ABOUT TECHOSYSTEM

Techosystem is a civic union of the Ukrainian tech ecosystem players for startups, scaleups, and investors.

The mission of Techosystem is to unite stakeholders to build a strong innovation ecosystem in Ukraine, fostering the growth of participant businesses and attracting investments to the technology sector.

techosystem

ABSTRACT

This report presents and discusses the results of the 1st wave of the research of the deep tech sector in Ukraine. The research was conducted from April to July 2024 by combining quantitative and qualitative methods. It focused on the characteristics of the deep tech sector in Ukraine, the products and markets of the companies making up this sector, and their needs and experience in raising external funds. The report offers recommendations on supporting the development of the deep tech sector in Ukraine.

METHODOLOGY

Techosystem, a civic union focused on Ukraine's tech ecosystem, updated its research on the Ukrainian deep tech sector in 2024 as part of the Seeds of Bravery (UASEEDs) project.

The research used both quantitative and qualitative methods. An online survey was distributed to deep tech startups, gathering responses from 44 companies, of which 42 were included in the final analysis. Data was cleaned and presented anonymously.

Additionally, in-depth interviews with representatives of 10 deep tech startups were conducted to provide deeper insights. This first wave of research aims to understand the types of deep tech companies, their funding sources, and current market conditions, serving as a baseline for future studies.

1. UKRAINIAN DEEP TECH SECTOR: INDUSTRIES, MARKETS, AND ATTRIBUTES

This section covers the founding years, industries, and employee numbers of deep tech startups, providing insights into their background and workforce size.
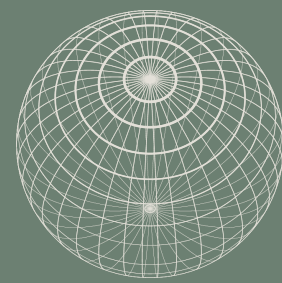
1.1. INDUSTRY REPRESENTATION OF STARTUPS

To understand the industry representation of startups, we asked the respondents to choose the industry that most closely corresponds to their startup.

INSIGHTS:
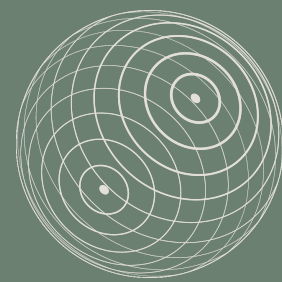
Dominance of AI: AI became the most represented industry, with 15 startups indicating their focus in this area.

Information Technology: IT is also a significant category, with 6 responses, showcasing its importance in deep tech innovation.

The "Other" category gathered about a third of answers and with diverse startups operating in various fields. This diversity reflects the wide range of applications and innovations within the deep tech landscape.

1.2. WHEN WAS THE STARTUP FOUNDED?

To understand the timeline of startup formations, we asked the survey respondents about the year their startup was founded.
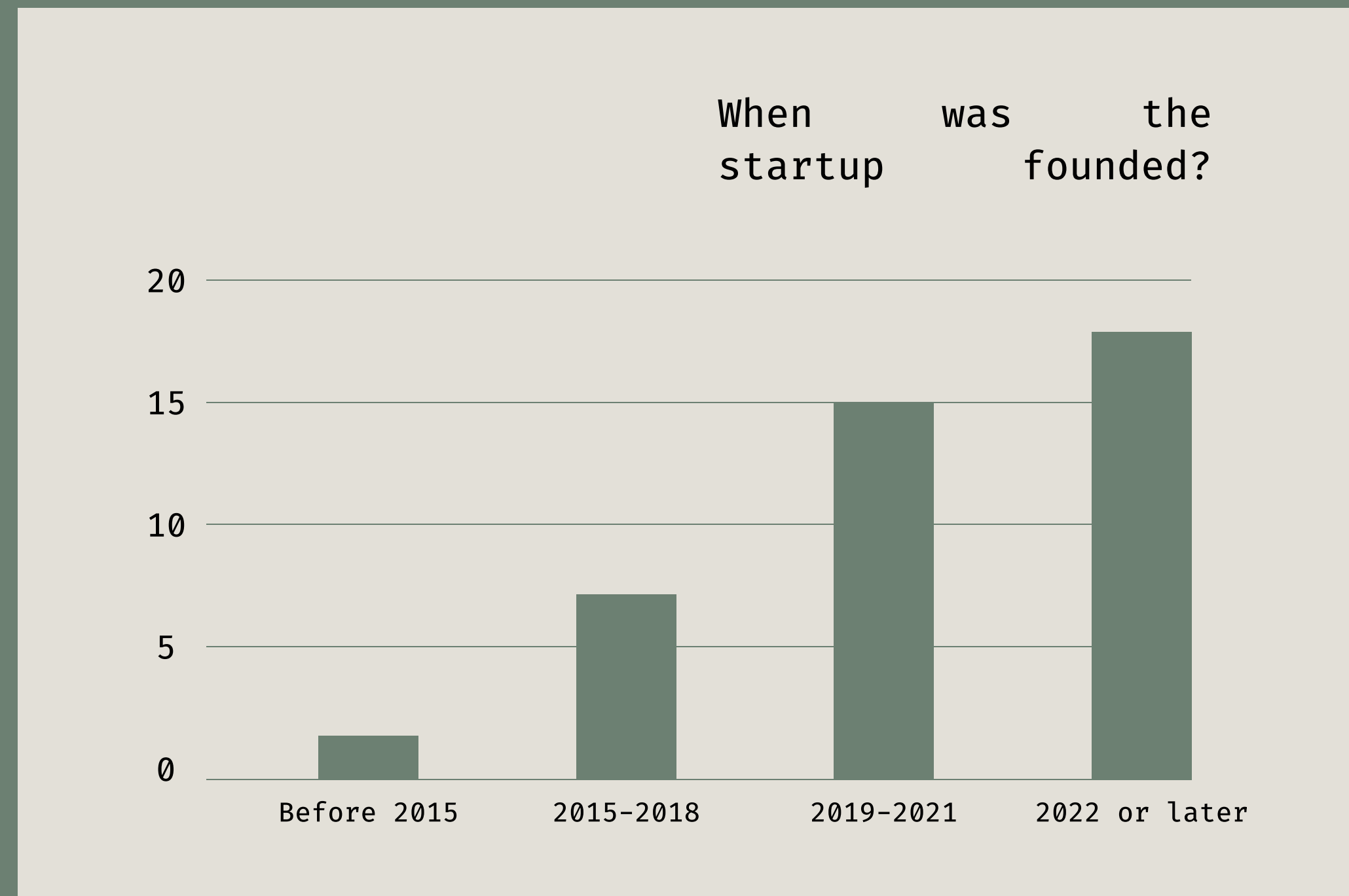

Figure 1 - When was the startup founded?

FINDINGS:

- The majority of startups were founded in 2022 or later, indicating a surge in new ventures in the recent past.

- A significant number of startups were also founded between 2019 and 2021, reflecting a robust trend in the creation of new deep tech ventures over the last few years.

- A smaller group of startups were founded between 2015 and 2018, while only one startup was founded before 2015, indicating fewer older startups in the survey sample.

1.3. CONTEXT AND MARKETS

The period when the most surveyed startups were founded – from 2019 to 2022 or later – coincided with COVID-19 pandemic and the beginning of the full-scale war in Ukraine.

KEY POINTS:

- The pandemic accelerated online solutions, with startups facing user surges.

- After the russian invasion, startups expanded services to Ukrainians abroad, added features to address invasion risks, such as encrypted data storage for memorials of fallen soldiers.

- Most startups operate in Ukraine and globally, in markets like the UK, USA, and Middle East, with plans to expand to the EU and Israel.

- They serve both B2B and B2C markets.

- Some startups also provide B2G solutions, including AI-driven tools for the Ukrainian government and innovative military support technologies.

1.4. NUMBER OF EMPLOYEES IN DEEP TECH COMPANIES

To understand the size of deep tech startups, we asked respondents about the number of employees in their companies.
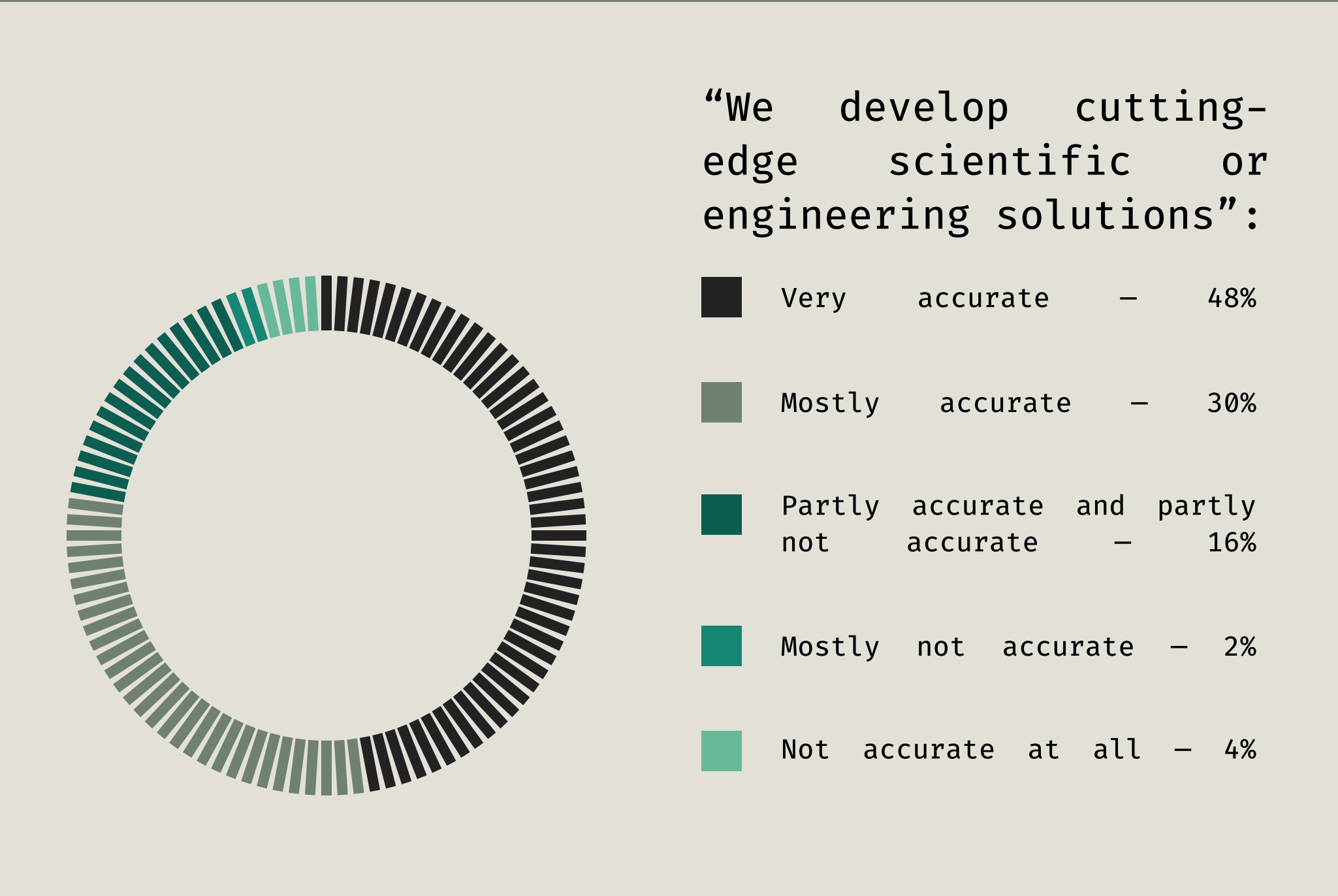
Number of employees in deep tech companies

■ Up to 10 — 54.8%

■ 11-50 — 42.9%

■ 101-250 — 2.4%

Figure 2 - Number of employees in deep tech companies
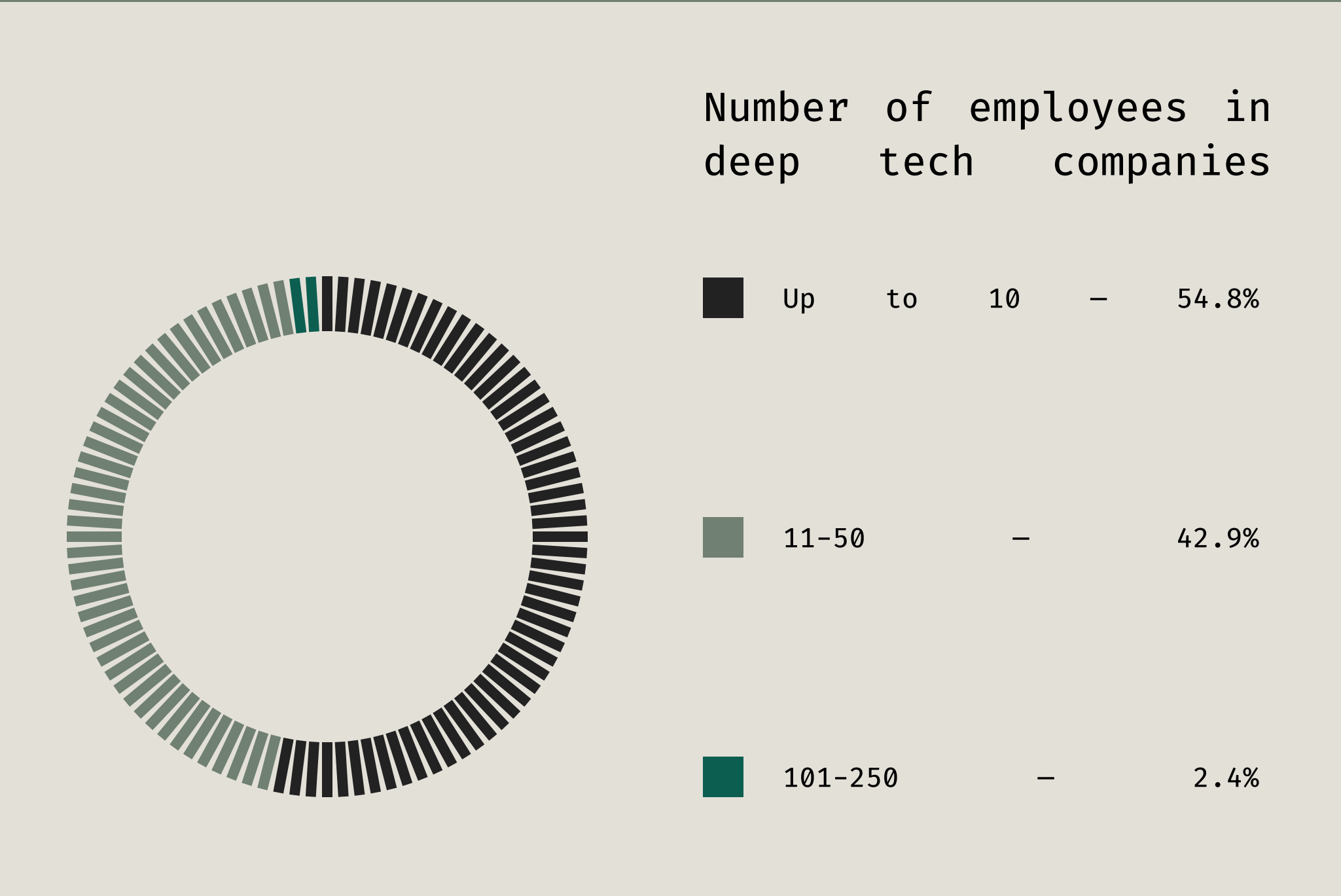
FINDINGS:

■ **54.8%** of deep tech startups surveyed have up to 10 employees, reflecting their lean and agile nature.

■ **42.9%** have 11-50 employees, indicating growth and the need for structured teams.

■ Only **one startup** reported having 101-250 employees, suggesting larger teams are uncommon in deep tech.

1.5. COMPANY ATTRIBUTES IN DEEP TECH (1/3)

We asked companies to self-evaluate themselves regarding deep tech attributes we defined previously.

"We develop cutting-edge scientific or engineering solutions":

- ■ Very accurate — 48%
- ■ Mostly accurate — 30%
- ■ Partly accurate and partly not accurate — 16%
- ■ Mostly not accurate — 2%
- ■ Not accurate at all — 4%

Figure 3 - Relevance of the statement "We develop cutting-edge scientific or engineering solutions"

FINDINGS:

- ■ Approximately **78%** of respondents (very accurate + mostly accurate) believe their companies are developing cutting-edge scientific or engineering solutions.

1.5. COMPANY ATTRIBUTES IN DEEP TECH (2/3)

We asked companies to self-evaluate themselves regarding deep tech attributes we defined previously.

"We tackle big challenges":

- Very accurate — 64%
- Mostly accurate — 30%
- Partly accurate and partly not accurate — 6%
- Mostly not accurate — 0%
- Not accurate at all — 0%

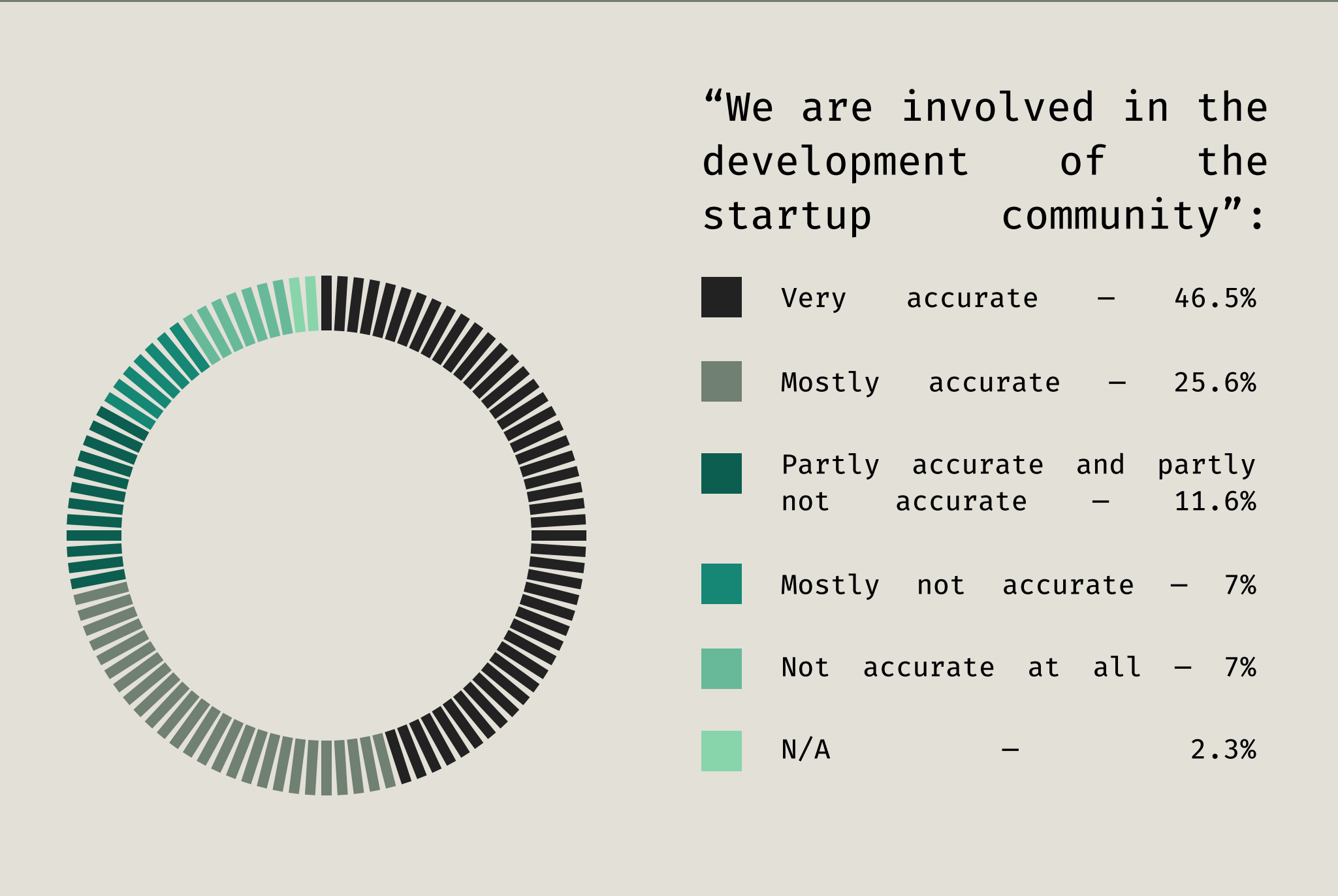Figure 4 – Relevance of the statement "We tackle big challenges"

FINDINGS:

- About **94%** of respondents (very accurate + mostly accurate) consider their companies to be tackling big challenges, highlighting the ambitious nature of these startups.

1.5. COMPANY ATTRIBUTES IN DEEP TECH (3/3)

We asked companies to self-evaluate themselves regarding deep tech attributes we defined previously.

"We are involved in the development of the startup community":

- ■ Very accurate — 46.5%
- ■ Mostly accurate — 25.6%
- ■ Partly accurate and partly not accurate — 11.6%
- ■ Mostly not accurate — 7%
- ■ Not accurate at all — 7%
- ■ N/A — 2.3%

Figure 5 - Relevance of the statement "We are involved in the development of the startup community"

FINDINGS:

■ Around **82%** of respondents (very accurate + mostly accurate) acknowledge their companies' involvement in the development of the startup community, showcasing a commitment to fostering innovation ecosystems.

2. PRODUCTS AND SERVICES PROVIDED BY DEEP TECH STARTUPS

This section explores deep tech startups' products, business models, and market strategies, offering insights into their innovations and growth plans.

2.1. PRIMARY APPLICATION AREA OF PRODUCTS/SERVICES

To understand the primary application areas of the products and services offered by deep tech startups, we asked respondents to specify the industry their product/ service most closely corresponds to.
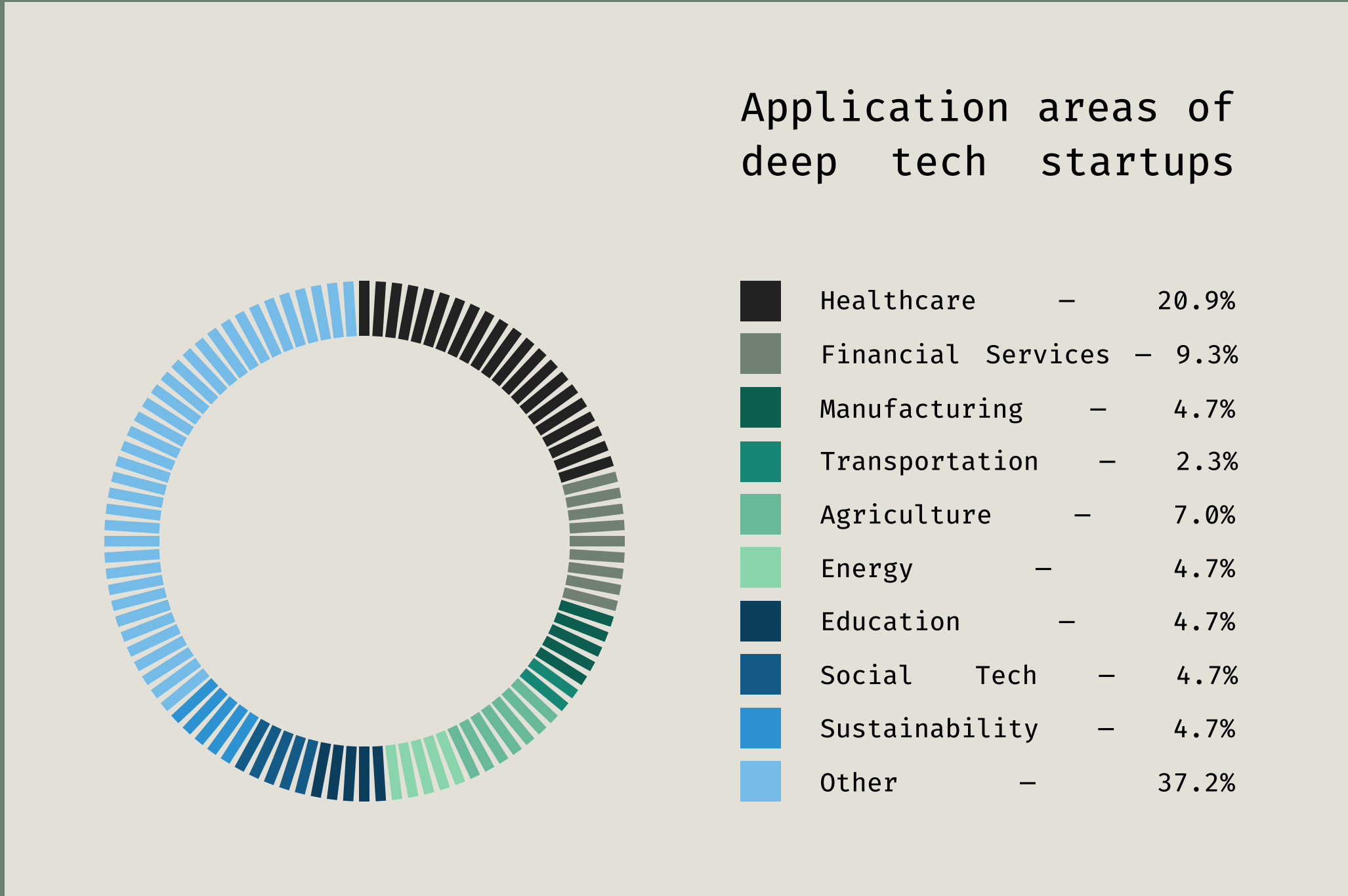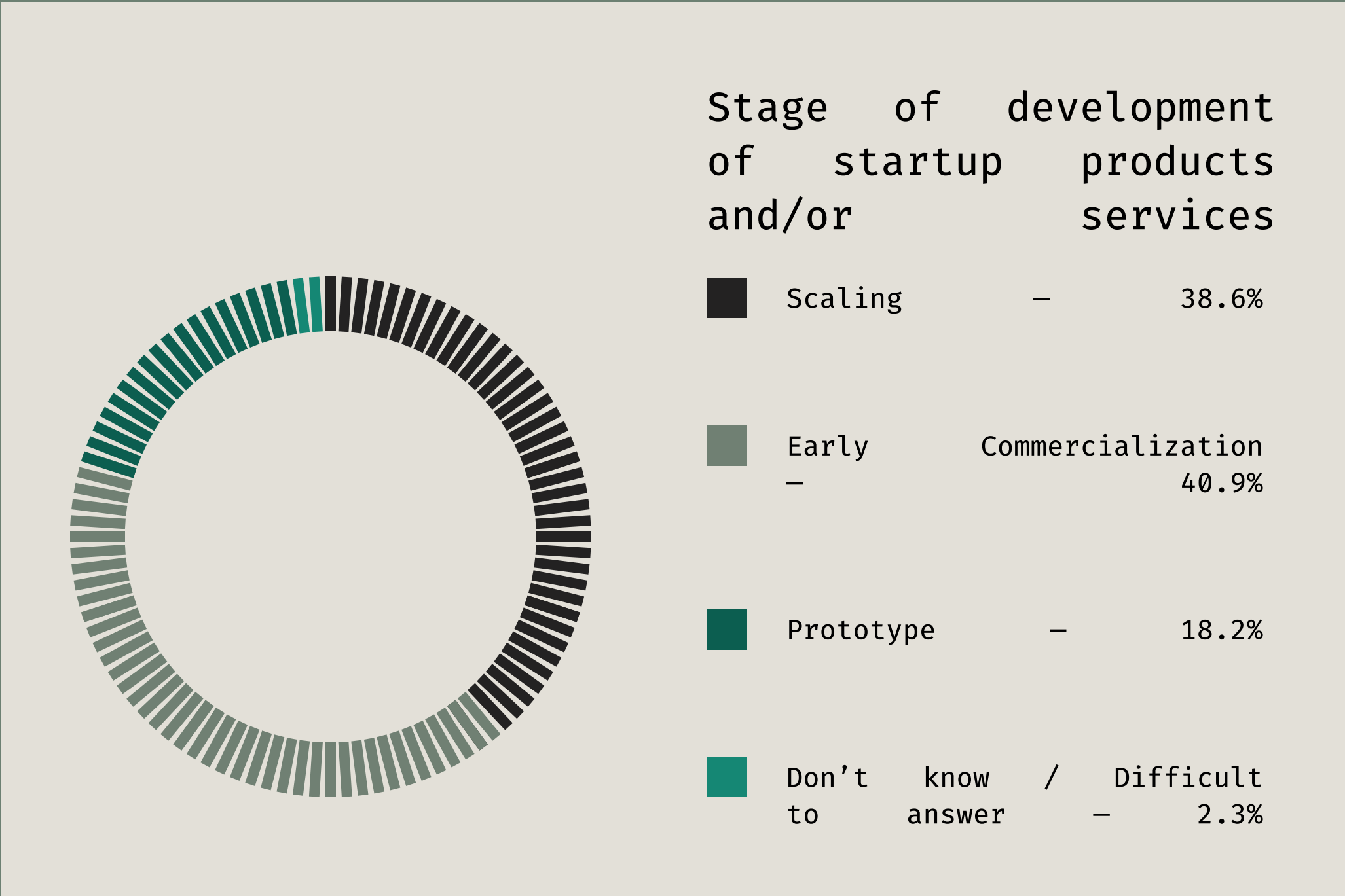

Application areas of deep tech startups

■	Healthcare	— 20.9%
■	Financial Services	— 9.3%
■	Manufacturing	— 4.7%
■	Transportation	— 2.3%
■	Agriculture	— 7.0%
■	Energy	— 4.7%
■	Education	— 4.7%
■	Social Tech	— 4.7%
■	Sustainability	— 4.7%
■	Other	— 37.2%

Figure 6 – Application areas of deep tech startups

FINDINGS:

■ Healthcare is the top focus with 9 responses, highlighting health-related innovations.

■ Financial services, with 4 responses, emphasize tech's role in transforming finance.

■ The "Other" category spans diverse fields like defense, energy, HR tech, proptech, education, and more.

■ Interviewed startups offer products like online education, VR visualization, secure data storage, and others.

2.2. STAGE OF DEVELOPMENT OF STARTUP PRODUCTS AND/OR SERVICES

To understand the stage of development of products and services offered by deep tech startups, we asked respondents to specify their current stage.

Stage of development of startup products and/or services

- ■ Scaling — 38.6%
- ■ Early Commercialization — 40.9%
- ■ Prototype — 18.2%
- ■ Don't know / Difficult to answer — 2.3%

Figure 7 – Stage of development of startup products and/or services

FINDINGS:

- ■ Most deep tech startups are in early commercialization (40.9%) or scaling (38.6%) stages, indicating they are bringing products to market or expanding.

- ■ A smaller group (18.2%) is in the prototype stage, still developing and testing their products.

2.3. PROMISING EXAMPLES OF DEEP TECH PRODUCTS AND SERVICES FROM OUR RESEARCH PARTICIPANTS

To gain insights into the deep tech products and services offered by startups, we collected detailed descriptions of their products and services.

FINDINGS:

- Their products and services cover a wide range of industries, including HR tech, AI, healthcare, finance, and energy. Many startups leverage advanced technologies such as AI to offer innovative solutions. Most startups aim to address specific market needs and societal problems, emphasising practical applications of their technologies.

- Examples of promising deep tech products and services showcased in this survey are the following: Falcons, Mantis Analytics, Effie> (IPLAND), Wolbe AI, Netex Cloud Technologies, NDI Foundation, Fondexx.

2.4. TECHNOLOGIES AS THE FOUNDATION OF PRODUCTS AND SERVICES

To understand the technological foundations of deep tech startups, we asked respondents to identify the core technologies underpinning their products or services.

FINDINGS:

- AI/Machine Learning leads with 38 mentions, driving deep tech innovation across industries.

- Bioengineering (4 mentions) and Quantum Computing (3 mentions) play key roles in specialized fields, pushing technological boundaries.

- Other technologies include geological methods, microbiology, VR, electrical engineering, and more, highlighting deep tech's diversity.

- Interviewed startups use AI for education, raw material sourcing, and early-stage illness diagnosis, alongside quantum computing, VR, 3D printing, and blockchain.

- Deep tech requires extensive research and creativity, with no clear path from development to client solutions.

3. TEAMS

This section explores who is involved in surveyed startups, their responsibilities, engagement limits, and the gender composition of the teams.

3.1. NUMBER OF FOUNDERS IN DEEP TECH STARTUPS

To understand the typical founding team size of deep tech startups, we asked respondents to indicate the number of people who can be considered its founders.
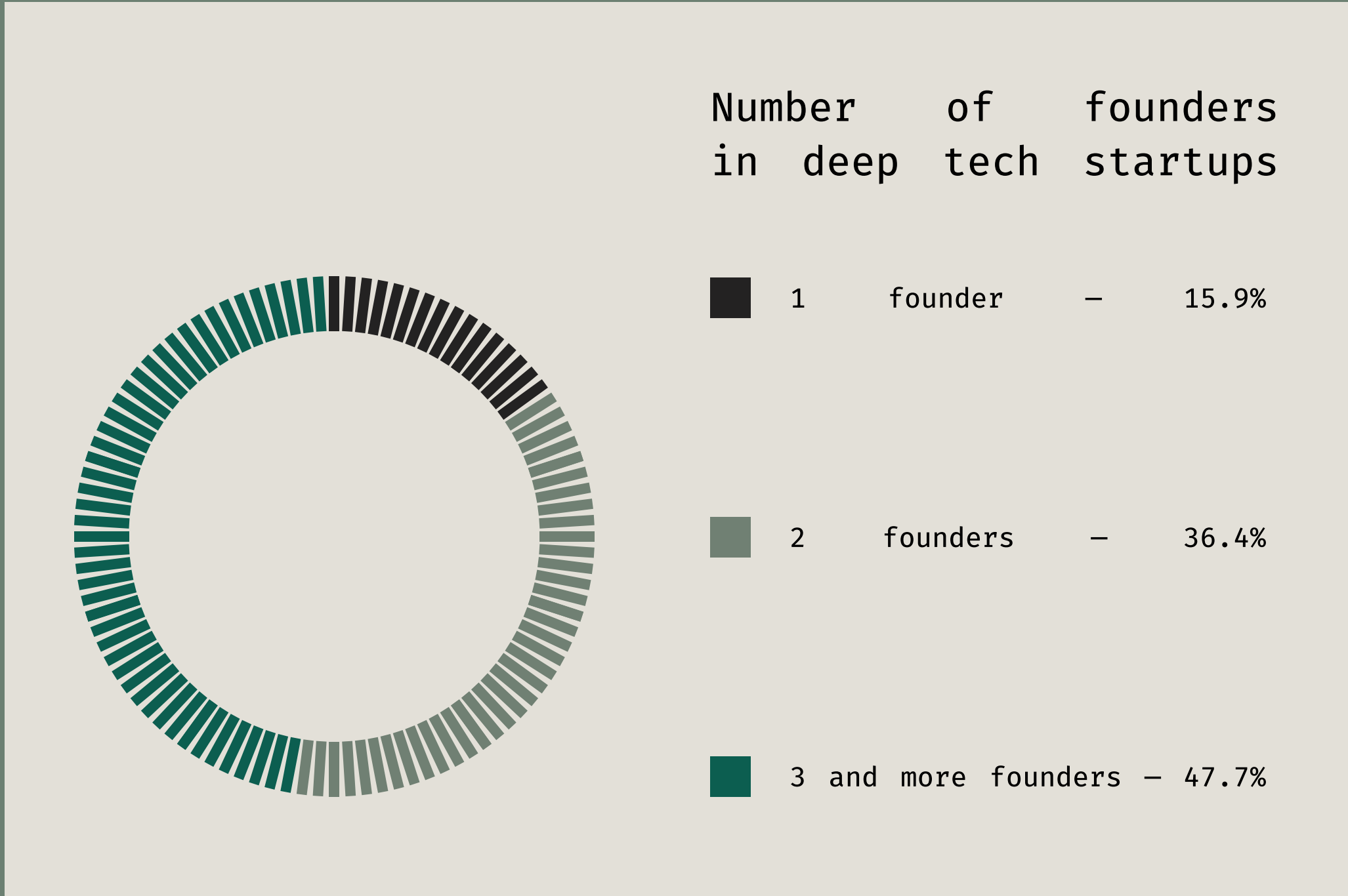

Number of founders in deep tech startups

■ 1   founder   —   15.9%

■ 2   founders   —   36.4%

■ 3 and more founders — 47.7%

Figure 8 - Number of founders in deep tech startups

FINDINGS:

- 47.7% of deep tech startups are founded by teams of 3 or more, reflecting the need for diverse skills.

- 36.4% have two founders, showing a trend towards collaboration.

- 15.9% are solo founders, though less common in deep tech.

- Collaborative teams are typical in deep tech, addressing complex challenges with diverse expertise.

3.2. CO-FOUNDERS NUMBER DYNAMICS IN DEEP TECH STARTUPS

To gain insight into the team dynamics of deep tech startups, we inquired about the current number of co-founders in each respondent's startup and compared it with the initial number of co-founders at the startup's inception.

Co-founders number dynamics

	Absolute change between foundation of the startup and current moment		
■	0	—	59.5%
■	1	—	19.0%
■	2	—	7.1%
■	3	—	9.5%
■	-1	—	4.8%
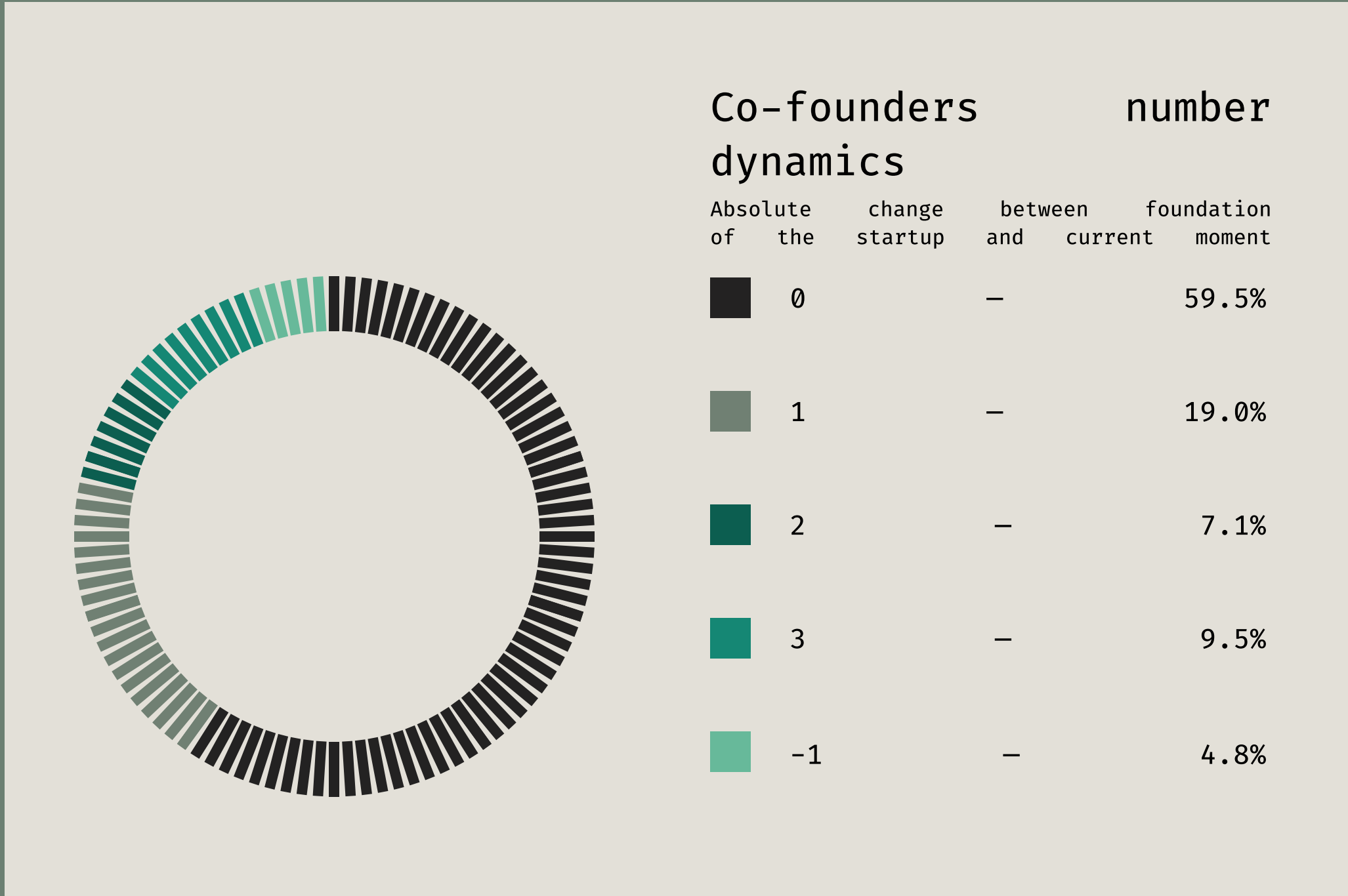
Figure 9 – Co-founders number dynamics

FINDINGS:

- 59.5% of startups have the same number of co-founders as at inception.

- 36.6% added 1-3 co-founders over time.
  - 19% added one co-founder.
  - 9.5% added three co-founders.
  - 7.1% added two co-founders.

- 4.8% have one fewer co-founder than initially. Co-founders often split responsibilities between technical/research and marketing/sales roles.

3.3. HIRING

To understand where companies search for new employees, we asked them about their primary recruitment sources.
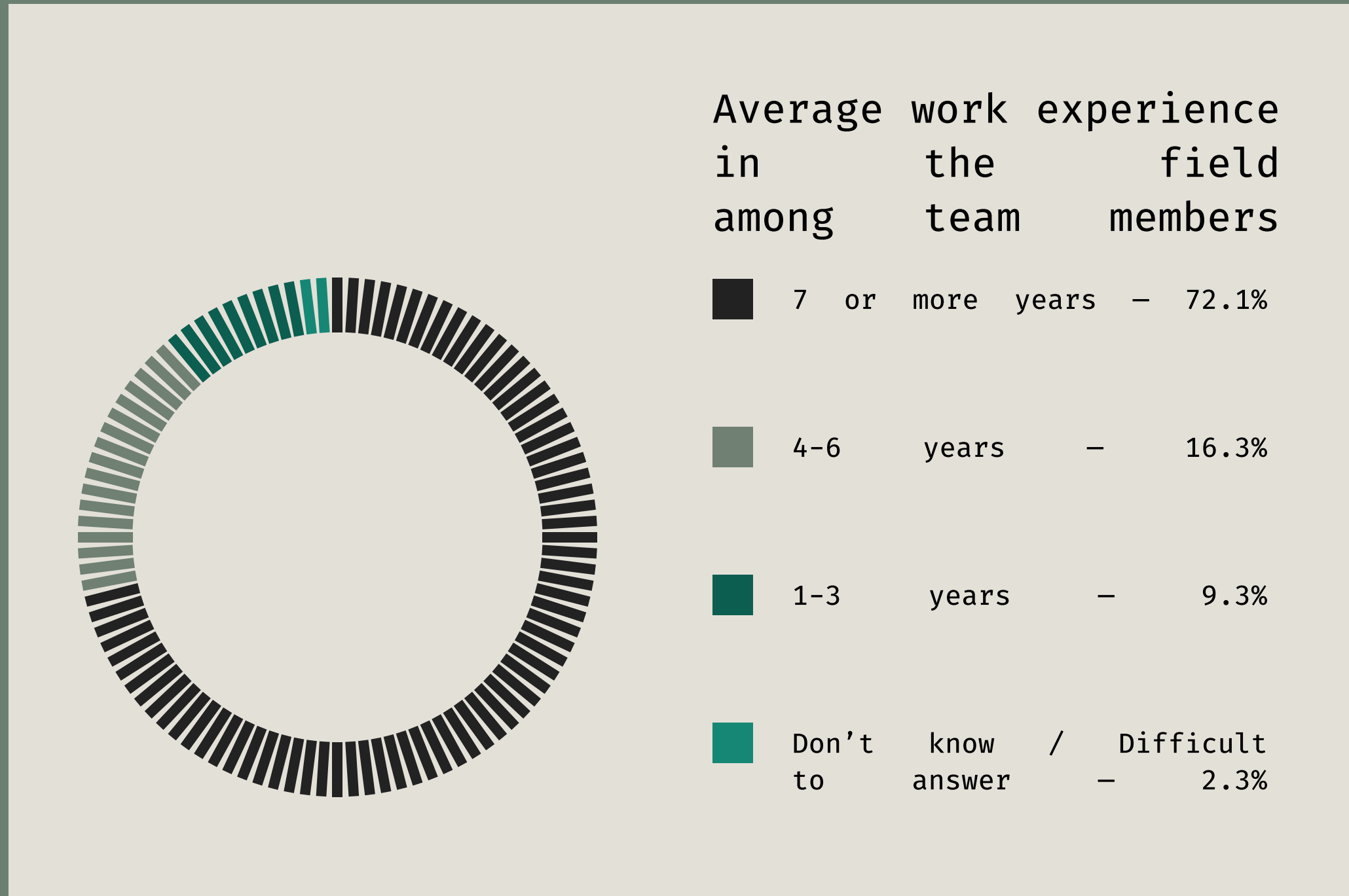
FINDINGS:

■ Founders find employees through personal networks and platforms like LinkedIn, DOU, Djinni (tech jobs), Work.ua, Robota.ua (non-tech jobs), and HappyMonday.ua (creative industries).

■ Working in the high-tech sector with cutting-edge technologies motivates potential employees.
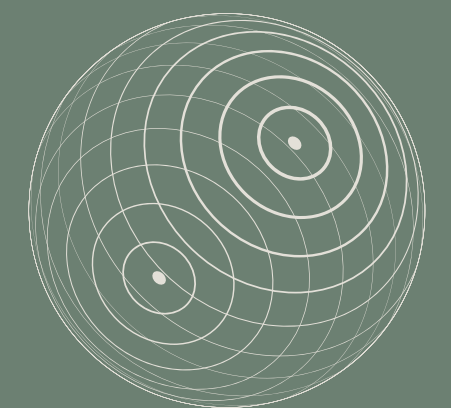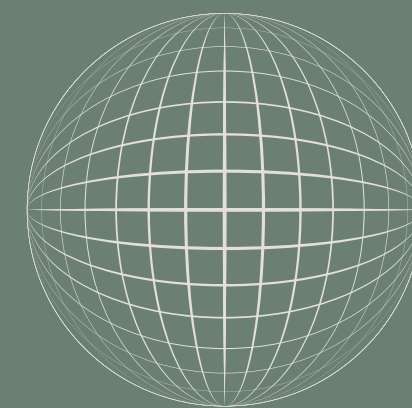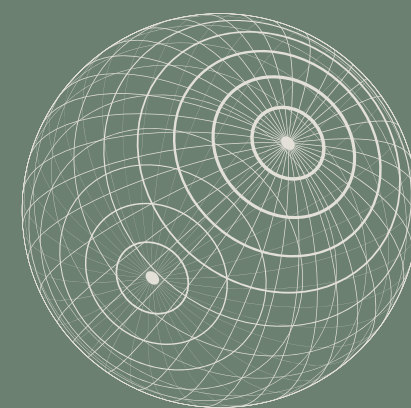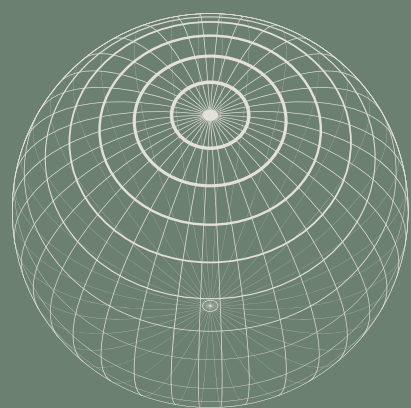
3.4. AVERAGE WORK EXPERIENCE IN THE FIELD AMONG TEAM MEMBERS

To understand the level of expertise within deep tech startups, we asked respondents about the average work experience in the field among their team members.

Average work experience in the field among team members

- ■ 7 or more years — 72.1%
- ■ 4-6 years — 16.3%
- ■ 1-3 years — 9.3%
- ■ Don't know / Difficult to answer — 2.3%

Figure 10 – Average work experience in the field among team members

FINDINGS:

- ■ 72.1% of deep tech startups have team members with 7+ years of experience, reflecting their reliance on seasoned professionals.

- ■ 16.3% of teams have 4-6 years of experience, still contributing significantly to innovation.

- ■ 9.3% have 1-3 years of experience, bringing fresh perspectives and dynamic ideas.

- ■ Overall, deep tech startups in Ukraine are built on highly experienced teams, driving innovation.

3.5. EDUCATION LEVEL OF KEY TEAM MEMBERS

To understand the educational background of key team members in deep tech startups, we asked respondents about the highest education level attained by their team members.

Highest education level of key team members

Master's Degree — 67.4%

PhD/Doctorate — 32.6%

Figure 11 – Highest education level of key team members
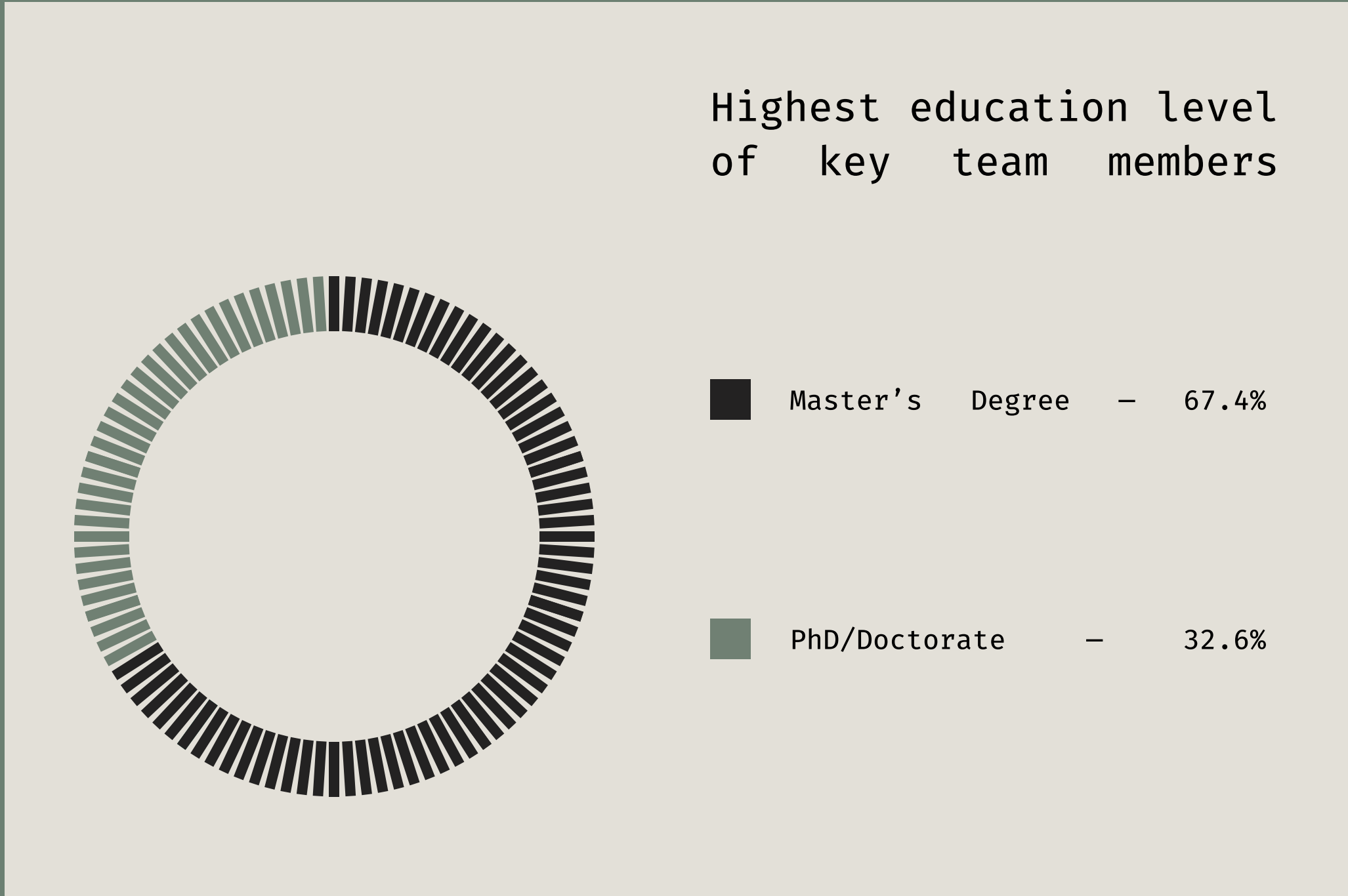
FINDINGS:

- 67.4% of key team members hold a master's degree; 32.6% have a PhD, highlighting high expertise.

- Founders cite challenges in Ukraine's STEM education and funding.

- Positive developments: National Research Foundation grants and strong quantum mechanics and aerospace engineering schools.

- Startups collaborate with companies and EU universities for product pilots and data access.

3.6. CRITICAL SKILLS AND QUALITIES FOR HIRING IN DEEP TECH STARTUPS

To identify the most critical skills and qualities that deep tech startups look for when hiring, we collected responses to open-ended questions.

THESE ARE THE MOST IMPORTANT SKILLS, ACCORDING TO THE REPRESENTATIVES OF THE SURVEYED STARTUPS:

- Soft Skills (46.6%): Interpersonal skills, emotional intelligence, and adaptability are key for teamwork and conflict resolution.

- Technical Expertise (16.3%): Proficiency in relevant technologies is crucial for innovation and problem-solving.

- Innovative Thinking (11.6%): Creativity and unique solutions are needed to stay competitive.

- Experience in the Niche (7%): Deep industry knowledge helps navigate challenges and provide valuable insights.

- Deep tech startups seek a mix of technical skills, innovation, soft skills, and industry experience to drive success.

4. DEEP TECH STARTUPS' ORIGINS

This section explores how startups begin, focusing on motivations, core teams, and whether an idea or market need came first. By understanding these origins, we aim to offer insights and guidance for new entrepreneurs on building successful ventures.

4.1. PREVIOUS ROLES BEFORE JOINING THE COMPANY

To understand our respondents' backgrounds before joining their current companies, we asked them about their previous roles.

FINDINGS:

■ Most founders were either entrepreneurs (17) or employees with managerial roles (22) before starting their current company.

■ Other roles included employees without managerial authority (5) and scientists (3).

■ Founders have diverse backgrounds, with experience in IT, R&D, STEM, and MBA programs.

■ Some founders transitioned from unrelated entrepreneurial ventures, hobbies, or academic thesis projects.

4.2. CURRENT ROLE AND LEVEL OF INVOLVEMENT OF STARTUP LEADERS

To understand the level of involvement of respondents in multiple startups, we asked them to indicate the number of startups they are currently working on.

Involvement in multiple startups

- ■ 1 Startup — 67.4%
- ■ 2 Startups — 20.9%
- ■ 3 Startups — 4.7%
- ■ 5 and more Startups — 7.0%
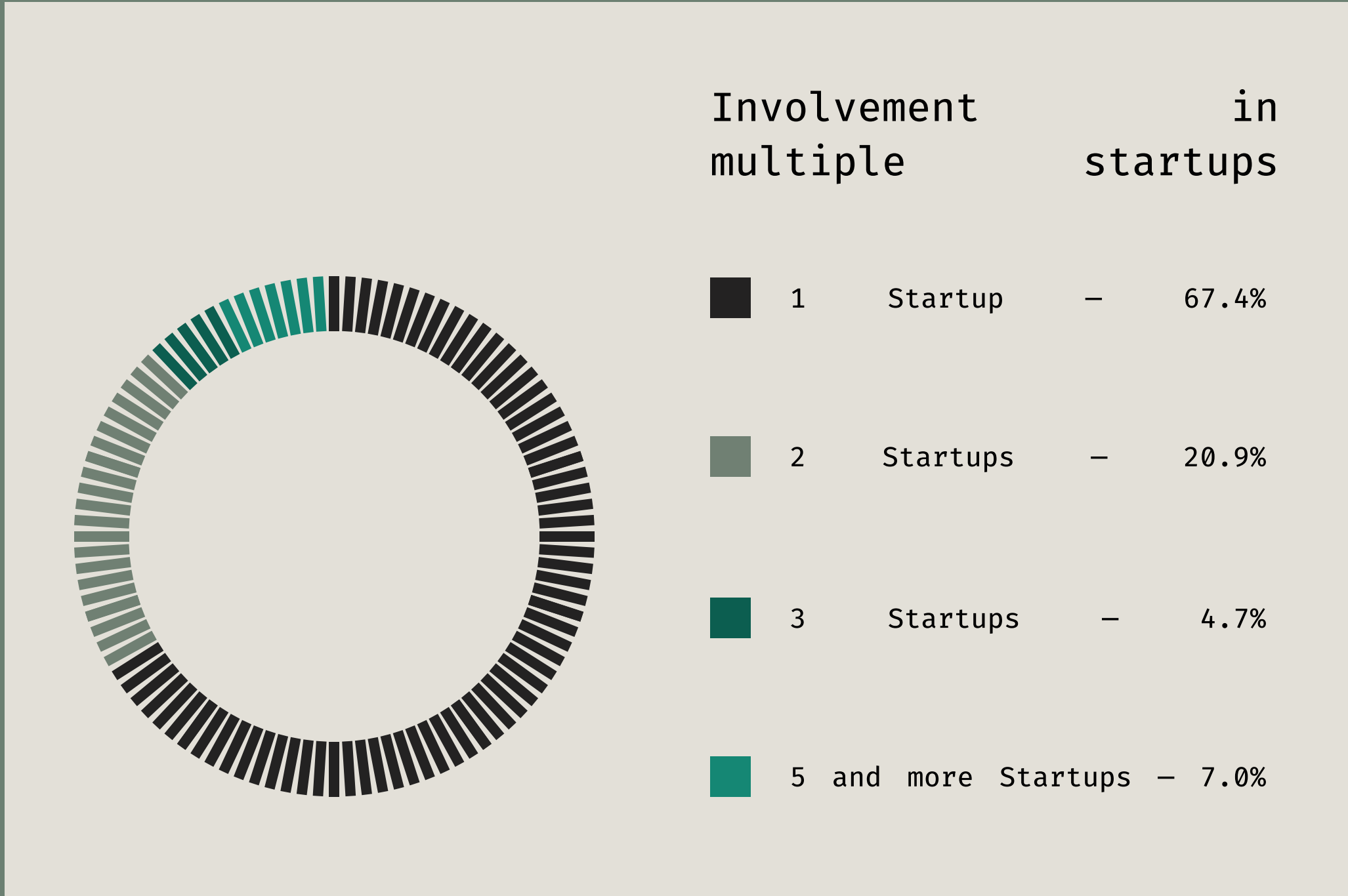
Figure 12 - Involvement in multiple startups

FINDINGS:

- ■ 66.7% of respondents (28) are founders or owners with the CEO role, indicating a strong focus on leading their companies.

- ■ 5 respondents are founders or owners without CEO functions, showing varied leadership structures.

- ■ Most respondents are dedicated to a single startup, while a smaller group is managing multiple ventures at once. This highlights the concentration of leadership in one primary company for the majority.

4.3. WHAT ARE THE ORIGINS OF STARTUP IDEAS?

To understand where the ideas for deep tech startups originated, we asked respondents whether their ideas stemmed from academic research, personal experience, market demand, or other sources.

FINDINGS:

- 35% of respondents said their startup ideas came from personal experiences, ranging from combat to professional challenges.

- 33% cited market demand as the main inspiration, often combined with personal insights to fill gaps.

- 16% based their ideas on academic research, using scientific studies to create innovative solutions.

- 14% mentioned a mix of academic research, personal experience, and market demand in developing their startups.

- These findings show that startup ideas often emerge from a blend of personal, market, and academic influences, driving innovation in deep tech.

4.4. PRIMARY MOTIVATION FOR STARTING THE STARTUP

To understand the primary motivations behind starting deep tech startups, we asked respondents to select all relevant reasons.
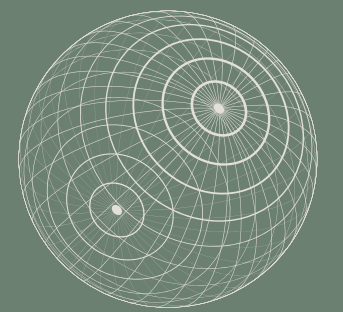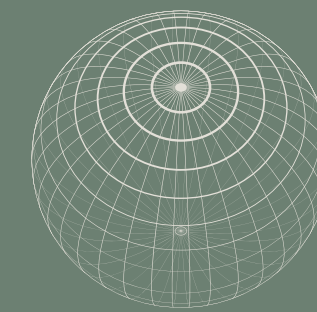
FINDINGS:

- 51% of respondents started their deep tech startups to meet a specific market need.

- 49% are motivated by solving societal or country-specific problems.

- 44% aim to enter promising niches, highlighting the innovative nature of these startups.

- 28% are driven by personal interest and passion for the problems they solve.

- 21% focus on implementing new technology to leverage emerging opportunities.

- Additional motivations include self-development and the desire to create something impactful.

4.5. DEEP DIVE INTO INSPIRATION BEHIND FOUNDING DEEP TECH STARTUPS (1/2)

To understand what inspired the founding of deep tech startups, we collected responses to open-ended questions.
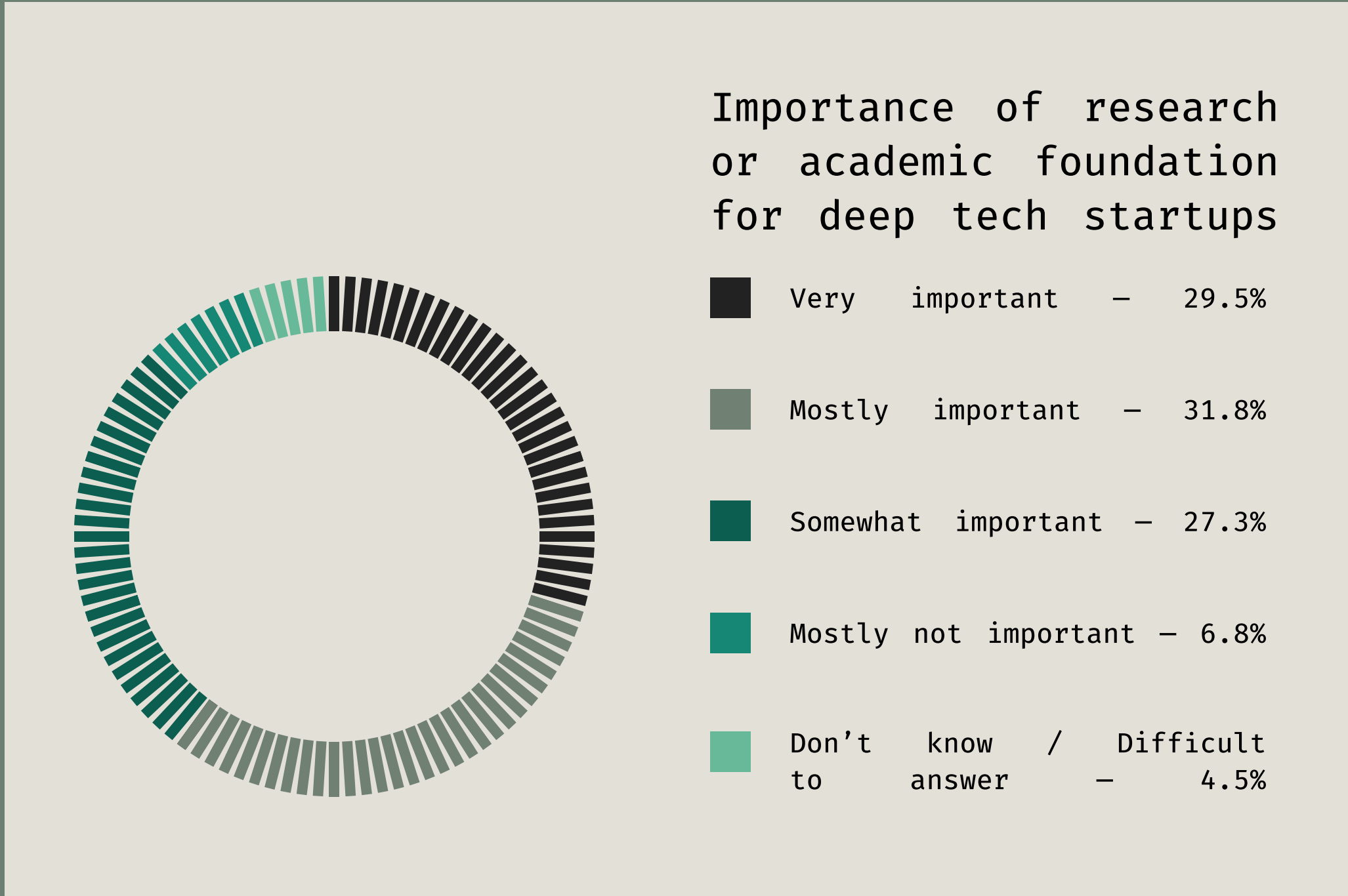
MAIN RESPONDENTS' MOTIVATIONS:

- Addressing personal or observed problems
- Passion for innovation and technology
- Career and industry experience
- Desire to make a positive impact
- Opportunities and market demand
- Personal passion and hobbies
- Global and national challenges
- Specific use cases and applications
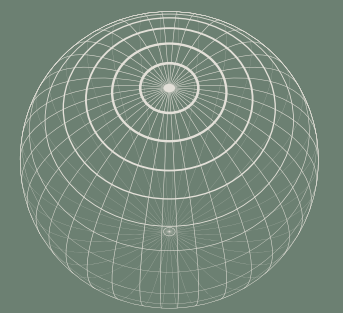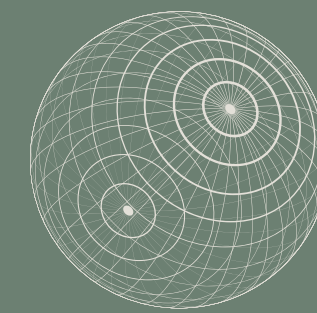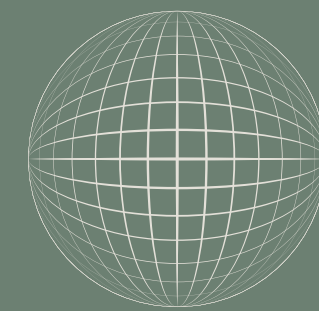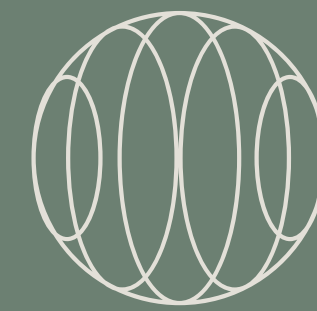
4.6. IMPORTANCE OF RESEARCH OR ACADEMIC FOUNDATION FOR DEEP TECH STARTUPS

To gauge the perceived importance of having a vital research or academic foundation for deep tech startups, we asked respondents to rate its significance.

Importance of research or academic foundation for deep tech startups

■ Very important — 29.5%

■ Mostly important — 31.8%

■ Somewhat important — 27.3%

■ Mostly not important — 6.8%

■ Don't know / Difficult to answer — 4.5%

Figure 13 — Importance of research or academic foundation for deep tech startups

FINDINGS:

- 61.3% of respondents see a strong research or academic foundation as key for deep tech startups, driving innovation.

- 27.3% consider it "somewhat important," while 6.8% see it as "mostly not important," suggesting other factors may matter more for some.

- Overall, a solid research foundation is widely valued, though its importance varies by startup.

5. ATTRIBUTES OF DEEP TECH STARTUPS

This section examines what sets shallow tech apart from deep tech, focusing on how these differences appear in our respondents' companies. To gauge the deep tech market in Ukraine, we analyzed their levels of innovation and market applicability.

5.1. WHAT IS "DEEP TECH" IN THE CONTEXT OF STARTUPS

FINDINGS:

- 85% of respondents define deep tech startups by a strong scientific foundation, focusing on science-driven innovation and substantial engineering challenges.

- 78% highlighted unique features, defensible IP, and high barriers to entry, often requiring significant capital.

- 90% emphasized innovation, extensive R&D, and reliance on cutting-edge technology with long development cycles.

- 65% pointed to AI and advanced technologies as central to deep tech.

- 70% noted the long development cycles and high risks of deep tech products.

- 55% mentioned academic spinouts and rigorous scientific approaches.

- Founders described deep tech as science-intensive, with AI, quantum computing, robotics, and space tech often cited as examples.

- Some founders view "deep tech" as a buzzword, while others see it as a term for high-risk, long-term investments that drive future innovation.

- Differences exist in understanding deep tech between the US and Europe, with US startups often focused on cutting-edge, non-consumer products.

5.2. HOW STARTUPS SEE KEY DEEP TECH ATTRIBUTES AND CHALLENGES

WE GATHERED RESPONSES TO IDENTIFY KEY CHARACTERISTICS OF DEEP TECH STARTUPS, REVEALING SEVERAL POINTS OF AGREEMENT:

- 90% agree deep tech startups focus on creating innovative solutions.

- 85% recognize high technological and commercial risks.

- 80% agree long, uncertain R&D cycles are common.

- 70% highlight the need for specific R&D strategies and problem-oriented missions.

AREAS OF DISAGREEMENT:

- 25% disagree that access to financing is a major challenge.

- 20% disagree about integration with academic ecosystems and complexity from undeveloped applications.

- 15% disagree on the link between deep tech and tangible products.

5.3. DEEP TECH ICONS WORLDWIDE RECOGNIZED BY UKRAINIAN STARTUPS

We asked respondents, "What are the "deep tech" startup icons in your industry worldwide?" and this is what we heard from them.

This question seeks to identify the well-known deep tech startups recognized by our respondents.

FINDINGS:

■ OpenAI is the most mentioned company, cited 5 times for its leadership in AI and deep learning.

■ Tesla and SpaceX follow with 3 and 2 mentions, respectively, for innovations in electric vehicles and aerospace.

■ Other notable mentions include Boston Dynamics, DeepMind, and Nvidia.

■ Overall, these companies are perceived as pioneers in their fields, driving significant technological advancements and addressing complex challenges through innovative solutions.

5.4. DEEP TECH STARTUP ICONS IN UKRAINE

To understand which companies are considered leading examples of deep tech innovation within Ukraine, we asked respondents to name any "deep tech" startup icons in the country.

FINDINGS:

■ Reface is the most mentioned, cited 7 times for its AI-based face-swapping technology.

■ Esper Bionics follows with 6 mentions for its work in bionics and medical technology.

■ Haiqu is noted 5 times for its contributions to quantum computing and AI.

■ Grammarly is mentioned 4 times for its AI-powered writing tool.

■ Carbominer received 2 mentions for its carbon capture technology.

■ Other notable companies include Ajax Systems, 3DLOOK, and Deus Robotics, reflecting the diverse innovation in Ukraine's deep tech landscape.

5.5. INDUSTRIES MOST CONDUCIVE TO DEEP TECH INNOVATIONS

To understand which industries or sectors are considered most conducive to deep tech innovations, we asked respondents to identify the areas they believe are most favourable for deep tech advancements.

Key sectors for deep tech innovations

■ Artificial intelligence and machine learning — 24.5%

■ Advanced material science — 20.4%

■ Quantum computing — 19.0%

■ Biotech — 17.0%

■ Robotics — 15.6%

■ Other — 3.4%
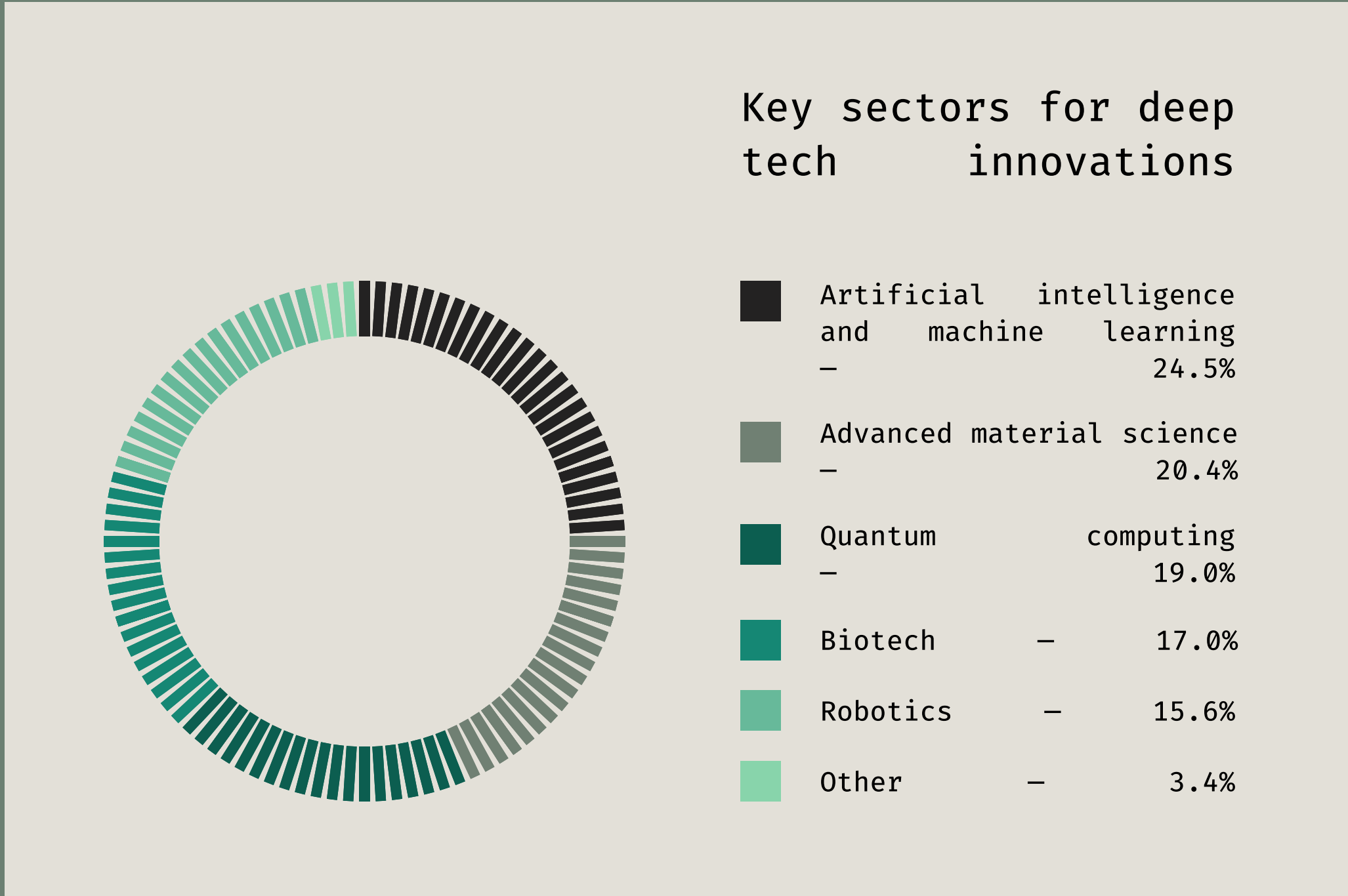
Figure 14 - Key sectors for deep tech innovations

FINDINGS:

■ AI and machine learning: mentioned 36 times, leading deep tech innovation.

■ Advanced material science: mentioned 30 times, crucial for new materials.

■ Quantum computing: mentioned 28 times, solving complex problems.

■ Biotech: mentioned 25 times, significant in healthcare.

■ Robotics: mentioned 23 times, advancing automation.

5.6. COMPARING THE STATE OF DEEP TECH INDUSTRIES IN THE USA, THE EU, AND UKRAINE

To understand the state of deep tech industries across different regions, we asked respondents to rate the deep tech industries in the USA, EU, and Ukraine on a scale of 1 to 10, where 1 is very poor and 10 is very good.

Avarage ratings for deep tech industries were determined
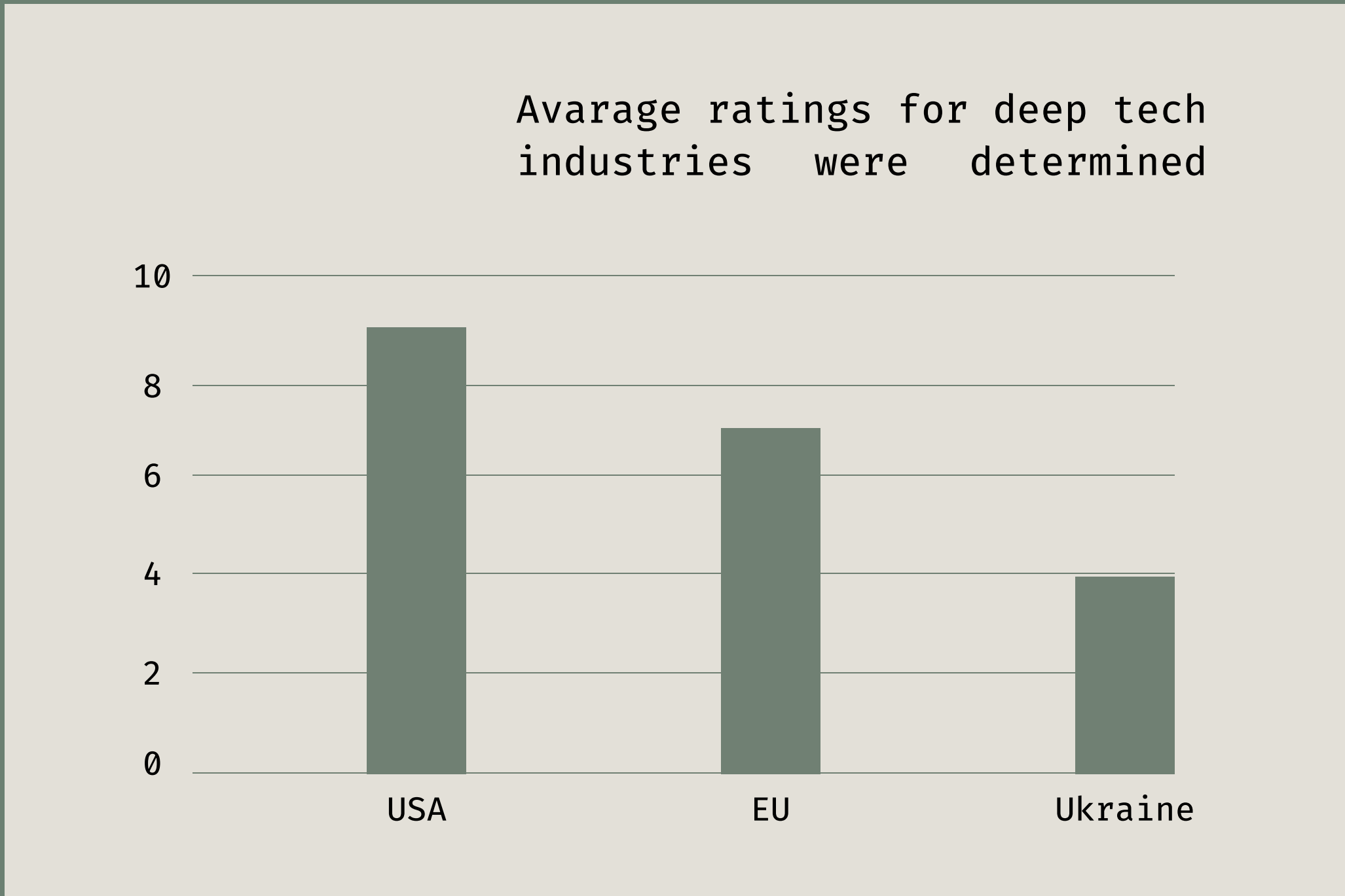
**Figure 15** - Average ratings for deep tech industries were determined

FINDINGS:

- USA: Average rating 8.9. Highly rated, with several perfect scores of 10.

- EU: Average rating 7.2. Positive but lower than the USA, with some variability in scores.

- Ukraine: Average rating 3.9. Reflects challenges, with low scores of 1-2 and few higher ratings (7-8).

- The USA leads in deep tech, the EU is competitive, and Ukraine faces developmental challenges, though expectations may influence perceptions.

5.7. FUTURE OF DEEP TECH

FINDINGS:

■ Founders foresee a future in deep tech focused on customization and personalized approaches, especially in fields like education and psychology, where technologies will adapt to individual needs.

■ AR and VR developments are seen as leading to more visualization, gamification, and behavioral observation, transforming how users interact with technology.

■ Some founders anticipate greater corporate investment in deep tech, with large companies increasingly investing in promising smaller startups to drive innovation.
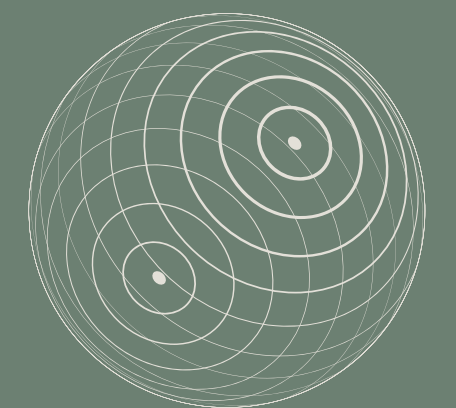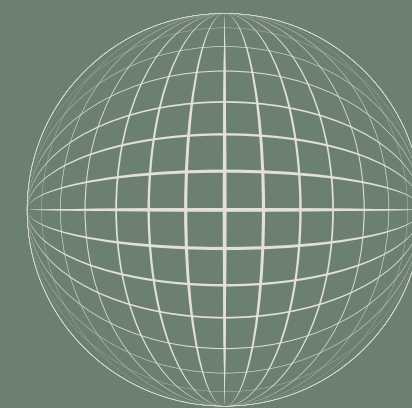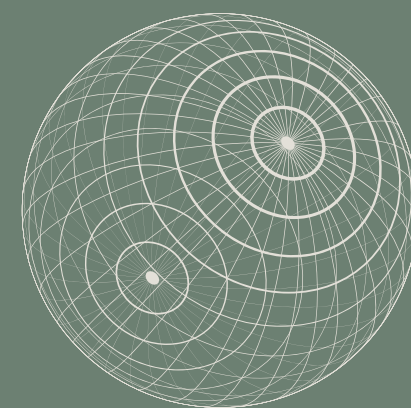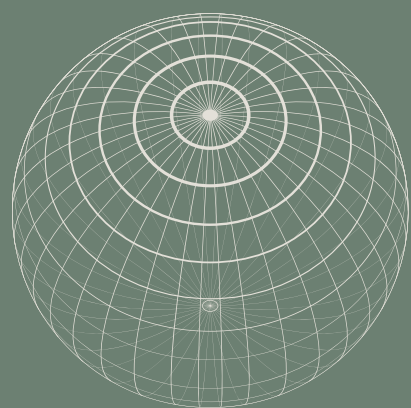
5.8. RISKS AND CHALLENGES FOR DEEP TECH

FINDINGS:

- Startup investment has decreased, but deep tech remains resilient due to longer financing cycles (7-10 years) and higher ROI.

- The russian invasion limits government support for Ukrainian deep tech startups, and foreign investors are wary due to war-related risks.

- Startups prefer buyouts over IPOs, fearing negative perceptions of Ukraine's risk.

- Conscription risks are mitigated by seeking draft deferrals and strategic status.

- Deep tech startups face challenges raising early investment due to long R&D cycles and demand for product-market fit.

- Some expect global venture investment to recover in 2024.

6. FUNDRAISING STATE IN DEEP TECH

This section focuses on the fundraising activities of deep tech startups, examining the amount of capital raised, future fundraising needs, strategies for raising additional capital, and company valuation assessments.

6.1. EXTERNAL FUNDING STATUS

To understand the funding status of deep tech startups, we asked respondents whether they have raised external funding.

Have you raised external funding?

■ Yes — 51.2%

■ Not yet, but in the process — 39.5%

■ No — 7.0%

■ Don't know / Difficult to answer — 2.3%

Figure 16 - Have you raised external funding?
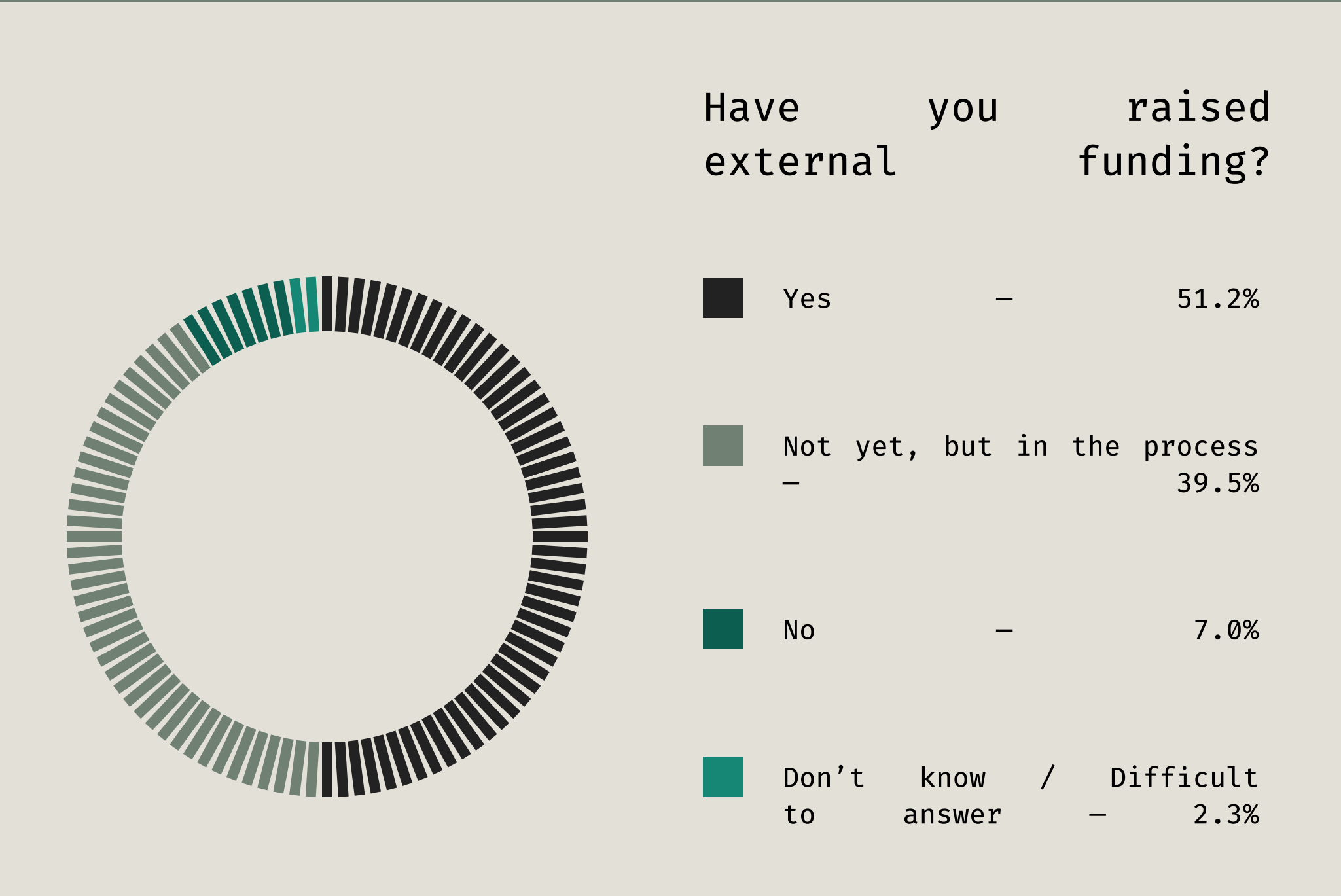
FINDINGS:

■ 51.2% of respondents have already raised external funding, showing strong investor interest in deep tech startups.

■ 39.5% are currently fundraising or planning to raise funds, reflecting a strong pipeline of startups seeking investment.

■ 7% have not pursued external funding.

■ 2.3% are uncertain about their funding status.

6.2. TOTAL AMOUNT OF INVESTMENT RAISED

For startups that have raised external funding, we asked them to specify the total amount of investment raised so far.

FINDINGS:

- Investment amounts:

  - Have not attracted investments yet: 39.5%
  - Less than $1 million: 39.5%
  - $1-5 million: 20.9%

- The majority of startups (17 responses) have raised less than $1 million, indicating that many deep tech startups are still in early funding stages or operating with modest investment levels. However, a notable number of startups (9 responses) have raised between $1-5 million, showcasing successful fundraising efforts and a higher level of investor confidence in these ventures.

6.3. SOURCES OF FUNDING UTILISED

To understand the various sources of funding utilised by deep tech startups, we asked respondents to specify their funding sources.

Sources of funding utilised

- ■ Own funds — 39.1%
- ■ Venture Capital — 23.9%
- ■ Other (please specify) — 17.4%
- ■ Grants — 10.9%
- ■ Business Angels — 8.7%
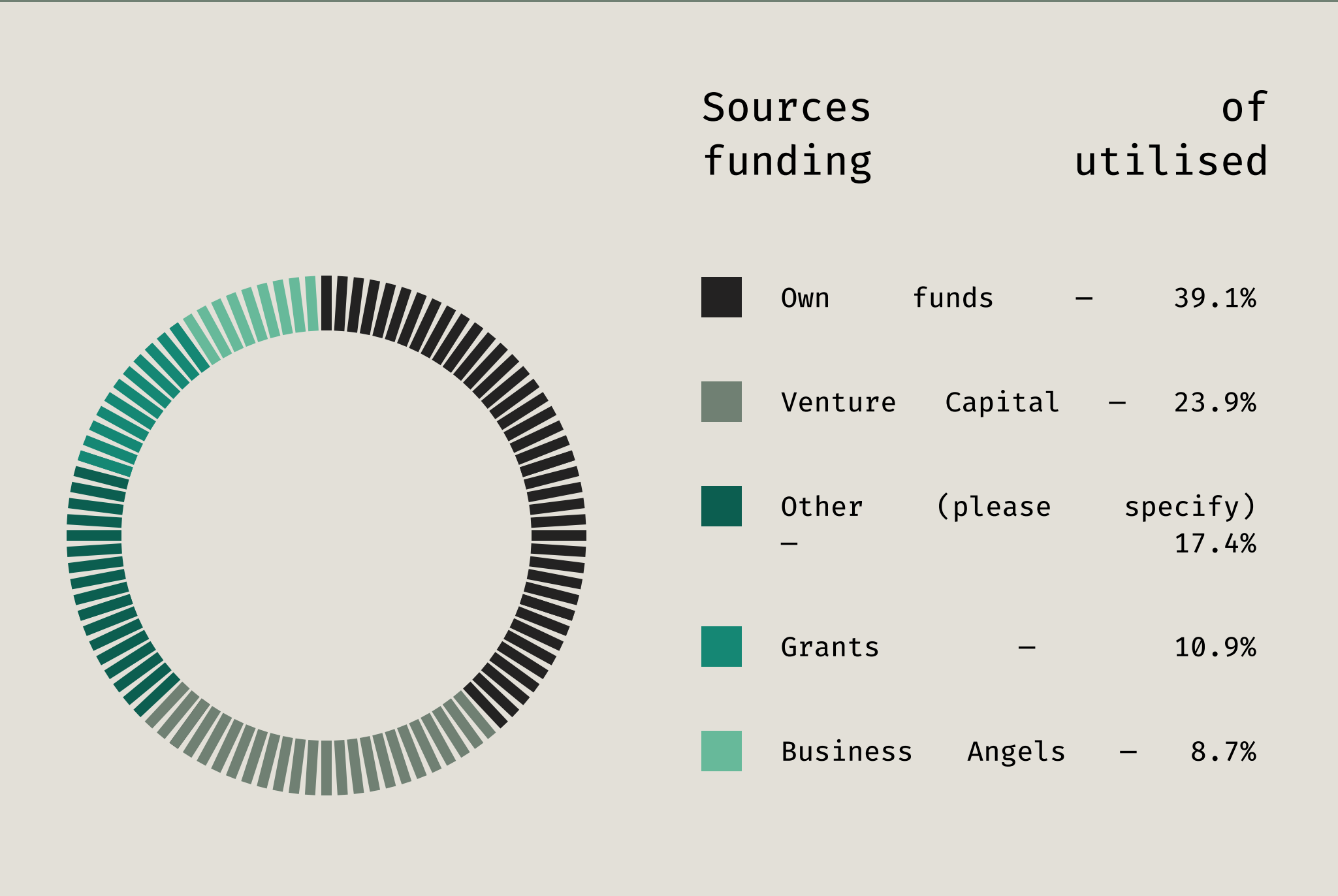
Figure 17 – Sources of funding utilised

FINDINGS:

- ■ Own funds: 39.1%, reflecting founders' dedication.

- ■ Venture Capital: 23.9%, key for scaling.

- ■ Grants: 10.9%, vital for R&D without equity loss.

- ■ Business Angels: 8.7%, offering mentorship.

- ■ Startups often rely on family, friends, and angels before seeking grants or government support.

- ■ Industry events are crucial for partnerships, but travel restrictions limit international networking.

- ■ Founders prefer non-equity accelerators with tailored support.

6.4. USAGE OF FUNDS

FINDINGS:

- Startups used external funds for market research, hypothesis testing, product-market fit, and creating new features.

- Funds were also used for product localization, salaries, and expanding into new markets.

- One founder noted that the Seeds of Bravery project helped them develop a step-by-step go-to-market strategy.
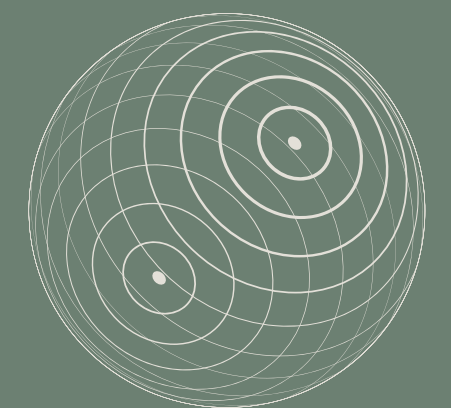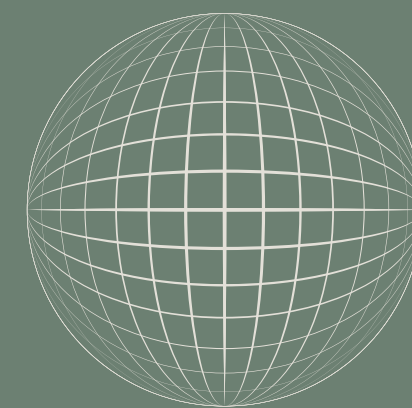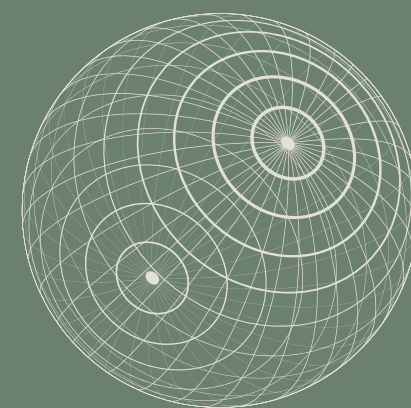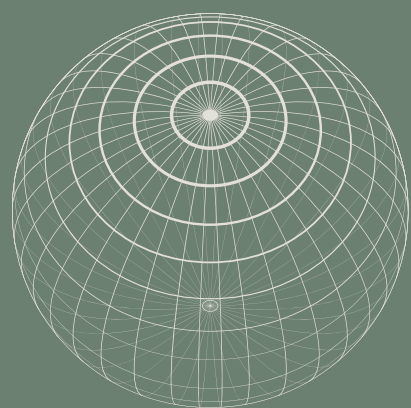
6.5. FURTHER NEEDS

FINDINGS:

- Startups prioritize matching with investors, product localization, hiring experts, and marketing campaigns.

- They seek funds for tech development, feasibility studies, and cash flow improvements.

- One founder mentioned needing a bridge round for final expansion into a new country.

- Another suggested co-financing grants with investment to ensure accountability and track returns.

- Mentorship, especially from programs like Seeds of Bravery, is valued for guidance in growth and funding.

- Founders suggest adding leadership and investment training to grant programs to help navigate risks.

CONCLUSIONS

DISCUSSION AND CONCLUSIONS

The first wave of research on Ukraine's deep tech sector revealed a diverse range of companies using technologies like AI/ML, blockchain, quantum computing, and bioengineering. Many are part of global networks, participating in international grants and pitching to investors, while also contributing to Ukraine's defense and recovery efforts.

Ukrainian deep tech companies rated the US sector highest, noting its narrow B2B focus. They view deep tech as science-driven, with high R&D investment and significant barriers to entry, making funding difficult as investors prefer market-ready products. Grants are crucial for supporting R&D.

Ukrainian startups use external funding for market expansion and operations, with grants and incubators providing valuable mentoring. Most deep tech startups emerged in the past 5 years, during the pandemic and russian invasion, which has negatively affected the sector through resource shortages, travel restrictions, and electricity cuts. Despite these challenges, the sector continues to innovate and contribute globally.

UKRAINE:

- **Need:** Protection of property rights and stable business conditions for deep tech innovation.

- **Recommendation:** Strengthen legislation to safeguard property and intellectual rights.

- **Need:** Fair competition and transparent practices in public procurement and regulation.

- **Recommendation:** Eliminate corruption and ensure fair business practices.

- **Need:** Reliable energy for uninterrupted deep tech operations.

- **Recommendation:** Protect energy infrastructure and implement decentralized energy solutions.

- **Need:** Travel restrictions hinder global market access for founders and employees. Recommendation: Improve travel mechanisms for business and education for conscription-age individuals.

- **Need:** Highly skilled workforce for deep tech.

- **Recommendation:** Modernize education and training aligned with deep tech needs.
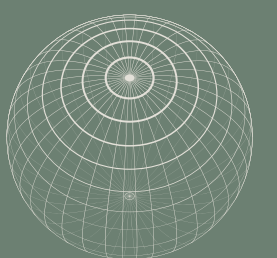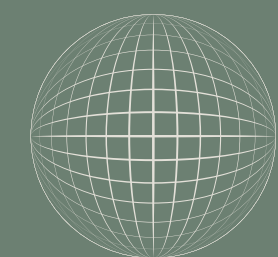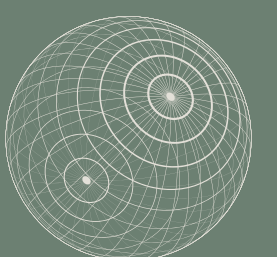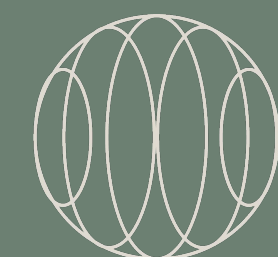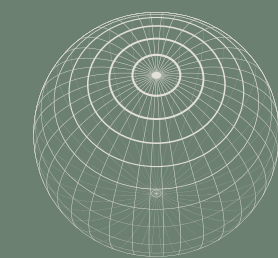
EU INSTITUTIONS AND GOVERNMENTS:

- **Need:** Peace and security for Ukraine's economic and technological recovery.

- **Recommendation:** Support Ukraine's defense, peacebuilding, and diplomatic efforts.

- **Need:** Restore Ukraine's energy supply amid russian attacks.

- **Recommendation:** Strengthen Ukraine's air defense and supply energy infrastructure equipment.

- **Need:** Access to upfront investment for deep tech startups.

- **Recommendation:** Include Ukrainian startups in grant and investment programs, including bridge rounds and co-financing.

- **Need:** Mentorship and networking opportunities for Ukrainian founders.

- **Recommendation:** Add mentorship and networking to financial support programs.
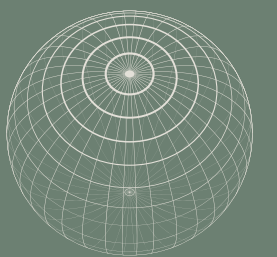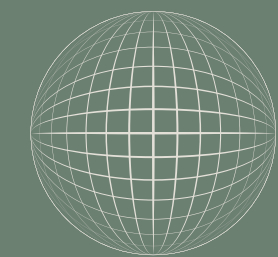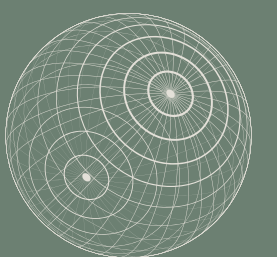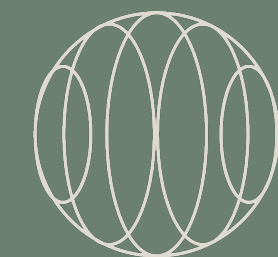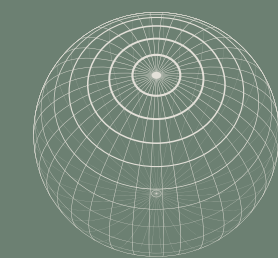
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