



Inicijativa  
Digitalna Srbija

# WOMEN IN SERBIAN STARTUP ECOSYSTEM

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# WOMEN IN SERBIAN **STARTUP ECOSYSTEM**

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## INTRODUCTORY ADDRESS

The document "Women in Serbian Startup Ecosystem" was developed due the need for better understanding of the position and role of women in the Serbian startup ecosystem, as well as creating a basis, through further analysis and discussion, to act upon opportunities for accelerated development by creating better support for inclusion of women.

We, in the *Digital Serbia Initiative*, have decided to conduct a deeper analysis, related to gender relations in the ecosystem, of the results obtained from the 2022 Startup Scanner research, through the *Venture an idea* project, so that further activities can contribute to the development and realization of the ecosystem potential. A study by the Boston Consulting Group found that if women and men participated equally as entrepreneurs, it could double the global economy from \$ 2.5 trillion to \$ 5 trillion. The numbers are indisputable. The need for gender equality in innovative entrepreneurship is obvious, and through achieving it will enable the ecosystem to fulfill its true potential.

The results of this research provide answers to questions concerning, among other things, motivation, challenges, funding and future plans from the perspective of the founders of Serbian innovative companies. Some of the main findings show that environmental and social issues are more important for female founders than for male, and that women are more motivated than men by social factors, when it comes to establishing a startup. Also, this research shows that female founders

are highly educated and that the percentage of PhDs is almost twice higher among the female founders than among the male. According to the percentage of women among the startup founders, Serbia is at the level of the global average and above the EU average, while according to the percentage of all-female teams, it is at the EU average. Although these findings are encouraging, we must not be mistaken, because the level of women's involvement in the startup world, both globally and in our country, is far from what it should be.

We hope this research can help us better understand causes of a gender gap in the startup ecosystem, and to take measures as a community that will help bridge it. Together we must be part of the change we want to see!



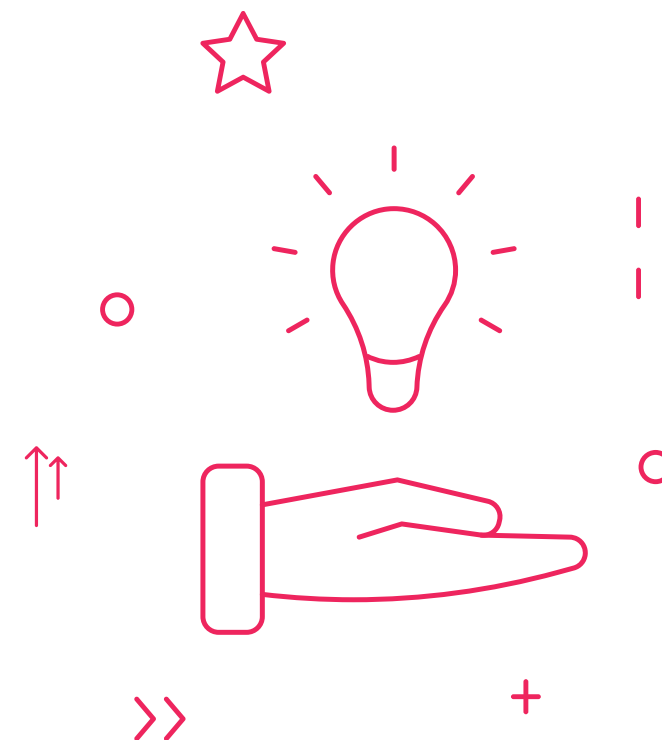
Bojana Tomić-Brkušanić,  
Venture an idea Project Director<sup>2</sup>

# INTRODUCTION

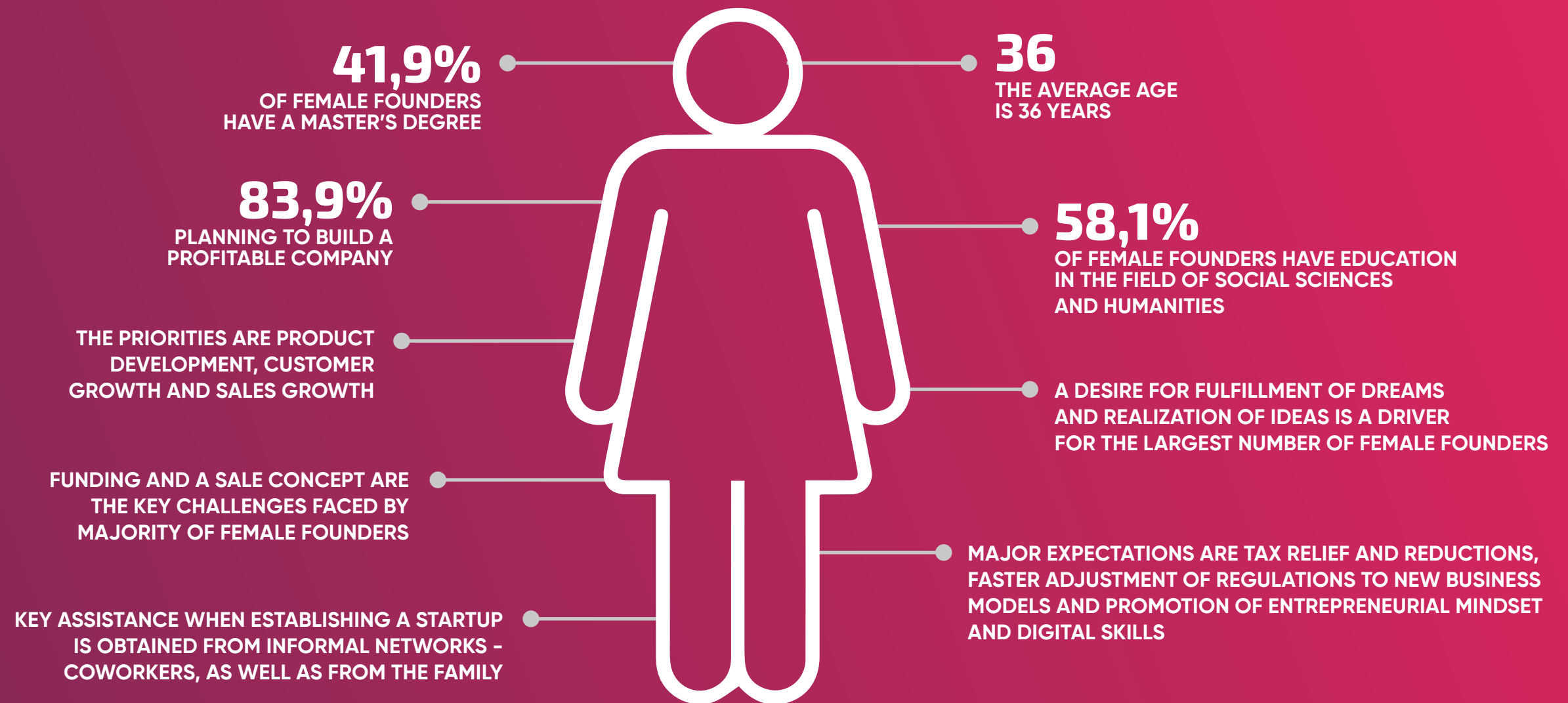
Differences in the number and position of male and female founders, not enough options for financing female startups, as well as a small share of women executives in startups, and in VC funds<sup>4</sup> are all problems at the global level.

Numerous international studies have shown that female founders and female-led startup teams face a lack of funding and prejudice from investors.<sup>5</sup> In addition, a smaller percentage of girls and women choose to study STEM (science, technology, engineering, mathematics), and even fewer choose a career in the IT sector or startup ecosystem, areas that are the backbone of the knowledge economy and a key factor in the future of modern societies.<sup>6</sup> This unfavorable image is not a consequence of the lack of ability or talent of girls and women. On the contrary, according to global indicators, they achieve better results in international testing of students in STEM areas, and the business results of women-owned startups show that the money invested in their teams and companies ultimately deliver higher revenue—more than twice as much per dollar invested.<sup>7</sup>

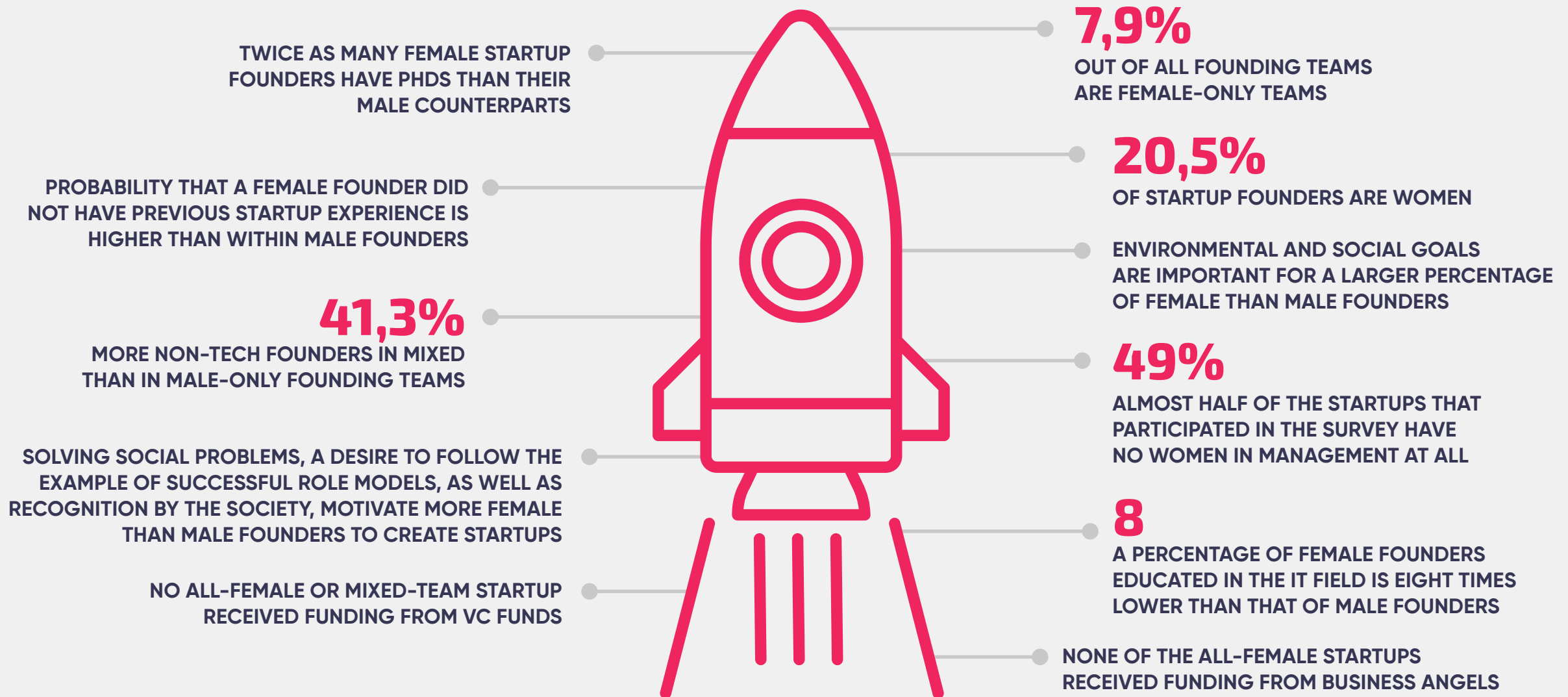
One of the goals of the "Venture an Idea" project is to contribute to closing a gender gap and abolishing prejudices and obstacles preventing greater participation and success of women in innovative technological entrepreneurship. Based on a deeper analysis of gender perspective in the Startup Scanner 2022 survey results, we decided to create a report "Women in the Serbian Startup Ecosystem", in order to set a baseline for creating, together with the community, proposals for improving women's status in the Serbian startup ecosystem, and joining forces to help them succeed in the global market.



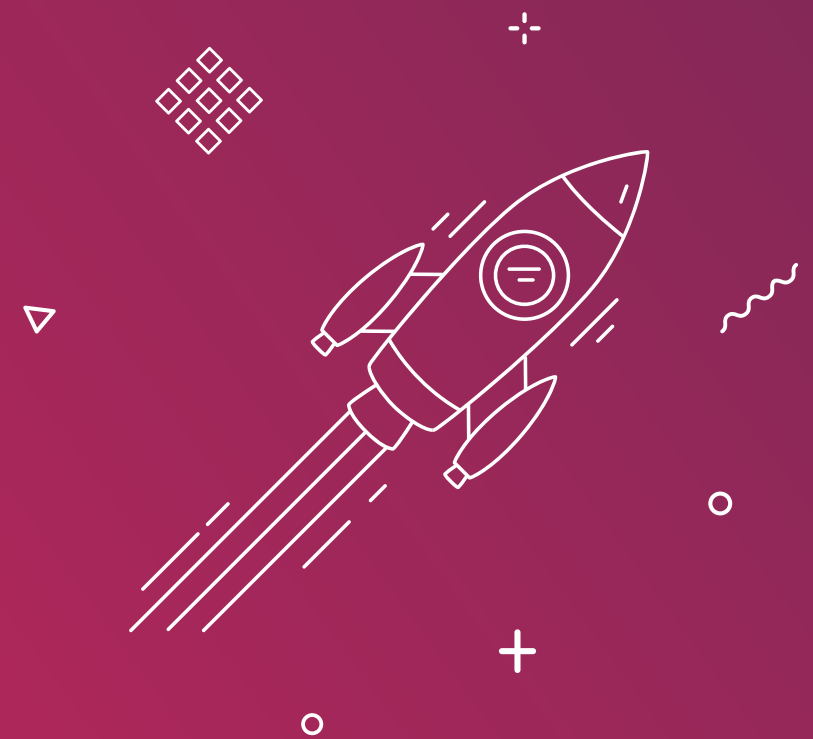
# A PROFILE OF A WOMAN STARTUP FOUNDER IN SERBIA



# HIGHLIGHTS



# **SOCIO-ECONOMIC INDICATORS OF WOMEN'S STATUS IN SERBIA**





According to the 2011 census<sup>8</sup>, Serbia has 3.4 million men and 3.6 million women.<sup>9</sup> The average age of women is 44.7 and 41.9 of men.<sup>10</sup>

Women in Serbia are more likely to have higher education than men, and make half of all employees in the science sector.<sup>11</sup> Despite that, they are underrepresented among the members of the Serbian Academy of Science and Arts, which has more than 90% of male members.<sup>12</sup>

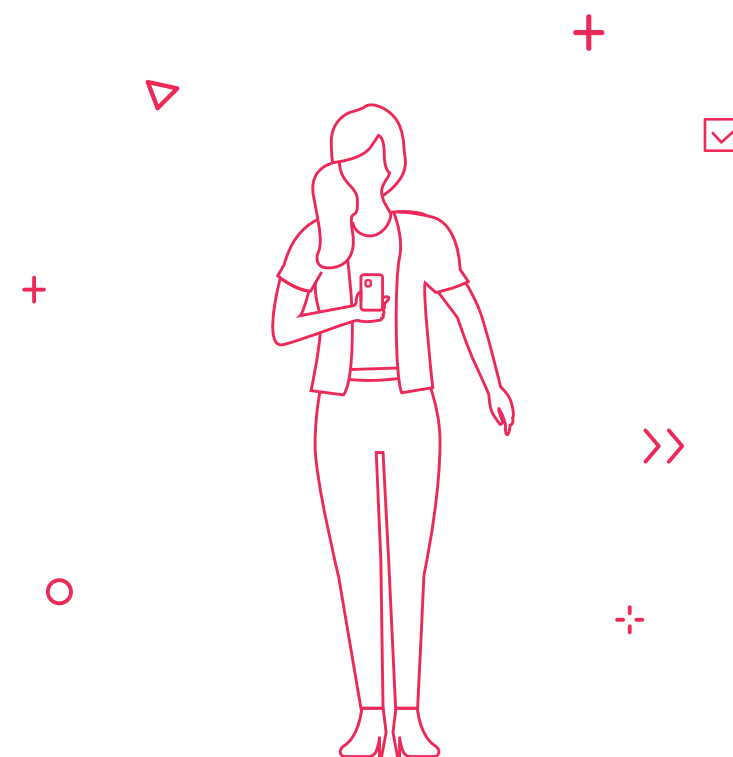
Although the at-risk-of-poverty rate in Serbia has been declining in recent years, a more careful analysis shows a trend of increasing at-risk-of-poverty rates for women and declining rates for men.<sup>13</sup> Official statistics also indicate that in Serbia children and young (18–24 year olds), as well as those over 65, are most exposed to the risk of poverty, and that women are more at risk than men in all the above categories.<sup>14</sup>

In 2021, women accounted for 55.63% of the total of 512,844 registered unemployed.<sup>15</sup> A survey by the Poslovi Infostud website shows that women expect almost 200 euros lower salary for the same job than men do.<sup>16</sup> In addition, the average net salary of women in Serbia in 2021 was almost 8,000 RSD smaller than the salary of men.<sup>17</sup> In the field of information and communication technologies, the payment gap is actually slightly higher than the average for Serbia (8.8%), because in the ICT sector, women earn on average 9.1% less than men.<sup>18</sup> In addition to all of the above, we should never lose sight of the fact that women spend more time than men on unpaid household chores and in care-work.<sup>19</sup>

An analysis by the Poslovi Infostud website in 2022 shows that women make up a third of all registered entrepreneurs and a quarter of business owners in Serbia, as well as less than a quarter of corporate governance structures and less than 30% of supervisory board members.<sup>20</sup> A study from 2019 showed that only one in five companies that received financial support through open calls for business development was owned by women and that they received only 17.9% of total funds.<sup>21</sup> For every dinar that was awarded to women-owned businesses in the period 2016–2018, 4.6 dinars were given to men-owned businesses.

*USAID Serbia* also analyzed available secondary data to prepare a gender analysis report and recognized that in Serbia, "despite increases in economic growth, there is still high gender inequality in access to employment and resources, including property, land, financial markets, transport, jobs, support programs for businesses, and agricultural loans".<sup>22</sup> This report ranks countries according to the value of the Global Gender Gap Index from 0 to 1, where a score of 1 (gender parity) represents complete equality and 0 (imparity) represents complete inequality.

The Gender Equality Index is applied in the European Union, and Serbia was the first country outside of the EU to introduce it with the aim to monitor the situation in the field of gender equality. In 2021 Serbia scored 58 points in the Gender Equality Index (while the EU scored 68 points).

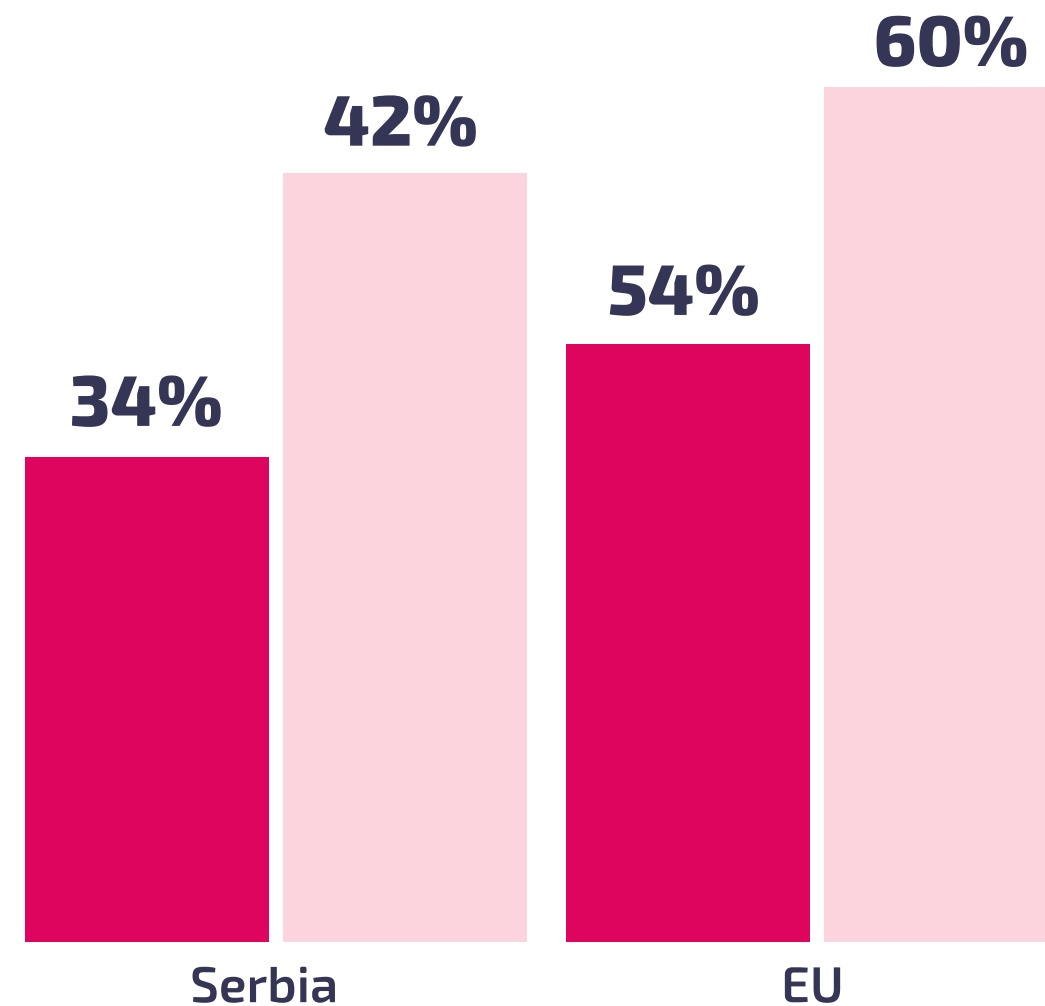


Although it made an increase of index score compared to the EU, overall progress in gender equality is considered continuous, albeit slow, and according to current results, it would take 59 years to achieve full gender equality.<sup>24</sup> In the field of digitalization and the future of work, the results indicate that women and men in Serbia have an equal development level of digital skills, but this level of digital skills is below the average in the EU, particularly in the field of solving problems using digital technologies.<sup>25</sup>

The socio-economic indicators of women's position in Serbia indicate that, although there are some improvements, it is still necessary to work on improving conditions in the economic field so that women can participate equally in the economic life of Serbia. Therefore, it is necessary to look at the position of women in the startup ecosystem, which is an important segment of the Serbian economy, so that we could make further joint contributions to the development and realization of the ecosystem's potential.

### ABILITY TO SOLVE PROBLEMS USING DIGITAL TECHNOLOGIES

FEMALE MALE



# METHODOLOGY



The report Women in the Serbian Startup Ecosystem is based on empirical data collected through the Startup Scanner 2022 survey. The survey was conducted using a computer-assisted web interviewing (CAWI), between December 2021 and January 2022.

The term startup included startup teams working on the development of innovative products and services, and startup companies as innovative economic entities with the potential for rapid and large growth.<sup>26</sup> The initial estimate of the number of startups in Serbia was based on the Startup Genome report from 2019 and ranged from 200 to 400 startups, and during the preparation of the Startup Scanner 2022, the Digital Serbia Initiative mapped 334 startups. The founders of 151 startups participated in the survey, which was voluntary and anonymous.

In order to better understand the status and position of women in the startup ecosystem of Serbia, the data obtained through the Startup Scanner 2022 were analyzed through two dimensions by observing - (1) gender of founders and (2) composition of founding teams by gender (female, male, mixed).

The collected quantitative data were analyzed by statistical methods. To describe the results, we used frequency tables and their graphical representation, and to determine whether there is a relationship between the observed variables (eg. gender and education of the founders), or whether a result is statistically significant, we cross-tabulated data and applied the Chi square test. Statistical significance indicates that the result is not a coincidence but that there is a probability that this result is valid not only in the sample but also for all startups in the ecosystem. It indicates the connection between the gender of the founders or the composition of the startup team and other observed variables. Note that we used a significance level of 0.05 in the analysis, as well as that statistical significance does not mean that some data are important in practice, nor that the association of variables confirms the existence of a causal relationship between them. The result can be important even when there is no statistical significance, so it is necessary to look at all the results in the appropriate context.

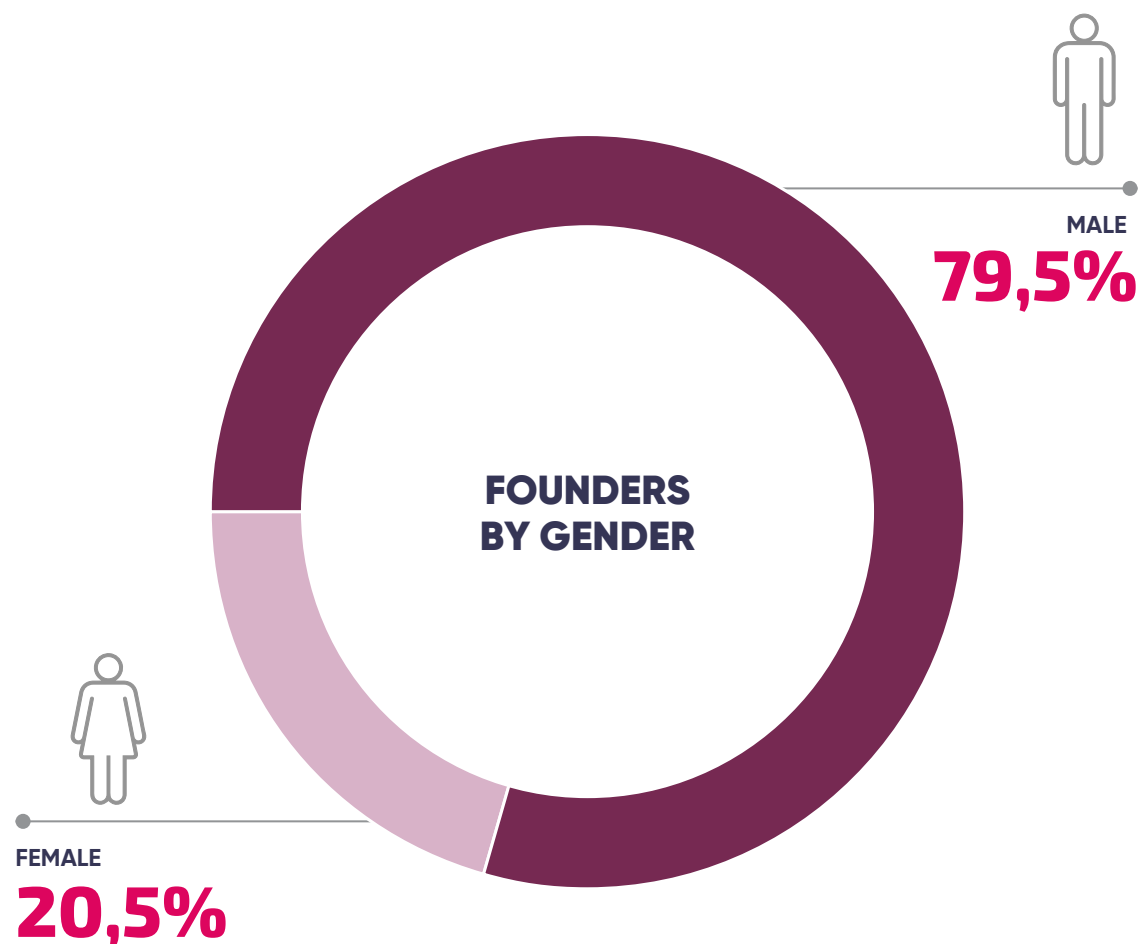


# STARTUP GENDER OUTLOOK

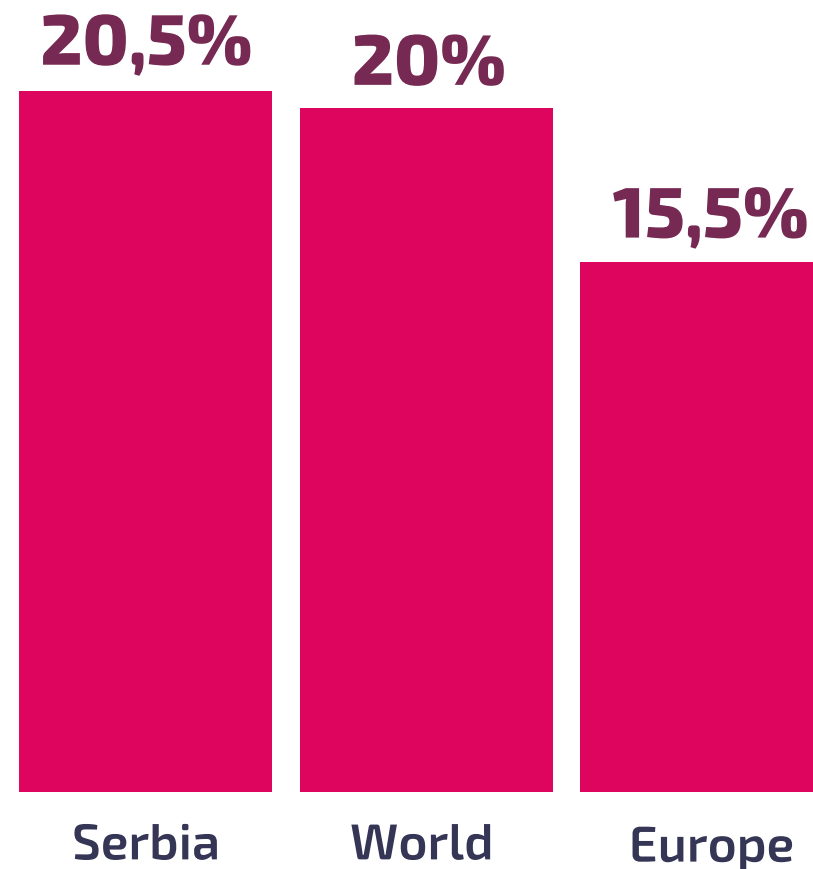


## FEMALE AND MALE STARTUP FOUNDERS

The Startup Scanner 2022 survey included founders of 151 startups. Observed by gender, 20.5% of female founders and 79.5% of male founders participated in the research.



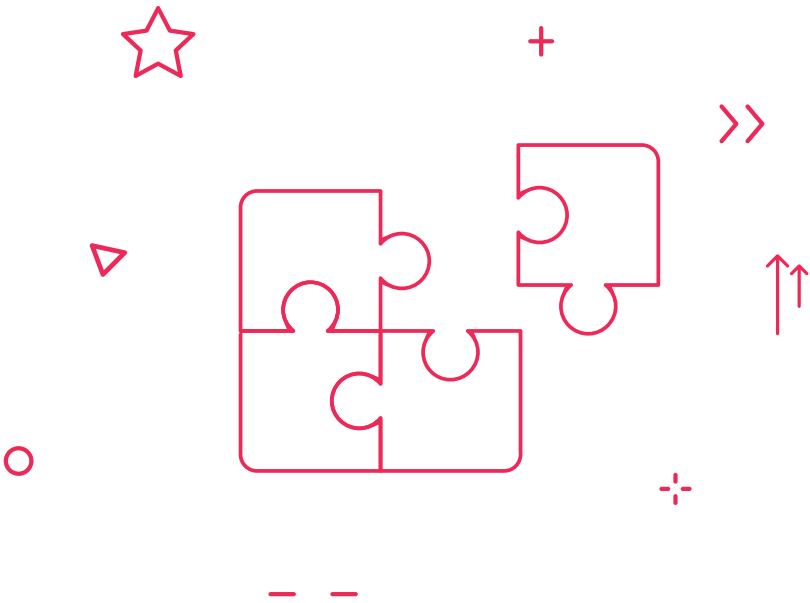
## WOMEN STARTUP FOUNDERS



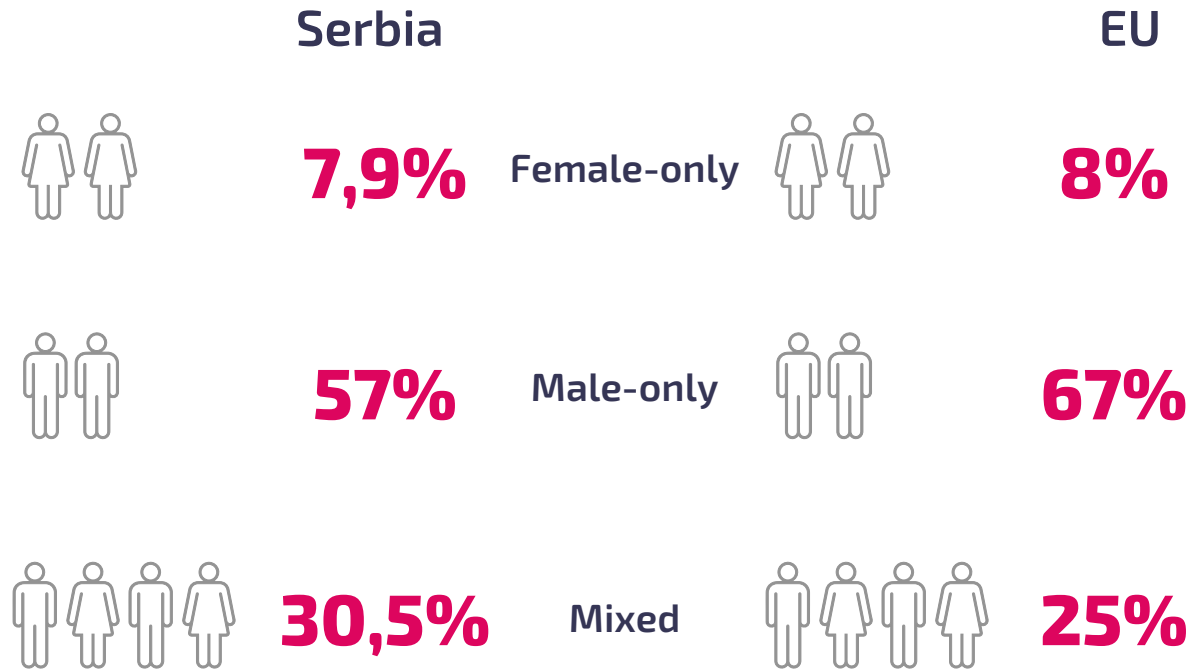
These numbers are in line with the global average of 20% of women among the startup founders<sup>27</sup>, but also above the European average of 15.5%.<sup>28</sup>

# FOUNDING TEAMS FROM GENDER PERSPECTIVE

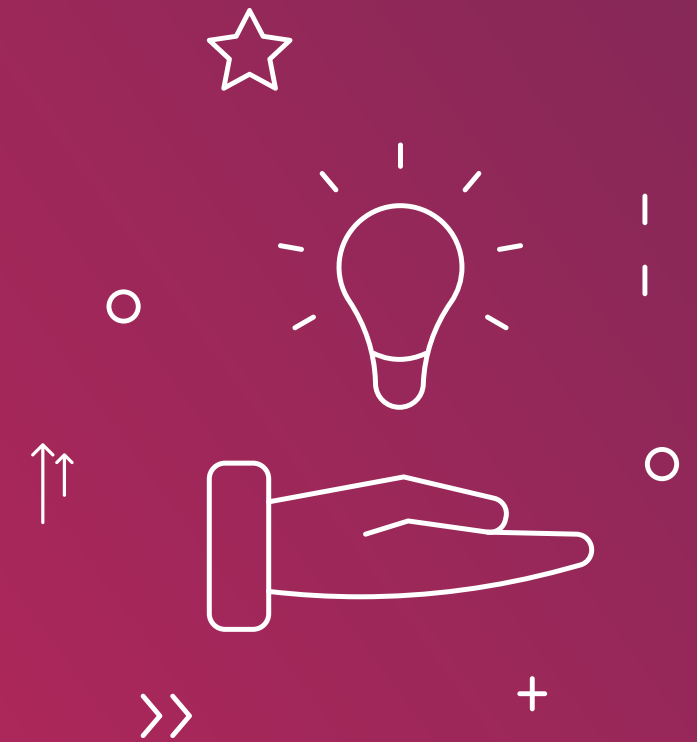
According to the survey results, in more than half of the cases (57%) the founding team consists only of men, while only 7.9% of the founding teams are women, which is in line with the EU average. A third of teams in Serbia have a mixed composition (30.5%), which is 5% more than EU average.



## FOUNDING TEAMS IN SERBIA AND EU BY GENDER

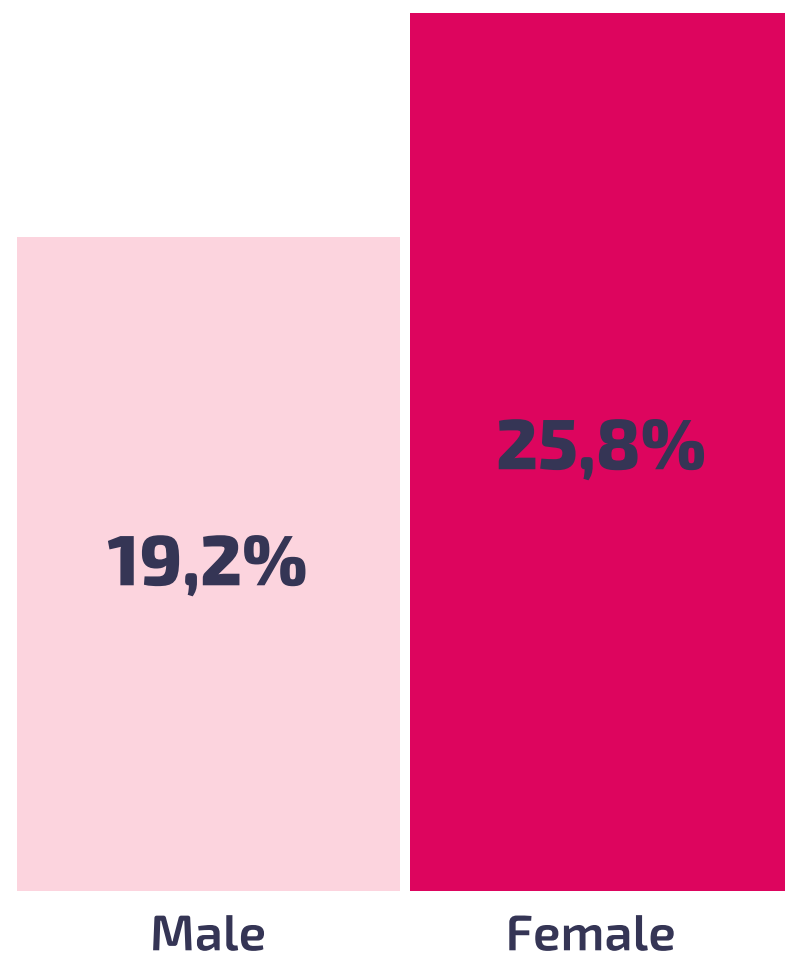


# ANALYSIS AT THE FOUNDERS' LEVEL





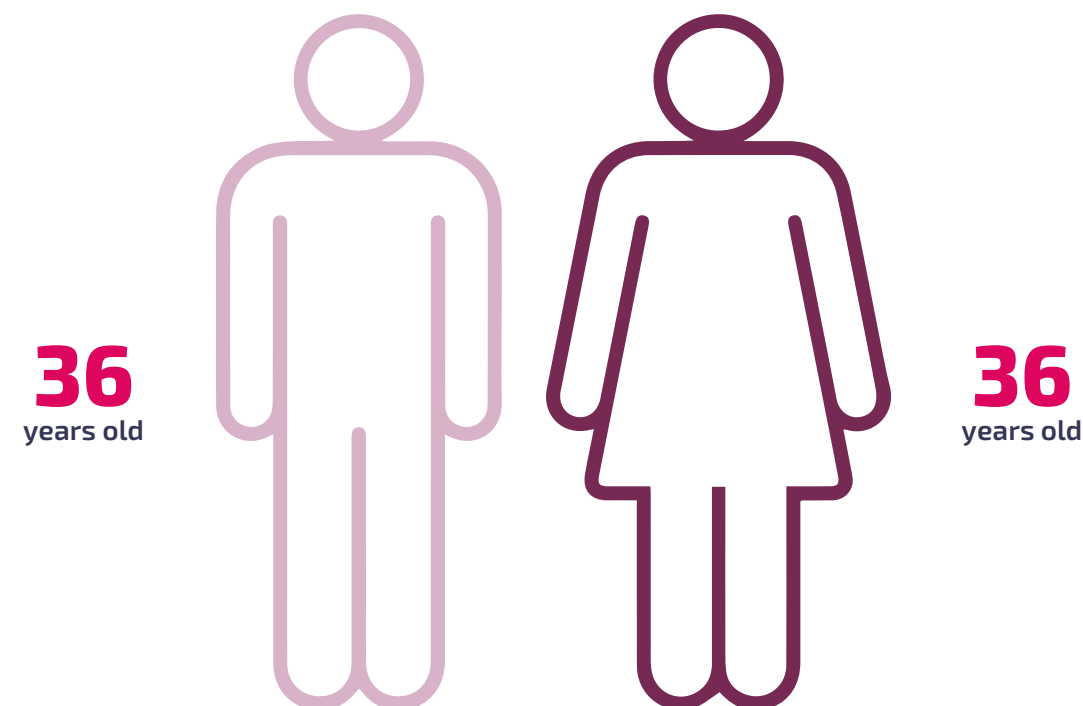
## ARE STARTUPS A CHANCE FOR WOMEN TO RETURN FROM ABROAD?



There were 25.8% women and 19.2% men returning from abroad among the founders who participated in the research. Therefore, when creating plans and proposals for ecosystem development to attract Serbian citizens who build their careers abroad, we should not ignore the information that there is a slightly higher share of women among founders who lived part of their life abroad.

## AGE

The average age of female and male founders who participated in the research is 36 years. This is not surprising, bearing in mind that the largest share of all respondents is in the age group of 30-39. A quarter of all founders (both females and males) are aged 40-49. There are less than a quarter of young founders, aged 15 to 29, among both males and females. Also, there are significantly fewer founders above 50, both male and female, but there are no women over the age of 65 at all.

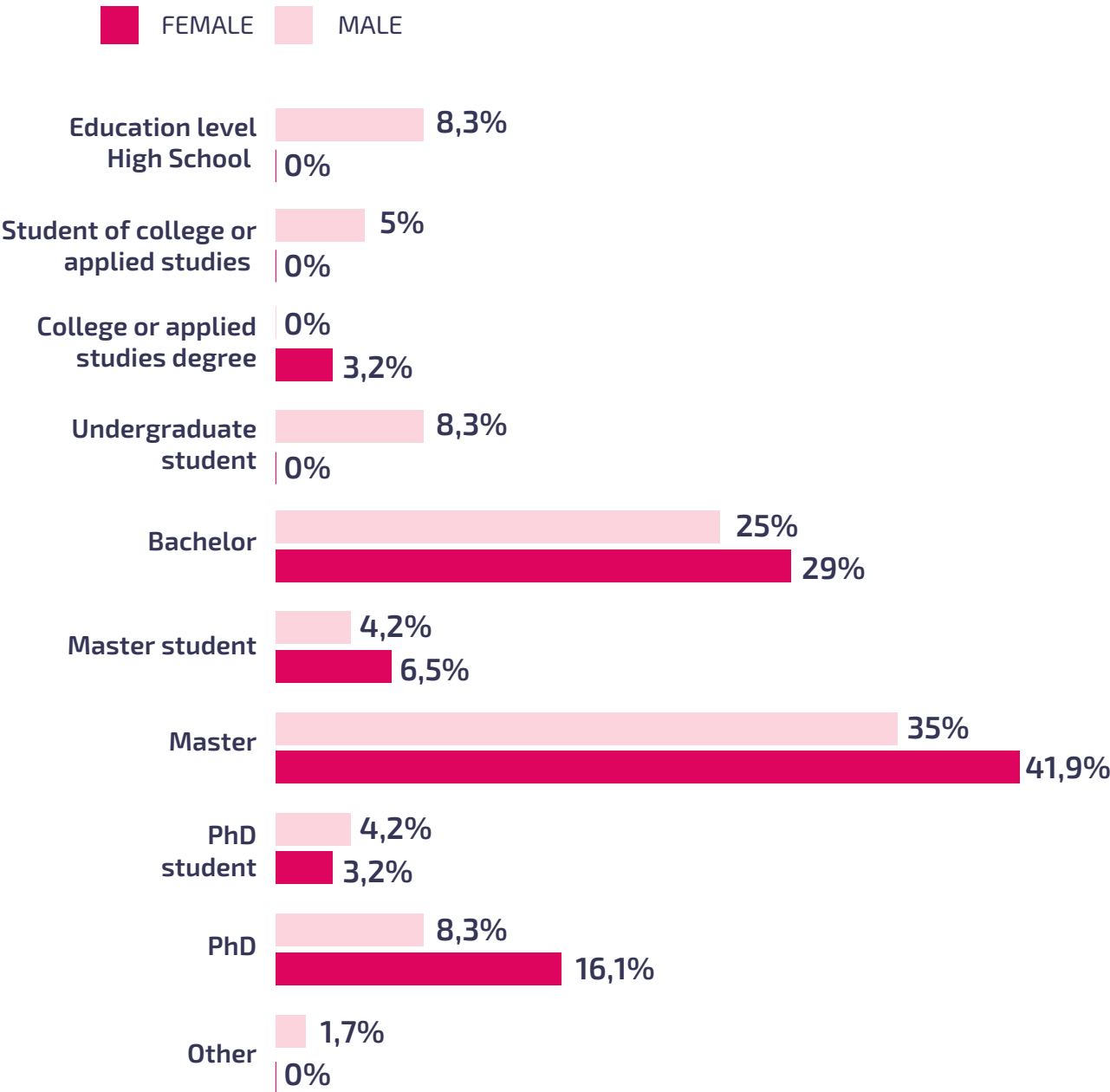


EDUCATION

EDUCATION LEVEL

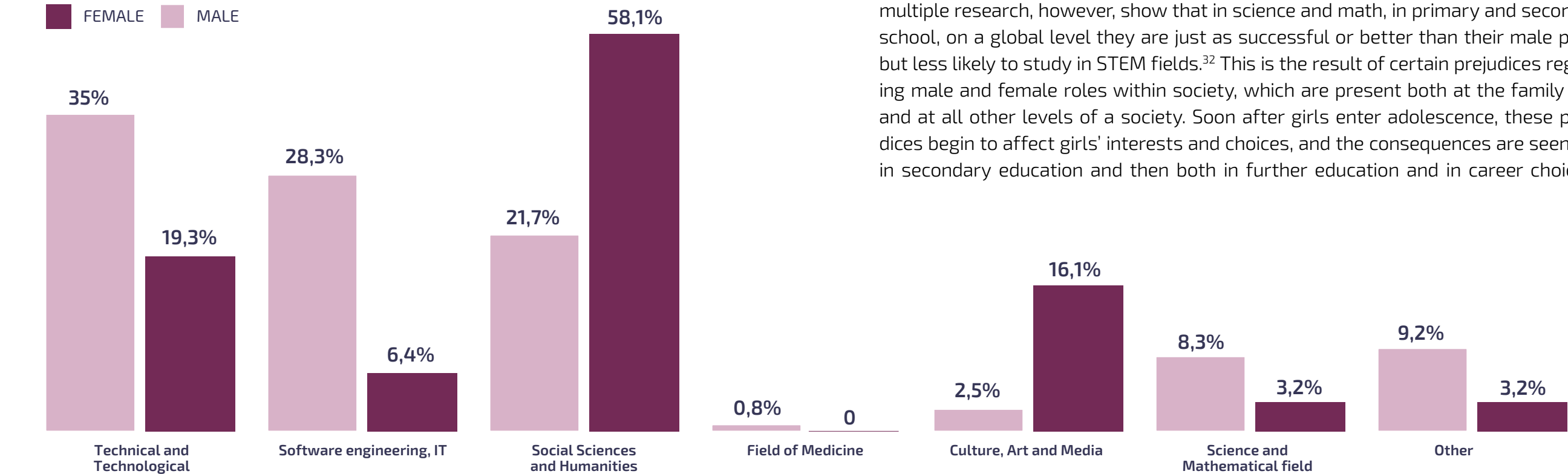
The results of a survey of the educational profile of the unicorn – (startup exceeding valuation of more than \$ 1 billion) founders - show that there were only 4% college dropouts among more than 1,200 founders.<sup>29</sup> A degree does not necessarily mean success in the startup world, but in this example we can see that education provides an opportunity to acquire knowledge and skills that can be very useful when it comes to founding and running an innovative business.

The Startup Scanner 2022 survey showed that among the founders of both gender, the most represented are those with a Master's degree, with a higher representation among women (41.9%) than among men (35%). Also, the results show that there are almost twice as many PhDs (16.1%) among female founders than among male founders (8.3%). This data is not negligible given that there are certain similarities within the personality of startup founders and PhD students. Namely, both those who dare to venture their idea and those who pursue a PhD research must be innovative in order to solve a specific problem that has not yet been solved or to offer a new way to solve a problem more efficiently, despite obstacles or possible failure.<sup>30</sup>



EDUCATIONAL FIELD

When it comes to the field in which the founders of startups got their education, the results showed that there are statistically significant differences between the female and male founders. Women are much less likely to pursue education in STEM fields (science, technology, engineering and mathematics). Among the respondents, the percentage of male founders who studied in the field of software engineering (IT) is as much as eight times higher than the percentage of female founders whose educational background is in this field. The percentage of men with a background in the technical and technological field (architecture, civil engineering, electrical engineering, mechanical engineering, mining, agriculture, traffic) is twice as high, as well as in the natural sciences and mathematics. On the other hand, a percentage of women with a background in social sciences and humanities is three times higher than a percentage



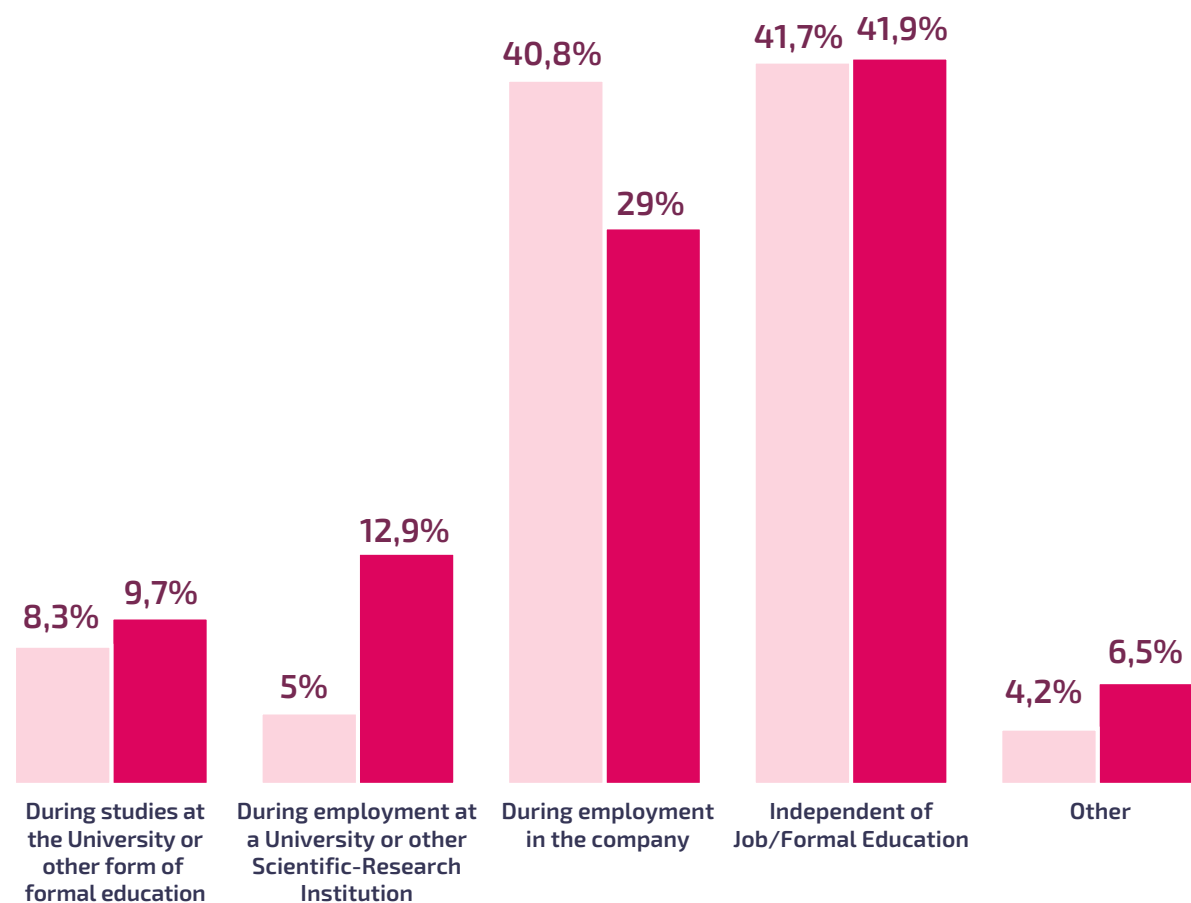
\* Respondents could choose multiple answers

of men, and the analysis showed that this is a statistically significant difference, i.e. the research showed an association between female gender and the education in social sciences and humanities. The findings we came up with are not surprising, especially bearing in mind that there is an imbalance between men and women in STEM education at the global level, and especially in STEM jobs. According to the data of the Statistical Office of the Republic of Serbia for the academic year 2020/21, female students in Serbia accounted for slightly less than one third (30.8%) of the total number (23,061) of those studying ICT, while in the social sciences they accounted for more than two thirds (66.3%) of the total number of students (27,403).<sup>31</sup> When we put these data in the context of the knowledge economy, which, among other things, is based on knowledge and skills from the STEM field, we see that girls and women will be at a disadvantage in the world of digital and innovative economy. Results of multiple research, however, show that in science and math, in primary and secondary school, on a global level they are just as successful or better than their male peers, but less likely to study in STEM fields.<sup>32</sup> This is the result of certain prejudices regarding male and female roles within society, which are present both at the family level and at all other levels of a society. Soon after girls enter adolescence, these prejudices begin to affect girls' interests and choices, and the consequences are seen first in secondary education and then both in further education and in career choices.<sup>33</sup>

## DEVELOPMENT OF A STARTUP IDEA

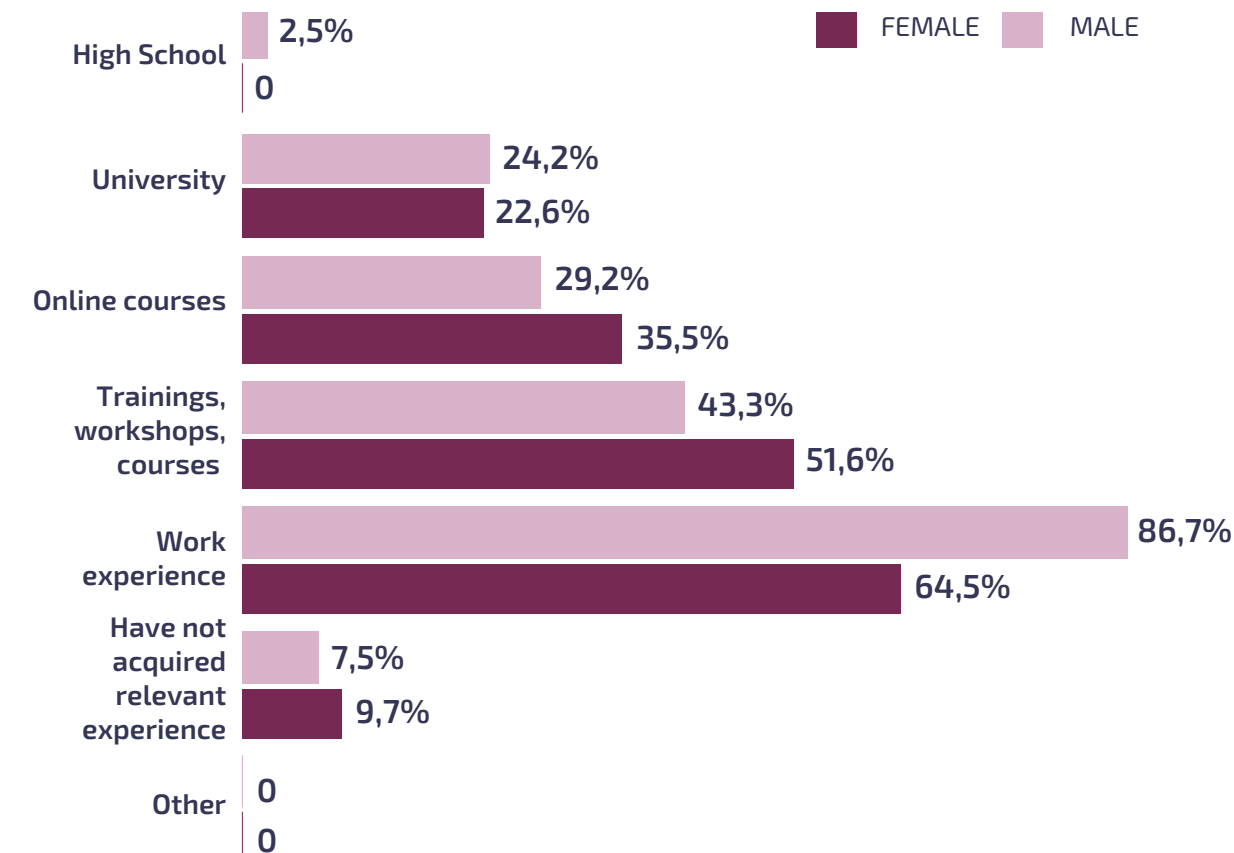
The idea of establishing a startup emerged for the largest percentage of both female and male founders (41%) independently of their job. A smaller proportion of female than male founders developed the idea of a startup on their job, but there is no statistically significant difference. On the other hand, it is interesting that the percentage of female founders (12.9%) who came up with the idea of founding a startup through their work at university or scientific/research institution was twice higher than male founders (5%).

■ FEMALE ■ MALE



## CAPABILITIES AND MOTIVATION FOR ESTABLISHING A STARTUP

### HOW DID THEY ACQUIRE NECESSARY KNOWLEDGE?



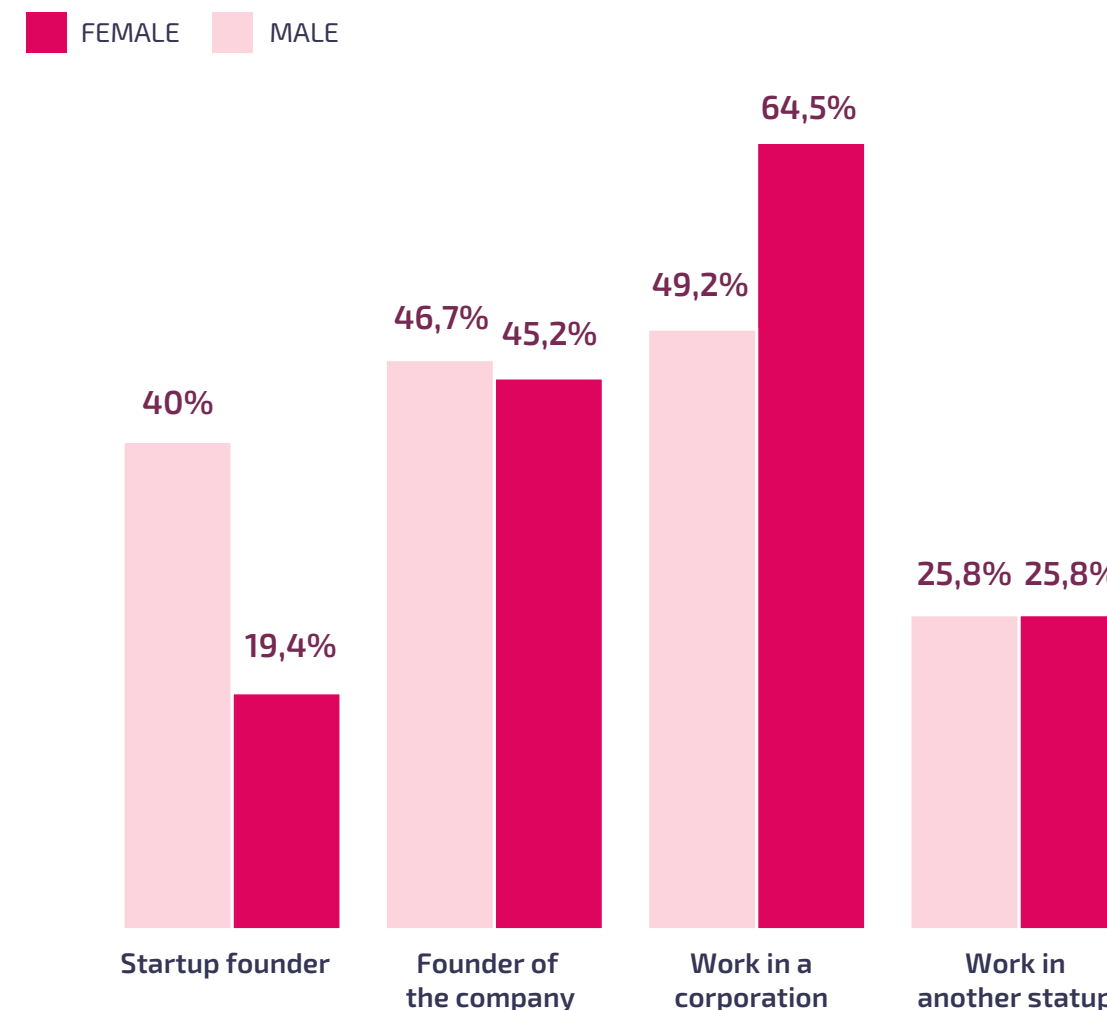
\* Respondents could choose multiple answers

When we look at how both female and male founders acquired knowledge about starting and running their startup, the largest share of female founders, as well as of male founders, gained the necessary knowledge through work experience. This percentage is higher for men (86.6%) than for women (64.5%) and there is a statistically significant difference in this regard. The share of both female and male founders who acquired knowledge through trainings, workshops and courses, as well as through online courses, is approximately equal. The same situation is when we compare the shares of female and male founders who acquired this knowledge during their studies.

## WHAT IS THEIR PRIOR EXPERIENCE?

Previous experience, both positive and negative, can be crucial when deciding to establish a startup, and can be very useful and helpful in making decisions that are important for the startup operation.

In the Serbian startup ecosystem, the largest percentage of female and male founders gained their work experience in corporations – almost two thirds of women and half of men, but there is no statistically significant difference in this regard. The percentage of both female and male founders who worked in another startup is the same (25.8%). The same number of female and male founders have prior experience in starting a business. When we look at how many respondents have already had experience with establishing a startup, we see that the percentage of men who have already been founders of a startup is twice as high, and in that respect there is a statistical significance, i.e, the connection between gender and previous experience in establishing a startup, so it is more likely that female founders did not have previous experience with establishing a startup. Reasons for this can be as varied as those of a psychological nature or those related to a lack of adequate support. This data can also be interpreted as a sign that women were not sufficiently encouraged and did not establish startups before, but with the gradual improvement of their position in recent years and the strengthening of support, a change in this regard is expected.



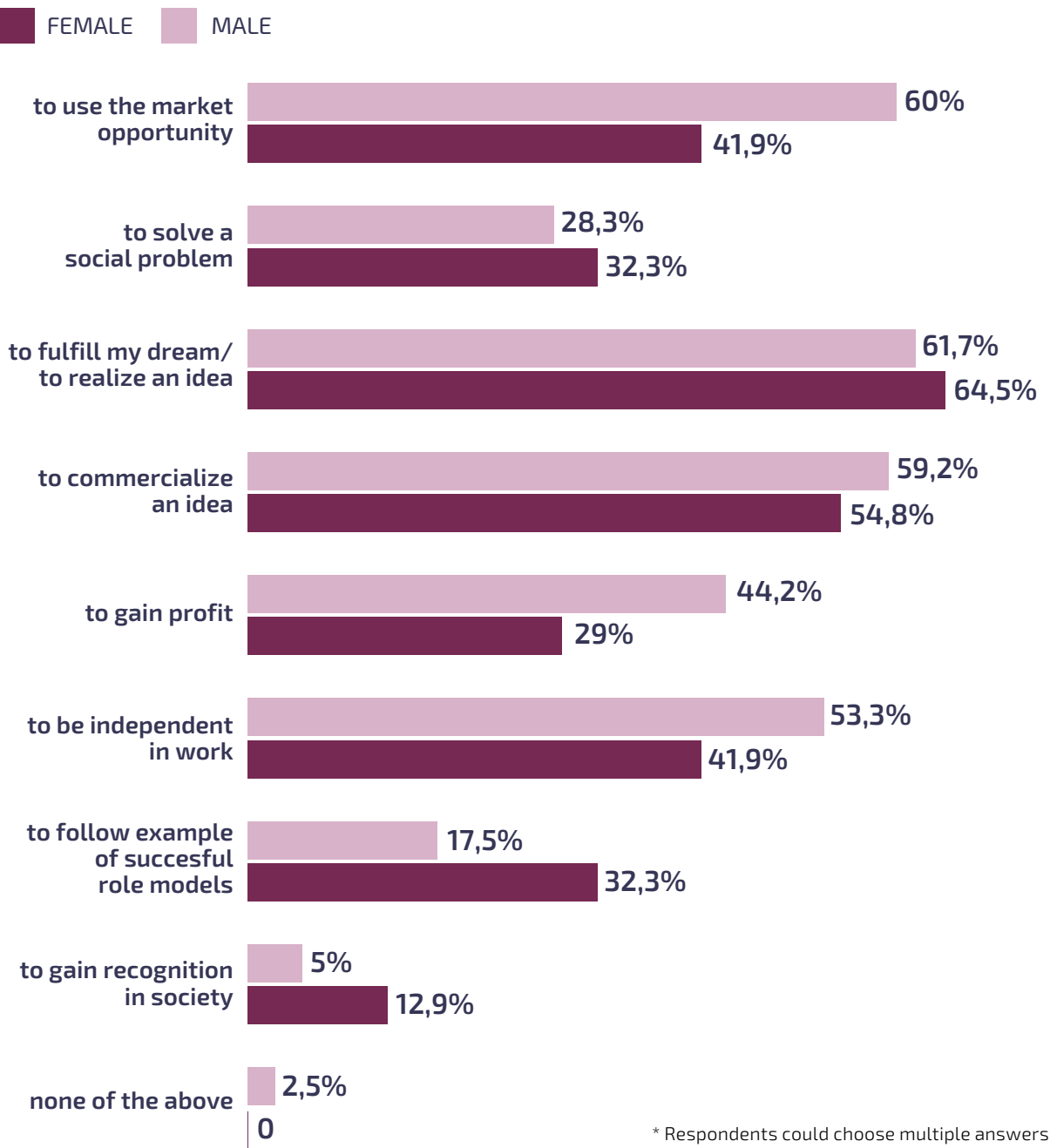
\* Respondents could choose multiple answers

WHAT MOTIVATED THEM TO FOUND A STARTUP?

In any endeavor, motivation is a very important factor in achieving results and attaining goals. It is the same with startups. Is there a difference in motivation between female and male startup founders in Serbia?

According to the results, we can see that most of the female and male founders are driven by the desire to fulfill their dreams, i.e. realize their idea. Men were more likely than women (60% vs. 41.9%) to establish a startup being motivated to seize the market opportunity. Approximately equal number of female (54.8%) and male founders (59.2%) are motivated to commercialize their idea. Somewhat smaller number of female founders compared to male founders is motivated to establish a startup seeking independence in their work. Women (32.3%) are slightly more motivated than men (28.3%) to solve a social problem through founding a startup. There was a higher share of men than women among the founders of startups whose motive was to profit (44.2% vs. 29%). Also, twice as many women as men were motivated to establish a startup in order to be socially recognized. Finally, there are almost twice as many women as men whose reason for establishing a startup was to follow the example of people who are their role models.

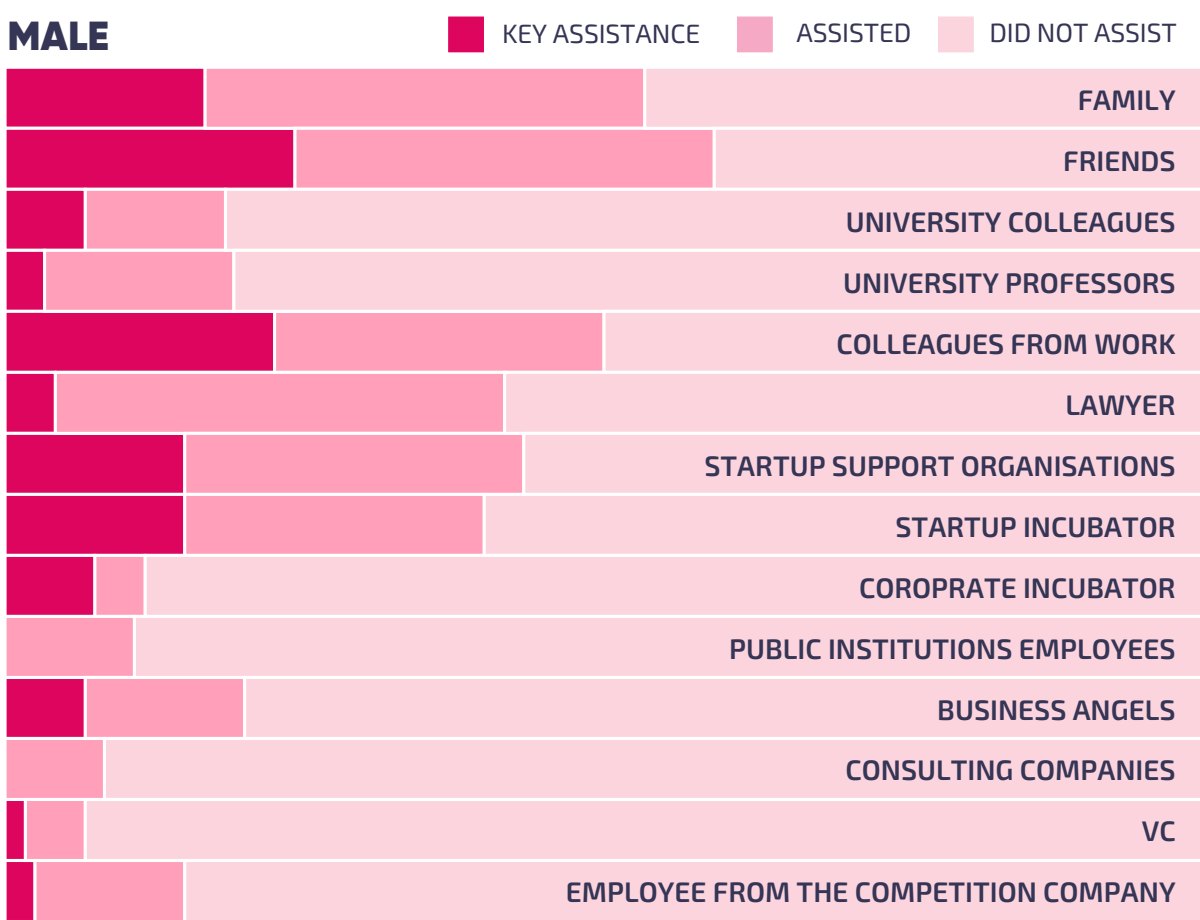
These results showed that there are certain differences in motivation between female and male founders of startups. Greater motivation of women to solve a social problem, to be recognized and to follow the example of their role models, indicates that social issues and relationships are important motivators for female startup entrepreneurship.



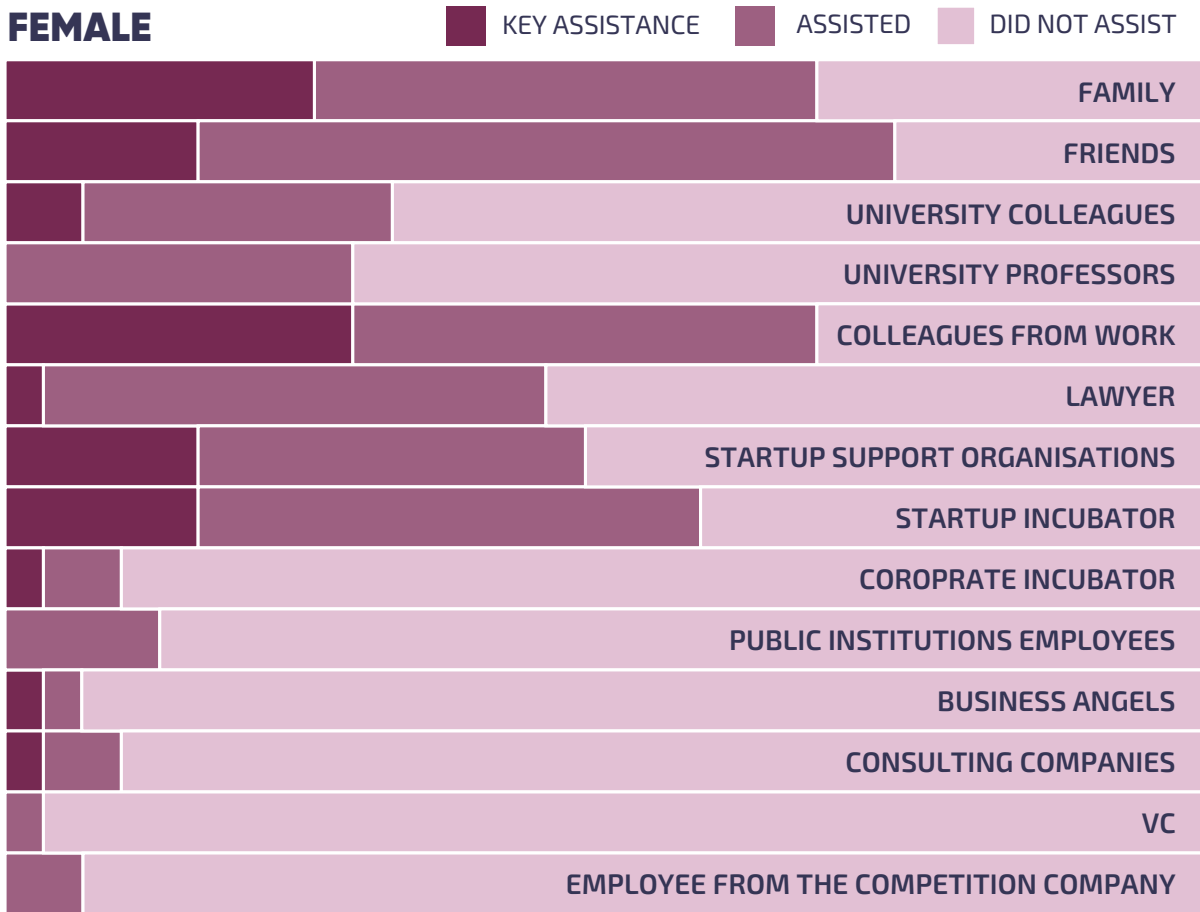
\* Respondents could choose multiple answers

ASSISTANCE AND SUPPORT TO FOUND A STARTUP

The social capital of female and male founders shows which social networks they use in order to obtain resources and information relevant for the establishment and running a startup. We offered respondents the opportunity to indicate whether informal and formal social networks helped them establish and operate a startup, and whether they played a key role. Response distribution showed that work colleagues played a key role for both female and male founders. For men, the help of friends was crucial, and for women, the help of family. When it comes to formal social networks, support organizations and startup incubators played a key role among both female



and male founders. When we look at the answer to the question regarding informal networks, we see that the largest percentage of women got help from friends, while men got it from family. Then come coworkers, with a 10% higher percentage of female founders being helped by colleagues from work. When it comes to formal social networks, most men received help from lawyers and startup support organizations, and most women from lawyers and startup incubators.



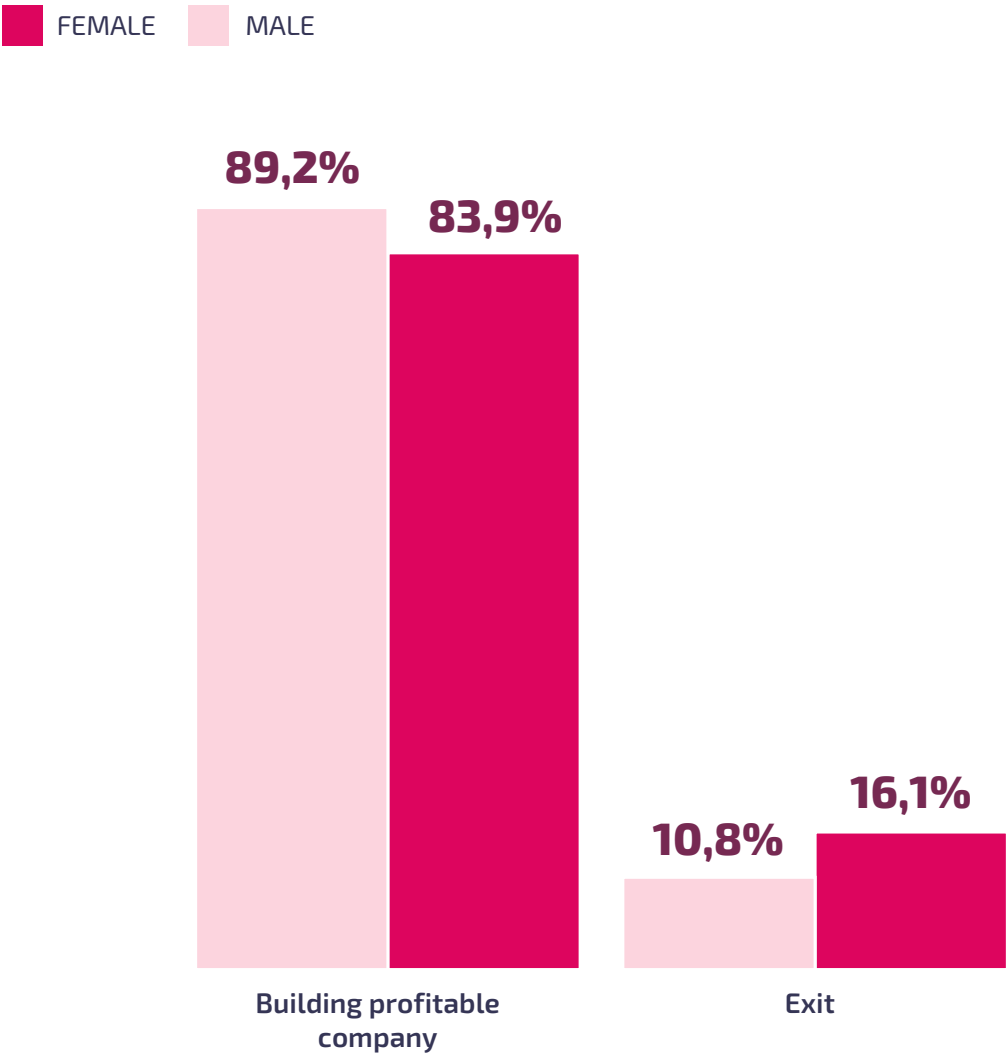
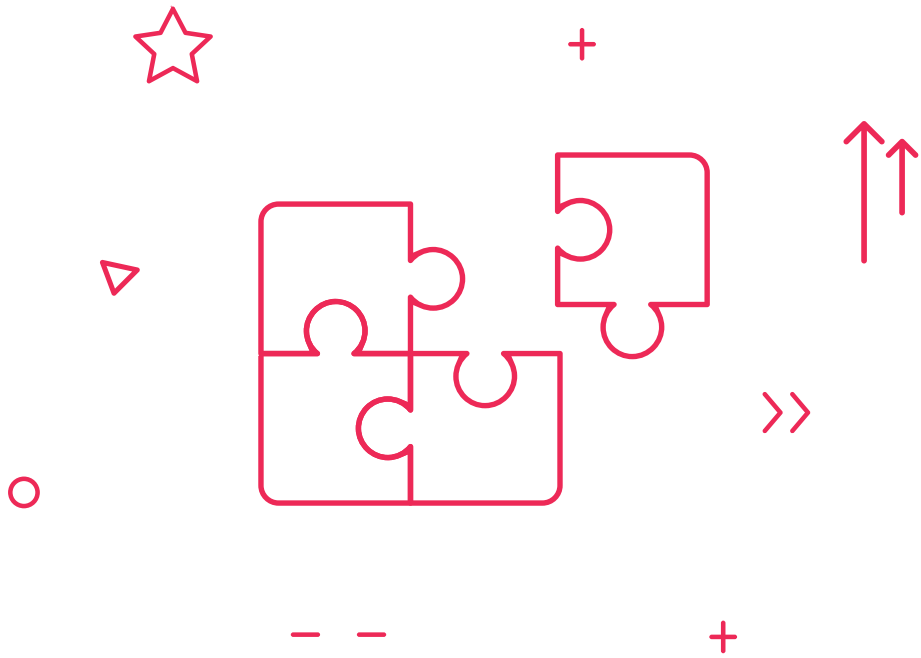
Male				Female		
ASSISTANCE	KEY ASSISTANCE	ASSISTED	DID NOT ASSIST	KEY ASSISTANCE	ASSISTED	DID NOT ASSIST
Family	16,7%	36,7%	46,7%	25,8%	41,9%	32,3%
Friends	24,2%	35%	40,8%	16,1%	58,1%	25,8%
University Colleagues	6,7%	11,7%	81,7%	6,5%	25,8%	67,7%
University Professors	3,3%	15,8%	80,8%	0%	29%	71%
Colleagues from work	22,5%	27,5%	50%	29%	38,7%	32,3%
Lawyer	4,2%	37,5%	58,3%	3,2%	41,9%	54,8%
Startup support organisations	15%	28,3%	56,7%	16,1%	32,3%	51,6%
Startup incubator	15%%	25%	60%	16,1%	41,9%	41,9%
Coroprate incubator	7,5%	4,2%	88,3%	3,2%	6,5%	90,3%
Public institutions employees	0%	10,8%	89,2%	0%	12,9%	87,1%
Business angels	6,7%	13,3%	80%	3,2%	3,2%	93,5%
Consulting companies	0%	8,3%	91,7%	3,2%	6,5%	90,3%
VC	1,7%	5%	93,3%	0	3,2%	96,8%
Employee from the competition company	2,5%	12,5%	85%	0	6,5%	93,5%



FUTURE PLANS

Regarding founders' plans, there are no statistically significant differences between the female and male respondents who participated in the research. The vast majority of both men and women plan to build a profitable company, but a slightly higher percentage of women plan exit (sale of startup).

This data should be viewed in the context of global trends. Namely, 2021 was a record year for female exits in Europe. This was confirmed by *Sifted*<sup>34</sup> in the analysis, which included only companies with exits worth over 20 million euros. Their findings show that the average amount of time for a *top female exit* is 6.8 years, that the sectors most populated by female exits were healthtech and fintech, and that the UK leads in female-exits in Europe.

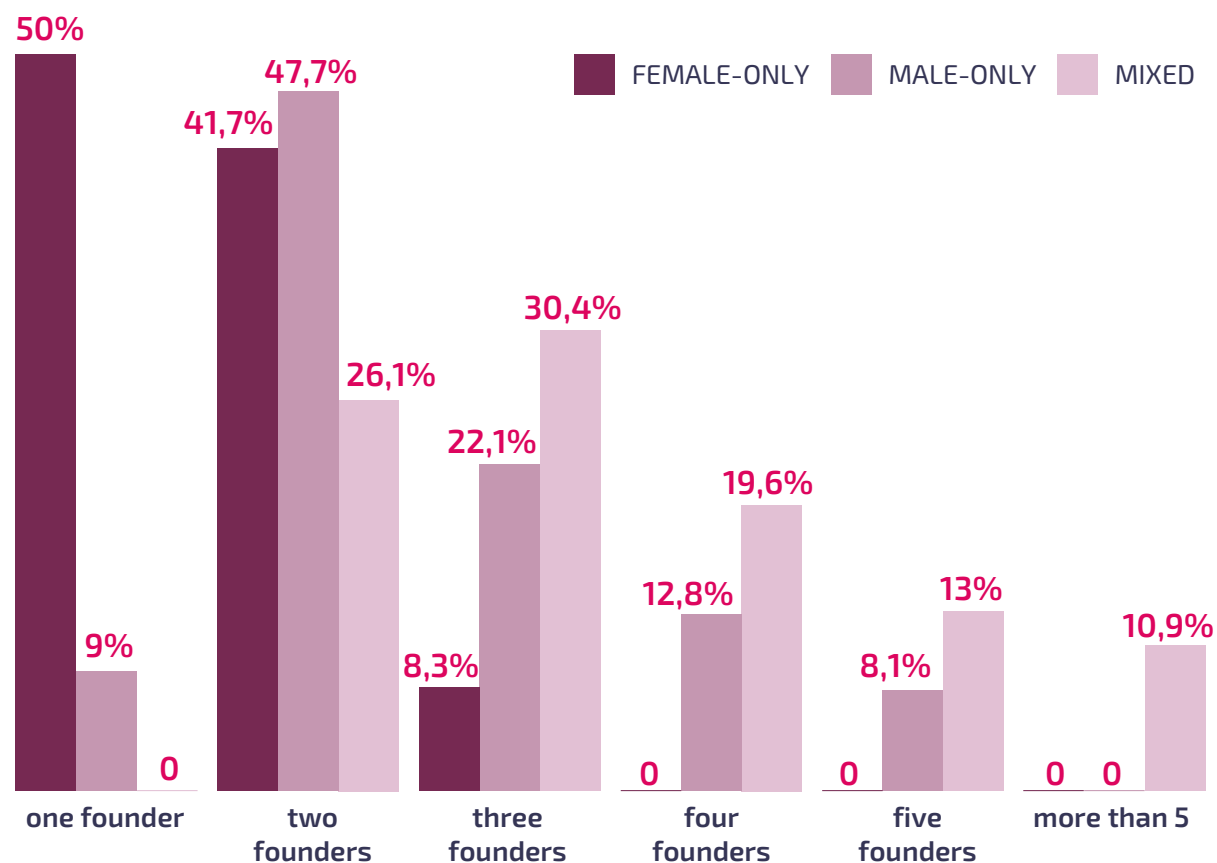


# ANALYSIS ON THE LEVEL OF FOUNDING TEAMS



## NUMBER OF FOUNDERS IN FOUNDING TEAMS

Establishing a startup is a difficult (not impossible) endeavor if you do it by yourself.<sup>35</sup> Therefore, as a rule, a startup is founded by a team composed of individuals with complementary knowledge and skills. Analysis of the sample structure according to the gender of founding teams and the number of founders showed that half of the startups of female-only teams (50% or 6 startups) were founded by a single founder, 41.7% by two and only one has three founders. The number of startups founded by only one woman can be interpreted as an indicator that they are not sufficiently connected or lack adequate support. Most of the male (47.7%) as well as mixed founding teams (30.4%) have two founders, with mixed founding teams having the most diverse numerical structure, because the percentage of teams with three or more founders is higher than among other teams.



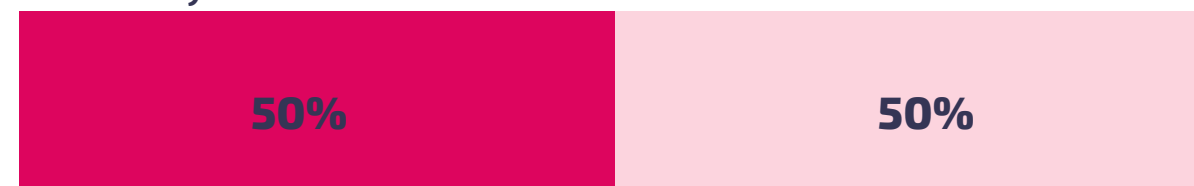
## DO THEY HAVE NON-TECH FOUNDERS?

■ HAVE NON-TECH FOUNDERS ■ NO NON-TECH FOUNDERS

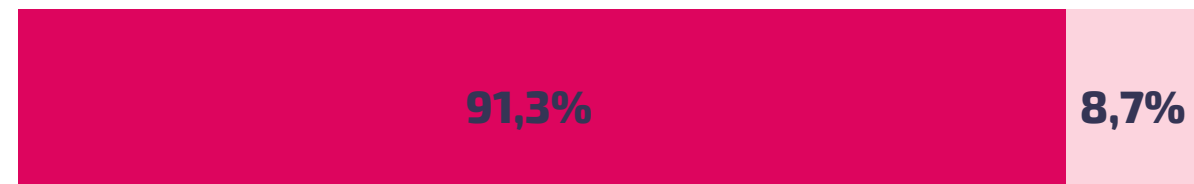
### Female-only



### Male-only



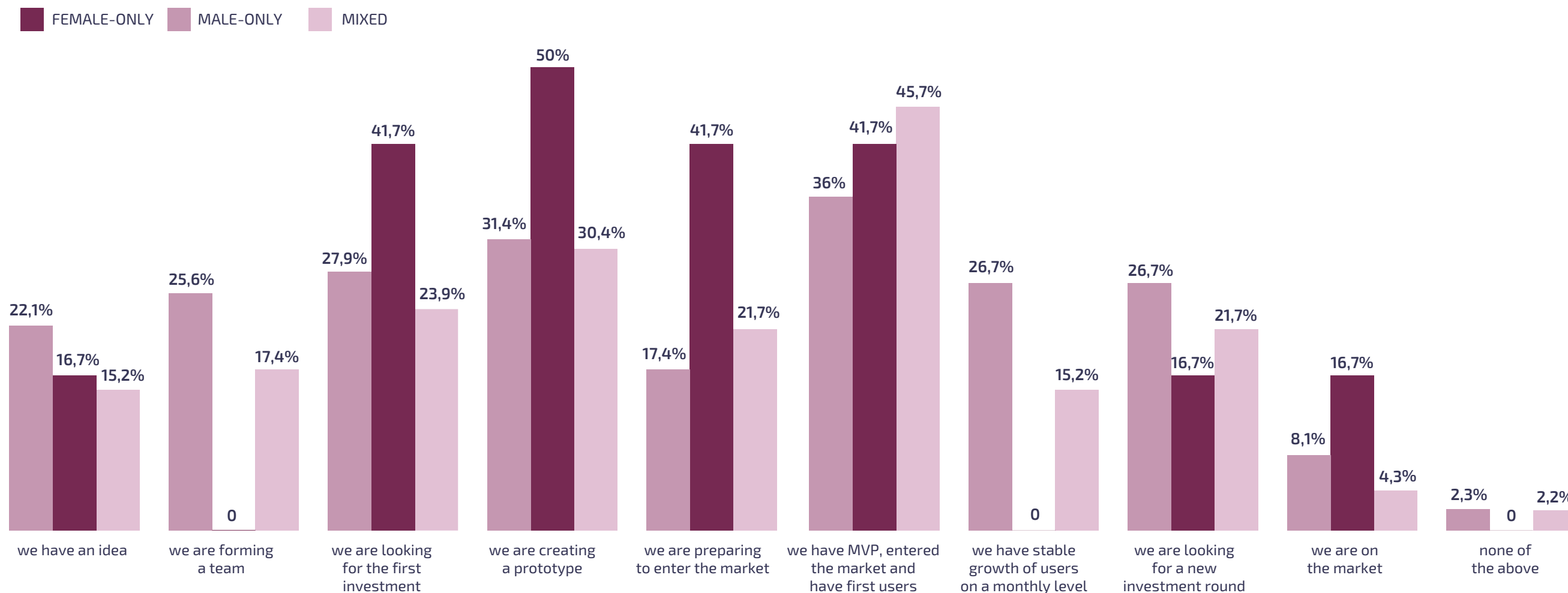
### Mixed



In regard to teams' composition and a ratio of teams with and without non-tech founders, the data indicate that there is a larger share of female (two thirds) than male (half) founding teams with non-tech founders. Mixed teams have the largest occurrence of founders without technical background and experience (as much as 91.3%).

## TEAMS BY STARTUP DEVELOPMENT STAGES

If we look at which stage the highest percentage of startups is, with regard to founding teams' composition, we see that most (half) of female startups are yet to create a prototype, and most male (36%) and mixed startups have MVP, entered the market and have first customers (45, 6%).



FUNDING

SOURCES OF CAPITAL

	MALE	FEMALE	MIXED
Own funds	94,2	91,7	91,3
Grants	46,5	75	56,5
Family and Friends	24,4	33,3	15,2
Incubator-Accelerator	15,1	8,3	15,2
Business Angel	12,8	0	10,9
Other funding sources	5,8	0	0
EU support program	4,7	0	6,5
Other loans	3,5	0	4,3
Venture Capital VC	11,6	0	0
Public subsidies and support	8,1	8,3	6,5
Crowdfunding, Crowdinvesting	3,5	0	0
Bank loans	2,3	0	10,9
ICO	0	0	0
IPO	0	0	0
Foundations	0	0	0

\* Respondents could choose multiple answers

The largest percentage of male, female and mixed teams are bootstrapped, followed by funding through grants and with help of family and friends. It is noticeable that female teams do not have as diverse sources of capital as male and mixed teams. Also, no female startups from the surveyed sample received funding from business angels, nor did any female and mixed startup receive funding from venture capital funds.

The most visible dimension of inequality in innovative entrepreneurship, both locally and globally, is the very small percentage of female startups that managed to obtain investments from VC funds. In the first three months of 2022, female-only founding

teams in Europe secured just 0.4% of the total venture capital invested in this period.. A 2021 study on the link between the gender of entrepreneurs and the possibility of accessing venture capital in Europe showed that, in the period between 2014–2019, female-only teams accounted for just 6% of the total number of all startups financed by venture capital funds.<sup>36</sup> In the region of Central and Eastern Europe in 2020, female teams received only 1% of all investments.<sup>37</sup> U regionu Centralne i Istočne Evrope 2020. godine ženski timovi su prikupili samo 1% svih investicija.<sup>38</sup> In their planning, startups show great interest in grants (more than half of male and mixed and as many as 91.6% of female startups). A quarter of female-only teams plan to raise funds from business angels, and 41.6% on VC funds. Mixed teams plan to ask for more funds from foundations than men and women.

	MALE	FEMALE	MIXED
Own funds	38,4	33,3	34,8
Business angel	40,7	25	54,3
Other funding sources	4,7	8,3	0
Grants	53,5	91,7	67,4
Family and friends	5,8	16,7	4,3
Incubators - Accelerator	31,4	33,3	45,7
EU assistance program	20,9	41,7	41,3
Other loans	3,5	0	2,2
Venture capital-VC	55,8	41,7	41,3
Public subsidies and support	16,3	25	15,2
Crowdfunding, Crowdinvesting	3,5	8,3	6,5
Bank loans	7	0	2,2
ICO	2,3	0	0
IPO	0	0	0
Foundations	5,8	8,3	21,7

\* Respondents could choose multiple answers

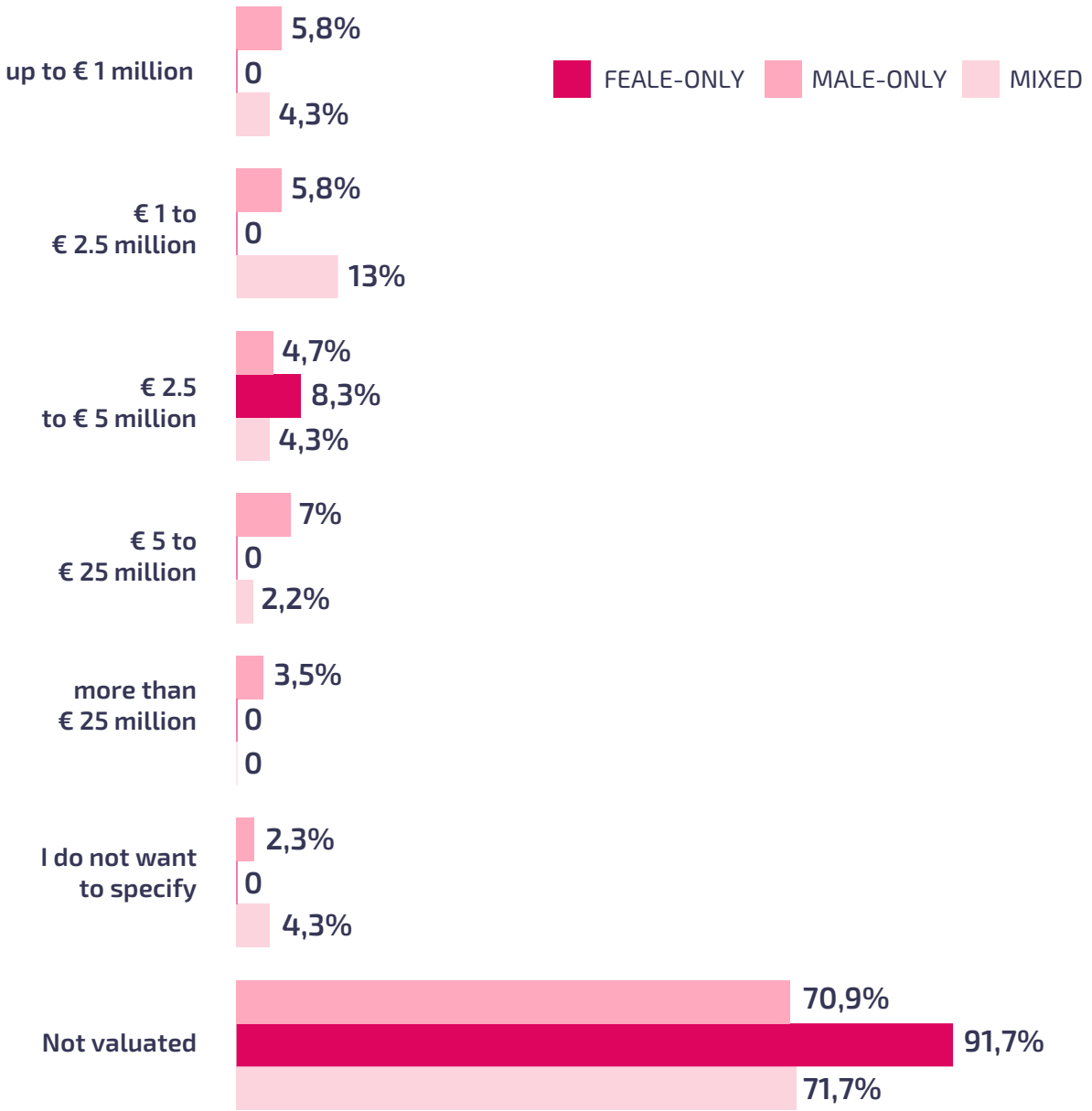
EXTERNAL INVESTMENTS

The data showed that slightly less than half of the male and mixed teams, and a quarter of the female teams raised no external investments. Most of the female and mixed teams received external investments worth 50-100 thousand euros, while male teams have the largest share in investments worth 100-200 thousand euros.

	MALE	FEMALE	MIXED
€ 1 - € 10,000	1,2	8,3	2,2
€ 10,001 - € 50,000	3,5	16,7	17,4
€ 50,001 - € 100,000	12,8	41,7	19,6
€ 100,001 - € 200,000	14,0	8,3	4,3
€ 200,001 - € 300,000	9,3	0	2,2
€ 300,000 - € 500,000	1,2	0	4,3
€ 500,000 - € 1 million	1,2	0	0
€ 1 - € 5 million	5,8	0	0
More than € 5 million	2,3	0	0
Without external funding	45,3	25	45,7
I do not want to specify	3,5	0	4,3

ESTIMATED VALUE

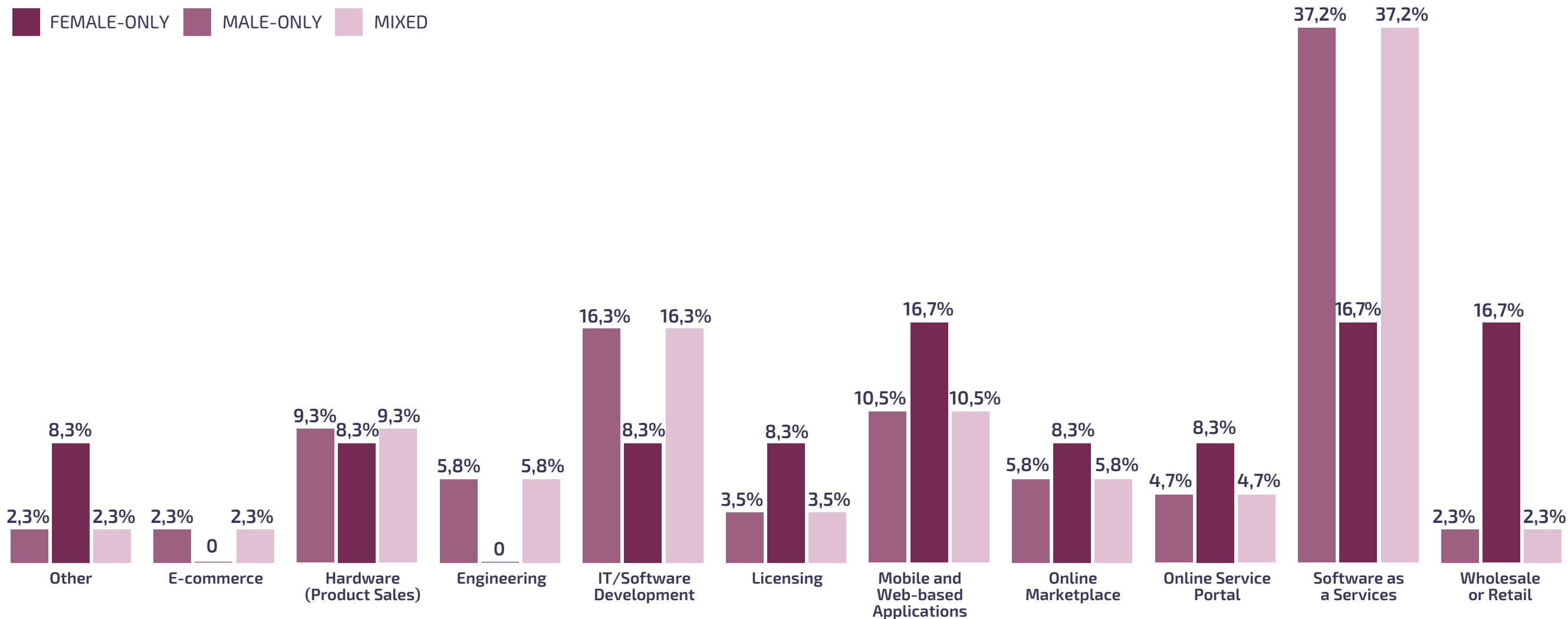
The value of as many as 91.6% of female startups and more than two thirds of startups that have male and mixed founding teams has not been estimated yet. When we look at the value of startups that are valued, we see that only one female startup has been valued (at between 2.5 and 5 million euros), while male teams are mostly valued at between 5 and 25 million euros, and most of the mixed teams are worth between 1 and 2.5 million euros.



# BUSINESS OPERATION

## BUSINESS MODEL

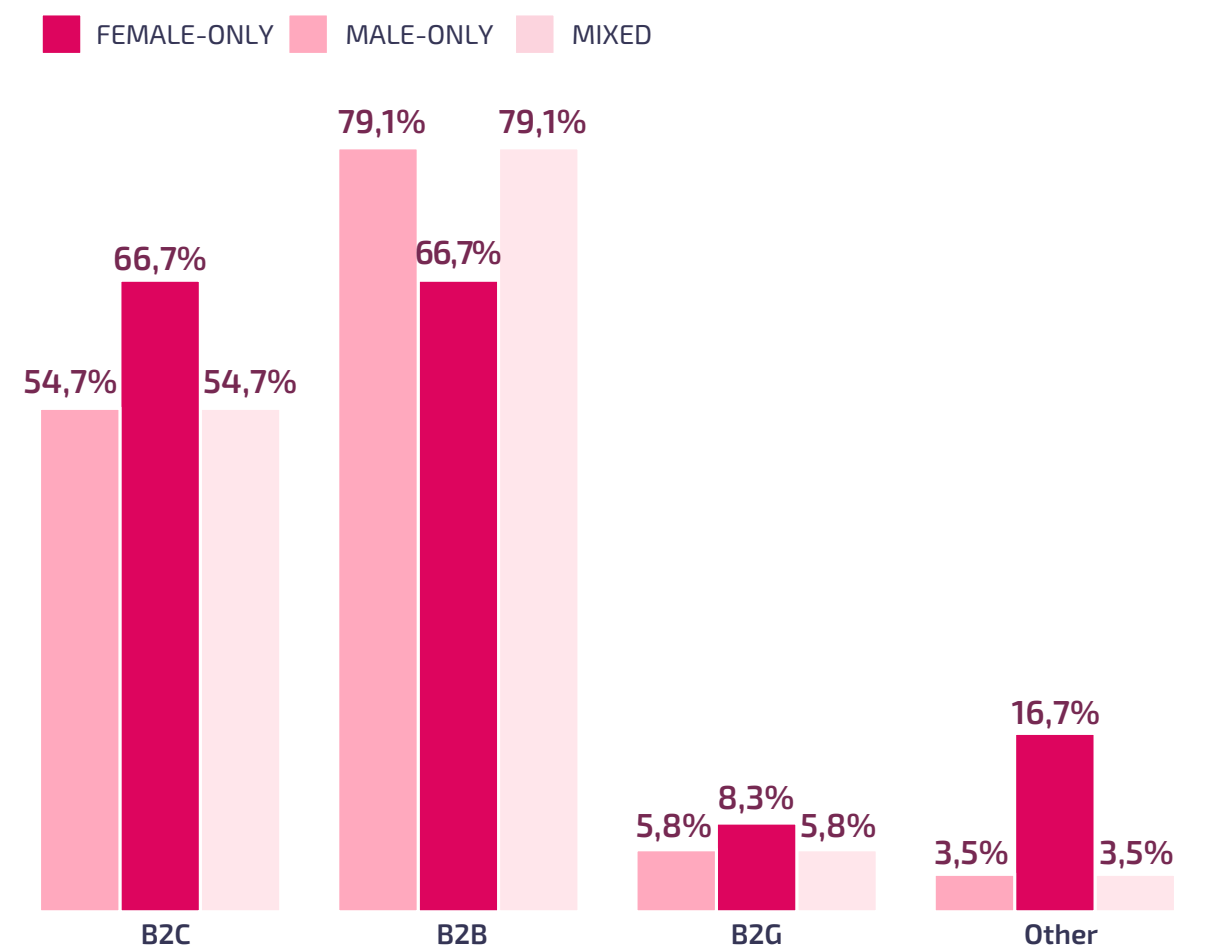
The largest percentage of male and mixed teams operate as a "software as a service" model, followed by the software development model. The percentage of female teams operating on the model of "software as a service", mobile or web-based applications and sales is equal. Only one female team operates on a software development model.



\* Respondents could choose multiple answers

Regarding the users of services or products of startup teams, female-led startups have an equal share of those who operate according to the B2B (*business-to-business*) and B2C model (*business-to-customer*). On the other hand, almost 80% of male and mixed teams operate on the B2B model, and about half on the B2C model.

BUSINESS MODEL BY PRODUCT AND SERVICE USERS



ANNUAL REVENUE

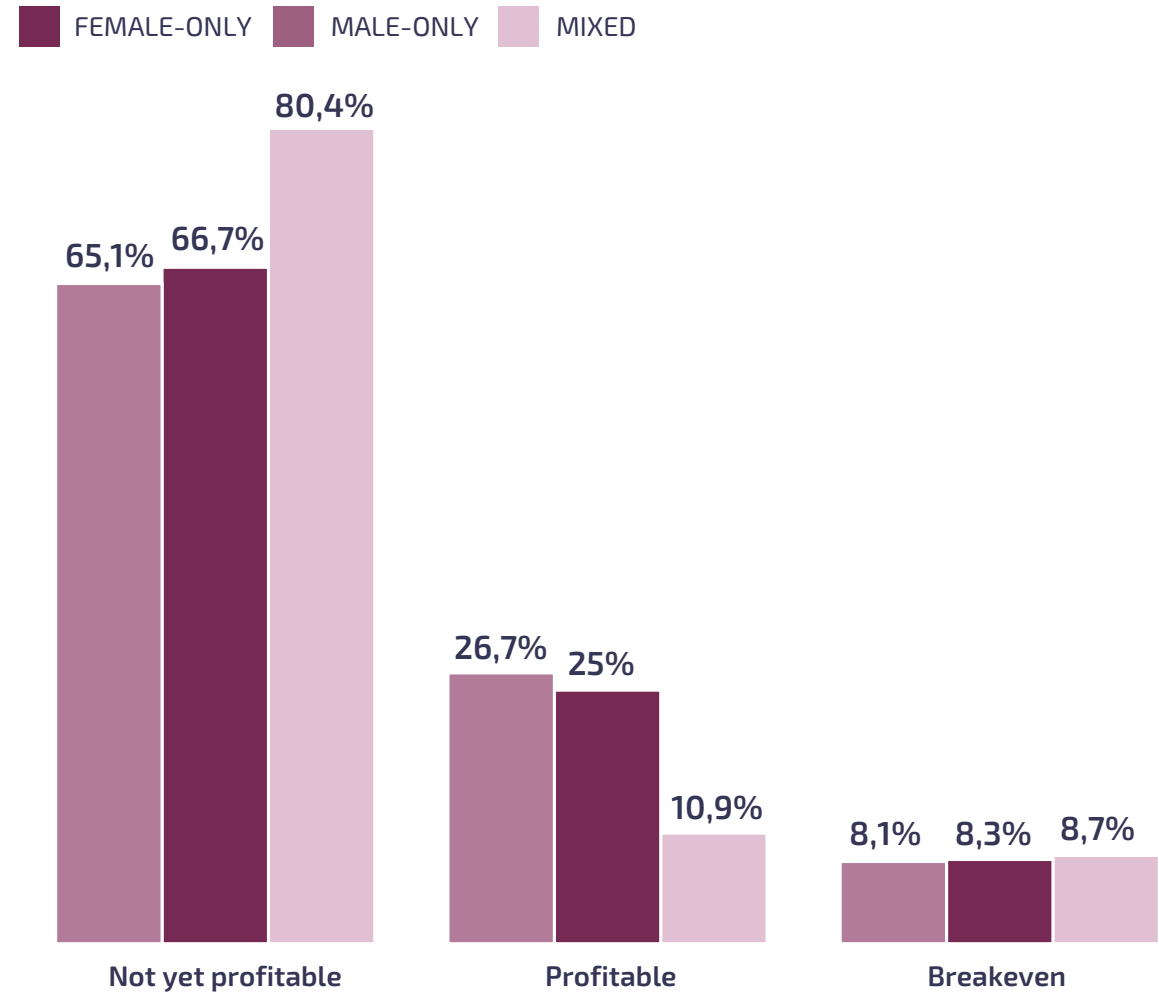
	MALE	FEMALE	MIXED
€ 1 - € 50,000	19,8	33,3	28,3
€ 50,001 - € 150,000	14	8,3	2,2
€ 150,001 - € 300,000	10,5	0	6,5
€ 300,001 - € 500,000	2,3	8,3	4,3
€ 500,001 - € 1 million	5,8	0	4,3
€ 1 - € 3 million	1,2	0	0
€ 3 - € 10 million	2,3	0	0
More than € 25 million	1,2	0	0
Without revenue	39,5	41,7	52,2
Not stated	3,5	8,3	2,2

Female, as well as other teams, mostly operated without revenues in the previous year. A majority of those who did generate revenue didn't reach over 50 thousand euros. These figures should be viewed in the light of their development phase, i.e, the fact that half of female startups are in the prototype creation phase. Also, it should not be forgotten that results from other global and regional ecosystems show that women-led startups on average generate more revenue than male-only startups.<sup>39</sup>

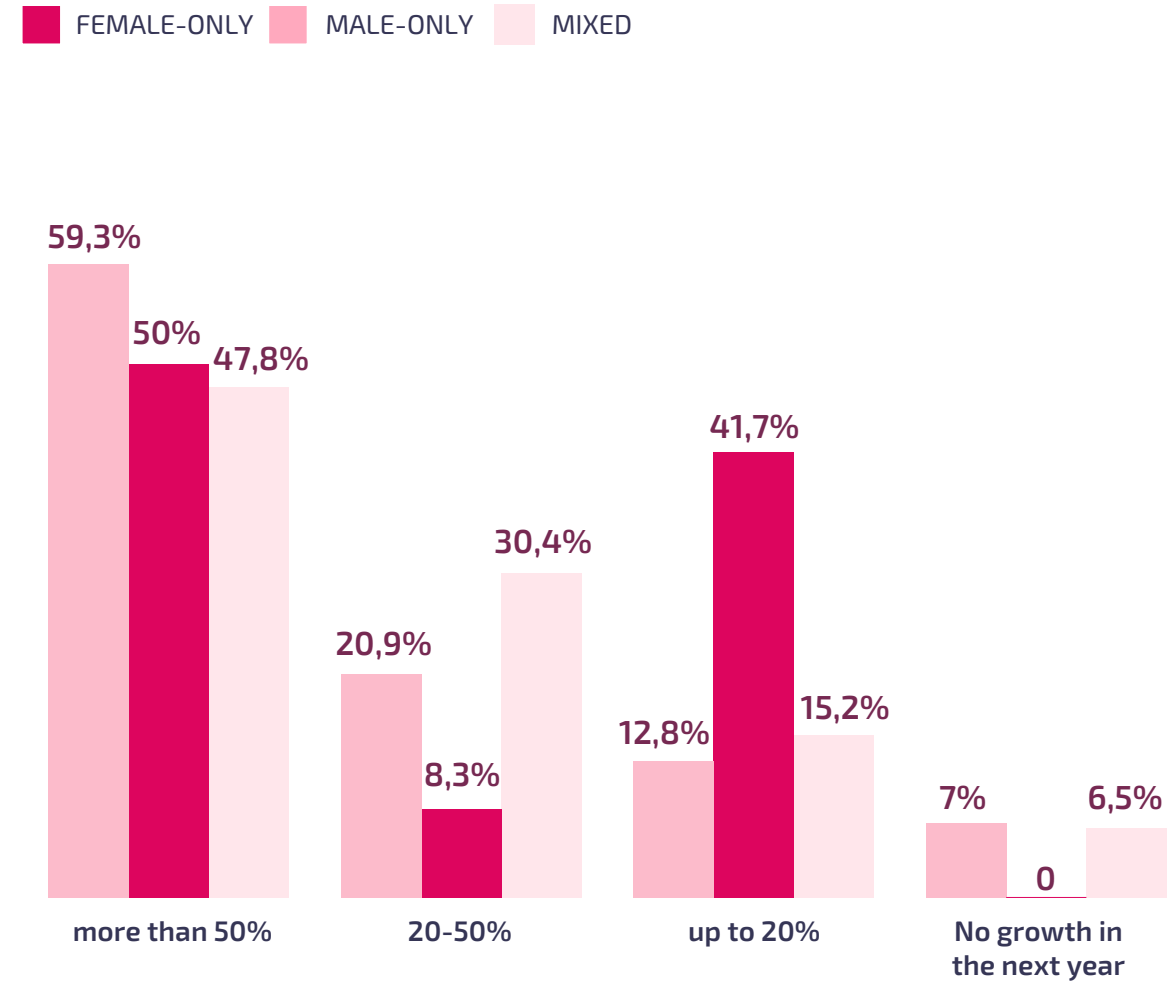


PROFITABILITY

In the Startup Scanner 2022 survey, respondents gave a self-assessment of their startups' profitability. Looking at the results according to the composition of the founding teams, we see that the largest percentage of female, as well as male and mixed startup teams, declared that they are not profitable yet. And when we look at those who are profitable in all founding groups, we see that the number is the same in female and male founding teams (a quarter), and the smallest in the category of mixed teams.



BUSINESS GROWTH ESTIMATION

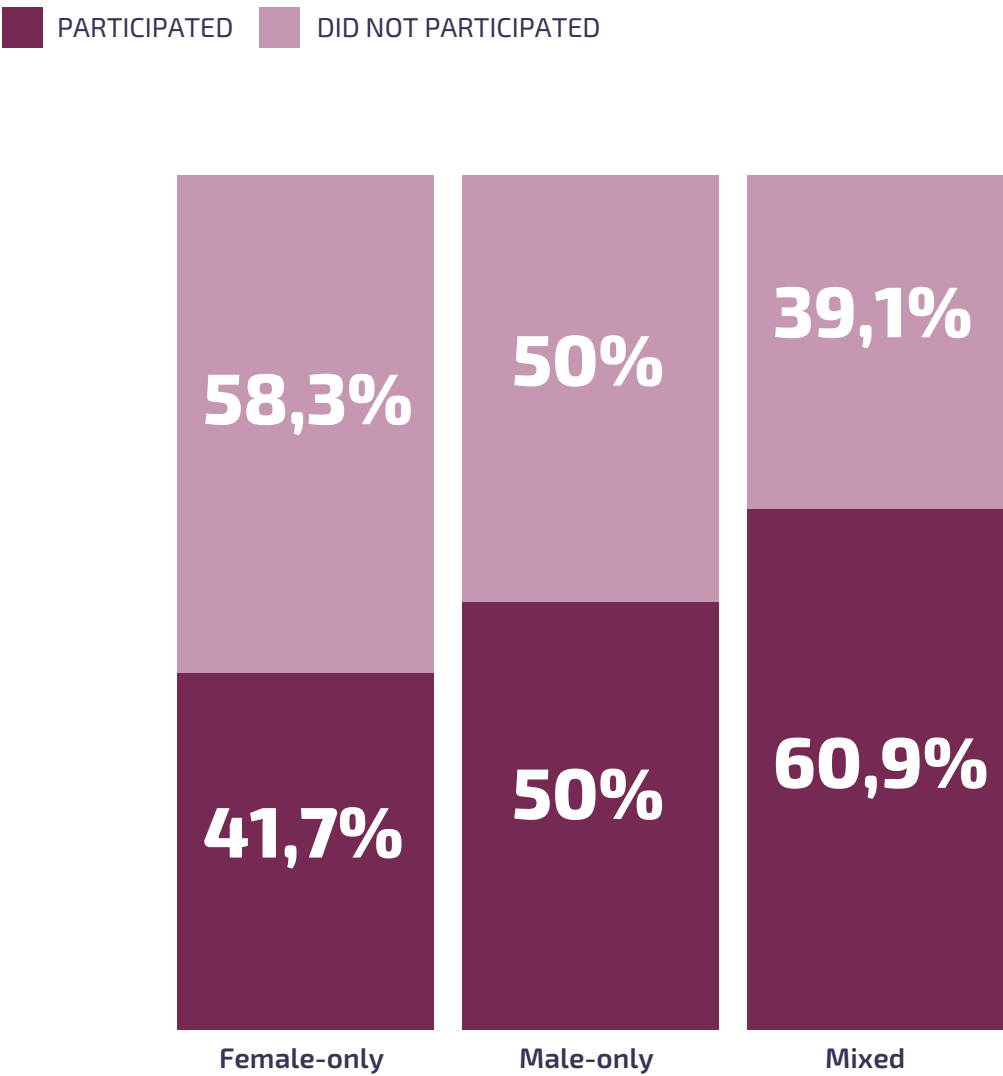


The findings of the research showed that the majority of female startup teams, as well as male and mixed ones, plan for growth over 50%. The majority of other female teams estimated they would grow up to 20% (41.6%), while most other male and mixed teams estimated they would grow between 20-50% in the coming year.

# TEAM GENDER COMPOSITION AND STARTUP SUPPORT PROGRAMS

Startup support programs enable startups to receive assistance at various stages of development, both in terms of realizing the idea and establishing a startup, as well as in terms of growth and future business. Activities that take place within the support program can be different and include training, coaching, providing office space, legal advice (incubators), but also business mentoring, assistance in developing business models and market research, networking with potential investors and financial support (accelerator). Support programs can be organized by different actors (NGOs, corporations, universities or government).

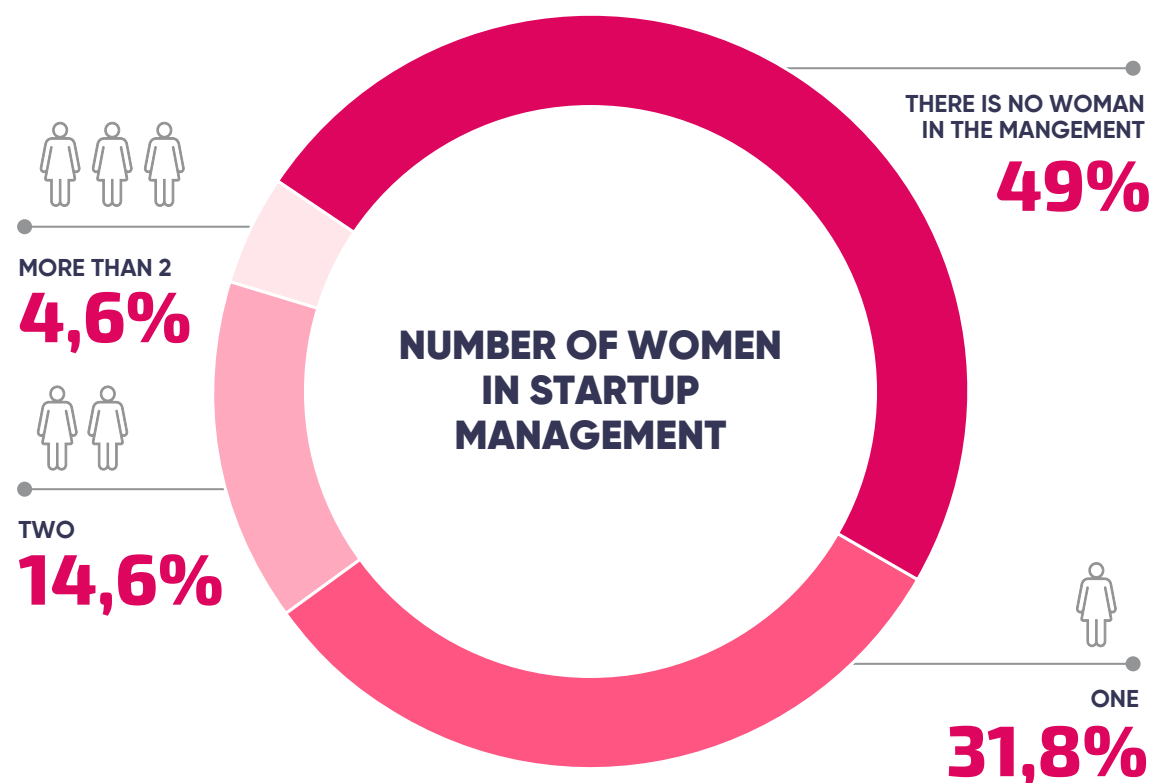
The findings of the Startup Scanner 2022 survey showed that 41.7% of female and half of the mixed and male teams participated in support programs. Only one female team and slightly more than one-eighth of male and mixed teams financed their startup with funds obtained through support programs. When these data are compared with the data on planned sources of capital, it becomes clear that female founding teams (one third), as well as male and mixed teams, count on getting funds through support programs.



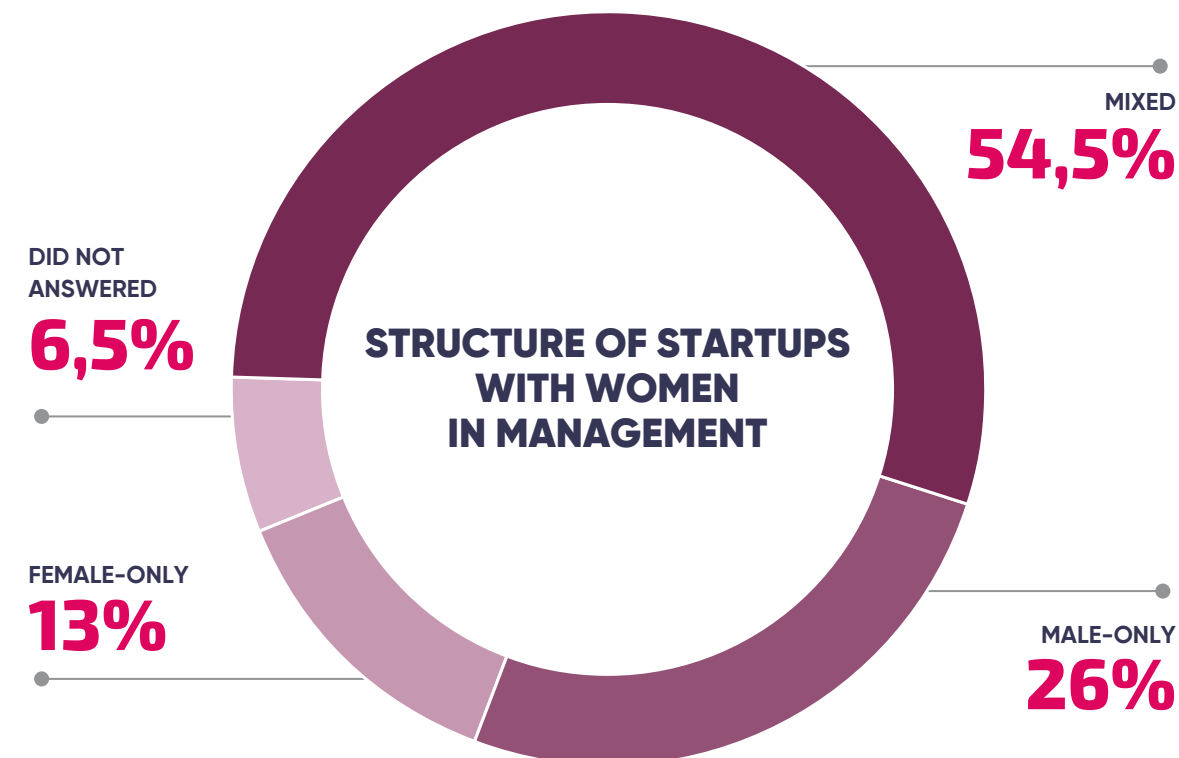
# WOMEN IN THE STARTUP MANAGEMENT



A small percentage of women in startup management is a common problem of startup ecosystems worldwide. Although the number of unicorns founded or co-founded by women<sup>40</sup> has increased globally in 2021, the participation of women in the managing structure of startups is still insufficient.<sup>41</sup> According to Sakshi Chopra, managing director of VC Sequoia Capital India, more women in leadership teams would have a positive impact on women's participation in the startup world, because "if we want to see more female founders, we need to also have more women in leadership and on advisory roles, especially in startups. They in turn need to leverage their positions and networks to help other women succeed."<sup>42</sup> Data collected in the survey of Serbian startup ecosystem shows that of the 151 startups that participated in the survey, almost half (49%) have no women in management, 31.8% have only one, 14.6% have two, and 4.6% have more than two women in their management structure.

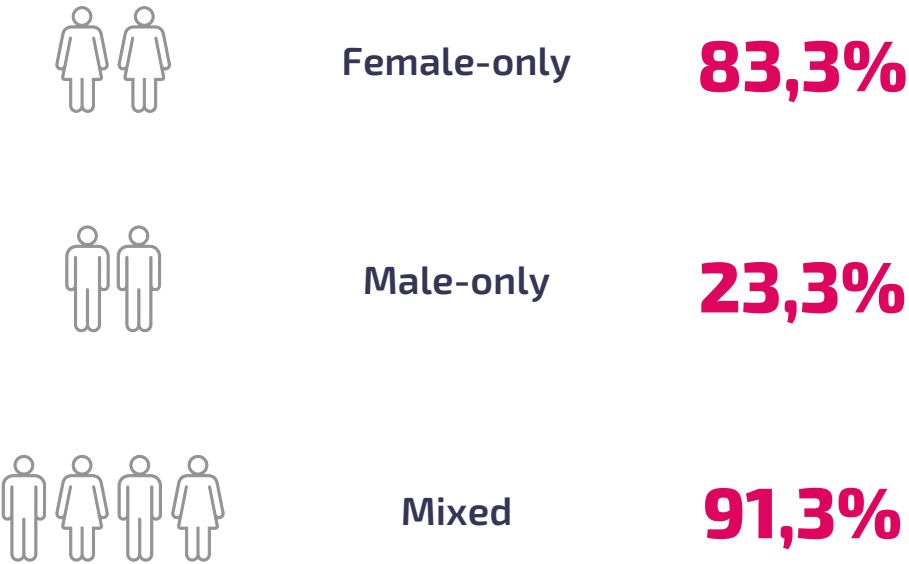


Of the total number of startups that have women in management, half are mixed teams, slightly more than a quarter are male and 13% are female teams.



When we look at each group of founding teams separately, we see that 91.3% of mixed and 83.3% of female founded startups have women in management. On the other hand, less than a quarter of male-founded startups have women in the management structure. This result is not a coincidence as there is a statistically significant difference, i.e. there is a strong dependence between the male-only founding team and the absence of women in management, i.e. female-only and mixed teams and presence of women in management. The fact that there are disproportionately few women in management in male-only startups indicates that there is plenty of room for improvement in this domain, primarily through raising awareness of the importance, quality and unique benefits that women bring to the startup ecosystem.

FOUNDING TEAMS BY GENDER AND WOMEN IN MANAGEMENT

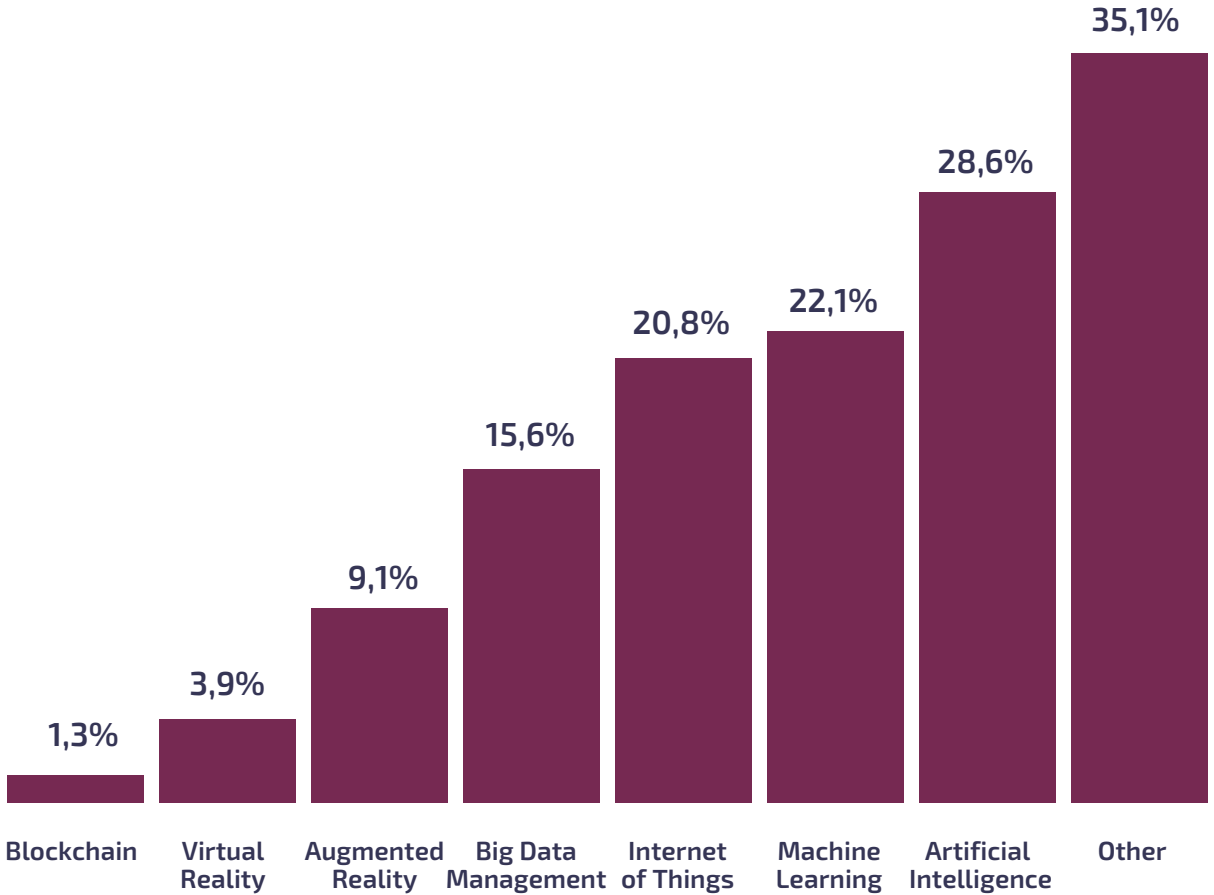


Findings on the participation of women in management according to the technological field of startups have shown that the lowest percentage of startups with women in management is in the blockchain field. Namely, out of 11 blockchain startups that participated in the research, only one has women in its management.

In the blockchain industry, the problem of insufficient participation of women at the global level is well known, both in terms of female users and in terms of the number of female startup founders and employees in this industry.<sup>43</sup> Since 2018, numerous initiatives have been launched globally to change the image of blockchain as a predominantly male industry. The importance of such initiatives and the need for more women in the blockchain industry is also confirmed by the opinion of experts who say that the early days of an industry are both a period when fortunes are made and

when industry leaders "typically influence the direction which the industry will take in the future, from where to invest to what to build next ", so "now is the time for women to make their mark on the crypto industry and its future, and their absence now could diminish their influence and benefits in the long run".<sup>44</sup>

STARTUPS BY PARTICIPATION OF WOMEN IN MANAGEMENT AND TECHNOLOGY



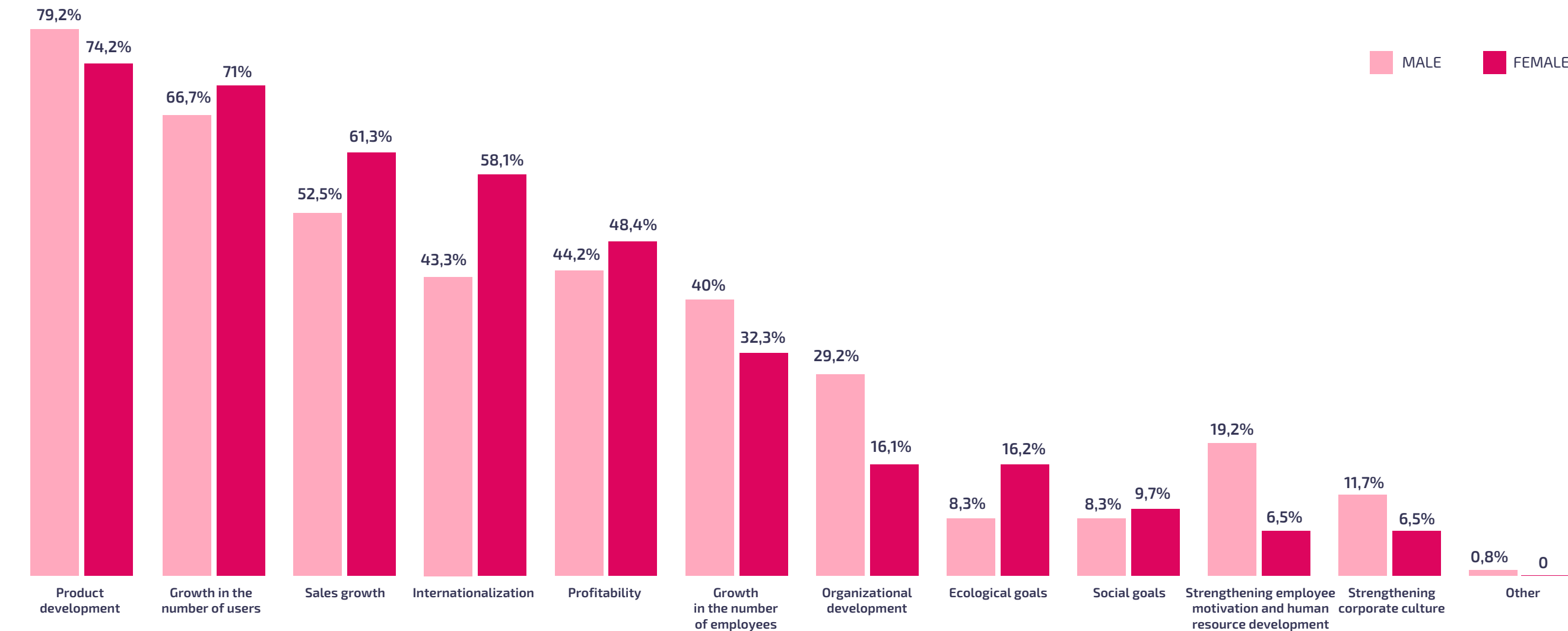
# STARTUP PRIORITY GOALS FROM THE MALE AND FEMALE FOUNDERS PERSPECTIVE



The analysis of the priority goals of startups according to the founders' gender showed that there are no statistically significant differences in this regard. When we look at the share of female and male founders to whom a certain goal is important, we indirectly get a picture of the priorities. Both female and male founders in the majority of startups consider product development to be important (more than two thirds),

followed by the growth in the number of users and then growth of sales. This is followed by internationalization and profitability within female founders, while within male founders it is the other way around. It is noticeable that for female founders, environmental and social goals are more important than for male founders.

## PRIORITIES FOR MALE AND FEMALE FOUNDERS



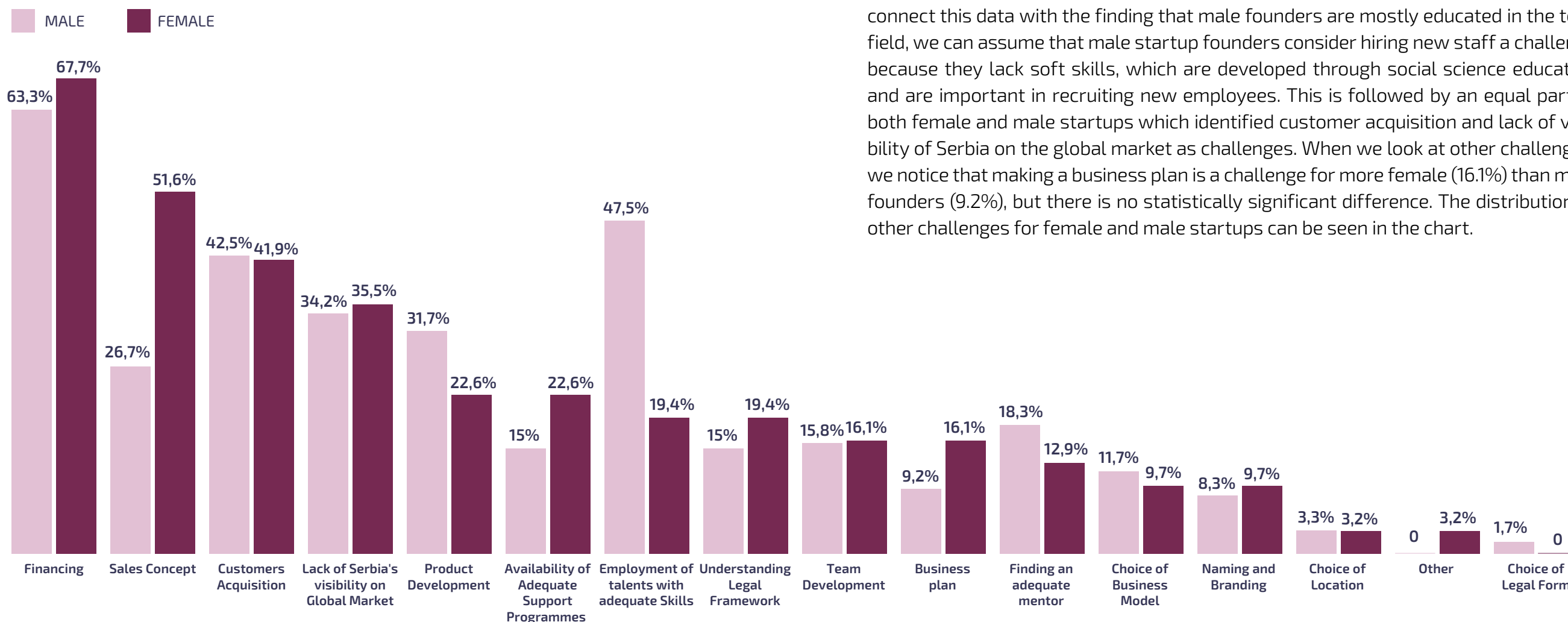
# CHALLENGES FROM THE MALE AND FEMALE FOUNDERS PERSPECTIVES





Globally, statistics, often cited to illustrate the risks of starting a venture, say 9 out of 10 startups fail.<sup>45</sup> Those who decide to establish a startup must be willing to face and cope with various challenges. Do these challenges differ depending on the gender of founders? Data from the Startup Scanner 2022 survey confirm this.

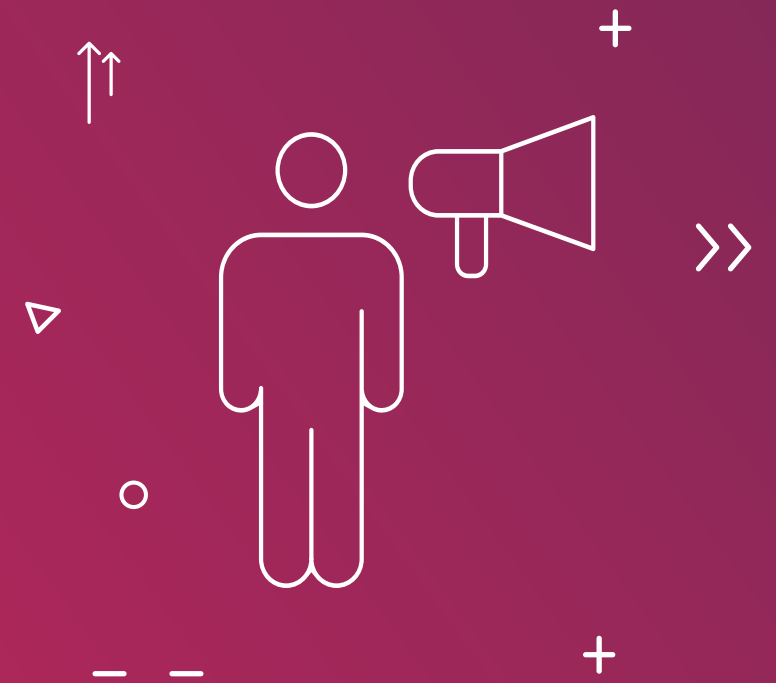
## CHALLENGES FROM PERSPECTIVE OF MALE AND FEMALE FOUNDERS



\* Respondents could choose multiple answers

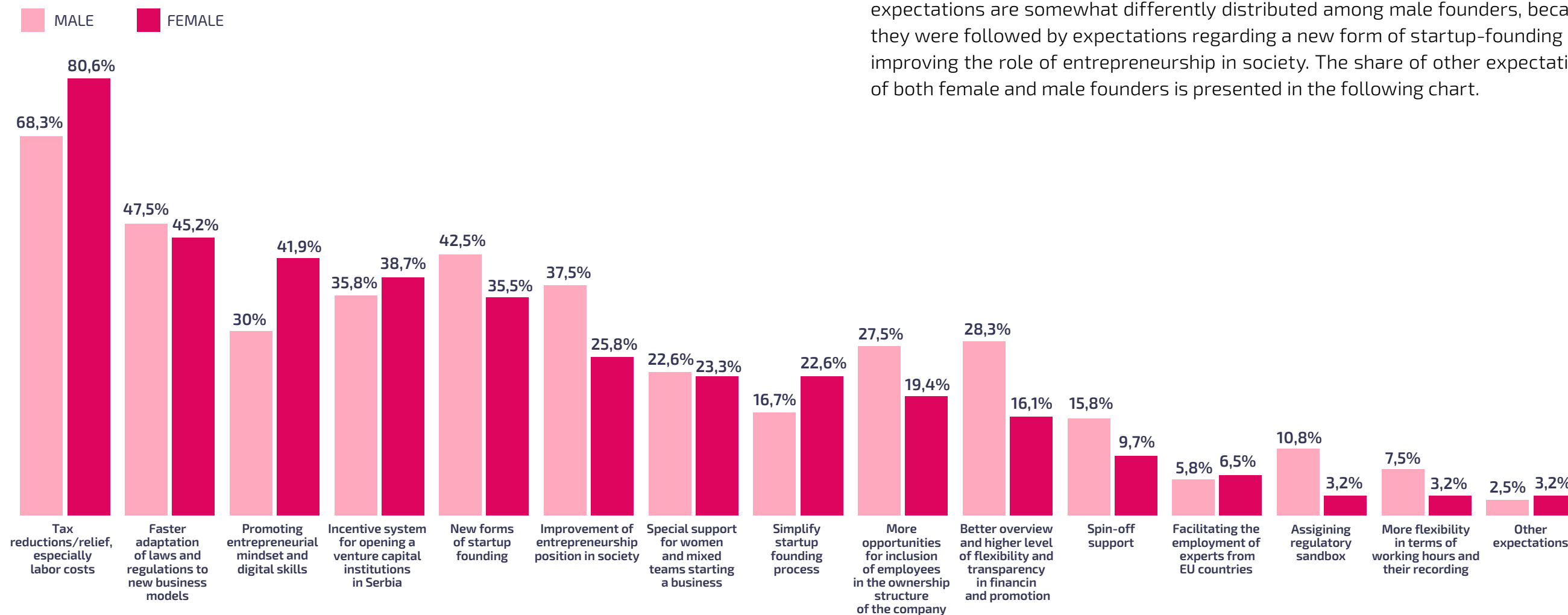
For the majority (two thirds) of both female and male founders, the challenge is how to secure startup funding. Half of the female founders (compared to a quarter of male founders) are challenged to devise and implement an appropriate sales concept. Statistical analysis showed that this result is not by chance, i.e. there is a higher probability that the concept of sales will be a challenge for female founders. Almost half of the male founders (compared to 19.4% of women) are challenged with hiring adequately skilled staff. In this regard, there is a statistically significant dependence between gender and the perception of adequate labor force employment as a challenge. When we connect this data with the finding that male founders are mostly educated in the tech field, we can assume that male startup founders consider hiring new staff a challenge because they lack soft skills, which are developed through social science education and are important in recruiting new employees. This is followed by an equal part of both female and male startups which identified customer acquisition and lack of visibility of Serbia on the global market as challenges. When we look at other challenges, we notice that making a business plan is a challenge for more female (16.1%) than male founders (9.2%), but there is no statistically significant difference. The distribution of other challenges for female and male startups can be seen in the chart.

# EXPECTATIONS FROM PUBLIC POLICIES FROM THE MALE AND FEMALE FOUNDERS PERSPECTIVE



The founders' expectations from public policies indicate the areas which should be acted upon in order to improve founders' position, as well as whether there are differences between male and female founders in this regard. When we look at the share of startup founders who have certain expectations in each gender group, we can see in which areas the highest expectations of female and male startup founders are, i.e., what problems they face.

## EXPECTATIONS FROM PUBLIC POLICIES



\* Respondents could choose multiple answers

Majority of female and male founders expect tax relief and reductions, especially those related to labor costs. We would like to mention here that this percentage is higher for female (80.6%) than for male founders, but there is no statistical significance. Slightly less than half of startups, both female and male founded, expect faster adjustment of regulations and laws to new business models. Female founders expect from public policies to promote entrepreneurial thinking and digital skills, incentives for opening venture capital institutions in Serbia, as well as new forms of startup-founding, but also improving the role of entrepreneurship in society. These expectations are somewhat differently distributed among male founders, because they were followed by expectations regarding a new form of startup-founding and improving the role of entrepreneurship in society. The share of other expectations of both female and male founders is presented in the following chart.

# CONCLUSION

The analysis of a gender dimension of the Startup Scanner 2022 results enabled us to see women's position in the Serbian startup ecosystem for the first time based on data collected by surveying the startups themselves. According to the percentage of women among startup founders, Serbia is at the global average and above the EU average, while according to the percentage of female-only founding teams, it is at the EU average. This data, although encouraging, should not misguide us, because the position of women in the startup world, both globally and in our country, is far from favorable.

Women's education level is the same, even higher, than that of male founders, but the results confirmed that they are less likely to have an education in the IT field. Female founders are more likely to have a degree in social sciences and humanities. These findings support the need to work on programs that seek to increase the share of women in IT education. However, it is possible to see the other, positive side of a higher percentage of women educated in the social sciences and humanities. Namely, we see that increasing the share of female founders does not only mean a more gender-equal startup ecosystem, but also an increase of multidisciplinary teams, which is an important success factor for the development of innovative ideas. Also, the results of the analysis confirmed that environmental and social goals are more important to female than to male founders, as well as that, when founding a startup, women are more motivated by certain social factors than men.

Greater representation of women in startup leadership would certainly contribute to improvement of women's position in any startup ecosystem. A large percentage of mixed and female teams included in the survey have women in leadership. The analysis confirmed that the all-male composition of the founding teams is directly related to the lower presence of women in the management structure of a startup.

Based on the results of the analysis, we can conclude that fundraising is a great challenge for women, as well as for male founders. The results at the level of founding teams show that female-founded startups have less diverse sources of capital and so far have not received funding from VC funds or business angels, but count on them in their plans. This indicates it is necessary to work with business angels and venture capital funds to identify the potential of female startup teams and businesses.

It may be concluded, based on the goals that are important to most female startups, as well as the share of those who operated without revenues and the fact that in addition to major challenge such as financing, some also consider a concept of sale design and business plan development as a challenge, that majority of female startups are in the early stages of development. Therefore, it is necessary to develop adequate support programs accordingly.

Most female startup founders, as well as their male counterparts, have expectations in terms of tax relief and faster adjustment of the regulatory system to new business models. This indicates that it is necessary to work not only on changing the way of thinking of those who are daring to start a startup, but also on making a shift in thinking of the legislative and executive authorities that should create a favorable environment for startups.

The Women in Serbian Startup Ecosystem research creates room for all actors to further work on improving the role of women in the ecosystem in the coming period, as well as to encourage and empower women to take a chance on innovative entrepreneurship.

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