often indicated that women have other interests and priorities that may pull them from the technology sector.

Of all the men's posts, 58% were neutral, 20% were positive, and as many as 22% were negative.



## SELECTED ANSWERS:

J: @Agnieszka (...) You went a bit too far with this discrimination against women in IT :) . All IT companies I worked for love to employ women. If there are two applicants for the developer's post: a man and a woman, it's the woman that gets selected, even if the guy was better at the interview. :) I suppose that it's the same in the case of drivers. Most women don't get a driving licence of any other category than B and don't engage in technical studies. Why? I don't know. Maybe you can tell us... Have you ever been denied the right to take a driving course for a bus or learn maths?

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A: I don't have any problems with gender equality and I simply admire women in IT – so far it's been a ‚bastion of men' and every woman who can find her place in this world deserves my respect. However, I wouldn't like to see a situation where someone gets a job or a promotion not only for their knowledge and skills but also due to the sex they represent. If a woman got a job not because she's better than me but only because she's a woman, I'd feel discriminated. Of course, I wouldn't accept the reverse situation, either.

D: I don't understand how women in IT are discriminated against, when I attended technical high school, there was only one girl in our class. If women wanted to work in such fields, I'd think they'd like to get a technical education...

+

## ISSUES RAISED IN THE POSTS – SUMMARY:

Subject	Short description
No discrimination	Women are not discriminated against or haven't experienced discrimination or stereotypes
Discrimination, stereotypes	Women in IT are prone to discrimination and treatment influenced by stereotypes
Women can work in IT	Women have no problems getting a job in IT or become good specialists in their field
Women are unsure, afraid of discrimination	Women avoid working in IT or are unsure because they fear discrimination
Women in IT can earn more than men	Women's comments about the lack of a financial barrier due to gender
Motherhood and working in IT	Problems related to motherhood and work in IT (for example limited working hours at a computer)
Small number of women in IT	Small number of women working in IT / studying in the fields related to IT
Parities, favouritism towards women	Posts on parities or initiatives aimed only at women
MEN [Ministry of National Education] spot	posts commenting the MEN [Ministry of National Education] spot about programming





**ZUZANNA PACHOLCZYK, CZŁONKINI RADY FUNDACJI  
CARROTS, GEEK GIRLS CARROTS WROCŁAW**

Wrocław has become our IT centre. I didn't know it back then when choosing this city for my studies in IT. I was lucky to come to a place that provides a wide range of professional possibilities and inspirations. Another

advantage is the large community of new technologies enthusiasts who are willing to share their knowledge at various IT community meetings. Some girls weren't so lucky in their professional choices, they found a job that wasn't satisfying or got a diploma in a field where getting the dream job is much harder. I'm pleased that so many of them became interested in new technologies and started digging into the subject so that as a result they could change their career path. I'm full of admiration for people who spend their entire free time learning how to code, manage projects or test. The report shows that the field of studies we chose rarely brings any satisfaction. Whatever the choice, it's said that the knowledge acquired at university doesn't reflect directly on the working experience. I think it's good to take a broader look at this subject and treat studies in IT as an opportunity to develop in diverse ways, broaden the horizon, and see the field from a different angle. Studies in IT are not a coding course. The more I work in this field, the better I appreciate my broader knowledge of the subject, but I still acquire practical skills by regularly performing my tasks. IT is an excellent environment for ambitious people. Working in new technologies requires constant development and offers a wide choice of roles, which is why it brings together people with different skill sets. I'm pleased that thanks to the Geek Girls Carrots meetings women can see this diversity and find here a place for themselves. There are still many people in Poland who just don't know what a programmer does. In order for more women to gain the opportunity to grow in IT, we need to support one another, share information about what we do, and show our role models. Thanks to this, even young girls will be able to consider this career path. Unfortunately, there are still many women who crushed under the existing stereotypes and even impose them on themselves. My team consists of 9 people, 4 of which are women. I'd like this balance to stop being an abnormality in statistics. The world of IT is made for creative professionals – with a diverse environment, it will develop much better. Even though there are many women who take part in programming conferences, they're still barely seen there. That's why I think that they should be even more encouraged to participate, especially actively, as it's rare to see them on stage.

## PUBLISHER

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**Geek Girls  
Carrots**

The mission of **Geek Girls Carrots** is to attract women to IT. We are changing the status quo by creating a space for sharing knowledge and establishing new contacts. We initiate regular technological meetings «Talks Carrots», which provide an opportunity to get to know the current trends in IT and meet new people. We organise Code Carrots workshops for women (but not only) who want to develop their skills – we teach programming and soft skills, for example, managing IT projects. We promote role models, i.e. girls who have been successful in the industry and who are an amazing source of inspiration, especially for those who want to change their career path. Geek Girls Carrots have proven many times that their actions really bring expected results – the best examples are stories of women who, having participated in Carrots meet-ups, had an impulse to act. They became programmers, testers, designers, got a promotion or a salary rise and their self-esteem improved. They are pleased with their lives and constitute an example for other women. Since 2011, we have organised projects in 34 cities, 15 countries all over the world; 4,000 people have taken up programming with us. Today, the Geek Girls Carrots community gathers about 39,000 people.

[FIND OUT MORE](#)

## STRATEGIC PARTNER

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**Accenture** is the leading global company providing professional services and solutions for fields such as: Strategy, Consulting, Digital, Technology, and Operations. Thanks to the vast experience and specialised knowledge of experts from more than 40 industries, it offers services that connect business with technology. It is present all over the world – 442,000 employees assist clients from more than 120 countries to increase the effectiveness of their companies and get a real value for the shareholders. Accenture's innovative solutions change the world and the way we live. In Poland, Accenture offices can be found in Warsaw, Cracow, Łódź, Wrocław, and Katowice. They employ more than 4,400 people. Visit the website: [www.accenture.pl](http://www.accenture.pl).

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## PARTNERS

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**Connectis\_** is the first IT company with more than 20 years of experience. It currently employs about 300 IT Specialists working in all technologies, for example Java, C++, C#, .NET, SQL, JavaScript, Angular, Python, PHP, SAP, Ruby, Android, iOS, and others. It carries out projects for different industries in Poland and abroad: from IT, banking and energy to E-commerce, automotive, and environmental protection. It organises numerous IT events and partners many programming organisations. Connectis\_ is not looking for heroes, it is looking for developers :).

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## FILTTR

**FILTTR** is the first application in Poland which successfully connects employers and IT specialists meeting the expectations of both sides. It is a unique recruitment service thanks to which companies employ suitable candidates from the IT industry easily and quickly. It also provides continuous access to interesting job offers and projects matching the expectations and qualifications of male and female IT specialists.

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## NEWSPOINT

**Newspoint** monitors all types of media (social media, portals, information services, opinions, professional, vertical, forums, blogs, press, and RTV). It covers the entire world: 75 languages, 170 countries all over the world and the widest range of sources: more than 16,000 Polish websites and more than 150,000 foreign websites, the largest scope of social media monitoring – more than 50 mln social services including Facebook, Twitter, Instagram, Google+, YouTube, Vimeo, Slideshare, Pinterest, Disqus, GoldenLine, Blogspot, WordPress, unique coverage of blogs and forums – 20,000 sources from all over the world, 1,200 titles (in national, professional, and local press), 200 RTV stations. Author's rights protection guaranteed thanks to the agreement with SW Repropol.

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**SW Research Agency** is the leader in online surveys in Poland. The company owns one of the biggest research panels – swpanel.pl as well as the website Ankieteo.pl – these are tools that allow for the realisation of CAWI, CAPI, CATI, CASI and mystery shopper surveys, which provide new possibilities to ask questions and obtain quick results from the Mixed Mode model. Apart from the quantitative and qualitative studies, SW Research offers professional analytical and advisory services. For more information: <http://swresearch.pl/>.

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**Kreatik** is an interactive agency from Poznan founded in 2012. It supports marketing and sales teams. It creates mobile and web applications, video explainers, branding as well as marketing and e-mail campaigns. It provides everything that facilitates building strong relations with clients and it supports sales. It has realised projects for Eurocash, Danone, and Chias, among others.

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