Sustainability in Nebius Group

2023

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The information provided in this document reflects the sustainability approach adopted by the **businesses that will continue** to form part of Nebius Group, a company that was created following the divestment by YNV, a Dutch public company, of all of its Russian and Russia-related assets.

We closely follow legal developments concerning sustainability reporting in the countries where we operate and we are committed to adopting relevant reporting standards within the timelines proposed by such legislation. In the interim, we will continue to voluntarily report on our performance across the most material areas.

To prepare this disclosure for 2023, we reviewed the most recent reporting guidelines from the European Parliament and SEC, and we adopted methodologies for calculating ESG metrics as outlined by the GRI and SASB.

We are committed to doing business responsibly and sustainably at every stage of our journey to becoming a leading player in AI, and to ensuring that our products and solutions have a positive impact on society.

Our sustainability-related initiatives are overseen by the Board's Nominating & Corporate Governance Committee, coordinated by the Group's sustainability manager, and monitored by our functional leadership and department heads.

Key areas of focus

Information security & offline safety

We are dedicated to safeguarding both the virtual and physical realms to ensure a seamless and secure experience for our users.

Sustainable computing

We invest in the energy efficiency of our computing infrastructure to make sure we do more with fewer resources, and to reduce our environmental footprint.

Social inclusion

By creating a healthy and fair work environment for people devoted to driving IT innovation, and through the range of our digital solutions, we strive to shape a more diverse, dynamic, and accessible technology sector.

Information Security

As a provider of digital services, we prioritize information security and adhere to rigorous standards and best practices. Dedicated teams of cybersecurity engineers oversee cybersecurity matters, both at the holding company level and across all of our businesses.

We focus on preventive actions and have implemented measures to detect and address vulnerabilities proactively. These measures include:

Regular upgrades of our cybersecurity systems and procedures to meet the highest standards

Continuous monitoring of system performance, including vulnerability testing to identify potential risks in specific operations

Engagement of third-party audits to ensure comprehensive security

Our businesses also implement specific cybersecurity measures tailored to their respective operations.

Information Security

Nebius AI

Nebius AI, an AI-centric cloud platform, employs a multilayered cybersecurity approach known as "defense in depth" to ensure security throughout the data life cycle, and has a dedicated team overseeing these efforts.

At the facility level, Nebius focuses on the physical security of its proprietary data center in Finland. The data center features stringent perimeter security, robust physical access controls, and 24/7 video surveillance to prevent unauthorized access to servers hosting cloud computing.

At the cloud platform level, development adheres to the Security Development Lifecycle. The platform's resilience is continuously monitored through external audits and certifications. Customers' data, both stored and in transfer, are encrypted. Nebius operations conform with ISO 27001, ISO 27701, ISO 27017 and ISO 27018 requirements for information security controls, including those relevant to cloud services. In 2023, ISO certification was completed by our operations in Israel, and is planned for EU-based operations. All operations are compliant with local privacy legislation, including GDPR in the EU and Israel's Privacy Protection Law, among others.

To assist customers in enhancing the security of their infrastructure and product development, Nebius develops tools such as Identity and Access Management. This tool enables users to control and configure access rights to virtual machines and other cloud resources.

Toloka AI

Toloka AI offers data-for-generative-AI solutions by leveraging both AI-powered labeling and human expert input. Toloka is certified to ISO 27001 and ISO 27701, and is also GDPR- and HIPAA-compliant.

To maintain product security, Toloka follows a secure development process (SDLC) to identify vulnerabilities during design and development. It conducts regular code scanning for vulnerabilities and ensures all engineers undergo annual secure code development training.

In safeguarding customer data, Toloka employs data encryption for both stored and in-transit data, backs up data with geo redundancy, and deletes data upon request at the end of the contract. Toloka customers can choose whether to store their data on Microsoft Azure servers in a chosen location (US, EU, or Asia) or on their own premises.

Avride

Avride develops autonomous driving solutions focusing on two core products: autonomous vehicles and delivery robots. Avride is committed to establishing rigorous cybersecurity requirements and adhering to recognized guidelines such as the NIST Cybersecurity Framework. Cybersecurity controls are integrated across all aspects of system design, covering infrastructure, vehicle components, and external interfaces. Regular system design audits are conducted and seamlessly integrated into the product development lifecycle.

At the infrastructure level, Avride utilizes third-party cloud solutions that meet all international standards, with servers located in the US and the EU. For autonomous vehicles, Avride implements multiple safeguards against unauthorized access, focusing on protecting critical points such as the primary computer. All driving computing tasks are performed autonomously onboard, and remote access is not permitted.

Furthermore, all external communication channels used to transmit information about the vehicle's location, system status, passenger communication, or for connecting to a remote assistant, are encrypted and have restricted access to ensure the utmost security.

Information Security

TripleTen

TripleTen, an EdTech service, applies industry standards and best practices to ensure the protection of its systems and data. While no single security standard perfectly aligns with TripleTen's operations, TripleTen uses applicable guidelines from ISO 27001, SOC2, and OWASP as benchmarks for its security protocols.

The TripleTen security system design adheres to the principles of "defense in depth", multilayer protection of customer data and least privilege. The latter ensures that access to sensitive data is restricted to people who require it for their specific roles. TripleTen uses a vulnerability analysis platform to assess risks, conducts thorough code reviews, and undergoes external testing to ensure resilience. In terms of data storage, TripleTen entrusts well-established cloud services, with servers physically located in the US.

Sustainable Computing

Energy efficiency

In 2023, our data center in Finland focused on maintaining a high level of energy efficiency, which is also a key part of our decarbonization effort. The data center leverages computing infrastructure designed in-house to ensure that it continuously outperforms the market and introduces innovative solutions.

Over the past five years, the average annual power usage effectiveness (PUE)[1] of our facility has consistently remained below 1.2 and has reached an average of 1.1 under high IT loads. In comparison, the global average PUE in 2023 **was** 1.58.
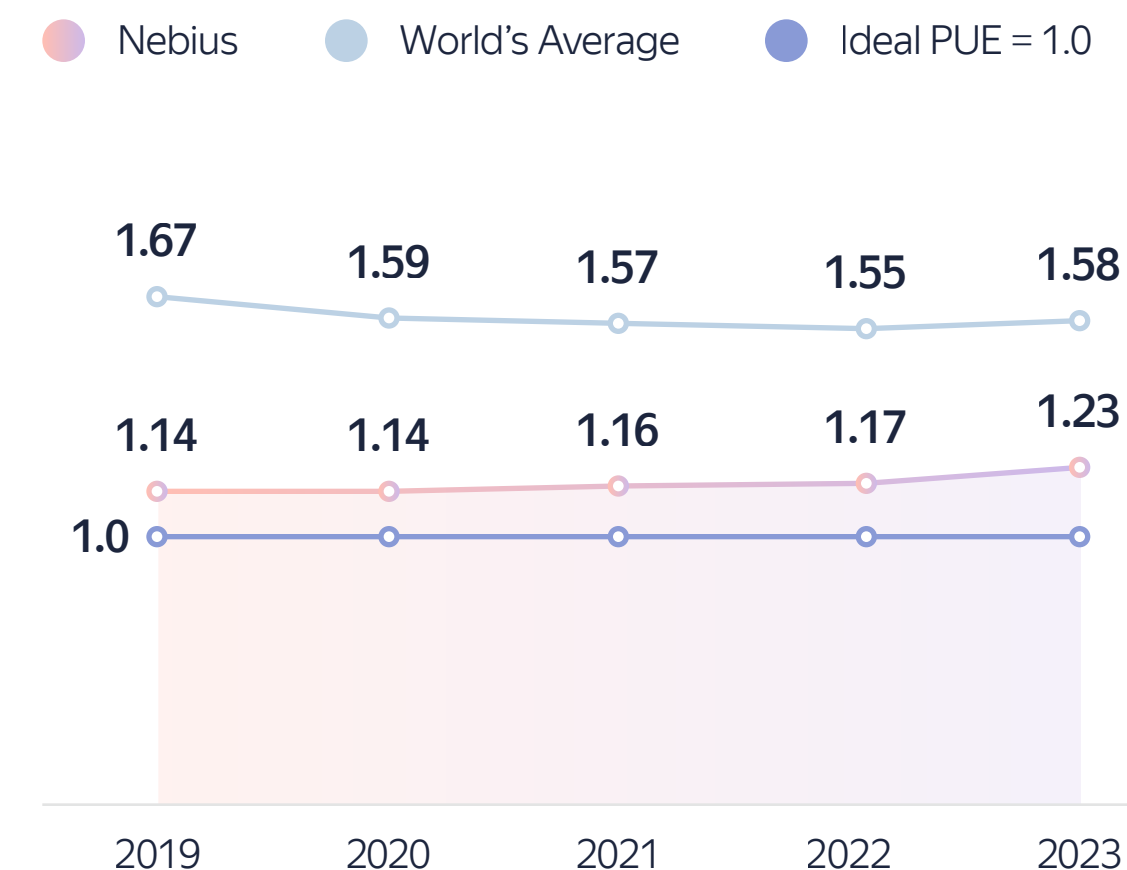
2 x less

overhead energy used in 2023 compared to an average data center

PUE 1.1

achieved under high IT loads (monthly average)

Annual Average PUE 5-year trend

● Nebius   ● World's Average   ● Ideal PUE = 1.0

1.67	1.59	1.57	1.55	1.58
1.14	1.14	1.16	1.17	1.23
1.0				
2019	2020	2021	2022	2023

Source: Nebius data center performance metrics; Uptime Institute Global Data Center Survey Results 2019–2023.

A slight growth of Nebius' annual average PUE in 2023 is attributed to lower IT loads per module with comparable overheads versus 2022. In 2023, best performing modules demonstrated a monthly average PUE of 1.1.

[1] A PUE of 1.0 indicates perfect efficiency in which 100% of the facility's power is delivered to IT equipment.

Sustainable Computing

Gross GHG emissions (Scope 1 & 2) associated with data center operations,
metric tons of CO_2-e

5,955 — 2022
5,969 — 2023
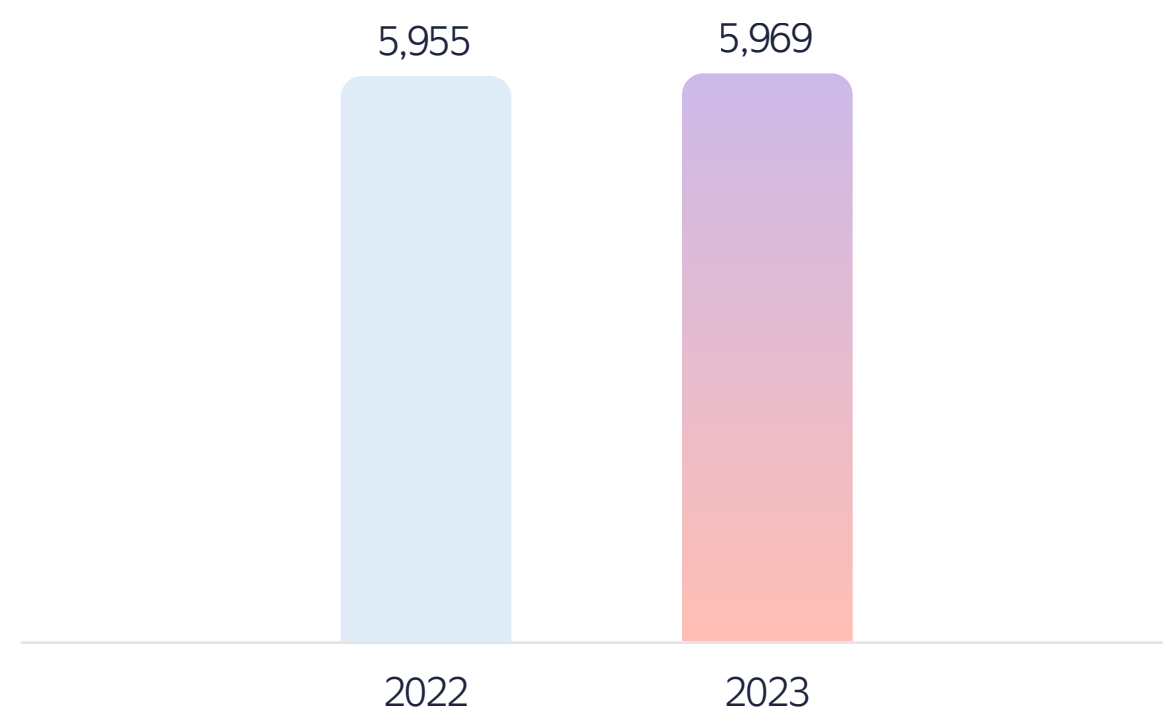
The calculation is performed as per the guidelines based on the **GHG Protocol** and using IPCC and IEA ratio indicators. Scope 2 emissions were calculated using the location-based method, given unavailability of the data for market-based method calculations.

Supercomputing

The data center in Finland houses ISEG, **Europe's most powerful commercially available supercomputer** and the 19th most powerful globally.[1] Beyond delivering technical advantages, the in-house infrastructure development optimizes costs, resulting in more affordable prices for clients.

While supercomputing is generally an energy-intensive process, ISEG is designed to optimize energy use. It consumes approximately 30%–50% less energy for computations than servers with standard architecture, while delivering twice the performance. Additionally, it incorporates an optimized heat dissipation system, effectively minimizing energy consumption required for cooling purposes.

With 35.26 GFlops per watt-second of energy consumed, it ranks 24th in terms of energy efficiency among supercomputers globally and is the number one commercially available supercomputers in Europe.[2]

No.1

Europe's most powerful commercially available supercomputer, and No.19 among the entire universe of supercomputers
as of June 2024

86.79 PFlop/s

peak performance, ahead of 96% of other supercomputers globally

No.1 most energy efficient

supercomputer in the global top 5% most powerful commercially available supercomputers
as of June 2024

[1] **Top 500** list, June 2024.
[2] **Green 500** list, June 2024.

Sustainable Computing

Innovative free cooling

Our data center employs free cooling, a method that leverages external ambient air to reduce air temperature in the data rooms instead of traditional chillers. This approach eliminates the need for water and refrigerants, resulting in enhanced cost-effectiveness and reduced environmental impact.

What sets our system apart is the data center's operating environment, which is designed to be fully functional with server temperatures of up to 40 °C under 100% workload (and even higher under lower workloads). By comparison, a typical operating environment found in many data centers worldwide that follow ASHRAE standards would aim not to exceed 27 °C due to server architecture constraints.[1]

A wider temperature range allows us to **speed down the airflow** (and thereby save energy) and **avoid the need to subcool inlet air** during warmer months. The latter is generally an energy intensive process involving the removal of condensate (water vapor) from the air that forms when the air is forced to lower temperatures.

Excessive humidity, if not removed, causes damage to the hardware. Our free cooling system ensures **self-controlled humidity levels** by maintaining server room temperatures above the dew point, preventing saturation of cold air with water vapor.

During colder months, when the outside air is too cool, we achieve the required temperature by blending in heated air removed from server rooms. This process is facilitated by automated flaps positioned between so-called hot and cold corridors. Equipped with temperature sensors, these flaps adjust their angle to ensure the precision of heat inflow.

On rare occasions when the data center requires cooler temperatures than the ambient air outside, we switch to reusing and cooling the server heat as opposed to intaking and subcooling external air. Since server heat is inherently dry, this approach minimizes energy consumption by eliminating the need for water vapor removal.

>15 %

of additional energy saved as operating environment does not require subcooling of inlet air

40 °C

Operational t° max under 100% workload,
13 °C higher than the upper limit typically set by off-the-shelf hardware

Heat recovery

The data center implements an innovative system that recovers waste heat to warm residential buildings in the nearby town of Mäntsälä, Finland. Hot server air is fanned into a heat exchanger where the heat is used to raise the temperature of water to 35–40 °C (95–105 °F). The municipality then brings the temperature to the standard 55–60 °C (130–150 °F), and transfers water to the local heating network. The project was phased in during 2015–2016, making us one of the first companies to develop and implement this technology in the region.

On average, 20,000 MWh of server heat per year is recovered to heat the town, which is the equivalent to the energy consumed by approximately 2,500 Finnish households for heating their homes throughout the year.[2]

Mäntsälä data center heat sales, MWh

2023	**17,422**
2022	20,103

The amount of heat captured and sold decreased in 2023 due to the drop in load on computing equipment vs 2022, which is attributed to the company's restructuring processes and decoupling activities.

[1] As per ASHRAE standards for inlet air temperatures, a typical server would be functional under temperatures between 64 °F and 80.6 °F (18 °C and 27 °C).
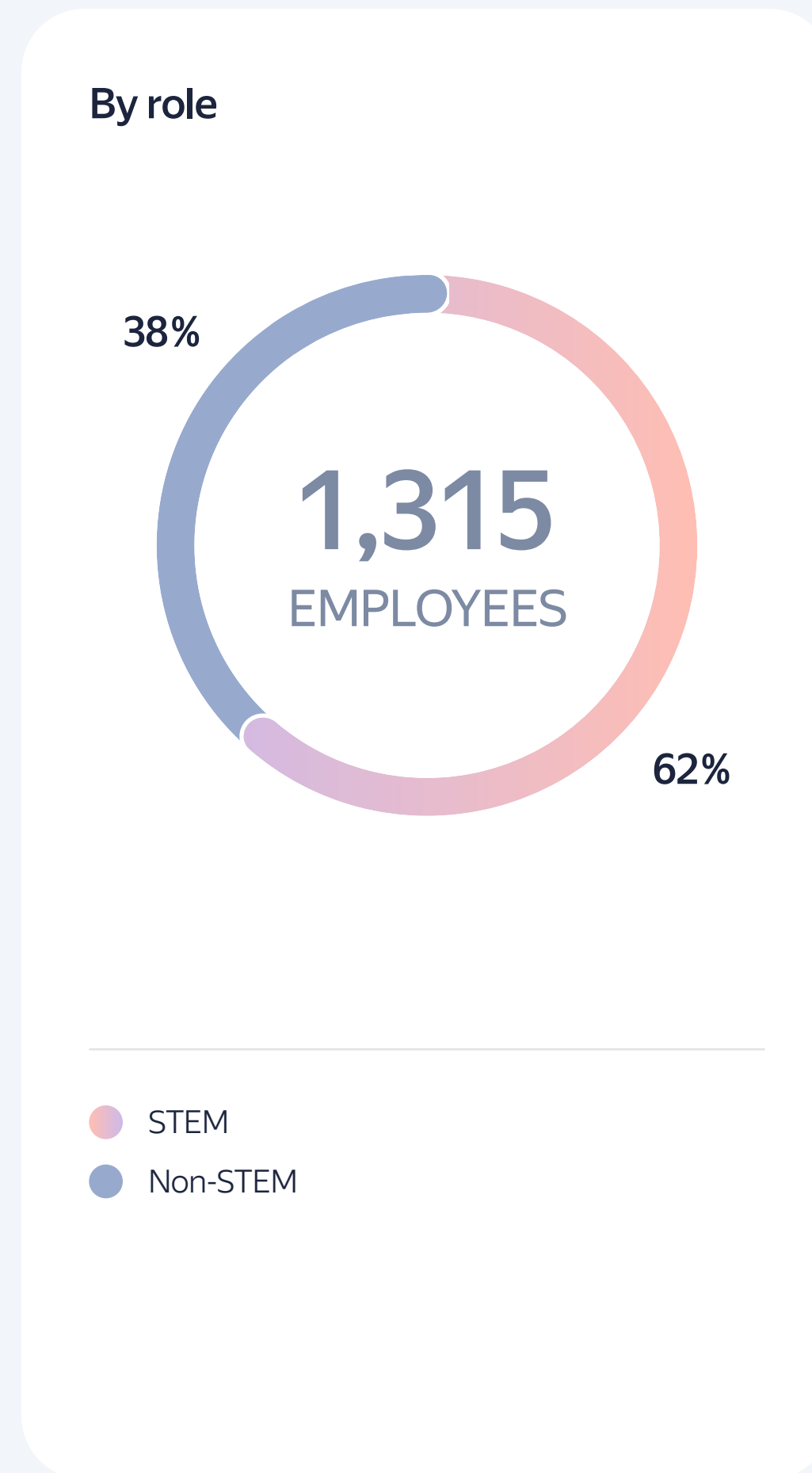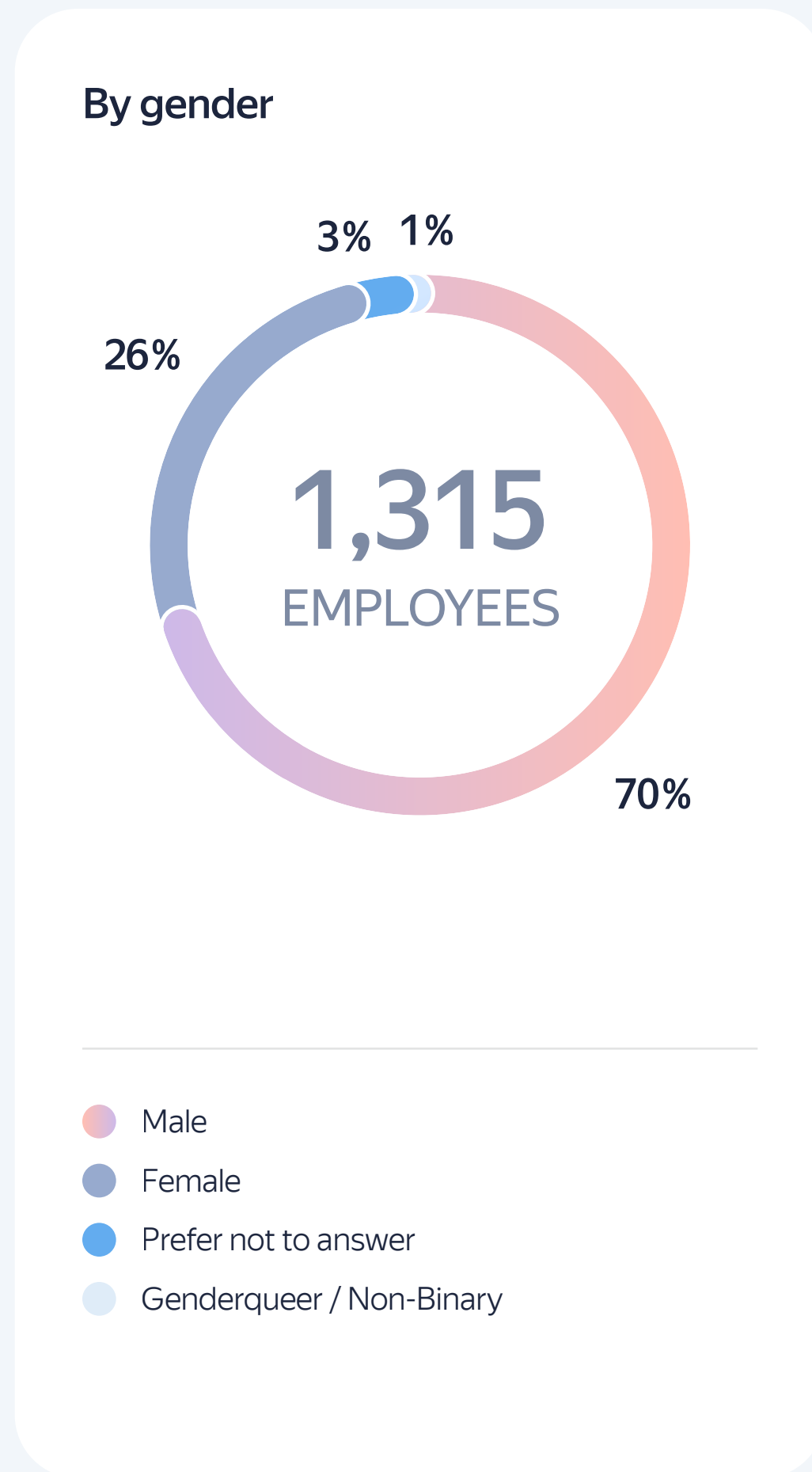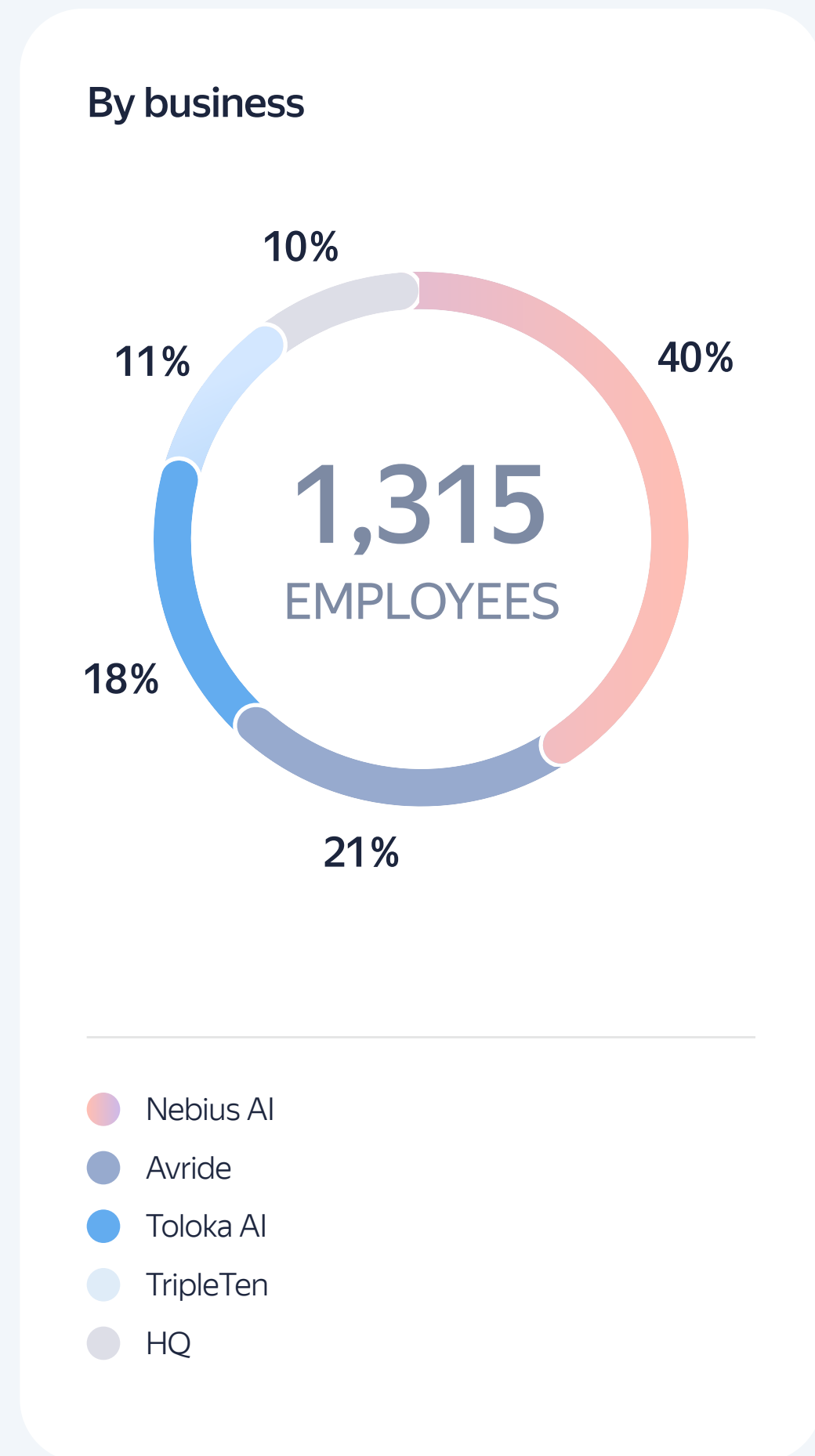
Social Inclusion

Employee wellbeing

In pursuit of our goal to create a leading global group of AI-centric businesses, we leverage the skills and knowledge of top-tier engineers who make up our R&D backbone, as well as international entrepreneurs and senior managers with decades of experience in building and operating tech companies globally.

We work to create an empowering, collaborative, and culturally diverse work environment where individuals have equal access to opportunities for growth. We aim to create a safe space that celebrates and respects individual differences. Passion for AI, exemplary professionalism, integrity, and grit are among the shared traits of our team.

As of the end of 2023, Nebius Group employed 1,315 people representing over 30 nationalities, with over 60% of them in STEM roles. The largest group of our employees (34%) is based in the Netherlands, while the remaining workforce is located in the Czech Republic, Germany, Israel, Serbia, the USA and a few other locations.

We prioritize our employees' well-being and financial security. Employees working on premises from our key hubs receive meal and transportation allowances, and additional support for retirement. Our benefits also include medical, life and travel insurance coverage.

Nebius Group team in numbers, as of December 31, 2023

By business

10%
11%
40%
18%
1,315 EMPLOYEES
21%

- Nebius AI
- Avride
- Toloka AI
- TripleTen
- HQ

By gender

3% 1%
26%
1,315 EMPLOYEES
70%

- Male
- Female
- Prefer not to answer
- Genderqueer / Non-Binary

By role

38%
1,315 EMPLOYEES
62%

- STEM
- Non-STEM

Social Inclusion

Democratizing AI

We are firm believers in the potential of AI-powered solutions to create positive social impact and we therefore advocate for inclusivity in accessing these technologies. Our core services are tailored to offer AI-related opportunities to a wide range of players, including small enterprises, startups, and non-tech businesses. Additionally, we recognize the importance of individual contributions and actively support individuals with limited or no prior IT training to acquire essential skills and thrive in the digital economy.

Multi-layered AI stack

In 2023, we focused on building a multi-layered AI stack consisting of solutions provided by Nebius AI and Toloka AI, with the goal of offering customers all essential elements for successful AI development: infrastructure and computing capabilities, pre-trained AI models, data acquisition tools, and expert assistance. The stack is designed to remove barriers to entry in AI, welcoming small and medium-sized AI ventures with restricted training data and hardware, as well as non-IT businesses lacking expertise, to create their own in-house solutions.

Cost saving

on time- & effort-consuming AI development and their reallocation to product development

IT skills for all

TripleTen, our EdTech service, addresses the tech skills gap by offering immersive study tracks in Software Engineering, Data Science, BI (Business Intelligence) Analytics, and Quality Assurance. These tracks cater to individuals with minimal IT training, aiming to facilitate career advancement or transitions.

TripleTen fosters inclusivity by welcoming learners of diverse backgrounds and proficiency levels. Through a blend of bootcamp and MOOC formats, it creates an inclusive learning environment for underrepresented groups in IT. From course completion to job interviews, learners benefit from personalized support provided by our team of experienced tutors, reviewers, and career coaches, and partnerships with over 60 employers globally.

87 %

employment rate within six months of graduation[1]

[1] Figure provided for the US market. For more details, see **2023 Outcomes Report**.