

# Public Opinion Survey on the functioning of the telecommunications market and consumer preferences

Report on the survey concerning start-ups

Warsaw, Gdansk, 19.12.2018

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## Basic information

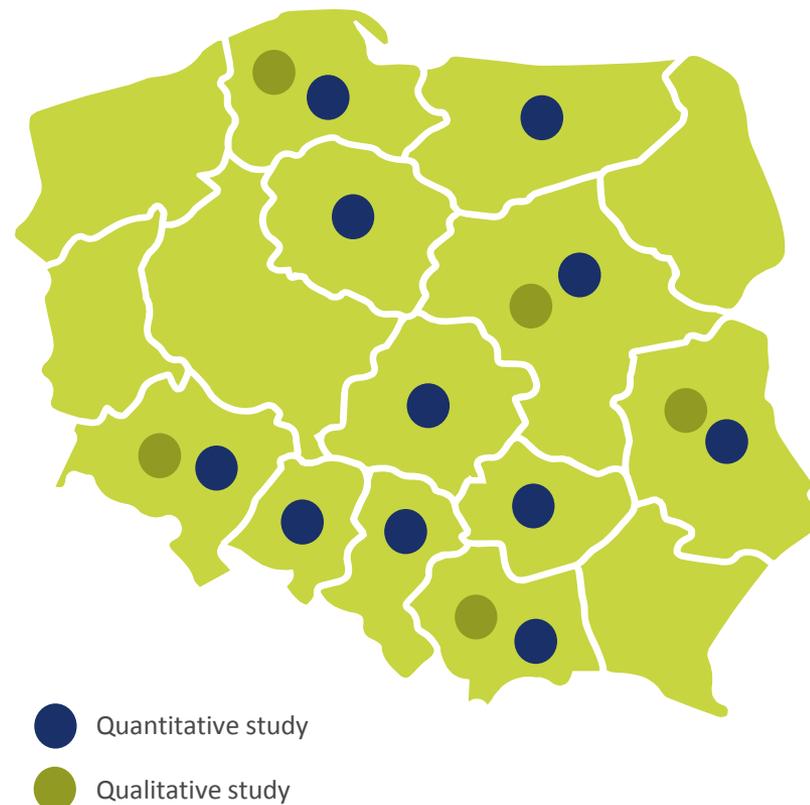
UKE

Title	Gathering the public opinion on the functioning of the telecommunications market
Contracting Entity	Office of Electronic Communications 
Contractor	Danae Sp. z o. o. and Realizacja Sp. z o. o. 
Sample size	CAPI N = 52 customers; IDI N = 20 customers
Selection of the sample	Target sample, diversification due to industry type and location
Technique	CAPI (computer-assisted personal interviewing) and IDI (individual in-depth interview)
Location	A nationwide survey in Poland
Period	November - December 2018

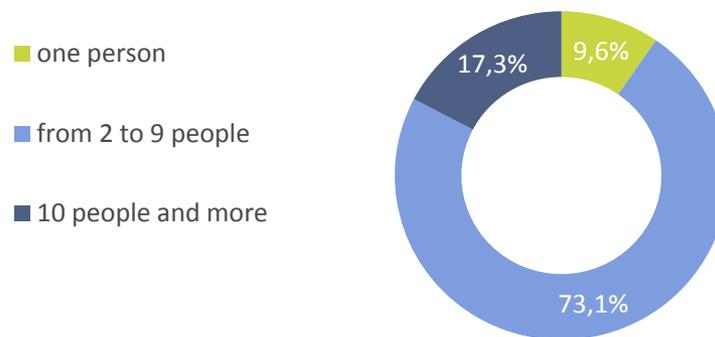
The report also includes the results of the qualitative study as a complement to the presented content.

# Sample characteristics

## Region



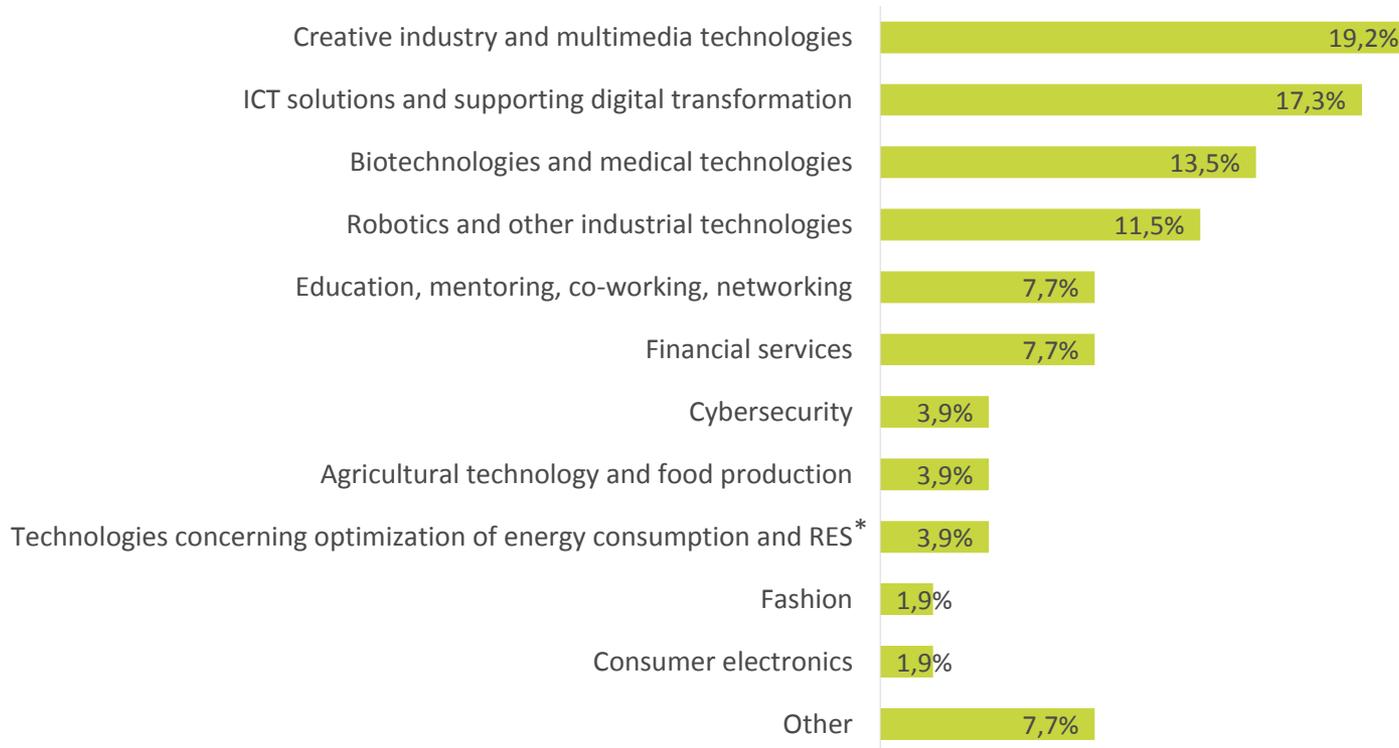
## Entity size



The quantitative survey was conducted among technology start-up companies operating in 11 regions. i.e. Pomeranian, Kuyavian-Pomeranian, Warmia-Masuria, Mazovian, Lublin, Lodz, Świętokrzyskie, Lower Silesian, Opole, Silesian and Malopolska. Analysing the size of entities, it should be pointed out that over 70% of them consisted of 2 to 9 people, while about 17% of start-ups consisted of at least 10 people. The smallest percentage concerned one-person entities (9.6%).

In the case of the qualitative part of the study, the interviewees conducted business in 5 regions, namely: Pomeranian, Mazovian, Lublin, Lower Silesian and Malopolska Regions.

## Activity market



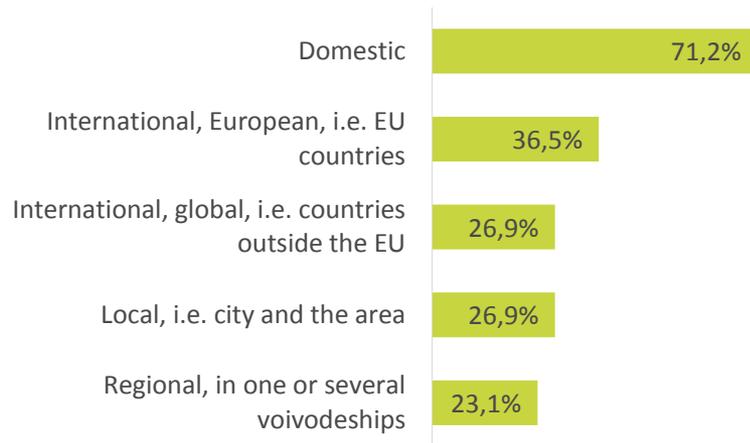
The start-ups participating in the survey carry out their activities primarily in the creative industries and multimedia technologies (19.2%), deal with ICT solutions and support digital transformation (17.3%), but also operate in the industry related to biotechnology and medical technology (13.5%). A high percentage of indications was also obtained in the case of robotics and other industrial technologies (11.5%).

\* RES - Renewable Energy Sources

Basis: All respondents, N = 52

## Activity market

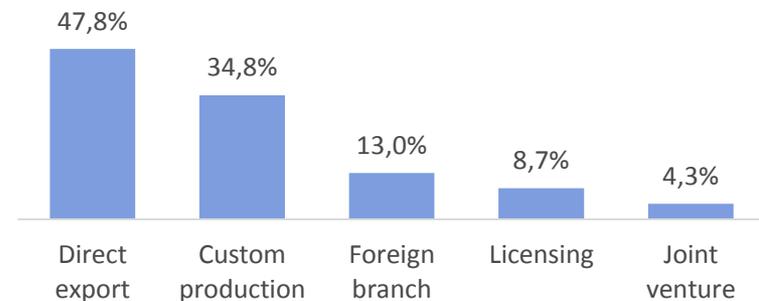
What market does your company operate on?



Over 80% of entities indicated that they operate on the European market and 60.9% on the global market.

Of all companies, 71.0% indicated that they operate on the domestic market, 26.9% on the local market, and 23.1% on the regional market.

According to the respondents' declarations, 4 out of 10 start-ups operate abroad. The most common form of this activity is direct export (47.8%) and custom production (34.8%). Less popular include foreign branches, licensing or joint ventures.



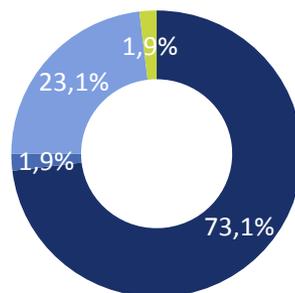
# Sample characteristics

## Use of services



## Respondent's position

- Founder, co-founder, board member
- Programmer
- Specialist
- CEO



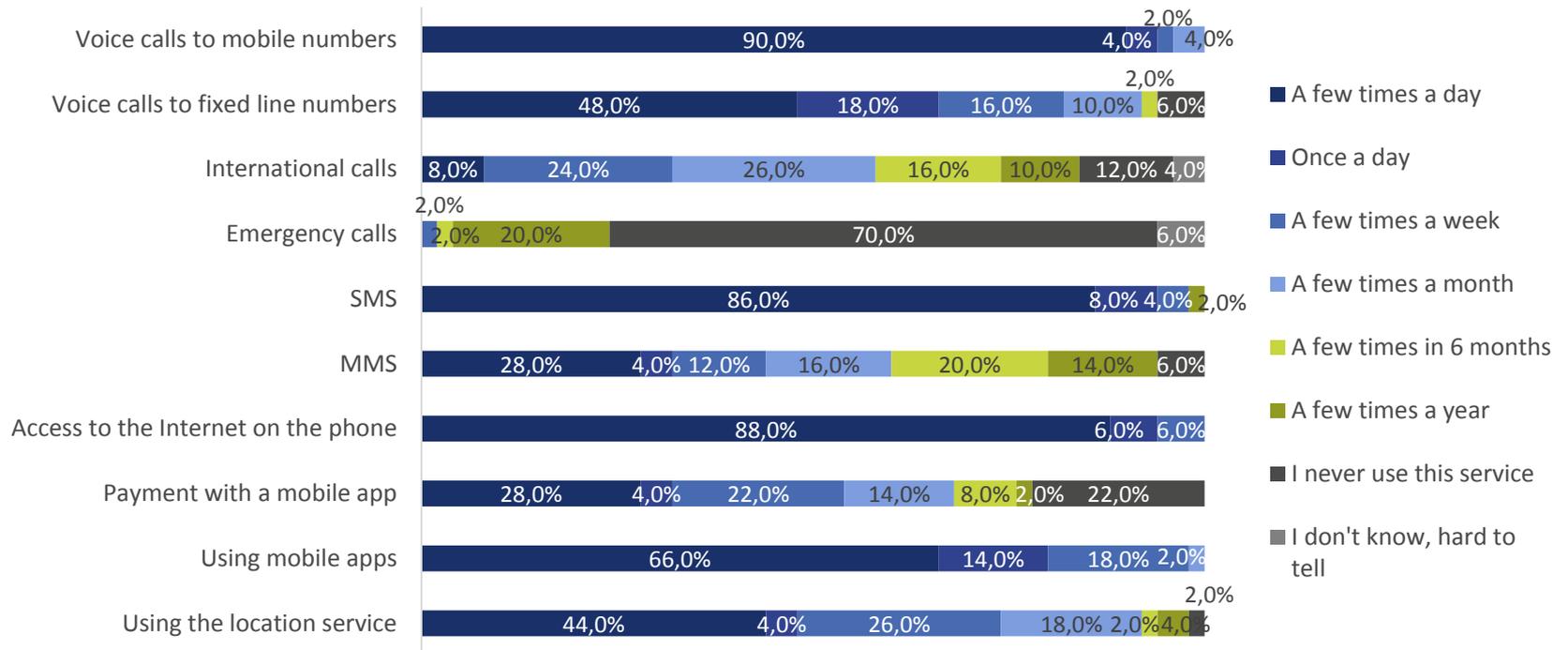
All subjects declare using the internet. Almost all (96.2%) also use mobile phones, while only 13.5% of start-ups use the fixed line one.

The survey was participated primarily by founders, co-founders or board members (73.1%), but also by a large group of specialists (23.1%).

# Mobile telephony and the internet

## Frequency of service use

How often did your company use the following services of mobile telephony in the past year?



In the case of the frequency of use of mobile telephony services by companies, most indications were obtained for voice calls to mobile numbers (90.0%), internet connections on the telephone (88.0%) and text messages (86.0%). Over half of the respondents use mobile applications several times a day. Making emergency calls is the most rarely declared option.

## Internet access

Does your company have access to the internet?

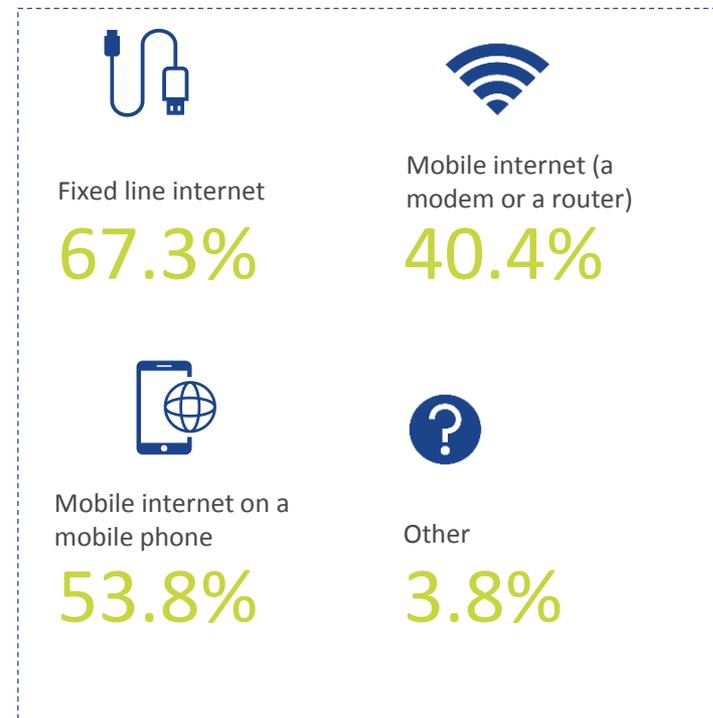


■ yes ■ no ■ I don't know, hard to tell

All of the surveyed start-ups declare having access to the internet.

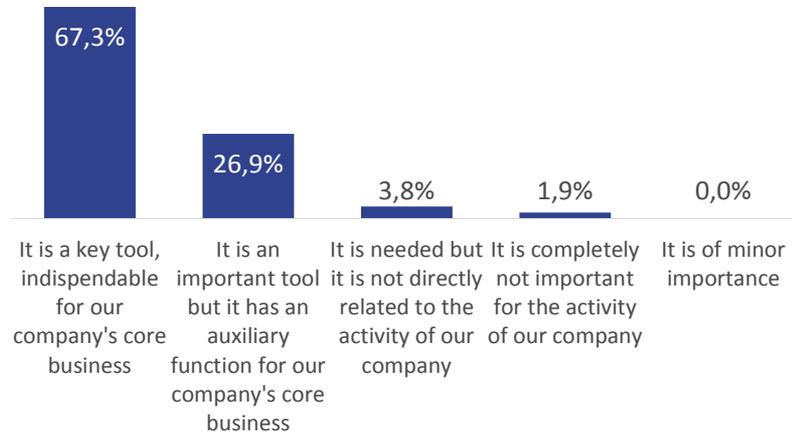
Most often it is a fixed line internet (67.3%) and mobile internet on a mobile phone (53.8%).

What kind of internet access does your company have?



## The importance of using the internet

What is the importance of the internet for the functioning of your company?



The interviewees mainly declare that the internet is a key tool indispensable for the company's core business (67.3%). Slightly fewer people (26.9%) say that the internet is an important tool, but it is only an auxiliary one.

Start-ups most often use the internet for internal communication (84.6%), communication with clients (84.6%), for acquiring new clients / for advertising (78.8%) and for obtaining the necessary information (78.8%).

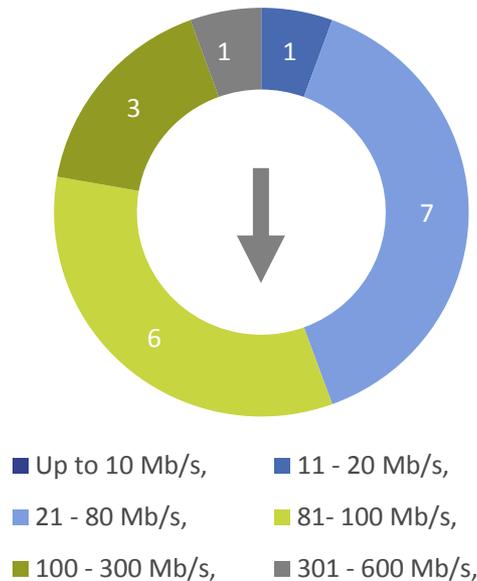
## The purpose of using the internet

For what purpose is the internet used in your company?

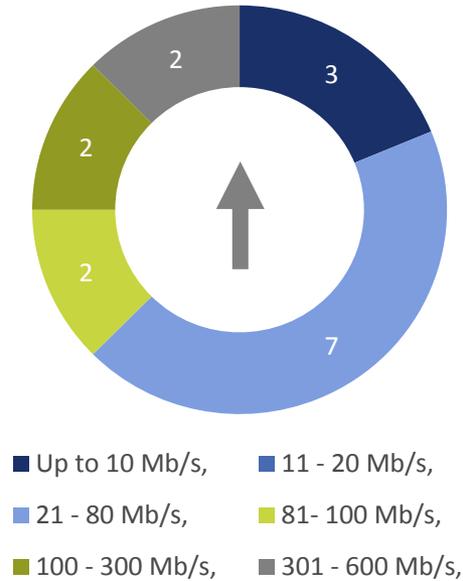


## Fixed line internet speed

What is the maximum speed of download of your company fixed line internet as per your contract with the provider?



What is the maximum uplink speed (data upload) of your company fixed line internet as per your contract with the provider?



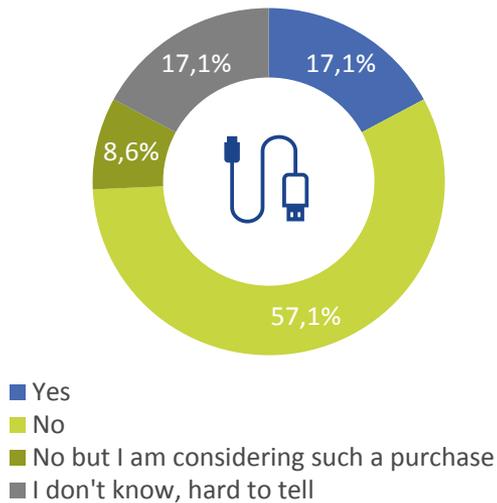
The greatest number of entities declare that the maximum download speed for their fixed line internet access is between 21 and 80 Mb/s (38.9%) and between 81 and 100 Mb/s (33.3%). In turn, the maximum speed of data upload, which is included in the contract with their provider, is usually from 21 to 80 Mb/s.

Basis: Respondents who have access to fixed line internet, N = 18 \*  
 \* excluding the "hard to tell" response / the number of responses including "hard to tell" n = 35

Basis: Respondents who have access to fixed line internet, N = 16 \*  
 \* excluding the "hard to tell" response / the number of responses including "hard to tell" n = 35

## Symmetrical connection

Do you have a symmetrical connection in your company?

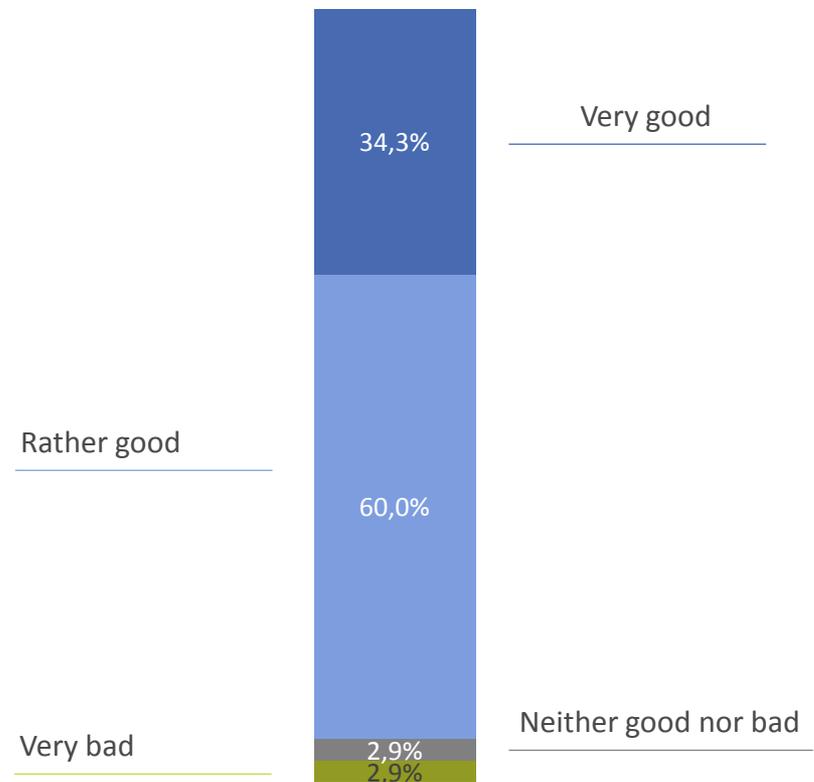


Over half of the surveyed start-ups (57.1%) do not have a symmetrical connection in the company. 8.6% are considering such a purchase.

Most of the surveyed entities positively assess the quality of the fixed line internet service (94.3% - aggregated "very good" and "rather good" responses).

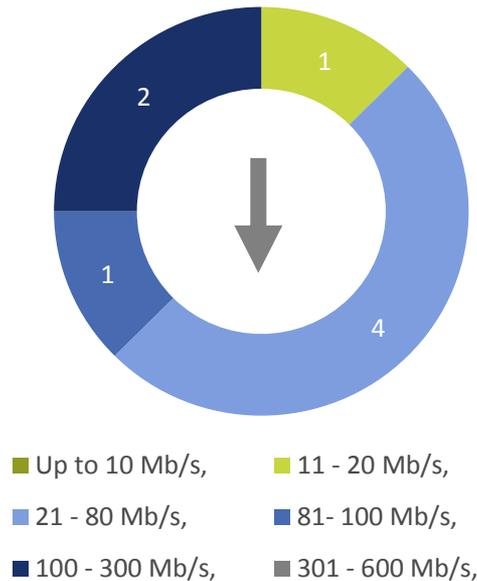
## Quality evaluation of the fixed line internet

How do you assess the quality of the fixed line internet service from your company's perspective?

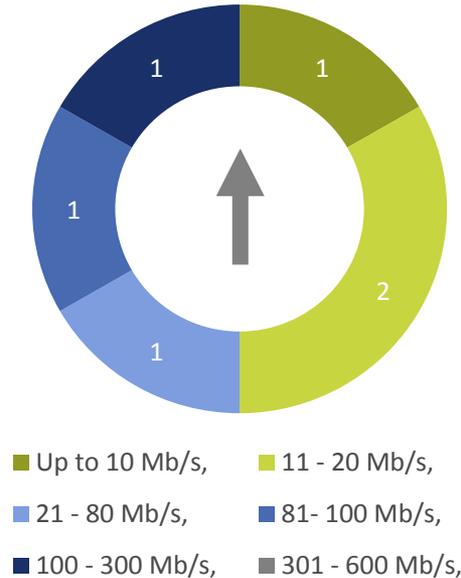


## Mobile internet speed

What is the maximum speed of download of your company mobile internet as per your contract with the provider?



What is the maximum uplink speed (data upload) of your company mobile internet as per your contract with the provider?



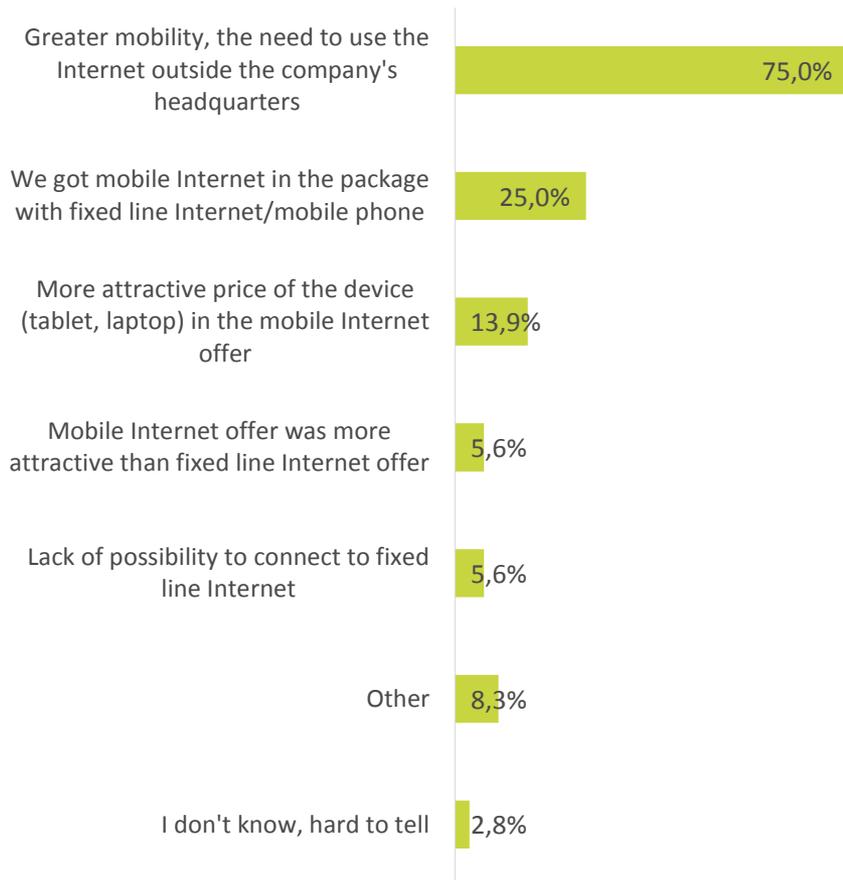
The surveyed start-ups most often declare that their maximum speed of downloading data via mobile internet is from 21 to 80 Mb/s (50%), while the maximum speed of upload usually ranges from 11 to 20 Mb/s (33.3 %).

Basis: Respondents who have access to mobile internet, N = 8 \*  
 \* excluding the "hard to tell" response / the number of responses including "hard to tell" n = 36

Basis: Respondents who have access to mobile internet, N = 6 \*  
 \* excluding the "hard to tell" response / the number of responses including "hard to tell" n = 36

## Reasons for using and possible resignation from mobile internet

Why did your company decide to use mobile internet?



What would drive your company to give up using mobile internet and start using fixed line internet?

Better quality of fixed line internet connection

8.3%

More advantageous offer of fixed line internet

8.3%

Increase in the cost of using mobile internet

13.9%

Deterioration of coverage

22.2%



**55.6% of companies would not give up on mobile internet services in exchange for fixed line internet**



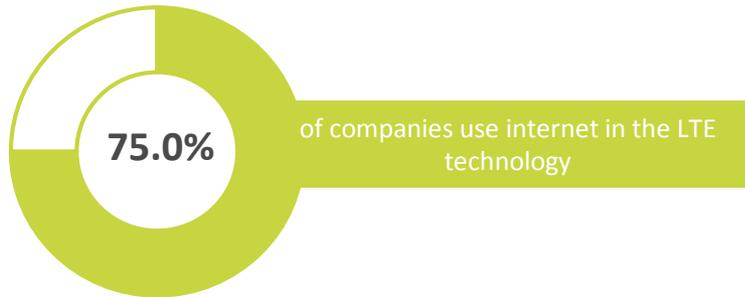
**5.6% of respondents do not know what could drive the company to resign**

Three out of four respondents declare that they use mobile internet primarily due to the greater mobility and the need to use internet outside the company's headquarters.

The resignation of the use of mobile internet for the benefit of fixed line internet would primarily be the result of a deterioration of the coverage (22.2%) or increase in the cost of usage (13.9%). However, more than half of respondents claim that they would not give up on mobile internet services.

## Using the LTE internet

Does your company use the internet in the LTE technology?



75.0% of start-ups with access to mobile internet use the internet in LTE technology.

The devices that use the internet in the LTE technology are primarily smartphones (92.6%) and laptops (74.1%).

Interviewees positively assess the quality of mobile internet services in the LTE technology (89% of aggregated "rather good" and "very good" responses).

Basis: Respondents with access to mobile internet, N = 36

## Devices

On what devices does your company use the internet in the LTE technology?



Smartphone

92.6%



Tablet

51.9%



Laptop

74.1%

How do you rate the quality of mobile internet service in the LTE technology?



Very bad

Neither good nor bad

Very good

Rather bad

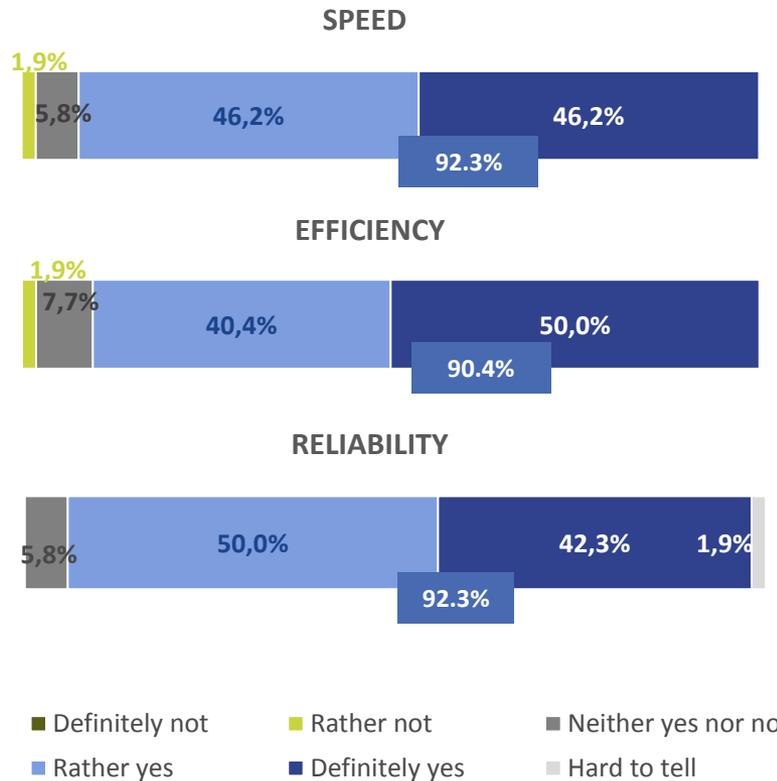
Rather good

I don't know, hard to tell

Basis: The respondents using the internet in the LTE technology, N = 27

## Today

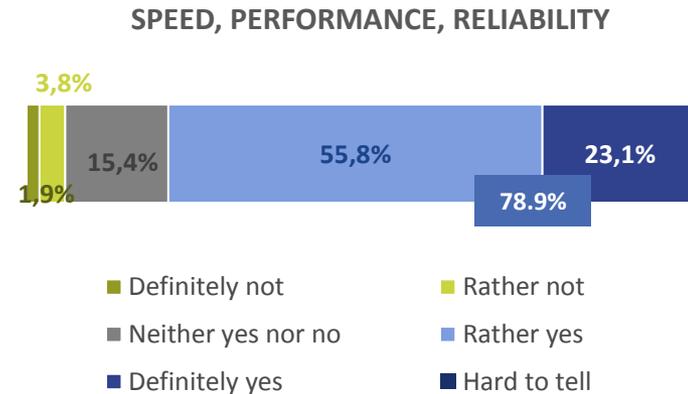
Do you think that today the current parameters of the internet access in your company are sufficient to run the company?



Basis: Respondents whose company uses the internet N = 52

## Tomorrow

Do you think the current access parameters (speed, performance, reliability) to the internet in your company are sufficient to run the company in the coming years?



According to the representatives of start-ups, the current parameters of their internet access are sufficient to conduct the company's operations. More than 90% of respondents assess the speed and reliability and network performance well.

Slightly smaller, but still high, is the percentage of people claiming that the current parameters of the internet access will be sufficient to carry out the company's activity in the coming years (78.9%).

## Use of technological and telecommunications solutions

Technology start-up companies use technological and telecommunications solutions in their current operations. Teleconferencing / videoconferencing services are the most popular (mainly for contact with clients, but also for conducting trainings, support - Skype is the most popular in this field) and cloud services (almost all start-ups declared that they store data in this way - most often those related to the company's operations, technical documentation or software). The companies at an advanced stage of development or having a team consisting of more people working remotely often also use internal communicators. For this purpose, the following are mainly used: Messenger, WhatsApp or Slack. The use of internet of Things, Machine2Machine and location services was much less mentioned. Companies at an advanced stage of development also declare using IT systems for managing customer relations.



*[...] to communicate, we use for example the Messenger, but we also communicate with our clients, recipients through social media. Already as a form of external communication*

*[...] the whole company is online really. We practically do not have any offline solutions. Everything. We have a lot of remote employees, so everything works in the cloud*

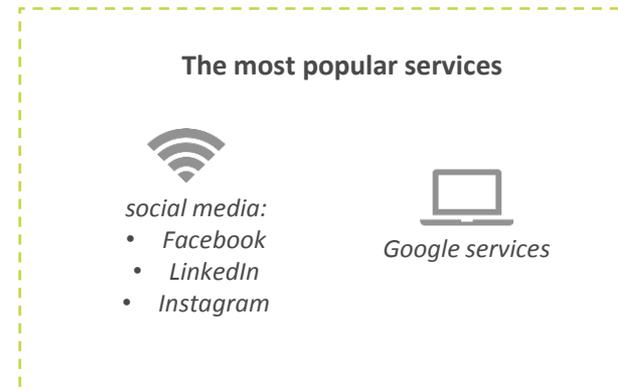
*[...] in our everyday work, yes, we use a large number of online tools. Especially that we work quite a bit remotely ....*

*[...] we do technical support via the internet in this way. Technical for teachers in this way, that is, if something does not work. We should also do webinars that we do not do, but it is definitely something that is to be launched and would be effective in our operation. Yes, it is a tool that we use.*

## Use of global telecommunications services

In the field of global telecommunications services, representatives of start-ups declared that they most often use **social media** - mainly Facebook, LinkedIn, Instagram.

Social media are mainly used to communicate with customers, for marketing and image building. Companies often use this type of source to publish information about their current operations, i.e. the obtained funds, investors or introduced products, which allows them to maintain constant contact with customers. **Google services** are relatively often used (both for individual and business customers) - e-mail or a drive in the cloud. On the other hand, Skype for business was less often indicated.



*We had such a stage that we used quite a lot and created our own content, but this is not the stage for us and there is no need for us to use it, it is pouring money indefinitely.*

*Let's say Facebook is more for our needs, here internally. However, we use LinkedIn to show what we do.*

*Facebook, as it is a more social site, LinkedIn - they are two tools that we probably use the most.*

*[...] above all, we store all our company documents because at the moment this is the safest place for us. If someone breaks into the office, we can lose a lot of data, let there even be a failure and flood all my documents, I will lose everything. And on Google I can store everything on a drive [...]*

*[...] here we are on Facebook, on LinkedIn, and my colleague sometimes updates something on Instagram, but it is rather rarely.*

*We're on Facebook, we've got a lot of videos on YouTube. We have them and people add them too*

# Over-The-Top services

# Over-The-Top services

## Using OTT

Does your company use "Over-The-Top" services?

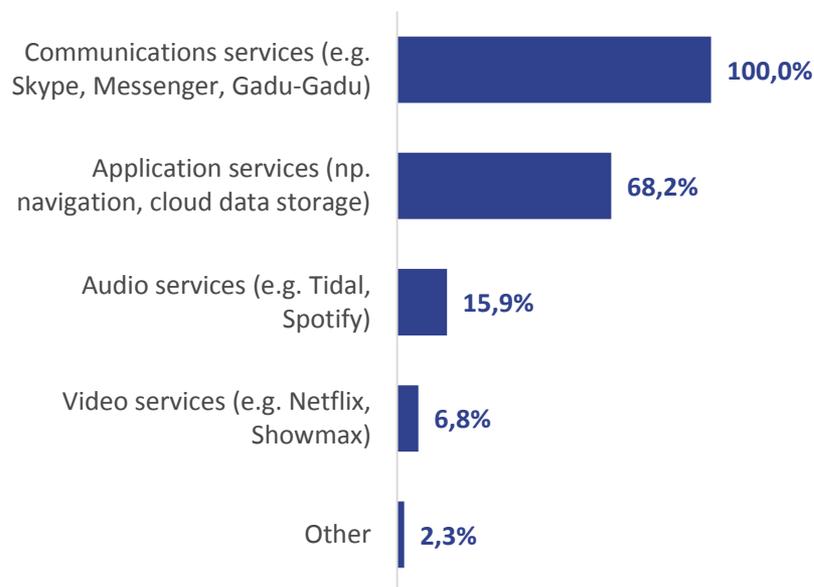


84.6% of start-ups participating in the survey use Over-The-Top services. It should be noted that everyone in this group declared using communication services (100.0%). Application services are slightly less popular (68.2%).

Of the start-ups not using Over-The-Top services, only one is considering such a possibility in the future.

**Over-The-Top Services (OTT)** - delivering content, services or applications over the internet without the direct involvement of the network operator or ISP. Examples of OTT services include: Skype (voice and video calls), WhatsApp (messages), Google (search), Spotify (music) and Netflix (video content).

What OTT services does your company use?



Basis: All respondents whose company uses OTT, N = 44

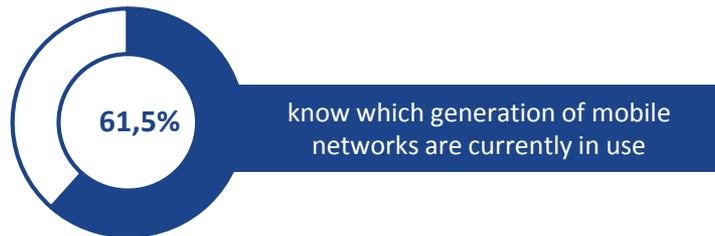
5G network

## 5G network

Have you encountered the concept of "5G network" from the perspective of the company?



Do you know which generation of mobile networks are currently in use?

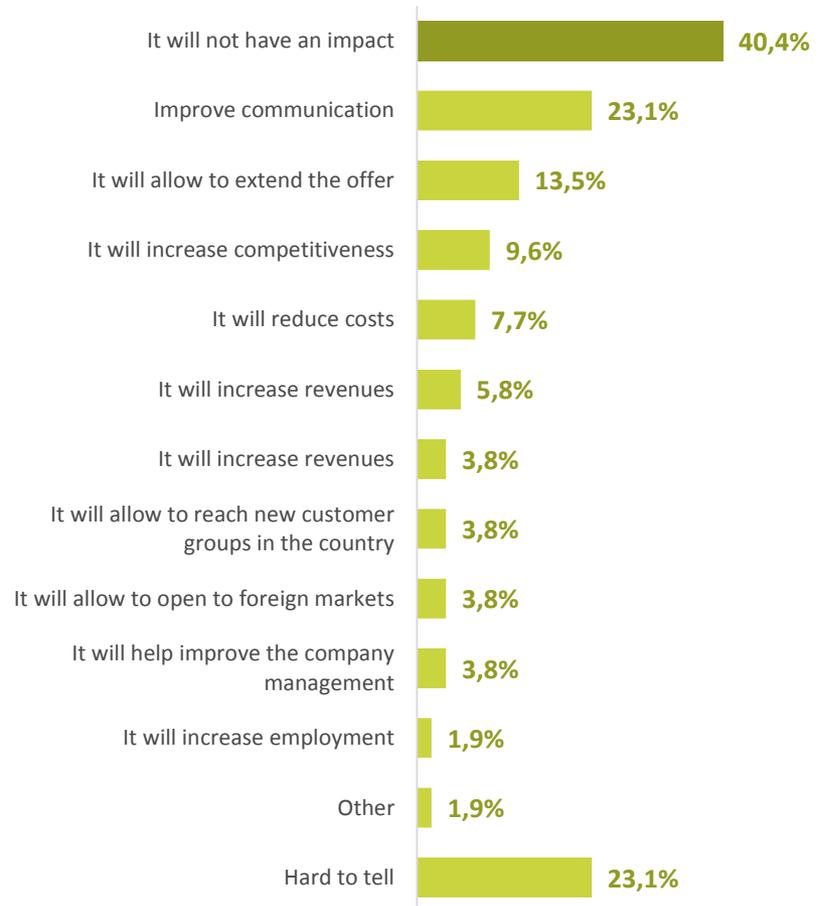


55,8% of the companies encountered the concept of 5G network, meaning the latest mobile network standard. Just over six out of ten start-up representatives know which generation of mobile networks are currently in use. At the same time, approx. 40% declare that the development of the 5G network will not have an impact on the development of their company. 23.1% believe that network development will improve communication, and 13.5% that it will allow to expand the offer.

Basis: All respondents, N = 52

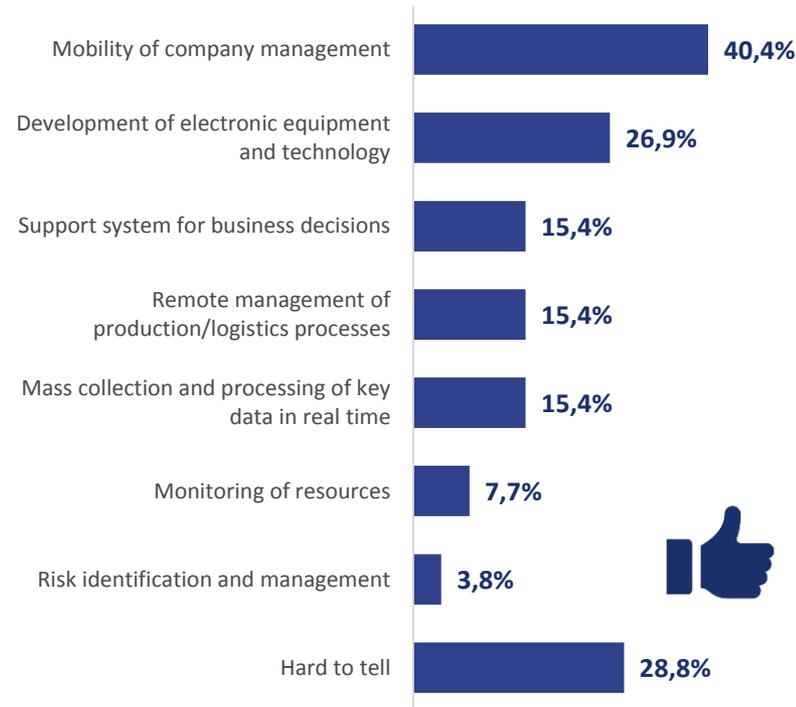
## Impact of 5G network development

How do you evaluate the impact of 5G network development on your company?



## Benefits

What, in your opinion, does the implementation of the 5G network bring to the benefit of your own business?

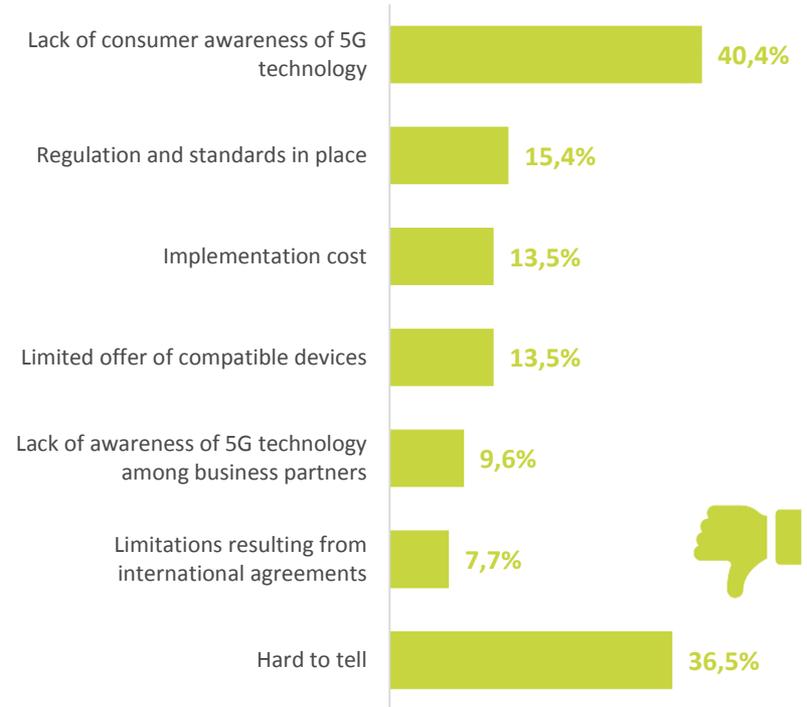


The most frequently mentioned benefit is the mobility of company management (40.4%), as well as the development of electronic equipment and technology (26.9%).

Basis: Respondents whose company uses the internet N = 52

## Barriers

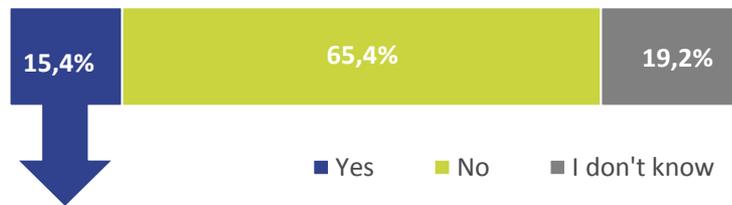
What barriers do you see in the introduction of 5G in Poland?



When asked about the barriers to the introduction of the 5G network in Poland, start-up representatives most often point to the lack of the awareness of consumers about such solutions (40.4%). Over one third can not identify any barriers (36.5%).

## Impact on business

Do you consider the potential impact of 5G technology on your business in your development strategy?



Basis: Respondents whose company uses the internet, N = 52



Basis: Respondents, taking into account the potential impact of 5G in the development strategy, N = 8

## Potential

In which areas of your activities do you see the potential to use 5G?



15.4% of start-ups take into account the potential impact of 5G technology on their business in their development strategy. It mostly concerns the portfolio of services and products. The potential to use the 5G network is visible primarily in such areas of activity as obtaining a technological advantage (34.6%) and increasing the company's competitiveness (25.0%).

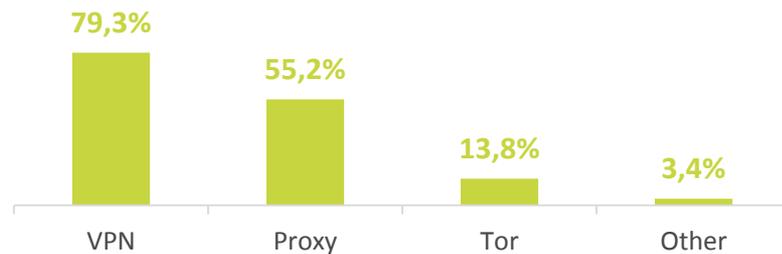
Basis: Respondents whose company uses internet, N = 52

Safety on the web

## Privacy

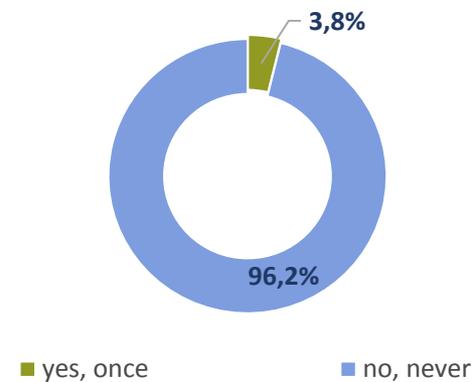


Which solutions increasing the level of privacy in the network do you use?



Basis: Respondents using solutions that increase the level of privacy in the network, N = 29

Has your company been a victim of abuse related to the use of any data provided by the company?



8 out of 10 start-ups use anti-virus, anti-spyware and other programs, and 55.8% use solutions that increase the level of privacy on the network. In the case of the solutions that increase the level of privacy in the network, the most frequently used ones are VPN and Proxy.

It should be noted that only 3.8% of the respondents were victims of fraud related to the use of data provided by the company.

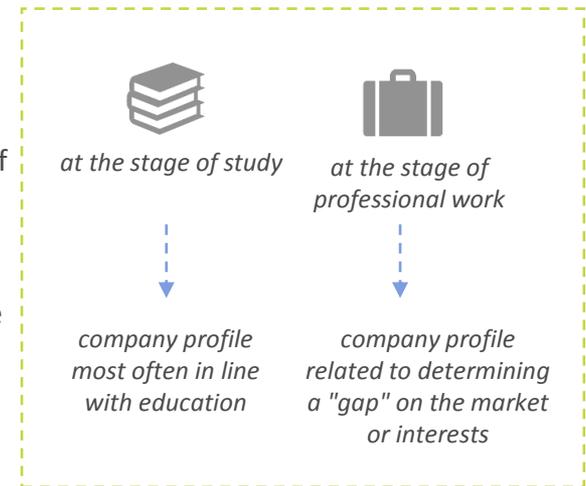
Basis: All respondents, N = 52

# The activity of start-ups in Poland

## An idea for a start-up

The interviews show that there were as many business ideas as there were founders of start-ups. This means that every story is universal and the adventure begins at various stages. Nevertheless, the tendency to start a technology start-up is noticeable already **at the stage of studies**.

In this case, the profile of companies is most often associated with the education of the founders. It is not uncommon for a decision to be made **at the stage of professional work**, sometimes it is also related to previous experience in cooperation with start-up companies. The start-ups founded by people who have experience in the labour market are most often associated with the interests of the founders or the "gap" determined on the market. It should be noted that ideas are most often associated with the need for solving a problem, noticeable market needs, but also a case. The factor connecting all start-ups is, however, interest in new technologies, determination and a high level of motivation.



*[...] I used to have a carpet wash, for example. The person I worked with told me a story about their parents who lived in the US, they returned to Poland, they are deaf, they said: there are such and such services that help them there, there is no such thing in Poland. I began to think about it.*

*[...] I was bored during my studies (laughs). This is the basic stage when something usually appears [...] And generally speaking, the studies were weak, they were very theoretical, they were very little practical. They were very boring and that's why I wanted to change my studies at first. And there it was with some moderate success. We introduced a new subject at our university, so we were incredibly proud of it [...] It was such a long-term effect. But the concept was: cool that we are changing the studies, but we really have to change those children who come study.*

*I have worked for many years in corporations, smaller and larger. Basically, I had some companies in my experience that did not work. The businesses to some extent [...] somewhere there, the idea, or willingness to own a business has always been there somewhere in me and because in one of the previous works, it was very unpleasant, I already said, enough, one has to take the risk. And then there was an idea for this auction system, as a need that I saw on the market, somewhere there that was not fully developed.*

## Previous occupations of the founders

The previous activities of the founders of start-ups can be divided into two main groups: students and people working in various companies with quite different profiles. In the case of students or people who started their start-up activities at the stage of study, it is noticeable that the studies they graduate from usually overlap with the current activity. The opposite tendency is visible among people who worked in smaller or larger companies before founding start-ups - here the idea for an activity or industry in which it operates most often is the result of the market demand, own interests or willingness to take up work "on their own". At the same time, it is worth noting that few founders had previous experience in conducting start-up activities. Individual people participated in programs or were members of non-governmental organizations. The tendency to open more companies and check the market demand for other innovative products is noticeable among people who have succeeded.



*[...] I graduated from [...] a profession I never wanted to do. But for a long time I dealt with various things related to new technologies and also such informal education, I did a lot of things for kids, related to software, DIY.*

*[...] I worked a few months in administration, a bit in HR, but I also had my company that designed websites, while my partner had his event company and he worked in a fund, and [name] and [name] were studying. I mean, when we met, they were at high schools.*

*[...] most of them worked in international companies, in various industries, from IT, through advertising, through the issue of product design, interfaces, so ... So all kinds of fields, 3 different completely unrelated to each other.*

*yes, yes, I have always wanted to have something of my own, I had a few things that I had done before, but I did not want to make a system that would not be sold to anyone. Recently in the company as I was working, in normal life, full time, I connected 2 million legal acts with the service [...]. It's great that it worked, but legal acts, to be in it for the rest of my life.*

# The activity of start-ups in Poland

## Profile of the founder

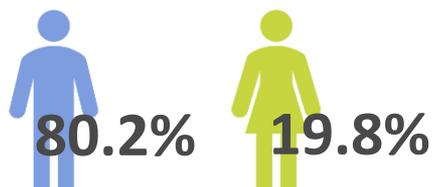
How many founders are there in your start-up?



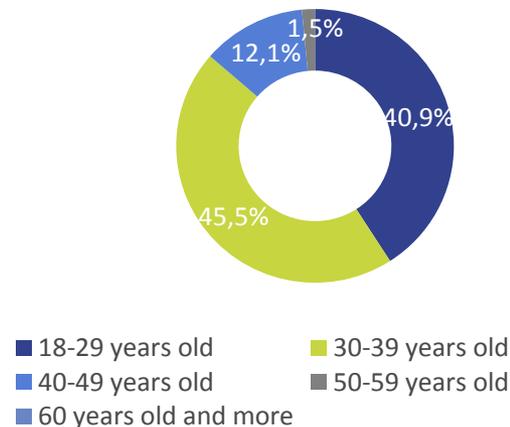
Education of the founders



The gender of the founder



Founders' age



Almost half of the surveyed start-ups have one founder. Much less often indicated two, three or more.

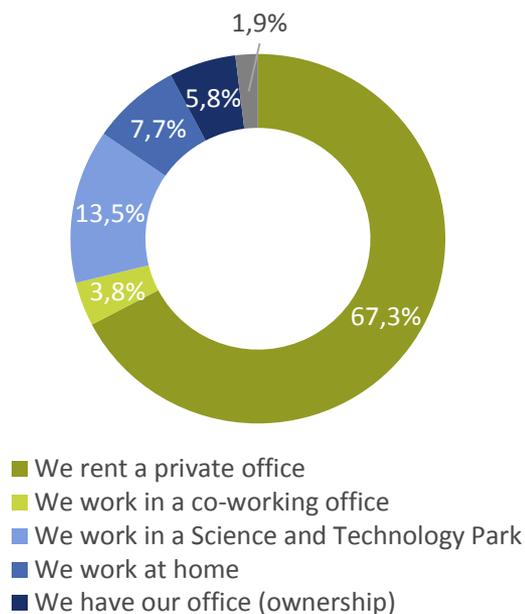
Among the founders, men predominate (80.2%). Start-ups were usually founded by people aged 30-39 (45.5%) and 18-29 (40.9%).

Almost all founders of the companies have higher education.

# The activity of start-ups in Poland

## Place of activity

Where do you run your business?



The start-ups that took part in the survey most often run their business in a rented private office (67.3%).

The initiative to establish a start-up was diverse. In every third case, it was an idea for an innovative product service, in every fourth - finding a "gap" on the market, and in every fifth - the desire to try something new.

Basis: All respondents, N = 52

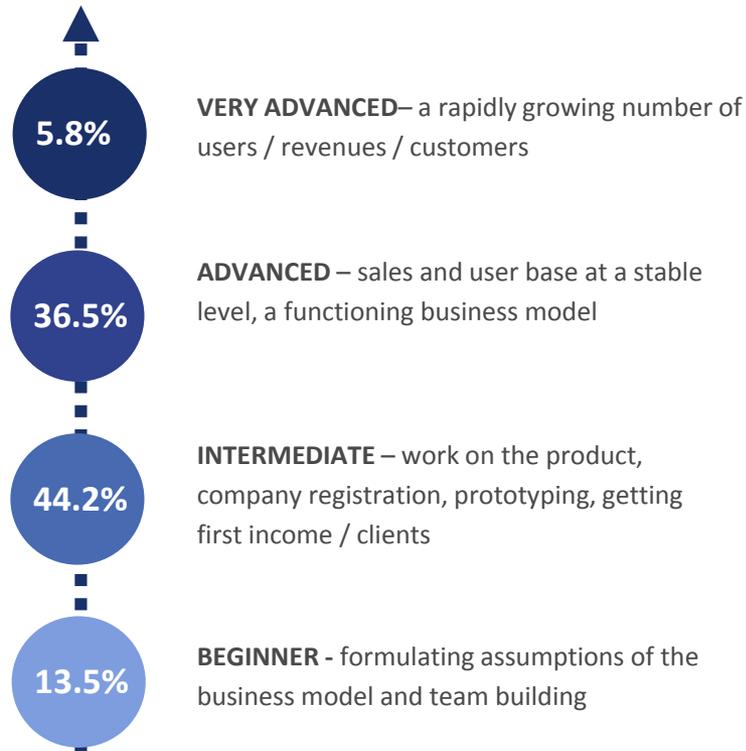
## Initiative

What was the initiative to establish your start-up?



## Development stage

What is the stage of the development of your company at present?



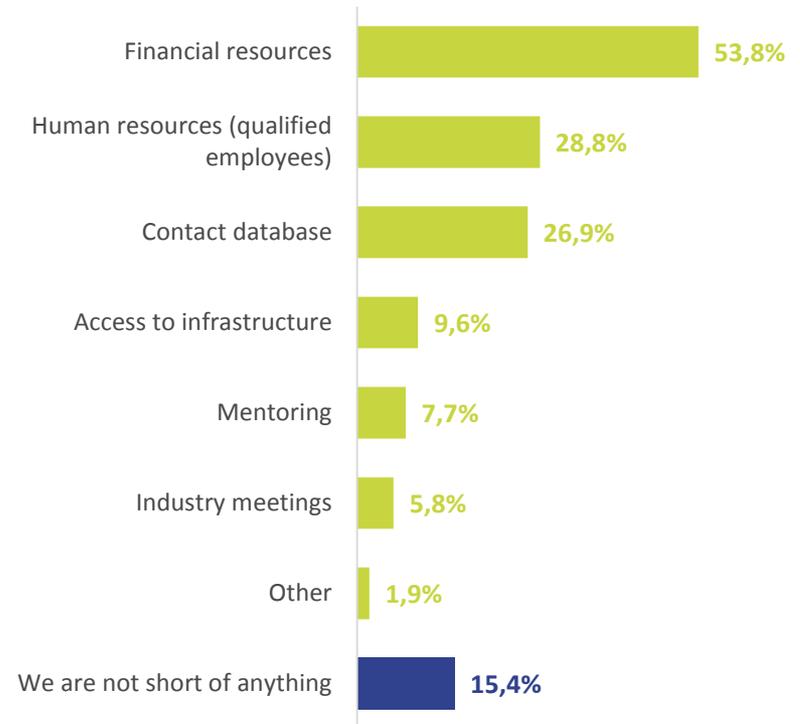
The respondents usually defined the company's development stage as intermediate (44.2%) or advanced (36.5%).

What is more, 13.5% of respondents indicated the beginner stage, and 5.8% the highly advanced stage.

Basis: All respondents, N = 52

## Needs

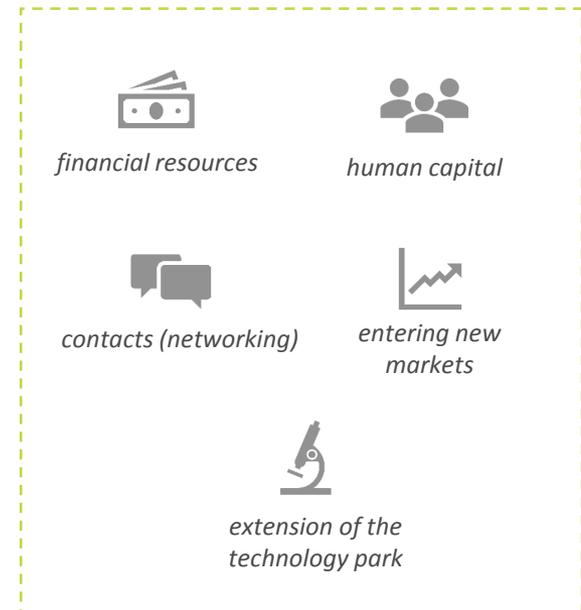
What is the company short of at the current stage of development?



Only 15.4% of the respondents admitted that at the current stage of development, the company is not short of anything. The respondents most often signalled shortages in financial resources (53.8%). Quite often, there was a lack of human resources (28.8%) and no contact database (26.9%).

## Needs and challenges to be faced by start-ups

The needs and challenges to be faced by start-ups depend on the stage of their development, however, **financial resources** and **human capital** were the most frequently indicated. In the case of financial resources, the greatest challenge is the capability of obtaining them from external sources (in the form of both investors and grants / loans, etc.). As the start-up founders emphasized several Times, in the case of young enterprises, the lack of funds makes product development and market entry impossible. Acquiring human capital is a significant problem for the companies at an advanced stage of development, when they need to expand the team of coworkers. The current "employee market" and the search for people with specific skills (mostly sales or IT-related) turn out to be a significant problem that all employers are struggling with now. It is also worth noting that the start-ups that plan to enter the market with their product in the near future also indicated the acquisition of contacts and networking as challenges, while those that are already on the market notice the need for conquering more markets (primarily foreign) or extending the technology park they currently have.



*[...] we must build such a more structured sale, that is, establish relations with distributors, start acting more internationally, open up to the European market and systematize our own production activities and adapt the product [...] definitely I am not a financial, but technical and merit specialist, let's say. And it is also a matter of crossing a personal barrier.*

*[...] definitely financial needs, because there is never enough resources for development. But also, when it comes to human resources, as we mentioned, we would like to have someone in sales, we would also like to develop in the field of creating and programming, and creating ... At the moment, just as far as the difficulties are concerned, at the moment we are operating on a difficult market when it comes to the employer market*

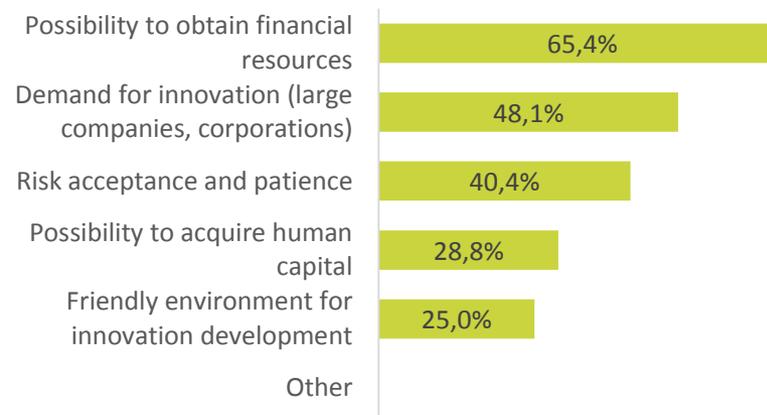
## External and internal factors

Which factors, in your opinion, are the most important when establishing a start-up?

### INTERNAL FACTORS



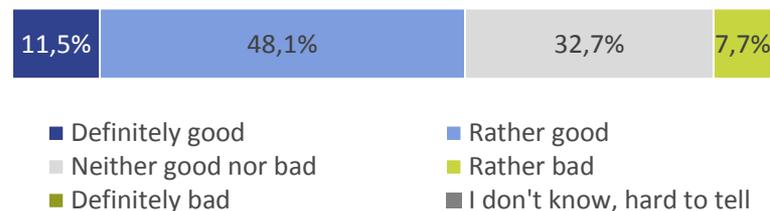
### EXTERNAL FACTORS



In the respondents' opinion, the idea for an innovative product (53.8%) is the most important internal factor in creating a start-up, and the external factor is the possibility of obtaining financial resources (65.4%).

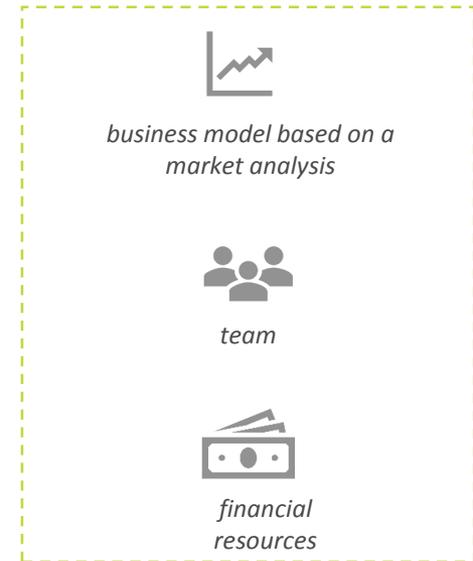
The majority of respondents assess the situation of start-up companies in Poland positively (59.6% - cumulative answers "definitely good" and "rather good").

In general, how do you assess the situation of start-up companies in Poland?



## Key factors for the development of start-up

The interviews show that a properly prepared **business model based on a prior analysis of the market** should be a key factor for a start-up that wants to be successful. The respondents agreed that the idea for an innovative product / service without prior market verification can turn out to be wrong and the time devoted to work on it wasted. Therefore, it is important to learn the needs and opinions of potential customers - according to most of the interviewees, the maladjustment of the product to the needs of the market is the most common mistake made by young entrepreneurs. The second, equally important factor is the **team working on the product**. In this context, the most important is a similar level of commitment and determination to achieve a similar goal for all members. An inseparable element of the indicated factor are also **financial resources**, i.e. the ability to bear costs related to human resources, which, in the opinion of the respondents, are of significant importance when creating a technological start-up.



*[...] a good, proven business model. That is, it can not be just an idea, it just has to be a business model. In general, what we do, we are very fond of innovative ideas, and we do not think about how to do the business model [...]. The second most important thing is the team, that is, there are people who are not even competent [...] but they must be determined people and with a relatively similar level of determination.*

*[...] the idea, concept is a prerequisite. For example, when you want to play basketball, you have to be 190 at least and can not do it without it, but that does not mean that you will be a good basketball player. Everything is really in the head and work. So much concerning the idea, the concept. And somewhere there the main criterion is perseverance and finding a path somewhere in such swirls.*

*It seems to me that the greatest challenge is to verify the idea, that is, we can have a great idea and it seems that it is ok, but we do not verify it, we do not check it against the realities of the market. A lot of people make this mistake, they believe in their idea, spend half a year, a year to develop their idea and then it turns out that nobody wants to buy it.*

## Assessment of the situation of technology start-ups in Poland

The interviewees agree that the start-up market in Poland **is growing** and **is now at a much higher level than a few years ago**. However, the industry in which the activity is carried out and the product introduced onto the market are also of great importance - in the opinion of start-ups, it is easier to operate in the FinTech or IT industry, but much worse in medicine or agriculture. Nevertheless, as compared to other countries (European or non-European) the start-up market in Poland is still at the beginner stage - both in terms of financing and substantive or institutional support. The interviewees see difficulties, first of all with obtaining co-financing (institutions that distribute means, which have no connection with business, are also a significant problem) and human capital. In addition, it was pointed out that the local market places great emphasis on formal, legal and subsidy issues that do not matter when running a business.



*Generally speaking, somewhere out there, every 10th or 20th start-up survives and I know why this happens. After the problems we had we managed to get through so far. This is difficult.*

*As compared to the start-up market, for example in Great Britain, in the United States or in China, it is still drama and grinding of the teeth. The money there are twice bigger [...] So this is a drama. But when it comes to how it is in Poland, for example, against the background of countries around - it is not bad.*

*I would divide them [start-ups] into two categories. One where there are only engineers and they usually fail, because they do not know how to run a business, or want to refine a product, make it perfect and release it afterwards, which is also a mistake. Plus those companies that have a co-owner, someone who previously ran a business, or at least knows how to present and sell, because I know a lot of start-ups that are technologically advanced and fail because financing destroys them, they sell nothing, because they did not ask the customer if they would buy it at all, but they said it was a good product and would be accepted, and it is not always the case.*

## Barriers to development

Do you see any barriers to the development of technology start-ups in Poland?

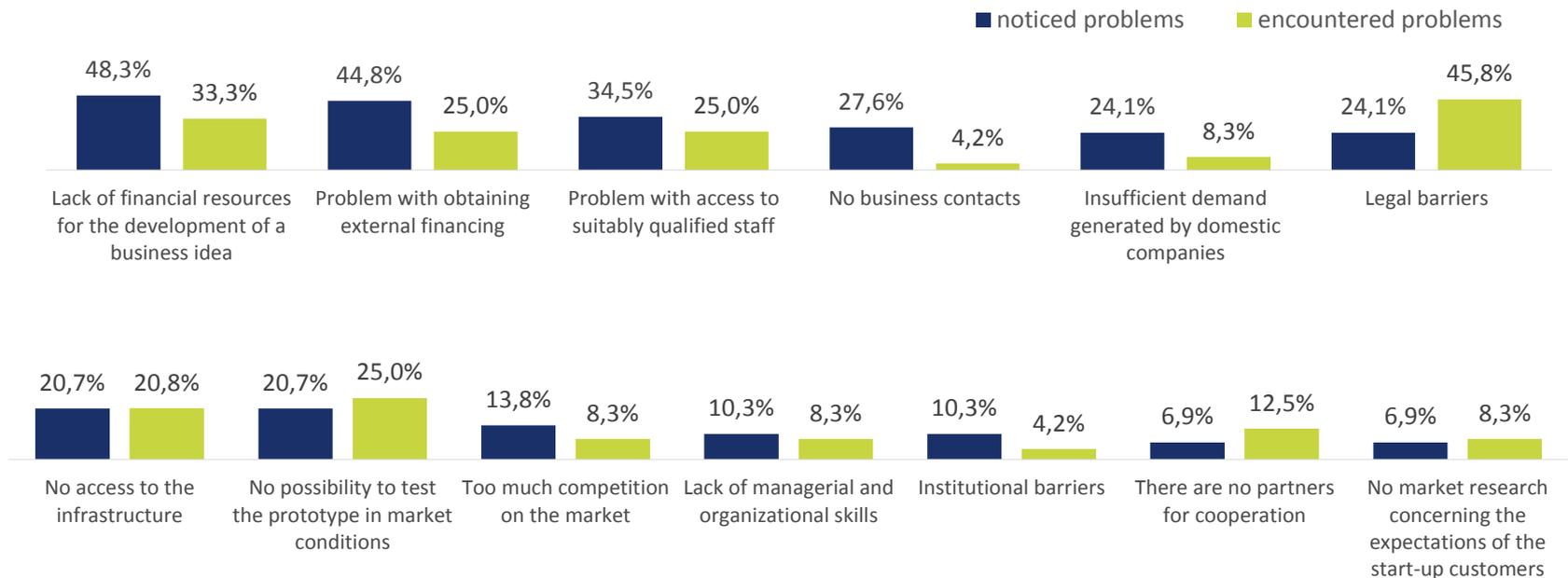
**55.8%** of people see barriers to the development of start-ups in Poland

**46.2%** of people encountered barriers during the creation of their start-up

Basis: All respondents, N = 52

Respondents see primarily the lack of financial resources for the development of a business idea (48.3%) and the problem of obtaining external financing (44.8%).

Legal barriers (45.8%) turned out to be the most frequently encountered problem when creating a start-up.



Basis: Respondents noticing barriers to the development of start-ups in Poland, N = 29

Basis: Respondents who encountered barriers during the creation of start-ups, N = 24

# The activity of start-ups in Poland

## Problems experienced by start-ups

The problems pointed out by the interlocutors should be divided into several categories: **finance, human capital, knowledge, law and sales**. Financial capital was present in almost every conversation, which proves its important role in conducting this type of activity. In this respect, the interviewees most often pointed to the difficulties associated with obtaining financing (a lot of formalities, meetings and conversations) and the long period of the entire process (which often interferes with ongoing operations or significantly delays the implementation of the product).

In the case of **human capital**, start-ups see problems with finding specialists in areas such as marketing or sales and specific IT skills. In the category of knowledge there were problems related to **running the business** and **concerning the innovations introduced**. As the start-ups themselves point out, the difficulty for some of them were issues related to running the company - both in the formal or financial range, but also in terms of management. Due to the fact that for the majority of people it is the first "business", they have to learn everything anew. What is more, as the founders (mainly young start-ups) indicate, running a business is "secondary" to them in this context because they focus more on the products manufactured and substantive issues. Several interviewees also pointed out that their education or experience did not coincide with the profile of their start-up, so their big problem was the lack of knowledge that they had to make up for.



finances



human capital



knowledge

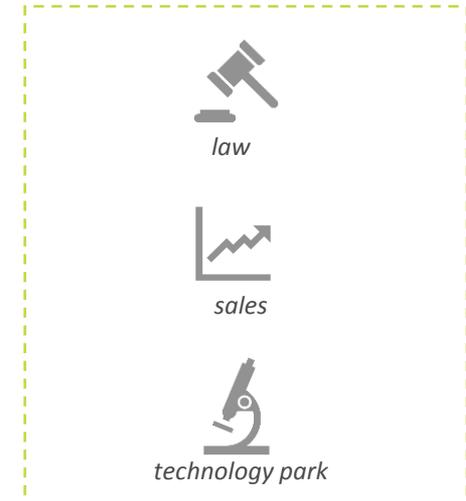
*I mean, I see that I'm a man who invents things. I invent the things and I am not an entrepreneur as such. So it's like a secondary one and I just do it because I have to. So, of course, running this company as such is so much trouble for me in formal terms. And I make up for the merits.*

*We have the greatest problem with sellers and good marketers. Especially that they are people who are supposed to know about sales and marketing in the United States. There, a lot is being done, much better than here. And we simply do not have such people in Poland, we have no idea at all about selling in Poland, how to sell.*

## Problems experienced by start-ups

In the area of law, several respondents indicated a problem with the application of the **General Regulation on the Protection of Personal Data** (GDPR). In the case of the start-ups that use personal data, the adaptation of their activities or product to the current one since May was problematic.

Difficulties were also experienced in obtaining data for further research on the product (e.g. in medicine). As indicated by the interlocutors, it is also problematic to **enter the market and sell the first product**, to acquire the first customer. In this respect, the lack of being recognized, having contacts and problems related to social capital, that is fear or lack of trust in implemented novelties and innovations, are important. What is more, it is worth noting that the start-ups that require special infrastructure (e.g. laboratory) to work on a product, experience **formal problems** with renting such facilities.



*[...] we received the Seal of Excellence for the 2020 horizon, probably 1.5 years before we got financing, despite the fact that the Park said it would want to finance the projects in this way [...] it took the Park to prepare this funding for so long that ultimately as late as after 1.5 years we could get the funds, 1.5 years in the new technologies industry is eternity and I was at a meeting in France where colleagues from Portugal, implementing a very similar project, obtained funding from the United States at the same time, the Americans have pulled themselves together and within two months they were able to move the entire company from Portugal to the United States, set up a company there, start work and have the first commercial implementations, because that was the assumption of their entry there*

*[...] it's true, if we want to conduct scientific research, they are held in a laboratory, laboratories are usually at a university, private business is a bit afraid of that, because if I wanted to get involved in university cooperation, well, if I did not have a well-constructed contract I would be threatened that my intellectual property would be transferred to the university, which means that I would never invest in Poland again.*

*[...] here, at such a level, the public institutions, for example, are not ready for it at all, for such cooperation with start-ups. And, we rather even tried to make it here, there was even the will of a hospital, cooperation, but they, as they began to study the legal possibility of providing us with data, they could not do it.*

## Actions aimed at facilitating start-ups

The greatest number of ideas regarding activities facilitating start-ups were related to **financing**. In this respect, the respondents indicated an increase in the pool of funds, simplifying the procedures for applying for funding (which is also related to the reduction of time) and the distribution of funds by institutions that have a relationship with business. What is more, it would be important to increase the possibilities of cooperation between government and local government administration and start-ups (e.g. within the scope of programs dedicated to them) and the units that could support them in the area of acquiring and expanding the network of contacts (both domestic and foreign). It would also be helpful **to check the created innovation in market conditions**, to check the created innovation in market conditions, i.e. the level of product demand on the market. As the interviewees pointed out, the maladjustment of the product to the needs of the market is one of the most common mistakes committed by young start-ups.

*The funds that would even be ... They would fuel our finances in a way being, I would say, non-commercial. That is to say, for example, in England, there are often even government institutions that give some money to make a POC, i.e. proof of principle or proof of concept, just to try if the idea is really worth it. Well, because nothing evaluates an idea best than the market.*

*[...] it could be that such non-returnable subsidies in some such projects, a simplified procedure [...] I think, that it is probably to some extent about the EU funds, if we were to say more concerning such start-up projects ... Even, honestly, I do not know how many of them there are, but it seems to me, just as I looked, it's just the case in my activity, including the profile, is not entirely the project of the system, it is not, looking at the EU definition as such, it is not innovative at all.*

*And when it comes to direct funding, it's probably better to do an intermediate institution, that is, a fund or someone who is in contact with business. It seems to me that it has better possibilities, that the funds will invest in something that they will believe in [...] So for example, BRIDGE Alpha, somewhere out there, in my opinion, there is a better idea than direct investment, because as for example, at the "Quick path", we totally miss the point, we write the application, the application is assessed by a university scientist who has applied to do it, and they are often people who just need extra money, so they are not people who know business.*



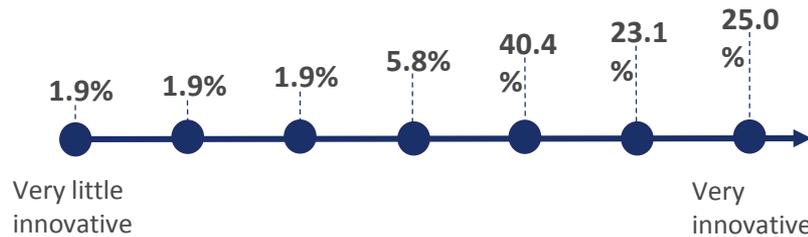
- increasing the pool of funds
- simplification of procedures
- shortening the waiting time
- distribution of funds by institutions related to business



Checking an innovation in market conditions

## Innovation

Is the main area in which your company operates, in your opinion:



The respondents were asked to scale from 1 to 7, where 1 means very little innovative, and 7- very innovative to assess the main area of the company's activity. The most frequent assessment was 5 (40.4%). More than every tenth respondent indicated a lower one.

They usually acquire their knowledge of technological innovation subjects from the internet (82.7%).

Where do you get most of your knowledge about technological innovation from?



## Innovation

Which of the following types of approach to innovation is applied in your company?

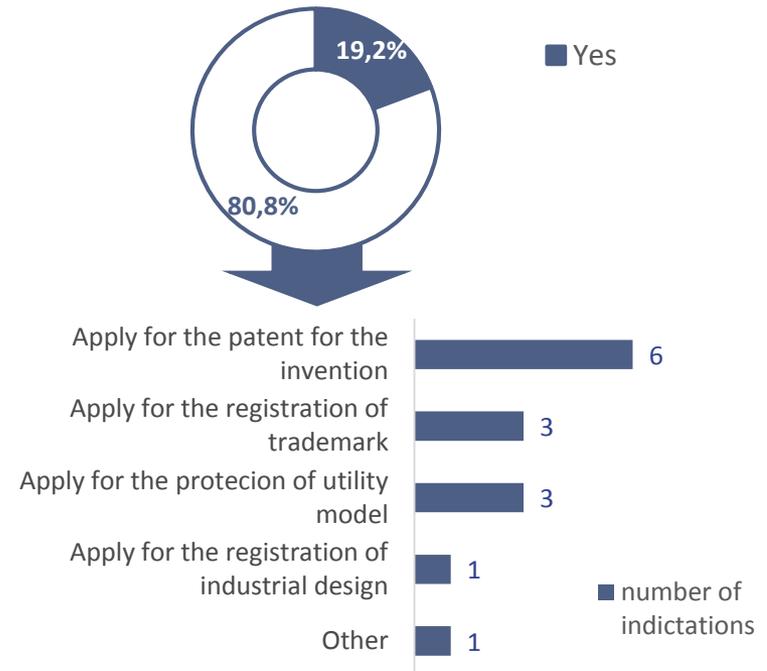


The surveyed companies are characterized by different approaches to innovation. The most often pointed to is the development of own, completely new, innovative solutions, but we also take over some solutions, the best practices from the market (46.2%).

Basis: All respondents, N = 52

## Intellectual property

During the past 3 years, did your company undertake any other actions securing intellectual property rights for the solutions being developed?

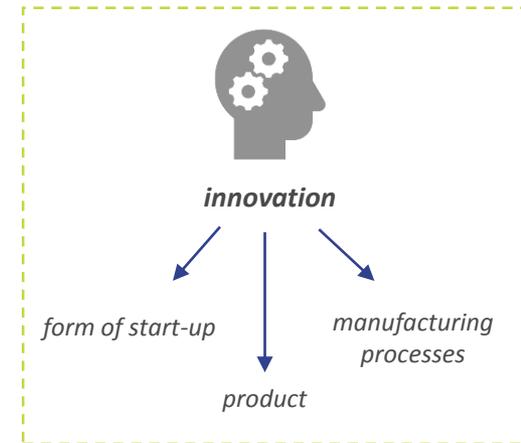


10 out of the 52 companies surveyed in the past 3 years took other measures to protect intellectual property rights for the solutions they create. The most commonly undertaken action was to patent the invention (six out of ten companies).

Basis: Respondents taking actions to secure property rights, N = 10

## Innovativeness level of start-ups

Almost all interviewees were of the opinion that the products they develop are innovative, but that does not mean that they do not have competition on the domestic or foreign market. Some of the surveyed start-ups admitted that they both create new products and use ready-made market solutions that they improve. It should be noted, however, that the innovativeness was understood quite broadly by the interlocutors - both in terms **of their activities** (the form of start-up as an innovative product), **manufactured products** (innovative products) and the **processes of their production** (automation of some activities). This indicates both the diversified profiles of start-ups and the relatively broad approach to innovation. As indicated by the respondents, the most common sources of information on innovation include conferences and competitions, but also an on-going monitoring of competition activities.



*[...] I mean I would assess it quite high, because as I say, this is the thing in the case of which I suspect that I would be able to point to a dozen companies in the world that deal with the things and they are large companies that deal with the production of solutions dedicated to medicine, as well as small start-ups from various regions of the world, the most developed are the American due to financing, so I think I would assess them quite high [...] because we use the latest technological software, the latest hardware technologies, i.e. Bluetooth communications, sensors are tested.*

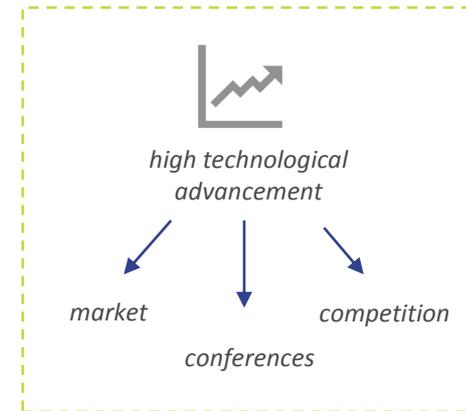
*[...] we do ... our marketing and intelligence activities. We get products that are available on the market. So there is new teaching equipment, we buy it, we do tests, we decide whether it is cool or not cool. We publish articles and videos on this subject and thanks to this teachers have information. It builds our brand, but apart from that we are capable of recognizing if it is OK, this equipment is cool, we will work on it*

*when it comes to the industry in which we are trade, I think that we are innovative, as compared to the industry. In terms of approach, flexibility as well as possibilities. Connecting all the things.*

*I say yes, you do not need to force looking for innovativeness. It is not bad that you do the same as others, it's good that there is a market for it. It's enough to do one process a little better. You do not need everything anew. Innovativeness is a slight improvement.*

## Technological advancement of start-ups

The interviewees agreed that, as compared to the industry in which technological advancement functions, their start-up is at a **high level**. A similar assessment was made in the case of competition - as it turns out each of them could find a "niche" or improve their product in such a way to distinguish it from the competition. In order to maintain a high level of products, start-ups not only monitor the market or industries on an ongoing basis, but also participate in conferences and observe competition.



*We are developing the system very much, and the most among competition, that I can say, the system really is very strongly developed with us, and that development is followed by product development, so I have the opportunity to improve it all the time. I would lie saying that the product is finished and is already the final product, because we still add new functionalities and so on. We have such for the coming year what we want to do in the product. And that's cool. This development is an immanent part of our company.*

*I think that the agricultural industry is such a slightly neglected industry when it comes to automation. This is slowly changing, because the "precise agriculture" phrase has been very much somewhere there in the awareness of farmers for the recent few years. However, I think that there is much to do in this industry. It seems to me that the coming years and those autonomous vehicles that will appear in the fields, it will be possible to compare those with this revolution that took place somewhere in the early nineteenth century and the introduction of tractors.*

*[...] we are definitely among the top three [...] of the world [...], big companies for sure have more capital. Theoretically, they could develop faster, despite the fact that they are large. This is how a corporation is built and making decisions in a corporation takes more time.*

*So there are problems with the use of technology in schools, so we tend to go down below the market. However, of course, the core of our products, or our e-learning platform that makes the materials available, is high-tech because it has to work. It must function perfectly, but the content must be at a good technological level so that our client could handle it*

# The activity of start-ups in Poland

UKE

## Business model

Which of the following types of approach to innovation is used in your company?



- The company creates products and provides services for large companies / corporations
- The company develops its own product, builds the market and commercializes the market
- The company develops a product or service under a large company (it is bought by a large company / corporation)
- Other

Respondents were asked about the kind of approach to innovation used in their companies. Almost two-thirds of the surveyed start-ups develop their own product, build the market and commercialize the market. 28.8% of companies create products and provide services for large companies / corporations.

The respondents acquire clients most often through connections (67.3%) and personal / telephone contact (65.4%). Social media (42.3%) and industry meetings / conferences (42.3%) are also popular forms.

## Customer acquisition

How do you acquire customers?



Connections

67.3%



Industry meetings / conferences

42.3%



Content marketing

19.2%



Personal / telephone contact

65.4%



On-line advertising

21.2%



Marketplace

19.2%



Social media

42.3%



Articles on blogs / Youtube

19.2%

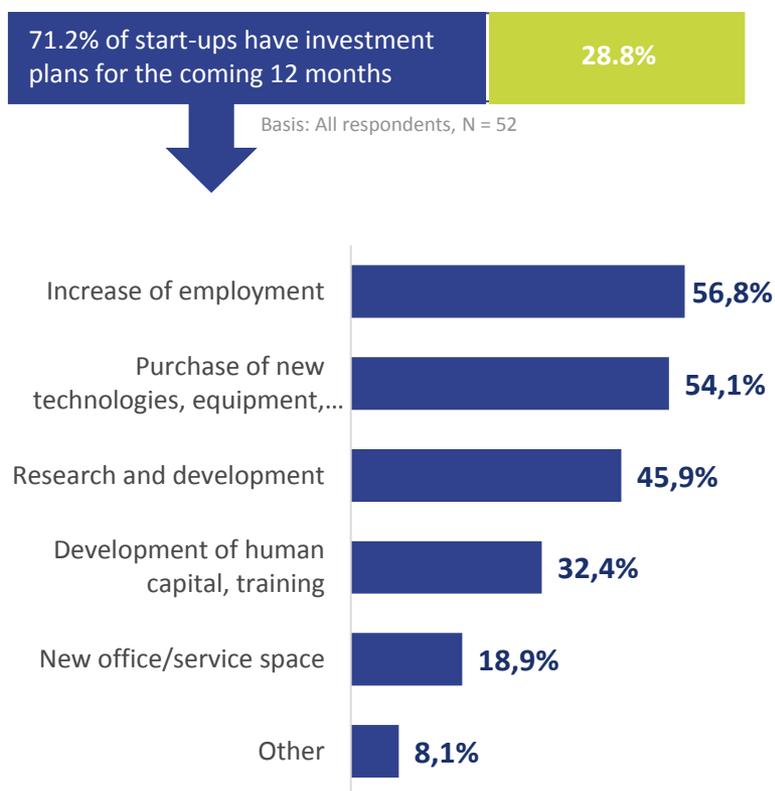


Purchase of advertising campaigns

9.6%

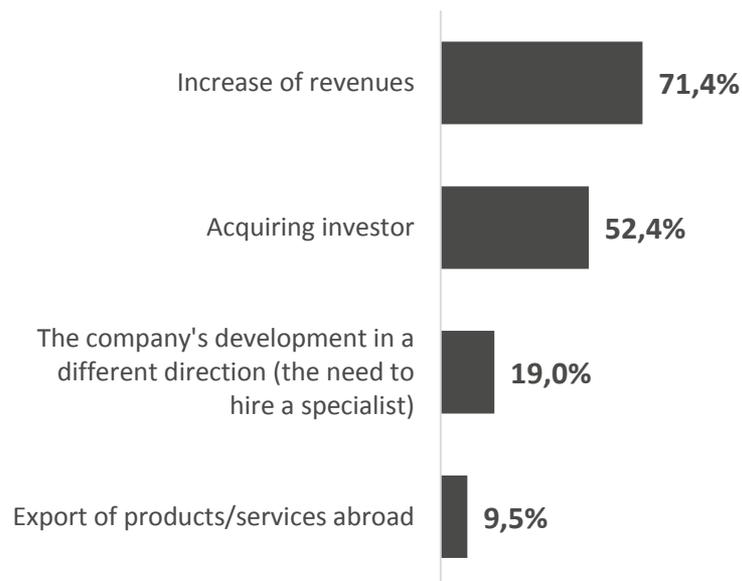
## Investment plans

Does your company have investment plans for the coming 12 months?



Basis: Respondents with investment plans for the coming 12 months, N = 37

What factors will influence the decision to increase employment in your company?



71.2% of start-ups have investment plans for the coming 12 months. They concern mainly employment increase (56.8%), purchase of new technologies, equipment, infrastructure (54.1%), as well as research and development (45.9%).

The increase in income (71.4%) and acquisition of investors (52.4%) will have an impact on the decision to increase employment.

Basis: Respondents planning to increase employment in the next 12 months, N = 21

## Increasing employment

What are the most important candidates' skills for you?



According to the respondents, the most important skills of candidates include commitment to work (71.4%) and effectiveness in solving problems (52.4%).

Four of the fifty-two surveyed start-ups plan to change their area of business or business profile in the coming future.

Basis: Respondents planning to increase employment in the next 12 months, N = 21

## Change of business profile



Basis: All respondents, N = 52

What is the result of such a decision?

Cause:	Number of people
Problem with access to qualified staff in our current field of activities	2
No access to infrastructure	2
Too small demand for the product / service created	1
Problems with obtaining external financing for ongoing activities	1
Lack of business contacts within ongoing activities	1
Too much competition on the market in terms of ongoing activities	1

Basis: Respondents planning to change industries or activity profile, N = 4

## Desired direction of development and plans

The desired direction of development and plans for the coming year are different primarily in terms of the stage of the development of the given start-up. For those that have not yet sold products, **the need for refining the product was indicated** (in some cases, it is synonymous with the purchase of infrastructure), **entering the market** and **expanding the network of contacts**. At the same time, the activities of the start-ups that sell only in the country will focus mainly on **entering foreign markets**. The companies with a more stable situation (conducting regular sales) plan to grow in terms of **team, sales and the products offered**. However, it should be noted that due to the company's development stage, all start-ups intend to acquire further external funds and develop their activities.



*[...] I hope that the company will be stable for a few years. It will not be a start-up any more, it will only have stable sources of revenue. It will be known for making good-quality productions. And I hope that then I will be able to deal with what I like very much, that is sharing knowledge with experienced associates. And helping other young people avoid mistakes that have happened to us.*

*[...] it is the improvement of the current technology, which we have plus the creation of a platform on the basis of which we will sell*

*Certainly, in the direction of, we know, acquiring as many customers as possible, but also acquiring large institutional clients. They are large projects, long, but they provide such stabilization that for half a year the development of a given product is contracted and this also gives various types of stabilization, rather than monthly projects.*

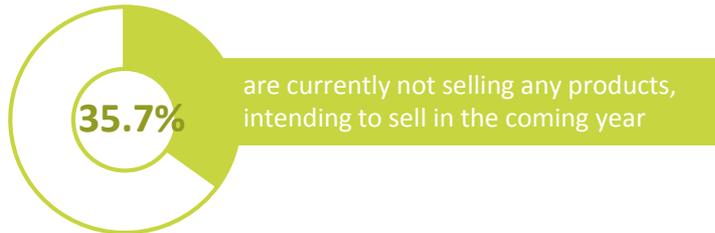
*[...] we want to enter other markets too [...] with the same product. For now, we want it, we want to try and scale the product, per region and per plant, and focus on it for now.*

Sales of products / services

## Sale



Basis: All respondents, N = 52

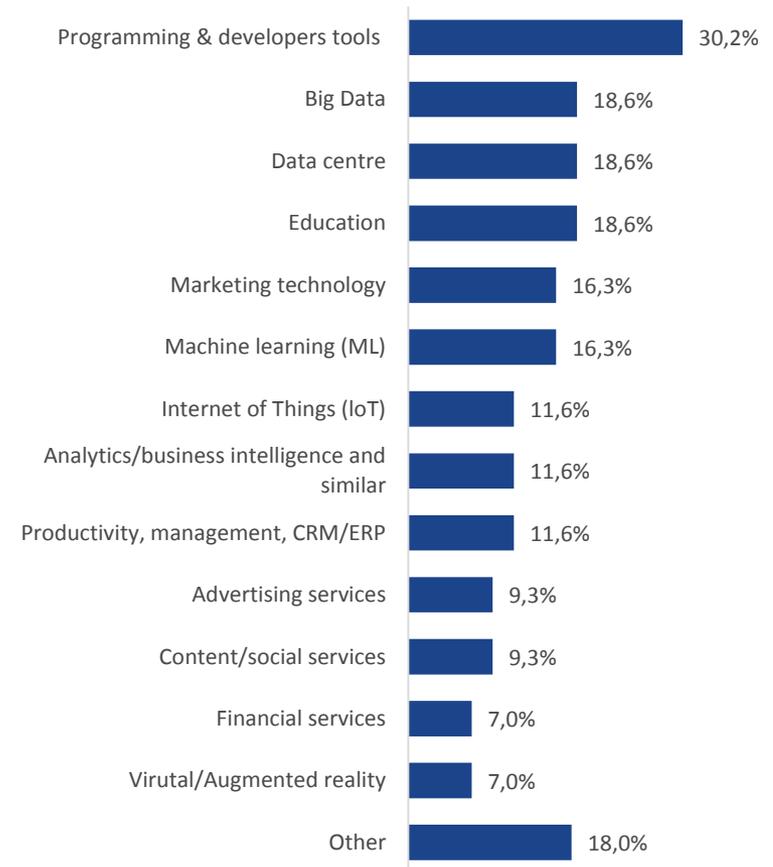


Basis: Respondents currently not selling products and not providing services, N = 14

Seven out of ten start-ups participating in the survey sell products or provide services on the market, while 35.7% intend to introduce sales in the coming year.

According to the declaration, the highest percentage of respondents sell or intend to sell software development tools (30.2%). Big Data, Data Centre and education-related products (18.6% each) are also popular.

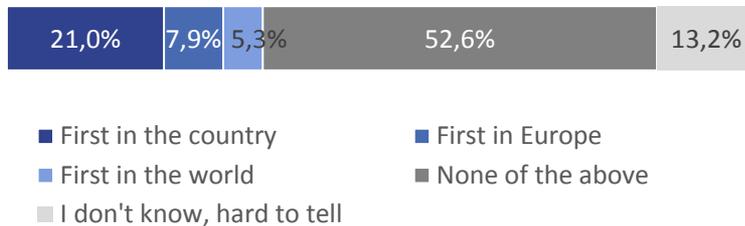
What types of products / services do you sell or intend to sell?



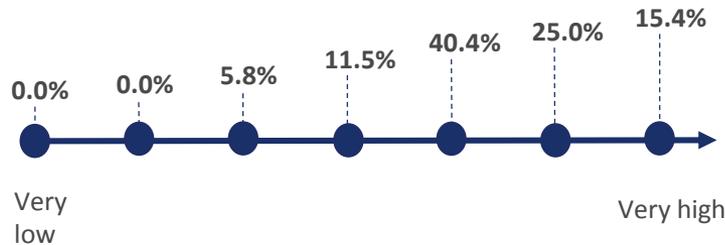
Basis: Respondents selling products or intending to sell in the coming year, N = 43

## Innovations

The innovation you introduce is (according to your knowledge and opinion):



How do you assess the market demand for new or significantly improved products / services emerging in the main field in which your company operates?

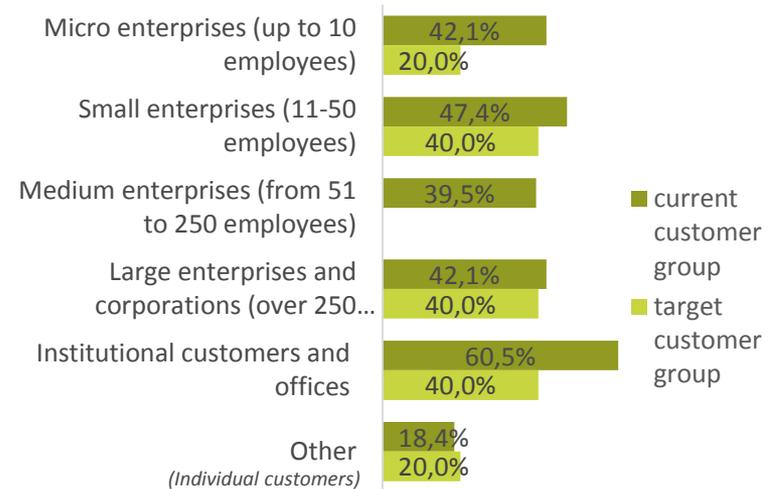


*I do not know, hard to tell=1.9%*

Basis: Respondents selling products, N = 38

## Customers

Which customer group / groups are you selling products / services to?



**for 15.8% of start-ups**

the current group of customers is not their target group

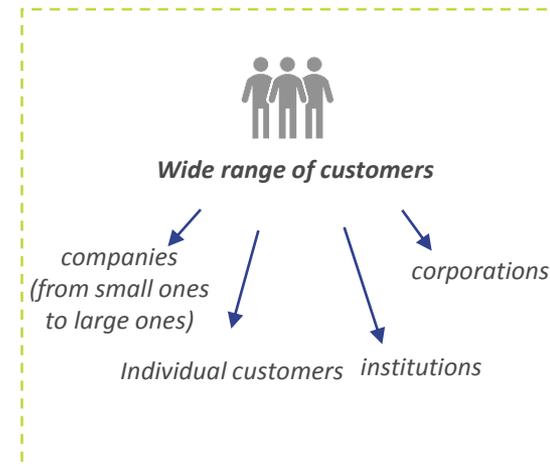
One fifth of the respondents declared that the innovation introduced by them is the first of its kind in the country, 7.9% indicated to be the first in Europe, and 5.3% the first in the world.

Eight out of ten respondents rated market demand for their products as high (80.8% of indications for 5-7).

It is worth noting that the customers of start-ups are mostly institutional customers and offices, followed by small, micro enterprises and corporations.

## Customers and recipients

In the case of customers or recipients, it is not possible to create their common characteristics, mainly due to differences in the industry or products manufactured by start-ups. Nevertheless, it should be noted that the **products manufactured are intended for a wide range of potential recipients**, which provides great opportunities in the field of sales. As it results from the interviews, start-up customers are both public and private entities, foundations and individuals. Sales are most often based on direct relations and recommendations, therefore their contact network is of key importance in this context. For this reason, start-ups are trying to participate in the largest number of conferences or industry meetings, but also in dedicated programs.



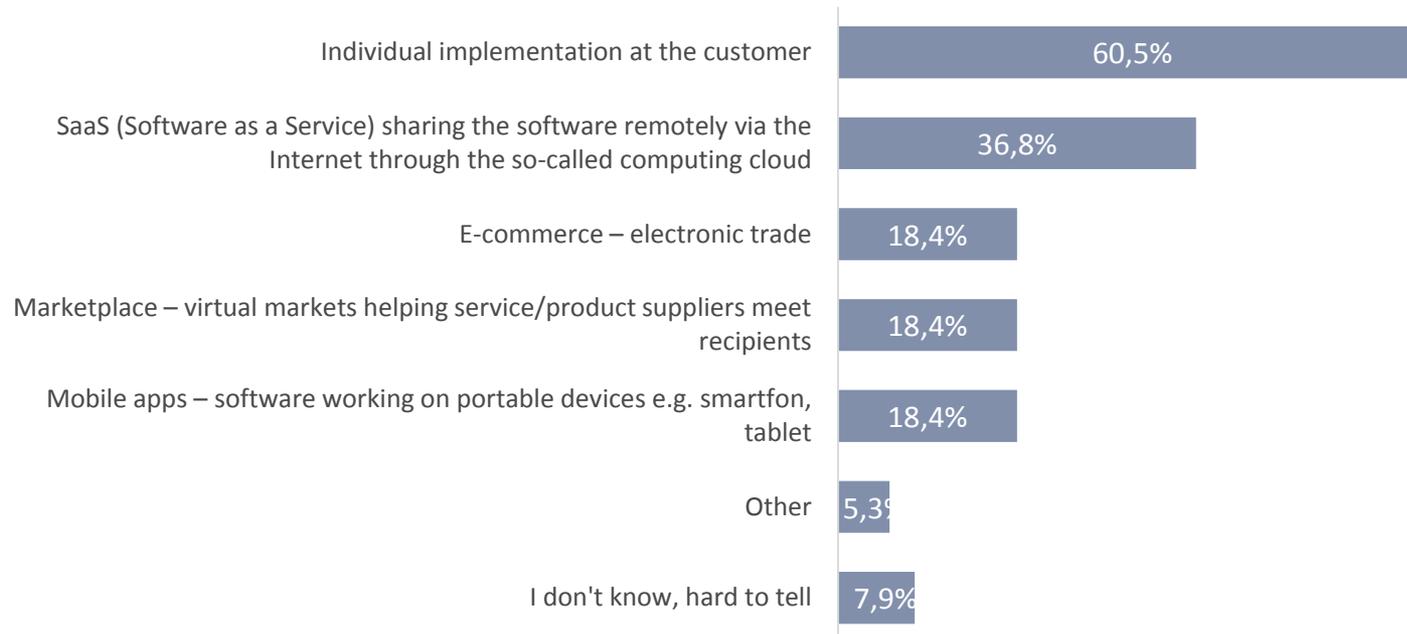
*We tried to talk to corporations, but usually it ended in a situation that after some time, even with one company we talked almost 3 years, there was implementation almost coming ahead, and at the end they executed an audit, because it was a foreign company, it was just starting in Poland, it executed an audit of security, we went through it, but still they wanted some other penetration tests to be done by a company from the UK, for which we had to pay, so we just gave up.*

*[...] own network of contacts, LinkedIn, we also tried to mail some of them. But mainly it's about own contacts, the direct. That is above all. Due to the fact that it is a fairly competitive market, there are thousands items of home software, so it is mainly about personal connections, somewhere out there, contacts, in this way*

*[...] I am trying to encourage cooperation with my colleagues known from the past who do things somewhere else, sometimes in IT, sometimes somewhere else, as if getting along on the basis of commissions. So far, this has not worked yet, but I believe that eventually this element will become successful, because, for example, I have a colleague who works in Iceland and I encourage him to find a customer there. Another colleague, for example, is working on a customer from Denmark and a customer from the United States. So it can become successful and then this direction will be a little more ... But it's the main emphasis on such a network of contacts for now, rather than struggling through a thicket*

## Sales model

What sales model / models do you use in your company?



Start-ups mainly focus on individual customer implementations - 60.5% of respondents indicated this sales model. The second position was taken by SaaS, that is remote access to software via the internet (36.8%), followed by e-commerce, marketplace and mobile apps (18.4% of responses).

## Sales channel

According to the discussions, the **sales beginnings are the most crucial in the development of start-ups** - both in terms of verifying the market demand for the product being manufactured, as well as gaining the first customers or building a network of contacts. In this respect, start-ups also agreed that the sale of the first product is based primarily on **direct contacts and contacts obtained from various sources** (networking). Along with the development of the company and the regulation of sales, this process is automated and sales channels are diversified. Start-ups pay a lot of attention in this context to marketing and wide promotion of their products. It is worth noting that a significant part of start-ups at the more advanced stage of development is planning a distribution network.



*direct contacts are essential  
when selling products*

*[...] we have very developed social media, this is the main channel for us. We have quite a developed PR, that is, we create a lot of our own content and perform at the fair, where we have our promotional materials, we have the entire visual identity system and everything.*

*[...] networking is the most effective form. Participation in conferences is the second most effective. And the third is, let's call it, the effects of work, i.e. the customers themselves come because they saw the results of our work.*

*[...] it was not easy, the first customer came after half a year. As we started in July, the first customer came in January in the following year, so it took about half a year more or less. Channels: mainly, you know, the internet, that is our website, SEO, that is, we also invest in the highest search engine, paid campaigns in these comparison websites, i.e. such market places. We are also present on the listings of various solutions such as Slack.*

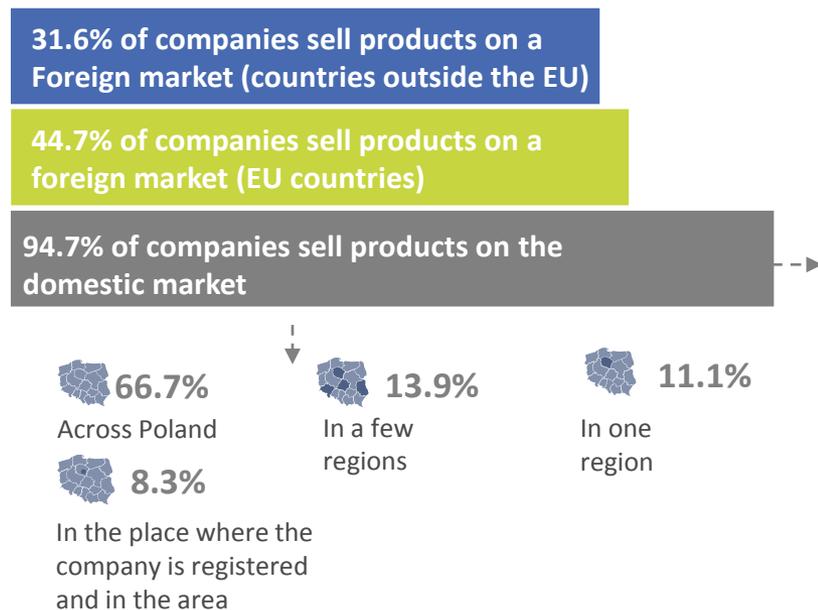
*[...] we get customers mainly through direct contact at this stage, participating in conferences here on the domestic market [...] The direct contacts work the best [...] here, to call and sell over the phone is simply not possible, you have to meet.*

*I remember that when we started with this product, then I was just driving like crazy, I met people to obtain as much feedback from customers, whether they wanted it or didn't want it, why they don't want it, what they like, what they don't, what they use, what they don't use. At the moment, it is a lot more automated in terms of the process.*

# Sales of products / services

## Domestic market

On what markets do you sell your products / services?



Nine out of ten start-ups sell their products on the domestic market, four out of ten on the European market, and three out of ten on the international market.

For the respondents who sell products only on the domestic market, the main reason for undertaking such activity is satisfaction from the current revenues and unwillingness to have additional costs related to product adaptation.

Basis: Respondents selling products, N = 38

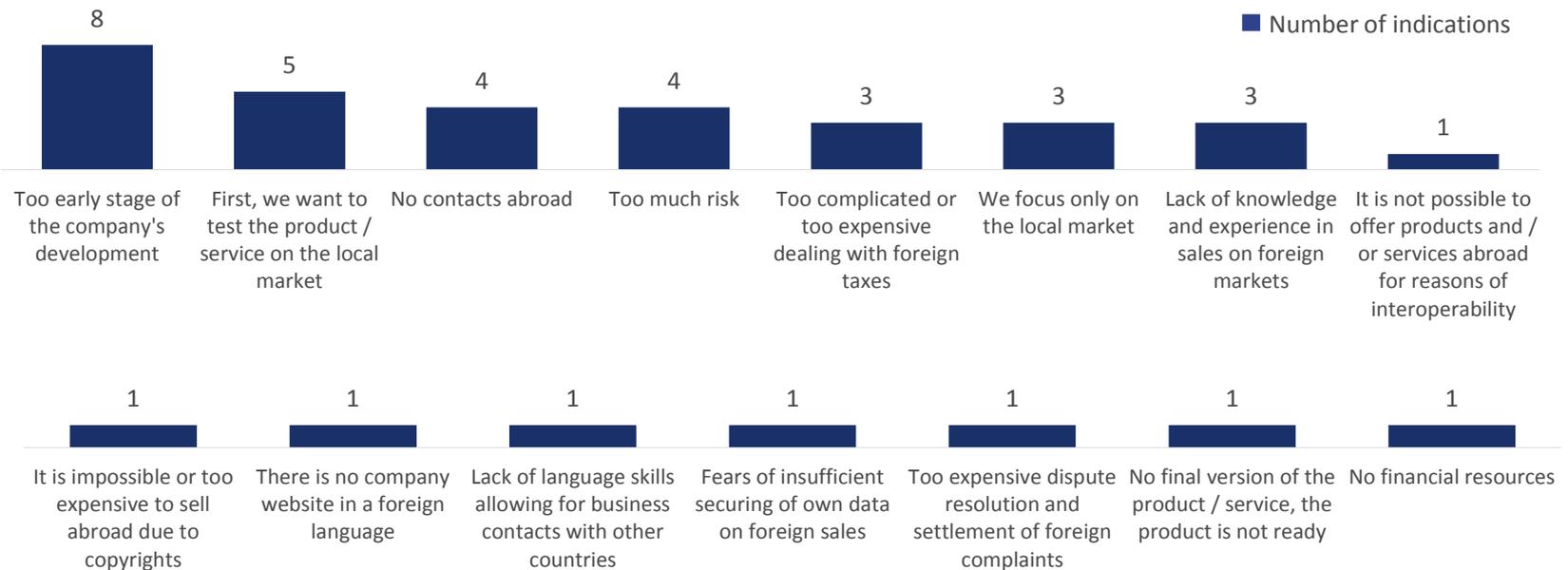
Why did you decide to operate only on the Polish market?



Basis: Respondents selling products only on the domestic market, N = 18

## Domestic market

Why are you currently not selling products / services on foreign markets?



Start-ups selling products only on the domestic market were asked about the reasons for their inactivity on foreign markets. The most often indicated reason in this respect was the too early stage of the company's development. Slightly less attention was paid to the willingness to check the product / service in the first place on the local market, the lack of contacts abroad enabling entry to the market and a too high risk. It turns out that the tax system of foreign countries and the lack of knowledge about sales abroad are also important problems.

## Domestic market



**5.6%** of companies tried to sell products / services abroad

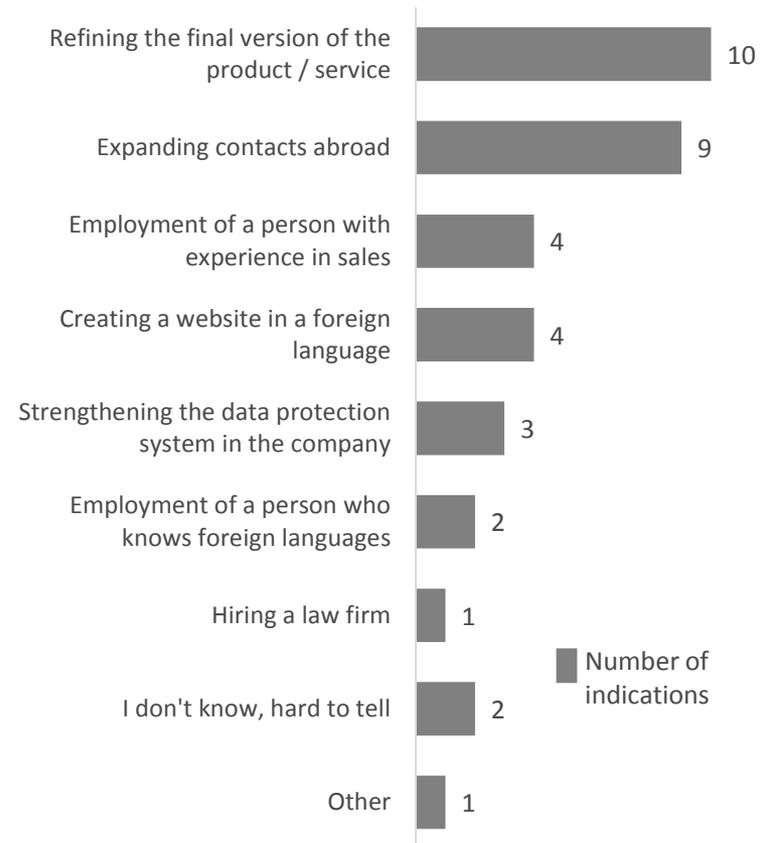


**44.4%** of start-ups are considering development on foreign markets

Among the start-ups selling products only and exclusively on the domestic market, only 5.6% tried to enter foreign markets. Nevertheless, 44.4% are considering development in this direction.

The most frequently declared changes that would have to take place in the company, so that it could serve foreign recipients, include refining the final version of the product and expanding contacts abroad.

What kind of changes would have to take place in your company so that it could serve foreign recipients?



## Sales of products on the domestic market

A large part of the respondents admitted that they regard **the domestic market as a test market**. It allows them to tailor the product to the needs of recipients, test their sales channels, but also receive feedback on the idea / concept itself. The possibility of maintaining a direct relationship between the customer and the seller is also an important advantage of selling on the domestic market. However, as all interlocutors point out (even those whose products are still in the prototype phase), **the domestic market is exhaustible**, which necessitates the expansion of activities to foreign countries. In the course of selling or introducing the first prototypes to the market, start-ups already talk to potential customers from other countries, in order to expand as quickly as possible.



***The domestic market is a test market, mainly due to its exhaustibility***

*[...] for now Poland, but if we assess it in Poland, certification is there in the whole EU, so we are looking at Germany as well and we are just as keen to implement pilots in Germany.*

*It is now the moment that we operate all the time locally in Poland, all these last 3 years and in a sense, this situation begins to run out in the sense that we functioned somewhere with a novelty, something interesting, new and unique. In a situation when this market is growing a little bit and it is no longer new, our advantages are that we are local, that we are hipsters a bit, that it is a bit more interesting, a little bit different, no longer mean a lot, and you have to build sales more systematically if this product is simply to survive.*

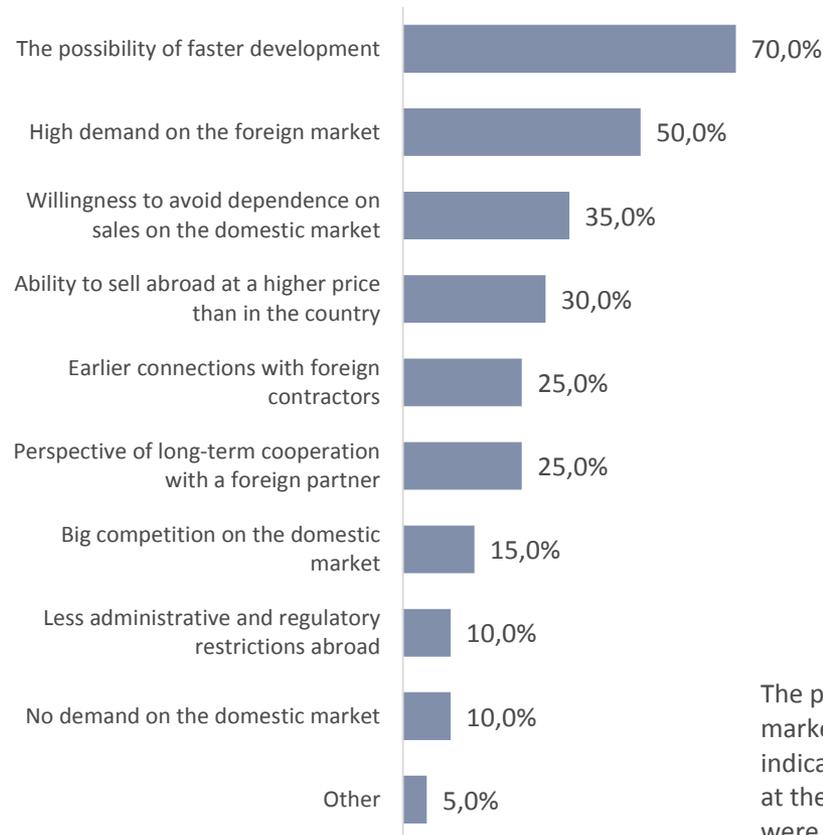
*That is, we do not limit ourselves in this sense, but from a practical point of view it is easier for us, because if we test our implementations, it is always easier if it is close, because we are also at a stage where such commercialization can be full, because as I say, there is no admission to turnover or no certification mark.*

*[...] at this moment we are focusing on the Polish market, because it's the easiest, we know when we do not have a product, it's the easiest way to talk to the internal market, but we do not neglect others, for example we have good contacts in Germany [...]*

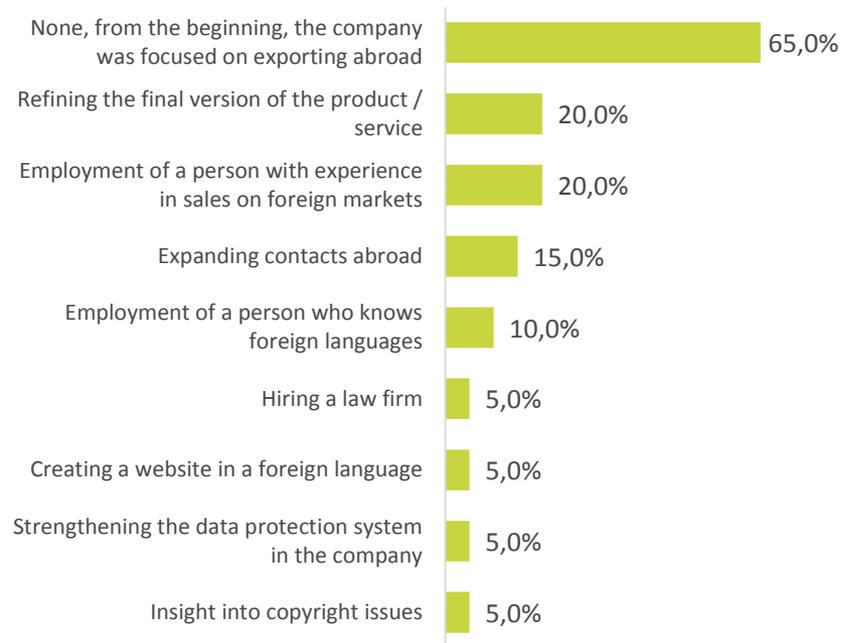
*[...] at the beginning, we want to have such a foothold in Poland. For Poland, to test the product a bit.*

## Foreign market

Why did you decide to start an export business?



What kind of changes have occurred in your company so that it could serve foreign recipients?

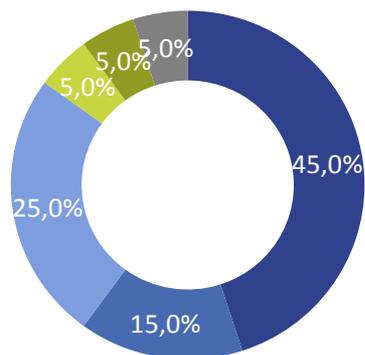


The possibility of rapid development (70.0%) and high demand on the foreign market for the manufactured products (50.0%) are the most frequently indicated reasons for starting operations on foreign markets. It is worth noting at the same time that over six out of ten start-ups from the very beginning were focused on the expansion of foreign markets.

# Sales of products / services

## Foreign market

For how many years has the company had its recipients abroad?



- Shorter than a year
- For one year
- For two years
- For three years
- For four years
- I don't know, hard to tell

In which countries did your company sell products and / or services in 2018?

-  Great Britain
-  United States
-  Belgium
-  Spain
-  Germany:
-  Czech Republic
-  Ireland
-  Italy
-  United Arab Emirates
-  France
-  India
-  Lithuania
-  Slovenia
-  Netherlands
-  Ukraine

Over 40% of the start-ups exporting products abroad have supported the markets for less than a year, while 15.0% indicate a period of around one year. In the case of two years, the percentage of indications was 25.0%, three, four and five at 5.0%.

Among foreign customers, start-ups are there both in European countries (including Great Britain, Germany, France, Czech Republic, Italy, Lithuania, Slovenia) as well as non-European countries (the United States was most often indicated, however, the United Arab Emirates and India were also mentioned).

## Sales of products on the international market

The sale of products on the international market appears at various stages of company development - depending on the industry, proposed products or the ability of the start-up itself. Nevertheless, all interviewees admit that they **do not want to limit themselves only to the domestic market, but to try their hands on foreign markets** - such are their most common assumptions regarding the launch of their products on the market. Entry into foreign markets takes place most often through previously acquired contacts, helpful are also conferences, connections, programs or contests. Recommendations and internet marketing are important at a later stage. Among the advantages of foreign sales, the respondents most often pointed to greater profit, absorptiveness and openness of foreign markets to new products, as well as the possibility of faster product scaling. Interlocutors sell or intend to sell products not only on European markets.



*[...] currently, we are primarily missing a good PR abroad, and selling really, because here we are only developing this department, so this is the main problem at the moment.*

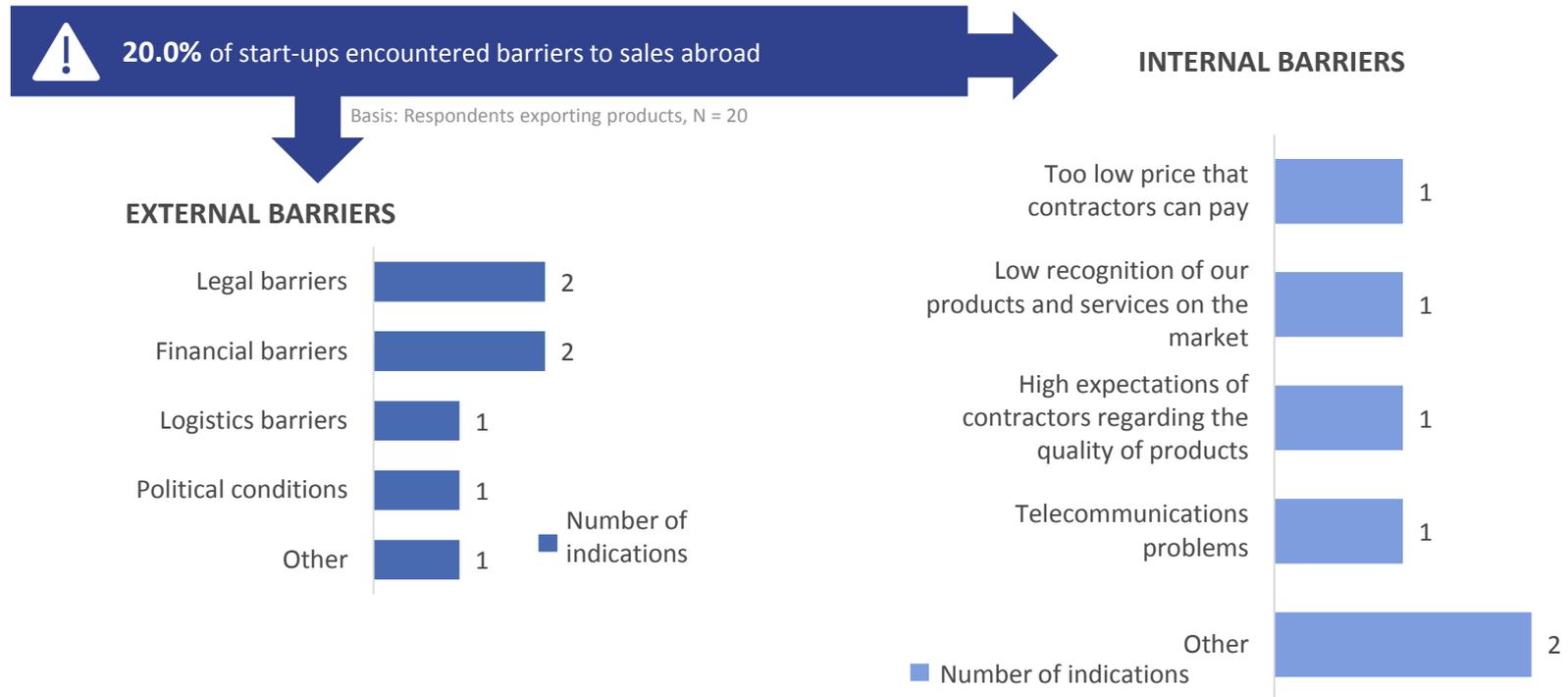
*Germany, the Netherlands, Lithuania, Belarus, Kazakhstan, Israel, Macedonia, the first steps in Ukraine and the latest is the United States. We also work with MIT in Boston, one of the best technological universities in the world.*

*[...] at the moment we had a contract with Jordan, we also had interesting contracts from the United States, previously they were from the United Kingdom [...] internationally, we are not known at all. At the moment, probably taking into account the development of all start-ups, there are 1000 such start-ups in the world and we are somewhere there being one small grain.*

*At the moment there was no cooperation with a larger foreign country, there was no possibility either, this is too early. But the moment is always good for marketing, we were even on the list of 100 most innovative projects.*

*It is about the greatest amount of money from the United States. This is still changing there, but let's say between 60 and 85%, depending on the quarter. The second market on which we operate is Poland. As for the European Union countries, it is rather to a much lesser extent. In general, English-speaking countries.*

## Barriers in export activities



Only four start-ups among all exporting products abroad have indicated that they have encountered barriers in this area. Among the external barriers, those related to law were indicated the most frequently (e.g. the unclear tax system or discrepancies in regulations governing sales) and those related to finances (e.g. lack of funds to begin with sales abroad). In the case of internal barriers, one indication showed too low a price that counterparties are able to pay, low product recognition, excessive expectations of contractors or telecommunications problems (e.g. with access to the internet abroad).

Basis: Respondents who encountered barriers to sales, N = 4

## Opportunity to develop

If all EU Member States had the same internet trading rules between your company and the customer, do you think that your company would start selling or increase sales to other EU countries?

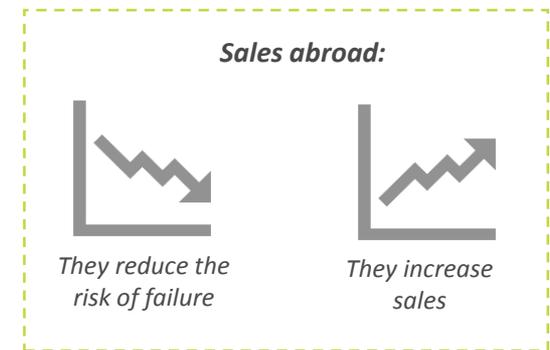


■ Definitely not   ■ Rather not   ■ Neither yes nor no   ■ Rather yes   ■ Definitely yes   ■ I don't know, hard to tell

Start-ups were asked whether the company would start selling or increase sales to EU countries, if all EU Member States had the same internet trading rules. 44.2% of respondents agreed with this statement (cumulative responses "rather yes" and "definitely yes"), while the opposite opinion was 17.3% (cumulative responses "rather not" and "definitely not"). It is worth noting, however, that 17.3% have no opinion in this respect, and 21.2% took a neutral stance.

## Plans for sales abroad

All interviewees agree that in order to **increase sales and thus reduce the risk of failure, they have to enter new markets with their product, mainly foreign ones.** Regardless of whether the company sells products or is just about to launch them on the market, it already has plans for expanding on further markets. In addition to the neighbouring European countries, the United States was most often mentioned in this respect due to the large market and demand for modern technologies. It is worth noting, however, that in the case of some products, their sales on foreign markets require a lot of work and finances, so it extends over time.



*Europe for sure. And now yes, probably Japan. But Japan is a very difficult market, it is very difficult to enter for an outside company. Fortunately, I already have the first man who said that ... I mean, he said "maybe", it's still uncertain.*

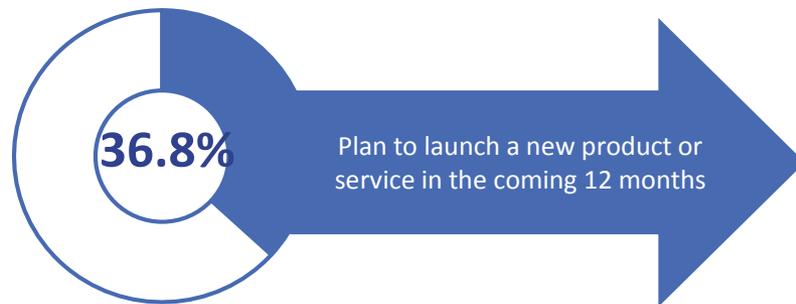
*[...] they will definitely be countries in Europe, some of them selected, selected by us. The United States and yet, as I say, we are planning somewhere here to develop in different countries, because there is a need, we analysed, the demand for this product. We have also potentially signed such intention letters with people who would like to take this product very willingly and use it.*

*But, as before, we acted on the basis of our own sales, the organic ones, it is not effective in the long run, we will probably focus on the action of looking for some distributors, also to be able to sell it abroad too. It is not effective at all to operate only in your own area. What also forces the product to be processed in some way, that it would be ... Well, it must meet some other criteria so that it could be adapted to distribution.*

*Mainly European countries. This is largely related to locating our products. We simply have to have both marketing and sales as well as the product available in national languages.*

*[...] at the beginning, probably the neighbouring markets. Because of this ... because of the distance, but also quite developed industry. So it will be the Czech Republic, Germany, in the first place. Later Spain, France. So the countries of the European Union. Ultimately, somewhere in the future, we are also thinking about further markets, such as South America and North America. From Australia, we also have contacts from a very large vineyard, which is interested in the tests. However, it is definitely the European markets that are the first of all.*

## New products



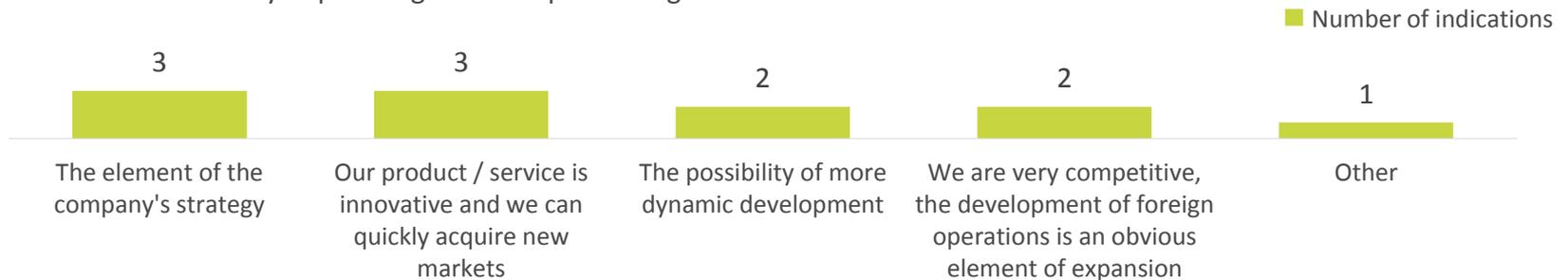
Basis: Respondents selling products, N = 38

### What market?



Basis: Respondents who plan to launch a new product in the coming 12 months, N = 14

### For what reason are you planning to develop on foreign markets?



Among the start-ups selling products, only 36.8% intend to launch a new product within the next year. In terms of reach, the domestic market dominates, as far as reasons are concerned, the product innovation and the company's strategy dominate.

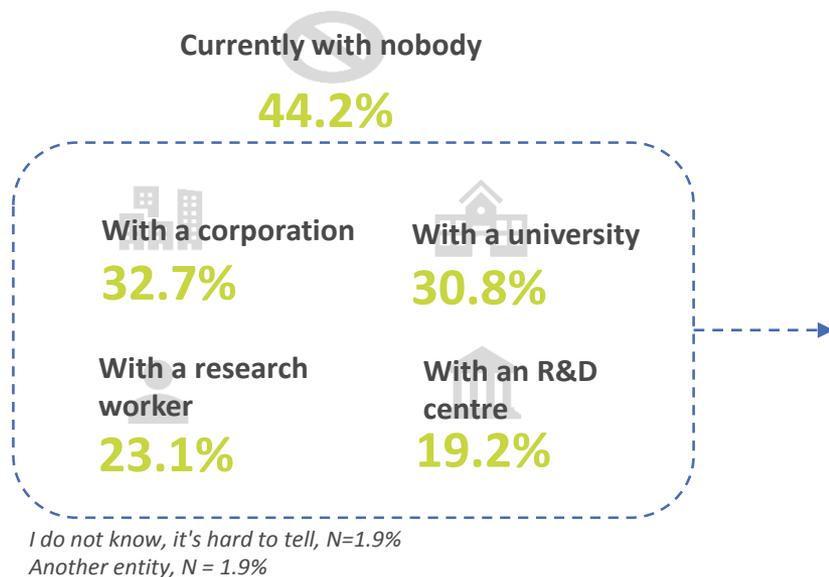
Basis: Respondents who are planning to launch a new product on the foreign market in the coming 12 months, N = 7

# Cooperation and financing

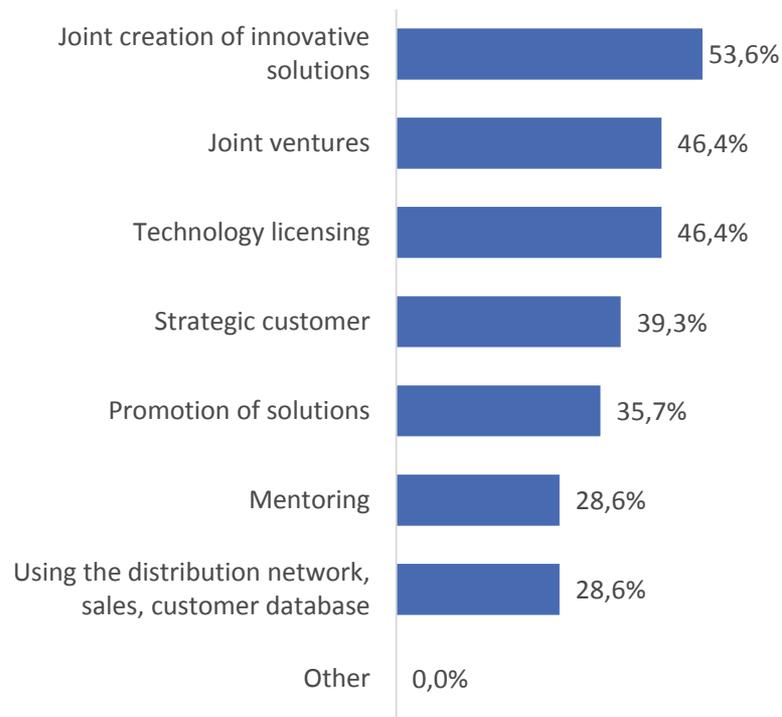
# Cooperation and financing

## Cooperation

Which entities do you cooperate with in your field of activities?



What is the scope of this cooperation?



Four out of ten start-ups do not cooperate with any entity in their operations. In the case of companies undertaking this type of cooperation, the most frequent ones were corporations (32.7%) and universities (30.8%). The scope of cooperation with the indicated entities concerns primarily the creation of innovative solutions, joint ventures and technology licensing.

## Cooperation of start-ups with other entities

According to the declarations during qualitative interviews, technology start-ups tend to **rather willingly cooperate with other entities in the area of their operations.**

The most frequently indicated entities include, above all, universities, non-governmental organizations or industry associations, corporations, and scientific centres. It is also important to work with professional groups to which the product is dedicated (e.g. in the case of medicine, doctors or nurses) or private entities equipped with a technology park.

In terms of financial, mentoring or legal aid, the interviewees most often referred to the Polish Agency for Enterprise Development, the Polish Investment and Trade Agency, the National Centre for Research and Development or marshal offices of individual regions. An important role in the start-up environment is also played by Accelerators, Entrepreneurship Incubators or Science and Technology Parks.



*[...] we work with everyone we need. The Provincial Hospital is one with which we cooperate very well, with PORT, the Polish Centre for Technology Development, where we are located and with whom we also cooperate a lot, they have a lot of great specialists, very well equipped laboratories and that is why we use it, so it's great cooperation too.*

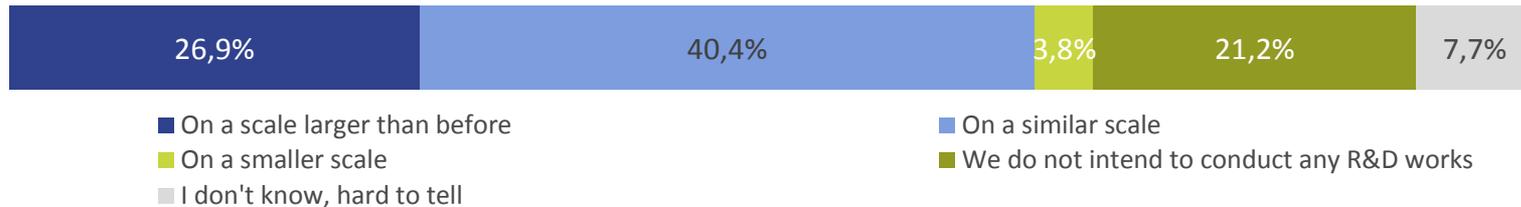
*[...] we cooperate with Polish universities and Stanford. And we cooperate with NCRD, with foundations, most of all with business incubators.*

*[...] we cooperate with them [PAiH], they helped us understand foreign markets a bit, it's also a nice case because if I wanted to go to England for example, they have theirs there, I can, for example, make an appointment in their office, which greatly facilitates the process, I can collect several contractors within 1 day.*

*[...] we cooperate with the AGH University of Science and Technology in Cracow and Collegium Medicum, these are institutions that would like to cooperate with other institutions, so without this start-up label, it is simply more difficult.*

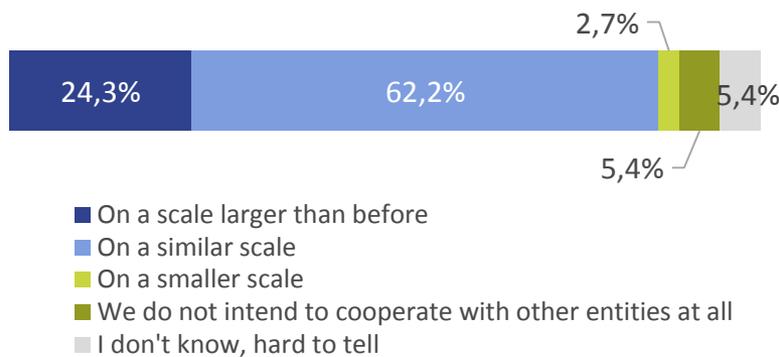
## Research and development activities in the future

In the coming 12 months, start-ups intend to conduct research and development activities:



Basis: All respondents, N = 52

In the coming 12 months, start-ups intend to cooperate with other entities (research units, technology parks, incubators, etc.):



According to the declaration, in the coming year, 26.9% of start-ups intend to conduct research and development activities on a scale larger than before, 40.4% on a similar scale as before, while 3.8% on a smaller scale. Over 20% do not intend to undertake such activities at all.

In the case of cooperation with other entities, six out of ten start-ups intend to continue operations on a scale similar to the previous one, while two out of ten on a larger scale.

Basis: Respondents intending to cooperate with other entities, N = 37

## Cooperation with corporations in the future

In the coming 12 months, start-ups intend to cooperate with corporations:

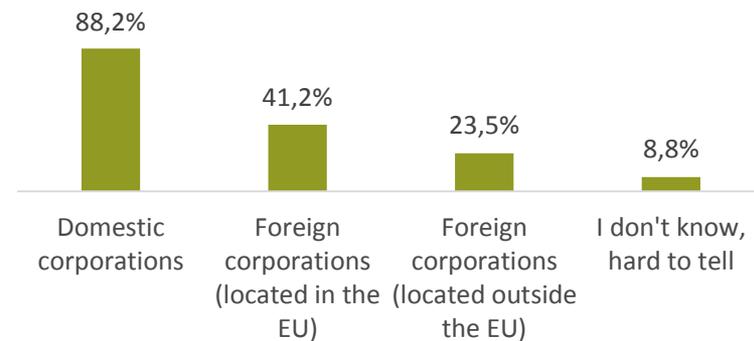


Basis: All respondents, N = 52

42.3% of the surveyed start-ups intend to cooperate with corporations within the coming year on a similar scale as before, while 17.3% - on a larger scale. It is worth noting that 23.1% do not intend to undertake any cooperation with such entities.

Start-ups intend to cooperate with both domestic and foreign corporations in the coming year. However, those indicated as the first ones are more popular.

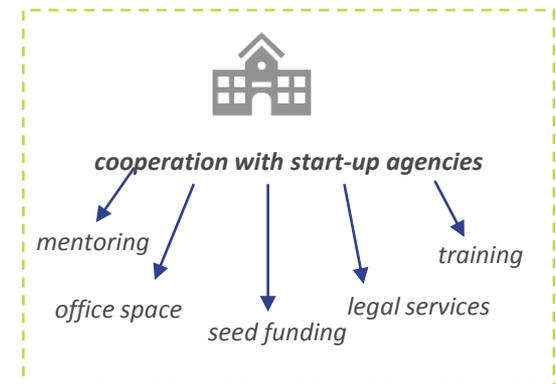
### With which corporations?



Basis: Respondents who are considering cooperating with corporations, N = 34

## Using the services of start-up agencies

Most of the start-ups **eagerly use such services of start-up agencies** as Entrepreneurship Incubators, Accelerators or Science and Technology Parks, also abroad. It should be noted that Academic Incubators of Entrepreneurship are also very popular. The scope of activity or cooperation within this type of agencies concerns renting office space, mentoring, training, using legal services as well as seed financing. They evaluate the cooperation very positively. As indicated by this type of entities, they support young companies at the initial stage of operation, allow them to acquire the necessary knowledge (including in the field of running a business), they also enable establishing valuable contacts.



*[...] very well [as I assess] and really if not, we are at a different stage already. So at the moment, this cooperation is not as it was at the beginning. Incubators of entrepreneurship, such units incubate the project at the start, so at the start we received a lot of support.*

*I assess this cooperation positively, but we did not have such areas there that we needed for development. So mainly this workshop space.*

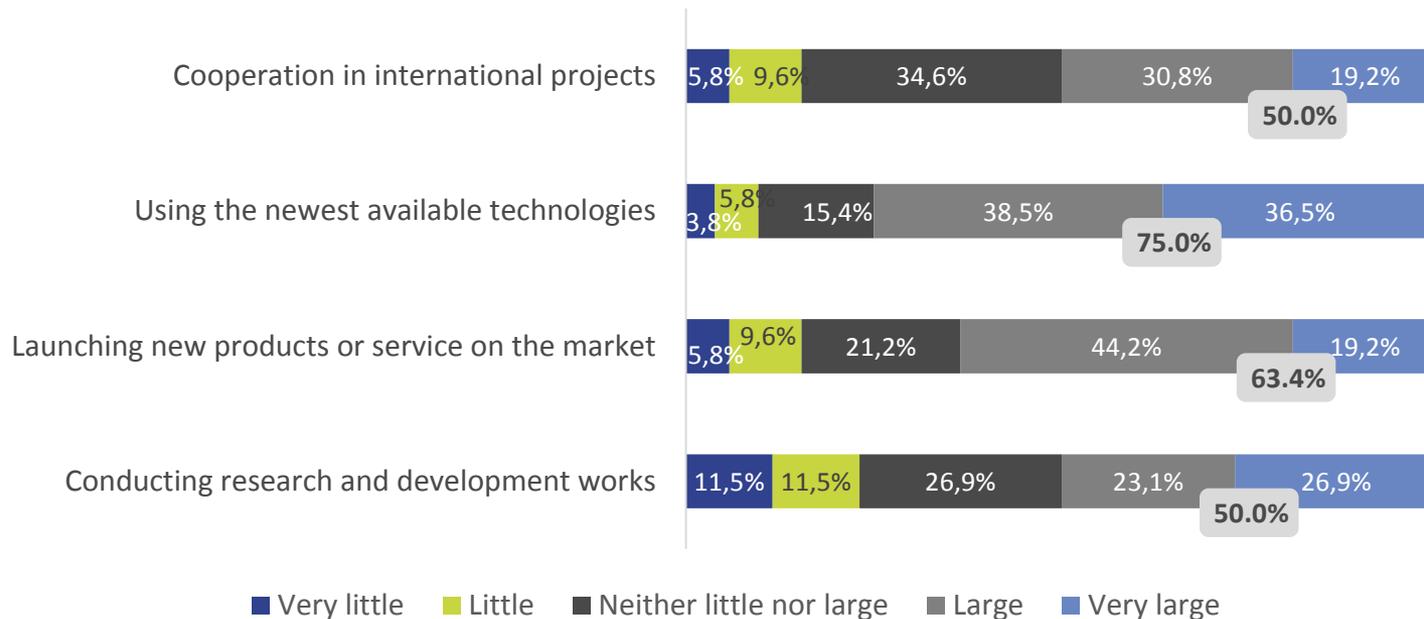
*We were in the Berlin accelerator, the start-up was somewhere there and we actually used it there. In Poland, there was no opportunity, because there was no such accelerator that we would like, that would have the right brand.*

*We cooperated ... We somewhat use it, because we're here in the Science and Technology Park. It also helped our company, the Park [...]. There, the Startup Zone, we took part in the Startups Wanted acceleration program, which also helped us to make a lot of contacts. We also had contacts with investors at that time, we also had quite advanced conversations.*

*There is no accelerator in Poland that would be good for projects at the scaling stage. Because all the start-ups, pre-sit, or a few PLN, we put in order to draw something on a model, PLN 10,000 is enough for pre-sit, then we have sieves of up to a million PLN, we have the first team, 5 people, sit for 12 months, we add something. And in Poland we have an accelerator for the first two stages. Then, as we already know what we do, it should be as scaling, pre-A, that's what it's called, it's a few million PLN, then we should go to an accelerator outside of Poland, learn something there.*

## The significance of the activities

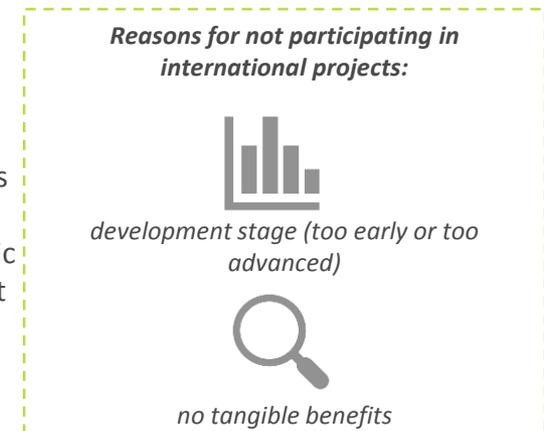
What is the business significance for start-ups of the following:



The use of the latest available technologies is the most important for start-ups (very large and large: 75.0%). Slightly fewer indications concerned the launch of new products or services (63.4%), cooperation in international projects (50.0%) and conducting research and development (50.0%).

## Participation in international projects

**Start-ups rarely participate in international projects.** The most frequently indicated reasons include the stage of development (too early or too advanced) and the failure to notice the measurable benefits resulting from it. In the case of overly advanced company development, it was pointed out that participation in projects or competitions is a waste of time because there is no need to test a product or business model. The founders who take part in this type of projects indicated that they are projects based on cooperation with foreign entities as well as those aimed at a specific goal, working out solutions or acquiring specific knowledge. In the first case, it is most often cooperation in the field of product or research, while the second type is very helpful in finding investors or acquiring valuable contacts.



*[...] we are participating in a project with Singapore and this is a project that concerns the implementation of telecare systems for selected units in Singapore.*

*[...] we have such intentions because of the fact that up to this point in which we are now, there was no need to cooperate with foreign companies. But as part of the development of our product, we already have some preliminary contracts or negotiations with foreign companies.*

*[...] we rather avoid competitions. It does not come in useful any more, at least at this stage. What is more, we had 3 international projects from Erasmus, but this was rather small. Oh, we also had a cross-border project Poland-Ukraine, Poland-Belarus, yes, Belarus. Such bigger projects. And they were cool things [...] We are probably most satisfied with Erasmus students, because they are probably the most focused on such a goal.*

*[...] in fact the only international thing we could have is an international investor who will see the potential in this project and will want to enter a large market, but we do not have such a need.*

# Cooperation and financing

## Cooperation with telecommunications undertakings

 **Only 4 start-ups cooperate with telecommunications undertakings**

Basis: All respondents, N = 52

 Joint ventures **1**

 Trade contract / B2B / Trade agreement **3**

How do you assess the relationship of your own services offered by the start-up and the services of telecommunications companies?

 **3**  
Cooperation

 **1**  
Synergy

What actions on the part of telecommunications undertakings would be desirable for the development of your start-up?

Help in reaching customers

**1** 

Help in building a brand

**1** 

Providing communication channels or platforms for business development

**1** 

Providing market analyses or geomarketing data

**1** 

Consulting and mentoring

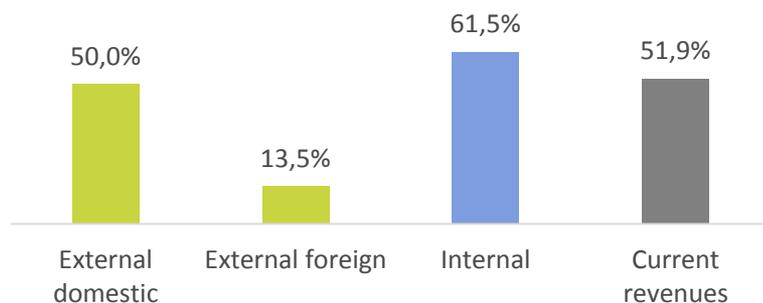
**1** 

Only four of all start-ups participating in the survey declared cooperation with telecommunications undertakings (most often in the form of a trade contract / B2B or trade agreement). In this case, the relationships were assessed as cooperation and synergy.

# Cooperation and financing

## Sources of funding

What are the sources of financing your company?



Other, N = 1.9%

I do not know, it's hard to tell, N=5.8%

The source of financing for six to ten start-ups participating in the survey are internal (own) funds. At the same time, more than half also indicated current revenues and external sources. Foreign sources are the least popular.

External financing is usually obtained by start-ups in the form of the instruments of public institutions, such as PARP or NCBR (55.6%). Private investors and bank loans are also very popular. The least often pointed one was crowdfunding.

Basis: All respondents, N = 52

In what form do you acquire external financing?



Basis: Respondents raising external financing, N=27

## Sources of financing for start-ups

The sources of start-up financing are twofold: **internal** and **external**.

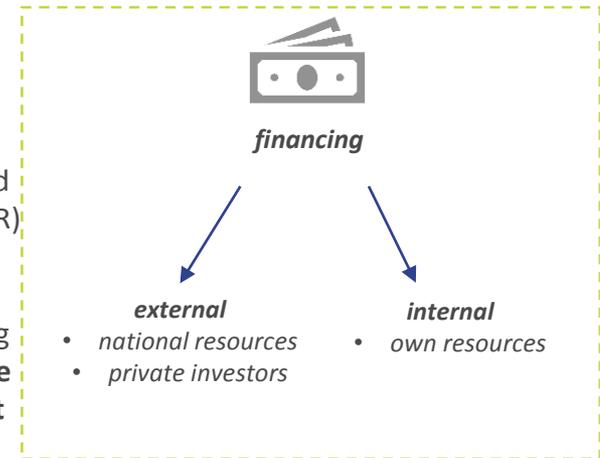
At the initial stage of a company's development, the ones indicated as the first ones dominate the most often, while the second ones, dominate along with the development. In the case of external sources, the founders apply mainly for **domestic funds or the funds of private investors**. The most frequently mentioned were: EU subsidies, funds from various public institutions (including PARP or NCBR) and grants (among others from the Science and Technology Parks). Private investors, both domestic and foreign, are also important sources of financing. At the same time, it should be pointed out that start-ups often apply for co-financing in cooperation with other entities, universities were indicated the most often. **The acquired external funds are mainly used for technologies, product development and, to a large extent, for marketing.**

*[...] the case is that if we did not have external financing, we would not be there at all, because we are a technology company and we had to create a prototype for some money, produce it for some money. We had to educate the market, hire people and so on, because it is a technological product and it required that, and we had not had a company before that to finance that from other sources.*

*[...] first, own contribution, i.e. own resources, later 112, a grant of 800,000, later various start-up competitions. We were awarded the second position and got 20 thousand EUR for research. Various other smaller competitions. As a rule, when we start we take a place in the lead. A week ago we were at a start-up competition for the whole of Europe and won the second position in the agro sector for start-ups. We got an investor for PLN 3 million.*

*[...] we are trying to be flexible enough and all the activities happen on a regular basis. And of course, apart from acquiring investors, our activity is based on acquiring projects. So we make different applications. For example, we have already received funding pursuant to certain applications and we have some financial resources for some of the project activities.*

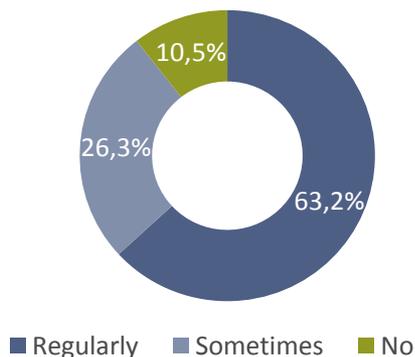
*You need to be aware of the fact that it continues. We started the process of acquiring the investor in January this year and we signed, we will finalize this whole process around the seventh of December [...] And we got involved an investment advisor into it, we got a lawyer involved, one person from the board dealt with this topic for a year. It is necessary to be aware.*



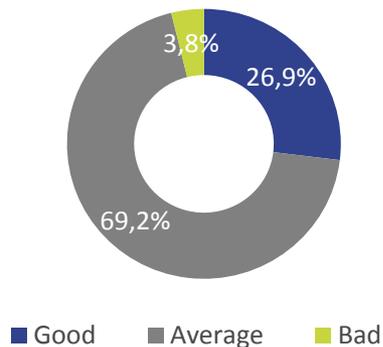
# Cooperation and financing

## Financial situation

Does your company generate revenues from the sale of the main product / service?



How do you assess the current financial situation of the company?



Basis: All respondents, N = 52

## Acceleration programs

*acceleration program* - a series of trainings and events directed at people who have an idea for a business, but are looking for support in its development

23.1% of start-ups benefit from an acceleration program

76.9%

Basis: All respondents, N = 52



Are the acceleration programs run by telecommunications undertakings or their subsidiaries?

Yes  
1



No  
11



Over 60% of start-ups receive regular income from the sales of their product, 26.3% sporadically, while 10.5% do not have any income at all. At the same time, nearly 70% of companies assessed their financial situation as average (69.2%), and only 26.9% as good.

Among the 52 surveyed start-ups, 12 companies declared their participation in an acceleration program, including only 1 involving telecommunications undertakings or their subsidiaries.

Basis: Respondents using the acceleration program, N = 12

## Assessment of the economic situation of start-ups

Due to the fact that the **vast majority of start-ups participating in the qualitative research** is not yet selling their products or is at the initial stage of introducing them on the market, they do not generate revenues or generate revenues at a low level. In the qualitative study, only a few companies indicated that they regularly sell. Due to the above, most interviewees assessed their financial situation at an average level and, as indicated, the greatest challenge in the near future will be to obtain financing or as soon as possible launch the product on the market and acquire customers. In the case of start-ups with more regular sales, their economic situation was assessed slightly better, although they are still planning to develop and increase their revenues. It should be noted that for start-ups, as for every entrepreneur, maintaining financial liquidity is the most important thing.

*The most important issues for start-ups include:*



*launching the product on the market as soon as possible*



*maintaining financial liquidity*

*We are at the stage of investment the whole time. We had some orders there, for which we could get some money. But they are, this is a project, a product that still needs to be invested in.*

*[...] the company generated revenues, but not enough to cover expenses at this stage. They represent approximately 1/5 of the annual expenditure.*

*[...] we are satisfied ... what are we happy with? We are pleased that this business model has worked at all. Because we were very uncertain whether it would work at all. But it works, that's good.*

*The current challenges that we have, our financial liquidity. We have orders that can be executed, they will fill the hole, but we are at a point at which we need to raise capital to finance the ongoing activities. So it's hard and it's good.*

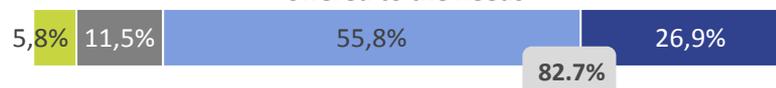
*[...] I mean, that we do not earn, because it's a typical R & D done pursuant to partnerships and outside aid, well, each of us works somewhere for a living, one needs to live, but due to what happened with alphas, we have focused more on foreign investors, private or corporate investors, that is companies. And at the moment we are talking at least with 2 companies that, having already developed their business, can open such a branch because it is simply easier for them*

# General evaluation of the telecommunications market

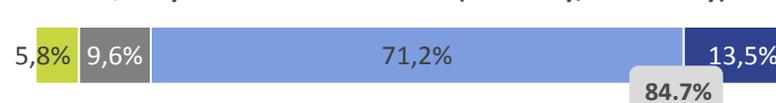
## Functioning evaluation

Please evaluate the following aspects of the functioning of the telecommunications market in Poland

**Range of the services offered on the market and matching the services offered to the needs**



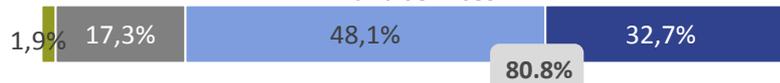
**Quality of the services offered (reliability, availability)**



**Availability of information about services - information about offers, terms of service, etc.**



**Access to services - the possibility of choosing a variety of operators and services**



**Effectiveness of complaints, handling complaints**



- Definitely bad
- Rather bad
- Neither good nor bad
- Rather good
- Definitely good
- I don't know, hard to tell

Basis: All respondents, N = 52

**Transparency of the offers for telecommunications services**



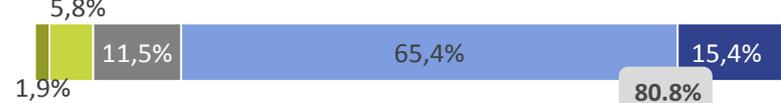
**Quality of the customer service provided by operators**



**Understanding and simplicity of procedures**



**Prices of services**



The most highly assessed aspects of the functioning of the telecommunications market include: quality of services (84.6% - aggregated responses "rather good" and "definitely good"), scope and adjustment to the needs (82.7% - as above) and access to services, understood as the possibility of choosing a variety of operators and services (80.8% - as above).

Most of the negative opinions were obtained by the transparency of offers for telecommunications services (21.2% "definitely bad" and "rather bad") and effectiveness of complaints (15.4% - above).

## Positive changes

Did you notice any positive changes in the telecommunications services market over the past year from the company's perspective?



What positive changes did you notice in the telecommunications services market over the past year from the company's perspective? (the most common indications)

- Dynamic development of technology**
- More offers**
- Better range of offers**
- Improvement of the quality of the services offered**
- Discount**

Basis: Respondents who notice positive changes, N=13

## Negative changes

Did you notice any positive changes in the telecommunications services market over the past year from the company's perspective?



What negative changes did you notice in the telecommunications services market over the past year from the company's perspective? (the most common indications)

- Price increase**
- No development or too slow development of technology**

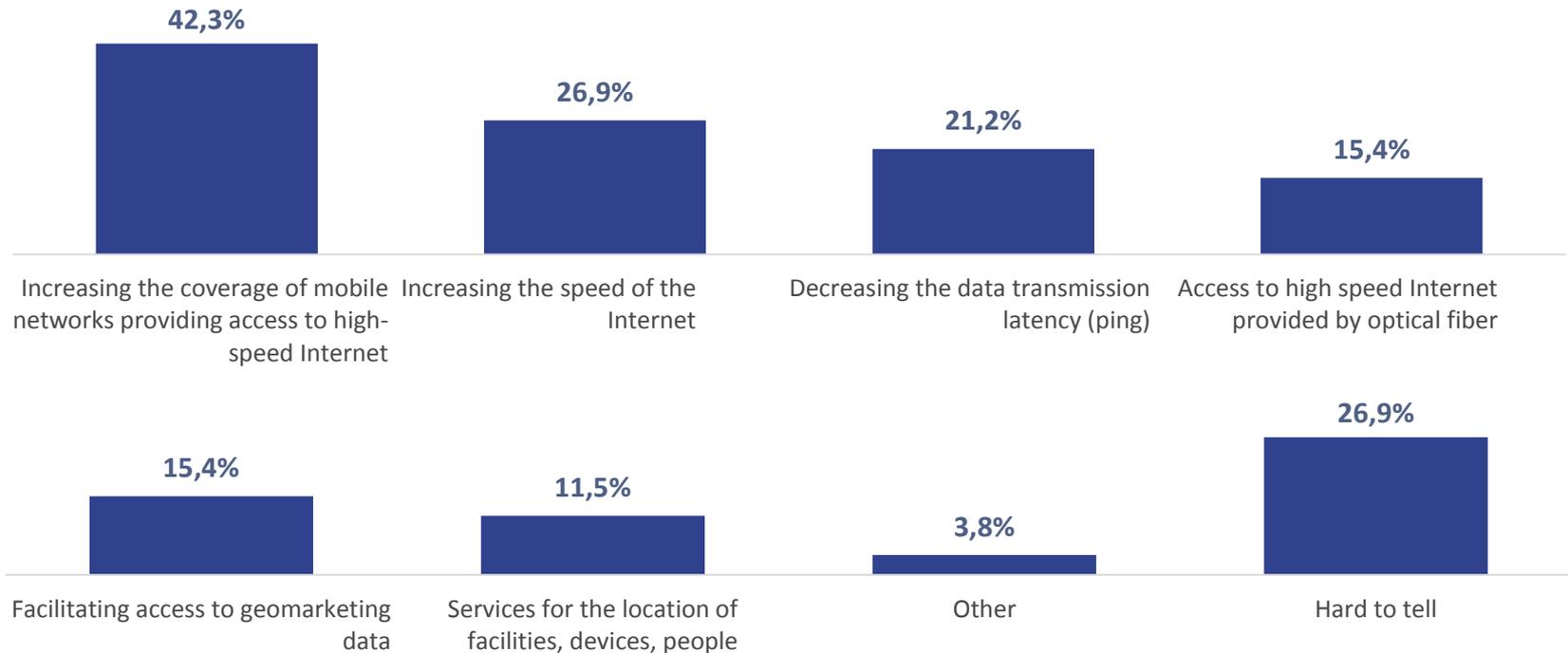
One fourth of the respondents noticed positive changes in the telecommunications services market over the past year. Most often, they concerned the dynamic development of technology, more offers and their better range, as well as improved service quality and price reductions.

Negative changes were observed by 13.5% of the respondents. Among them, the most important was the increase in the prices of services.

Basis: Respondents who notice negative changes, N=7

## Helpful actions

What would help you in running your start-up?



According to the declarations of the start-up representatives, it would be mainly helpful in conducting their activity to increase the coverage of mobile networks providing access to high-speed internet (42.3%). The next that followed were an increase in the speed of the internet access service (26.9%), as well as a decrease in data transmission delays (the so-called ping), indicated by more than every fifth person (21.2%).

# Summary

## Summary

### **Mobile telephony and the internet**

- All of the surveyed start-ups have access to the internet, 67.3% of which have access to fixed line internet, and 53.8% to mobile internet in a mobile phone.
- 67.3% of the surveyed entities consider the internet to be a key tool necessary for the company's core business. The internet is used primarily for internal communication and for communication with customers (85%).
- Over half of the respondents declare that they have decided to use mobile internet because of the need to use the internet outside the company's office (it provides greater mobility).

### **Over-The-Top services**

- 84.6% of the start-ups participating in the survey use Over-The-Top services. Communication services (all respondents) and application services were the most often pointed out in this area.
- In the case of communication services, start-ups usually indicate the use of Messenger, WhatsApp and Skype. In qualitative interviews, the Slack messenger was also mentioned.

### **5G network**

- The concept of 5G network is known by over half of the representatives of start-ups, and 61.5% declare that they know what generation of mobile networks is currently used. The development of the 5G network will primarily translate into improved communication and expanding the company's offer, despite the fact that approx. 40% of the respondents believe that it will have no impact on the development of their activities.
- Start-ups evaluate the parameters of the internet access well and consider them sufficient to conduct the company's operations both now and in the coming years. The potential to use the 5G network is seen primarily in obtaining a technological advantage (34.6%). Its greatest benefit is the mobility of company management, and the barrier to its development - the lack of consumer awareness of this technology.

### **Safety on the web**

- 80,8% of start-ups use anti-virus, anti-spyware and other programs, and 55.8% use solutions that increase the level of privacy on the network. In the case of the solutions that increase the level of privacy in the network, the most frequently used ones include VPN and Proxy.
- Only 3.8% of the respondents were victims of abuse related to the use of any data provided by the company. Other companies did not experience this type of situations.



## The activity of start-ups in Poland

- The study shows that start-ups are much more likely to be established by men than women (80.2% vs 19.8%), people aged 18-39, and also with higher education.
- The initiative to start a start-up is first of all an idea for an innovative product or finding a "gap" on the market in this area. It should be noted that the tendency to start business at the stage of studies is noticeable (in this case, usually the scope of activity coincides with completed studies) or after gathering experience from different companies (here the activity is more often related to the founders' interests or a market gap found).
- The examined start-ups at the current stage of development lack primarily financial resources (53.8% of indications) and personnel (28.8%), as well as a contact base (26.9%). The lack of financial resources and the problem with obtaining external financing were considered the greatest barriers in the development of this type of companies.
- The most important internal factor when creating start-up is the idea for an innovative product (53.8%) and a well-formed business model (46.2%). In the qualitative study, the interviewees also pointed to the verification of the market in terms of the demand for the manufactured products. A high percentage of indications in this case was also noted for human capital and good management. In the case of external factors, the most important is the ability to obtain financial resources (65.4%).
- 71.2% of start-ups have investment plans for the coming 12 months, mainly in terms of increasing employment, purchasing new technologies and research.



## Sales of products / services

- 73.1% of the surveyed start-ups sell products, while 35.7% intend to begin the sale in the coming year. The products sold predominate in the areas of Programming & developers tools, Big Data, Data centre, and education. In the case of markets, the domestic market (94.7%) is most popular, followed by the European (44.7%) and international (31.6%) markets. According to the study, the domestic market is most often treated as a test market, less often as a target one (mainly due to the fact that it is exhaustible).
- In the case of entering a foreign market, it is not only important to refine the product and adapt it to the market, but a network of contacts is, above all, important - as indicated by the respondents, the sale of the first product on the market usually takes place through connections and contacts.
- Customers of start-ups are mainly institutional customers and offices, but also companies (most of the indications pointed at small and micro enterprises, and then at corporations).
- Start-ups mainly focus on individual customer implementations - 60.5% of respondents indicated this sales model. SaaS was in the second position, followed by e-commerce, marketplace and mobile apps.

## Cooperation and financing

- Start-ups most often cooperate with corporations and universities in the scope of their activities (above all in the joint creation of innovative solutions, joint ventures and technology licensing). However, it should be noted that according to their declaration, 44.2% of companies do not cooperate with any entity in this respect.
- 40.4% of start-ups in the coming year intend to conduct research and development on a scale similar to the previous one, while 62.2% are planning to cooperate with other entities (research units, technology parks, etc.) in the same area. In the case of cooperation with corporations, also the largest percentage (42.3%) is planning to maintain it at the same level as before.
- The research shows that the use of the latest available technologies and the introduction of new products and services to the market are the most important issues for the start-ups. Among the surveyed start-ups, only four declared that they cooperate in telecommunications companies (mainly in the scope of a commercial contract), and saw the relationship as cooperation / synergy.
- The main sources of financing for start-ups include: own funds, external funds (mainly instruments of public institutions and private investors) and current revenues. In the area of external financing, the greatest problems of start-up companies include the time of waiting for funds and the procedures for obtaining them.

## General evaluation of the telecommunications market

- The telecommunications market is assessed well. Consumers are the most satisfied with the quality of services, their range and matching with the needs and access to services (over 80% of positive indications). The lowest rate, however, is indicated for the transparency of offers (21.1%) and the effectiveness of complaints (15.4%). A quarter of respondents see the positive changes that took place in the past year on the telecommunications services market.
- When asked about the activities that help in running a start-up, entrepreneurs most often pointed to increasing the coverage of mobile networks providing access to high-speed internet.

- In column and bar charts, the total of values can exceed 100% - more than one matching answer could be indicated.
- In pie charts and cumulative charts, the total of individual percentages can be 99.9% or 100.1%. This is the result of the rounding used in numerical values to two decimal points.
- If a response to a question was provided by less than 20 respondents, the numbers (number of indications) were presented in a graph or graphics, not a percentage.

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