2024

STARTUPS AND GENERATIVE AI

Entering a New Era

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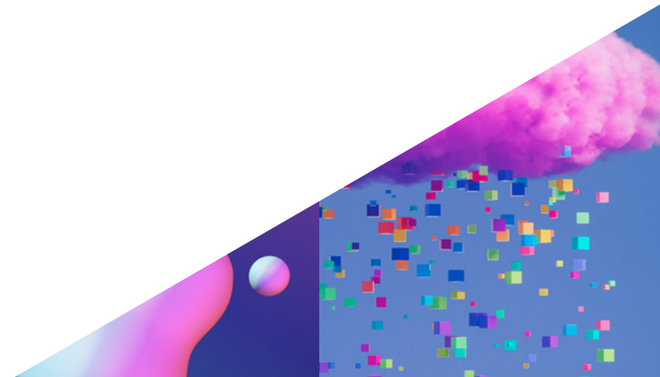



PREFACE

The launch of ChatGPT at the end of 2022 highlighted a groundbreaking technical innovation in the AI sector and marked a real revolution: Within a matter of months, a multitude of opportunities emerged with new applications for private use, but much more importantly for businesses across various industries. In the midst of this transition to a future characterized by generative artificial intelligence, with our study, we are directing the attention toward startups. As will be showcased, these companies are the key drivers of innovation, putting GenAI into practice, implementing new tools and making this technology part of their business models.

In 2023, we witnessed a significant surge in the creation of AI-focused firms in Germany, with a 67% increase on the previous year, going against the overall downward trend in the number of startups founded. That gives us cause for optimism. However, new markets also accelerate competition, and we need to stand out with the best ecosystem for innovation and growth. Compared to Germany and Europe, the US clearly leads the way: Lean regulation, large investments and the strong technical infrastructure of established tech companies are creating a true GenAI boom in the US. As a result, per capita funding for GenAI startups is twelve times higher than in Germany.

If we want to close this GenAI gap in Germany and Europe, we need to make more capital available and ensure that the EU AI Act is implemented without obstructing innovation. At the same time, we also need to focus on our own strengths most notably in research, university education, and particularly the broad SME landscape. The clear B2B focus of many AI startups underlines their ability and intention to solve the challenges of the established economy with their agility and power to innovate. If we manage to transform Germany's vast manufacturing industry into customers of and investors into the GenAI startup ecosystem, Germany and Europe have the potential to be at the forefront in the coming years. However, this also requires us to rethink education, training and research – ensuring that we seize the opportunities of this new area.

Startups are leading the way, which is why they are the theme of this study. We trust that the figures and findings presented here will provide relevant inspiration and wish you an exciting read!

Nicole Büttner
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Board Member German Startup Association

Axel Menneking
Vice President Startup Incubation &
Venturing Deutsche Telekom

Jan Hofmann
Vice President, Head of AI Competence Center
Deutsche Telekom

KEY FINDINGS

01

ARTIFICIAL INTELLIGENCE THRIVES DESPITE THE CRISIS
While the number of new startups in Germany fell in 2023, 67% more AI-related startups were founded than in the previous year – the number of new companies rose from 204 to 341.

02

STARTUPS ARE EARLY ADOPTERS
76% of startups regularly use GenAI tools such as ChatGPT, primarily in marketing (80%), product (59%), and IT (49%), making them true pioneers in the current GenAI revolution.

03

GENERATIVE AI = YOUNG + B2B
40% of German startups with a GenAI focus were founded this year or last. 93% are specifically oriented towards B2B customers, underlining the significance of the automation of the established economy.

04

BUCKING THE TREND
While global financing for startups fell by 57% between 2021 and 2023, it surged by 363% to 22.3 billion euros in the GenAI sector, which makes artificial intelligence the most important sector in the ecosystem at present.

05

THINKING BIG
German startups with a GenAI focus demonstrate a strong growth mindset, with 20% aiming to achieve a billion-dollar exit valuation – through an IPO, for example (startups without GenAI focus: 3%).

06

GERMANY IS FALLING BEHIND
In the US, 12 times more capital is invested in GenAI startups per capita than in Germany. The gap in this key technology is widening and is about twice as large as for startup investments overall.

07

THE US DOMINATES
Only 4% of founders see Europe as the future winner of the GenAI race – 68% put the US in front (China: 20%). This is in line with the strong financing and market position of American startups and tech companies.

08

THE AI ACT POSES ADDITIONAL CHALLENGES
Startups with a GenAI focus are skeptical about AI regulation. While 33% see the AI Act as a significant barrier to innovation and 29% as a clear competitive disadvantage, only 7% point out the increase in trust and 8% the legal certainty.

1. A NEW ERA OF ARTIFICIAL INTELLIGENCE

1.1. A TURNING POINT

Almost everyone knows about, and an increasing number of people are using ChatGPT. We ask the tool to write texts, summarize information or prepare presentations. This application from OpenAI broke every user record going. Just two months after its launch in November 2022, it had 100 million users, setting a new record for user growth (Reuters 2023). Recently, video tools such as Sora from OpenAI and Pika have gained widespread popularity with highly detailed text-to-video content. The advent of many applications in the field of generative artificial intelligence (GenAI) and their widespread use signifies a clear turning point. While AI has been the subject of mainly theoretical and abstract discussions over the last ten years, it is now being put into practice and has arrived in the mainstream.

As such, new digital products are nothing exceptional and a new streaming portal or another work organization tool usually don't fundamentally change things. However, the dynamics in GenAI have a completely different quality. Here, a new technology is being used that is transforming our economy and the way we work. Instead of slaving away for hours, we can now get AI to create the first draft of a text based on just a few keywords. Although, to do this we have to know which instructions or prompts to "feed" into the program. As a result, certain tasks are becoming less important while new ones that require specific skills are emerging. For companies and employees alike, this means that those who understand and use generative AI have a clear advantage over their competitors.

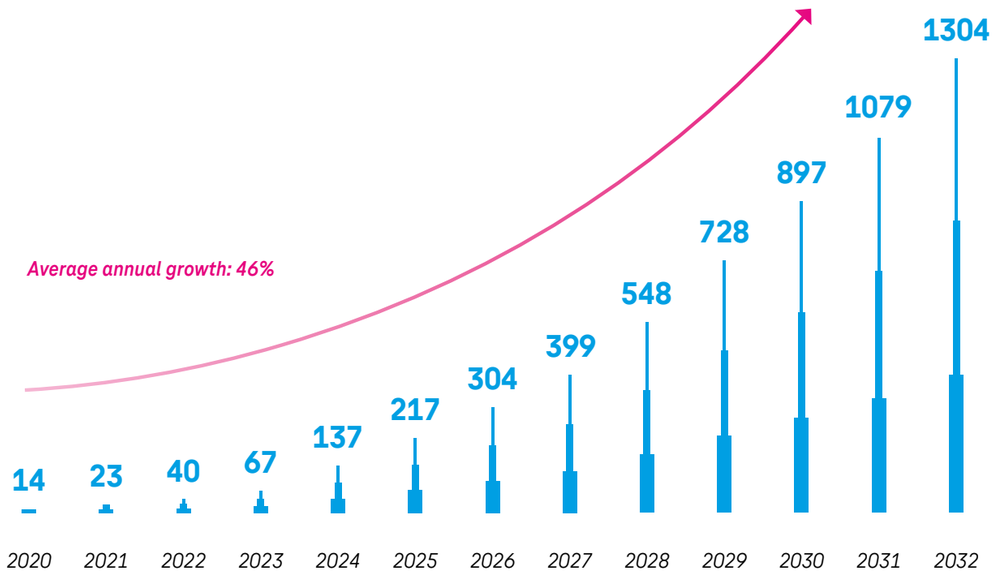
The aim of this study, based on the turning point of GenAI, is to pinpoint current changes and identify the main characteristics of this development. The study is aimed specifically at startups that are not only drivers of this innovation but are also early adopters of new technologies. As a result of this focus, we address the following questions: What new opportunities are presented by Generative AI? How are the current developments impacting the economy and society? Which young companies are driving these changes, and what do they need? And, regarding this transformation, how are Germany and Europe positioned in terms of the international competition?

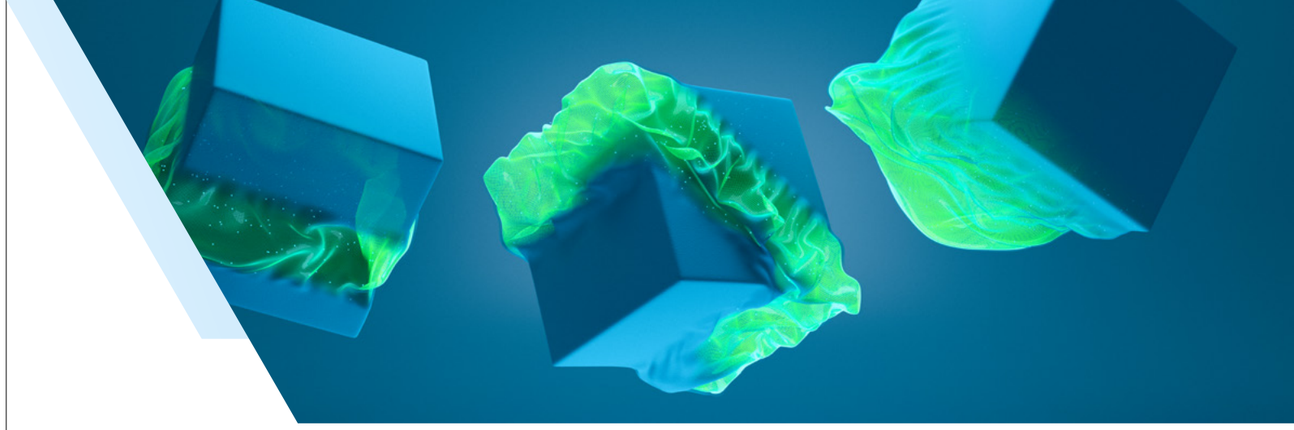
1.2. REVOLUTION IN ECONOMY AND SOCIETY

According to Bill Gates, with GenAI the era of artificial intelligence has only just begun – and we're currently seeing a revolution comparable to that of the internet or the smartphone (Gates 2023). This is because we are now able to do things that were previously impossible. While traditional AI applications analyze data and recognize patterns, thus allowing them to make predictions, a decisive factor has now been added. AI can create something itself. And this capability opens a whole range of new fields of application. Now, for example, using a few pieces of information as a basis, we can write a book in the style of a famous author or compose a piece of classical music. At the same time, a range of more complex B2B use cases is emerging. In the field of medicine, startups such as Ryver AI are driving clinical diagnostics forward, with B2B startups like Aleph Alpha digitalizing the business processes of their customers.

The rapid proliferation of generative AI is fueling its development while also enabling extremely fast technical innovation. At the end of 2022, rudimentary text production seemed impressive, but by the summer of 2023, everyone was talking about image-generating tools such as Midjourney, and in recent weeks AI-generated video or music content has gained widespread popularity. These tools clearly illustrate how quickly the potential of GenAI can be realized. Forecasts of the market impact of the technology are correspondingly optimistic. For example, Bloomberg (2023) is expecting revenues to grow by 46% per year to around 1.3 billion USD by 2032.

Figure 2: Size of the global GenAI market in billion USD
Source: Bloomberg (2023)





Besides the growing GenAI market, the huge economic impact is an additional factor that needs to be considered (see section 2.1). GenAI is a turning point in AI and has brought about a new digital revolution. The foundation and establishment of AI companies and the industrial use of GenAI applications are projected to have enormous effects on efficiency and productivity. At the same time, the questions of what AI should be allowed to do, what damage it may cause and how this can be prevented, have also become increasingly important (Hirschfeld et al. 2021). The way in which the EU AI Act, passed in March 2024, is implemented has therefore created a major discussion in Germany and Europe.

Generative AI has launched the fastest industrial revolution we have ever seen: a transformation of knowledge work. Now that the dust has settled after the initial enthusiasm, many of the best companies are noticing that there are no easy answers to critical questions, and that responsibility cannot be delegated to chatbots. While some companies are already seeing their first positive ROI and are rolling out their own solutions, others are still experimenting with standard applications from the big providers. The best approach is not one size fits all: Every company has its own exceptional opportunities, and the best strategies will create empires – but those limiting themselves to the role of a (paying) customer shouldn't be surprised when the value-creating potential of this new era is mainly exploited by others."

JONAS ANDRULIS
Founder & CEO Aleph Alpha

1.3. FOCUS ON STARTUPS

Today, the development of state-of-the-art AI systems is primarily taking place in the business sector (Stanford University 2023). While research has laid the foundation, subsequent innovations in AI have mainly been driven by companies that have access to the necessary resources – the most important being data, computing capacity and funding. However, the role of startups – young companies that put innovation into practice – is very often overlooked. At the end of the day, the GenAI revolution wasn't triggered by a new solution from Google, Meta or Microsoft, but by OpenAI, a company that was founded less than 10 years ago.

Whereas established tech companies view AI innovation within the framework of their existing business models, it is the startups that are putting new technologies such as GenAI into practice, rapidly developing new solutions. This is why focusing on startups enables us to understand the potential of generative AI and how to leverage it (see section 2). Startups in the field of GenAI are characterized by a focus on the B2B segment, an ability to raise capital and a high level of innovation (see section 3). In this context, the international perspective and the positioning of Germany and Europe regarding AI and GenAI startups are crucial. (see section 4).

Figure 2: Founders' view on their own company
Source: Startup survey, conducted in 2024

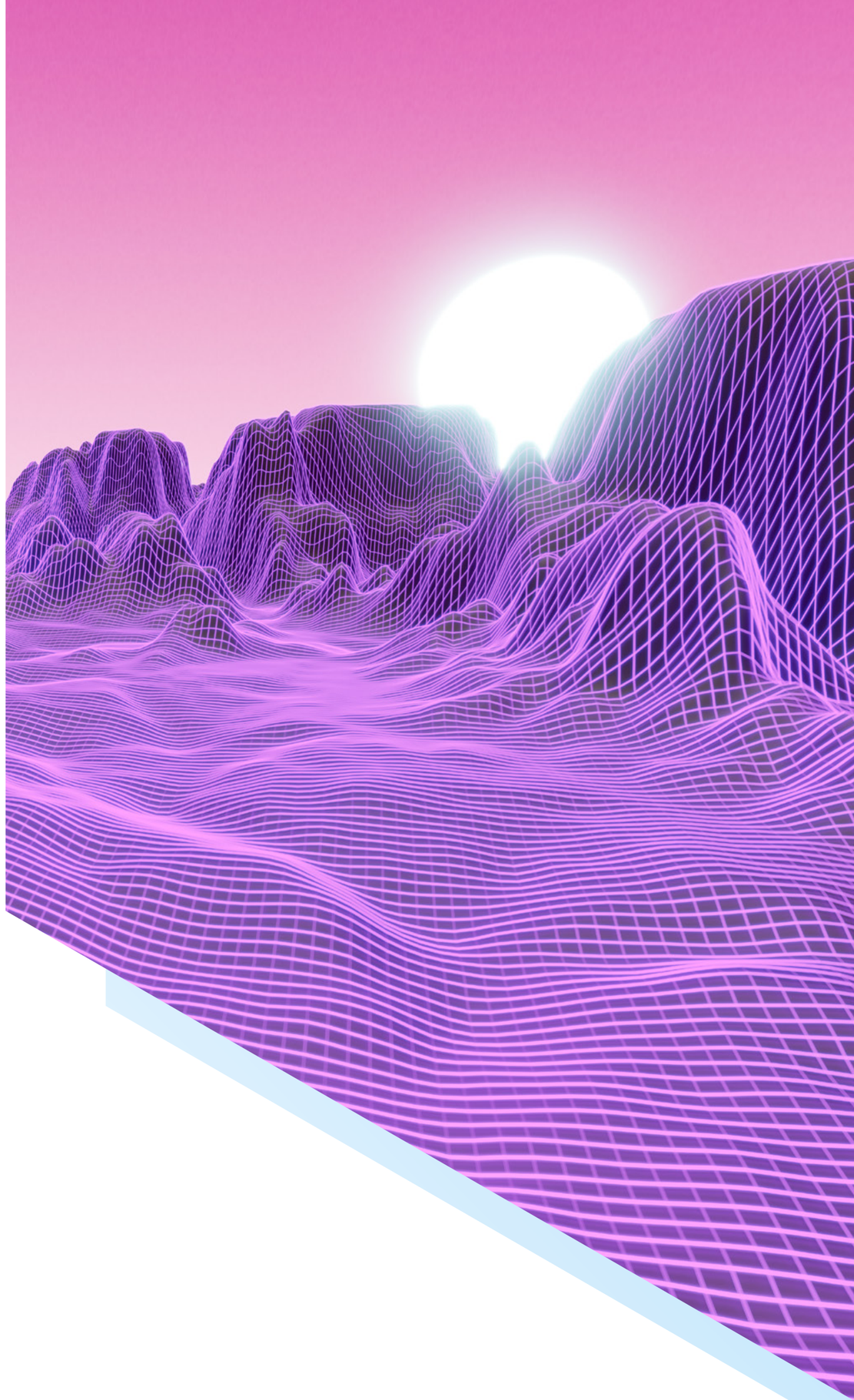
87%

see major opportunities for their company through generative AI – with 40% fully agreeing.

9%

fear that GenAI will be a threat to their current business model – half are not worried at all.

The key data for this study was collected through a standalone survey of German startups conducted between January and February 2024, during which we gathered information from 306 companies. To get a picture of current developments in Germany, we also analyzed commercial register data from startupdetector (2024) and drew on data from the German Startup Monitor (Kollmann et al. 2023). Additional data from the Dealroom platform (2024) was used to identify trends and formed the basis for benchmarking Germany and Europe in international comparison.



2. STARTUPS PIONEERING NEW TECHNOLOGIES

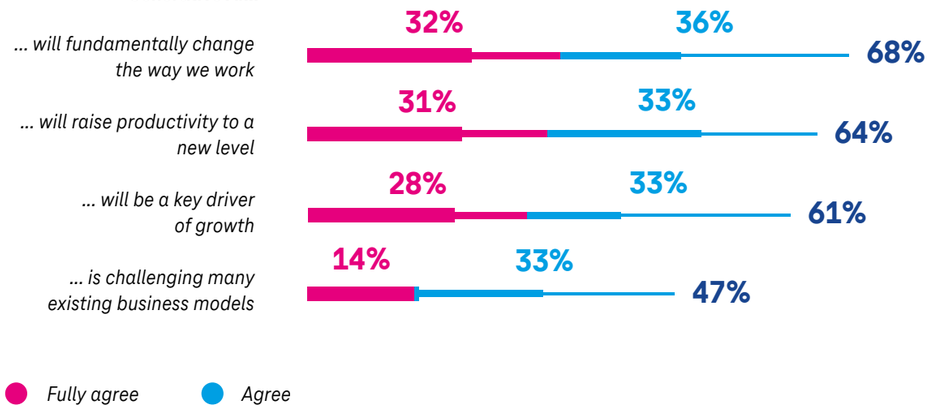
2.1. TRANSFORMATION OF THE ECONOMY AND THE FUTURE OF WORK

Generative AI has arrived with tremendous force and new opportunities for consumer applications in particular explain the rapid rise in global awareness of this technology. However, the decisive economic significance lies in the breadth of the economy and industry: estimates assume an annual economic impact of up to 4.4 trillion US dollars. (McKinsey 2023), which corresponds to Germany‘s GDP of just over EUR 4.1 trillion in 2023 (Federal Statistical Office 2024). This highlights the fact that GenAI, in contrast to traditional AI applications, opens up new opportunities for many different sectors to increase efficiency.

Startups also consider GenAI as a critical economic lever: 64% assume that GenAI brings productivity to a new level, and 61% agree with the statement that GenAI is a key driver of growth. The increase in efficiency is a particularly important factor. In this context, 68% of founders who responded to the survey believe that “the way we work is radically changing”.

The transformation of both business models and the future of work therefore go hand in hand. While the number of partially or fully automated tasks will continue to grow, e.g. speech-based customer service hotlines, other skills, such as writing prompts for GenAI to work with, will become increasingly important.

Figure 3: Economic effects of Generative AI
Source: Startup survey, conducted in 2024

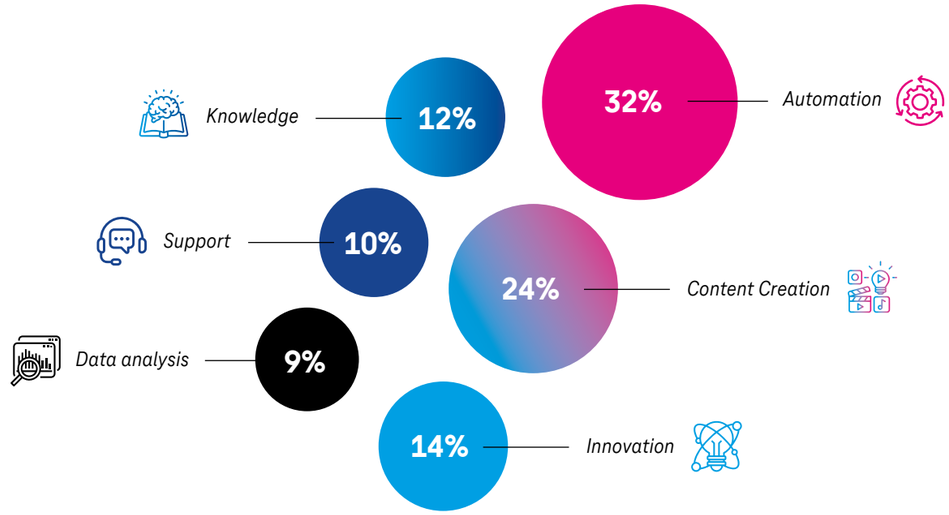


But, what exactly distinguishes the GenAI innovation that is driving the current transformation? Where do startup founders see the greatest potential and opportunities? Clustering almost 250 responses to this open-ended question confirms that automation is the principal advantage for 32% of founders. Also, content creation (24%) emerges as a particularly promising use case. In many other responses automation was a key factor: Whether it's in research or coding, founders see the opportunities not only in specific use cases but in the overall increase in efficiency.

Corporate culture is increasingly important in recruiting but is significantly more difficult to measure compared to, for example, work experience. With the Empion method, we integrate this aspect into the hiring process and enhance the cultural fit between candidates and companies through AI-based matching – thereby increasing long-term retention."

DR. ANNIKA VON MUTIUS
Co-Founder Empion

Figure 4: Opportunities of GenAI as seen by startup founders
Source: Startup survey, conducted in 2024 | Cluster analysis of an open-ended question



2.2. EARLY ADOPTERS OF NEW APPLICATIONS

For a long time, AI was a complex area and one that was difficult to get to the heart of. The launch of ChatGPT and the like radically changed our perception of the potential and limitations of the technology. When text, images or videos are generated by GenAI, the actual creation process remains somewhat of a black box. However, the user has the impression that the technology is accessible, e.g. when using the program to adjust images and create new ones – in this case, anyone can directly interact with the AI tool. Anyone interested in the fact that large language models such as GPT-4 are the result of a long development process, or that a complex algorithm is used to deliver results that match the content of language or word probability models, can easily gain a

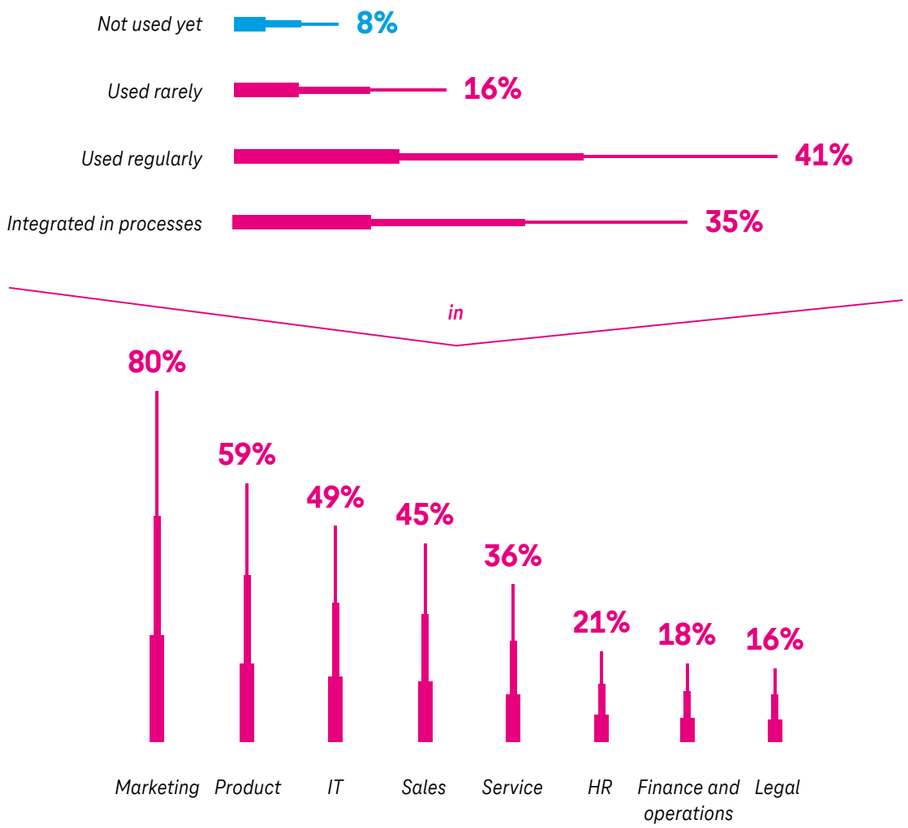
deeper insight into the topic today, due to the large number of studies and podcasts available. However, the critical factor is the simple use of the tools, which enables their widespread use.

Today, anyone can easily try out GenAI tools, but startups are leading the way. 41% of companies that took part in the survey use GenAI applications regularly and a further 35% have already integrated them firmly in their processes. Established businesses, on the other hand, are much more hesitant. So far only 3% have integrated this technology, while a further 6% plan to use it within the foreseeable future (Bitkom 2024). One key reason behind this difference is the more relaxed approach of startups toward this new technology. Most founders (65%) confirmed that GenAI tools are allowed to be used within their company, even though they have not established any clear rules or guidelines yet. In other words, employees are often given the freedom to try things out for themselves – this is particularly common in marketing, where there is a variety of tools to help with content creation.

AI applications are becoming a practically indispensable technology across various fields – especially in industry and production. The use of such self-learning systems can further optimize the operation of production lines, and predictive maintenance avoids costly downtime. This benefits both large corporates, as well as smaller companies."

LENA WEIRAUCH
CEO & Co-Founder ai-omatic

Figure 5: The use of GenAI applications in startups
Source: Startup survey, conducted in 2024



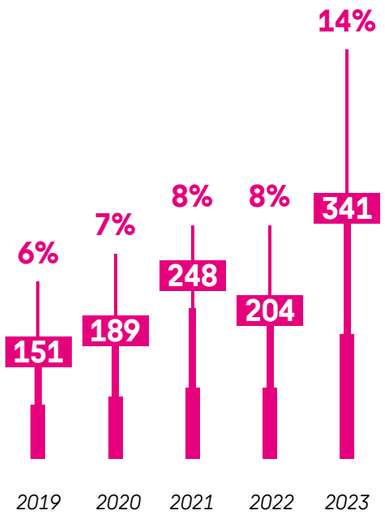
Startup founders associate clear goals with the use of GenAI applications: On average, they claim that they are already working 22% more efficiently, thanks to the use of appropriate tools within their company – and their prognosis for the next five years sees this figure rising as high as 53%. Naturally, the significance of these figures is limited, yet they clearly illustrate the potential that German startups see in GenAI. As mentioned in the previous section, the type of work as well as the availability of top talent are also key factors here. Startups tend to employ young, highly educated tech enthusiasts (Hirschfeld et al. 2023) – in other words, precisely the type of people who are quick to adapt new technologies. Consequently, 72% of startups rate the GenAI competences of their employees positively.

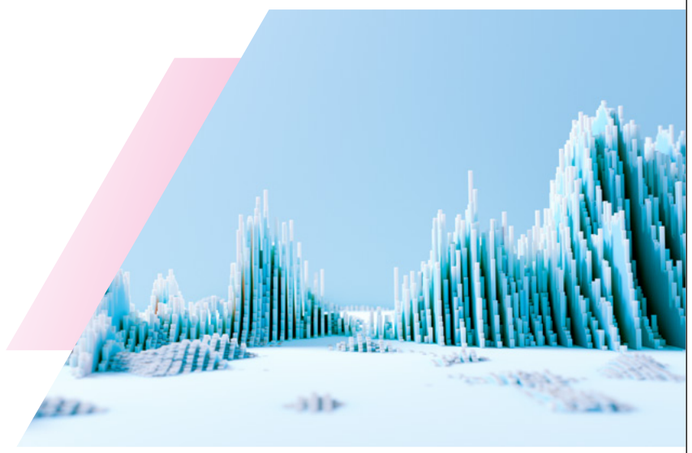
2.3. A MOMENT OF DISRUPTION

We are currently witnessing a truly disruptive phase in the field of GenAI. While the founding of OpenAI as a research project followed a rather atypical path, the further development of the company, together with the rapid rise of other startups such as Anthropic, is evidence that GenAI disruption is primarily being driven by young companies. In Europe, Aleph Alpha and Mistral AI, founded in 2019 and 2023 respectively, are two startups on the market that are also internationally competitive as model developers. Although the major US tech companies – primarily Microsoft, Google and Amazon – have a clear presence due to their investments in OpenAI, Anthropic, Inflection and Mistral, not to mention their own GenAI products and services on the market, they are rarely forerunners.

Startups play a central role not only in the area of basic principles and model development, but also with regard to practical application and market ramp-up. In addition to the tools of the companies mentioned above, many companies within the startup ecosystem use GenAI in different ways as part of their business model or build solutions based on the technology. When GenAI is built into the product, it is often highly specific use cases that are addressed: While most of us have probably already used ChatGPT to translate a text, the Munich-based startup Summ AI uses Generative AI to transform complex texts into more easily understandable language.

Figure 6: Number and percentage share of new startups with an AI focus
Source: startupdetector





The number of new startups in Germany illustrates the current momentum: While AI startups as a share of all newly founded companies remained relatively stable at 6–8% between 2019 and 2022, this figure rose to 14% in 2023 with the GenAI boom. In 2023, a total of 341 AI-related startups were founded, corresponding to a rise of 67% compared to the previous year – despite startup dynamics generally waning. The same situation can also be seen in the investment sector, where the record year of 2021 was followed by a decline in 2022 and an even stronger one in 2023 – a drop that even surpassed the decline in the number of startups founded. GenAI investments are also clearly bucking the trend here and three startups from this sector – OpenAI, Anthropic and Inflection – rank among the top five highest-funded startups in 2023 (further details in section 3.3).

Figure 7: Largest startup funding rounds in 2023
Source: Dealroom | All components of the rounds assigned by Dealroom, as well as types of funding (e.g. computing capacity, convertible bonds) were taken into account.

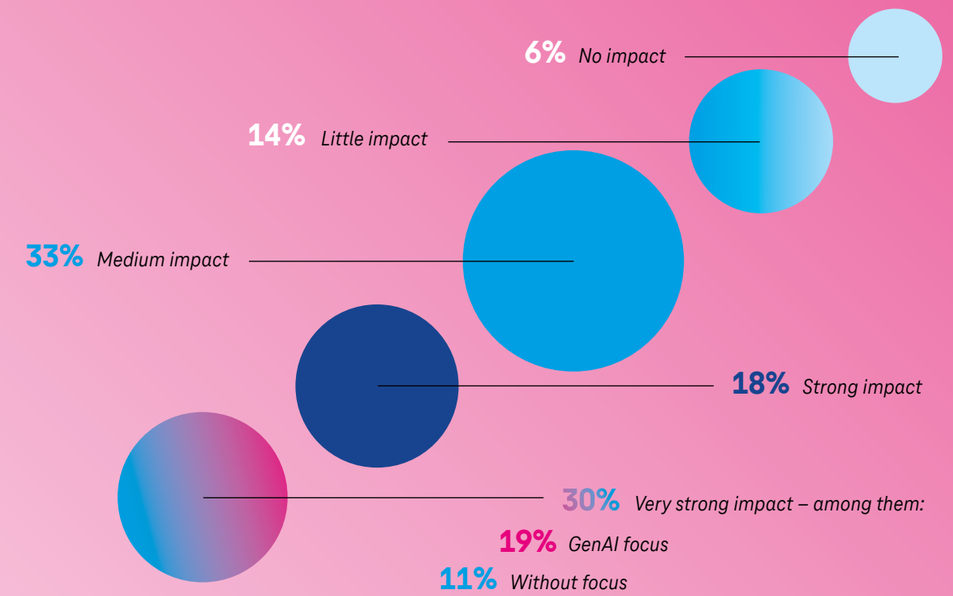
	Company	*Headquarters*	*Size of round*
1	OpenAI		10 Bn. US-Dollars
2	stripe		6.5 Bn. US-Dollars
3	ANTHROP\C		2 Bn. US-Dollars
4	Inflection		1.3 Bn. US-Dollars
5	northvolt		1.2 Bn. US-Dollars

3. SCALING FAST WITH STARTUPS

3.1. SCOPE OF APPLICATION IN STARTUPS

As in the case of any innovation, all things labeled GenAI are not necessarily GenAI at its core. It is therefore important to define the specific role of startups with regard to GenAI and the various aspects that come into play. To this end, we will differentiate between three application levels: The *first level* consists of startups that are advancing the core technology of generative AI by developing "foundation models". These could be large language models (LLMs) that generate text, as well as multimodal models that transcend the boundaries between language, images and other data types. In parallel to OpenAI, Aleph Alpha and Mistral AI are particularly prominent examples in Europe. A further distinction can be made between general purpose models, which are designed to fulfill comprehensive tasks, and use case-specific models. The number of companies that were founded after 2000 and

Figure 8: The impact of GenAI on the business model and GenAI focus in product
Source: Startup survey, conducted in 2024



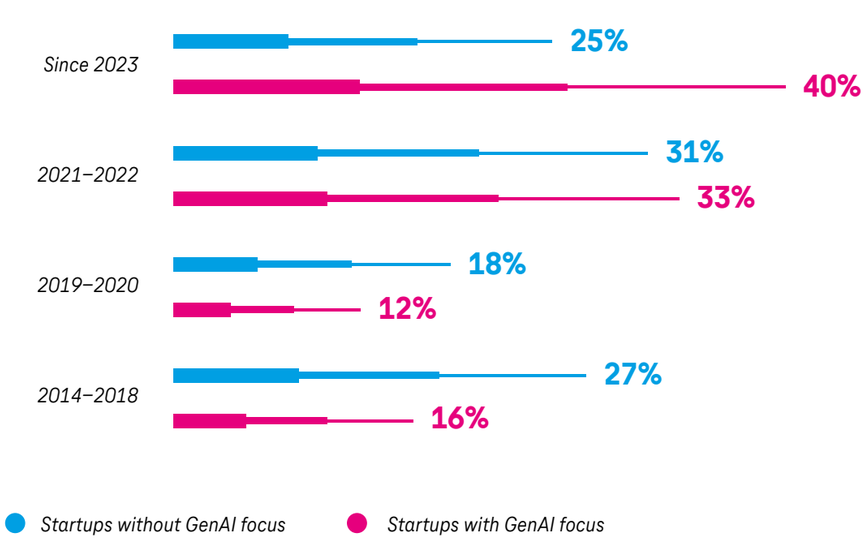
that are working on these types of GenAI models, currently totals more than 120 worldwide (Dealroom 2024).

The *second level* comprises startups that we could describe as "implementers". These companies integrate models that already exist on the market into their own tech stack to improve or expand their own offers on this basis. These companies are key for the widespread application in practice and represent the lion's share of the GenAI ecosystem. At this level, the strongest dynamics can currently be found in two business segments: First, applications specialized in the field of content generation, analysis, and revision, such as Oxolo, a Hamburg-based startup that focuses on AI-supported creation of videos. Second, the automation of customer service, such as the SaaS solution presented by the Berlin-based startup Parloa, which replaces traditional call center interaction with GenAI.

The *third level* represents startups whose business models are impacted by GenAI but the technology is not integrated as a core part of their products – in these cases, readily available GenAI applications are applied, e.g. in processes such as software development.

Looking at the results of our survey, we clearly see the generally high importance of generative AI for startups: Overall, 30% stated that GenAI has a very strong impact on their business model. To give greater depth to the analysis, we also asked startups if GenAI was part of their company's products or services. Based on the responses, we were able to categorize 19% of the companies into a group that we will refer to as "startups with GenAI focus". Four out of ten of these startups have been founded since the beginning of 2023, which once again underlines the sector's current dynamic nature.

Figure 9: Founding years of startups participating in the survey
Source: Startup survey, conducted in 2024



German startups have long shown that AI-based solutions can make an enormous contribution to business success. The current GenAI revolution really puts these opportunities in the spotlight and more and more companies are becoming aware of the huge potential out there. This is fundamentally changing traditional industries, such as customer service, creating a whole new range of possibilities."

MALTE KOSUB
CEO & Co-Founder Parloa

3.2. POTENTIAL IN THE B2B-MARKET

The group of startups with GenAI focus cannot be regarded as identical to GenAI startups in the narrower sense. They include model developers, yet also startups that integrate GenAI into their products to various extents. Generative AI is (very) important as the foundation of their product for 81% of startups with GenAI focus – for 93%, the technology serves to improve their solutions or services. Looking at the current dynamics, it is not surprising that only a minority of this group (23%) has already launched their product on the market, while 19% are busy planning the roll-out. Almost six out of ten companies are still in the proof-of-concept phase (31%) or even earlier in the R&D phase (27%).

Although most of us have come to experience GenAI from the perspective of an individual user, the great potential of this technology lies in opportunities for the established economy to increase efficiency. Generative AI is set to become a real game changer over the next few years. This is also indicated by the fact that 93% of startups with GenAI focus target B2B customers – which is significantly higher than among startups in general. Furthermore, 77% state that they understand the needs of established businesses and 52% confirm that they are able to explain the added value of their solutions. However, German SMEs are still very hesitant when it comes to using AI (Mittelstand-Digital 2021) and almost two-thirds of startups with GenAI focus (65%) criticize this reluctance to accept new technologies.

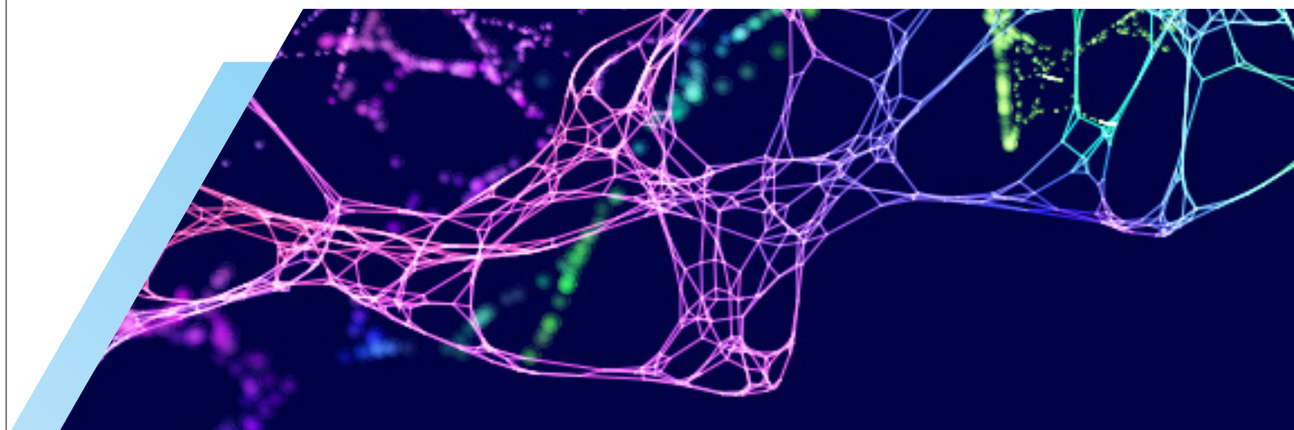
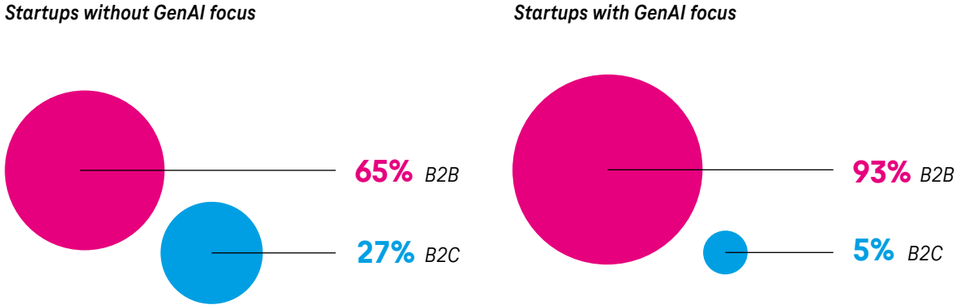


Figure 10: Customer focus
Source: Startup survey, conducted in 2024



Because of the tremendous potential of B2B solutions in GenAI, close cooperation between established businesses and startups is key. It can generally be said that collaboration is a core component of the startup ecosystem, whether this be between startups, with established businesses or research institutions. Despite their young age, 64% of startups with GenAI focus have already set up cooperative partnerships with established companies. However, an equally important aspect for these new companies is working together with other startups (65%) and scientific institutions (64%). The development of innovative technologies is almost always the result of different players working together. For the German ecosystem, with its many decentralized universities and research institutions as well as many successful SMEs, this presents both challenges and opportunities. We especially need to exploit the latter if we want to achieve long-term success in the international competitive environment.

”Not only large corporates but also mid-sized companies are ready for AI applications – yet, the potential in this customer segment is still underestimated in the startup ecosystem. If both sides try to learn from each other and work together in mutual understanding, a lot of companies will hugely benefit from this new wave of digitalization.”

PHILIPP REISSEL
Co-Founder & CEO amberSearch

DEEP DIVE

GENERATIVE AI IN HEALTH

Healthcare systems, not only in Germany but globally, are facing a number of major challenges that are set to intensify over the coming years and in which the focus on patients is key. People should receive care that is as closely aligned with their needs as possible, yet they often feel as though they are not fully informed and sometimes have a hard time to get a doctor's appointment. Healthcare providers are facing enormous cost pressures and, in many places, a shortage of skilled workers. All this leads to further dissatisfaction, fuels people's fears and poses a threat to health if treatment is affected negatively or comes too late.

This gap between the need for information and treatment on the one hand and the existing capacities of the healthcare system on the other, cannot be dissolved but minimized by GenAI. For example, there are digital assistants on the market, providing medical professionals with a tool that processes voice input during consultation with the patient. Also, therapeutic services are available that offer patients around-the-clock access via chat or phone. The use of GenAI solutions requires trust, has limitations, and carries risks that must be understood and considered – but despite various challenges, digital solutions lead to an overall improvement in therapy, for instance, when diseases are detected earlier.

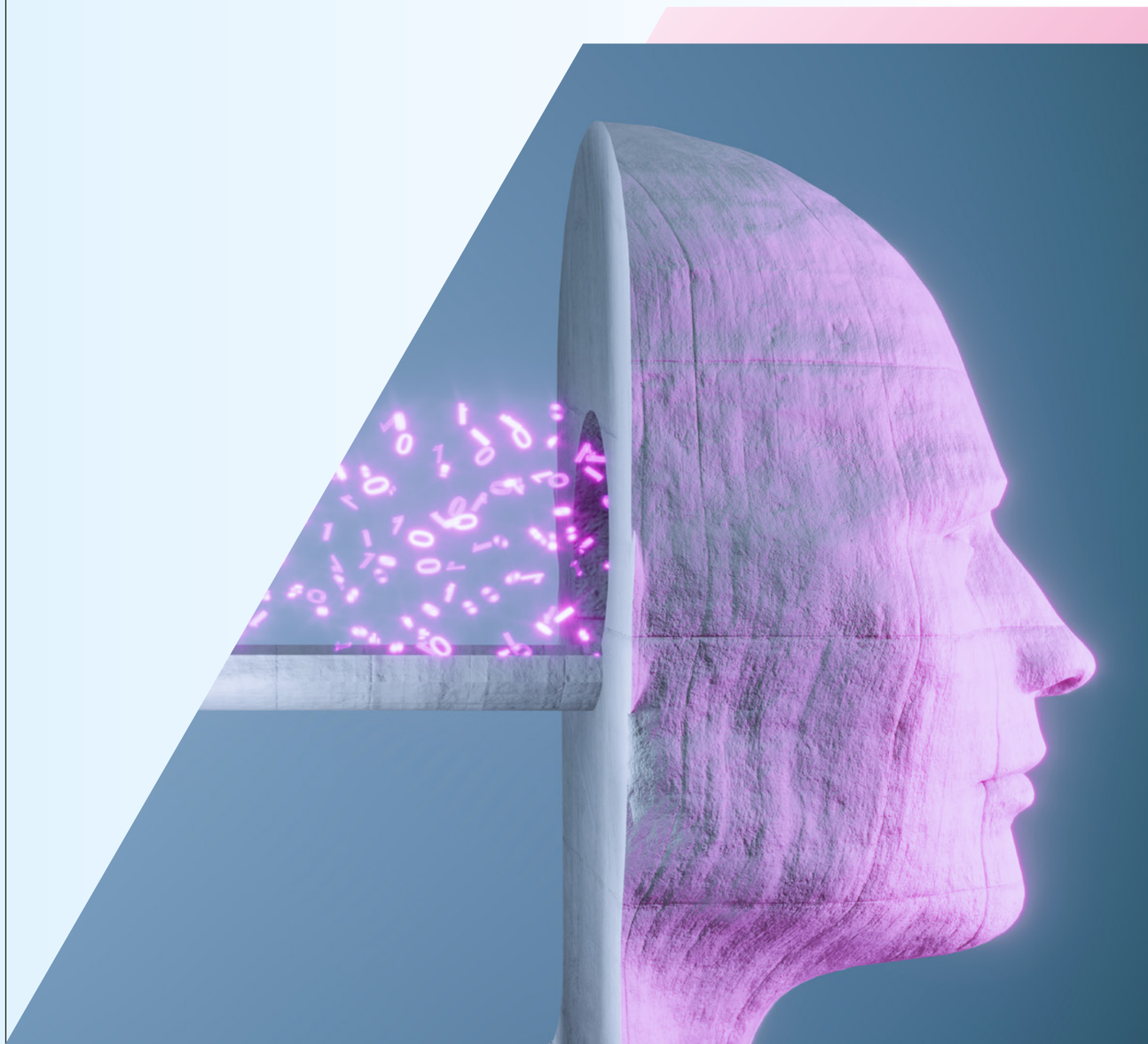
Startups are pioneers in GenAI assistance and therapy: The startup Clare & Me, which specializes in mental health, offers users support and psychological counseling via chat and phone. The company sees its own services as an extension to the existing therapy system, offering additional care and addressing the high demand in this area. The risk of errors occurring in diagnosis or treatment is an issue that start-ups are addressing by collaborating with the healthcare sector and medical professionals. For example, the London-based startup limbic, also specializing in mental health software, is closely connected to UK healthcare providers and works directly with the NHS, the country's health service.

Another area in which GenAI startups make an important contribution to the healthcare sector is in research. Driving innovation in this sector, e.g. new forms of therapy, drug-discovery and medical technology, requires comprehensive, high-quality data. A key obstacle that research teams continue to face is the limited availability of data due to legal barriers when it comes to personal health data. GenAI creates new opportunities, as the technology can use existing information and generate new data for research purposes.

For example, GenAI can be used to create synthetic health data such as X-ray images or gene sequences. These can then be used to train other AI models, specialized in image-based diagnosis. The advantage is that a larger quantity and variance in the training data increases the reliability of these applications. Thus, it complements the use of patient data and makes the research process faster and more cost-efficient. Another prominent use of GenAI currently is in pharmaceutical research, where potential drugs can be identified much more quickly, significantly shortening the otherwise lengthy process of developing new medications.

"The more high-quality data is available, the better AI-supported medicine becomes. By utilizing generative AI, we at RYVER produce such data and provide diverse synthetic medical images to developers of Radiology AI. This innovative approach increases the reliability and safety of algorithm-based diagnoses for every patient."

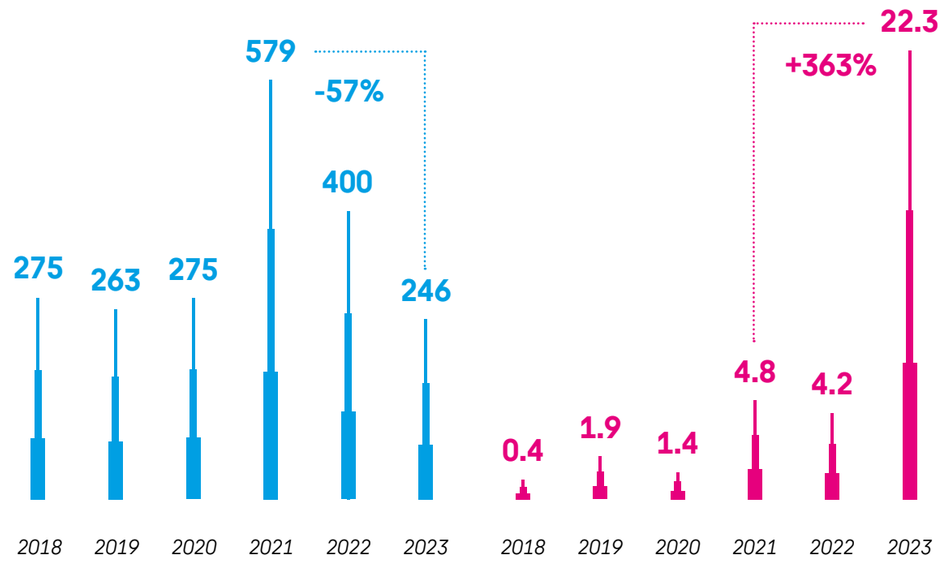
KATHRIN KHADRA
Co-Founder & Tech RYVER.AI



3.3. THE INTERPLAY OF AMBITION AND CAPITAL

2021 will probably go down as a unique year of records in recent startup history. Never before had the world witnessed so much capital flowing into the ecosystem – and the number of both startups founded and exits were at an all-time high. Investments in startups reached almost 600 billion euros – more than twice as much as in pre-Covid years. However, the subsequent turnaround in interest rates and the overcast economy caused figures to slump significantly. In 2023, investments totaled 246 billion, which is 57% less than in 2021. The decline particularly affected companies that had no clear strategy towards profitability, high marketing expenses and lacked a technological advantage.

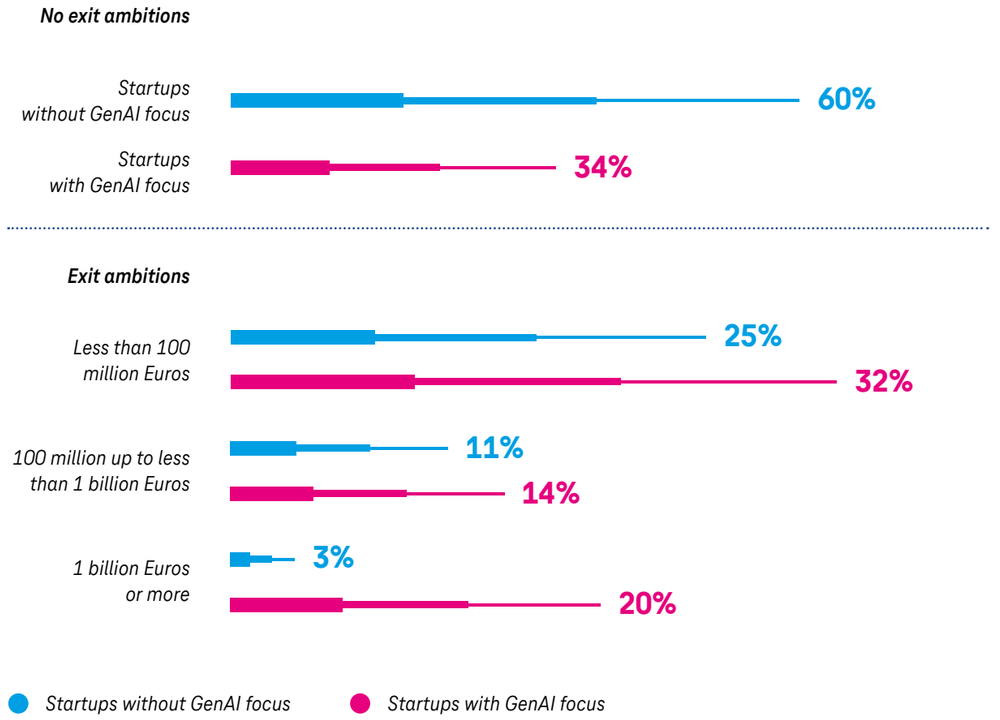
Figure 11: Investments in startups
Source: Dealroom



Companies that are either profitable (soon) or can build on a distinct technological advantage have a totally different experience of the current financing environment – despite the crisis, and, to a certain extent, because of it. GenAI startups managed to generate 4.8 billion euros of capital investments worldwide in the record year of 2021. In 2023, however, this figure rose to 22.3 billion euros – not only growing almost fourfold, but also representing 9% of all startup investments. This positive trend is a crucial cornerstone of the GenAI revolution, as models and applications are still in development, when it comes to performance and capabilities, and successful scaling requires substantial financial resources.

Due to the extremely promising nature of this technology, competition is particularly intense between young companies. Thus, it takes great ambition to raise the necessary capital, grow quickly and establish oneself on the market. The data clearly confirms the strong entrepreneurial mindset in the sector. Almost two-thirds of startups with GenAI focus are aiming for an exit, while this figure is significantly lower among the other companies surveyed (40%). The high level of ambition is further illustrated when looking at the extent of their goals: 20% of founders with a GenAI focus are aiming for unicorn status – compared to 3 % among other companies.

Figure 12: Exit ambitions of founders
Source: Startup survey, conducted in 2024



4. GERMANY IN GLOBAL PERSPECTIVE

4.1. CONSEQUENCES OF THE DIGITAL BACKLOG

Despite the dynamic development in the GenAI ecosystem in Germany and Europe, a look at the most important companies confirms the leading position of the United States. The two key players OpenAI and Anthropic have raised around four times as much capital since 2018 as all European GenAI startups combined. The large tech players Microsoft, Amazon and Google are not only active as competitors, but also as investors. Their financial and, more importantly, infrastructural resources are extremely important for GenAI startups. Once again, Europe is facing the risk of falling behind in the digital economy. Given this context, it comes as no surprise that the European frontrunner Mistral AI has now also opted for an investment by Microsoft to keep up. But why do the established players have such an important role in the GenAI ecosystem?

In a competitive environment such as the GenAI market, startups face a number of challenges. Two issues are crucial for more than half of the startups with GenAI focus: the high speed required in competition as well as access to and costs for infrastructure. These issues are significantly more important than topics such as trust in the technology (37%) and finding qualified staff (33%). Many of these challenges explain why startups in the field on GenAI have high capital requirements - because more money often also allows for greater speed.

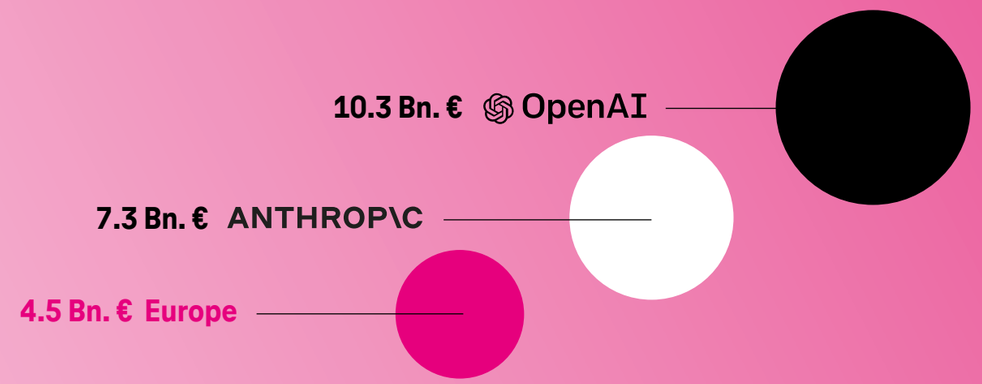
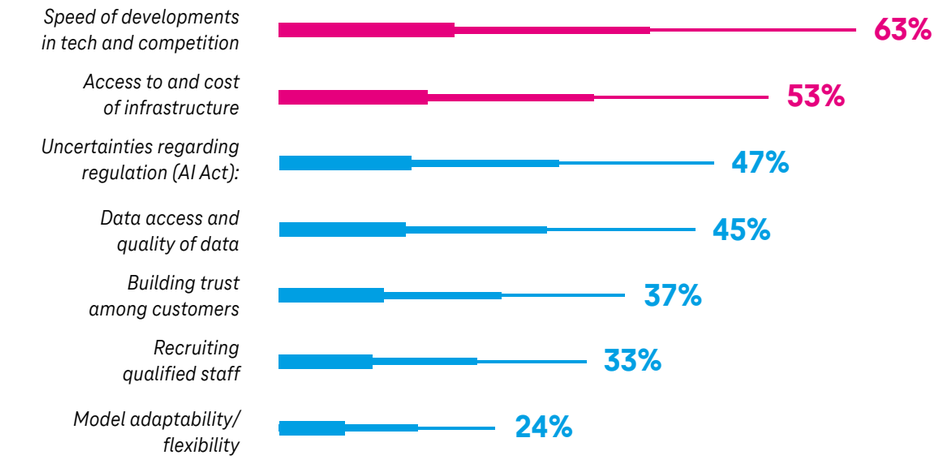


Figure 13: GenAI investments since 2018
Source: Dealroom

Figure 14: Challenges for startups with GenAI focus
Source: Startup survey, conducted in 2024

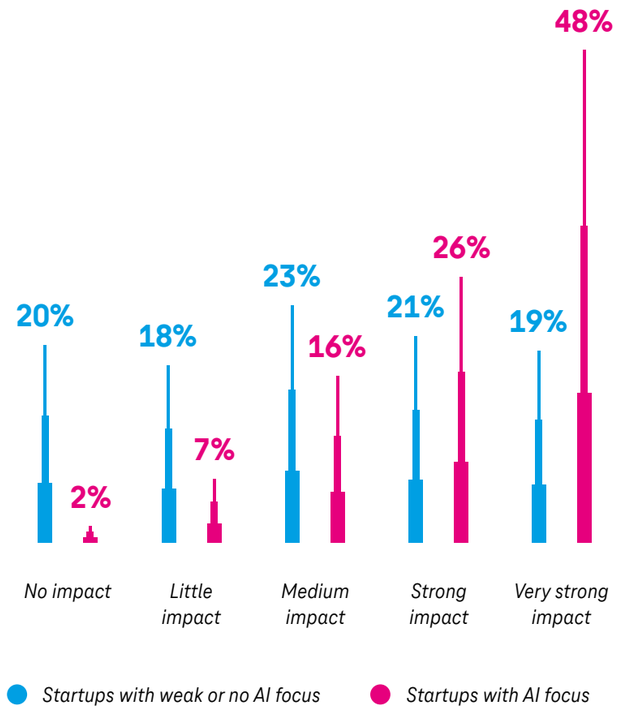


In the race for the best opportunities, investors from the “old” tech world can therefore exploit their double advantage – capital for the necessary speed and access to (cheaper) infrastructure. The importance of certain basic technologies becomes apparent when we consider the cloud alongside AI. 48% of startups whose business model is heavily impacted by AI confirm that they are equally impacted by cloud computing. This underlines the importance of considering infrastructure if we want to move GenAI forward in Germany and Europe.

GenAI is very cost-intensive, in terms of technical development, infrastructure and talent. For this reason, the shortfall in financing for German and European startups in this sector poses a big challenge. To be competitive, we must capitalize on our strengths in AI research, be more market-oriented and make greater use of the broad SME segment as a customer base.”

DR. PHILIP HUTCHINSON
Senior AI Strategist appliedAI Institute for Europe

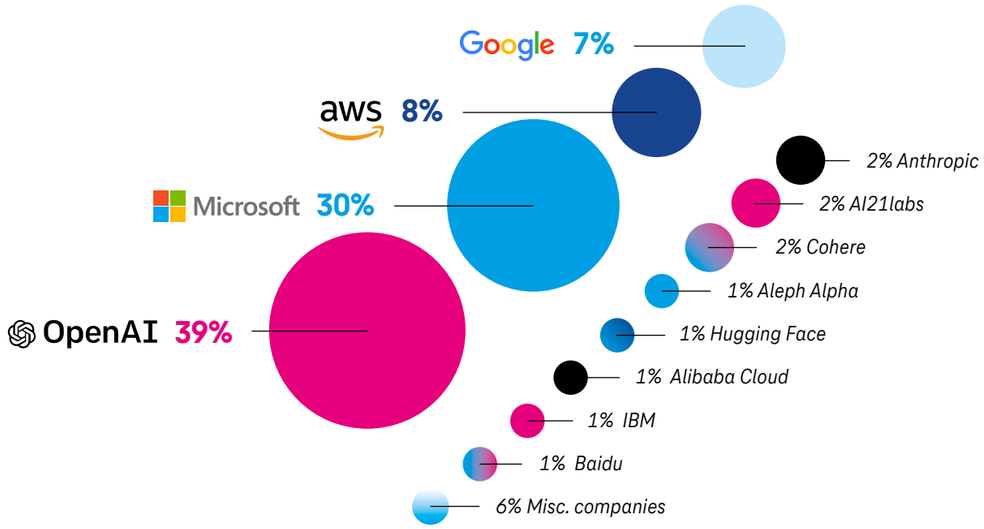
Figure 15: The impact of cloud computing on startup business models
Source: German Startup Monitor 2023 | For the purpose of this analysis, start-ups with an AI focus are considered to be those whose business model is heavily impacted by AI.



4.2. EUROPE LAGGING BEHIND (AGAIN)

If we now consider the entire generative AI market from the point of view of the startup ecosystem, the significance of Microsoft, Amazon Web Services and Google becomes apparent once again, alongside the dominating position of OpenAI. Besides the financial and infrastructural advantages mentioned above, these companies also bring strong distribution channels with them. The major players have rarely entered a new technology market so quickly and with such force. In contrast, the leading European providers have (up until now) only occupied a niche position, which is a problem for both the economy and society as a whole.

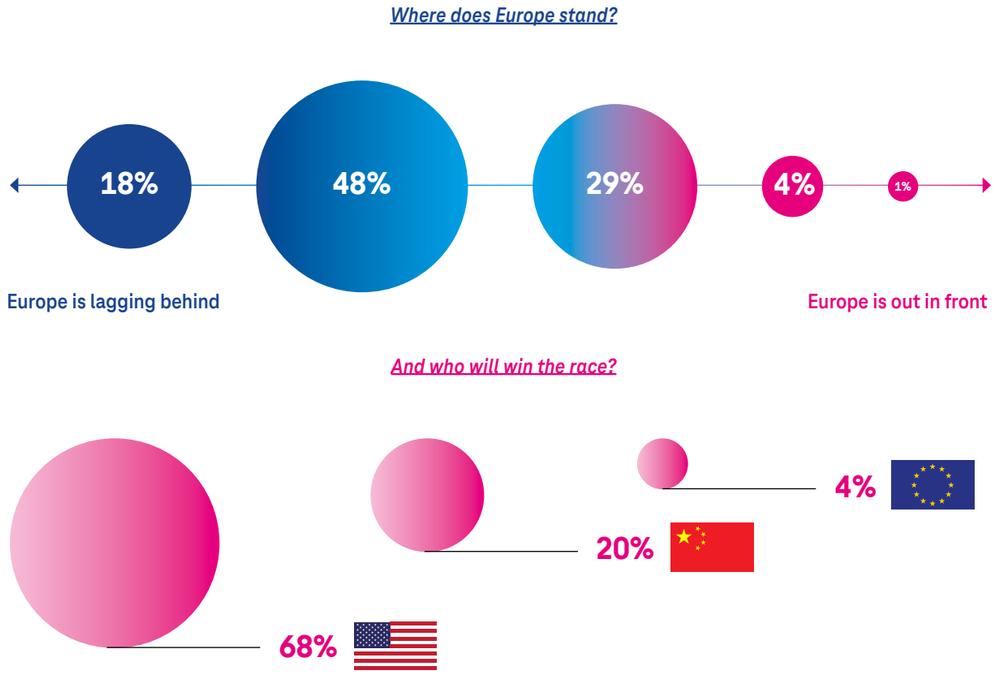
Figure 16: Market shares of leading providers of GenAI models and platforms
Source: IoT Analytics



The way in which founders perceive Europe's current position in the international competitive environment shows clearly – and it comes as no surprise, either. Two-thirds see Europe lagging behind compared to international competitors. While Europe is arguing about AI regulation, other parts of the world are progressing much faster. Asked on longer-term outcomes of the race in GenAI, the frontrunners clearly are the US (68%) and China (20%). Although these figures can be seen as a sober assessment of the international balance of power, they also need to spark an open debate on the role that Germany and Europe can and should play in GenAI.

Having discussed the infrastructural disadvantages, we need to take a closer look at a key success factor – access to capital – before addressing the topic of regulation. In Section 3, we pointed out the fact that despite the tense

Figure 17: The global race in GenAI
Source: Startup survey, conducted in 2024



investment situation for startups in general, the GenAI ecosystem sees significantly more capital flowing in. However, this capital is not evenly distributed globally. In terms of per capita investments, Germany is behind the USA by a factor of 12 - for startup investments in general by „only" a factor of 6. Europe is not only lacking strong tech firms that can make major investments, but there is also some debate as to whether investors are generally skeptical about the regulatory environment in Europe. Without enough capital, we run the risk of only using, but not shaping, one of the key technologies of the coming years.

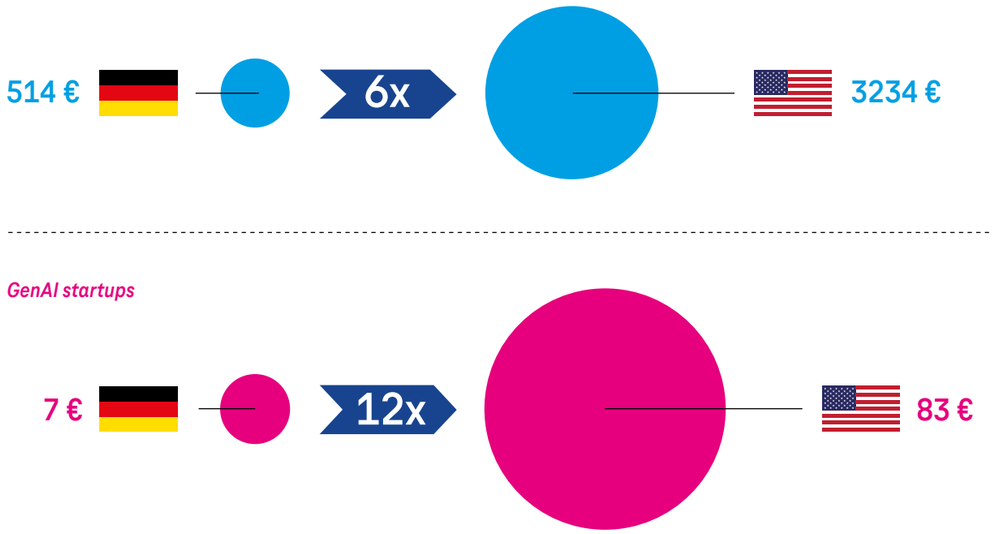


Figure 18: Startup Investments per capita 2020–2023
Source: Dealroom

For European GenAI startups, it will be critical to establish ethics and data protection as core values – not just in the context of the new EU requirements, but as a global USP. Our vision of the future is the development of generative AI solutions that foster these principles and thus create opportunities for innovation in the automotive sector and smart city applications for a trustworthy digital future."

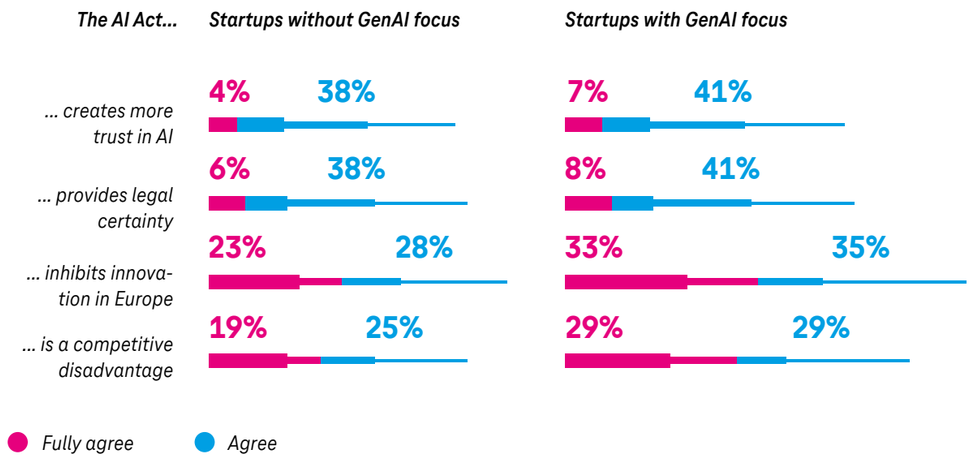
MARIAN GLÄSER
Co-Founder & CEO brighter AI

4.3. REGULATION: YET ANOTHER BARRIER?

Besides access to capital and technical infrastructure, the essential difference between Germany/Europe and the US – and one that plays a key role as far as tech innovations are concerned – is the regulatory framework.
The recently passed AI Act is in the spotlight currently, having been highly criticized for focusing too heavily on the general risks of the technology and too little on a narrower and clearer regulation of specific fields of application. However, we want to avoid getting caught up in this (closed) debate in this study and turn our attention to gathering and presenting the founders' opinions on this topic.

Approaching founders with the usual questions and issues relating to this debate confirms that startups take a relatively clear stance. Although they fully recognize the positive aspects of the AI Act, i.e. confidence and legal clarity, they primarily see the legislation as a competitive disadvantage and a barrier to innovation – and this is felt even more strongly by companies with GenAI focus. It is also worth noting that even among the startups with GenAI focus, only 50% say they are familiar with the contents of the AI Act. These numbers demonstrate that European policymakers need to improve communication of regulatory changes and specifically involve younger companies that are not yet able to get involved in what happens in Brussels, if they want to avoid further uncertainties.

Figure 19: Opinions on the AI Act
Source: Startup survey, conducted in 2024



When founders of startups with GenAI focus were asked about the specific impact of the AI Act on their own business, they confirmed a clear focus on the negative impacts such as additional bureaucracy (61%), and reduced speed and innovative capacity (47%). This indicates that the setup of regulatory oversight as well as the associated requirements for startups now play an extremely critical role. If the usual administrative process comes to bear in all its force, especially in Germany, it could make things even more difficult for German startups in the GenAI sector.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In light of the European AI Act, there is enormous uncertainty among startup founders – with a lack of certainty in too many areas about the effects and consequences. In order to prevent this from becoming an obstacle to innovation, there is a need for clear signals, indicating which rules will be set, by whom and how much effort this will entail for startups."

DANIEL ABBOU
Managing Director German AI Association

5. THE WAY AHEAD: EUROPE NEEDS TO ACT

Following the adoption of the AI Act, EU Competition Commissioner Thierry Breton declared that Europe had now become the “global standard-setter in AI” with the world’s first comprehensive AI regulation. Irrespective of how this declaration and the legislation itself is interpreted, one question still needs to be raised: what does Europe need to ensure that it is competitive in both AI regulation and AI implementation?

The first and possibly easiest answer to this question is that Europe needs more startups. Despite the positive trend of the last years, we are still at the very beginning of developments in GenAI. Although Europe can’t lay claim to Microsoft, Google or Amazon, we do have strengths in research, an established economy and talent that we need to bring together if we don’t want to get knocked out of the GenAI revolution in the first round.

We already have the key factor to build successful AI companies in Germany and Europe – talented people with ideas. This is clearly demonstrated by young companies such as Aleph Alpha and Mistral AI, as well as by lesser-known startups with highly specialized use cases. However, this alone is not enough. As this report shows, we need to focus our attention on three areas:

01

Even if European GenAI startups have been able to raise a lot of funds, Europe still lacks the capital for major financing rounds. We need to aim to activate more capital for larger VC funds and to encourage more corporates to invest in the GenAI ecosystem.

02

The predominance of B2B models in GenAI proves how much this technology is interlinked with the established economy. This not only creates opportunities in terms of sales, but also data that GenAI startups depend on to develop better models and new use cases.

03

The above can only be achieved if the legal framework, especially for startups in early stages, is not overly bureaucratic for the majority of GenAI companies. This does not mean dispensing with regulation in general, but rather focusing on competitive challenges and high-risk areas.

Generative AI has already changed our economy and society radically over the last two years, but the major opportunities and threats still lie ahead of us. If we want to shape the future of GenAI, based on our values, and reinforce the value added in Europe, we need successful European GenAI companies – ones that can compete with US players. At present, we still have the chance to help shape this technological revolution in Europe.

”If we want to enhance the competitiveness of German and European GenAI startups, targeted measures are required – and we urgently need to make more capital available. The federal government‘s growth fund, backing crucial sectors like AI, is a positive step, recognizing Germany‘s research-based potential. By focusing on the intersection of funding, research, and spin-offs, and by significantly expanding these efforts, we can capitalize even more on the AI boom.”

NICOLE BÜTTNER
Founder & CEO Merantix Momentum,
Board Member German Startup Association

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PUBLISHER AND AUTHORS

Startups are the driving economic force of the future – visionary founders putting great ideas into practice. As the representative and voice of startups in Germany, the German Startup Association has been committed to a founder-friendly environment since 2012 and currently represents more than 1,200 members. Within its network, the Startup Association enables an equal exchange between innovative young companies, established businesses and the political sphere. This report is the third publication on the topic of startups and AI and complements the series with a look at the currently most important development in the sector.

STARTUP VERBAND

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Mia Ansorge is part of the Startup Association's research team and one of the co-authors of publications such as the Migrant Founders Monitor. Mia studied business administration with a focus on entrepreneurship and digital business models in Berlin and Sydney. Her startup journey began even before she joined the association with positions in various startups.

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hubraum is Deutsche Telekom's tech incubator. By bringing early-stage startups and the leading European telco together, hubraum sparks innovation transfer and creates business opportunities for both sides. Since 2012, hubraum has been collaborating with the digital ecosystem out of its campuses in Berlin, Krakow and Tel Aviv. hubraum offers various innovation programs and seed financing as well as access to infrastructure and future technology provided by Deutsche Telekom. Startups can also benefit from co-working space, mentoring, networking events and connections to Deutsche Telekom's business units.

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Axel Menneking is the Vice President of Startup Incubation & Venturing at Deutsche Telekom. From 2016 onwards, he has headed up hubraum, Deutsche Telekom's tech incubator. Axel previously held a number of leadership roles in product marketing and product management in fast moving consumer goods, strategy consulting, startups and telecommunications. Axel studied industrial engineering and management and holds an Executive MBA from ESCP Europe Business School.

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