

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended December 31, 2023

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Transition Period from _____ to _____

Commission file number 000-41446

ADTRAN Holdings, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or Other Jurisdiction of Incorporation or Organization)

87-2164282
(I.R.S. Employer Identification Number)

901 Explorer Boulevard
Huntsville, Alabama
(Address of Principal Executive Offices)

35806-2807
(Zip code)

256-963-8000

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

<u>Title of each class</u>	<u>Trading Symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common Stock, Par Value \$0.01	ADTN	The Nasdaq Global Select Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulations S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large Accelerated Filer	<input checked="" type="checkbox"/>	Accelerated Filer	<input type="checkbox"/>
Non-accelerated Filer	<input type="checkbox"/>	Smaller Reporting Company	<input type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to § 240.10D-1(b).

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes No

The aggregate market value of the registrant's outstanding common stock held by non-affiliates of the registrant on June 30, 2023 was \$816,865,648 based on a closing market price of \$10.53 as reported on the NASDAQ Global Select. There were 79,115,792 shares of common stock outstanding as of March 11, 2024.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Proxy Statement for the registrant's 2024 Annual Meeting of Stockholders are incorporated herein by reference into Part III of this report to the extent described in Part III.

PricewaterhouseCoopers LLP; PCAOB Firm ID: 238; Birmingham, Alabama

ADTRAN Holdings, Inc.
Annual Report on Form 10-K
For the Fiscal Year Ended December 31, 2023

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GENERAL

Unless the context otherwise indicates or requires, references in this Annual Report on Form 10-K to “ADTRAN,” the “Company,” “we,” “us” and “our” refer to ADTRAN, Inc. and its consolidated subsidiaries prior to the merger of Acorn MergeCo, Inc., a subsidiary of ADTRAN Holdings, Inc., with and into ADTRAN, Inc., on July 8, 2022, after which ADTRAN, Inc. became a wholly-owned direct subsidiary of ADTRAN Holdings, Inc. (the “Merger”), and to ADTRAN Holdings, Inc. and its consolidated subsidiaries following the Merger. Furthermore, unless the context otherwise indicates or requires, references in this Annual Report on Form 10-K to Adtran Networks refer to Adtran Networks SE (formerly ADVA Optical Networking SE).

We own or have rights to trademarks, service marks or trade names that we use in connection with the operation of our business. In addition, our names, logos and website names and addresses are owned by us or licensed by us. We also own or have the rights to copyrights that protect the content of our solutions. Solely for convenience, the trademarks, service marks, trade names and copyrights referred to in this report are listed without the ©, ® and ™ symbols, but we will assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensors to these trademarks, service marks, trade names and copyrights.

This report may include trademarks, service marks or trade names of other companies. Our use or display of other parties’ trademarks, service marks, trade names or products is not intended to, and does not imply a relationship with, or endorsement or sponsorship of us by, the trademark, service mark or trade name owners.

Unless otherwise indicated, information contained in this report concerning our industry and the markets in which we operate is based on information from independent industry and research organizations, other third-party sources (including industry publications, surveys and forecasts), and management estimates. Management estimates are derived from publicly available information released by independent industry analysts and third-party sources, as well as data from our internal research, and are based on assumptions made by us upon reviewing such data and our knowledge of such industry and markets that we believe to be reasonable. Although we believe the data from these third-party sources is reliable, we have not independently verified any third-party information.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS AND RISK FACTOR SUMMARY

The Private Securities Litigation Reform Act of 1995 provides a safe harbor for forward-looking statements made by or on our behalf. We and our representatives may from time to time make written or oral forward-looking statements, including statements contained in this report, our other filings with the Securities and Exchange Commission (the “SEC”) and other communications with our stockholders. Any statement that does not directly relate to a historical or current fact is a forward-looking statement. Generally, the words “believe”, “expect”, “intend”, “estimate”, “anticipate”, “would”, “will”, “may”, “might”, “could”, “should”, “can”, “future”, “assume”, “plan”, “seek”, “predict”, “potential”, “objective”, “expect”, “target”, “project”, “outlook”, “forecast” and similar expressions identify forward-looking statements. We caution you that any forward-looking statements made by us or on our behalf are subject to uncertainties and other factors that could affect the accuracy of such statements. Forward-looking statements are based on management’s current expectations, as well as certain assumptions and estimates made by, and information available to, management at the time the statements are made. Those statements are based on general assumptions and are subject to various risks, and because they also relate to the future, they are likewise subject to inherent uncertainties and other factors that may cause actual results to differ materially from the views, beliefs and projections expressed in such statements. These risks, uncertainties and other factors include, but are not limited to, the risks identified in Item 1A. “Risk Factors” of this report and those described below:

Risks related to our financial results and Company success

- We are obligated to comply with covenants related to our Wells Fargo Credit Agreement that could restrict our operating activities, and the failure to comply with such covenants could result in defaults that accelerates our debt.
- We have experienced significant fluctuations in revenue and such fluctuations may continue. Fluctuations in revenue can cause our operating results in a given reporting period to be higher or lower than expected.
- The lengthy sales and approval process required by Service Providers for new products has resulted in fluctuations in our revenue and may result in future revenue fluctuations.
- We depend heavily on sales to certain customers; the loss of any of these customers or a significant project would significantly reduce our revenue and net income.
- Our exposure to the credit risks of our customers and distributors may make it difficult to collect accounts receivable and could adversely affect our operating results, financial condition and cash flows.
- We expect gross margins to continue to vary over time, and our levels of product and services gross margins may not be sustainable.
- Our dependence on a limited number of suppliers for certain raw materials, key components and ODM products, combined with supply shortages, has prevented and may continue to prevent us from delivering our products on a timely basis, which has had and may continue to have a material adverse effect on operating results and could have a material adverse effect on customer relations.
- We compete in markets that have become increasingly competitive, which may result in reduced gross profit margins and market share.
- Our estimates regarding future warranty obligations may change due to product failure rates, installation and shipment volumes, field service repair obligations and other rework costs incurred in correcting product failures. If our estimates change, our liability for warranty obligations may increase or decrease, impacting future cost of revenue.
- Managing our inventory is complex and has included and may continue to include write downs of excess or obsolete inventory.
- The continuing growth of our international operations has and may continue to expose us to additional risks, increase our costs and adversely affect our operating results, financial condition and cash flows.
- Our success depends on attracting and retaining key personnel.
- We are exposed to adverse currency exchange rate fluctuations in jurisdictions where we transact in local currency, which could harm our financial results and cash flows.
- We require a significant amount of cash to service our indebtedness, our payment obligations to Adtran Networks shareholders under the DPLTA, and other obligations.
- We have recognized impairment charges related to goodwill and other intangible assets in the past and may be required to do so in the future.

- We may be unable to successfully and effectively manage and integrate acquisitions, divestitures and other significant transactions, which could harm our operating results, business and prospects.
- Ongoing inflationary pressures could negatively impact our revenues and profitability if increases in the prices of our products and services or a decrease in customer spending result in lower sales.

Risks related to our control environment

- We have had to restate our previously issued consolidated financial statements and, as part of that process, have identified material weaknesses in our internal control over financial reporting. If we are unable to develop and maintain effective internal control over financial reporting, we may not be able to accurately report our financial results in a timely manner, which may adversely affect investor confidence in us and may adversely affect our business, financial condition and results of operations.
- We may face litigation and other risks as a result of the restatements of our previously issued consolidated financial statements and material weaknesses in our internal control over financial reporting.
- Breaches of our information systems and cyberattacks could compromise our intellectual property and cause significant damage to our business and reputation.

Risks related to the Business Combination and DPLTA

- Our ability to realize anticipated strategic and financial benefits sought from the Business Combination has been and may continue to be affected by a number of factors.
- We have incurred and expect to continue to incur significant costs in connection with the Business Combination and post-closing integration and restructuring efforts.
- We incurred a substantial amount of indebtedness in connection with the Business Combination and DPLTA. Our failure to meet our debt service obligations could have a material adverse effect on our business, financial condition and results of operations.
- We have experienced operational challenges as a result of the Business Combination and may also experience negative synergies and loss of customers.
- The terms of the DPLTA may have a material adverse effect on our financial results and condition.
- We are exposed to additional litigation risk and uncertainty with respect to the remaining minority shareholders of Adtran Networks, which litigation may require us to pay a higher purchase price for additional Adtran Networks shares than the amount provided for under the DPLTA.
- We may be unable to successfully retain and motivate our personnel.

Risks related to the telecommunications industry

- We must continue to update and improve our products and develop new products to compete and to keep pace with improvements in communications technology.
- Our failure or the failure of our contract manufacturers to comply with applicable environmental regulations could adversely impact our results of operations.
- If our products do not interoperate with our customers' networks, installations may be delayed or canceled, which could harm our business.
- We engage in research and development activities to develop new, innovative solutions and to improve the application of developed technologies, and as a consequence may miss certain market opportunities enjoyed by larger companies with substantially greater research and development efforts and which may focus on more leading-edge development.
- Our strategy of outsourcing a portion of our manufacturing requirements to subcontractors located in various international regions may result in us not meeting our cost, quality or performance standards.
- Our failure to maintain rights to intellectual property used in our business could adversely affect the development, functionality and commercial value of our products.

- Third party hardware or software that is used with our portfolios may not continue to be available or at commercially reasonable terms.
- Our use of open source software could impose limitations on our ability to commercialize our products.
- We may incur liabilities or become subject to litigation that would have a material effect on our business.
- If we are unable to successfully develop and maintain relationships with SIs, Service Providers and enterprise VARs, our revenue may be negatively affected.
- We depend on a third-party cloud platform provider to host our Mosaic One SaaS network operating platform, and if we were to experience a disruption or interference in service, our business and reputation could suffer.

Risks related to the Company's stock price

- Our operating results and financial performance historically have fluctuated and are likely to continue to fluctuate in future periods. Such fluctuations can adversely affect our stock price.
- The price of our common stock has been volatile and may continue to fluctuate significantly.

Risks related to the regulatory environments in which we do business

- We are subject to complex and evolving U.S. and foreign laws, regulations and standards governing the conduct of our business. Violations of these laws and regulations may harm our business, subject us to penalties and to other adverse consequences.
- Changes in trade policy in the U.S. and other countries, including the imposition of additional tariffs and the resulting consequences, may adversely impact our gross profits, gross margins, results of operations and financial condition.
- New or revised tax regulations, changes in our effective tax rate, recognition of a valuation allowance or assessments arising from tax audits may have an adverse impact on our results.
- Central banks' monetary policy actions and instability in the financial services sector could increase our costs of borrowing money and negatively impact our financial condition and future operations.
- Expectations relating to environmental, social and governance considerations expose the Company to potential liabilities, increased costs, reputational harm, and other adverse effects on the Company's business.
- Further downgrades of the U.S. credit rating, impending automatic spending cuts or a government shutdown could negatively impact our liquidity, financial condition and earnings.

We caution investors that other factors may prove to be important in the future in affecting our operating results. New factors emerge from time to time, and it is not possible for us to predict all of these factors, nor can we assess the impact each factor, or a combination of factors, may have on our business. You are further cautioned not to place undue reliance on these forward-looking statements because they speak only of our views as of the date that the statements were made. We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

GLOSSARY OF SELECTED TERMS

Below are certain acronyms, concepts and defined terms commonly used in our industry and in this report along with their meanings:

Acronym/Concept/ Defined Term	Meaning
Acorn HoldCo	Acorn HoldCo, Inc., a Delaware corporation and currently a wholly-owned direct subsidiary of the Company
Adtran Networks	Adtran Networks SE, a European stock corporation incorporated under the laws of the European Union and Germany
ADTRAN GmbH	ADTRAN Gesellschaft mit beschränkter Haftung; Limited liability subsidiary of ADTRAN, Inc. in Germany
ALM	Active line monitoring
AI	Artificial Intelligence
APAC	Asia Pacific
ASU	Accounting Standards Update
ATIS	Alliance for Telecommunications Industry Solutions; Standards organization that develops technical and operational standards and solutions for the information and technology industry
BBF	Broadband Forum
CARES Act	Coronavirus Aid, Relief, and Economic Security Act
Carrier	Entity that provides voice, data or video services to consumers and businesses
COSO	Committee of Sponsoring Organizations of the Treadway Commission
CPE	Customer-Premises Equipment
C-TPAT	United States Customs Trade Partnership Against Terrorism
DPLTA	Domination and Profit and Loss Transfer Agreement
DPU	Distribution Point Unit
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
DSO	Days Sales Outstanding
EMEA	Europe, Middle East and Africa
EPON	Ethernet Passive Optical Network
ESG	Environmental, Social and Governance
Ethernet	Means of connecting computers over a LAN (as defined below)
ETSI	European Telecommunications Standards Institute
EU	European Union
EURIBOR	Euro Interbank Offered Rate
FCPA	Foreign Corrupt Practices Act
FOB	Free on Board
FTTN	Fiber to the Node
GDPR	General Data Protection Regulation
Gfast	Digital subscriber line protocol standard for local loops (telephone lines) shorter than 500 meters with performance targets between 100 Mbps (as defined below) and 1 gigabit per second, depending on loop length
GPON	Gigabit Passive Optical Network
hiX	ADTRAN Multiservice Access Platform sold in the EU
ICT	Information and Communications Technology
IoT	Internet of Things

IP	Internet Protocol
ISO	International Organization for Standardization
ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
LAN	Local Area Network
LIBOR	London Inter-bank Offered Rate
Mbps	Megabits Per Second
MEF	Metro Ethernet Forum
MSO	Multiple System Operator
MSP	Managed Service Provider
NASDAQ	National Association of Securities Dealers Automated Quotations, an American stock exchange based in New York City
ODM	Original Design Manufacturer
OLT	Optical Line Terminal
ONE	Optical Networking Edge
ONT	Optical Network Terminal
Operator	Entity that provides voice, data or video services to consumers and businesses
OS	Operating System
OTT	Over the Top
PCAOB	Public Company Accounting Oversight Board
PON	Passive Optical Network
PSU	Performance Stock Unit
REACH	Registration, Evaluation, Authorization, and Restriction of Chemicals
RoHS	Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
RSU	Restricted Stock Unit
SaaS	Software-as-a-Service
SDN	Software Defined Networking
SDX	Software Defined Everything
SDO	Standards Developing Organizations
SEC	Securities and Exchange Commission
Service Provider or SP	An entity that provides voice, data or video services to consumers and businesses
SI	Person or company that specializes in bringing together component subsystems into a whole and ensuring that those subsystems function together.
SLA	Service Level Agreement
SMB	Small- to Medium-sized Business
SOFR	Secured Overnight Financing Rate
System Integrator or SI	Person or company that specializes in bringing together component subsystems into a whole and ensuring that those subsystems function together
TIA	Telecommunications Industry Association
TIP	Telecom Infra-Project
TL 9000	Standard developed by and for the ICT industry to drive consistency in the quality of products and services down the supply chain through the implementation of a common body of QMS requirements and defined performance-based measurements
U.K.	United Kingdom
U.S.	United States

VAR	Value-Added Reseller
VDSL2	Very high-speed Digital Subscriber Line 2
VoIP	Voice over Internet Protocol
WEEE	Waste Electrical and Electronic Equipment; European Community Directive 2012/19/EU on waste electrical and electronic equipment
Wi-Fi	Family of wireless network protocols, based on the IEEE 802.11 family of standards, which are commonly used for local area networking of devices and Internet access
XGS-PON	Updated standard for Passive Optical Networks that can support 10 Gbps symmetrical data transfer

PART I

ITEM 1. BUSINESS

Company Overview

We are a leading global provider of networking and communications platforms, software, systems and services focused on the broadband access and optical networking market. We are serving a diverse domestic and international customer base in multiple countries that includes large, medium and small Service Providers; alternative Service Providers, such as utilities, municipalities and fiber overbuilders; cable/MSOs; SMBs; distributed enterprises, including Fortune 500 companies with sophisticated business continuity applications; and federal, state and local government agencies. Our innovative solutions and services enable voice, data, video and internet-communications across a variety of network infrastructures and are currently in use by millions worldwide. We support our customers through our direct global sales organization and our distribution networks. Our success depends upon our ability to increase unit volume and market share through the introduction of new products and succeeding generations of products having optimal selling prices and increased functionality as compared to both the prior generation of a product and to the products of competitors in order to gain market share. To service our customers and grow revenue, we are continually conducting research, developing new products addressing customer needs and testing those products for the specific requirements of particular customers. We offer a broad portfolio of flexible software and hardware network solutions and services that enable network operators to meet today's service demands while also enabling them to transition to the fully converged, scalable, highly automated, cloud-controlled voice, data, internet and video network of the future. In addition to our global headquarters in Huntsville, Alabama, and our European headquarters in Munich, Germany, we have sales, administrative, services and support and research and development facilities in strategic global locations.

The Company solely owns ADTRAN, Inc. and is the majority shareholder of Adtran Networks (formerly ADVA Optical Networking SE). ADTRAN, Inc. is a leading global provider of open, disaggregated networking and communications solutions. Adtran Networks is a global provider of network solutions for data, storage, voice and video services. We believe that the combined technology portfolio can best address current and future customer needs for high-speed connectivity from the network core to the end consumer, especially upon the convergence of solutions at the network edge.

We operate under two reportable segments: (1) Network Solutions, which includes hardware and software products, and (2) Services & Support, which includes a portfolio of network design and implementation services, support services and cloud-hosted SaaS applications that complement our product portfolio and can be utilized to support other platforms as well. These two segments span across our three revenue categories: (1) Subscriber Solutions, (2) Access & Aggregation Solutions and (3) Optical Networking Solutions. See below for a detailed discussion of these reportable segments and revenue categories.

We are focused on being a top global supplier of fiber-based communications infrastructure and SaaS applications spanning from the network core to the cloud edge (data center) to the subscriber edge (customer premise) serving both the residential and enterprise connectivity markets including fiber-based infrastructure for mobile networks. We offer a broad portfolio of flexible network infrastructure solutions, customer premises equipment, software applications, and global services and support that enable Service Providers to meet their service demands now and in the future. These products and services enable Service Providers to transition to a common network supporting the simplified delivery of high-capacity services, regardless of subscriber density, network topology and infrastructure diversity.

We began operations in January 1986. Our global headquarters are located at Cummings Research Park in Huntsville, Alabama, the second largest research park in the U.S. and fourth largest in the world. Our mailing address is 901 Explorer Boulevard, Huntsville, Alabama, 35806. Our telephone number at that location is (800) 923-8726. Our website is www.adtran.com. The information found on our website is not incorporated by reference in this report or any other report that we file or furnish to the SEC.

Domination and Profit and Loss Transfer Agreement

The DPLTA between the Company, as the controlling company, and Adtran Networks, as the controlled company, was executed on December 1, 2022 in connection with the Company's business combination with Adtran Networks, and became effective on January 16, 2023. Pursuant to the DPLTA, the Company has effective control over Adtran Networks subject to the terms of DPLTA. *For more information on the DPLTA, see "Management's Discussion and Analysis of Financial Condition and Results of Operations – Adtran Networks Domination and Profit and Loss Transfer Agreement" in Part II, Item 7 of this report.*

Reportable Segments

Our business operates under two reportable segments: (1) Network Solutions and (2) Services & Support. We review our financial performance, specifically revenue and gross profit, based on these two segments.

Network Solutions Segment

The Network Solutions segment includes hardware and software products that enable a digital future which support our Subscriber, Access & Aggregation, and Optical Networking Solutions. Our cloud-managed Wi-Fi gateways, virtualization software, and switches provide a mix of wired and wireless connectivity at the customer premises. In addition, its Carrier Ethernet products support a variety of applications at the network edge ranging from mobile backhaul to connecting enterprise customers ("Subscriber Solutions"). Our portfolio includes products for multi-gigabit service delivery over fiber or alternative media to homes and businesses.

Services & Support Segment

The Services & Support segment offers a comprehensive portfolio of network design, implementation, maintenance and cloud-hosted services supporting its Subscriber, Access & Aggregation, and Optical Networking Solutions. These services assist operators in the deployment of multi-vendor networks while reducing their cost to maintain these networks. The cloud-hosted services include a suite of SaaS applications under our Mosaic One platform that manages end-to-end network and service optimization for both fiber access infrastructure and mesh Wi-Fi connectivity. We back these services with a global support organization that offers on-site and off-site support services with varying SLAs.

Revenue Categories

In addition to operating under two reportable segments, we also report revenue across three categories – Subscriber Solutions, Access & Aggregation Solutions and Optical Networking Solutions.

Prior to the Business Combination with Adtran Networks on July 15, 2022, ADTRAN, Inc. reported revenue across the following three categories: (1) Access & Aggregation, (2) Subscriber Solutions & Experience and (3) Traditional & Other Products. Following the Business Combination with Adtran Networks, we recast these revenues such that ADTRAN, Inc.'s former Access & Aggregation revenue is combined with a portion of the applicable Adtran Networks solutions to create Access & Aggregation Solutions, ADTRAN's former Subscriber Solutions & Experience revenue is combined with a portion of the applicable Adtran Networks solutions to create Subscriber Solutions and the revenue from Traditional & Other products is now included in the applicable Access & Aggregation Solutions or Subscriber Solutions category. Optical Networking Solutions was added as a revenue category to represent a meaningful portion of Adtran Networks' portfolio.

Our portfolio



Subscriber and enterprise solutions

Open multi-gig PON systems, Carrier Ethernet access, Wi-Fi, routers, switches and more



Access and aggregation solutions

Fiber access platforms, 1/10/25/100G Ethernet aggregation, network timing and synchronization



Optical networking solutions

Optical access and transport, data center interconnect, advanced pluggable optics, assurance and monitoring, encryption and security



Software platforms

Open, cloud-centric management and orchestration



Professional services

Scalable in-region services, including planning, deployment, and maintenance

Our Subscriber Solutions portfolio is used by Service Providers to terminate their access services infrastructure at customers' premises while providing an immersive and interactive experience for residential, business and wholesale subscribers. This revenue category includes hardware- and software-based products and services. These solutions include fiber termination solutions for residential, business and wholesale subscribers, Wi-Fi access solutions for residential and business subscribers, Ethernet switching and network edge virtualization solutions for business subscribers, and cloud software solutions covering a mix of subscriber types.

The Subscriber Solutions category includes the following products, software and services:

Residential Gateways ("RGs"): <ul style="list-style-type: none"> • Residential Gateways 	Optical Networking Terminals ("ONTs"): <ul style="list-style-type: none"> • EPON ONUs • GPON/XGS-PON ONTs
Enterprise Connectivity: <ul style="list-style-type: none"> • Traditional SSE • Routers • Switches 	Edge Compute: <ul style="list-style-type: none"> • Edge Cloud (VEC)
Carrier Ethernet Network Interface Devices ("CE NIDs"): <ul style="list-style-type: none"> • FSP 150-GE110 • FSP 150-XG100 • FSP 150-XG210 • FSP 150-XG300 • FSP 150-XG400-NIDs 	Software: <ul style="list-style-type: none"> • Mosaic One SaaS applications • n-Command • Procloud
Service: <ul style="list-style-type: none"> • Build • Care • Training • Professional Services • Software Services • Managed Services 	

Our Access & Aggregation Solutions are solutions that are used by communications Service Providers to connect residential subscribers, business subscribers and mobile radio networks to the Service Providers' metro network, primarily through fiber-based connectivity. This revenue category includes hardware- and software-based products and services. Our solutions within this category are a mix of fiber access and aggregation platforms, precision network synchronization and timing solutions, and access orchestration solutions that ensure highly reliable and efficient network performance.

The Access & Aggregation category includes the following products, software and services:

Optical Line Terminals ("OLTs"): <ul style="list-style-type: none"> • TA5000 OLT • SDX OLT • EPON OLT • Pluggable Optics 	Optical Networking Terminals ("ONTs"): <ul style="list-style-type: none"> • EPON ONUs • GPON-XGS-PON ONTs
Packet Aggregation: <ul style="list-style-type: none"> • FSF 150-XG400 Aggregators • SDX Aggregation • Activator 	Copper Access <ul style="list-style-type: none"> • Gfast DPUs • hiX • Total Access FTTN • Traditional Broadband
Oscilloquartz: <ul style="list-style-type: none"> • OSA AccessSync • OSA Edge Sync 	Software: <ul style="list-style-type: none"> • MCP • AOE and ACI-E

<ul style="list-style-type: none"> • OSA CoreSync • OSA Inside 	<ul style="list-style-type: none"> • Mosaic One SaaS Applications • Ensemble Controller
Service: <ul style="list-style-type: none"> • Build • Care • Training • Professional Services • Software Services • Managed Services 	

Our Optical Networking Solutions are used by communications Service Providers, internet content providers and large-scale enterprises to securely interconnect metro and regional networks over fiber. This revenue category includes hardware- and software-based products and services. Our solutions within this category include open optical terminals, open line systems, optical subsystems and modules, network infrastructure assurance systems, and automation platforms that are used to build high-scale, secure and assured optical networks.

The Optical Networking Solutions category includes the following products, software and services:

Optical Transport: <ul style="list-style-type: none"> • FSP 3000 CC • FSP 3000 R7 	Optical Engines: <ul style="list-style-type: none"> • AOE Coherent Pluggables • AOE MicroMax • AOE AccessWave
Infrastructure Monitoring: <ul style="list-style-type: none"> • ALM Fiber Monitoring 	Software: <ul style="list-style-type: none"> • Ensemble Controller
Services: <ul style="list-style-type: none"> • Build • Care • Training • Professional Services • Software Services • Managed Services 	

Industry Overview

The global growth of the cloud and mobility, home office and mobile working, industrial applications and 5G are accelerating the demand for more bandwidth, requiring more flexible provisioning of telecommunications services and more precise network synchronization. Communications Service Providers' investment in their networks is being driven by the pursuit of growth in subscriber acquisition, retention, and average revenue per user, as well as by the aims of streamlining operations, lowering energy consumption and improving their overall ESG position. Drivers facilitating this network investment cycle include the evolution of government funding programs, private equity infrastructure investment appetite, regulatory broadband policies, competition and ever-increasing subscriber demand for higher-speed broadband.

Subscriber demand for greater bandwidth continues to increase as connectivity is being woven ever more tightly into the fabric of everyone's day-to-day lives. Specifically, subscriber demand for greater bandwidth is being driven by increasing numbers of connected devices, shifting working arrangements, the transition of entertainment over to OTT video, and the evolution of gaming platforms towards subscription models where new hybrids of download and streaming are emerging globally. This is further compounded by the rapid adoption of AI, the prevalence of IoT and the increasing transition of applications over to cloud-based services and internet applications where recurring revenues replace one-time sales. Performance and user satisfaction are directly related to bandwidth availability and service robustness. As the demand for high-definition video and game streaming services, symmetric bandwidth for online collaboration, lower latency for interactive AI and cloud applications and smart home video surveillance applications continue to increase, so too does the need increase for fiber-based broadband to be in every home and business.

In order to satisfy these complex requirements and deliver on the efficiency improvements demanded by operators, communications Service Providers are transitioning to full fiber access networks.

We aim to serve as a trusted partner to our customers. Working side-by-side with our customers, we assist them with maximizing the performance of their networks by providing a flexible path for their networks to evolve cost-effectively over to full fiber while availing themselves of the benefits that web-scale architectures deliver and helping to further monetize their investments.

Our Strategy

Our strategy is to provide innovative and cost-effective solutions for our customers that enable them to address their increasing broadband demand. Our solutions focus on technology transformations that are happening in broadband network infrastructure, home and business CPE and software platforms, and services needed to help our customers address increasing complexity while scaling to meet increasing consumer demands.

We aspire to be one of the top communication technology players in the world and an innovation leader around the converged edge, enabling the intelligent, self-optimizing, fiber-everywhere future. We plan to achieve this goal through innovation in network, home and business technology paired with a customer-focused organizational structure that tailors solutions to meet the needs of our target customers. We have one of the most comprehensive solutions portfolios that empowers operators to build a converged infrastructure from the metro core to the customer premise, serving all networking applications for residential, business, wholesale and mobile users. We take an approach to our portfolio in which we are focused in specific markets where we can offer competitive differentiation and scale while also having enough diversity and breadth in the portfolio to provide end-to-end connectivity solutions that offer value to our customers. More specifically, our corporate strategy consists of the following elements:

- *Leadership in fiber networking:* Breadth of portfolio, open and advanced architecture, assured and secure connectivity.
- *Growth in focus markets:* More turnkey solutions and in-region resources, especially North America and EMEA.
- *Investment in converged edge:* Innovation in optics, security, AI-driven networking, virtualization, SaaS, etc.
- *Transformation through software:* Open and cloud-centric systems, end-to-end programmability, simplification through software, and innovative SaaS offerings.
- *Diversification of customers:* Cross-selling current portfolio, acquisition of new customers and partners based on larger portfolio and trusted supplier status.
- *Focus on sustainability:* Science-based emissions targets, process-based product eco-design, optimization of operations, logistics and all packaging, circular-economy processes.

Business Efficiency Program

On November 6, 2023, due to the uncertainty around the current macroeconomic environment and its impact on customer spending levels, the Company's management decided to implement a business efficiency program (the "Business Efficiency Program") targeting the reduction of ongoing operating expenses and focusing on capital efficiency inclusive of certain salary reductions, an early retirement program, a site consolidation plan to include lease impairments and the partial sale of owned real estate (including the potential sale of portions of our headquarters), inventory write downs from product discontinuances, and the suspension of the quarterly dividend. The Business Efficiency Program expands upon other recently implemented restructuring efforts and synergy costs following the Business Combination. For instance, on August 17, 2023, the Company's management determined to discontinue its copper-based Digital Subscriber Line broadband access technology products and its fixed wireless access products in its Network Solutions segment. Furthermore, on September 29, 2023, the Company's management decided to exit the "IoT" gateway market (indoor and outdoor), a subset of the broader IoT market (together with the other product discontinuations, the "Discontinuities"). Additionally, on October 25, 2023, all employees were informed of certain personnel measures, which included the reduction of salary for select management, a reduction of approximately 5% of the workforce, an early retirement program and a hiring freeze. *For additional information, see "Management's Discussion and Analysis of Financial Condition and Results of Operations – Business Efficiency Program" in Part II, Item 7 of this report.*

Customers

We have a diverse global customer base that includes large, medium and small Service Providers, alternative Service Providers, such as utilities, municipalities and fiber overbuilders; cable/MSOs; SMBs and distributed enterprises.

During 2023, we had one customer who comprised greater than 10.0% of our revenue, which was an international Service Provider and our five largest customers comprised 37.0% of our revenue. Additionally, our revenue in the U.S., U.K. and Germany comprised more than 10% of our revenue in 2023. The revenue from this Service Provider and these countries is reported in both our Network Solutions and Services & Support segments.

For a discussion of risks associated with customers, Service Providers and approval processes, see "Risk Factors – The lengthy sales and approval process required by Service Providers for new products could result in fluctuations in our revenue," "Risk Factors – We depend heavily on sales to certain customers; the loss of any of these customers would significantly reduce our revenue and net income," in Part I, Item 1A of this report.

Distribution, Sales and Marketing

We sell our products through our direct sales organization and our distribution network. Our direct sales organization supports major accounts and has offices in global locations. Sales to most smaller and independent telephone companies are fulfilled through a combination of direct sales and distributors. Our services offerings can be purchased directly from us or through one of our Service Providers, channel partners or distribution partners.

Before placing an order, Service Providers typically require lengthy product qualification and standardization processes that can extend for several months or even years. Once approved, product orders are typically placed under single or multi-year supply agreements that are generally not subject to minimum volume commitments. Service Providers generally prefer having two or more suppliers for most products. Therefore, individual orders are usually subject to competitive combinations of total value, service, price, delivery and other terms.

Orders for end-user products are fulfilled through a combination of direct sales and distributors. This is supported by a direct sales organization for major accounts and a channel-based sales organization to facilitate sales to our partners. MSPs, VARs and SIs may be affiliated with us as channel partners, or they may purchase from a distributor in an unaffiliated fashion. Affiliated partners participate with us at various program levels, based on sales volume and other factors, to receive benefits such as product discounts, market development funds, technical support and training.

Outside of the U.S., most Service Provider products are sold through our direct sales organization and end-user products are sold direct or through distribution arrangements customized for each region. Some regions are supported from a field office that offers sales and support functions, and in some cases, warehousing and manufacturing support. Our field sales organizations, distributors and Service Provider customers receive support from regional-based marketing, sales and customer support groups.

Our marketing organization promotes all brands associated with us to key stakeholders, including customers, partners and prospects throughout the world. Marketing is complemented by product marketing and management teams that work with our engineering teams to develop and promote new products and services, as well as product enhancements.

Research and Development

Rapidly changing technologies, evolving industry standards, changing customer requirements, supply constraints and continuing developments in communications service offerings characterize the markets for our products. Our on-going ability to adapt to these changes and to develop new and enhanced products that meet or anticipate market demand is the main factor influencing our competitive position and our ability to grow.

Our product development activities are a central part of our strategy. We plan to maintain our emphasis on product development to enable us to respond to rapidly changing technology and evolving industry standards. Our research and development and engineering functions are global. We maintain research and development functions at multiple sites in the U.S., Europe, Israel and Asia. During the years ended December 31, 2023, 2022 and 2021, research and development expenditures totaled \$258.3 million, \$173.8 million and \$108.7 million, respectively.

While we develop the majority of our products internally, we also leverage partners for some solutions. Additionally, we license intellectual property or acquire technologies. Internal development on advanced technology products gives us more control over design and manufacturing issues, while for traditional designs, ODM and/or licensed intellectual property provides us with the ability to leverage the economies of scale of our technology partners. This balanced approach ensures we provide best-in-class solutions for our customers.

As we continue to create more software-based intellectual property, such as our SDN/Edge Cloud portfolio, our use of lean agile practices in research and development ensures we remain responsive and customer-focused. This enables us to deliver products faster, at higher quality and more economically to our customers and the market on a continuous basis.

Our ability to continually reduce product costs, while focusing on delivery and quality, are important parts of our overall business strategy. Our product development efforts are often centered on entering a market with improved technology, enabling us to offer products at competitive prices and compete for market share. *See Inventory included in Part I, Item 1 of this report for additional information regarding our supply chain disruptions.*

Development activities focus on solutions that support both existing and emerging communications industry technologies in segments that we consider viable revenue opportunities. We are actively engaged in developing and refining technologies to support data, voice and video transport primarily over IP/Ethernet and optical network architectures. This includes optical transport, packet demarcation and aggregation, synchronization and fiber-optic access, DSL, access routing, ethernet switching, wireless LANs, integrated access, converged services, VoIP, network management and professional services. In addition, we focus on vertical optical technologies like Silicon Photonics, as well as microelectronics in order to differentiate and fully control the vertical value stack of our solutions. In 2023, we released many market-leading products like additions to our SDX OLT range, new residential gateway and ONT families, outdoor packet demarcation devices, packet demarcation, encryption/security products, edge and core transport solutions. We enhanced our market leading synchronization & timing portfolio, as well as our SaaS delivery abilities and Mosaic One software.

Our research function and advanced technology team is driving many specific research projects in the fields of sustainable optical transmission, security, quantum communications, SDN and access technologies. This research fosters differentiated product concepts and guides our various product design and engineering teams in IPR creation, industry and network standards and technological forecasting.

We are an active participant in several SDOs and have assisted with the development of worldwide standards in many technologies. Our SDO activities are primarily in the areas of broadband access, optical networking and synchronization. This includes involvement with the ITU-T, ATIS, ETSI, ONF and the BBF. We are involved in the evolution of optical access technologies on next-generation PON. We also continue to be involved in driving optical networking, synchronization and SDN standardization and participate in industry-wide interoperability, performance-testing and system-level projects related to those standards in BBF and ONF. We are also members of MEF, TIA, CableLabs and TIP.

For a discussion of risks associated with our research and development activities, see “Risk Factors – We must continue to update and improve our products and develop new products to compete and to keep pace with improvements in communications technology” and “Risk Factors – We engage in research and development activities to develop new, innovative solutions and to improve the application of developed technologies, and as a consequence may miss certain market opportunities enjoyed by larger companies with substantially greater research and development effort and which may focus on more leading edge development,” in Part I, Item 1A of this report.

Manufacturing and Operations

The principal steps in our manufacturing process include the purchase and management of materials, assembly, testing, final inspection, packing and shipping. We purchase parts and components for the assembly of some products from a large number of suppliers through a worldwide sourcing program. Additionally, we manage a process that identifies the components that are best purchased directly by contract manufacturers for use in the assembly of our products to achieve manufacturing efficiency, quality and cost objectives. Certain key components used in our products are currently available from a single source, and other key components are available from only a limited number of sources. In the past, we have experienced delays in the receipt of certain key components, which has resulted in delays in related product deliveries. We attempt to manage these risks through developing alternative sources, by staging inventories at strategic locations, through engineering efforts designed to prevent the necessity of certain components and by maintaining close contact and building long-term relationships with our suppliers. *See Inventory included in Part I, Item 1 of this report for additional information.*

We rely on subcontractors for the assembly and testing of certain printed circuit board assemblies, sub-assemblies, chassis, enclosures and equipment shelves, and to purchase some of the raw materials used in such assemblies. We typically manufacture our lower-volume, higher-mix products and build and test product prototypes and many of our initial production units at our manufacturing site in Huntsville, Alabama. We later transfer the production of higher-volume, lower-mix assemblies to our subcontractors. Subcontract assembly operations can lengthen fulfillment cycle times, but we believe we can respond more rapidly to uncertainties in incoming order rates by selecting assembly subcontractors that have significant reserve capacity and flexibility. Our subcontractors have generally proven to be flexible and able to meet our quality requirements.

We ship the majority of products to our U.S. customers from our facilities in Huntsville, Alabama. The majority of international customers are being served from our logistics hubs in Meiningen, Germany and York, United Kingdom. We also ship directly from subcontractors to a number of customers in the U.S. and international locations. Most of our facilities are certified pursuant to the most current releases of ISO 9001, TL 9000, ISO 14001 and ISO 27001. Our Huntsville, Alabama facilities and many of our key suppliers are C-TPAT certified. Our products are also certified to certain other customers' industry and privacy standards, including those relating to the emission of electromagnetic energy and safety specifications.

Our dependence on a limited number of suppliers for certain raw materials, key components and ODM products, has prevented and may in the future prevent us from delivering our products on a timely basis, which has had and may continue to have a material adverse effect on operating results and could have a material adverse effect on customer relations.

For a discussion of risks associated with manufacturing activities, see "Risk Factors – Our strategy of outsourcing a portion of our manufacturing requirements to subcontractors located in various international regions may result in us not meeting our cost, quality or performance standards" and "Risk Factors – Our dependence on a limited number of suppliers for certain raw materials, key components and ODM products, combined with supply shortages, have prevented and may continue to prevent us from delivering our products on a timely basis, which has had and may continue to have a material adverse effect on operating results and could have a material adverse effect on customer relations," in Part I, Item 1A of this report.

Competition

We compete in markets for networking and communications services and solutions for Service Providers, businesses, government agencies and other organizations worldwide. Our products and services provide solutions supporting voice, data and video communications across fiber-, copper-, coaxial- and wireless-based infrastructure, as well as across wide area networks, local area networks and the internet.

We compete with a number of companies in the markets we serve. In the Subscriber Solutions & Experience category, our primary competitors include Calix, Cisco, CommScope, and Ribbon Communications. In our Access & Aggregation solutions category, key competitors include Calix, Casa Systems, Ciena, CommScope, DZS, Harmonic, Huawei, Nokia, Reliance/Radisys, Vecima Networks and ZTE. Main competitors of our Optical Networking solutions portfolio are Ciena, Cisco, Ekinops, Huawei, Infinera, Nokia, Ribbon Communications and ZTE Corporation.

Across our markets and segments, the principal competitive factors can include, among others:

- differentiated feature functionality of our products and solutions;
- price performance of our solutions and lowest total cost of ownership for customers;
- quality and reliability of our products;
- financial stability and health of our company;
- ability to manage supply chains and produce and deliver products in accordance with customer wish date;
- ability to innovate and provide customers with differentiated solutions, advantageous to their business model;

- compelling technology roadmap and research and development power;
- industry thought leadership and time to market with innovative solutions;
- country of origin for products and solutions and trusted supplier status;
- security of enterprise value chain, from design to product development, support processes, to products and solutions;
- energy consumption of our products and commitment to sustainability, supporting customers in achieving their climate goals;
- customer relationship and incumbency;
- ability to deliver comprehensive solutions with a high degree of automation and ease-of-use, including hardware, software and services; and
- broad range of services and support capabilities.

For further discussion of risks associated with our competition, see “Risk Factors – We must continue to update and improve our products and develop new products to compete and to keep pace with improvements in communications technology” and “Risk Factors – We compete in markets that have become increasingly competitive, which may result in reduced gross profit margins and market share,” in Part I, Item 1A of this report.

Seasonality

We experience quarterly fluctuations in our revenue that occur due to many factors, including the varying budget cycles and seasonal buying patterns of our customers. More specifically, our customers tend to spend less in the first fiscal quarter as they are finalizing their annual capital spending budgets. These seasonal effects may continue to vary and do not always correlate to our operating results. Accordingly, they should not be considered a reliable indicator of our future revenue or operating results. Additionally, the effects of the dynamic supply and demand environment we have experienced in recent periods may impact the traditional seasonality in our business. Due to the improved supply situation and the associated reduction in lead times, our customers began to optimize their inventories in the past fiscal year. This has led to a slowdown in ordering behavior. In addition, the current macroeconomic environment, related to continued elevated interest rates and ongoing inflationary pressures, has negatively impacted customer behavior in the Large and Medium/Small Service Provider segment. We expect these trends to continue in 2024.

Foreign Currency

Transactions with customers that are denominated in foreign currencies are recorded using the appropriate exchange rates from throughout the year. Assets and liabilities denominated in foreign currencies are remeasured at the balance sheet dates using the closing rates of exchange between those foreign currencies and the functional currency with any transaction gains or losses reported in other income, net. Our primary exposures to foreign currency exchange rate movements are with the euro and the British pound sterling. Adjustments resulting from translating financial statements of international subsidiaries are recorded as a component of accumulated other comprehensive income.

Inventory

A substantial portion of our shipments in any fiscal period relate to orders received and shipped within that fiscal period for customers under agreements containing non-binding purchase commitments. Further, a significant percentage of orders require delivery within a few days. However, with the current global supply chain and transportation constraints, and limited availability of semiconductor chips and other components of our products, we have experienced and may continue to experience extended lead times, increased logistics intervals and costs, and lower volume of products deliveries, which have had and may continue to have a material adverse effect on our operating results and could have a material adverse effect on our customer relations and our financial condition.

We maintain substantial inventories of raw materials for long lead time components to support this demand and avoid expedite fees. In recent years, inflationary pressures on input costs, such as raw materials and labor, and distribution costs negatively impacted our operating results. However, inflationary pressures on our supply chain have eased somewhat, which has led to reductions in cost premiums on raw material costs and freight. We continue to support our customer demand for our products by working with our suppliers, contract manufacturers, distributors, and customers to address and to limit the disruption to our operations and order fulfillment. Additionally, maintaining sufficient inventory levels to assure prompt delivery of our products increases the amount of inventory that may become obsolete and increases the risk that the obsolescence of this inventory may have an adverse effect on our business and operating results. Also, not maintaining sufficient inventory levels to ensure prompt delivery of our products may cause us to incur expediting costs to meet customer delivery requirements, which may negatively impact our operating results.

For further discussion of risks associated with managing our inventory, see “Risk Factors – Managing our inventory is complex and may include write-downs of excess or obsolete inventory,” in Part I, Item 1A of this report.

Government Regulation

Telecommunications Matters

Our products that are incorporated into wireless communications systems must comply with various government regulations, including those of the FCC. We strive to deliver innovative network access solutions that lower the total cost and reduce the time of deploying services, increase the level of performance achievable with established infrastructures, reduce operating and capital expenses for our customers, increase network bandwidth and functionality, and extend network reach. Our development process is conducted in accordance with ISO 9001, TL 9000, ISO 14001, and ISO 27001, all of which are international standards for quality and environmental management systems.

Environmental Matters

Our products must comply with various regulations and standards established by communications authorities in various countries, as well as those of certain international bodies. Environmental legislation within the EU may increase our cost of doing business as we amend our products to comply with these requirements. For example, the EU issued the RoHS directive, the WEEE directive and the REACH regulation. We are also subject to disclosure and related requirements that apply to the presence of conflict minerals in our products or supply chain. We continue to implement measures to comply with these and other similar directives and regulations from additional countries.

Other Regulations

As a company with global operations, we are subject to complex foreign and U.S. laws and regulations, including trade regulations; tariffs; import and export regulations; anti-bribery and corruption laws; antitrust or competition laws; data privacy laws and regulations, such as the GDPR and the California Consumer Privacy Act; and cybersecurity laws and regulations, among others. We have policies and procedures in place to promote compliance with these laws and regulations. To date, our compliance actions and costs relating to these laws, rules and regulations have not resulted in a material cost or effect on our capital expenditures, earnings or competitive position. Government regulations are subject to change and, accordingly, we are unable to assess the possible effect of compliance with future requirements or whether our compliance with such regulations will materially impact our business in the future.

For further discussion of risks associated with government regulation, see “Risk Factors – We are subject to complex and evolving U.S. and foreign laws, regulations and standards governing the conduct of our business. Violations of these laws and regulations may harm our business, subject us to penalties and to other adverse consequences,” in Part I, Item 1A of this report.

Environmental, Social, and Governance

We believe that as we follow our corporate vision to enable a fully connected world, we must continue to be responsible corporate citizens. As more people are connected, work and life can be accomplished using fewer resources. We have established ESG and sustainability programs and policies that encompass the elements of Environmental, Health & Safety, Ethics, Labor, and the related management systems in alignment with the ISO 26000 Guidelines. We are committed to operating in full compliance with the laws, rules and regulations of all the countries in which we operate. The major aims of our program are reducing waste and emissions, maximizing energy efficiency and productivity and minimizing practices that can adversely affect utilization of natural resources by coming generations. Our ESG programs are important to us, consequently, ESG is a dedicated focus throughout the company. We have Board oversight including an ESG Committee, strong management support and engagement from our employees.

Areas of focus in our environmental sustainability program include:

- established an ESG Committee of the Board of Directors;
- maintained our mature environmental management system certified to ISO 14001 from 2015;

- advanced our Energy Management program with ISO 50001 readiness for the Huntsville site for 2024;
- submitted our detailed Net Zero targets to SBTi in 2023;
- continued purchase of Renewable Energy Credits, equaling ~20% of total Adtran energy consumption;
- purchased certified carbon offsets to achieve Net Zero for our Scope 1 emissions;
- continued using IntegrityNext, a platform to engage suppliers to obtain an ESG assessment aligned with international standards, allowing us to monitor ESG risks in our supply chain;
- established Eco-Design guidelines in the Technology organization;
- continued with Life Cycle Assessments across the portfolio;
- continued with packaging optimization to reduce related materials and waste;
- increased visibility of our program internally and externally through customer engagement, joining peer sustainability groups, offering training to team members and web site enhancements;
- switched from the GRI reporting standard to the newer and more comprehensive ESRS standard; and
- actively engaged our stakeholders with investor and supply chain assessments.

We will issue an ESG report for 2023 in order to fulfill the reporting obligations set forth in the German commercial code applicable to Adtran Networks. Within the report is information on our environmental, social and governance programs, including quantitative and qualitative data for both Adtran Networks and the Company. This information can also be found on our website at: www.adtran.com/en/about-us/esg/environmental. The information found on our website is not incorporated by reference in this report or any other report that we file or furnish to the SEC.

For further discussion of risks associated with government regulation, see “Risk Factors – Expectations relating to environmental, social and governance considerations expose the Company to potential liabilities, increased costs, reputational harm, and other adverse effects on the Company’s business,” in Part I, Item 1A of this report.

Human Capital

We believe that our most valuable asset is our people. To ensure we continue to succeed, our objective is to be able to recruit, hire and retain top talent. Our ability to attract and retain a high-quality workforce is dependent on our ability to maintain a diverse, equitable and inclusive workplace that provides opportunities for our employees to learn and grow in their careers. This is supported by competitive compensation and benefits, along with strong community service and other programs that enable employees to build connections within the community.

As part of our Business Efficiency Program, on October 25, 2023, all employees were informed of certain personnel measures, which included the reduction of salary for select management, a reduction of approximately 5% of the workforce, an early retirement program and a hiring freeze. The Company provided the employees subject to the salary reductions with stock option awards for retention purposes. Our Chief Executive Officer voluntarily reduced his salary by 50% and did not receive any stock option awards under the Business Efficiency Program. *For additional information, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations – Business Efficiency Program” in Part II, Item 7 of this report.*

As of December 31, 2023, we had 3,227 full-time employees, with 1,249 in the U.S. and 1,978 in our international subsidiaries located in North America, Latin America, EMEA and APAC regions. 2,027 of these full-time employees are employees of Adtran Networks and its subsidiaries. We also utilized 192 contractors and 160 temporary employees domestically and internationally in various manufacturing, engineering, sales and general and administrative capacities. We believe that our relationship with our employees is good. We have a diverse employee base located in 36 countries. We pride ourselves on a highly educated workforce, and the majority of our employees serve in engineering, information technology and technical roles within the organization.

As of December 31, 2023, approximately 167 employees (75%) of ADTRAN GmbH were subject to collective bargaining agreements of either the Association of Metal and Electrical Industry in Berlin and Brandenburg e.V. or NORDMETALL Association of Metal and Electrical Industry e.V. Although these collective bargaining agreements will expire on September 30, 2024, negotiations with the employees of ADTRAN GmbH for a new collective bargaining agreement are ongoing and we have not experienced any work stoppage. As of December 31, 2023, Adtran Networks had 91 employees in Switzerland, France, Italy, Finland and Spain that were subject to collective bargaining agreements of different associations. None of our other employees are subject to collective bargaining agreements.

Additionally, we continually work to recruit technical talent in diverse communities through our cooperative education program. This program seeks to identify college students that major in relevant technological areas and expose them to our work environment on an

alternating semester basis. Our goal is to retain as many of these students as possible for full-time employment after graduation to build our organization's future.

Diversity, Equity and Inclusion

We believe that maintaining a diverse and inclusive workforce is critical to the success of our business. We encourage an environment where individuality is embraced regardless of age, gender, identity, race, sexual orientation, physical or mental ability, ethnicity and perspective and where each employee is accepted and respected and can, therefore, bring their most authentic self to work.

In addition to diversity in our workforce, we seek to ensure diversity in our Board of Directors with respect to skills, experience, gender, race and ethnicity. Our Board of Directors is comprised of nine members, two of which are females and three of which are ethnically diverse. Additionally, the Board of Directors has a diversity of skills and experience with respect to accounting and finance, management and leadership, vision and strategy, business operations, business judgment, crisis management, risk assessment, industry knowledge, corporate governance and global markets.

Health, Safety and Wellness

The well-being of our employees is paramount to the continued success of our business. To this end, we are committed to each of our employees' health, safety and wellness. We provide our employees with access to various health and wellness benefits designed to enable them and their family members to have affordable access to health, dental and vision insurance. Additionally, we offer access to many programs that provide additional monetary support in the event of a qualifying incident, including accident insurance, life insurance and hospital indemnity insurance, among others. We understand that mental health is an essential aspect of our employees' wellbeing and we offer an employee assistance program at no charge to employees and their family members. This program provides access to qualified personnel to address various issues such as grief, financial stress, family and emotional issues.

Compensation and Benefits

We continually work to provide a competitive compensation and benefits program as this plays a key role in our ability to attract and retain a highly skilled workforce. In addition to salaries, these programs, which vary by country/region, include long-term equity incentive awards with certain vesting requirements, deferred compensation plans (which are offered to certain members of executive management), a 401(k) plan, healthcare and insurance benefits, health savings and flexible spending accounts, paid time off, paid volunteer time off, employee assistance program and tuition assistance. Additionally, at our global headquarters in Alabama, we offer our employees certain on-site services, including nurse practitioner care and a fitness center, among others.

Talent Development

We invest significant resources to develop the talent needed to remain a market-leading global supplier of broadband infrastructure. We offer numerous training opportunities on both technical and professional development topics. We utilize tools and processes to provide performance feedback which helps develop high potential employees into becoming our future leaders.

Our Career Development Program provides an opportunity for employees to shape their career journey. The program provides opportunities for employees to develop competencies in areas including technology, business acumen, emotional intelligence, design and systems thinking. As employees increase their competencies in these areas and master skills within their individual roles, this program offers a variety of career advancement paths. Employees also have access to the Learning module available in Workday. This platform houses all required training, as well as optional training in a variety of areas.

Intellectual Property

We develop and own a significant amount of intellectual property. We hold over 1,000 patents worldwide related to our products and over 50 additional pending patent applications. Our patents expire at various dates between 2024 and 2041. We continue to seek additional patents related to our research and development activities. We do not derive any material amount of revenue from the licensing of our patents.

The name "ADTRAN" is a registered trademark of ours, as is the name "SmartRG" and a number of our product identifiers and names. We also claim rights to a number of unregistered trademarks.

We protect our intellectual property and proprietary rights in accordance with good legal and business practices. We believe, however, that our competitive success will not fully depend on the ownership of intellectual property, but instead will depend primarily on the innovative skills, technical competence and marketing abilities of our personnel.

The communications industry is characterized by the existence of an ever-increasing volume of patent litigation and licensing activities. We have received, and may continue to receive, notices of claims alleging that we are infringing upon patents or other intellectual property. We cannot predict whether we will prevail in any claims or litigation over alleged infringements, or whether we will be able to license any valid and infringed patents, or other intellectual property, on commercially reasonable terms. It is possible that such litigation may result in significant legal costs and judgments and that intellectual property infringement claims, or related litigation against or by us could have a material adverse effect on our business and operating results.

For a discussion of risks associated with our intellectual property and proprietary rights, see “Risk Factors – Our failure to maintain rights to intellectual property used in our business could adversely affect the development, functionality, and commercial value of our products” in Part I, Item 1A of this report.

Information about our Executive Officers

Set forth below is certain information regarding our current executive officers. The age of each executive set forth below is as of February 29, 2024.

Thomas R. Stanton	Age 59
2007 to present	Chief Executive Officer and Chairman of the Board Chief Executive Officer and Management Board member of Adtran Networks
Ulrich Dopfer	Age 50
2023 to present	Senior Vice President, Chief Financial Officer, Secretary and Treasurer Chief Financial Officer and Management Board member of Adtran Networks
2015 to 2023	Chief Financial Officer (Adtran Networks)
Christoph Glingener	Age 55
2023 to present	Chief Technology Officer Chief Technology Officer and Management Board member of Adtran Networks
2022 to 2023	Chief Executive Officer (Adtran Networks)
2007 to 2022	Chief Technology Officer of Adtran Networks
James D. Wilson, Jr.	Age 53
2019 to present	Chief Revenue Officer
2015 – 2019	Senior Vice President of Technology and Strategy
2006 – 2015	Senior Vice President and General Manager (Carrier Networks)

There are no family relationships among our directors or executive officers. Adtran Networks is a majority-owned subsidiary of the Company.

Availability of Information

We file annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements and other information as required with the SEC. The SEC maintains an internet website, <http://www.sec.gov>, that contains reports, proxy and information statements, and other information regarding issuers, including ADTRAN, that file electronically with them. Additionally, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, if applicable, filed or furnished pursuant to Section 13(a) or 15(d) of the Securities and Exchange Act of 1934, as amended, are available free of charge under the Investor Relations section of our website, www.adtran.com, as soon as reasonably practicable after we electronically file them with, or furnish them to, the SEC. The reference to our website address does not constitute incorporation by reference of the information contained on the website, which information should not be considered part of this report.

ITEM 1A. RISK FACTORS

Our business involves substantial risks. Any of the risk factors described below or elsewhere in this report could significantly and adversely affect our business prospects, financial condition and results of operations. The risks described below are not the only ones facing us. Additional risks and uncertainties not presently known to us or that we currently deem to be immaterial may also adversely affect us.

Risks related to our financial results and Company success

We are obligated to comply with covenants related to our Wells Fargo Credit Agreement that could restrict our operating activities, and the failure to comply with such covenants could result in defaults that accelerates our debt.

The Wells Fargo Credit Agreement governing our indebtedness contains restrictive covenants that limit our ability to engage in activities that may be in our long-term best interest. We are also obligated to add certain additional subsidiaries as guarantors of our debt obligations under the credit facility. Our failure to comply with those covenants or to add such subsidiaries as guarantors could result in an event of default that, if not cured or waived, could result in the acceleration of all its debt. Our Wells Fargo Credit Agreement along with the amendments thereto, contain various restrictive covenants which include, among others, provisions restricting our ability to:

- pay dividends or make other distributions or repurchase capital stock;
- incur or guarantee additional debt;
- make certain distributions, investments and other restricted payments;
- engage in transactions with affiliates;
- engage in mergers or consolidations;
- grant or incur liens on assets;
- dispose of assets;
- make loans and investments;
- modify our organization documents; and
- enter into certain restrictive agreements.

In addition, the Wells Fargo Credit Agreement contains customary events of default, such as misrepresentation and a default in the performance or observance of any covenant (subject to customary cure periods and materiality thresholds).

In addition, certain covenants in the Wells Fargo Credit Agreement, including covenants set forth in the amendments thereto, require us, among other things, to:

- maintain certain leverage ratios;
- maintain certain fixed charge coverage ratios; and
- maintain minimum amounts of cash and cash equivalents.

As a result of these restrictions, we have and may be:

- limited in how we conduct our business;
- unable to raise additional debt or equity financing to operate during general economic or business downturns; and
- unable to compete effectively or to take advantage of new business opportunities.

Our failure to comply with the restrictive covenants set forth in the Credit Agreement could result in defaults that accelerate the payment under such debt which would likely have a material adverse impact on our financial condition and results of operations. In addition, an event of default under the Credit Agreement would permit the lenders to terminate all commitments to extend further credit under the applicable facility. Furthermore, if we were unable to repay the amounts due and payable under the Credit Agreement, the lenders could proceed against the collateral granted them to secure that indebtedness. In the event our lenders accelerate the repayment of our borrowings, we and our subsidiaries may not have sufficient assets to repay that indebtedness. In addition, these defaults could impair our ability to access debt and equity markets. *For additional information on our debt covenants, see "Liquidity & Capital Resources" in Part II, Item 7 of this report.*

We have experienced significant fluctuations in revenue and such fluctuations may continue. Fluctuations in revenue can cause our operating results in a given reporting period to be higher or lower than expected.

As a result of the many factors discussed in this report, our revenue for a particular quarter is difficult to predict and will fluctuate from quarter to quarter. Typically, our customers request product delivery within a short period following our receipt of an order. Consequently, we do not typically carry a significant order backlog and are dependent upon obtaining orders and completing delivery in accordance with shipping terms that are predominantly within each quarter to achieve our targeted revenue. Our deployment/installation cycle can also vary depending on the customer's schedule, site readiness, network size and complexity and other factors, which can cause our revenue to fluctuate from period to period. Our ability to meet financial expectations could also be affected if the variable revenue patterns seen in prior quarters recur in future quarters. We have experienced periods of time during which manufacturing issues have delayed shipments, leading to variable shipping patterns. In addition, to the extent that manufacturing issues and any related component shortages continue to result in delayed shipments in the future, and particularly in quarters in which we and our subcontractors are operating at higher levels of capacity, it is possible that revenue for a quarter could be adversely affected, and we may not be able to remediate the conditions within the same quarter.

In the past, under certain market conditions, long manufacturing lead times have caused our customers to place the same order multiple times. When multiple ordering occurs, along with other factors, it may cause difficulty in predicting our revenue and, as a result, could impair our ability to manage inventory effectively.

We plan our operating expense levels based primarily on forecasted revenue levels. On November 6, 2023, we determined to implement a business efficiency program, which includes a significant cost efficiency program targeting a reduction of ongoing operating expenses and a capital efficiency program inclusive of certain salary reductions, an early retirement program, a site consolidation plan to include lease impairments and the partial sale of owned real estate (including the potential sale of portions of our headquarters), inventory write downs from product discontinuances, and the suspension of the quarterly dividend. Our estimates of the expenses necessary to achieve the cost savings we have identified may not prove accurate, and any increase in such expenses may affect our ability to achieve our anticipated cost savings within the period we have projected, or at all. In addition, our efforts to reduce our operating expenses may impact our ability to generate sufficient revenue. Furthermore, our expenses and the impact of long-term commitments are relatively fixed in the short term. A shortfall in revenue has led and could again in the future lead to operating results being below expectations, partially due to an inability to quickly reduce these fixed expenses in response to short-term business changes.

Our customers in the subscriber solutions & experience technology category are increasingly focusing on working capital optimization and depletion of overstocked inventories, which has impacted and may continue to materially impact demand in that category.

We face risks arising from the ongoing restructuring of our operations under our business efficiency program and uncertainty with respect to our ability to achieve any anticipated cost savings associated with that program.

We are continuing to implement a business efficiency program to improve productivity and drive cost efficiencies and fuel long-term profitable growth. Future charges related to such actions may harm our profitability in the periods incurred.

Business efficiency program actions have presented and may in the future present a number of significant risks that could have a material adverse effect on our operations, financial condition, results of operations, cash flow, or business reputation, including:

- incurrence of additional costs in the short-term, including workforce reduction costs, training of employees or third-party resources, accounting charges for inventory and technology-related write-offs and charges relating to consolidation of excess facilities;
- failure to accurately assess market opportunities and the technology required to address such opportunities;
- actual or perceived disruption of service or reduction in service levels to customers and consumers;
- potential adverse effects on our internal control environment and inability to preserve adequate internal controls relating to our general and administrative functions;
- actual or perceived disruption to customers, suppliers, distribution networks and other important operational relationships and the inability to resolve potential conflicts in a timely manner;
- difficulty in obtaining timely delivery of products of acceptable quality from our contract manufacturers;
- diversion of management attention from ongoing business activities and strategic objectives;
- failure to maintain employee morale and retain key employees, damage to company culture and an increase in employment claims; and
- damage to our reputation as an employer, which could make it more difficult for us to hire new employees in the future.

Because of these and other factors, some of which may not be entirely within our control, we may not fully realize the purpose and anticipated operational benefits, efficiencies or cost savings of any productivity actions in the expected timelines, or at all, and, if we do not, our business and results of operations may be adversely affected. See “*Management’s Discussion and Analysis of Financial Condition and Results of Operations – Business Efficiency Program*” in Part II, Item 7 of this report.

The lengthy sales and approval process required by Service Providers for new products has resulted in fluctuations in our revenue and may result in fluctuations of future revenue and financial results.

In the industry in which we compete, sales and approval cycles are often lengthy. Selling efforts often involve a significant commitment of time and resources by us and our customers that may include extensive product testing, laboratory or network certification, or region-specific product certification and homologation requirements for deployment in networks. Additionally, a supplier must first obtain product approval from a major or other Service Provider to sell its products to these Service Providers. This process can last from six to eighteen months, or longer, depending on the technology, the Service Provider and the demand for the product from the Service Provider’s subscribers. Consequently, we are involved in a constant process of submitting for approval succeeding generations of products, as well as products that deploy new technology or respond to new technology demands from a major or other Service Provider. We have generally been successful in the past in obtaining these approvals; however, we cannot be certain that we will obtain these approvals in the future or that sales of these products will continue to occur. Any attempt by a major or other Service Provider to seek out additional or alternative suppliers, or to undertake, as permitted under applicable regulations, the production of these products internally, could have a material adverse effect on our operating results. Furthermore, the delay in sales until the completion of the approval process, the length of which is difficult to predict, has and may continue to result in fluctuations of revenue and uneven operating results from quarter to quarter or year to year. For example, we have seen a decrease in volume of sales activity due to customers’ focus on reducing inventory levels in our domestic ADTRAN, Inc. operations, which has impacted and may continue to materially impact demand in that category. Further, once customer approval or certifications are met, our supply chain customers typically do not guarantee us a minimum, or any, volume of sales.

We depend heavily on sales to certain customers; the loss of any of these customers or a significant project would significantly reduce our revenue and net income.

Historically, a large percentage of our revenue has been made to major Service Providers and larger independent communications companies. As long as the major and larger independent communications companies represent such a substantial percentage of our total revenue, our future success will significantly depend upon certain factors which are not within our control, including:

- the timing and size of future purchase orders, if any, from these customers;
- changes in strategic plans and capital budgets of these customers;
- the product requirements of these customers;
- the subscriber take rate, including subscriber loss or churn, of our customers;
- the financial and operational success of these customers;
- the impact of legislative and regulatory changes on these customers;
- consolidation, acquisition of, or corporate reorganization among these customers;
- the success of these customers’ services deployed using our products; and
- the impact of work stoppages at these customers.

In the past, revenue generated by our large customers has fluctuated significantly from quarter to quarter and year to year, and it may continue to fluctuate in the future. The loss of, or a significant reduction or delay in, revenue to any such customer or the occurrence of revenue fluctuations could have a material adverse effect on our business and results of operations. Further, any attempt by a major or other Service Provider to seek out additional or alternative suppliers or to undertake, as permitted under applicable regulations, the production of these products internally, could have a material adverse effect on our operating results.

There has been a trend toward industry consolidation in our markets for several years. We expect this trend to continue as companies attempt to strengthen or hold their market positions or are unable to continue operations. This could lead to variability in our operating results and could have a material adverse effect on our business, operating results, financial condition and cash flow. In addition, particularly in the Service Provider market, rapid consolidation will lead to fewer customers, with the effect that a loss of a major customer could have a material impact on our results that we would not have anticipated in a marketplace composed of more numerous participants.

Our exposure to the credit risks of our customers and distributors may make it difficult to collect accounts receivable and could adversely affect our operating results, financial condition and cash flows.

Most of our revenue is made on an open credit basis, generally with payment terms of 30 to 45 days in the U.S. and typically 45 to 60 days in many geographic markets outside the U.S. As our international revenue grows, our total accounts receivable balance has increased and will likely continue to increase. Our DSO could also increase as a result of a greater mix of international revenue. Additionally, international laws may not provide the same degree of protection against defaults on accounts receivable as provided under U.S. laws governing domestic transactions; therefore, as our international business grows, we may be subject to higher bad debt expense compared to historical trends. Overall, we monitor individual customer and distributor payment capability in granting such open credit arrangements, seek to limit such open credit to amounts that we believe customers and distributors can pay and maintain reserves we believe are adequate to cover exposure for credit losses and other macroeconomic indicators. In the course of our sales to customers and distributors, we may encounter difficulty collecting accounts receivable and could be exposed to risks associated with uncollectible accounts receivable due to various reasons, including potential declining operating cash flows or bankruptcy filings. While we attempt to monitor these situations carefully and attempt to take appropriate measures to collect accounts receivable balances, including through the recent \$20.0 million expansion of a Receivables Purchase and Servicing Agreement with True Value S.A.R.L., there are no assurances we can avoid write-downs and/or write-offs of accounts receivable as a result of declining financial conditions for our customers, including bankruptcy. Such write-downs or write-offs could negatively affect our operating results for the period in which they occur and could potentially have a material adverse effect on our results of operations, financial condition and cash flows.

We expect gross margins to continue to vary over time, and our levels of product and services gross margins may not be sustainable.

Our level of gross margins may not be sustainable and has been and may continue to be adversely affected by numerous factors, including:

- changes in customer, geographic or product or services mix, including software and the mix of configurations and professional services revenue within each product segment;
- mix of domestic versus international revenue;
- introduction of new products by competitors, including products with price-performance advantages;
- our ability to reduce product cost;
- increases in labor or material cost, including increases in material costs resulting from inflation or tariffs;
- foreign currency exchange rate movements;
- expediting costs incurred to meet customer delivery requirements;
- excess inventory and inventory holding charges;
- excess and obsolescence charges;
- changes in shipment volume;
- our ability to absorb fixed manufacturing costs during short-term fluctuations in customer demand;
- loss of cost savings due to changes in component pricing or charges incurred due to inventory holding periods if parts ordering does not correctly anticipate product demand;
- lower than expected benefits from value engineering;
- increased price competition, including competitors from Asia, specifically China;
- changes in distribution channels;
- increased warranty cost or quality issues;
- liquidated damages costs relating to customer contractual terms;
- our ability to manage the impact of foreign currency exchange rate fluctuations relating to our revenue or cost of revenue;
- slowdowns, recessions, economic instability (such as the instability in the financial services sector), political unrest, armed conflicts (such as the ongoing military conflict in Ukraine and in Israel and surrounding regions), or outbreaks of disease around the world; and
- an extended government shutdown resulting from budgetary decisions or other potential delays or changes in the government appropriations or other funding authorization processes.

Our dependence on a limited number of suppliers for certain raw materials, key components and ODM products, combined with supply shortages, have prevented and may continue to prevent us from delivering our products on a timely basis, which has had and may continue to have a material adverse effect on operating results and could have a material adverse effect on customer relations.

The fact that we are reliant on our extended supply chain could have an adverse impact on the supply of our products and on our business and operating results. The financial problems of our suppliers and industry consolidation occurring within one or more component supplier markets, such as the semiconductor market, in each case, could either limit supply or increase costs.

A reduction or interruption in supply, including disruptions on our global supply chain, caused in part by public health emergencies, geopolitical tensions (including as a result of the ongoing conflict in Ukraine and in Israel and surrounding regions, as well as China-Taiwan relations) or a significant natural disaster (including as a result of climate change); a significant increase in the price of one or more components (including as a result of inflation); a failure to adequately authorize procurement of inventory by our contract manufacturers; a failure to appropriately cancel, reschedule, or adjust our requirements based on our business needs; or a decrease in demand for our products could materially adversely affect our business, operating results, and financial condition and could materially damage customer relationships. Furthermore, as a result of binding price or purchase commitments with suppliers, we may be obligated to purchase raw materials or components at prices that are higher than those available in the current market. In the event that we become committed to purchasing raw materials or components at prices in excess of the current market price when the raw materials or components are actually used, our gross margins could decrease.

In addition, certain raw materials and key components used in our products are currently available from only one source, and others are available from only a limited number of sources. The availability of these raw materials and supplies may be subject to market forces beyond our control, such as inflation, merger and acquisition activity of our suppliers and consolidation in some segments of our supplier base. We have experienced and expect to continue to experience increased inflationary pressures on input costs, such as, raw materials, supplies, labor and distribution costs. Our attempts to offset these cost pressures, through increases in the selling prices of some of our products, may not be successful and could negatively affect our operating results. In addition, from time to time, there may not be sufficient quantities of raw materials and supplies in the marketplace to meet customer demand. Many companies utilize the same raw materials and supplies that we do in the production of their products. Suppliers may be under pressure to allocate product to certain customers for business, regulatory or political reasons, and/or demand changes in agreed pricing as a condition of supply. As a result, companies with more resources than our own may have a competitive advantage in obtaining raw materials and supplies. These factors have resulted in reduced supply, higher prices of raw materials and delays in the receipt of certain of our key components, which in turn has generated increased costs, lower margins and delays in product delivery, with a corresponding adverse effect on revenue. Delays in product deliveries and corresponding product price increases may likewise have an adverse effect on customer relationships. We attempt to manage these risks through developing alternative sources, by staging inventories at strategic locations, through engineering efforts designed to obviate the necessity of certain components and by building long-term relationships and close contact with each of our key suppliers; however, we cannot assure that delays in or failures of deliveries of key components, either to us or to our contract manufacturers, and consequent delays in product deliveries, will not continue to occur in the future.

We believe that we may be faced with the following challenges in the future: new markets in which we participate may grow quickly, which may make it difficult to quickly obtain significant raw materials and/or components; as we acquire companies and new technologies, we may be dependent on unfamiliar supply chains or relatively small supply partners; and we face competition for certain raw materials or components that are supply-constrained from existing competitors and companies in other markets.

We compete in markets that have become increasingly competitive, which may result in reduced gross profit margins and market share.

The markets for our products are intensely competitive. New manufacturers have entered the markets in recent years to offer products in competition with us. Additionally, certain companies have, in recent years, developed the ability to deliver competing products using coaxial cable and cellular transmission, especially in high-density metropolitan areas. Competition will further increase if new companies enter the market or existing competitors expand their product lines. Some of these potential competitors may have greater financial, technological, manufacturing, sales and marketing, and personnel resources. As a result, these competitors may be able to respond more rapidly or effectively to new or emerging technologies and changes in customer requirements, withstand significant price decreases, or devote greater resources to the development, promotion and sale of their products.

In addition, our present and future competitors may be able to enter our existing or future markets with products or technologies comparable or superior to those that we offer. An increase in competition could cause us to reduce prices, decrease our market share, require increased spending by us on product development and sales and marketing, or cause delays or cancellations in customer orders, any one of which could reduce our gross profit margins and adversely affect our business and results of operations.

Our estimates regarding future warranty obligations may change due to product failure rates, installation and shipment volumes, field service repair obligations and other rework costs incurred in correcting product failures. If our estimates change, our liability for warranty obligations may increase or decrease, impacting future cost of revenue.

Our products are highly complex, and we cannot ensure that our extensive product development, manufacturing and integration testing will be adequate to detect all defects, errors, failures and quality issues. Quality or performance problems for products covered under warranty could adversely impact our reputation and negatively affect our operating results, financial position and cash flows. The development and production of new products with high complexity often involves problems with software, components and manufacturing methods. If significant warranty obligations arise due to reliability or quality issues arising from defects in software, faulty components or manufacturing methods, our operating results, financial position and cash flows could be negatively impacted by:

- costs associated with fixing software or hardware defects;
- costs associated with internal or third-party installation errors;
- high service and warranty expenses;
- costs associated with recalling and replacing products with software or hardware defects, including costs from writing-off defective products recalled or recovering expenses from our suppliers;
- high inventory obsolescence expense;
- delays in collecting accounts receivable;
- payment of liquidated damages for performance failures;
- extended performance bond expenses; and
- a decline in revenue from existing customers.

Managing our inventory is complex and has included and may continue to include write downs of excess or obsolete inventory.

Managing our inventory of components and finished products is complicated by a number of factors, including the need to maintain a significant inventory of certain components that are in short supply, that have been discontinued by the component manufacturer, that must be purchased in bulk to obtain favorable pricing or that require long lead times. These issues have and may continue to result in our purchasing and maintaining significant amounts of inventory, which if not used or expected to be used based on anticipated production requirements, may become excess or obsolete. Any excess or obsolete inventory could also result in sales price reductions and/or inventory write-downs, which could adversely affect our business and results of operations. During the year ended December 31, 2023, we recognized a write down of inventory of \$24.3 million due to a discontinuation of certain product lines within our Network Solutions segment in connection with our business efficiency program. Significant and unanticipated changes in our business could require additional charges for inventory write downs in a future period. Any future charges relating to such inventory write-downs could materially adversely affect our business, financial condition and results of operations in the periods recognized. *For additional details regarding the business efficiency program, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations – Business Efficiency Program” in Part II, Item 7 of this report.*

The continuing growth of our international operations has and may continue to expose us to additional risks, increase our costs and adversely affect our operating results, financial condition and cash flows.

We are expanding our presence in international markets, which represented 59.8% and 49.5% of our net revenue for the years ended December 31, 2023 and 2022, and as a result, we have experienced increased revenue and operating costs in these markets. This international expansion has increased and may continue to increase our operational risks and impact our results of operations, including:

- foreign currency exchange rate volatility has had and may continue to have an unfavorable impact on our cash flows, financial condition and results of operations;
- exposure to unfavorable commercial terms in certain countries;
- the time and cost to staff and manage foreign operations, including the time and cost to maintain good relationships with employee associations and work councils;
- the time and cost to ensure adequate business interruption controls, processes and facilities;
- the time and cost to manage and evolve financial reporting systems, maintain effective financial disclosure controls and procedures, and comply with corporate governance requirements in multiple jurisdictions;
- the cost to collect accounts receivable and extension of collection periods;
- the cost and potential disruption of facilities transitions required in some business acquisitions;
- risks as a result of less regulation of patents or other safeguards of intellectual property in certain countries;
- the potential impact of adverse tax, customs regulations and transfer-pricing issues;
- exposure to increased price competition from additional competitors in some countries;
- exposure to global social, political and economic instability, changes in economic conditions and foreign currency exchange rate movements;
- potential exposure to liability or damage of reputation resulting from a higher incidence of corruption or unethical business practices in some countries;
- potential regulations on data protection, regarding the collection, use, disclosure and security of data;
- potential trade protection measures, export compliance issues, domestic preference procurement requirements, qualification to transact business and additional regulatory requirements;
- potential exposure to natural disasters, epidemics and pandemics (and government regulations in response thereto) and acts of war or terrorism; and
- potential exposure to ongoing military conflicts, including the conflict in Ukraine and in Israel and surrounding regions. The U.S. and certain other countries-imposed sanctions on Russia in connection with the conflict in Ukraine and could impose further sanctions against it, which could damage or disrupt international commerce and the global economy. Other potential consequences of such military conflicts include, but are not limited to, a heightened risk of cyber-warfare, biological warfare or nuclear warfare, growth in the number of popular uprisings in the affected regions, increased political discontent, especially in the regions most affected by the conflicts or economic sanctions, continued displacement of persons to regions close to the areas of conflict and an increase in the number of refugees, among other unforeseen social and humanitarian effects which could impact our business, customers, and suppliers.

Our success depends on attracting and retaining key personnel.

Our business has grown significantly since its inception. Our success is dependent in large part on the continued employment of our executive officers, including Thomas R. Stanton, our Chief Executive Officer, and other key management personnel. There have been, and may continue to be, changes in our management team resulting from the hiring or departure of key personnel, and we have recently made, and may continue to make, changes in compensation that may be viewed as disruptive by our key personnel. These changes may result in increased attrition or reduced productivity of our key personnel as new reporting relationships are established, and as other companies may increasingly target our executives and other key personnel, particularly during the current highly competitive market for qualified personnel. Such changes have and may continue to result in a loss of institutional knowledge, and they may cause disruptions to our business, impede our ability to achieve our objectives, or distract or result in diminished morale in, or the loss of, key personnel. In addition, for ADTRAN to continue as a successful entity we must also be able to attract and retain key engineers and software developers and architects whose expertise helps us maintain competitive advantages. We believe that our future success will depend, in large part, upon our ability to continue to attract, retain, train and motivate highly-skilled employees who are in great demand. Stock awards are designed to reward employees for their long-term contributions and to provide incentives for them to remain with us. Changes to our overall compensation program, including changes in salaries and our stock incentive program, may adversely affect our ability to retain key employees. Properly managing our continued growth, avoiding the problems often resulting from such growth and expansion and continuing to operate in the manner which has proven successful to us to date remains critical to the future success of our business.

We are exposed to adverse currency exchange rate fluctuations in jurisdictions where we transact in local currency, which could harm our financial results and cash flows.

We are exposed to changes in foreign currencies relative to the U.S. dollar, which are references to the differences between the foreign-exchange rates we use to convert the financial results of our international operations from local currencies into U.S. dollars for financial reporting purposes. This impact of foreign-exchange rate changes is calculated based on the difference between the current period's currency exchange rates and that of the comparable prior period. Our primary exposures to foreign currency exchange rate movements are the euro and the British pound sterling. As a result of our global operations, our revenue, gross margins, operating expense and operating income in some international markets have been and may continue to be affected by foreign currency fluctuations.

We require a significant amount of cash to service our indebtedness, our potential payment obligations to Adtran Networks shareholders under the DPLTA, and other obligations.

Our ability to generate cash depends on many factors beyond our control and any failure to service our outstanding indebtedness could harm our business, financial condition and results of operations. Furthermore, we have entered into a DPLTA with Adtran Networks. Additionally, pursuant to the terms of the DPLTA, each Adtran Networks shareholder (other than the Company) has received an offer to elect either (1) to remain an Adtran Networks shareholder and receive from us an Annual Recurring Compensation payment, or (2) to receive Exit Compensation. Any failure to satisfy our payment obligations under the DPLTA could harm our business, financial condition and results of operations.

Our ability to make payments on and to refinance our indebtedness, to cover our payment obligations under the DPLTA, and to fund working capital needs and planned capital expenditures depends on our ability to generate cash in the future. This, to a certain extent, is subject to general economic, financial, competitive, business, legislative, regulatory and other factors that are beyond our control. We refinanced a portion of our indebtedness during the third quarter of 2023 in order to ensure our ability to cover our potential payment obligations under the DPLTA, suspended our dividend during the fourth quarter of 2023, and we are currently reducing our operating expenses. Nevertheless, if our business does not generate sufficient cash flow from operations, we do not sufficiently reduce costs in a timely manner, or our future borrowings are not available to us in an amount sufficient to enable us and our subsidiaries to pay our indebtedness or to fund our other liquidity needs, we may need to raise additional debt or equity capital, refinance all or a portion of our indebtedness, sell assets, reduce or delay capital investments, any of which could have a material adverse effect.

In addition, we may not be able to effect any of these actions, if necessary, on commercially reasonable terms or at all. Our ability to raise additional debt capital or to restructure or refinance our indebtedness will depend on the condition of the capital markets and our financial condition at such time. Any refinancing of our debt could be at higher interest rates and may require us to comply with more onerous covenants, which could further restrict our business operations. The terms of existing or future debt instruments or preferred stock may limit or prevent us from taking any of these actions. In addition, any failure to make scheduled payments of interest and principal on our outstanding indebtedness or dividend payments on any future outstanding shares of preferred stock would likely result in a reduction of our credit rating, which could harm our ability to incur additional indebtedness or otherwise raise capital on commercially reasonable terms or at all. Our inability to generate sufficient cash flow to satisfy our debt service, payment obligations to Adtran Networks shareholders under the DPLTA, and other obligations, or to refinance or restructure our obligations on commercially reasonable terms or at all, would have an adverse effect, which could be material, on our business, financial condition and results of operations.

Furthermore, if we raise additional funds through the issuance of equity or securities convertible into equity, or undertake certain transactions intended to address our existing indebtedness, our existing stockholders could suffer dilution in their percentage ownership of the Company, or our leverage and outstanding indebtedness could increase. Current capital market conditions, including the impact of inflation, have increased borrowing rates and can be expected to significantly increase our cost of capital as compared to prior periods should we seek additional funding.

We have recognized impairment charges related to goodwill and other intangible assets in the past and may be required to do so in the future.

The Business Combination added a significant amount of goodwill and other intangible assets to our consolidated balance sheets. In accordance with U.S. GAAP, management periodically assesses these assets to determine if they are impaired. Significant negative industry or economic trends, disruptions to our business, the inability to effectively integrate acquired businesses, the under performance of our business as compared to management's initial expectations, unexpected significant changes or planned changes in use of the assets, divestitures, and market capitalization declines may impair goodwill and other intangible assets. During the third quarter of 2023, qualitative factors such as a decrease in the Company's market capitalization and long-term projections, triggered a quantitative impairment assessment for our reporting units. The Company determined the fair value of each reporting unit using a combination of an income approach and a market-based peer group analysis. It was determined that the decreases in projected future cash flows, discount rates, overall macroeconomic conditions, as well as the decrease in our market capitalization applied in the valuation, were required to align with market-based assumptions and company-specific risk, which resulted in lower fair values of the Services & Support reporting unit. The Company determined upon its quantitative impairment assessment to recognize a \$37.9 million non-cash goodwill impairment charge for the Services & Support reporting unit. Any future charges relating to such impairments could have a material adverse effect our business, financial condition and results of operations in the periods recognized.

We may be unable to successfully and effectively manage and integrate acquisitions, divestitures and other significant transactions, which could harm our operating results, business and prospects.

As part of our business strategy, we frequently engage in discussions with third parties regarding possible investments, acquisitions, strategic alliances, joint ventures, divestitures and outsourcing arrangements, and we enter into agreements relating to such transactions in order to further our business objectives. In order to pursue this strategy successfully, we must identify suitable candidates, successfully complete transactions, some of which may be large and complex, and manage post-closing issues such as the integration of acquired companies or employees and the divestiture of combined businesses, operations and employees. Integration, divestiture and other risks of these transactions can be more pronounced in larger and more complicated transactions, or if multiple transactions are pursued simultaneously. If we fail to identify and successfully complete transactions that further our strategic objectives, we may be required to expend resources to develop products and technology internally. This may put us at a competitive disadvantage and we may be adversely affected by negative market perceptions, any of which may have a material adverse effect on our revenue, gross margin and profitability.

Integration and divestiture issues are complex, time-consuming and expensive and, without proper planning and implementation, could significantly disrupt our business. The challenges involved in integrating and divesting include:

- combining service and product offerings and entering into new markets in which we are not experienced;
- convincing customers and distributors that any such transaction will not diminish client service standards or business focus, preventing customers and distributors from deferring purchasing decisions or switching to other suppliers or Service Providers (which could result in additional obligations to address customer uncertainty), and coordinating service, sales, marketing and distribution efforts;
- consolidating and rationalizing corporate information technology infrastructure, which may include multiple legacy systems from various acquisitions and integrating software code;
- minimizing the diversion of the Board of Directors and management's attention from ongoing business concerns;
- persuading employees that business cultures are compatible, maintaining employee morale and retaining key employees, integrating employees into our company, correctly estimating employee benefit costs and implementing restructuring programs;
- coordinating and combining administrative, service, manufacturing, research and development and other operations, subsidiaries, facilities and relationships with third parties in accordance with local laws and other obligations while maintaining adequate standards, controls and procedures;
- increasing our responsibility for the liabilities of the businesses we acquire, some of which we may not anticipate, including costs of third-party advisors to resolve disputes;
- achieving savings from supply chain and administration integration; and

- efficiently divesting combined business operations which may cause increased costs as divested businesses are de-integrated from embedded systems and operations.

We evaluate and enter into these types of transactions on an ongoing basis. We may not fully realize all of the anticipated benefits of any transaction and the time frame for achieving benefits of a transaction may depend partially upon the actions of employees, suppliers or other third parties. In addition, the pricing and other terms of our contracts for these transactions require us to make estimates and assumptions at the time we enter into these contracts, and, during the course of our due diligence, we may not identify all of the factors necessary to estimate costs accurately. Any increased or unexpected costs, unanticipated delays or failure to achieve contractual obligations could make these agreements less profitable or unprofitable.

Managing these types of transactions require varying levels of management resources, which may divert our attention from other business operations. These transactions could result in significant costs and expenses and charges to earnings, including those related to severance pay, early retirement costs, employee benefit costs, asset impairment charges, charges from the elimination of duplicative facilities and contracts, in-process research and development charges, inventory adjustments, assumed litigation, regulatory compliance and other liabilities, legal, accounting and financial advisory fees and required payments to executive officers and key employees under retention plans. In the Business Combination with Adtran Networks, we have incurred significant restructuring and integration costs and we expect to incur additional restructuring and integration costs and such costs are expected to be material. Moreover, we could incur additional depreciation and amortization expense over the useful lives of certain assets acquired in connection with these transactions, and, to the extent that the value of goodwill or intangible assets acquired in connection with a transaction becomes impaired, we may be required to incur additional material charges relating to the impairment of those assets. For example, during the third quarter of 2023, we recognized a \$37.9 million non-cash goodwill impairment charge related to the Business Combination with Adtran Networks. In order to complete an acquisition, we may issue common shares, potentially creating dilution for existing shareholders, or borrow funds, which could affect our financial condition, results of operations and potentially our credit ratings. Any prior or future downgrades in our credit rating associated with a transaction could adversely affect our ability to borrow and our borrowing cost, and result in more restrictive borrowing terms. In addition, our effective tax rate on an ongoing basis is uncertain, and such transactions could impact our effective tax rate. We also may experience risks relating to the challenges and costs of closing a transaction and the risk that an announced transaction may not close. As a result, any completed, pending or future transactions may contribute to financial results that differ materially from the investment community's expectations.

Ongoing inflationary pressures have negatively impacted our revenues and profitability.

Ongoing inflationary pressures have resulted and may continue to result in decreased demand for our products and services, increased manufacturing and operating costs (including our labor costs), reduced liquidity, and limitations on our ability to access credit or otherwise raise debt and equity capital. In the current inflationary environment, because certain of our customer contracts provide for fixed pricing and/or due to our competitor's pricing strategies, we are not always able to raise the sales prices of our products and services at or above the rate at which our costs increase, which has reduced our profit and operating margins and has and could continue to have a material adverse effect on our financial results. We also may experience lower than expected sales and potential adverse impacts on our competitive position if there is a decrease in customer spending or a negative reaction to any price increases we are able to implement. A reduction in our revenue would be detrimental to our profitability and financial condition and could also have an adverse impact on our future growth.

Risks related to our control environment

We have had to restate our previously issued consolidated financial statements and, as part of that process, have identified material weaknesses in our internal control over financial reporting. If we are unable to develop and maintain effective internal control over financial reporting, we may not be able to accurately report our financial results in a timely manner, which may adversely affect investor confidence in us and may adversely affect our business, financial condition and results of operations.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. Effective internal control over financial reporting is necessary for us to provide reliable financial reporting and prevent fraud. We have had to restate our previously issued consolidated financial statements and, as part of that process, have identified material weaknesses in our internal control over financial reporting. We have implemented new controls with respect to one material weakness, and we continue to evaluate steps to remediate the other material weaknesses. These remediation measures may be time consuming and costly and there is no assurance that these initiatives will ultimately have the intended effects. Any failure to maintain effective internal control over financial reporting could adversely impact our ability to report our financial position and results from operations on a timely and accurate basis. If our financial statements are not accurate, investors may not have a complete understanding of our operations. Likewise, if our financial statements are not filed on a timely basis, we could be subject to sanctions or investigations by the stock exchange on which our common stock is listed, the SEC or other regulatory authorities. In either case, there could be an adverse effect on our business, financial condition and results of operations. Ineffective internal control over financial reporting could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our stock.

We can provide no assurance that the measures that we have taken, are taking, and plan to take in the future will remediate the material weaknesses identified or that any additional material weaknesses or restatements of financial results will not arise in the future due to a failure to implement and maintain adequate internal control over financial reporting or circumvention of these controls. In addition, while we have strengthened our controls and procedures, in the future those controls and procedures may not be adequate to prevent or identify irregularities or errors or to facilitate the fair presentation of our consolidated financial statements.

Furthermore, as a public company, we are required to comply with U.S. GAAP, the Sarbanes-Oxley Act of 2002 ("SOX"), the Dodd-Frank Act and the rules and regulations subsequently implemented by the SEC and the Public Company Accounting Oversight Board. As such, Adtran Networks, as a subsidiary of a public company, has established and is required to maintain effective disclosure controls, as well as internal control over financial reporting under U.S. GAAP. Current and ongoing compliance efforts have and may continue to be costly and require the attention of management. There are a large number of processes, policies, procedures and functions that have been integrated, or enhanced at Adtran Networks, particularly those related to the implementation of internal controls for SOX compliance. The maintenance of these plans may lead to additional unanticipated costs and time delays. These incremental costs may exceed the savings we expect to achieve from the realization of efficiencies related to the combination of the businesses, particularly in the near term and in the event there are material unanticipated costs.

We may face litigation and other risks as a result of the restatements of our previously issued consolidated financial statements and material weaknesses in our internal control over financial reporting.

We had to restate our previously issued consolidated financial statements in August 2023 and March 2024 and, in connection with those restatements, we identified material weaknesses in our internal control over financial reporting, certain of which have continued as of the date hereof. As a result of such material weaknesses, the restatement and other matters raised or that may in the future be raised by the SEC, we face potential for litigation or other disputes which may include, among others, claims invoking the federal and state securities laws, contractual claims or other claims arising from the restatements and the material weaknesses in our internal control over financial reporting and the preparation of our financial statements. As of the date of this report, we have no knowledge of any such litigation or dispute. However, we can provide no assurance that such litigation or dispute will not arise in the future. Any such litigation or dispute, whether successful or not, could adversely affect our business, financial condition and results of operations.

Breaches of our information systems and cyberattacks could compromise our intellectual property and cause significant damage to our business and reputation.

We maintain sensitive data on our information systems and the networks of third-party providers, including intellectual property, financial data and proprietary or confidential business information relating to our business, customers, suppliers, and business partners. We also produce networking equipment solutions and software used by network operators to ensure security and reliability in their management and transmission of data. Our customers, particularly those in regulated industries, are increasingly focused on the security features of our technology solutions. Maintaining the security of information sensitive to us and our business partners is critical to our business and reputation. We rely upon several internal business processes and information systems to support key operations and financial functions, and the efficient operation of these processes and systems is critical. Companies are increasingly subjected to cyberattacks and other attempts to gain unauthorized access. Specifically, our network and storage applications and those systems and applications maintained by our third-party providers may be targeted by cyberattacks or potentially breached due to operator error, fraudulent activity, or other system disruptions. Furthermore, we, our employees and some of our third-party Service Providers have been, and anticipate continuing to be, the targets of various cybersecurity threats. These include hacking attacks, social engineering schemes such as "phishing," and business email compromise attacks, wherein attackers impersonate company executives or colleagues in emails to trick employees into transferring funds or revealing sensitive information. Our information systems are designed to reflect industry standards and are engineered to reduce downtime in the event of power outages, weather or climate events and cybersecurity issues. To date, these threats have not had a significant effect on our financial condition or operational results; however, we cannot ensure that future cybersecurity threats might not have a material impact on our business. Unauthorized access to or disclosure of our information could compromise our intellectual property and expose sensitive business information. These risks, as well as the number and frequency of cybersecurity events globally, may also be heightened during times of geopolitical tension or instability between countries. For example, a number of recent cybersecurity events have been alleged to have originated from the ongoing military conflict in Ukraine and in the Israel/Hamas war. Further, continued increases in legislation and regulation from a variety of international, federal and state authorities regarding cybersecurity incidents, including risk assessment, notification obligations, regulatory reporting and other requirements, could subject us to additional liability and reputational harm. We carry cybersecurity insurance policies meant to limit our risk and exposure should one of these cybersecurity issues occur. However, a significant failure or other compromise of our systems due to these issues could result in significant remediation costs, disrupt business operations, and divert management attention, which could result in harm to our business reputation, operating results, financial condition, and cash flows.

For information on our cybersecurity risk management, strategy and governance, see Part I, Item 1C of this report.

Risks related to the Business Combination and DPLTA

Our ability to realize anticipated strategic and financial benefits sought from the Business Combination has been and may continue to be affected by a number of factors.

Our ability to realize anticipated benefits of the Business Combination has been and may continue to be affected by a number of factors, including: the need for greater than expected cash or other financial resources or management time in order to integrate Adtran Networks; and increases in other expenses related to the Business Combination, including restructuring and other exit costs. In addition, our ability to realize anticipated benefits of the Business Combination may be affected by the following other factors in the future, including: the impact of appraisal proceedings in connection with the DPLTA, unanticipated liabilities associated with the Business Combination, difficulties in employee or management integration, the timing and impact of purchase accounting adjustments; and accounting for conversion of IFRS results to U.S. GAAP results.

Any potential cost-saving opportunities may take several years following the Business Combination to implement, and any results of these actions may not be realized for several years thereafter, if at all. For example, in response to a decrease in our revenue and operating margins during 2023 as a result of customers' focus on reducing inventory levels and managing capital expense, we are realizing reductions in our operating expenses through the implementation of a business efficiency program; however, we may not be successful in fully realizing these reductions. If we are not able to effectively provide different solutions and successfully achieve the growth and cost savings objectives, the anticipated benefits of the Business Combination may not be realized fully, or at all, or may take longer to realize than expected.

We have incurred and expect to continue to incur significant costs in connection with the Business Combination and post-closing integration and restructuring efforts.

We have incurred significant non-recurring implementation and restructuring costs associated with combining the operations of ADTRAN and Adtran Networks. In addition, we have incurred significant banking, legal, accounting and other transaction fees and costs related to the Business Combination. As of December 31, 2023, we have incurred \$26.2 million of transaction costs related to the Business Combination.

In addition, during the year ended December 31, 2023, we recognized \$21.5 million of restructuring costs specific to the Business Combination synergies under our multi-year integration program.

Furthermore, we expect to incur costs associated with the implementation of the DPLTA and such costs are expected to be material. During the year ended December 31, 2023, we recognized \$4.9 million of integration costs related to the implementation of the DPLTA and the Business Combination.

To date, cost savings and other efficiencies related to the integration of the businesses have not offset these transaction- and combination-related costs, and we may not be able to offset such costs in the near term, or at all. Failure to realize these synergies and cost reductions and other efficiencies in a timely manner or at all has impacted and may in the future have a material adverse effect on our business and cash flows, financial condition and results of operations.

We incurred a substantial amount of indebtedness in connection with the Business Combination and the DPLTA. Our failure to meet our debt service obligations could have a material adverse effect on our business, financial condition and results of operations.

Upon the DPLTA becoming effective on January 16, 2023, the available total borrowings under the Wells Fargo Credit Agreement increased from \$100.0 million to \$400.0 million. We further expanded our available borrowings under the credit facility to \$450.0 million effective August 9, 2023. As of December 31, 2023, the Company had incurred \$195.0 million of indebtedness under the Wells Fargo Credit Agreement. *See "Cash Requirements" in Part II, Item 7 of this report for additional information.* In addition, our new factoring arrangement provides for borrowings of up to \$40.0 million, secured by our accounts receivable.

Our increased indebtedness has and may continue to adversely affect our operations and liquidity. Our level of indebtedness:

- could make it more difficult for us to pay or refinance our debts as they become due during adverse economic and industry conditions because we may not have sufficient cash flows to make its scheduled debt payments;
- has caused us and may continue to cause us to use a larger portion of our cash flow to fund interest and principal payments, reducing the availability of cash to fund working capital, capital expenditures, research and development and other business activities;
- has contributed to our decision to suspend quarterly dividend payments to the Company's stockholders;
- limits our ability to assume debt in a future acquisitions. Specifically, our Credit Agreement with Wells Fargo limits the amount of debt we can assume in an acquisition. This could limit our ability to take advantage of significant business opportunities, such as acquisition opportunities, and to react to changes in market or industry conditions;
- could cause us to be more vulnerable to general adverse economic and industry conditions;

- could cause us to be disadvantaged compared to competitors with less leverage; and
- limits our ability to borrow additional money. Specifically, our Credit Agreement with Wells Fargo limits our ability to borrow additional money, which could limit our ability to fund working capital, capital expenditures, research and development and other general corporate needs in the future.

Our ability to satisfy our debt obligations and renew the credit facility is dependent upon our future performance and other risk factors discussed in this section. We cannot assure you that we will maintain a level of cash flows from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our indebtedness. If we fail to pay interest on, or repay, our borrowings under the Wells Fargo credit facility when required, we will be in default under the applicable loans, and may also suffer an event of default under the terms of other borrowing arrangements that we may enter into from time to time. We are reducing our operating expenses in order to fund our obligations, and we may be forced to further reduce or delay capital expenditures, sell assets or operations, seek additional capital or restructure or refinance our indebtedness. We cannot assure you that we would be able to take any of these actions, that these actions would be successful and permit us to meet our scheduled obligations or that these actions would be permitted under the terms of our current or future debt agreements. If we fail to implement these reductions or are unable to achieve sufficient operating results and resources, we could face substantial liquidity challenges and might be required to dispose of material assets or operations to meet our debt service and other obligations. We may not be able to consummate those dispositions or obtain sufficient proceeds from those dispositions to meet our debt service and other obligations when due. Any of these events could have a material adverse effect on our business, results of operations and financial condition.

We may also incur additional long-term debt and working capital lines of credit to meet future financing needs, which would increase our total indebtedness. Although the terms of its existing and future credit agreements and of the indentures governing its debt contain restrictions on the incurrence of additional debt, including secured debt, these restrictions are subject to a number of important exceptions and debt incurred in compliance with these restrictions could be substantial. If we or our restricted subsidiaries incur significant additional debt, the relative risks may intensify.

We have experienced operational challenges and may also experience negative synergies and loss of customers.

Integrating the operations and personnel of the ADTRAN and Adtran Networks businesses involves complex operational, technological and personnel-related challenges. This process has been and will continue to be time-consuming and expensive, and it has and may continue to disrupt our business. Difficulties in the integration of the business, which have resulted and may in the future result in significant costs and delays, include:

- managing a significantly larger company;
- integrating and unifying the offerings and services available to customers and coordinating distribution and marketing efforts;
- coordinating corporate and administrative infrastructures and harmonizing insurance coverage;
- unanticipated issues in coordinating accounting, information technology, communications, administration and other systems;
- difficulty addressing possible differences in corporate cultures and management philosophies;
- challenges associated with converting Adtran Networks' financial reporting from international financial reporting standards (IFRS) to accounting principles generally accepted in the U.S. (U.S. GAAP) and compliance with the Sarbanes-Oxley Act of 2002, as amended, and the rules promulgated thereunder by the SEC;
- legal and regulatory compliance;
- dual market filing and publications obligations;
- creating and implementing uniform standards, controls, procedures and policies;
- litigation relating to the transactions contemplated by a reorganization, including shareholder litigation;
- diversion of management's attention from other operations;
- maintaining existing agreements and relationships with customers, distributors, providers and vendors and avoiding delays in entering into new agreements with prospective customers, distributors, providers and vendors;
- realizing the benefits from our restructuring programs;
- unforeseen and unexpected liabilities related to the Business Combination, including the risk that certain executive officers may be subject to additional fiduciary duties and liability;

- identifying and eliminating redundant and underperforming functions and assets;
- effecting actions that may be required in connection with obtaining regulatory approvals; and
- a deterioration of credit ratings.

We have and may continue to lose customers or our share of customers' business as entities that were customers of both ADTRAN and Adtran Networks seek to diversify their suppliers of services and products.

The terms of the DPLTA may have a material adverse effect on our financial results and condition.

The DPLTA between the Company, as the controlling company, and Adtran Networks, as the controlled company, which was executed on December 1, 2022, became effective on January 16, 2023, as a result of its registration with the commercial register (*Handelsregister*) of the local court (*Amtsgericht*) at the registered seat of Adtran Networks (Jena).

Under the DPLTA, subject to certain limitations pursuant to applicable law and the specific terms of the DPLTA, (i) the Company is entitled to issue binding instructions to the management board of Adtran Networks, (ii) Adtran Networks will transfer its annual profit to the Company, subject to, among other things, the creation or dissolution of certain reserves, and (iii) the Company will generally absorb the annual net loss incurred by Adtran Networks. The obligation of the Company to absorb Adtran Networks annual net loss applied for the first time to the loss generated in 2023.

Additionally, and subject to certain limitations pursuant to applicable law and the specific terms of the DPLTA, the DPLTA provides that Adtran Networks shareholders (other than the Company) be offered, at their election, (i) to put their Adtran Networks shares to the Company in exchange for compensation in cash of €17.21 per share, plus guaranteed interest (the "Exit Compensation"), or (ii) to remain Adtran Networks shareholders and receive a recurring compensation in cash of €0.59 (€0.52 net under the current tax regime) per share for each full fiscal year of Adtran Networks (the "Annual Recurring Compensation"). The guaranteed interest under the Exit Compensation is calculated from the effective date of the DPLTA to the date the shares are tendered, less any Annual Recurring Compensation paid. The guaranteed interest rate is 5.0% plus a variable component, that is based on the interest rate according to the German Civil Code, which was 3.12% as of December 31, 2023. The Annual Recurring Compensation is due on the third banking day following the ordinary general shareholders' meeting of Adtran Networks for the respective preceding fiscal year (but in any event within eight months following expiration of the fiscal year) it will be payable for the first time after the ordinary general shareholders' meeting of Adtran Networks in 2024 for the fiscal year ended December 31, 2023. The adequacy of both forms of compensation has been challenged by minority shareholders of Adtran Networks via court-led appraisal proceedings under German law and it is possible that the courts in such appraisal proceedings may adjudicate a higher Exit Compensation or Annual Recurring Compensation (in each case, including interest thereon) than agreed upon in the DPLTA. Our obligation to pay Annual Recurring Compensation under the DPLTA is a continuing payment obligation, which will amount to approximately €10.6 million or \$11.7 million (based on the exchange rate as of December 31, 2023) per year assuming none of the minority Adtran Networks shareholders were to elect Exit Compensation. The foregoing amounts do not reflect any potential increase in payment obligations that we may have depending on the outcome of ongoing appraisal proceedings in Germany. For the year ended December 31, 2023, a total of 67 thousand shares of Adtran Networks stock was tendered to the Company and Exit Compensation payments of approximately €1.2 million or approximately \$1.3 million based on an exchange rate as of December 31, 2023, were paid to Adtran Networks shareholders. Assuming all the minority holders of currently outstanding Adtran Networks shares were to elect the first option, we would be obligated to make aggregate Exit Compensation payments, including guaranteed interest, of approximately €310.3 million or approximately \$342.5 million, based on an exchange rate as of December 31, 2023. In addition to our cash and cash equivalents and the credit facility, we may fund a portion or all of the Annual Recurring Compensation and Exit Compensation through the sale of securities or additional alternative funding sources, if available. There can be no assurances that we would be successful in effecting these actions at commercially reasonable terms or at all. If we cannot raise additional funds as needed, it could have a material adverse impact on our financial results and financial condition. Additionally, the payment of the Annual Recurring Compensation and Exit Compensation could have a material adverse impact on our financial results and financial condition. See "*Liquidity and Capital Resources*" in Part II, Item 7 of this report for additional information.

The opportunity for outside Adtran Networks shareholders to tender Adtran Networks shares in exchange for Exit Compensation had been scheduled to expire on March 16, 2023. However, due to the appraisal proceedings that have been initiated in accordance with applicable German law, this time period for tendering shares has been extended pursuant to the German Stock Corporation Act (*Aktiengesetz*) and will end two months after the date on which a final decision in such appraisal proceedings has been published in the Federal Gazette (*Bundesanzeiger*).

The amount of this Annual Recurring Compensation payment obligation pursuant to the DPLTA could exceed the amount of dividends that otherwise might be distributed by Adtran Networks to minority shareholders and would even have to be paid if Adtran Networks incurs losses, which could have a material adverse impact on our financial results and financial condition.

We are exposed to additional litigation risk and uncertainty with respect to the remaining minority shareholders of Adtran Networks, which litigation may require us to pay a higher purchase price for additional Adtran Networks shares than the amount provided for under the DPLTA.

As a result of the Business Combination, we continue to be exposed to litigation risk and uncertainty associated with the remaining minority shareholders of Adtran Networks. The terms of the DPLTA, including the adequacy of compensation payments to minority Adtran Networks shareholders under the terms of the DPLTA, have been challenged by minority shareholders of Adtran Networks by initiating court-led appraisal proceedings under German law. We cannot rule out that the competent court in these appraisal proceedings may adjudicate higher Exit Compensation or Annual Recurring Compensation payment obligations (in each case, including interest thereon) than agreed upon in the DPLTA, the financial impact and timing of which is uncertain.

We may be unable to successfully retain and motivate our personnel.

The success of the Business Combination and our post-closing integration efforts depends, in part, on our ability to retain the talents and dedication of key employees, including key decision-makers, currently employed by ADTRAN, Inc. and Adtran Networks. Some of our employees have decided and others may decide not to remain with us as a result of the Business Combination or our post-closing integration and restructuring efforts. If key employees terminate their employment, or if an insufficient number of employees are retained to maintain effective operations, our business activities may be adversely affected and management's attention may be diverted from successfully integrating ADTRAN and Adtran Networks to hiring suitable replacements, all of which may cause our business to deteriorate. We may not be able to locate suitable replacements for any key employees who leave or offer employment to potential replacements on reasonable terms. In addition, we may not be able to motivate certain key employees due to organizational changes, reassignments of responsibilities, the perceived lack of appropriate opportunities for advancement or other reasons. If we fail to successfully retain and motivate our employees, relevant capabilities and expertise may be lost which may have an adverse effect on our cash flows, financial condition, results of operations and the business operations in general.

Risks related to the telecommunications industry

We must continue to update and improve our products and develop new products to compete and to keep pace with improvements in communications technology.

The markets for our products are characterized by rapidly changing technology, evolving industry standards and continuing improvements in the communications service offerings of Service Providers. If technologies or standards applicable to our products, or Service Provider offerings based on our products, become obsolete or fail to gain widespread commercial acceptance, our existing products or products under development may become obsolete or unmarketable, which can result in the discontinuation of products and write off of related inventory. For example, during the quarter ended September 30, 2023, management determined that there would be a discontinuation of product lines in the Network Solutions segment. For more information, see Note 6 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report. Moreover, the introduction of products embodying new technologies, the emergence of new industry standards, or changes in Service Provider offerings could adversely affect our ability to sell our products. For instance, we offer a large number of products that apply primarily to the delivery of high-speed digital communications over the local loop utilizing copper wire. We compete favorably with our competitors by developing a high-performance line of these products. We market products that apply to fiber optic transport in the local loop. We expect, however, that use of coaxial cable and fixed and mobile wireless access in place of local loop access will increase. Also, MSOs are increasing their presence in the local loop. To meet the requirements of these new delivery systems and to maintain our market position, we expect to continue to develop new products and/or modify existing products. We expect that the addition of fiber-based products focused on the cable MSO operators, using EPON and fixed wireless access solutions will better position us to benefit from spending in these adjacent markets.

Our revenue and profitability in the past have, to a significant extent, resulted from our ability to anticipate changes in technology, industry standards and Service Provider offerings, and to develop and introduce new and enhanced products. Our continued ability to adapt will be a significant factor in maintaining or improving our competitive position and our prospects for growth. We cannot assure that we will be able to respond effectively to changes in technology, industry standards, Service Provider offerings or new product announcements by our competitors. We also cannot assure that we will be able to successfully develop and market new products or product enhancements, or that these products or enhancements will achieve market acceptance. Any failure by us to continue to anticipate or respond in a cost-effective and timely manner to changes in technology, industry standards, Service Provider offerings or new product announcements by our competitors, or any significant delays in product development or introduction, could have a material adverse effect on our ability to competitively market our products and on our revenue, results of operations, financial condition and cash flows.

Our failure or the failure of our contract manufacturers to comply with applicable environmental regulations could adversely impact our results of operations.

The manufacture, assembly and testing of our products may require the use of hazardous materials that are subject to environmental, health and safety regulations. Our failure or the failure of our contract manufacturers to comply with any of these applicable requirements could result in regulatory penalties, legal claims or disruption of production. In addition, our failure or the failure of our contract manufacturers to properly manage the use, transportation, emission, discharge, storage, recycling or disposal of hazardous materials could subject us to increased costs or liabilities. Existing and future environmental regulations may restrict our use of certain materials to manufacture, assemble and test products. Any of these consequences could adversely impact our results of operations by increasing our expenses and/or requiring us to alter our manufacturing processes.

If our products do not interoperate with our customers' networks, installations may be delayed or canceled, which could harm our business.

Our products must interface with existing networks, each of which may have different specifications, utilize multiple protocol standards and incorporate products from other vendors. Many of our customers' networks contain multiple generations of products that have been added over time as these networks have grown and evolved. Our products may be required to interoperate with many or all of the products within these networks, as well as future products to meet our customers' requirements. If we find errors in the existing software or defects in the hardware used in our customers' networks, we may have to modify our software or hardware to fix or overcome these errors so that our products will interoperate with the existing software and hardware. Implementation of product corrections involving interoperability issues could increase our costs and adversely affect our results of operations. Such issues may affect our ability to obtain product acceptance from other customers.

We engage in research and development activities to develop new, innovative solutions and to improve the application of developed technologies, and as a consequence may miss certain market opportunities enjoyed by larger companies with substantially greater research and development efforts and which may focus on more leading edge development.

A portion of our research and development activities are focused on the continued innovation of currently accepted access and edge transmission technologies in order to deliver faster internet speeds, more capacity, better quality of service and operational efficiency. These research and development efforts result in improved applications of technologies for which demand already exists or is latent. We also focus our research and development efforts on developing software, solutions and platforms that enable Service Providers to increase revenue-generating service velocity, reducing operational costs, increasing scale and providing service agility. We rarely engage in research projects that represent a vast departure from the current business practices of our key customers. While we believe our strategy provides a higher likelihood of producing nearer term or more sustainable revenue streams, this strategy could result in lost revenue opportunities and higher operating expenses should a new technology achieve rapid and widespread market acceptance. When we do engage in research and development activities for new, leading-edge technologies and market approaches, there is no guarantee that those technologies or market approaches will be successful or that they will be adopted and purchased by our customers.

Our strategy of outsourcing a portion of our manufacturing requirements to subcontractors located in various international regions may result in us not meeting our cost, quality or performance standards.

We are heavily dependent on subcontractors for the assembly and testing of certain printed circuit board assemblies, subassemblies, chassis, enclosures and equipment shelves, and the purchase of some raw materials used in such assemblies. This reliance involves several risks, including the unavailability of, or interruptions in, access to certain process technologies and reduced control over product quality, delivery schedules, transportation, manufacturing yields and costs. We may not be able to provide product order volumes to our subcontractors that are high enough to achieve sufficient cost savings. If shipments fall below forecasted levels, we may incur increased costs or be required to take ownership of excess inventory. Changes in international tariff structures could adversely impact our product costs. We also have experienced and expect to continue to experience ongoing inflationary pressures on input costs, such as, raw materials, labor and distribution costs. Our attempts to offset these cost pressures, such as through increases in the selling prices of some of our products and services, may not be successful and could negatively affect our operating results. In addition, a significant component of maintaining cost competitiveness is the ability of our subcontractors to adjust their costs to compensate for possible adverse exchange rate movements. To the extent that the subcontractors are unable to do so, and we are unable to procure alternative product supplies, then our competitiveness and results of operations could be adversely impaired. These risks may be exacerbated by economic, regulatory or political changes or uncertainties, terrorist actions, acts of war, the effects of climate change, natural disasters or pandemics in the foreign countries in which our subcontractors are located.

To date, we believe that we have successfully managed the risks of our dependence on these subcontractors through a variety of efforts, which include seeking and developing alternative subcontractors while maintaining existing relationships; however, we cannot be assured that delays in product deliveries will not occur in the future because of shortages resulting from this limited number of subcontractors or from the financial or other difficulties of these parties. Our inability to identify and engage alternative subcontractors if and as required in the future, or the need to undertake required retraining and other activities related to establishing and developing a

new subcontractor relationship, could result in delays or reductions in product shipments which, in turn, could have a negative effect on our customer relationships and operating results.

Our failure to maintain rights to intellectual property used in our business could adversely affect the development, functionality and commercial value of our products.

Our future success depends in part upon our proprietary technology. Although we attempt to protect our proprietary technology by contract, trademark, copyright and patent registration and internal security, including trade secret protection, these protections may not be adequate. Furthermore, our competitors can develop similar technology independently without violating our proprietary rights. From time to time, we receive and may continue to receive notices of claims alleging that we are infringing upon patents or other intellectual property. Any of these claims, whether with or without merit, could result in significant legal fees, divert our management's time, attention and resources, delay our product shipments or require us to enter into royalty or licensing agreements. We cannot predict whether we will prevail in any claims or litigation over alleged infringements, or whether we will be able to license any valid and infringed patents, or other intellectual property, on commercially reasonable terms. For example, on August 22, 2023, Adtran Networks and its subsidiary Adtran Networks North America, Inc. (formerly ADVA Optical Networking North America, Inc.) entered into a settlement agreement with Huawei Technologies Co. Ltd. pursuant to which the parties agreed to, among other things, dismiss certain lawsuits between the parties relating to, claims of patent infringement, failure to negotiate in good faith, and other related matters. If further claims of intellectual property infringement against us are successful and we fail to obtain a license or develop or license non-infringing technology, our business, operating results, financial condition and cash flows could be materially adversely affected.

Third party hardware or software that is used with our portfolios may not continue to be available or at commercially reasonable terms.

We integrate third-party software into certain of our products. Licenses for this technology may not be available or continue to be available to us on commercially reasonable terms. Difficulties with third-party technology licensors could result in the termination of such licenses, which may result in increased costs or require us to purchase or develop a substitute technology. Difficulty obtaining and maintaining third-party technology licenses may disrupt the development of our products and increase our costs, which could harm our business.

Our use of open source software could impose limitations on our ability to commercialize our products.

Several of our solutions utilize elements of open source or publicly available software. Although we closely monitor our use of open source software, the terms of many open source software licenses have not been interpreted by the courts, and there is a risk that such licenses could be construed in a manner that could impose unanticipated conditions or restrictions on our ability to sell our products. In such event, we could be required to make our proprietary software generally available to third parties, including competitors, at no cost, to seek licenses from third parties in order to continue offering our products, to re-engineer our products or to discontinue the sale of our products in the event re-engineering cannot be accomplished on a timely basis or at all, any of which could adversely affect our revenue and operating profitability.

We may incur liabilities or become subject to litigation that would have a material effect on our business.

In the ordinary course of business, we accept purchase orders, and enter into sales and other related contracts, for the marketing, sale, manufacture, distribution or use of our products and services. We may incur liabilities relating to our performance under such agreements, or which result from damage claims arising from certain events as outlined within the particular contract. While we attempt to include reasonable limitations of liability and other protective measures to all agreements, such agreements may not always contain, or be subject to, maximum loss clauses and liabilities arising from them may result in significant adverse changes to our results of operations, financial condition and cash flows.

In the ordinary course of business, we are subject to various legal proceedings and claims, including employment disputes, patent claims, disputes over contract agreements and other commercial disputes. In some cases, claimants seek monetary recovery, or other relief, including damages such as royalty payments related to patents, lost profits or injunctive relief, which, if granted, could require significant expenditures. For example, on August 22, 2023, Adtran Networks and its subsidiary, Adtran Networks North America, Inc. (formerly ADVA Optical Networking North America, Inc.) entered into a settlement agreement with Huawei Technologies Co. Ltd pursuant to which the parties agreed to, among other things, dismiss certain lawsuits between the parties relating to, claims of patent infringement, failure to negotiate in good faith, and other related matters.

Any such disputes may be resolved before trial, or if tried, may be resolved in our favor; however, the cost of claims sustained in litigation, and costs associated with the litigation process, may not be covered by our insurance. Such costs, and the demands on management time during such an event, could harm our business, reputation and have a material adverse effect on our liquidity, results of operations, financial condition and cash flows.

If we are unable to successfully develop and maintain relationships with SIs, Service Providers and enterprise VARs, our revenue may be negatively affected.

As part of our sales strategy, we are targeting SIs, Service Providers and enterprise VARs. In addition to specialized technical expertise, SIs, Service Providers and VARs typically offer sophisticated service capabilities that are frequently desired by enterprise customers. To expand our distribution channel to include resellers with such capabilities, we must be able to provide effective support to these resellers. If our sales, marketing or service capabilities are not sufficient to provide effective support to such SIs, Service Providers and VARs, our revenue may be negatively affected, and current SI, Service Provider and VAR partners may terminate their relationships with us, which would adversely impact our revenue and overall results of operations.

We depend on a third-party cloud platform provider to host our Mosaic One SaaS network operating platform, and if we were to experience a disruption or interference in service, our business and reputation could suffer.

Our continued growth depends in part on the ability of our existing and potential customers to use and access our Mosaic One SaaS network operating platform. We use third-party service providers that we do not control for key components of our infrastructure, particularly with respect to delivery of our SaaS products. The use of these service providers gives us greater flexibility in efficiently delivering a more tailored, scalable customer experience, but also exposes us to additional risks and vulnerabilities. Third-party service providers operate their own platforms that we access, and we are, therefore, vulnerable to their service interruptions. We may experience interruptions, delays and outages in service and availability from time to time as a result of problems with our third-party service providers' infrastructure. Lack of availability of this infrastructure could be due to a number of potential causes including technical failures, natural disasters, fraud or security attacks that we cannot predict or prevent. Such outages could adversely impact our business, reputation, financial condition and results of operations.

Risks related to the Company's stock price

Our operating results historically have fluctuated and are likely to continue to fluctuate in future periods. Such fluctuations can adversely affect our stock price.

Our operating results have been, and will continue to be, subject to quarterly and annual fluctuations as a result of numerous factors. These factors include, but are not limited to:

- fluctuations in demand for our products and services, especially with respect to significant network expansion projects undertaken by Service Providers;
- continued growth of communications network traffic and the adoption of communication services and applications by enterprise and consumer end users;
- changes in sales and implementation cycles for our products and reduced visibility into our customers' spending plans and associated revenue, especially should a slowdown in communications industry spending occur due to economic downturns, tight capital markets, or declining liquidity trends;
- reductions in demand for our traditional products as new technologies gain acceptance;
- our ability, and that of our distributors, to maintain appropriate inventory levels and related purchase commitments;
- price and product competition in the communications and networking industries, which can change rapidly due to technological innovation;
- the overall movement toward industry consolidation among both our competitors and our customers;
- our dependence on sales of our products by channel partners and the timing of their replenishment orders. Specifically, our sales volume in 2023 has been negatively impacted due to our channel partners focus on reducing inventory levels;
- the potential for conflicts and competition involving our channel partners and large end-user customers and the potential for consolidation among our channel partners;
- variations in sales channels, product cost or mix of products and services sold;
- delays in receiving acceptance, as defined under contract, from certain customers for shipments or services performed near the end of a reporting period;
- our ability to maintain high levels of product support and professional services;
- manufacturing and customer order lead times, and potential restrictions in the supply of key components;
- fluctuations in our gross margin and the factors that contribute to this (as described above);

- our ability to achieve cost reductions;
- the ability of our customers, channel partners and suppliers to obtain financing or to fund capital expenditures;
- our ability to execute on our strategy and operating plans;
- benefits anticipated from our investments in engineering, sales and marketing activities;
- the effects of climate change and other natural events;
- the effect of political or economic conditions, including the effect of tariffs or so-called “trade wars” on us and our supply chain, acts of war, terrorist attacks or other unrest in certain international markets;
- the effect of escalating tensions resulting from the conflict in Israel and its surrounding regions, as well as the military conflict in Ukraine. The U.S. and certain other countries imposed sanctions on Russia and could impose further sanctions against it, which could damage or disrupt international commerce and the global economy; and
- changes in tax laws and regulations or accounting pronouncements.

The price of our common stock has been volatile and may continue to fluctuate significantly.

Our common stock is traded on the NASDAQ Global Select Market under the symbol ADTN and on the Frankfurt Stock Exchange under the symbol QH9. Since our initial public offering in August 1994, there has been, and may continue to be, significant volatility in the market for our common stock, based on a variety of factors, including factors listed in this section, some of which are beyond our control.

Risks related to the regulatory environments in which we do business

We are subject to complex and evolving U.S. and foreign laws, regulations and standards governing the conduct of our business. Violations of these laws and regulations may harm our business, subject us to penalties and to other adverse consequences.

We are subject to laws and regulations that govern conduct by our Company, our employees and agents and the manufacture, sale and use of our products. Our inability to comply with current and evolving laws and regulations governing our business domestically and internationally may adversely affect our revenue, results of operations, financial conditions and cash flows. New and changing laws, regulations and industry practices could require us to modify our business, products or services offered, potentially in a material manner, and may limit our ability to develop new products, services and features. If we violate these laws and regulations, governmental authorities in the U.S. and in foreign jurisdictions could seek to impose civil and/or criminal fines and penalties which could have an adverse effect on our reputation, as well as our results of operations, financial condition and cash flows.

These laws and regulations include, but are not limited to:

- various regulations and regional standards established by communications authorities and import/export control authorities that govern the manufacture, sale and use of our products. Changes in domestic or international communications regulations, tariffs, potential changes in trade policies by the U.S. and other nations, application requirements, import/export controls or expansion of regulation to new areas, including access, communications or commerce over the internet, may affect customer demand for our products or slow the adoption of new technologies which may affect our revenue. Further, the cost of complying with the evolving standards and regulations, including the cost of product re-design if necessary, or the failure to obtain timely domestic or foreign regulatory approvals or certification such that we may not be able to sell our products where these standards or regulations apply, may adversely affect our revenue, results of operations, financial condition and cash flows.
- compliance with a wide variety of provincial, state, national and international laws and regulations applicable to the collection, use, retention, protection, disclosure, transfer and other processing of data, including personal data. Foreign data protection, privacy and other laws and regulations, including GDPR, are often more restrictive than those in the U.S. These data protection and privacy-related laws and regulations are varied, evolving, can be subject to significant change, may be augmented or replaced by new or additional laws and regulations and may result in ever-increasing regulatory and public scrutiny and escalating levels of enforcement and sanctions. For example, within the past three years, numerous states have adopted or are in the process of adopting various privacy-related laws and regulations. In addition, on July 16, 2020, the Court of Justice of the European Union issued a decision that invalidated the EU-U.S. Privacy Shield framework as a basis for transfers of personal data from the EU to the U.S., resulting in uncertainty and potential additional compliance obligations to ensure that a valid basis under the GDPR exists for these data transfers. Since that time, the E.U. and U.S. have developed the successor E.U.-U.S. Data Privacy Framework to address the 2020 decision, and on July 10, 2023, the European Commission issued an adequacy decision for the EU-US Data Privacy Framework, which entered in force on July 11, 2023; however, there are indications there may be legal challenges to the decision. Additionally, the European Commission published revised standard contractual clauses for data transfers from the European Economic Area in 2021,

which were required to go into effect by December 2022. Finally, the U.K. has enacted a version of the GDPR the implementation of which occurred by way of the Data Protection Act 2018, collectively referred to as the "U.K. GDPR." Uncertainty remains, however, regarding how aspects of data protection in the U.K. will be handled in the medium to long term. There is also a risk that we, directly or as the result of a third-party Service Provider we use, could be found to have failed to comply with the laws and regulations applicable in a jurisdiction regarding the collection, consent, handling, transfer or disposal of personal data.

- the FCPA, which prohibits U.S. companies and their intermediaries from making corrupt payments to foreign officials for the purpose of directing, obtaining or keeping business, and requires companies to maintain reasonable books and records and a system of internal accounting controls. The FCPA applies to companies, individual directors, officers, employees and agents. Under the FCPA, U.S. companies may be held liable for the corrupt actions taken by employees, strategic or local partners or other representatives. Because a significant portion of our total revenue is generated from revenue outside of the U.S., we have proactively implemented internally and externally focused measures and controls to address this risk. We help ensure that our employees understand the key requirements of FCPA compliance and the consequences of non-compliance through training courses and detective controls. ADTRAN senior management and employees whose responsibilities include international activities are required to complete an online training program and pass an exam every two years. We have put processes in place to help detect non-compliance through providing our employees access to a worldwide reporting "hotline," available by phone and online, that is maintained by a third-party provider. Finally, we perform annual reviews of our employees' expense reports and corporate credit card activity to identify possible corruption concerns. We have also implemented controls to help ensure our third-party partners and customers observe FCPA requirements. Prior to selling to new international distributors, resellers or agents, we review third-party data and check them against over 200 denied party lists from government institutions worldwide for potential FCPA concerns. We also require international distributors, resellers and agents to complete an Anti-Corruption Due Diligence Questionnaire, which is reviewed and assessed by a cross-functional compliance committee and our export-compliance function.
- environmental, health and safety regulations governing the manufacture, assembly and testing of our products, including without limitation regulations governing the use of hazardous materials. Our failure or the failure of our contract manufacturers to properly manage the use, transportation, emission, discharge, storage, recycling or disposal of hazardous materials could subject us to increased costs or liabilities. Existing and future environmental regulations may restrict our use of certain materials to manufacture, assemble and test products.
- requirements by the SEC governing the disclosure regarding the use of conflict minerals mined from the Democratic Republic of the Congo and adjoining countries (the "DRC") and disclosure with respect to procedures regarding a manufacturer's efforts to prevent the sourcing of such minerals from the DRC. Certain of these minerals are present in our products. SEC rules implementing these requirements may have the effect of reducing the pool of suppliers that can supply "conflict free" components and parts, and we may not be able to obtain conflict free products or supplies in sufficient quantities for our operations. Because our supply chain is complex, we may face reputational challenges with our customers, stockholders and other stakeholders if we are unable to verify sufficiently the origins for the conflict minerals used in our products and cannot assert that our products are "conflict free." Environmental or similar social initiatives may also make it difficult to obtain supply of compliant components or may require us to write off non-compliant inventory, which could have an adverse effect on our business and operating results.

- the insider trading prohibitions and the respective directors' dealing rules, as well as disclosure and reporting obligations under the German Securities Trading Act (*Wertpapierhandelsgesetz*) and Regulation (EU) No. 596/2014 of the European Parliament and of the Council of April 16, 2014, and other applicable regulations.

Changes in trade policy in the U.S. and other countries, specifically the U.K. and China, including the imposition of additional tariffs and the resulting consequences, may adversely impact our gross profits, gross margins, results of operations and financial condition.

In recent years, international market conditions and the international regulatory environment have been increasingly affected by competition among countries and geopolitical frictions. In particular, there have been a number of significant geopolitical events, including trade tensions and regulatory actions, involving the governments of the U.S. and China. The U.S. government has raised tariffs, and imposed new tariffs, on a wide range of imports of Chinese products, including component elements of our solutions and certain finished goods products that we sell. U.S. tariff policy involving imports from China remains under review by the Office of the United States Trade Representative. The U.S. government has also introduced broad new restrictions on imports from China allegedly manufactured with forced labor, and the EU has debated similar restrictions. In addition, other countries are debating or have introduced similar restrictions on imports of goods produced in whole or in part with the use of forced labor. China has retaliated by raising tariffs, and imposing new tariffs, on certain exports of U.S. goods to China, as well as introducing blocking measures to restrict the ability of domestic companies to comply with U.S. trade restrictions and could take further steps to retaliate against U.S. industries or companies. For instance, over the course of 2020, the U.S. introduced significant further restrictions limiting access to controlled U.S. technology to additional Chinese government and commercial entities. More recently, in October 2022, the U.S. Department of Commerce imposed additional export control restrictions targeting the provision of certain semiconductors and related technology to China that could further disrupt supply chains that could adversely impact our business. In addition, the U.S. Federal Communications Commission in November 2022 prohibited communications equipment deemed to pose an unacceptable risk to national security from obtaining the equipment authorization that allows the products to be imported, marketed, or sold in the U.S. This prohibition currently includes telecommunications equipment produced by Huawei and its affiliates and subsidiaries and four other Chinese companies, and additional entities may be subsequently added to this list. The situation involving U.S.-China trade relations remains volatile and uncertain and there can be no assurance that further actions by either country will not have an adverse impact on our business, operations and access to technology, or components thereof, sourced from China. Furthermore, if global economic and market conditions, or economic conditions in key markets, remain uncertain or further deteriorate, we may experience material impacts on our business and operating results. We may also be adversely affected in ways that we do not currently anticipate.

New or revised tax regulations, changes in our effective tax rate, recognition of a valuation allowance or assessments arising from tax audits may have an adverse impact on our results.

We are subject to taxation in various jurisdictions, both domestically and internationally, in which we conduct business. Significant judgment is required in the determination of our provision for income taxes, and this determination requires the interpretation and application of complex and sometimes uncertain tax laws and regulations. Our effective tax rate may be adversely impacted by changes in the mix of earnings between jurisdictions with different statutory tax rates, in the valuation of our deferred tax assets, and by changes in tax rules and regulations. We continually monitor our deferred tax assets and when it becomes more likely than not that a tax benefit will not be recognized, a valuation allowance is recorded against those assets. In addition, we are subject to examination of our income tax returns by the Internal Revenue Service and various other tax authorities in the jurisdictions in which we conduct business. We regularly assess the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. There can be no assurance that the outcomes from these continuous examinations will not have an adverse effect on our results of operations, financial condition and cash flow. Additionally, we continually review the adequacy of the valuation allowance and recognize the benefits of deferred tax assets only as the reassessment indicates that it is more likely than not that the deferred tax assets will be recognized. As such, we may release a portion of the valuation allowance or establish a new valuation allowance based on operations in the jurisdictions in which these assets arose. Management continues to evaluate all evidence including historical operating results, the existence of losses in the most recent year, forecasted earnings, future taxable income and tax planning strategies. Should management determine that a valuation allowance is needed in the future due to not being able to absorb deferred tax assets, it would have a material impact on our consolidated financial statements.

In August 2022, the Inflation Reduction Act was signed into law, which made a number of changes to the Internal Revenue Code, including adding a 1% excise tax on stock buybacks by publicly traded corporations and a 15% corporate minimum tax on adjusted financial statement income of certain large companies. The impact of these provisions on our effective tax rate will also depend on additional guidance to be issued by the Secretary of the U.S. Department of the Treasury. We are currently evaluating the impact of these provisions on our effective tax rate. Further, the Tax Act amended the Internal Revenue Code to require that specific research and experimental (“R&E”) expenditures be capitalized and amortized over five years (U.S. R&E) or fifteen years (non-U.S. R&E) beginning in the Company’s fiscal 2023. Although the U.S. Congress has considered legislation that would defer, modify, or repeal the capitalization and amortization requirement, there is no assurance that the provision will be deferred, repealed, or otherwise modified. If the requirement is not repealed or otherwise modified, it may increase our effective tax rate. Additionally, the Organization for Economic Co-operation and Development (the “OECD”), the G20, and other invited countries developed a global tax framework

inclusive of a 15% global minimum tax under the Pillar Two Global Anti-Base Erosion Rules (“Pillar Two”). On December 15, 2022, the Council of the European Union (“EU”) formally adopted the OECD’s framework to achieve a coordinated implementation amongst EU Member States consistent with EU law. The EU’s Pillar Two Directive effective dates are January 1, 2024, and January 1, 2025, for different aspects of the directive. In 2023, other jurisdictions including the United Kingdom also formally adopted legislation consistent with the OECD framework. Additional jurisdictions are actively considering and implementing changes to their tax laws to adopt certain parts of the OECD’s proposals. We have assessed the framework including OECD administrative guidance and expect, based upon available guidance, that these changes will not have a material impact to our results of operations; however, any future changes in OECD guidance or interpretations, could impact our initial assessment. Many aspects of the minimum tax directive will be effective beginning in fiscal 2025, with certain remaining impacts to be effective beginning in fiscal 2026. While it is uncertain whether the U.S. will enact legislation to adopt the minimum tax directive, certain countries in which we operate have adopted legislation, and other countries are in the process of introducing legislation to implement the minimum tax directive.

Central Banks' monetary policy actions could increase our costs of borrowing money and negatively impact our financial condition and future operations.

Monetary policy in response to ongoing inflationary pressures has led to continued elevated interest rates and an inversion of the yield curve, which has and may continue to result in increased credit costs and decreased credit availability. Changes in interest rates have impacted and may in the future further impact our costs of borrowing money under certain of our debt facilities with variable interest rates, which could negatively impact our financial condition and future operations.

We see an increased risk to our liquidity due to the current instability in the financial services industry which could negatively impact our financial condition and future operations. This includes risk relating to our liquidity balances and investments, as well as risk relating to the financial stability of our customers and suppliers. We seek to only enter into transactions with creditworthy banks and financial institutions. To assess the creditworthiness of banks, we utilize current credit ratings from rating agencies, such as S&P, Moody’s and Fitch, as well as current default rates (credit default swaps). We are also in frequent dialogue with customers and suppliers to assess counterparty risks. Nevertheless, many of these transactions expose us to credit risk in the event of our counterparty’s default. Any such losses could be material and could materially and adversely affect our business, financial condition and results of operations.

Expectations relating to environmental, social and governance considerations expose the Company to potential liabilities, increased costs, reputational harm, and other adverse effects on the Company's business.

Many governments, regulators, investors, employees, customers and other stakeholders are increasingly focused on environmental, social and governance considerations relating to businesses, including climate change and greenhouse gas emissions, human and civil rights, and diversity, equity and inclusion. In addition, we may make statements about our environmental, social and governance goals and initiatives through our website, press statements and other communications. Responding to these environmental, social and governance considerations and implementation of these goals and initiatives involves risks and uncertainties, requires investments, and depends in part on third-party performance or data that is outside of our control. Any failure, or perceived failure, by us to achieve our targets, further our initiatives, adhere to our public statements, comply with federal, state or international environmental, social and governance laws and regulations, or meet evolving and varied stakeholder expectations and standards could result in legal and regulatory proceedings against us and materially adversely affect our business, reputation, results of operations, financial condition and stock price.

Further downgrades of the U.S. credit rating, impending automatic spending cuts or a government shutdown could negatively impact our liquidity, financial condition and earnings.

U.S. debt ceiling and budget deficit concerns have increased the possibility of additional credit-rating downgrades and economic slowdowns, or a recession in the United States. Although U.S. lawmakers passed legislation to raise the federal debt ceiling on multiple occasions, including a suspension of the federal debt ceiling in June 2023, ratings agencies have lowered or threatened to lower the long-term sovereign credit rating on the United States.

The impact of this or any further downgrades to the U.S. government’s sovereign credit rating or its perceived creditworthiness could adversely affect the U.S. and global financial markets and economic conditions. Absent further quantitative easing by the Federal Reserve, these developments could cause interest rates and borrowing costs to rise, which may negatively impact our ability to access the debt markets on favorable terms. In addition, although a limited budget deal was signed into law in early March, the federal government continues to be at risk of a partial shutdown if legislation to provide funding for other areas of government is not passed by March 22, 2024 as a result of political divisions in Congress and an impasse on budgetary and spending matters. Continued adverse political and economic conditions could have a material adverse effect on our business, financial condition and results of operations.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 1C. CYBERSECURITY

We recognize the importance of establishing governance and oversight over cybersecurity risks, and we have implemented mechanisms, controls, technologies, and processes designed to help us assess, identify, and manage these risks.

The landscape of cyber threats is constantly evolving, making it increasingly challenging to effectively defend against them or implement sufficient preventative measures. We have observed a rise in the volume, frequency, and sophistication of cyber-attacks. To date, no risks from cybersecurity threats or previous cybersecurity incidents have materially affected our business strategy, results of operations, or financial condition. However, there can be no assurance that our controls and procedures in place to monitor and mitigate the risks of cyber threats, including the remediation of critical information security and software vulnerabilities, will be sufficient and/or timely and that we will not suffer material losses or consequences in the future. Additionally, while we have in place insurance coverage designed to address certain aspects of cyber risks, such insurance coverage may be insufficient to cover all insured losses or all types of claims that may arise. For more information regarding the cybersecurity risks that we face, see “Risks Related to Our Control Environment – Breaches of our information systems and cyberattacks could compromise our intellectual property and cause significant damage to our business and reputation” included as part of our risk factor disclosures in Part I, Item 1A of this report.

We have adopted and continue to maintain a cybersecurity risk management program that implements various controls, technology, and procedures for the evaluation, identification, and handling of significant cybersecurity risks that could impact the confidentiality, integrity, or availability of our information systems.

Our practices include, among others, providing ongoing security awareness training for our global workforce, conducting ransomware and phishing simulations, deploying tools for the detection and analysis of anomalous network activities, and implementing containment and incident response procedures. We are committed to staying abreast of the latest industry standards, and we actively participate in industry forums to exchange insights and stay ahead of emerging cybersecurity threats.

A critical component of our cybersecurity strategy is the integration of a third-party Security Operations Center support, which monitors our global network environment on a 24/7/365 basis, and is designed to rapidly identify and respond to threats. This program monitors both internally detected and externally reported vulnerabilities that could impact our products, which are then evaluated for their cybersecurity implications according to Company protocols. We also utilize third-party service providers as part of our cybersecurity risk management program and maintain a framework for managing cybersecurity risks presented by our third-party Service Providers. This framework governs the third party’s security management system and mandates that the program (i) adhere to certain information handling and asset management protocols and (ii) promptly notify us of any cybersecurity incidents that impact its systems.

Our enterprise risk management ("ERM") framework is designed to systematically integrate the assessment, identification, and handling of cybersecurity-related risks into our broader risk management strategy. This process involves an annual evaluation of the spectrum of risks facing the enterprise, including those related to cybersecurity. When elevated cybersecurity risks are detected, designated risk owners are tasked with formulating and overseeing the execution of targeted mitigation strategies.

This risk management approach informs decision-making processes related to the company’s strategic priorities, the allocation of resources, and the establishment of oversight mechanisms. The governance of this program resides with our Board of Directors, which bears the ultimate responsibility for the oversight of cybersecurity risks. Supporting the Board, the Audit Committee plays a pivotal role by engaging in regular reviews of our cybersecurity efforts in collaboration with management and providing periodic updates to the Board. These assessments are conducted at least quarterly, with additional sessions convened as needed to address emerging issues or refine strategies.

Our Chief Information Officer ("CIO")/Chief Information Security Officer ("CISO") leads our cybersecurity program and reports to our Chief Executive Officer. The CIO/CISO stays informed of prevention, detection, mitigation, and remediation efforts through regular communication with professionals on our cybersecurity team, many of whom hold certifications such as Security+, Certified Information Systems Security Professional or Certified Information Security Manager. The CIO/CISO also utilizes technological tools, software, and third-party audits to monitor our cybersecurity efforts. Our CIO/CISO joined the Company in November 2018 and brings a wealth of experience from leading cybersecurity initiatives in previous roles. Our Chief Technology Officer ("CTO") joined the company in January 2023 following the Business Combination and previously served as Adtran Networks' CTO, leading their product management and advanced technology teams. Our CTO helps oversee our product security programs. Both the CIO/CISO and CTO have extensive experience in assessing and managing cybersecurity programs and risks. Our CIO/CISO reports to the Audit Committee and the Board of Directors on our cybersecurity program and efforts. Additionally, we have an escalation process in place to inform senior management and the Board of Directors of any material issues.

ITEM 2. PROPERTIES

Our global headquarters and certain administrative, engineering and manufacturing facilities are located on an 82-acre campus in Cummings Research Park in Huntsville, Alabama. Two office buildings in Huntsville, Alabama serve both our Network Solutions and our Services & Support segments. We lease a facility for our European headquarters in Munich, Germany. We lease engineering facilities in the U.S., EMEA and APAC that are used to develop products sold by our Network Solutions segment. In addition, we lease office space in North America, Latin America, EMEA and APAC, which provide sales and service support for both of our segments. These cancelable and non-cancelable leases expire at various times through 2033. For more information, *see Note 8 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report.*

We also have numerous sales and support staff operating from home-based offices serving both our Network Solutions and our Services & Support segments, which are located within the U.S. and abroad.

ITEM 3. LEGAL PROCEEDINGS

From time to time we are subject to or otherwise involved in various lawsuits, claims, investigations and legal proceedings that arise out of or are incidental to the conduct of our business (collectively, “Legal Matters”), including those relating to employment matters, patent rights, regulatory compliance matters, stockholder claims, and contractual and other commercial disputes. Such Legal Matters, even if not meritorious, could result in the expenditure of significant financial and managerial resources. Additionally, an unfavorable outcome in a Legal Matter could require us to pay damages, entitle claimants to other relief, such as royalties, or could prevent us from selling some of our products in certain jurisdictions. At this time, we are unable to predict the outcome of or estimate the possible loss or range of loss, if any, associated with these Legal Matters.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock is traded on the NASDAQ Global Select Market under the symbol "ADTN" and the Frankfurt Stock Exchange under the symbol "QH9". As of January 22, 2024, we had 47 stockholders of record and approximately 19,709 beneficial owners of shares held in street name.

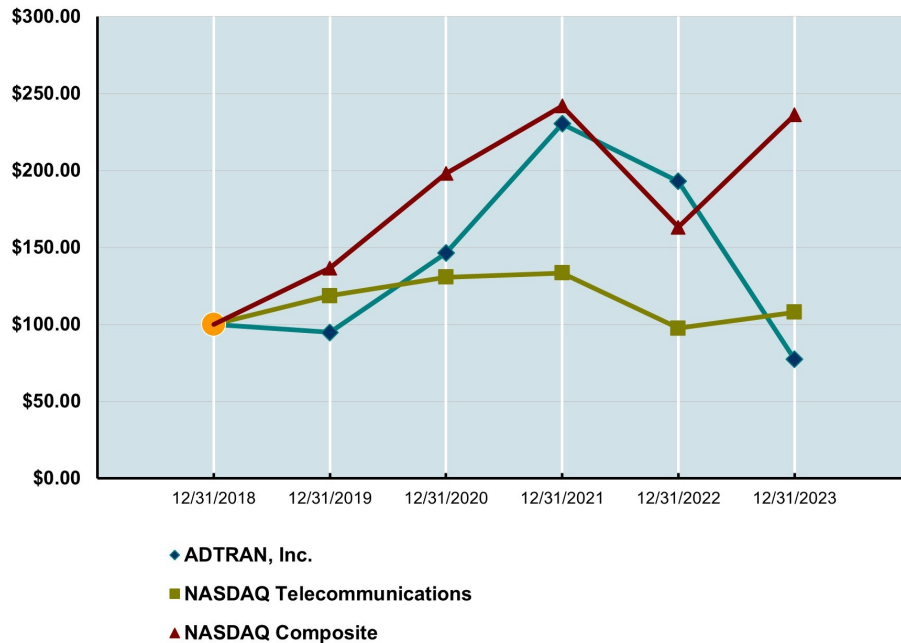
Dividends

We declared a quarterly dividend of \$0.09 per share of common stock to record holders during each of the quarters through September 30, 2023. On November 6, 2023, the Board of Directors suspended the Company's quarterly cash dividend in order to reduce debt and interest expense and support the Company's capital efficiency program. The payment of any future dividends will be at the discretion of the Board of Directors and will depend on the Company's financial condition, results of operations, capital requirements, and any other factors deemed relevant by the Board of Directors. In addition, the Wells Fargo Credit Agreement currently does not allow for the payment of dividends to shareholders. *For additional information, see Note 20 of Notes to Consolidated Financial Statements included in Part II, Item 8 and Liquidity & Capital Resources included in Part II, Item 7 of this report.*

Performance Graph

The graph below matches our cumulative 5-Year total shareholder return on common stock (specifically, the total shareholder return on ADTRAN, Inc.'s common stock for all periods prior to the Merger and that of ADTRAN Holdings, Inc. following the Merger) with the cumulative total returns of the NASDAQ Telecommunications index and the NASDAQ Composite index. The graph tracks the performance of a \$100 investment in our common stock and in each index (with the reinvestment of all dividends) from December 31, 2018 to December 31, 2023.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*
Among ADTRAN, Inc., The NASDAQ Composite Index
And The NASDAQ Telecommunications Index



* \$100 invested on 12/31/18 in stock or index-including reinvestment of dividends. Fiscal year ending December 31.

	12/31/18	12/31/19	12/31/20	12/31/21	12/31/22	12/31/23
ADTRAN Holdings, Inc.	\$ 100.00	\$ 94.81	\$ 146.36	\$ 230.41	\$ 192.95	\$ 77.38
NASDAQ Composite	\$ 100.00	\$ 136.69	\$ 198.10	\$ 242.03	\$ 163.28	\$ 236.17
NASDAQ Telecommunications	\$ 100.00	\$ 113.65	\$ 141.14	\$ 149.82	\$ 113.74	\$ 130.05

The stock price performance included in this graph is not necessarily indicative of future stock price performance.

Purchases of Equity Securities

The following table sets forth repurchases of our common stock for the months indicated.

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs ⁽¹⁾	Maximum Number of Shares that May Yet Be Purchased Under the Plans or Programs
October 1, 2023 – October 31, 2023	356	\$ 7.47	—	—
November 1, 2023 – November 30, 2023	128,122	\$ 5.44	—	—
December 1, 2023 – December 31, 2023	7,105	\$ 7.09	—	—
Total	135,583		—	—

- ⁽¹⁾ During the year ended December 31, 2023, the Company did not repurchase any shares of Company common stock as part of a publicly announced plan or program and there is no current authorization to repurchase Company common stock. The shares purchased relate to shares withheld to cover taxes for vested stock awards.

ITEM 6. RESERVED

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with our audited consolidated financial statements and the related notes included in Part II, Item 8 of this report. We have omitted discussion of the earliest of the three years of financial condition and results of operations and this information can be found in Part I, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations, and Part I, Item 1A, Risk Factors, included in Amendment No. 1 to our Annual Report on Form 10-K for the year ended December 31, 2022, filed with the SEC on August 14, 2023 (the "2022 Form 10-K/A"), as well as Part I, Item 1, Business, included in our Annual Report on Form 10-K filed with the SEC on March 1, 2023., which is available free of charge on the SEC's website at <http://www.sec.gov> and on our website at www.adtran.com.

This discussion is designed to provide the reader with information that will assist in understanding our consolidated financial statements, the changes in certain key items in those financial statements from period to period, and the primary factors that accounted for those changes, as well as how certain accounting principles affect our consolidated financial statements. See "Cautionary Note Regarding Forward-Looking Statements" on page 2 of this report for a description of important factors that could cause actual results to differ from expected results. See also Part I, Item 1A, Risk Factors, of this Form 10-K.

Unless the context otherwise indicates or requires, references in this Annual Report on Form 10-K to "ADTRAN", the "Company," "we," "us" and "our" refer to ADTRAN Holdings, Inc. and its consolidated subsidiaries for periods subsequent to the Merger and to ADTRAN, Inc. and its consolidated subsidiaries for periods prior to the Merger. The prior period results do not include the results of Adtran Networks prior to the Business Combination which occurred on July 15, 2022.

Overview

The Company is a leading global provider of networking and communications platforms, software, systems and services focused on the broadband access market, serving a diverse domestic and international customer base in multiple countries that includes Large, Medium and Small Service Providers, alternative Service Providers, such as utilities, municipalities and fiber overbuilders; cable/MSOs; SMBs; distributed enterprises, including Fortune 500 companies with sophisticated business continuity applications; and federal, state and local government agencies.

Our innovative solutions and services enable voice, data, video and internet-communications across a variety of network infrastructures and are currently in use by millions worldwide. We support our customers through our direct global sales organization and our distribution networks. Our success depends upon our ability to increase unit volume and market share through the introduction of new products and succeeding generations of products having optimal selling prices and increased functionality as compared to both the prior generation of a product and the products of competitors in order to gain market share. To service our customers and grow revenue, we are continually conducting research and developing new products addressing customer needs and testing those products for the specific requirements of the particular customers. We offer a broad portfolio of flexible software and hardware network solutions and services that enable Service Providers to meet today's service demands while enabling them to transition to the fully converged, scalable, highly-automated, cloud-controlled voice, data, internet and video network of the future. In addition to our global headquarters in Huntsville, Alabama, and our European headquarters in Munich, Germany, we have sales and research and development facilities in strategic global locations.

The Company solely owns ADTRAN, Inc. and is the majority shareholder of Adtran Networks (formerly ADVA Optical Networking SE). ADTRAN is a leading global provider of open, disaggregated networking and communications solutions. Adtran Networks is a global provider of network solutions for data, storage, voice and video services. We believe that the combined technology portfolio can best address current and future customer needs for high-speed connectivity from the network core to the end consumer, especially upon the convergence of solutions at the network edge.

The chief operating decision maker regularly reviews the Company's financial performance based on two reportable segments: (1) Network Solutions and (2) Services & Support. In addition to operating under two reportable segments, the Company also reports revenue across three categories – Subscriber Solutions, Access & Aggregation Solutions and Optical Networking Solutions.

Prior to the Business Combination with Adtran Networks on July 15, 2022, ADTRAN, Inc. reported revenue across the following three categories: (1) Access & Aggregation, (2) Subscriber Solutions & Experience and (3) Traditional & Other Products. Following the Business Combination with Adtran Networks, we have recast these revenues such that ADTRAN, Inc.'s former Access & Aggregation revenue is combined with a portion of the applicable Adtran Networks solutions to create Access & Aggregation Solutions, ADTRAN's former Subscriber Solutions & Experience revenue is combined with a portion of the applicable Adtran Networks solutions to create Subscriber Solutions and the revenue from Traditional & Other products is now included in the applicable Access & Aggregation Solutions or Subscriber Solutions category. Optical Networking Solutions was added as a new revenue category to represent a meaningful portion of Adtran Networks portfolio.

Our Subscriber Solutions portfolio is used by Service Providers to terminate their access services infrastructure at customers' premises while providing an immersive and interactive experience for residential, business and wholesale subscribers. This revenue category includes hardware- and software-based products and services. These solutions include our Mosaic One SaaS applications, fiber termination solutions for residential, business and wholesale subscribers, Wi-Fi access solutions for residential and business subscribers, Ethernet switching and network edge virtualization solutions for business subscribers and cloud software solutions covering a mix of subscriber types.

Our Access & Aggregation Solutions are solutions that are used by communications Service Providers to connect residential subscribers, business subscribers and mobile radio networks to the Service Providers' metro network, primarily through fiber-based connectivity. This revenue category includes hardware- and software-based products and services. Our solutions within this category are a mix of fiber access and aggregation platforms, precision network synchronization and timing solutions and access orchestration solutions that ensure highly reliable and efficient network performance.

Our Optical Networking Solutions are used by communications Service Providers, internet content providers and large-scale enterprises to securely interconnect metro and regional networks over fiber. This revenue category includes hardware- and software-based products and services. Our solutions within this category include open optical terminals, open line systems, optical subsystems and modules, network infrastructure assurance systems and automation platforms that are used to build high-scale, secure and assured optical networks.

Adtran Networks Domination and Profit and Loss Transfer Agreement

The DPLTA between the Company, as the controlling company, and Adtran Networks, as the controlled company, which was executed on December 1, 2022, became effective on January 16, 2023, as a result of its registration with the commercial register (*Handelsregister*) of the local court (*Amtsgericht*) at the registered seat of Adtran Networks (Jena).

Under the DPLTA, subject to certain limitations pursuant to applicable law and the specific terms of the DPLTA, (i) the Company is entitled to issue binding instructions to the management board of Adtran Networks, (ii) Adtran Networks will transfer its annual profit to the Company, subject to, among other things, the creation or dissolution of certain reserves, and (iii) the Company will generally absorb the annual net loss incurred by Adtran Networks. The obligation of the Company to absorb Adtran Networks' annual net loss applied for the first time to the loss generated in 2023.

Additionally, and subject to certain limitations pursuant to applicable law and the specific terms of the DPLTA, the DPLTA provides that Adtran Networks shareholders (other than us) be offered, at their election, (i) to put their Adtran Networks shares to the Company in exchange for compensation in cash of €17.21 per share plus guaranteed interest (the "Exit Compensation"), or (ii) to remain Adtran Networks shareholders and receive a recurring compensation in cash of €0.59 (€0.52 net under the current tax regime) per share for each full fiscal year of Adtran Networks (the "Annual Recurring Compensation"). The guaranteed interest component under the Exit Compensation is calculated from the effective date of the DPLTA to the date the shares are tendered, less any Annual Recurring Compensation paid. The guaranteed interest rate is 5.0% plus a variable component that was 3.12% as of December 31, 2023. The Annual Recurring Compensation is due on the third banking day following the ordinary general shareholders' meeting of Adtran Networks for the respective preceding fiscal year (but in any event within eight months following expiration of the fiscal year), and it will be payable for the first time after the ordinary general shareholders' meeting of Adtran Networks in 2024 for the fiscal year ended December 31, 2023. The adequacy of both forms of compensation has been challenged by minority shareholders of Adtran Networks via court-led appraisal proceedings under German law, and it is possible that the courts in such appraisal proceedings may adjudicate a higher Exit Compensation or Annual Recurring Compensation (in each case, including interest thereon) than agreed upon in the DPLTA.

The opportunity for outside Adtran Networks shareholders to tender Adtran Networks shares in exchange for Exit Compensation had been scheduled to expire on March 16, 2023. However, due to the appraisal proceedings that have been initiated in accordance with applicable German law, this time period for tendering shares has been extended pursuant to the German Stock Corporation Act (*Aktiengesetz*) and will end two months after the date on which a final decision in such appraisal proceedings has been published in the Federal Gazette (*Bundesanzeiger*). For the year ended December 31, 2023, 67 thousand shares, respectively, of Adtran Networks stock were tendered to the Company and Exit Compensation payments of approximately €1.2 million or approximately \$1.3 million based on an exchange rate as of December 31, 2023, were paid to Adtran Networks' shareholders.

In addition to our cash and cash equivalents and the credit facility, we may fund a portion or all of the Exit Compensation through the sale of securities or additional alternative funding sources, if available. There can be no assurances that we would be successful in effecting these actions on commercially reasonable terms or at all. If we cannot raise additional funds as needed, it could have a material adverse impact on our financial results and financial condition.

We currently hold 33,957,538 no-par value bearer shares of Adtran Networks, representing 65.32% of Adtran Networks outstanding shares as of December 31, 2023.

The foregoing description of the DPLTA does not purport to be complete and is qualified in its entirety by reference to the DPLTA, a non-binding English translation of which is incorporated by reference to Exhibit 10.5 of the 2022 Form 10-K/A. As of December 31, 2023, the Company has incurred \$26.2 million of transaction costs related to the Business Combination. During the year ended December 31, 2023, 2022 and 2021, \$0.1 million, \$14.2 million and \$11.9 million of transaction costs were incurred, respectively. These transaction costs are recorded in selling, general and administrative expenses in the Consolidated Statements of Loss.

Multi-Year Integration Program

During the fourth quarter of 2022, the Company initiated a multi-year integration program designed to optimize the assets, business processes, and information technology systems of the Company. The program was designed to address several potential cost synergies, including realizing operational scale, combining sales channels, streamlining corporate and general and administrative functions, and combined sourcing and production costs.

During the years ended December 31, 2023 and 2022, we recognized \$21.5 million and \$1.6 million of restructuring costs relating to the Business Combination under the multi-year integration program and synergy realization, respectively, that are included in cost of revenue, selling, general and administrative expenses and research and development expenses in the Condensed Consolidated Statement of Loss. The Company does not anticipate additional material expenses to be incurred in connection with this integration program.

Business Efficiency Program

On November 6, 2023, due to the uncertainty around the current macroeconomic environment and its impact on customer spending levels, the Company's management decided to implement a business efficiency program (the "Business Efficiency Program") targeting the reduction of ongoing operating expenses and focusing on capital efficiency inclusive of certain salary reductions, an early retirement program, a site consolidation plan to include lease impairments and the partial sale of owned real estate (including the potential sale of portions of our headquarters), inventory write downs from product discontinuances, and the suspension of the quarterly dividend. The Business Efficiency Program expands upon other recently implemented restructuring efforts and synergy costs following the Business Combination. For instance, on August 17, 2023, the Company's management determined to discontinue its copper-based Digital Subscriber Line broadband access technology products and its fixed wireless access products in its Network Solutions segment. Furthermore, on September 29, 2023, the Company's management decided to exit the "IoT" gateway market (indoor and outdoor), a subset of the broader IoT market (together with the other product discontinuations, the "Discontinuances"). Additionally, on October 25, 2023, all employees were informed of certain personnel measures, which included the reduction of salary for select management, a reduction of approximately 5% of the workforce, an early retirement program and a hiring freeze.

During the year ended December 31, 2023, we recognized \$25.1 million of costs relating to the Business Efficiency Program. We expect costs in the first quarter 2024 and thereafter relating to the Business Efficiency Program to range between \$22.2 million and \$35.2 million. Management expects these planned costs to include severance costs ranging from \$12.2 million to \$18.9 million in connection with an early retirement program and reductions in workforce, inventory write down of product discontinuances ranging from \$7.6 million to \$10.3 million, and site consolidation transaction expenses (primarily brokers fees) ranging from \$2.4 million to \$6.0 million. Future cash payments include: severance costs and outplacement fees that are anticipated to be in the range of \$12.2 million to \$18.9 million, payments relating to the site consolidation transaction expenses that are anticipated to be in the range of \$2.4 million to \$6.0 million, and potential cash payments in the range of \$3.6 million to \$6.3 million for anticipated product discontinuances. We may also incur other charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, the Business Efficiency Program, including potential impairment charges related to the discontinuance of additional product lines, regulatory requirements related to personnel measures, and site closures. However, we are not able to estimate the amount or range of amounts of such potential incremental charges as of the date of this filing. If required, we will amend this disclosure at such time as management is able in good faith to estimate the amount, or range of amounts, of these charges.

The Business Efficiency Program is expected to be substantially completed by the end of 2024, with expected cash payments continuing into 2025.

See Note 23 of Notes to the Consolidated Financial Statements in Part II, Item 8 of this report for additional information.

Financial Performance and Trends

We ended 2023 with a year-over-year revenue increase of 12.0%, driven by an increase in volume of sales activity during the first half of 2023 due to the Business Combination with Adtran Networks partially offset by decreased volume of sales activity in our domestic ADTRAN, Inc. operations due to customers' focus on reducing inventory levels and customers readjusting their capital expenditure budgets due to the uncertain macroeconomic environment related to continued elevated interest rates and ongoing inflationary pressures. During 2023, we had one customer with revenues greater than 10.0% which was an international Service Provider customer and our five largest customers comprised 37.0% of our revenue. Our year-over-year domestic revenue decreased by 10.9%, driven by lower volume of sales of our residential solutions products as a result of customers focus on reducing inventory levels in our Subscriber

Solutions segment, partially offset by an increase in volume of sales activity in the first half of 2023 as a result of the Business Combination with Adtran Networks. Internationally, our year-over-year revenue increased by 35.4%, primarily driven by an increase in volume of sales activity in the first half of 2023 as a result of the Business Combination with Adtran Networks partially offset by the unfavorable impact on revenue as a result of the strengthened U.S. dollar and decreased shipments to two large network operators and one alternative network operator in Europe.

Revenues in 2023 were impacted by normalization subsequent to the supply chain disruptions we saw during the pandemic. This normalization has led to a reduction in lead times as customer concerns over inventory stocking levels affected the Subscriber Solutions category due to over-supply situation of CPE products which the Company expects to continue into the first half of 2024. In the second half of 2023, our Access & Aggregation and Optical Networking revenue categories experienced a general slowdown in revenue as a result of reduced spending by our medium and large Service Provider customers as they continue to reduce inventory levels and monitor uncertain macroeconomic conditions related to continued elevated interest rates and ongoing inflationary pressures. Despite these challenges, we have maintained our emphasis on product development to enable us to respond to rapidly changing technology and evolving industry standards. For example, we expect public funding through projects such as IPCEI ME/CT to further our research and development for new communication technologies. Additionally, public funding through the Broadband Equity, Access and Deployment Program is expected to commence in late 2024 through 2026, which provides a positive outlook for the future. In Europe, we continue to see increased activity from high-risk vendor replacement and broadband subsidy programs.

Our operating results have fluctuated and may continue to fluctuate on a quarterly basis due to several factors, including customer order activity, supply chain constraints, component availability, and the Company's consolidation and integration with Adtran Networks. Further, a significant percentage of orders require delivery within a few days requiring us to maintain higher inventory levels. These factors may result in limited order flow visibility. For example, although, expedite fees and lead times for semiconductor chips and other key components began to ease during 2023 following shortages in the industry, we continued to be negatively impacted by price increases, which could continue to have a material adverse effect on customer relations and our financial condition. We have taken decisive steps to transform our business into a leaner, more efficient and more profitable company, including through the implementation of a Business Efficiency Program, which includes a significant cost efficiency program targeting a reduction of ongoing operating expenses and a capital efficiency program inclusive of certain salary reductions, an early retirement program, a site consolidation plan to include lease impairments and the partial sale of owned real estate (including the potential sale of portions of our headquarters), inventory write downs from product discontinuances, and the suspension of the quarterly dividend. Nevertheless, our operating expenses are relatively fixed in the short term; therefore, a shortfall in quarterly revenues has and may again in the future significantly impact our financial results in a given quarter.

Our operating results have significantly fluctuated and may do so in the future as a result of a number of other factors, including a decline in general economic and market conditions, foreign currency exchange rate movements, inflation, regional conflicts, increased competition, customer order patterns, changes in product and services mix, timing differences between price decreases and product cost reductions, product warranty returns, expediting costs, tariffs and announcements of new products by us or our competitors. In recent years, inflationary pressures on input costs, such as raw materials and labor, and distribution costs had a negative impact on our operating results. However, inflationary pressures on our supply chain have eased somewhat, which has led to reductions in cost premiums on raw material costs and freight. We continue to support our customer demand for our products by working with our suppliers, contract manufacturers, distributors, and customers to address and to limit the disruption to our operations and order fulfillment. Additionally, maintaining sufficient inventory levels to assure prompt delivery of our products increases the amount of inventory that may become obsolete and increases the risk that the obsolescence of this inventory may have an additional adverse effect on our business and operating results beyond the effects of the most recent inventory write-downs. Also, not maintaining sufficient inventory levels to ensure prompt delivery of our products may cause us to incur expediting costs to meet customer delivery requirements, which may negatively impact our operating results.

We are exposed to changes in foreign currencies relative to the U.S. dollar, which are references to the differences between the foreign-exchange rates we use to convert the financial results of our international operations from local currencies into U.S. dollars for financial reporting purposes. This impact of foreign-exchange rate changes is calculated based on the difference between the current period's currency exchange rates and that of the comparable prior period. Our primary exposures to foreign currency exchange rate movements are with the Euro and the British pound sterling. As a result of our global operations, our revenue, gross margins, operating expense and operating loss in some international markets have been and may continue to be affected by foreign currency fluctuations.

The Company's policy is to assess the realizability of assets (long-lived assets, intangibles and goodwill) held within our reporting units and to evaluate such assets for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. For impairment testing purposes, we determined the Company's reporting units are generally the same as its operating segments, which are identified in Note 18 to the Consolidated Financial Statements. During the third quarter of 2023, the Company's market capitalization and long-term projections decreased which triggered a reassessment of our estimated future undiscounted cash flows within our two identified reporting units. The Company determined the fair value of each reporting unit using a combination of an income approach and a market-based peer group analysis. It was determined that the decreases in projected future

cash flows, discount rates, overall macroeconomic conditions, as well as the decrease in our market capitalization applied in the valuation, were required to align with market-based assumptions and company-specific risk, which resulted in lower fair values of the Services & Support reporting unit. Upon the conclusion of its quantitative impairment assessment, the Company recognized a \$37.9 million non-cash goodwill impairment charge for the Services & Support reporting unit. The Company did not recognize any impairment charges for the Network Solutions reporting unit during the third quarter of 2023. During the fourth quarter of 2023, the Company qualitatively assessed the carrying value of each reporting unit for events or circumstance changes that would more likely than not reduce the fair value of the reporting unit below its carrying amount. During the fourth quarter of 2023, the Company completed its annual impairment test of the carrying value of reporting unit assets. Based on our assessment of certain qualitative factors such as macro-economic conditions, industry and market considerations, cost factors and overall financial performance, management concluded that the fair value of the reporting unit was more likely than not greater than its carrying amount as of December 31, 2023.

Our historical financial performance is not necessarily a meaningful indicator of future results, and in general, management expects that our financial results may vary from period to period. *For a discussion of risks associated with our operating results, see Part I, Item 1A, Risk Factors of this report.*

Results of Operations

The following table presents selected financial information derived from our Consolidated Statements of Loss expressed as a percentage of revenue for the years indicated. Amounts may not foot due to rounding.

	<i>Year Ended December 31,</i>		
	<u>2023</u>	<u>2022</u>	<u>2021</u>
Revenue			
Network Solutions	84.8%	89.4%	88.6%
Services & Support	15.2	10.6	11.4
Total Revenue	100.0	100.0	100.0
Cost of Revenue			
Network Solutions	62.9	63.1	54.7
Network Solutions - Inventory Write Down	2.1	—	—
Services & Support	6.0	5.0	6.5
Total Cost of Revenue	71.0	68.1	61.2
Gross Profit	29.0	31.9	38.8
Selling, general and administrative expenses	22.5	20.4	22.1
Research and development expenses	22.5	16.9	19.3
Asset impairment	—	1.7	—
Goodwill impairments	3.3	—	—
Operating Loss	(19.3)	(7.1)	(2.6)
Interest and dividend income	0.2	0.2	0.5
Interest expense	(1.4)	(0.3)	—
Net investment gain (loss)	0.2	(1.1)	0.3
Other income, net	0.1	1.4	0.7
Loss Before Income Taxes	(20.1)	(6.9)	(1.1)
Income tax benefit (expense)	(2.4)	6.1	(0.4)
Net Loss	(22.6)%	(0.9)%	(1.5)%
Net Income (loss) attributable to non-controlling interest	0.7	(0.7)	—
Net Loss attributable to ADTRAN Holdings, Inc.	(23.3)%	(0.2)%	(1.5)%

The following discussion and financial information are presented to aid in an understanding of our current consolidated financial position, changes in financial position, results of operations and cash flows and should be read in conjunction with the audited consolidated financial statements and notes thereto included herein. The emphasis of the discussion is a comparison of the years ended December 31, 2023 and December 31, 2022. For a discussion of a comparison of the years ended December 31, 2022 and December 31, 2021, please refer to Management's Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report on Form 10-K/A for the year ended December 31, 2022, filed with the SEC on August 14, 2023.

Comparison of Years Ended December 31, 2023 and December 31, 2022

Revenue

Our revenue increased 12.0% from \$1,025.5 million for the year ended December 31, 2022 to \$1,149.1 million for the year ended December 31, 2023. The increase in revenue for the year ended December 31, 2023 is primarily attributable to a \$379.0 million increase in volume of sales activity during the first half of 2023 due to the Business Combination with Adtran Networks partially offset by a \$255.4 million decrease in volume of sales activity due to customers' focus on reducing inventory levels in our domestic ADTRAN, Inc. operations and customers readjusting their capital expenditure budgets due to the uncertain macroeconomic environment. The increase in revenue by category for the year ended December 31, 2023 was primarily attributable to a \$231.9 million increase in Optical Networking Solutions category due to the Business Combination with Adtran Networks partially offset by a \$92.7 million decrease in Subscriber Solutions products and a \$15.6 million decrease in Access & Aggregation Solutions. Ongoing customer concerns over inventory stocking levels have affected our revenue in the Subscriber Solutions category. We believe that this over-supply of CPE products will continue into the first half of 2024.

Network Solutions segment revenue increased 6.3% from \$916.8 million in 2022 to \$974.3 million in 2023, primarily due to an increase of \$326.8 million in volume of sales activity during the first half of 2023 due to the Business Combination with Adtran Networks partially offset by a decrease of \$159.7 million in Subscriber Solutions products, a decrease of \$43.3 million in Access & Aggregation Solutions and a decrease of \$66.3 million in Optical Networking Solutions product. More specifically, for the year ended December 31,

2023, the decrease in revenue for our Subscriber Solutions products was primarily due to lower volume of sales of our residential solutions products as a result of customers focus on reducing inventory levels.

Services & Support revenue increased 60.7% from \$108.7 million in 2022 to \$174.7 million in 2023. The increase in revenue for 2023 was primarily attributable to the increase of \$52.2 million in volume of sales activity during the first half of 2023 from the Business Combination with Adtran Networks, a \$7.4 million increase in revenue for Optical Networking Solutions products, a \$4.8 million increase in revenue for Access & Aggregation Solutions revenue and a \$1.6 million increase in revenue for Subscriber Solutions services. More specifically, the increase in revenue for the year ended December 31, 2023 of our ADTRAN, Inc. operations was primarily due to higher volume of sales of our software services and business solutions services.

Domestic revenue decreased 10.9% from \$517.4 million in 2022 to \$461.0 million in 2023, driven by lower volume of sales of our residential solutions products as a result of customers' focus on reducing inventory levels in our Subscriber Solutions segment, partially offset by an increase in volume of sales activity during the first half of 2023 from the Business Combination with Adtran Networks.

International revenue, which is defined as revenue generated from the Network Solutions and Services & Support segments provided to a customer outside of the U.S., increased 35.4% from \$508.1 million for the year ended December 31, 2022 to \$688.1 million for the year ended December 31, 2023. International revenue, as a percentage of total revenue, increased from 49.5% for the year ended December 31, 2022 to 59.8% for the year ended December 31, 2023. The increase in international revenue for 2023 was primarily attributable to an increase in volume of sales activity during the first half of 2023 as a result of the Business Combination with Adtran Networks and increased shipments partially offset by the unfavorable impact on revenue generated outside of the U.S. as a result of the strengthened U.S. dollar. For the year ended December 31, 2023 as compared to the year ended December 31, 2022, changes in foreign currencies relative to the U.S. dollar increased our net revenue by approximately \$9.0 million.

Our ADTRAN, Inc. international revenue is largely focused on broadband infrastructure and is consequently affected by the decisions of our customers as to timing for installation of new technologies, expansion of their networks and/or network upgrades. Our international customers must make these decisions in the regulatory and political environment in which they operate – both nationally and in some instances, regionally – whether of a multi-country region or a more local region within a country. Consequently, while we expect the global trend towards deployment of more robust broadband speeds and access to continue creating additional market opportunities for us, the factors described above may result in pressure on revenue and operating income. Our Adtran Networks international revenue is largely focused on the manufacture and selling of networking solutions that are based on three core areas of expertise: fiber-optic transmission technology (cloud interconnect), cloud access technology for rapid creation of innovative services around the network edge and solutions for precise timing and synchronization of networks. In addition, Adtran Networks' international operations offers a comprehensive portfolio of network design, implementation and maintenance services to assist operators in the deployment of market-leading networks while reducing their cost to maintain these networks.

Cost of Revenue

As a percentage of revenue, cost of revenue increased from 68.1% for the year ended December 31, 2022 to 71.0% for the year ended December 31, 2023. The increase was primarily attributable to \$89.6 million of adjustments consisting of intangible amortization of backlog, developed technology and fair value adjustments to inventory costs that flow through to cost of revenue as a result of the Business Combination with Adtran Networks, acquisition related expenses, a \$24.3 million write down of inventory due to a restructuring discontinuation of certain product lines within our Network Solutions segment, and to a lesser extent changes in customer and product mix and a regional revenue shift in our ADTRAN, Inc. operations partially offset by supply chain cost improvements. As the inventory that was acquired in the Business Combination with Adtran Networks is sold, our cost of revenue as a percentage of revenue will return to more normalized levels. For the year ended December 31, 2023, changes in foreign currencies relative to the U.S. dollar increased our cost of revenue by approximately \$1.5 million.

Network Solutions cost of revenue, as a percentage of that segment's revenue, increased from 70.6% of revenue in 2022 to 76.7% of revenue in 2023. The increase in cost of revenue as a percentage of revenue was primarily attributable to acquisition related expenses, amortizations and adjustments consisting of intangible amortization of backlog, developed technology and fair value adjustments to inventory costs that flow through to cost of revenue as a result of the Business Combination with Adtran Networks, a write down of inventory due to a restructuring discontinuation of certain product lines and to a lesser extent changes in customer and product mix and a regional revenue shift in our ADTRAN, Inc. operations partially offset by supply chain cost improvements.

Services & Support cost of revenue, as a percentage of that segment's revenue, decreased from 47.1% of revenue in 2022 to 39.6% of revenue in 2023. The decrease in cost of revenue as a percentage of revenue was primarily attributable to customer mix and changes in Services & Support mix as a result of the Business Combination with Adtran Networks.

Services & Support revenue is comprised of network planning and implementation, maintenance, support and cloud-based management services, with network planning and implementation being the largest and fastest growing component in the long-term. Compared to our other services, such as maintenance, support and cloud-based management services, our network planning and implementation services typically utilize a higher percentage of internal and subcontracted engineers, professionals and contractors to perform the work

for customers. The additional costs incurred to perform these infrastructure and labor-intensive services inherently result in lower average gross margins as compared to maintenance and support services. Within the Services & Support segment, we do expect variability in gross margins from quarter-to-quarter based on the mix of the services recognized.

Gross Profit

As a percentage of revenue, gross profit decreased from 31.9% for the year ended December 31, 2022 to 29.0% for the year ended December 31, 2023. The decrease was primarily attributable to \$89.6 million of adjustments consisting of intangible amortization of backlog, developed technology and fair value adjustments to inventory costs that flow through to cost of revenue as a result of the Business Combination with Adtran Networks, acquisition related expenses, a decrease in volume of sales activity due to customers' focus on reducing inventory levels in our domestic ADTRAN, Inc. operations, a decrease due to the unfavorable impact on revenue generated outside of the U.S. as a result of the strengthened U.S. dollar and a write down of inventory due to a restructuring discontinuation of certain product lines.

As a percentage of that segment's revenue, Network Solutions gross profit decreased from 29.4% for the year ended December 31, 2022 to 23.3% for the year ended December 31, 2023. The decrease was primarily attributable to increases in cost of revenue related to acquisition related expenses, adjustments consisting of intangible amortization of backlog, developed technology and fair value adjustments to inventory costs that flow through to cost of revenue as a result of the Business Combination with Adtran Networks and a decrease in volume of sales activity related to our ADTRAN, Inc. operations, a decrease in volume of sales activity due to customers' focus on reducing inventory levels in our domestic ADTRAN, Inc. operations and a write down of inventory due to a restructuring discontinuation of certain product lines partially offset by an increase in volume of sales activity in the first half of 2023 due to the Business Combination with Adtran Networks.

As a percentage of that segment's revenue, Services & Support gross profit increased from 52.9% for the year ended December 31, 2022 to 60.4% for the year ended December 31, 2023. The increase was primarily attributable to an increase in volume of sales activity in the first half of 2023 due to the Business Combination with Adtran Networks and a decrease in cost of revenue as a percentage of revenue attributable to customer mix and changes in Services & Support mix as a result of the Business Combination with Adtran Networks.

Selling, General and Administrative Expenses

Selling, general and administrative expenses as a percentage of revenue increased from 20.4% for the year ended December 31, 2022, to 22.5% for the year ended December 31, 2023. While selling, general and administrative expenses as a percentage of revenue will generally fluctuate whenever there is a significant fluctuation in revenue for the periods being compared, in the year ended December 31, 2023 we saw a more significant increase due to higher expenses related to the Business Combination with Adtran Networks and other items described below. Our restructuring, business efficiency and integration programs are in the process of consolidating, streamlining and integrating the workforce, systems and processes of ADTRAN and Adtran Networks, which we expect will lower selling, general and administrative expense as a percentage of revenue over time.

Selling, general and administrative expenses increased by 23.6% from \$208.9 million for the year ended December 31, 2022, to \$258.1 million for the year ended December 31, 2023. Selling, general and administrative expenses include personnel costs for management, accounting, information technology, human resources, sales and marketing, as well as independent auditor, tax and other professional fees, contract services and legal and litigation related costs. The increase in selling, general and administrative expenses was primarily attributable to increased expenses in the first half of 2023 related to the Business Combination with Adtran Networks such as employee-related costs due to an increase in the number of employees, costs related to our restructuring program, amortization of intangible assets, depreciation of property, plant and equipment, restructuring expenses and transactions costs partially offset by decreased stock-based compensation expense. For the year ended December 31, 2023, as compared to the year ended December 31, 2022, changes in foreign currencies relative to the U.S. dollar increased our selling, general and administrative expenses by approximately \$1.3 million.

Research and Development Expenses

Research and development expenses as a percentage of revenue increased from 16.9% for the year ended December 31, 2022, to 22.5% for the year ended December 31, 2023. Although, research and development expenses as a percentage of revenue will fluctuate whenever there are incremental product development activities or significant fluctuations in revenue for the periods being compared, in the first half of 2023, we saw a more significant increase in expenses related to the Business Combination with Adtran Networks and other items described below. Our restructuring, business efficiency and integration programs are in the process of consolidating, streamlining and integrating the workforce, systems and processes of ADTRAN and Adtran Networks, which we expect will lower research and development expense as a percentage of revenue over time.

Research and development expenses increased by \$84.5 million or 48.7% from \$173.8 million for the year ended December 31, 2022, to \$258.3 million for the year ended December 31, 2023. The increase in research and development expenses was primarily attributable to increased expenses in the first half of 2023 related to the Business Combination with Adtran Networks such as employee-related costs due to an increase in the number of employees of \$70.5 million, depreciation of property, plant and equipment of \$6.3 million and

restructuring expenses of \$6.2 million. For the year ended December 31, 2023 as compared to the year ended December 31, 2022, changes in foreign currencies relative to the U.S. dollar increased our research and development expenses by approximately \$0.1 million.

Adtran Networks has arrangements with governmental entities for the purposes of obtaining funding for research and development activities. The Company classifies government grants received under these arrangements as a reduction to research and development expense incurred. For the years ended December 31, 2023 and 2022, the Company recognized \$5.2 million and \$1.1 million, respectively, as a reduction of research and development expense.

We expect to continue to incur research and development expenses in connection with our new and existing products. We continually evaluate new product opportunities and engage in significant research and product development efforts, which provides for new product development, enhancement of existing products and product cost reductions. We may incur significant research and development expenses prior to the receipt of revenue from a major new product group.

Asset Impairments

In connection with the planned integration of information technology following the Business Combination, we determined that certain projects no longer fit our needs. As a result, the Company recognized impairment charges of \$17.4 million during the year ended December 31, 2022, primarily attributable to capitalized implementation costs for a cloud computing arrangement. There were no asset impairments recognized during the years ended December 31, 2023 and 2021. *See Note 10 of the Notes to the Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.*

Goodwill Impairment

The Company recognized impairment charges of \$37.9 million during the year ended December 31, 2023, primarily attributable to lower fair values of the Services & Support reporting unit driven by decreases in projected future cash flows, discount rates, overall macroeconomic conditions, as well as the decrease in our market capitalization. There were no goodwill impairments recognized during the years ended December 31, 2022 and 2021. *See Note 9 of the Notes to the Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.*

Interest and Dividend Income

Interest and dividend income increased by 10.2% from \$2.1 million for the year ended December 31, 2022 to \$2.3 million for the year ended December 31, 2023. Interest and dividend income was up due to increased income in the first half of 2023 as a result of the Business Combination with Adtran Networks and increased dividend income from the deferred compensation plan during the year ended December 31, 2023. Our investments decreased from \$33.0 million as of December 31, 2022 to \$27.7 million as of December 31, 2023 and was primarily attributable to the sale of certain equity and fixed income investments for working capital and other purposes.

Interest Expense

Interest expense increased from \$3.4 million for the year ended December 31, 2022 to \$16.3 million for the year ended December 31, 2023. The increase in interest expense was primarily related to increased borrowings under the Wells Fargo Credit Agreement and the assumed debt associated with the Business Combination with Adtran Networks. *See Note 12 and Note 13 of the Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report and "Financing Activities" in "Liquidity and Capital Resources" below.*

Net Investment Gain (Loss)

We recognized a net investment loss of \$11.3 million and a gain of \$2.8 million for the years ended December 31, 2022 and 2023, respectively. The fluctuations in our net investments were primarily attributable to market driven changes in the fair value of our securities recognized during the period. We expect that any future market volatility could result in continued fluctuations in our investment portfolio. *See "Investing Activities" in "Liquidity and Capital Resources" of this report and Note 1 and Note 5 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.*

Other Income, net

Other income, net, decreased from income of \$14.5 million for the year ended December 31, 2022 to income of \$1.3 million for the year ended December 31, 2023. For the years ended December 31, 2023 and 2022, other income, net, is comprised primarily of gains and losses on foreign currency transactions and income from excess material sales. *See Note 11 of Notes to Consolidated Financial Statements included in Part II, Item 8 of the report for additional information on foreign exchange contracts.*

Income Tax (Expense) Benefit

Our effective tax rate changed from a benefit of 87.5%, for the year ended December 31, 2022 to an expense of 12.2% for the year ended December 31, 2023. The change in the effective tax rate for the year ended December 31, 2023, was driven primarily by the establishment of our valuation allowance against our domestic deferred tax assets during the fourth quarter of 2023, along with an increase in the global intangible low-taxed income ("GILTI") inclusion amount derived from the income of our controlled foreign companies. *See Note 14 of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.*

Net Loss Attributable to ADTRAN Holdings, Inc.

As a result of the above factors, our net loss attributable to ADTRAN Holdings, Inc. increased from \$2.0 million for the year ended December 31, 2022 to a net loss of \$267.7 million for the year ended December 31, 2023. As a percentage of revenue, net loss was 0.2% for the year ended December 31, 2022 and net loss was 23.3% for the year ended December 31, 2023.

Liquidity and Capital Resources

Liquidity

We have historically financed our ongoing business with existing cash, investments and cash flow from operations. We had a net operating cash outflow in 2023. We have used, and expect to continue to use, existing cash, investments, credit arrangements and cash generated from operations for working capital, business acquisitions, shareholder dividends and other general corporate purposes, including product development activities to enhance our existing products and develop new products, expand our sales and marketing activities and fund capital expenditures. In addition, we have increasingly relied upon our credit arrangements to manage our working capital needs.

As of December 31, 2023, our cash on hand was \$87.2 million of which \$73.0 million was held by our foreign subsidiaries. The Company had access to \$202.7 million on its Credit Facility for future borrowings; however, as of December 31, 2023, the Company was limited to additional borrowings of \$38.8 million based on debt covenant compliance metrics. Generally, we intend to permanently reinvest funds held outside the U.S., except to the extent that any of these funds can be repatriated without withholding tax. As of December 31, 2022, our cash on hand was \$108.6 million and our short-term investments were \$0.3 million, which resulted in available short-term liquidity of \$108.9 million, of which \$86.3 million was held by our foreign subsidiaries.

Pursuant to the terms of the DPLTA, each Adtran Networks shareholder (other than the Company) has received an offer to elect either (1) to remain an Adtran Networks shareholder and receive from us an Annual Recurring Compensation payment, or (2) to receive Exit Compensation plus guaranteed interest. The guaranteed interest under the Exit Compensation is calculated from the effective date of the DPLTA to the date the shares are tendered, less any Annual Recurring Compensation paid. The guaranteed interest rate is 5.0% plus a variable component (according to the German Civil Code) that was 3.12% as of December 31, 2023. Assuming all the minority holders of currently outstanding Adtran Networks shares were to elect the second option, we would be obligated to make aggregate Exit Compensation payments, including guaranteed interest, of approximately €310.3 million or approximately \$342.5 million, based on an exchange rate as of December 31, 2023 and reflecting interest accrued through December 31, 2023 during the pendency of the appraisal proceedings discussed below. Shareholders electing the first option of Annual Recurring Compensation may later elect the second option. The opportunity for outside Adtran Networks shareholders to tender Adtran Networks shares in exchange for Exit Compensation had been scheduled to expire on March 16, 2023. However, due to the appraisal proceedings that have been initiated in accordance with applicable German law, this time period for tendering shares has been extended pursuant to the German Stock Corporation Act (*Aktiengesetz*) and will end two months after the date on which a final decision in such appraisal proceedings has been published in the Federal Gazette (*Bundesanzeiger*).

We are also obligated to absorb any annual net loss of Adtran Networks under the DPLTA. Additionally, our obligation to pay Annual Recurring Compensation under the DPLTA is a continuing payment obligation, which will amount to approximately €10.6 million or \$11.7 million (based on the current exchange rate) per year assuming none of the minority Adtran Networks shareholders were to elect Exit Compensation. The foregoing amounts do not reflect any potential increase in payment obligations that we may have depending on the outcome of ongoing appraisal proceedings in Germany. During the year ended December 31, 2023, we accrued \$11.5 million in Annual Recurring Compensation, which was reflected as an increase to retained deficit and shown as an other current liability in our Consolidated Balance Sheets. With respect to the year ended December 31, 2023, we will be obligated to pay \$11.5 million in Annual Recurring Compensation on the third banking day following the 2024 ordinary general shareholders' meeting of Adtran Networks (but in any event within eight months following December 31, 2023).

On July 18, 2022, ADTRAN, Inc., as the borrower, and ADTRAN Holdings, Inc. entered into a credit agreement with a syndicate of banks, including Wells Fargo Bank, National Association, as administrative agent ("Administrative Agent"), and the other lenders named therein (the "Credit Agreement"), which has since been amended three times. Pursuant to the terms of the Credit Agreement, as amended, the Company, ADTRAN, Inc., and the subsidiary guarantors (together, the "Credit Parties") are subject to a liquidity covenant, which provides that, during the fourth quarter of 2023 through and including the third quarter of 2024 (the "Covenant Relief Period") or a Springing Covenant Period, (i.e., the period beginning upon the purchase by the Company of at least 60% of the outstanding shares of Adtran Networks not owned by the Company as of August 9, 2023 and the three consecutive quarterly test periods after such date), as of the last day of any fiscal quarter, the cash and cash equivalents of the Credit Parties must be at least \$50.0 million and the cash and cash equivalents of the Company and its subsidiaries must be at least \$75.0 million, limiting our ability to pay the obligations under the DPLTA. See below, as well as Note 12 and Note 23 of Notes to Consolidated Financial Statements included in Part II, Item, 8 for additional information regarding the terms of each amendment to the Wells Fargo Credit Agreement.

As of December 31, 2023, and as of the date of issuance of these financial statements, the Company does not have sufficient liquidity to meet the substantial majority of its payment obligations under the DPLTA pertaining to Exit Compensation. For the year ended December 31, 2023, 67 thousand shares of Adtran Networks stock were tendered to the Company and Exit Compensation payments of approximately €1.2 million or approximately \$1.3 million based on an exchange rate of December 31, 2023, were paid to Adtran Networks shareholders. We believe the probability that more than a small minority of Adtran Networks shareholders elect to receive Exit Compensation in the next twelve months is remote based on the diverse base of shareholders that must make this election on an individual shareholder basis, the current ongoing appraisal proceedings involving a dispute on the value of the Exit Compensation which is expected to take 24-32 months to resolve, the current guaranteed Annual Recurring Compensation payment plus the interest earned on such shares during the ongoing appraisal proceedings, and the current trading value of Adtran Networks shares.

The Company experienced revenue declines in 2023. To the extent that the Company is further impacted by the uncertain macroeconomic environment related to continued elevated interest rates and ongoing inflationary pressures, the Company has established plans to preserve cash liquidity and maintain compliance with the Company's covenants. The Company has suspended dividend payments and is continuing to implement a Business Efficiency Program, which includes, but is not limited to, planned reductions in operating expenses and a site consolidation plan. In connection with the site consolidation plan, the Company is also exploring a potential sale of portions of our headquarters in Huntsville. There can be no assurance that the Company will be successful in effecting this action on commercially reasonable terms or at all. We may need to further reduce capital expenditures and/or take other steps to preserve working capital in order to ensure that we can meet our needs and obligations and maintain compliance with our debt covenants.

In summary, the Company believes that its cash and cash equivalents, investments, working capital management initiatives and availability to access cash under the Wells Fargo Credit Facility (described below), including (i) the additional funding provided for under the First Amendment to the Wells Fargo Credit Facility that was signed on August 9, 2023, (ii) the additional covenant headroom during the Covenant Relief Period provided for under the Second Amendment to Wells Fargo Credit Facility, and (iii) the exclusion of the Factoring Agreement as debt for purposes of the Credit Facility's financial covenants as provided for under the Third Amendment to Wells Fargo Credit Facility (each as described below), will be adequate to meet our business operating requirements, our capital expenditures and our expected obligations under the DPLTA, including anticipated levels of Exit Compensation and continue to comply with our debt covenants under the Second Amendment for at least the next twelve months, from the issuance of these financial statements. *See below, as well as Note 12 and Note 23 of Notes to Consolidated Financial Statements included in Part II, Item 8 for additional information regarding the terms of the Wells Fargo Credit Agreement and its amendments.*

Wells Fargo Credit Facility

On July 18, 2022, ADTRAN, Inc., as the borrower, and ADTRAN Holdings, Inc. entered into the Credit Agreement with a syndicate of banks, including Administrative Agent, and the other lenders named therein (the "Credit Agreement"). As of the date of this filing, the Credit Agreement allows for revolving credit borrowings of up to \$400.0 million in aggregate principal amount, as well as the \$50.0 million delayed draw term loan facility described below.

On August 9, 2023, (the "First Amendment Effective Date") the Company, its wholly-owned direct subsidiary, ADTRAN, Inc. and the Administrative Agent entered into a First Amendment to the Credit Agreement (the "First Amendment" and together with the Credit Agreement, the "Credit Facility").

The First Amendment, provided for, among other things, a new \$50.0 million delayed draw term loan ("DDTL"), which (subject to certain conditions) is available for borrowing in the event of the purchase by the Company of at least sixty percent (60.0%) of the outstanding shares of Adtran Networks SE that were not owned by the Company and its subsidiaries as of the First Amendment Effective Date (such event, a "Springing Covenant Event"). Proceeds of the DDTL may only be used to repurchase minority shares of Adtran Networks SE. The DDTL remains available for borrowing from the occurrence of a Springing Covenant Event through August 9, 2024.

The First Amendment further added additional financial flexibility by permitting, subject to certain requirements, the incurrence of convertible indebtedness by the Company in an aggregate principal amount of up to \$172.5 million. Any such convertible indebtedness must, among other things, be incurred in pro forma compliance with the financial covenants in the Credit Agreement, be unsecured, and otherwise rank junior to borrowings under the Credit Agreement, and have a stated maturity date of at least 91 days after the latest scheduled maturity date of loans and commitments under the Credit Agreement. Net cash proceeds from any incurrence of convertible indebtedness must be used to repurchase minority shares of Adtran Networks or repay revolver borrowings under the Credit Agreement.

On January 16, 2024, the Company entered into a Second Amendment to the Credit Agreement and First Amendment to the Collateral Agreement. The Second Amendment, among other things, provided the Company and its subsidiaries with additional covenant headroom for the fourth quarter of 2023 through the third quarter of 2024 (the "Covenant Relief Period") and added certain other financial covenants which are described below.

On March 12, 2024, the Company entered into a Third Amendment to the Credit Agreement. The Third Amendment, among other things, amends the definition of “Consolidated Funded Indebtedness” (which is used in the calculation of the Consolidated Total Net Leverage Ratio and the Consolidated Senior Secured Net Leverage Ratio) to exclude obligations of the Company and its subsidiaries under certain factoring arrangements when calculated for the fiscal quarters ending March 31, 2024 and June 30, 2024. The Company is also currently in negotiations with the Administrative Agent regarding a potential further amendment to the Credit Agreement to address the addition of certain foreign subsidiary guarantors.

As of December 31, 2023, ADTRAN, Inc.’s borrowings under the revolving line of credit were \$195.0 million. As of December 31, 2023, there were no borrowings under the DDTL. The Credit Facility matures in July 2027; however, the Company has an option to request extensions subject to customary conditions. In addition, we may issue up to \$50.0 million in letters of credit against our \$400.0 million total facility. As of December 31, 2023, we had a total of \$2.3 million in letters of credit under ADTRAN, Inc. outstanding against our eligible borrowings, leaving a net amount of \$202.7 million available for future borrowings. Any future credit extensions under the Credit Agreement are subject to customary conditions precedent. The proceeds of any loans are expected to be used for general corporate purposes and to pay a portion of the Exchange Offer consideration. As of December 31, 2023, the Company was in compliance with all material covenants.

Revolving Line of Credit Interest Rate

All U.S. dollar borrowings under the revolving line of credit (other than swingline loans, which bear interest at the Base Rate (as defined below plus the applicable margin) bear interest, at the Company’s option, at a rate per annum equal to either (A) the Base Rate plus an applicable margin ranging from 0.65% to 1.65% per annum based on the Company’s Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 2.15% per annum), or (B) Adjusted Term SOFR (as defined below) plus an applicable margin ranging from 1.65% to 2.65% per annum based on the Company’s Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 3.15% per annum).

“Base Rate” means the highest of (a) the federal funds rate (i.e., for any day, the rate per annum equal to the weighted average of the rates on overnight federal funds transactions with members of the Federal Reserve System, as published by the Federal Reserve Bank of New York on the business day next succeeding such day) plus ½ of 1.0%, (b) the prime commercial lending rate of the Administrative Agent, as established from time to time at its principal U.S. office (which such rate is an index or base rate and will not necessarily be its lowest or best rate charged to its customers or other banks), and (c) the daily Adjusted Term SOFR (as defined in the Credit Agreement) for a one-month tenor plus 1.0%. The Base Rate is subject to a floor of 1.00% per annum.

“Adjusted Term SOFR” means Term SOFR for the applicable interest period *plus* 0.10% per annum. Adjusted Term SOFR is subject to a floor of 0.00% per annum.

All Euro borrowings under the revolving line of credit bear interest at a rate per annum equal to EURIBOR (as defined in the Credit Agreement and subject to a 0.00% per annum floor) plus an applicable margin ranging from 1.75% to 2.75% per annum based on the Company’s Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 3.25% per annum).

In addition, (x) if on or prior to December 31, 2024 we have not reduced the aggregate revolving credit commitment to \$340.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum, and (y) if on or prior to June 30, 2025 we have not reduced the aggregate revolving credit commitment to \$300.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum.

In addition to paying interest on outstanding principal under the Credit Agreement, the Company is required to pay a quarterly commitment fee to the lenders under the Credit Agreement in respect of unutilized revolving loan commitments on the average daily unused portion of the revolving credit commitment of each lender, which commitment fee ranges from 0.20% to 0.25% per annum based on the Company’s Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, is equal to 0.25% per annum). The Company is also required to pay a participation fee to the Administrative Agent for the account of each lender with respect to the Company’s participation in letters of credit at the then applicable rate for Adjusted Term SOFR Loans or EURIBOR Loans, and other customary fronting, issuance and administration fees with respect to letters of credit.

The increases in the commitment fee and margin rates during the Covenant Relief Period (referenced above) continue until the first date when each of the following conditions have been met (the period during which such increases are in place is hereinafter referred to as the (“Applicable Margin Interest Period”)): (a) the Covenant Relief Period has ended, (b) since the Second Amendment effective date, the Company has repaid the revolving credit outstanding borrowings by a principal amount of at least \$75.0 million, (c) the Company has reduced the aggregate revolving credit commitment to an amount no greater than \$300.0 million and (d) the Company is in compliance with all financial covenants based on the financial statements for the most recently completed reference period.

Default interest is 2.0% per annum in excess of the rate otherwise applicable.

DDTL Interest Rate

All U.S. dollar borrowings under the DDTL bear interest, at the Company's option, at a rate per annum equal to either (A) the Base Rate plus an applicable margin ranging from 0.90% to 1.90% per annum based on the Company's Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 2.40% per annum), or (B) Adjusted Term SOFR plus an applicable margin ranging from 1.90% to 2.90% per annum based on the Company's Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 3.40% per annum).

In addition, (x) if on or prior to December 31, 2024 we have not reduced the aggregate revolving credit commitment to \$340.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum, and (y) if on or prior to June 30, 2025 we have not reduced the aggregate revolving credit commitment to \$300.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum.

In addition to paying interest on outstanding principal under the DDTL loan, the Company is required to pay a quarterly commitment fee to the lenders under the Credit Agreement in respect of unutilized DDTL commitments at a rate of 0.25% per annum on the daily unused portion of the aggregate DDTL commitment.

The increases in the commitment fee and margin rates during the Covenant Relief Period (referenced above) continue until the first date when each of the following conditions have been met (the period during which such increases are in place is hereinafter referred to as the ("Applicable Margin Interest Period"): (a) the Covenant Relief Period has ended, (b) since the Second Amendment effective date, the Company has repaid the revolving credit outstanding borrowings by a principal amount of at least \$75.0 million, (c) the Company has reduced the aggregate revolving credit commitment to an amount no greater than \$300.0 million and (d) the Company is in compliance with all financial covenants based on the financial statements for the most recently completed reference period.

Default interest is 2.0% per annum in excess of the rate otherwise applicable.

Covenants Under the Credit Agreement

The financial covenants under the Credit Agreement, as amended, include the following (capitalized terms used in this subsection and not otherwise defined herein have the meanings assigned to them in the Credit Agreement or its amendments, as applicable)::

- As of the last day of any fiscal quarter, commencing with the fiscal quarter ended December 31, 2023, the Consolidated Total Net Leverage Ratio may not exceed 5.00x.
- As of the last day of any fiscal quarter, commencing with the fiscal quarter ended December 31, 2023, the Consolidated Senior Secured Net Leverage Ratio may not exceed:
 - In the event of the purchase by the Company of at least sixty percent (60%) of the outstanding shares of Adtran Networks SE not owned by the Company as of August 9, 2023 that have been tendered (such event, a "Springing Covenant Event" and the fiscal quarter in which the Springing Covenant Event Occurs and the three consecutive quarterly test periods thereafter, the "Springing Covenant Period"), the following covenant levels:
 - First fiscal quarter ending after a Springing Covenant Event: 4.00x
 - Second fiscal quarter ending after a Springing Covenant Event: 3.75x
 - Third and fourth fiscal quarters ending after a Springing Covenant Event: 3.50x
- If the Company or any of its subsidiaries incurs certain unsecured indebtedness in excess of \$50,000,000 in connection with a transaction that is a Springing Covenant Event or during a Springing Covenant Period, the Consolidated Senior Secured Net Leverage Ratio covenant will step down to 3.50x at the time of such incurrence.
- If a Springing Covenant Period is not in effect, the following covenant levels:
 - From December 31, 2023 through and including March 31, 2024: 3.25x.
 - From April 1, 2024 through and including June 30, 2024: 3.50x.
 - From July 1, 2024 and thereafter: 3.25x.
- As of the last day of any fiscal quarter, commencing with the fiscal quarter ended December 31, 2023, the Consolidated Fixed Charge Coverage Ratio may not exceed 1.25x.
- During the Covenant Relief Period or a Springing Covenant Period, as of the last day of any fiscal quarter (i) cash and cash equivalents of the Credit Parties must be at least \$50.0 million and (ii) cash and cash equivalents of the Company and its subsidiaries must be at least \$75.0 million.

The Credit Agreement is guaranteed by certain domestic subsidiaries of the Company, and the Company is also required to add certain additional domestic and international subsidiaries as guarantors under the Credit Agreement (such existing and new guarantors, collectively, the “Guarantors”). In addition to the guarantees provided by the Guarantors, the Guarantors have granted (or will grant) security interests in favor of the Administrative Agent over substantially all tangible and intangible assets, and the Borrower will grant mortgages in favor of the Administrative Agent over certain owned real estate assets. The Company is currently in negotiations with the Administrative Agent regarding a potential further amendment to the Credit Agreement to address the addition of certain foreign subsidiary guarantors.

The Credit Agreement provides for revolving borrowings of up to \$400.0 million in aggregate principal amount, as well as an additional \$50.0 million delayed draw term loan tranche that would be available upon a Springing Covenant Event. It also continues to permit the Company to prepay any or all of the outstanding loans or to reduce the commitments under the Credit Agreement subject to certain limitations and minimum payment thresholds.

During the Covenant Relief Period, the Company is not permitted to make certain dividend payments to the Company's Stockholders or certain other Restricted Payments. However, the Company is permitted to make the Recurring Compensation Payment to each Adtran Networks shareholder (other than the Company), pursuant to the terms of the DPLTA. *See Note 20 for additional information.*

Furthermore, the Credit Agreement, as amended, contain customary affirmative and negative covenants, including incurrence covenants and certain other limitations on the ability of the Company and the Company's subsidiaries to incur additional debt, guarantee other obligations, grant liens on assets, make investments, dispose of assets, make restricted payments, engage in mergers or consolidations, engage in transactions with affiliates, modify its organizational documents, and enter into certain restrictive agreements. The negative covenants are subject to various exceptions and carveouts; however, certain of the exceptions and carveouts are not permitted to be used during the Covenant Relief Period. It also contains customary events of default, such as misrepresentation and a default in the performance or observance of any covenant (subject to customary cure periods and materiality thresholds). Upon the occurrence and during the continuance of an event of default, the Administrative Agent is entitled to take various actions, including the acceleration of all amounts due under the Credit Agreement.

Operating Activities

Net cash used in operating activities of \$45.6 million during the year ended December 31, 2023 increased by \$1.4 million compared to \$44.2 million of net cash used in during the year ended December 31, 2022. This increase in net cash used was primarily due to the net loss for the period and net cash outflows from working capital, specifically, a decrease in the average number of days payable to our trade suppliers.

Net accounts receivable decreased 22.5% from \$279.4 million as of December 31, 2022 to \$216.4 million as of December 31, 2023. There was an allowance for credit losses of \$0.4 million and less than \$0.1 as of December 31, 2023 and December 31, 2022, respectively. The decrease in net accounts receivable was due primarily to sales volume and timing of sales. Quarterly accounts receivable DSO increased from 72 days as of December 31, 2022 to 88 days as of December 31, 2023. The increase in DSO was primarily driven by customer and geographical mix of commercial terms and the international expansion associated with the Business Combination with Adtran Networks and timing of sales within the quarter.

Other receivables decreased 46.8% from \$32.8 million as of December 31, 2022 to \$17.5 million as of December 31, 2023. The decrease in other receivables was primarily attributable to a decrease in sales of raw materials to our contract manufacturers.

Annual inventory turnover decreased from 2.46 turns as of December 31, 2022 to 2.07 turns as of December 31, 2023. Inventory decreased 15.3% from \$427.5 million as of December 31, 2022 to \$362.3 million as of December 31, 2023. The decrease in inventory was primarily due to a \$24.3 million write down of inventory due to discontinuation of certain product lines within our Network Solutions segment and a reduction in component purchases due to improved lead times and utilization of buffer stock. We expect inventory levels to fluctuate as we attempt to maintain sufficient inventory for customer demand and improve working capital.

Accounts payable decreased 31.5% from \$237.7 million as of December 31, 2022 to \$162.9 million as of December 31, 2023. The decrease in accounts payable was primarily due to a decrease in the average number of days payable to our trade suppliers and reduced purchases with inventory depletion. Accounts payable fluctuate due to variations in the timing of the receipt of inventory, supplies and services and our subsequent payments for these purchases.

Investing Activities

Capital expenditures totaled approximately \$43.1 million and \$17.1 million for the years ended December 31, 2023 and 2022, respectively. These expenditures were primarily used to purchase manufacturing and test equipment, software, computer hardware and building improvements. The increase in capital expenditures is primarily attributable to an increase in expenditures due to the Business Combination with Adtran Networks and for expenditures related to the construction of a terafactory building in Europe.

Our combined short-term and long-term investments decreased \$5.3 million from \$33.0 million as of December 31, 2022 to \$27.7 million as of December 31, 2023. This decrease reflects the impact of the sale of portions of our equity and fixed income investments and the net unrealized and realized gains and losses on our investments.

See Note 5 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.

Our long-term investments decreased 15.1% from \$32.7 million as of December 31, 2022 to \$27.7 million as of December 31, 2023. This decrease was due to the sale of our fixed income investments. Our investments include various marketable equity securities classified as long-term investments with a fair market value of \$0.9 million and \$0.8 million, as of December 31, 2023 and 2022, respectively. Long-term investments as of December 31, 2023 and 2022 also included \$26.8 million and \$22.9 million, respectively, related to our deferred compensation plan.

Financing Activities

Dividends

During 2023 and 2022, we paid shareholder dividends totaling \$21.2 million and \$22.9 million, respectively. Beginning in the third quarter of 2022, the amount of dividends paid to shareholders increased from approximately \$4.4 million per quarter to approximately \$7.1 million per quarter which was due to the increased number of shareholders of the Company's stock as a result of the Business Combination with Adtran Networks. On November 6, 2023, the Board of Directors suspended the Company's quarterly cash dividend in order to reduce debt and interest expense and support the Company's capital efficiency program. The payment of any future dividends will be at the discretion of the Board of Directors and will depend on the Company's financial condition, results of operations, capital requirements, and any other factors deemed relevant by the Board of Directors. In addition, the Wells Fargo Credit Agreement currently does not allow for the payment of dividends to shareholders. *For addition information, see Note 20 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report and Liquidity & Capital Resources above.* The following table shows dividends per common share paid to our shareholders in each quarter of 2023 and 2022:

	Dividends per Common Share	
	2023	2022
First Quarter	\$ 0.09	\$ 0.09
Second Quarter	\$ 0.09	\$ 0.09
Third Quarter	\$ 0.09	\$ 0.09
Fourth Quarter	\$ -	\$ 0.09

Stock Repurchase Program

The Company did not repurchase any stock during the years ended December 31, 2023 and 2022, and there currently is no authorized stock repurchase plan.

Stock Option Exercises

To accommodate employee stock option exercises, the Company issued 23 thousand and 0.5 million shares of common stock and treasury stock which resulted in proceeds of \$0.5 million and \$6.9 million during the years ended December 31, 2023 and 2022, respectively. Additionally, to accommodate Adtran Networks stock option exercises, Adtran Networks issued 0.1 million of Adtran Networks common stock which resulted in proceeds of \$0.8 million, during the period July 15, 2022 to December 31, 2022. Adtran Networks issued 0.1 million of Adtran Networks common stock which resulted in proceeds of \$0.4 million, during the year ended December 31, 2023. Adtran Networks stock options outstanding as of December 31, 2023 totaled 18 thousand (representing less than 0.1% of Adtran Networks' outstanding shares), of which none were exercisable.

Employee Pension Plan

We maintain a defined benefit pension plan covering employees in certain foreign countries. Pension benefit plan obligations are based on various assumptions used by our actuaries in calculating these amounts. These assumptions include discount rates, compensation rate increases, expected return on plan assets, retirement rates and mortality rates. Actual results that differ from the assumptions and changes in assumptions could affect future expenses and obligations. Details regarding the pension plans are set forth below.

- In Germany, there is one defined benefit pension plan and one defined contribution plan. Both plans provide benefits in the event of retirement, death or disability. The plan's benefits are based on age, years of service and salary. The defined benefit plan is financed by contributions paid by the Company and the defined contribution plan is financed by contributions paid by the participants.
- In Switzerland, there are two defined benefit pension plans. Both plans provide benefits in the event of retirement, death or disability. The plan's benefits are based on age, years of service, salary and on a participants old age account. The plans are financed by contributions paid by the participants and by the Company.
- In Italy, the post-employment benefit plan is required due to statutory provisions. The plan is financed directly by the Company on a pay-as-you-go basis. Employees receive their pension payments as a function of salary, inflation and a notional account.
- In Israel, there is a defined benefit plan that provides benefits in the event of a participant being dismissed involuntarily, retirement or death. The plan's benefits are based on the higher of the severance benefit required by law or the cash surrender value of the severance benefit component of any qualifying insurance policy or long-term employee benefit fund that is registered in the participants name. The plan is financed by contributions paid by the Company.

- In India, the post-employment benefit plan is required due to statutory provisions. The plan is financed directly by the Company on a pay-as-you-go basis.

Our defined benefit plan assets consist of a balanced portfolio of equity funds, bond funds, emerging market funds, real estate funds and balanced funds. Our investment policy includes various guidelines and procedures designed to ensure assets are invested in a manner necessary to meet expected future benefits earned by participants and consider a broad range of economic conditions. The objectives of our investment policy are to maintain investment portfolios that diversify risk through prudent asset allocation parameters, achieve asset returns that meet or exceed the plans' actuarial assumptions and achieve asset returns that are competitive with like institutions employing similar investment strategies. The investment policy is periodically reviewed by us and a designated third-party fiduciary for investment matters. At December 31, 2023, the estimated fair market value of our defined benefit pension plans' assets increased to \$55.2 million from \$48.7 million at December 31, 2022.

The defined benefit pension plan is accounted for on an actuarial basis, which requires the use of various assumptions, including an expected rate of return on plan assets and a discount rate. The expected return on our German plan assets that is utilized in determining the benefit obligation and net periodic benefit cost is derived from periodic studies, which include a review of asset allocation strategies, anticipated future long-term performance of individual asset classes, risks using standard deviations and correlations of returns among the asset classes that comprise the plans' asset mix. While the studies give appropriate consideration to recent plan performance and historical returns, the assumptions are primarily long-term, prospective rates of return. The discount rate has been derived from the returns of high-quality, corporate bonds denominated in euro currency with durations close to the duration of our pension obligations. The projected benefit obligation for our defined benefit pension plans was \$67.9 million and \$59.3 million as of December 31, 2023 and 2022, respectively.

The components of net periodic pension cost, other than the service cost component, are included in other income, net in the Consolidated Statements of Loss. The components of net periodic pension cost and amounts recognized in other comprehensive income (loss) for the years ended December 31, 2023 and 2022 were \$5.1 million and (\$5.8) million, respectively.

Actuarial gains and losses are recorded in accumulated other comprehensive (loss) income. To the extent unamortized gains and losses exceed 10% of the higher of the market-related value of assets or the projected benefit obligation, the excess is amortized as a component of net periodic pension cost over the remaining service period of active participants. We estimate that less than \$0.1 million will be amortized from accumulated other comprehensive income into net periodic pension cost in 2024 for the net actuarial loss. The net actuarial loss recognized in accumulated other comprehensive loss as of December 31, 2023 and 2022 was \$2.5 million and \$1.1 million, respectively. *See Note 15 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.*

Off-Balance Sheet Arrangements

We have exposure to credit losses from off-balance sheet exposures used to provide various guarantees of performance such as bid bonds, performance bonds and customs bonds, where we believe the risk of loss is immaterial to our financial statements as of December 31, 2023. Otherwise, we do not have off-balance sheet financing arrangements and have not engaged in any related party transactions or arrangements with unconsolidated entities or other persons that are reasonably likely to materially affect liquidity or the availability of or requirements for capital resources. *See Note 20 of the Notes to Condensed Consolidated Financial Statements, included in Part II, Item 8 of this report for additional information.*

Cash Requirements

The following table summarizes the Company's material short- and long-term cash requirements from known obligations pursuant to certain contracts and commitments as of December 31, 2023, as well as an estimate of the timing in which such obligations and payments are expected to be satisfied (but excluding payments that may be made pursuant to the DPLTA and currency hedging arrangements, which are discussed below). Other than operating lease obligations, the cash requirements table excludes interest payments.

<i>(In thousands)</i>	Total	2024	2025	2026	2027	2028	Thereafter
Wells Fargo credit agreement ⁽¹⁾	\$ 195,000	\$ —	\$ —	\$ —	\$ 195,000	\$ —	\$ —
Secured borrowings related to accounts receivable ⁽²⁾	14,099	14,099	—	—	—	—	—
Purchase obligations ⁽³⁾	252,516	237,358	9,792	5,312	54	—	—
Operating lease obligations ⁽⁴⁾	47,720	9,639	8,423	6,608	4,923	4,723	13,404
Totals	\$ 509,335	\$ 261,096	\$ 18,215	\$ 11,920	\$ 199,977	\$ 4,723	\$ 13,404

(1) See description below.

(2) Secured borrowings related to our accounts receivable factoring agreement that are expected to be repaid within 12 months.

(3) We have purchase obligations related to open purchase orders to our contract manufacturers, ODMs, component suppliers, service partners and other vendors. The settlement of our purchase obligations will occur at various dates beginning in 2024 and going through 2027. See Note 20 of the Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report for more information.

(4) We have operating leases for office space, automobiles and various other equipment in the U.S. and in certain international locations. Our operating leases had remaining lease terms ranging from two months to 116 months as of December 31, 2023.

Stock Repurchase Program

There were no stock repurchases during the years ended December 31, 2023 and 2022, and there currently is no authorized stock repurchase plan.

Wells Fargo Credit Agreement

On July 18, 2022, ADTRAN Holdings, Inc. and ADTRAN, Inc., as the borrower, entered into the Credit Agreement with the Administrative Agent and the other lenders named therein. The Credit Agreement was subsequently amended on August 9, 2023, January 16, 2024 and March 12, 2024. The Credit Agreement provides for a revolving line of credit and a DDTL. As of December 31, 2023, ADTRAN, Inc.'s borrowings under the revolving line of credit were \$195.0 million. As of December 31, 2023, there were no borrowings under the DDTL. The Credit Facility matures in July 2027; however, the Company has an option to request extensions subject to customary conditions. See Note 12 of the Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report and "Liquidity and Capital Resources" in Part II, Item 7 of this report for additional information.

Nord/LB Revolving Line of Credit

On March 29, 2023, Adtran Networks entered into a \$16.1 million unsecured revolving line of credit with Norddeutsche Landesbank - Girozentrale (Nord/LB) that bore interest of Euro Short Term Rate plus 1.94%. The line of credit had a perpetual term that could be terminated by the Company or Nord/LB at any time. As of December 31, 2023, Adtran Networks repaid the outstanding borrowings and terminated the Nord/LB Revolving Line of Credit.

Prior Nord/LB Revolving Line of Credit

On August 8, 2022, Adtran Networks entered into a \$16.1 million revolving line of credit with Norddeutsche Landesbank - Girozentrale (Nord/LB) that bore interest of Euro Short Term Rate plus 1.4% and matured in August 2023. On January 31, 2023, the Company repaid the outstanding borrowings and terminated the Nord/LB revolving line of credit.

Syndicated Credit Agreement Working Capital Line of Credit

In September 2018, Adtran Networks entered into a syndicated credit agreement with Bayerische Landesbank and Deutsche Bank AG Branch German Business to borrow up to \$10.7 million as part of a working capital line of credit. On January 31, 2023, the Company repaid the outstanding borrowings and terminated the syndicated credit agreement working capital line of credit.

DZ Bank Revolving Line of Credit

In the fourth quarter of 2022, Adtran Networks entered into a revolving line of credit with DZ Bank to borrow up to \$9.1 million. Interest on the line of credit reset monthly based on renewal of the loan and was 2.8% at the time the loan was repaid. On March 12, 2023, the Company repaid the outstanding borrowings and terminated the DZ Bank revolving line of credit.

Syndicated Credit Agreement Note Payable

In September 2018, Adtran Networks entered into a syndicated credit agreement with Bayerische Landesbank and Deutsche Bank AG Branch German Business to borrow \$63.7 million. On January 31, 2023, the Company repaid the outstanding borrowings and terminated the syndicated credit agreement note payable.

Currency Hedging Arrangements

On November 3, 2022, the Company entered into a euro/U.S. dollar forward contract arrangement (the "Initial Forward") with Wells Fargo Bank, N.A. (the "Hedge Counterparty"). The Initial Forward, which is governed by the provisions of an ISDA Master Agreement (including schedules thereto and transaction confirmations that supplement such agreement) entered into between the Company and the Hedge Counterparty, enable the Company to convert a portion of its euro denominated payment obligations under the proposed DPLTA into U.S. Dollars. Under the Initial Forward, the Company agreed to exchange an aggregate notional amount of €160.0 million for U.S. dollars at a daily fixed forward rate ranging from \$1.0141 to \$1.0305. The aggregate amount of €160.0 million is divided into eight quarterly tranches of €20.0 million, which commenced in the fourth quarter of 2022. During the twelve months ended December 31, 2023, the Company settled four €20.0 million forward contract tranches and the remaining amount will be divided into four quarterly tranches of €20.0 million. The Company, at its sole discretion, may exchange all or part of each tranche on any given day within the applicable quarter; provided, however, that it must exchange the full tranche by the end of such quarter. The Initial Forward may be accelerated or terminated early for a number of reasons, including but not limited to (i) non-payment by the Company or the Hedge Counterparty, (ii) breach of representation or warranty or covenant by either party or (iii) insolvency or bankruptcy of either party.

On March 21, 2023, the Company entered into a euro/U.S. dollar forward contract arrangement (the "Forward") with the Hedge Counterparty. Under the Forward, which is governed by the provisions of an ISDA Master Agreement (including schedules thereto and transaction confirmations that supplement such agreement) entered into between the Company and the Hedge Counterparty, the Company will exchange an aggregate notional amount of €160.0 million U.S. dollars for euros at a daily fixed forward rate ranging from \$1.0882 to \$1.0955 per €1.00. During the twelve months ended December 31, 2023, the Company settled four \$20.0 million forward contract tranches and the remaining amount will be divided into four quarterly tranches of \$20.0 million. These forward contracts were executed on March 21, 2023 (to sell EUR/buy USD) and were entered into for the purpose of unwinding the Initial Forward (to buy EUR/sell USD). The drawdown dates of the Initial Forward are set to the same date as the maturity of the new offsetting Forward.

Receivables Purchase Arrangements

The Company is party to a Receivables Purchase and Servicing Agreement with True Value S.A.R.L. (the "Factoring Agreement"), which accelerates receivable collection and helps to better manage cash flow. Total accounts receivables factored as of December 31, 2023 and December 31, 2022, totaled \$17.5 million and \$14.9 million, respectively, of which \$2.8 million and \$1.2 million was retained pursuant to the Factoring Agreement in the reserve account, respectively. The balance in the reserve account is included in other assets on the Consolidated Balance Sheets. The cost of receivables purchase agreement is included in interest expense in the Consolidated Statements of Loss and totaled \$0.9 million and \$0.3 million for the years ended December 31, 2023 and December 31, 2022, respectively.

Domination and Profit and Loss Transfer Agreement

The DPLTA between the Company, as the controlling company, and Adtran Networks SE, as the controlled company, as executed on December 1, 2022, became effective on January 16, 2023, as a result of its registration with the commercial register (*Handelsregister*) of the local court (*Amtsgericht*) at the registered seat of Adtran Networks (Jena).

Under the DPLTA, subject to certain limitations pursuant to applicable law and the specific terms of the DPLTA, (i) the Company is entitled to issue binding instructions to the management board of Adtran Networks, (ii) Adtran Networks will transfer its annual profit to the Company, subject to, among other things, the creation or dissolution of certain reserves, and (iii) the Company will generally absorb the annual net loss incurred by Adtran Networks. The obligation of the Company to absorb Adtran Networks' annual net loss applied for the first time to the loss generated in 2023.

Pursuant to the terms of the DPLTA, each Adtran Networks shareholder (other than the Company) has received an offer to elect either (1) to remain an Adtran Networks shareholder and receive from us an Annual Recurring Compensation payment, or (2) to receive Exit Compensation plus guaranteed interest. The guaranteed interest under the Exit Compensation is calculated from the effective date of the DPLTA to the date the shares are tendered, less any Annual Recurring Compensation paid. The guaranteed interest rate is 5.0% plus a variable component (according to the German Civil Code) that was 3.12% as of December 31, 2023. Assuming all the minority holders of currently outstanding Adtran Networks shares were to elect the second option, we would be obligated to make aggregate Exit Compensation payments, including guaranteed interest, of approximately €310.3 million or approximately \$342.5 million, based on an exchange rate as of December 31, 2023 and reflecting interest accrued through December 31, 2023 during the pendency of the appraisal proceedings discussed below. Shareholders electing the first option of Annual Recurring Compensation may later elect the second option. The opportunity for outside Adtran Networks shareholders to tender Adtran Networks shares in exchange for Exit Compensation

had been scheduled to expire on March 16, 2023. However, due to the appraisal proceedings that have been initiated in accordance with applicable German law, this time period for tendering shares has been extended pursuant to the German Stock Corporation Act (*Aktiengesetz*) and will end two months after the date on which a final decision in such appraisal proceedings has been published in the Federal Gazette (*Bundesanzeiger*).

We are also obligated to absorb any annual net loss of Adtran Networks under the DPLTA. Additionally, our obligation to pay Annual Recurring Compensation under the DPLTA is a continuing payment obligation, which will amount to approximately €10.6 million or \$11.7 million (based on the current exchange rate) per year assuming none of the minority Adtran Networks shareholders were to elect Exit Compensation. The foregoing amounts do not reflect any potential increase in payment obligations that we may have depending on the outcome of ongoing appraisal proceedings in Germany. During the year ended December 31, 2023, we accrued \$11.5 million in Annual Recurring Compensation, which was reflected as an increase to retained deficit.

On October 18, 2022, the Company's Board of Directors authorized the Company to purchase additional shares of Adtran Networks through open market purchases not to exceed 15,346,544 shares. For the year ended December 31, 2023, 67 thousand shares, respectively, of Adtran Networks stock was tendered to the Company and Exit Compensation payments of approximately €1.2 million or approximately \$1.3 million based on an exchange rate as of December 31, 2023, were paid to Adtran Networks shareholders.

We currently hold 33,957,538 no-par value bearer shares of Adtran Networks, representing 65.32% of Adtran Networks outstanding shares as of February 2, 2024.

The foregoing description of the DPLTA does not purport to be complete and is qualified in its entirety by reference to the DPLTA, a non-binding English translation of which incorporated by reference to Exhibit 10.5 of this Annual Report on Form 10-K.

Business Combination Transaction Costs

As of December 31, 2023, the Company has incurred \$26.2 million of transaction costs related to the Business Combination. During the years ended December 31, 2023, 2022 and 2021, \$0.1 million, \$14.2 million and \$11.9 million of transaction costs were incurred, respectively.

Business Efficiency Program

On November 6, 2023, due to the uncertainty around the current macroeconomic environment and its impact on customer spending levels, the Company's management decided to implement a business efficiency program (the "Business Efficiency Program") targeting the reduction of ongoing operating expenses and focusing on capital efficiency inclusive of certain salary reductions, an early retirement program, a site consolidation plan to include lease impairments and the partial sale of owned real estate (including the potential sale of portions of our headquarters), inventory write downs from product discontinuances, and the suspension of the quarterly dividend. The Business Efficiency Program expands upon other recently implemented restructuring efforts and synergy costs following the Business Combination. For instance, on August 17, 2023, the Company's management determined to discontinue its copper-based Digital Subscriber Line broadband access technology products and its fixed wireless access products in its Network Solutions segment. Furthermore, on September 29, 2023, the Company's management decided to exit the "IoT" gateway market (indoor and outdoor), a subset of the broader IoT market (together with the other product discontinuations, the "Discontinuances"). Additionally, on October 25, 2023, all employees were informed of certain personnel measures, which included the reduction of salary for select management, a reduction of approximately 5% of the workforce, an early retirement program and a hiring freeze.

During the year ended December 31, 2023, we recognized \$25.1 million of costs relating to the Business Efficiency Program. We expect costs in the first quarter 2024 and thereafter relating to the Business Efficiency Program to range between \$22.2 million and \$35.2 million. Management expects these planned costs to include severance costs ranging from \$12.2 million to \$18.9 million in connection with an early retirement program and reductions in workforce, inventory write downs from product discontinuances ranging from \$7.6 million to \$10.3 million, and site consolidation transaction expenses (primarily brokers fees) ranging from \$2.4 million to \$6.0 million. Future cash payments include: severance costs and outplacement fees that are anticipated to be in the range of \$12.2 million to \$18.9 million, payments relating to the site consolidation transaction expenses that are anticipated to be in the range of \$2.4 million to \$6.0 million, and potential cash payments in the range of \$3.6 million to \$6.3 million for anticipated product discontinuances. We may also incur other charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, the Business Efficiency Program, including potential impairment charges related to the discontinuance of additional product lines, regulatory requirements related to personnel measures, and site closures. However, we are not able to estimate the amount or range of amounts of such potential incremental charges as of the date of this filing. If required, we will amend this disclosure at such time as management is able in good faith to estimate the amount, or range of amounts, of these charges.

Business Combination Integration Costs

During the year ended December 31, 2023, we recognized \$4.9 million of integration costs related to the Business Combination that are included in selling, general and administrative expenses in the Condensed Consolidated Statement of Loss. We expect to incur additional

integration costs and expenses associated with the implementation of the DPLTA throughout 2024 and such costs are expected to be material. These costs are separate and apart from the costs associated with the integration program discussed below.

Multi-Year Integration Program

During the fourth quarter of 2022, the Company initiated a multi-year integration program designed to optimize the assets, business processes, and information technology systems of the Company. During the years ended December 31, 2023 and 2022, we recognized \$21.5 million and \$1.6 million of restructuring costs relating to the Business Combination under the multi-year integration program, respectively, that are included in cost of revenue, selling, general and administrative expenses and research and development expenses in the Condensed Consolidated Statement of Loss. The Company does not anticipate additional material expenses to be incurred in connection with this integration program. *See Note 23 of the Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report for additional information.*

Other Cash Requirements

During the year ended December 31, 2023, other than the Exit Compensation payments, Annual Recurring Compensation under the DPLTA, restructuring costs and increased debt service costs, there have been no other material changes in cash requirements from those discussed in the 2022 Form 10-K/A and our cash requirements table shown in Liquidity and Capital Resources above.

Performance Bonds

Certain contracts, customers and jurisdictions in which we do business require us to provide various guarantees of performance such as bid bonds, performance bonds and customs bonds. As of December 31, 2023 and 2022, we had commitments related to these bonds totaling \$10.8 million and \$21.1 million, respectively, which expire at various dates through April 2031. In general, we would only be liable for the amount of these guarantees in the event of default under each contract; the probability of which we believe is remote.

Critical Accounting Policies and Estimates

An accounting policy is deemed to be critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made if different estimates reasonably could have been used or if changes in the accounting estimate that are reasonably likely to occur could materially impact the results of financial operations. Several accounting policies, as described in Note 1 of Notes to the Consolidated Financial Statements included in Part II, Item 8 of this report, require material subjective or complex judgment and have a significant impact on our financial condition and results of operations, as applicable. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our Consolidated Financial Statements:

Revenue

Revenue is measured based on the consideration expected to be received in exchange for transferring goods or providing services to a customer and as performance obligations under the terms of the contract are satisfied. Generally, this occurs with the transfer of control of a product to the customer. Review of contracts with customers, for both direct customers and distributors, are performed and assessed for principal versus agent considerations to determine primary responsibility for delivery of performance obligation, presumed inventory risk, and discretion in establishing pricing, when applicable. For transactions where there are multiple performance obligations, individual products and services are accounted for separately if they are distinct (if a product or service is separately identifiable from other items and if a customer can benefit from it on its own or with other resources that are readily available to the customer). The consideration, including any discounts, is allocated between separate products and services based on their stand-alone selling prices. Stand-alone selling prices are determined based on the prices at which the separate products and services are sold and are allocated based on each item's relative value to the total value of the products and services in the arrangement. For items that are not sold separately, we estimate stand-alone selling prices primarily using the "expected cost plus a margin" approach. Payment terms are generally 30 days in the U.S. and typically longer in many geographic markets outside the U.S. Shipping fees are recorded as revenue and the related cost which we have elected to account for as a cost of fulfilling the related contract is included in cost of revenue. Revenue, value-added and other taxes collected concurrently with revenue-producing activities are excluded from revenue. Costs of obtaining a contract, if material, are capitalized and amortized over the period that the related revenue is recognized if greater than one year. We have also elected to apply the practical expedient related to the incremental costs of obtaining contracts and recognize those costs as an expense when incurred if the amortization period of the assets is one year or less. These costs are included in selling, general and administrative expenses. Capitalized costs with an amortization period greater than one year were immaterial.

Revenue is generated by two reportable segments: Network Solutions and Services & Support.

Network Solutions Segment - Includes hardware products and software defined next-generation virtualized solutions used in Service Provider or business networks, as well as prior generation products. The majority of the revenue from this segment is from hardware revenue.

Hardware and Software Revenue

Revenue from hardware sales is recognized when control is transferred to the customer, which is generally when the products are shipped. Shipping terms are generally FOB shipping point. Revenue from software license sales is recognized at delivery and transfer of control to the customer. Revenue is recorded net of estimated discounts and rebates using historical trends. Customers are typically invoiced when control is transferred and revenue is recognized. Our products generally include assurance-based warranties of 90 days to five years for product defects, which are accrued at the time products are delivered.

Services & Support Segment - Includes a complete portfolio of maintenance, network implementation and solutions integration and managed services, which include hosted cloud services and subscription services to complement our Network Solutions segment.

Maintenance Revenue

Our maintenance service periods range from one month to five years. Customers are typically invoiced and pay for maintenance services at the beginning of the maintenance period. We recognize revenue for maintenance services on a straight-line basis over the maintenance period as our customers benefit evenly throughout the contract term and deferred revenue, when applicable, is recorded in unearned revenue and non-current unearned revenue. The total balance of our unearned revenue was \$71.8 million and \$60.4 million as of December 31, 2023 and 2022, respectively.

Network Implementation Revenue

We recognize revenue for network implementation, which primarily consists of engineering, execution and enablement services at a point in time when each performance obligation is complete. If we have recognized revenue but have not billed the customer, the right to consideration is recognized as a contract asset that is included in other receivables on the Consolidated Balance Sheets. The contract asset is transferred to accounts receivable when the completed performance obligation is invoiced to the customer.

New Accounts Receivable Factoring Agreement

On December 19, 2023, the Company entered into a new factoring agreement with a third-party financial institution to replace the Company's prior accounts receivable purchase agreement and to sell, on a revolving basis, undivided interests in the Company's accounts receivable. The new factoring agreement qualifies for treatment as a secured borrowing with a pledge of collateral under Accounting Standards Codification ("ASC") Topic 810, *Consolidations*, as the Company is considered the primary beneficiary in a variable interest entity created to hold the factored receivables and the Company retains a residual claim on reserves related to the factored receivables. The receivables factored continue to be carried in accounts receivable, less allowance for credit losses on the Consolidated Balance Sheets, secured borrowings are carried on the Company's Consolidated Balance Sheets as a current liability, in accounts payable, proceeds and repayments of secured borrowings are reflected as cash flows provided by (used in) financing activities in the Consolidated Statements of Cash Flows and program fees are recorded in interest expense in the Company's Consolidated Statements of Loss. The short-term liability classification of the secured borrowings is based on the estimated timing of the collection of the accounts receivable which are expected to be received within 12 months. *See Note 3 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.*

Previous Accounts Receivable Factoring Agreement

The Company had previously entered into a factoring agreement to sell certain receivables to an unrelated third-party financial institution on a non-recourse basis. These transactions were accounted for in accordance with ASC Topic 860 and resulted in a reduction in accounts receivable because the agreement transferred effective control over and risk related to the receivables to the buyers. Trade accounts receivables balances sold were removed from the Consolidated Balance Sheets and cash received was reflected as cash flows (used in) provided by operating activities in the Consolidated Statements of Cash Flow. Factoring related interest expense was recorded to interest expense on the Consolidated Statements of Loss. On each sale date, the financial institution retained from the sale price a default reserve, up to a required balance, which was held by the financial institution in a reserve account and pledged to the Company. The financial institution was entitled to withdraw from the reserve account the sale price of a defaulted receivable. The balance in the reserve account was included in other assets on the Consolidated Balance Sheets.

Inventory

We carry our inventory at the lower of cost and net realizable value, with cost being determined using the first-in, first-out method. Standard costs for material, labor, and manufacturing overhead are used to value inventory and are updated at least quarterly. Most variances are expensed in the current period; therefore, our inventory costs approximate actual costs at the end of each reporting period. We establish reserves for estimated excess and obsolete inventory equal to the difference between the cost of the inventory and the estimated net realizable value of the inventory based on estimated reserve percentages, which consider historical usage, known trends, inventory age and market conditions. If actual trends and market conditions are less favorable than those projected by management, we may be required to make additional inventory write-downs. Our reserve for excess and obsolete inventory was \$83.1 million and \$51.8 million at December 31, 2023 and 2022, respectively. Inventory disposals charged against the reserve were \$7.6 million and \$2.9 million for the years ended December 31, 2023 and December 31, 2022, respectively.

Stock-Based Compensation

For purposes of determining the estimated fair value of market-based PSU awards on the date of grant, the Monte Carlo Simulation valuation method is used. These PSUs are subject to a market condition based on the relative total shareholder return of ADTRAN against all of the companies in the NASDAQ Telecommunications Index and vest at the end of a three-year performance period. The fair value of performance-based PSUs, RSUs and restricted stock is equal to the closing price of our stock on the business day immediately preceding the grant date. Compensation expense related to unvested performance-based PSUs is recognized over the requisite service period of two to three years as the achievement of the performance obligation becomes probable. For purposes of determining the estimated fair value of our stock option awards on the date of grant, we use the Black-Scholes Model. This model requires the input of certain assumptions that require subjective judgment. These assumptions include, but are not limited to, expected stock price volatility over the term of the awards and actual and projected employee stock option exercise behaviors. Because our stock option awards have characteristics significantly different from those of traded options, and because changes in the input assumptions can materially affect the fair value estimate, the existing model may not provide a reliable, single measure of the fair value of our stock option awards. Management will continue to assess the assumptions and methodologies used to calculate the estimated fair value of stock-based compensation. Circumstances may change and additional data may become available over time, which could result in changes to these assumptions and methodologies and thereby materially impact our fair value determination. If factors change in future periods, the compensation expense that we record may differ significantly from what we have recorded in the current period. As of December 31, 2023, total unrecognized compensation expense related to the non-vested portion of market-based PSUs, RSUs and restricted stock was approximately \$15.5 million.

Pursuant to the Business Combination, which closed on July 15, 2022, Adtran Networks stock option holders were entitled to have their Adtran Networks stock options assumed by ADTRAN Holdings (applying the exchange ratio in the Business Combination Agreement), thereafter representing options to acquire stock of ADTRAN Holdings. The maximum number of shares of ADTRAN Holdings stock potentially issuable upon such assumption was 2.3 million shares. The period in which such options could be assumed ended July 22, 2022. A total of 2.1 million shares of ADTRAN Holdings stock were subject to assumed Adtran Networks options. The determination of the fair value of stock options assumed by ADTRAN Holdings was estimated using the Monte Carlo method and is affected by its stock price, as well as assumptions regarding a number of complex and subjective variables that may have a significant impact on the fair value estimate. The stock option pricing model requires the use of several assumptions that impact the fair value estimate. These variables include, but are not limited to, the volatility of the Company's stock price and employee exercise behaviors. As of December 31, 2023, total unrecognized compensation expense related to the non-vested portion of stock options was approximately \$8.1 million.

Goodwill

Goodwill represents the excess purchase price over the fair value of net assets acquired. The Company's annual impairment assessment is done at the reporting unit level, which we determined are generally the same as our operating segments, which are identified in Note 18 to the Consolidated Financial Statements. We review goodwill for impairment annually during the fourth quarter and also test for impairment between annual tests if an event occurs or circumstances change that would more likely than not reduce the fair value of our reporting unit below its carrying amount. Such events and circumstances may include among others: a significant adverse change in legal factors or in the general business climate; significant decline in our stock price and market capitalization; unanticipated competition; the testing for recoverability of a significant asset group within the reporting unit; and an adverse action or assessment by a regulator. Any adverse change in these factors could have a significant impact on the recoverability of goodwill and could have a material impact on our consolidated financial statements.

Due to the Company's decreased market capitalization and long-term projections, a reassessment of our estimated future undiscounted cash flows within our two identified reporting units was triggered. Therefore an interim impairment test over goodwill was performed as of September 30, 2023. The Company determined the fair value of each reporting unit using a combination of an income approach and a market based peer group analysis. Management's determination of the fair value of our reporting units, based on future cash flows for the reporting units, requires significant judgment and the use of estimates and assumptions related to cash flow projections, discount rate, peer group determination and market multiple selection. It was determined that the decreases in projected future cash flows, discount rates, overall macroeconomic conditions, as well as the decrease in our market capitalization applied in the valuation, were required to align with market-based assumptions and company-specific risk, which resulted in lower fair values of the Services & Support reporting unit. As a result of the interim assessment, the Company recorded a goodwill impairment charge of \$37.9 million as its estimated fair value was less than its book value on that date.

The Company's annual impairment test date was October 1, 2023. The Company concluded that there was no goodwill impairment as of that date as there was no change in enterprise value from the September 30, 2023 testing date. Between the annual impairment date of October 1, 2023 and year-end December 31, 2023, there were no additional triggering events.

As a result of the Business Combination during 2022, the Company recognized \$350.5 million of goodwill. During the fourth quarter of 2022, we decided to proceed directly to the quantitative test of goodwill and forego the qualitative assessment. We estimated the fair value of our reporting units based on an income approach, whereby we calculated the fair value of a reporting unit based on the present value of estimated future cash flows. Our discounted cash flow analysis required us to make various judgmental assumptions about future sales, operating margins, growth rates and discount rates, which are based on our budgets, business plans, economic projections, anticipated future cash flows and market participants. We also estimated the fair value of our reporting units based on a peer group analysis, whereby companies in the telecommunications industry or with a comparable product and market structure are used to calculate a fair enterprise value using revenue, EBITDA and debt multiples of trading value. Based on our analysis, management concluded that there was no impairment of goodwill as of December 31, 2022.

No goodwill impairment charge was recorded in 2021 as a result of the Company's internal assessment.

The balance of our goodwill was \$353.4 million and \$381.7 million as of December 31, 2023 and 2022, respectively.

Intangible Assets

Purchased intangible assets with finite lives are carried at cost less accumulated amortization. Amortization is recorded over the estimated useful lives of the respective assets.

As part of the purchase price allocation related to the Business Combination with Adtran Networks, the Company recognized \$403.8 million of intangible assets on July 15, 2022. The balance of our intangible assets was \$328.0 million and \$401.2 million as of December 31, 2023 and 2022, respectively.

Impairment of Long-Lived Assets and Intangibles

Long-lived assets and intangibles used in operations are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of assets within a reporting unit may not be recoverable and the undiscounted cash flows estimated to be generated by the assets are less than the reporting units carrying value. The identification of our reporting units begins at the operating segment level and considers whether components one level below the operating segment levels should be identified as reporting units for the purpose of testing assets for impairment. For impairment testing purposes, we determined the Company's reporting units are generally the same as its operating segments, which are identified in Note 18 to the Consolidated Financial Statements. Our general policy is to qualitatively assess the carrying value of assets in our reporting units each reporting period for events or changes in circumstances that would more likely than not reduce the fair value of the reporting unit below its carrying amount.

During the fourth quarter of 2023, the Company qualitatively assessed the carrying value of each reporting unit for events or circumstance changes that would more likely than not reduce the fair value of the reporting unit below its carrying amount. Based on our assessment of certain qualitative factors such as macro-economic conditions, industry and market considerations, cost factors and overall financial performance, management concluded that the fair value of the reporting unit was more likely than not greater than its carrying amount as of December 31, 2023.

In connection with the planned integration of information technology following the Business Combination, we determined that certain projects no longer fit our needs. As a result the Company recognized impairment charges of \$17.4 million during the year ended December 31, 2022 primarily related to capitalized implementation costs for a cloud computing arrangement. The impairment charges were determined based on actual costs incurred.

There were no impairment losses for long-lived assets during the years ended December 31, 2023 and 2021, or for intangible assets recognized during the years ended December 31, 2023, 2022 or 2021.

Income Taxes

We estimate our income tax provision or benefit in each of the jurisdictions in which we operate, including estimating exposures related to examinations by taxing authorities. We also make judgments regarding the realization of deferred tax assets and establish valuation allowances where we believe it is more likely than not that future taxable income in certain jurisdictions will be insufficient to realize these deferred tax assets. Our estimates regarding future taxable income and income tax provision or benefit may vary due to changes in market conditions, changes in tax laws, or other factors. If our assumptions, and consequently our estimates, change in the future, the valuation allowances we have established may be increased or decreased, impacting future income tax expense. We continually review the adequacy of our valuation allowance and recognize the benefits of deferred tax assets only as the reassessment indicates that it is more likely than not that the deferred tax assets will be realized in accordance with ASC 740, Income Taxes. During the fourth quarter of 2022, after considering all quantitative and qualitative evidence, including our cumulative income position, historical operating performance and future income projections, we have determined that the positive evidence overcame the negative evidence and have concluded that it is more likely than not that a substantial portion of our U.S. federal and certain other state deferred tax assets were realizable. As a result, we have released the majority of our valuation allowance against those assets. However, the amount of deferred tax assets considered realizable could be adjusted in future periods in the event that sufficient evidence is no longer present to support a conclusion that it is more likely than not that all or a portion of our domestic deferred tax assets will be realized.

We establish reserves to remove some or all of the tax benefit of any of our tax positions at the time we determine that the positions become uncertain. We adjust these reserves, including any impact on the related interest and penalties, as facts and circumstances change.

Liability for Warranty

Our products generally include warranties of 90 days to five years for product defects. We accrue a provision for warranty returns at the time of product shipment based on our historical return rate and an estimate of the cost to repair or replace the defective products. We engage in extensive product quality programs and processes, including actively monitoring and evaluating the quality of our component suppliers. Our products continue to become more complex in both size and functionality as many of our product offerings migrate from line card applications to total systems. The increasing complexity of our products will cause warranty incidences, when they arise, to be more costly. Our estimates regarding future warranty obligations may change due to product failure rates, material usage, and other rework costs incurred in correcting a product failure. In addition, from time to time, specific warranty accruals may be recorded if unforeseen problems arise. Should our actual experience relative to these factors be worse than our estimates, we will be required to record additional warranty expense. The liability for warranty obligations totaled \$6.4 million and \$7.2 million at December 31, 2023 and 2022, respectively. These liabilities are included in accrued expenses and other liabilities in the accompanying Consolidated Balance Sheets.

Pension Benefit Plan Obligations

Pension benefit plan obligations are based on various assumptions used by our actuaries in calculating these amounts. These assumptions include discount rates, compensation rate increases, expected return on plan assets, retirement rates and mortality rates. Actual results that differ from the assumptions and changes in assumptions could affect future expenses and obligations. Our net pension liability totaled \$12.7 million and \$10.6 million at December 31, 2023 and December 31, 2022, respectively. This liability is included in pension liability in the accompanying Consolidated Balance Sheets.

Lease Obligations

We have operating leases for office space, automobiles and various other equipment in the U.S. and in certain international locations. Other contracts, such as manufacturing agreements and service agreements, are reviewed to determine if they contain potential embedded leases. These other contracts are specifically reviewed to determine whether we have the right to substantially all of the economic benefit from the use of any specified assets or the right to direct the use of any specified assets, either of which would indicate the existence of a lease. Some of our leases include options to renew. For those leases that are reasonably assured to be renewed, we have included the option to extend as part of our right of use asset and lease liability. The exercise of lease renewal options is at our sole discretion. The depreciable life of leased assets and leasehold improvements are limited by the expected lease term. Leases with an initial term of 12 months or less are not recorded on the balance sheet and lease expense for these leases is recognized on a straight-line basis over the lease term. For lease agreements entered into or reassessed after the adoption of Topic 842, we elected to not separate lease and non-lease components. Our lease agreements do not contain any material residual value guarantees or material restrictive covenants.

Business Combinations

The Company records assets acquired, liabilities assumed, contractual contingencies, when applicable, and intangible assets recognized as part of business combinations based on their fair values on the date of acquisition subject to purchase accounting adjustments. The excess of the purchase price over the estimated fair values of the net tangible and intangible assets and liabilities assumed or acquired is recorded as goodwill. If the estimated fair values of net tangible and intangible assets acquired and liabilities assumed exceed the purchase price, a bargain purchase gain is recorded. The Company's estimates of fair value are based on historical experience, industry knowledge, certain information obtained from the management of the acquired company and, in some cases, valuations performed by independent third-party firms. The results of operations of acquired companies are included in the accompanying Consolidated Statements of Loss since their dates of acquisition. Costs incurred to complete the Business Combination, such as legal, accounting or other professional fees, are charged to selling, general and administrative expenses as incurred.

Recently Issued Accounting Pronouncements

For a discussion of recently issued accounting pronouncements, see *Note 1 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.*

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to financial market risks, including changes in interest rates and foreign currency exchange rates. The primary objective of the large majority of our investment activities is to preserve principal while at the same time achieve appropriate yields without significantly increasing risk. To achieve this objective, a majority of our marketable securities are investment grade, fixed-rate bonds and municipal money market instruments denominated in U.S. dollars. Our investment policy provides limitations for issuer concentration, which limits, at the time of purchase, the concentration in any one issuer to 5% of the market value of our total investment portfolio.

We maintain depository investments with certain financial institutions. As of December 31, 2023, \$83.2 million of our cash and cash equivalents, primarily certain domestic money market funds and foreign depository accounts, were in excess of government provided insured depository limits. Although these depository investments exceed government insured depository limits, we have evaluated the credit-worthiness of these financial institutions and determined the risk of material financial loss due to exposure of such credit risk to be minimal.

Interest Rate Risk

As of December 31, 2023, approximately \$5.7 million of our cash and investments may be directly affected by changes in interest rates. As of December 31, 2023, we held \$5.7 million of cash and variable-rate investments where a change in interest rates would impact our interest income. A hypothetical 50 basis point decline in interest rates as of December 31, 2023, assuming all other variables remain constant, would reduce annualized interest income on our cash and investments by less than \$0.1 million. As of December 31, 2023, the carrying amounts of our revolving credit agreements totaled \$195.0 million where a change in interest rates would impact our interest expense. A hypothetical 50 basis point increase in interest rates as of December 31, 2023, assuming all other variables remain constant, would increase our interest expense by \$1.0 million. The analyses cover our debt and investments. The analyses use actual or approximate maturities for the debt and investments. The discount rates used were based on the market interest rates in effect at December 31, 2023.

Foreign Currency Exchange Rate Risk

We are exposed to changes in foreign currency exchange rates to the extent that such changes affect our revenue and gross margin on revenue derived from some international customers, operating expenses, and assets and liabilities held in non-functional currencies related to our foreign subsidiaries. Our primary exposures to foreign currency exchange rate movements are with the euro and the British pound sterling. Our revenue is primarily denominated in the respective functional currency of the subsidiary and paid in that subsidiary's functional currency or certain other local currency. The majority of our global supply chain predominately makes payments in U.S. dollars and some of our operating expenses are paid in certain local currencies (approximately 43.2% of total operating expense for the year ended December 31, 2023, respectively). Therefore, our revenue, gross margins, operating expenses and operating loss are all subject to foreign currency fluctuations. As a result, changes in currency exchange rates could cause variations in our operating loss. A hypothetical 10% movement in foreign exchange rates would result in a before-tax positive or negative impact of approximately \$15.0 million for the year ended December 31, 2023. Actual future gains and losses associated with our foreign currency exposures and positions may differ materially from the sensitivity analyses performed as of December 31, 2023 due to the inherent limitations associated with predicting the foreign currency exchange rates, and our actual exposures and positions.

We have certain customers and suppliers who are invoiced or pay in a non-functional currency. Changes in the monetary exchange rates used to invoice such customers versus the functional currency of the entity billing such customers may adversely affect our results of operations and financial condition. To manage the volatility relating to these typical business exposures, we may enter into various derivative transactions, when appropriate. We do not hold or issue derivative instruments for trading or other speculative purposes. All non-functional currencies billed would result in a combined hypothetical gain or loss of \$6.7 million if the U.S. dollar weakened or strengthened 10% against the billing currencies. All non-functional currencies invoiced by suppliers would result in a combined hypothetical gain or loss of \$11.4 million if the U.S. dollar weakened or strengthened 10% against the billing currencies. This change represents an increase in the amount of hypothetical gain or loss compared to prior periods and is mainly due to an increase in U.S. dollar denominated billings in a non-U.S. dollar denominated subsidiary.

As of December 31, 2023, we had certain material contracts subject to currency revaluation, including accounts receivable, accounts payable and lease liabilities denominated in foreign currencies. As of December 31, 2023, we had 47 forward contracts outstanding with a fair value of \$4.8 million. The objective of these foreign currency forward contracts is to reduce the impact of currency exchange rate movements on our operating results by offsetting gains and losses on the forward contracts with increases or decreases in foreign currency transactions. We do not use foreign currency contracts for speculative or trading purposes. Hedging of our currency exposures may not always be effective to protect us against currency exchange rate fluctuations. *See Note 11 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report.*

On November 3, 2022, the Company entered into a euro/U.S. dollar forward contract arrangement (the "Initial Forward") with Wells Fargo Bank, N.A. (the "Hedge Counterparty"). The Initial Forward, which is governed by the provisions of an ISDA Master Agreement (including schedules thereto and transaction confirmations that supplement such agreement) entered into between the Company and the Hedge Counterparty, enable the Company to convert a portion of its euro denominated payment obligations under the proposed DPLTA into U.S. Dollars. Under the Initial Forward, the Company agreed to exchange an aggregate notional amount of €160.0 million for U.S. dollars at a daily fixed forward rate ranging from \$1.0141 to \$1.0305. The aggregate amount of €160.0 million is divided into eight quarterly tranches of €20.0 million, which commenced in the fourth quarter of 2022. During the twelve months ended December 31, 2023, the Company settled four €20.0 million forward contract tranches and the remaining amount will be divided into four quarterly tranches of €20.0 million over the course of 2024. The Company, at its sole discretion, may exchange all or part of each tranche on any given day within the applicable quarter; provided, however, that it must exchange the full tranche by the end of such quarter. The Initial Forward may be accelerated or terminated early for a number of reasons, including but not limited to (i) non-payment by the Company or the Hedge Counterparty, (ii) breach of representation or warranty or covenant by either party or (iii) insolvency or bankruptcy of either party.

On March 21, 2023, the Company entered into a euro/U.S. dollar forward contract arrangement (the "Forward") with the Hedge Counterparty. Under the Forward, which is governed by the provisions of an ISDA Master Agreement (including schedules thereto and transaction confirmations that supplement such agreement) entered into between the Company and the Hedge Counterparty, the Company will exchange an aggregate notional amount of €160.0 million U.S. dollars for euros at a daily fixed forward rate ranging from \$1.0882 to \$1.0955 per €1.00. During the twelve months ended December 31, 2023, the Company settled four \$20.0 million forward contract tranches and the remaining amount will be divided into four quarterly tranches of \$20.0 million. These forward contracts were executed on March 21, 2023 (to sell EUR/buy USD) and were entered into for the purpose of unwinding the Initial Forward (to buy EUR/sell USD). The drawdown dates of the Initial Forward are set to the same date as the maturity of the new offsetting Forward.

For further information about the fair value of our investments as of December 31, 2023, *see Note 5 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report.*

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The following consolidated financial statements are contained in this report.

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of ADTRAN Holdings, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of ADTRAN Holdings, Inc. and its subsidiaries (the “Company”) as of December 31, 2023 and 2022, and the related consolidated statements of loss, of comprehensive (loss) income, of changes in equity and of cash flows for each of the three years in the period ended December 31, 2023, including the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO because material weaknesses in internal control over financial reporting existed as of that date related to the Company not (i) designing and maintaining effective controls in response to the risks of material misstatement; (ii) designing and maintaining effective controls over financial statement preparation, presentation and disclosure commensurate with its financial reporting requirements; and (iii) designing and maintaining effective controls to address the initial application of complex accounting standards and accounting of non-routine, unusual or complex events and transactions.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. The material weaknesses referred to above are described in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. We considered these material weaknesses in determining the nature, timing, and extent of audit tests applied in our audit of the 2023 consolidated financial statements, and our opinion regarding the effectiveness of the Company's internal control over financial reporting does not affect our opinion on those consolidated financial statements.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in management's report referred to above. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in

accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Interim Goodwill Impairment Assessments – Network Solutions and Services & Support Reporting Units

As described in Notes 1 and 9 to the consolidated financial statements, the Company's goodwill balance was \$353.4 million as of December 31, 2023, and the goodwill associated with the Network Solutions and Services & Support reporting units was \$297.0 million and \$56.4 million, respectively. Goodwill is tested by management for impairment at the reporting unit level annually as of October 1, or if an event occurs or circumstances change that would more likely than not reduce the fair value of the Company's reporting unit below its carrying amount. During the third quarter of 2023, the Company's market capitalization and long-term projections decreased and triggered a reassessment of the estimated future undiscounted cash flows within the Company's two identified reporting units as of September 30, 2023. Management determined the fair value of each reporting unit using a combination of an income approach and a market based peer group analysis. Management's determination of the fair value of the Company's reporting units, based on future cash flows for the reporting units, requires significant judgment and the use of estimates and assumptions related to cash flow projections, discount rate, peer group determination and market multiple selection. As disclosed by management, as a result of the interim assessment, the Company recognized a non-cash goodwill impairment charge of \$37.9 million for the Services & Support reporting unit.

The principal considerations for our determination that performing procedures relating to the interim goodwill impairment assessments of the Network Solutions and Services & Support reporting units is a critical audit matter are (i) the significant judgment by management when developing the fair value estimates of the Network Solutions and Services & Support reporting units; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions related to cash flow projections, discount rate, peer group determination and market multiples selection; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's goodwill impairment assessments, including controls over the valuation of the Network Solutions and Services & Support reporting units. These procedures also included, among others (i) testing management's process for developing the fair value estimates of the Network Solutions and Services & Support reporting units; (ii) evaluating the appropriateness of the income approach and the market based peer group analyses used by management; (iii) testing the completeness and accuracy of underlying data used by management in the income approach and market based peer group analyses; and (iv) evaluating the reasonableness of the significant assumptions used by management related to cash flow projections, discount rate, peer group determination and market multiples selection. Evaluating management's assumption related to cash flow projections involved evaluating whether the assumption used by management was reasonable considering (i) the current and past performance of the Network Solutions and Services & Support reporting units; (ii) the consistency with external market and industry data; and (iii) whether the assumption was consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in evaluating (i) the appropriateness of the income approach and market based peer group analyses and (ii) the reasonableness of the assumptions related to the discount rate, peer group determination and market multiples selection.

/s/ PricewaterhouseCoopers LLP

Birmingham, Alabama

March 15, 2024

We have served as the Company's auditor since 1986.

Financial Statements
ADTRAN Holdings, Inc.
Consolidated Balance Sheets
(In thousands, except share and per share amount)
December 31, 2023 and 2022

ASSETS	2023	2022
Current Assets		
Cash and cash equivalents	\$ 87,167	\$ 108,644
Short-term investments (includes \$0 and \$340 of available-for-sale securities as of December 31, 2023 and 2022, respectively, reported at fair value)	—	340
Accounts receivable, less allowance for credit losses of \$400 and \$49 as of December 31, 2023 and 2022, respectively	216,445	279,435
Other receivables	17,450	32,831
Income tax receivable	7,933	—
Inventory, net	362,295	427,531
Prepaid expenses and other current assets	45,566	33,577
Total Current Assets	736,856	882,358
Property, plant and equipment, net	123,020	110,699
Deferred tax assets, net	25,787	67,839
Goodwill	353,415	381,724
Intangibles, net	327,985	401,211
Other non-current assets	87,706	66,998
Long-term investments (includes \$0 and \$8,913 of available-for-sale securities as of December 31, 2023 and 2022, respectively, reported at fair value)	27,743	32,665
Total Assets	\$ 1,682,512	\$ 1,943,494
LIABILITIES AND EQUITY		
Current Liabilities		
Accounts payable	\$ 162,922	\$ 237,699
Revolving credit agreement outstanding	—	35,936
Notes payable	—	24,598
Unearned revenue	46,731	41,193
Accrued expenses and other liabilities	37,607	35,235
Accrued wages and benefits	27,030	44,882
Income tax payable	5,221	9,032
Total Current Liabilities	279,511	428,575
Non-current revolving credit agreement outstanding	195,000	60,000
Deferred tax liabilities	35,655	61,629
Non-current unearned revenue	25,109	19,239
Non-current pension liability	12,543	10,624
Deferred compensation liability	29,039	26,668
Non-current lease obligations	31,420	22,807
Other non-current liabilities	28,657	10,339
Total Liabilities	636,934	639,881
Commitments and contingencies (see Note 20)		
Redeemable Non-Controlling Interest	451,756	—
Equity		
Common stock, par value \$0.01 per share; 200,000 shares authorized; 78,970 shares issued and 78,674 outstanding as of December 31, 2023 and 78,088 shares issued and 77,889 shares outstanding as of December 31, 2022	790	781
Additional paid-in capital	795,304	895,834
Accumulated other comprehensive income	47,461	26,126
Retained (deficit) earnings	(243,908)	55,338
Less treasury stock at cost: 297 and 198 shares as of December 31, 2023 and 2022, respectively	(5,825)	(4,125)
Non-controlling interest	—	329,659
Total Equity	593,822	1,303,613
Total Liabilities and Equity	\$ 1,682,512	\$ 1,943,494

See accompanying notes to consolidated financial statements.



ADTRAN Holdings, Inc.
Consolidated Statements of Loss
(In thousands, except per share amounts)
Years ended December 31, 2023, 2022 and 2021

	2023	2022	2021
Revenue			
Network Solutions	\$ 974,389	\$ 916,793	\$ 498,834
Services & Support	174,711	108,743	64,170
Total Revenue	1,149,100	1,025,536	563,004
Cost of Revenue			
Network Solutions	722,582	647,105	307,841
Network Solutions - Inventory Write Down	24,313	—	—
Services & Support	69,142	51,179	36,786
Total Cost of Revenue	816,037	698,284	344,627
Gross Profit	333,063	327,252	218,377
Selling, general and administrative expenses	258,149	208,889	124,414
Research and development expenses	258,311	173,757	108,663
Asset impairment	—	17,433	—
Goodwill impairment	37,874	—	—
Operating Loss	(221,271)	(72,827)	(14,700)
Interest and dividend income	2,340	2,123	2,844
Interest expense	(16,299)	(3,437)	(34)
Net investment gain (loss)	2,754	(11,339)	1,761
Other income, net	1,266	14,517	3,824
Loss Before Income Taxes	(231,210)	(70,963)	(6,305)
Income tax (expense) benefit	(28,133)	62,075	(2,330)
Net Loss	\$ (259,343)	\$ (8,888)	\$ (8,635)
Net Income (Loss) attributable to non-controlling interest ⁽¹⁾	8,345	(6,851)	—
Net Loss attributable to ADTRAN Holdings, Inc.	\$ (267,688)	\$ (2,037)	\$ (8,635)
Weighted average shares outstanding – basic	78,416	62,346	48,582
Weighted average shares outstanding – diluted	78,416	62,346	48,582
Loss per common share attributable to ADTRAN Holdings, Inc. – basic	\$ (3.41)	\$ (0.03)	\$ (0.18)
Loss per common share attributable to ADTRAN Holdings, Inc. – diluted	\$ (3.41)	\$ (0.03)	\$ (0.18)

(1) For the year ended December 31, 2023, we have recognized \$11.5 million, representing the recurring cash compensation earned by non-controlling interest shareholders post-DPLTA partially offset by a \$3.2 million net loss attributable to non-controlling interests pre-DPLTA for the year ended December 31, 2023.

See accompanying notes to consolidated financial statements.

ADTRAN Holdings, Inc.
Consolidated Statements of Comprehensive (Loss) Income
(In thousands)
Years ended December 31, 2023, 2022 and 2021

	<i>2023</i>	<i>2022</i>	<i>2021</i>
Net Loss	\$ (259,343)	\$ (8,888)	\$ (8,635)
Other Comprehensive Income (Loss), net of tax			
Net unrealized gain (loss) on available-for-sale securities	454	(284)	(584)
Defined benefit plan adjustments	(1,490)	4,597	4,008
Foreign currency translation gain (loss)	22,753	53,396	(3,699)
Other Comprehensive Income (Loss), net of tax	21,717	57,709	(275)
Comprehensive (Loss) Income, net of tax	(237,626)	48,821	(8,910)
Less: Comprehensive Income attributable to non-controlling interest	8,727	12,818	—
Comprehensive (Loss) Income attributable to ADTRAN Holdings, Inc., net of tax	\$ (246,353)	\$ 36,003	\$ (8,910)

See accompanying notes to consolidated financial statements.

ADTRAN Holdings, Inc.
Consolidated Statements of Changes in Equity
(In thousands, except per share and share amounts)
Years ended December 31, 2023, 2022 and 2021

	Common Shares	Common Stock	Additional Paid-In Capital	Retained Earnings (Deficit)	Treasury Stock	Accumulat ed Other Comprehe nsive Income (Loss)	Non- controlling interest	Total Equity
Balance as of December 31, 2020	79,652	\$ 797	\$ 281,466	\$ 781,813	\$ (679,493)	\$ (11,639)	\$ —	\$ 372,944
Net loss	—	—	—	(8,635)	—	—	—	(8,635)
Other comprehensive loss, net of tax	—	—	—	—	—	(275)	—	(275)
Dividend payments (\$0.09 per share)	—	—	—	(17,529)	—	—	—	(17,529)
Non-cash dividend payments (\$0.09 per share)	—	—	—	(5)	5	—	—	—
Dividends accrued on unvested restricted stock units	—	—	—	(320)	—	—	—	(320)
Deferred compensation adjustments, net of tax	—	—	—	—	(1,248)	—	—	(1,248)
Stock options exercised	—	—	—	(1,842)	8,274	—	—	6,432
PSUs, RSUs and restricted stock vested	—	—	—	(12,662)	10,915	—	—	(1,747)
Stock-based compensation expense	—	—	7,480	—	—	—	—	7,480
Balance as of December 31, 2021	79,652	797	288,946	740,820	(661,547)	(11,914)	—	357,102
Net loss	—	—	—	(2,037)	—	—	(6,851)	(8,888)
Acquisition of Adtran Networks	27,995	280	577,980	—	—	—	316,415	894,675
Retirement of treasury stock	(30,330)	(303)	—	(655,761)	656,064	—	—	—
Other comprehensive income, net of tax	—	—	—	—	—	38,040	19,669	57,709
Dividend payments (\$0.09 per share)	—	—	—	(22,885)	—	—	—	(22,885)
Dividends accrued on unvested restricted stock units	—	—	—	353	—	—	—	353
Deferred compensation adjustments, net of tax	—	—	—	—	(71)	—	—	(71)
ADTRAN RSUs and restricted stock vested	372	4	—	(10,482)	631	—	—	(9,847)
ADTRAN stock options exercised	399	3	—	5,330	798	—	—	6,131
ADTRAN stock-based compensation expense	—	—	26,141	—	—	—	—	26,141
Reclassification of Adtran Networks stock options	—	—	187	—	—	—	99	286
Adtran Networks stock options exercised	—	—	472	—	—	—	254	726
Adtran Networks stock-based compensation expense	—	—	2,108	—	—	—	73	2,181
Balance as of December 31, 2022	78,088	781	895,834	55,338	(4,125)	26,126	329,659	1,303,613
Net loss	—	—	—	(256,164)	—	—	(3,179)	(259,343)
Reclassification and remeasurement from equity to mezzanine equity for non-controlling interests in Adtran Networks	—	—	(116,895)	—	—	—	(326,862)	(443,757)
Other comprehensive income, net of tax	—	—	—	—	—	21,335	382	21,717
Dividend payments (\$0.09 per share)	—	—	—	(21,237)	—	—	—	(21,237)
Dividends accrued on unvested restricted stock units	—	—	—	8	—	—	—	8
Deferred compensation adjustments, net of tax	—	—	—	(145)	(1,700)	—	—	(1,845)
ADTRAN RSUs and restricted stock vested	859	9	—	(1,115)	—	—	—	(1,106)
ADTRAN stock options exercised	23	—	—	164	—	—	—	164
ADTRAN stock-based compensation expense	—	—	16,016	—	—	—	—	16,016
Redemption of redeemable non-controlling interest	—	—	—	371	—	—	—	371
Foreign currency remeasurement of redeemable non-controlling interest	—	—	—	(9,604)	—	—	—	(9,604)
Annual recurring compensation earned	—	—	—	(11,524)	—	—	—	(11,524)
Adtran Networks stock options exercised	—	—	323	—	—	—	—	323
Adtran Networks stock-based compensation expense	—	—	26	—	—	—	—	26
Balance as of December 31, 2023	78,970	\$ 790	\$ 795,304	\$ (243,908)	\$ (5,825)	\$ 47,461	\$ —	\$ 593,822

See accompanying notes to consolidated financial statements.

ADTRAN Holdings, Inc.
Consolidated Statements of Cash Flows
(In thousands)
Years ended December 31, 2023, 2022 and 2021

	2023	2022	2021
Cash flows from operating activities:			
Net Loss	\$ (259,343)	\$ (8,888)	\$ (8,635)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:			
Depreciation and amortization	112,949	67,553	16,084
Asset impairment	—	17,433	—
Goodwill impairment	37,874	—	—
Amortization of debt issuance cost	862	288	—
(Accretion) amortization on available-for-sale investments, net	(22)	19	108
(Gain) loss on investments	(2,900)	9,826	(5,127)
Net loss on disposal of property, plant and equipment	458	152	4
Stock-based compensation expense	16,016	28,322	7,480
Deferred income taxes	15,558	(62,388)	(1,784)
Inventory write down	24,313	—	—
Inventory reserves	25,546	(2,363)	(5,029)
Other, net	(2,942)	—	—
Change in operating assets and liabilities:			
Accounts receivable, net	65,612	788	(60,864)
Other receivables	10,315	(20,088)	9,752
Income taxes receivable	(2,637)	—	—
Inventory	20,537	(73,237)	(10,638)
Prepaid expenses, other current assets and other assets	(29,883)	(7,116)	(7,146)
Accounts payable	(91,907)	28,105	53,270
Accrued expenses and other liabilities	17,929	(20,483)	10,063
Income taxes payable	(3,939)	(2,151)	5,470
Net cash (used in) provided by operating activities	(45,604)	(44,228)	3,008
Cash flows from investing activities:			
Purchases of property, plant and equipment	(43,121)	(17,072)	(5,669)
Proceeds from sales and maturities of available-for-sale investments	10,567	51,661	50,466
Purchases of available-for-sale investments	(868)	(23,899)	(35,031)
Proceeds from beneficial interests in securitized accounts receivable	1,218	1,126	—
Proceeds from disposals of property, plant and equipment	—	12	—
Insurance proceeds received	—	—	500
Acquisition of business, net of cash acquired	—	44,003	—
Net cash (used in) provided by investing activities	(32,204)	55,831	10,266
Cash flows from financing activities:			
Tax withholdings related to stock-based compensation settlements	(6,458)	(4,253)	(1,860)
Proceeds from stock option exercises	540	6,904	6,431
Dividend payments	(21,237)	(22,885)	(17,529)
Proceeds from receivables purchase agreement	14,099	—	—
Proceeds from draw on revolving credit agreements	163,733	141,887	10,000
Repayment of revolving credit agreements	(64,987)	(48,000)	(10,000)
Redemption of redeemable non-controlling interest	(1,224)	—	—
Payment of debt issuance cost	(708)	(3,015)	—
Repayment of notes payable	(24,891)	(17,702)	—
Net cash provided by (used in) financing activities	58,867	52,936	(12,958)
Net (decrease) increase in cash and cash equivalents	(18,941)	64,539	316
Effect of exchange rate changes	(2,536)	(12,713)	(3,677)
Cash, cash equivalents and restricted cash, beginning of year	108,644	56,818	60,179
Cash, cash equivalents and restricted cash, end of year	\$ 87,167	\$ 108,644	\$ 56,818
Supplemental disclosure of cash financing activities			
Cash paid for interest	\$ 12,596	\$ 1,728	\$ 13
Cash paid for income taxes	\$ 18,552	\$ 3,832	\$ 1,780
Cash used in operating activities related to operating leases	\$ 9,682	\$ 5,229	\$ 1,892
Supplemental disclosure of non-cash investing activities			
Right-of-use assets obtained in exchange for lease obligations	\$ 17,865	\$ 3,410	\$ 1,875
Purchases of property, plant and equipment included in accounts payable	\$ 1,298	\$ 1,165	\$ 638
Adtran Networks common shares exchanged in acquisition	\$ —	\$ 565,491	\$ —
Adtran Networks options assumed in acquisition	\$ —	\$ 12,769	\$ —
Non-controlling interest related to Adtran Networks	\$ —	\$ 316,415	\$ —

See accompanying notes to consolidated financial statements.

Notes to Consolidated Financial Statements

Note 1 – Nature of Business

ADTRAN Holdings, Inc. (“ADTRAN” or the “Company”) is a leading global provider of networking and communications platforms, software, systems and services focused on the broadband access market, serving a diverse domestic and international customer base in multiple countries that includes large, medium and small Service Providers; alternative Service Providers, such as utilities, municipalities and fiber overbuilders; cable/MSOs; SMBs and distributed enterprises. Our innovative solutions and services enable voice, data, video and internet-communications across a variety of network infrastructures and are currently in use by millions worldwide. We support our customers through our direct global sales organization and our distribution networks. Our success depends upon our ability to increase unit volume and market share through the introduction of new products and succeeding generations of products having optimal selling prices and increased functionality as compared to both the prior generation of a product and to the products of competitors in order to gain market share. To service our customers and grow revenue, we are continually conducting research and developing new products addressing customer needs and testing those products for the specific requirements of the particular customers. We offer a broad portfolio of flexible software and hardware network solutions and services that enable Service Providers to meet today’s service demands, while enabling them to transition to the fully converged, scalable, highly-automated, cloud-controlled voice, data, internet and video network of the future. In addition to our global headquarters in Huntsville, Alabama, and our European headquarters in Munich, Germany, we have sales and research and development facilities in strategic global locations.

The Company solely owns ADTRAN, Inc. and is the majority shareholder of Adtran Networks (formerly ADVA Optical Networking SE). ADTRAN, Inc. is a leading global provider of open, disaggregated networking and communications solutions. Adtran Networks is a global provider of network solutions for data, storage, voice and video services. We believe that the combined technology portfolio can best address current and future customer needs for high-speed connectivity from the network core to the end consumer and in particular upon the convergence of solutions at the network edge.

Liquidity, Domination and Profit and Loss Transfer Agreement and Credit Facility

The DPLTA between the Company, as the controlling company, and Adtran Networks SE (“Adtran Networks”), as the controlled company, as executed on December 1, 2022, became effective on January 16, 2023, as a result of its registration with the commercial register (*Handelsregister*) of the local court (*Amtsgericht*) at the registered seat of Adtran Networks (Jena).

Under the DPLTA, subject to certain limitations pursuant to applicable law and the specific terms of the DPLTA, (i) the Company is entitled to issue binding instructions to the management board of Adtran Networks, (ii) Adtran Networks will transfer its annual profit to the Company, subject to, among other things, the creation or dissolution of certain reserves, and (iii) the Company will generally absorb the annual net loss incurred by Adtran Networks. The obligation of the Company to absorb Adtran Networks’ annual net loss applied for the first time to the loss generated in 2023.

Pursuant to the terms of the DPLTA, each Adtran Networks shareholder (other than the Company) has received an offer to elect either (1) to remain an Adtran Networks shareholder and receive from us an Annual Recurring Compensation payment, or (2) to receive Exit Compensation plus guaranteed interest. The guaranteed interest under the Exit Compensation is calculated from the effective date of the DPLTA to the date the shares are tendered, less any Annual Recurring Compensation paid. The guaranteed interest rate is 5.0% plus a variable component (according to the German Civil Code) that was 3.12% as of December 31, 2023. Assuming all the minority holders of currently outstanding Adtran Networks shares were to elect the second option, we would be obligated to make aggregate Exit Compensation payments, including guaranteed interest, of approximately €310.3 million or approximately \$342.5 million, based on an exchange rate as of December 31, 2023 and reflecting interest accrued through December 31, 2023 during the pendency of the appraisal proceedings discussed below. Shareholders electing the first option of Annual Recurring Compensation may later elect the second option. The opportunity for outside Adtran Networks shareholders to tender Adtran Networks shares in exchange for Exit Compensation had been scheduled to expire on March 16, 2023. However, due to the appraisal proceedings that have been initiated in accordance with applicable German law, this time period for tendering shares has been extended pursuant to the German Stock Corporation Act (*Aktiengesetz*) and will end two months after the date on which a final decision in such appraisal proceedings has been published in the Federal Gazette (*Bundesanzeiger*).

We are also obligated to absorb any annual net loss of Adtran Networks under the DPLTA. Additionally, our obligation to pay Annual Recurring Compensation under the DPLTA is a continuing payment obligation, which will amount to approximately €10.6 million or \$11.7 million (based on the current exchange rate) per year assuming none of the minority Adtran Networks shareholders were to elect Exit Compensation. The foregoing amounts do not reflect any potential increase in payment obligations that we may have depending on the outcome of ongoing appraisal proceedings in Germany. During the year ended December 31, 2023, we accrued \$11.5 million in Annual Recurring Compensation, which was reflected as an increase to retained deficit. With respect to the year ended December 31,

2023, we will be obligated to pay \$11.5 million in Annual Recurring Compensation on the third banking day following the 2024 ordinary general shareholders' meeting of Adtran Networks (but in any event within eight months following December 31, 2023).

On October 18, 2022, the Company's Board of Directors authorized the Company to purchase additional shares of Adtran Networks through open market purchases not to exceed 15,346,544 shares. For the year ended December 31, 2023, 67 thousand shares, respectively, of Adtran Networks stock was tendered to the Company and Exit Compensation payments of approximately €1.2 million or approximately \$1.3 million based on an exchange rate as of December 31, 2023, were paid to Adtran Networks shareholders.

On July 18, 2022, ADTRAN, Inc., as the borrower, and ADTRAN Holdings, Inc. entered into a credit agreement with a syndicate of banks, including Wells Fargo Bank, National Association, as administrative agent ("Administrative Agent"), and the other lenders named therein (the "Credit Agreement"), which has since been amended three times. Pursuant to the terms of the Credit Agreement, as amended, the Company, ADTRAN, Inc., and the subsidiary guarantors (together, the "Credit Parties") are subject to a liquidity covenant, which provides that, during the fourth quarter of 2023 through and including the third quarter of 2024 (the "Covenant Relief Period") or a Springing Covenant Period (i.e., the period beginning upon the purchase by the Company of at least 60% of the outstanding shares of Adtran Networks not owned by the Company as of August 9, 2023 and the three consecutive quarterly test periods after such date), as of the last day of any fiscal quarter, the cash and cash equivalents of the Credit Parties must be at least \$50.0 million and the cash and cash equivalents of the Company and its subsidiaries must be at least \$75.0 million, limiting our ability to pay the obligations under the DPLTA. The Company had access to \$202.7 million on its Credit Facility for future borrowings; however, as of December 31, 2023, the Company was limited to additional borrowings of \$38.8 million based on debt covenant compliance metrics. *See Note 12, Revolving Credit Agreements, and Note 24, Subsequent Events, for additional information regarding the terms of the Wells Fargo Credit Agreement and its amendments.*

As of December 31, 2023, and as of the date of issuance of these financial statements, the Company does not have sufficient liquidity to meet payment obligations under the DPLTA pertaining to Exit Compensation. For the year ended December 31, 2023, 67 thousand shares of Adtran Networks stock were tendered to the Company and Exit Compensation payments of approximately €1.2 million or approximately \$1.3 million based on an exchange rate of December 31, 2023, were paid to Adtran Networks shareholders. We believe the probability that more than a small minority of Adtran Networks shareholders elect to receive Exit Compensation in the next twelve months is remote based on the diverse base of shareholders that must make this election on an individual shareholder basis, the current ongoing appraisal proceedings involving a dispute on the value of the Exit Compensation which is expected to take 24-32 months to resolve, the current guaranteed Annual Recurring Compensation payment plus the interest earned on such shares during the ongoing appraisal proceedings, and the current trading value of Adtran Networks shares.

The Company experienced revenue declines in 2023. To the extent that the Company is further impacted by the uncertain macroeconomic environment related to continued elevated interest rates and ongoing inflationary pressures, the Company has established plans to preserve cash liquidity and maintain compliance with the Company's covenants. The Company has suspended dividend payments and is continuing to implement a business efficiency program, which includes, but is not limited to, our ongoing integration program, planned reductions in operating expenses and a site consolidation plan. In connection with the site consolidation plan, the Company is also exploring a potential sale of portions of our headquarters in Huntsville. There can be no assurance that the Company will be successful in effecting this action on commercially reasonable terms or at all. We may need to further reduce capital expenditures and/or take other steps to preserve working capital in order to ensure that we can meet our needs and obligations and maintain compliance with our debt covenants.

In summary, the Company believes that its cash and cash equivalents, investments, working capital management initiatives and availability to access cash under the Wells Fargo credit facility, including (i) the additional funding provided for under the First Amendment to the Wells Fargo Credit Facility that was signed on August 9, 2023, (ii) the additional covenant headroom during the Covenant Relief Period provided for under the Second Amendment to Wells Fargo Credit Facility, and (iii) the exclusion of the Factoring Agreement as debt for purposes of the Credit Facility's financial covenants as provided for under the Third Amendment to Wells Fargo Credit Facility will be adequate to meet our business operating requirements, our capital expenditures and our expected obligations under the DPLTA, including anticipated levels of Exit Compensation and continue to comply with our debt covenants under the Credit Facility for at least the next twelve months, from the issuance of these financial statements. *See Note 12, Revolving Credit Agreements, for additional information regarding the terms of the First Amendment of the Wells Fargo Credit agreement and Note 24, Subsequent Events, for additional information regarding the terms of the Second and Third Amendments of the Wells Fargo Credit Agreement.*

Principles of Consolidation

The accompanying Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the U.S. ("U.S. GAAP") and include the financial position, results of operations, comprehensive (loss) income, changes in equity and cash flows of ADTRAN and its wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expense during the reporting period. Significant estimates include allowance for credit losses on accounts receivable and contract assets, excess and obsolete inventory reserves, warranty reserves, customer rebates, estimated income tax provision and income tax contingencies, fair value of stock-based compensation, assessment of goodwill and other intangibles for impairment, estimated lives of intangible assets, estimates of intangible assets upon measurement, estimated pension liability and fair value of investments and estimated contingent liabilities. Actual amounts could differ significantly from these estimates.

We assessed certain accounting matters that generally require consideration of forecasted financial information in context with the information reasonably available to us and the unknown future impacts inflationary pressures, the energy crisis, currency fluctuations and political tensions as of December 31, 2023, and through the date of this report. The accounting matters assessed included, but were not limited to, the allowance for credit losses, stock-based compensation, carrying value of goodwill, intangibles and other long-lived assets, financial assets, valuation allowances for tax assets, revenue recognition and costs of revenue. Future conditions related to ongoing inflationary pressures, the energy crisis, continued elevated interest rates, instability in the financial services industry, currency fluctuations and political tensions could result in further impacts to the Company's consolidated financial statements in future reporting periods.

Revision of Previously Issued Financial Statements

During the fourth quarter of 2023, the Company identified an immaterial error relating to the understatement of non-controlling interest and the overstatement of accumulated other comprehensive income in the Consolidated Balance Sheet as of December 31, 2022. The immaterial misstatements occurred following the Business Combination between the Company and the Company's majority-owned subsidiary, Adtran Networks on July 15, 2022. The Company incorrectly presented the allocation of foreign currency translation loss attributable to the non-controlling interest as well as loss attributable to non-controlling interest in calculating the comprehensive income attributable to ADTRAN Holdings, Inc., net of tax for the year ended December 31, 2022. Management evaluated the impact of this error on the Company's full year 2022 consolidated financial statements and determined that the consolidated financial statements were not materially misstated. However, in order to correctly state non-controlling interest and accumulated other comprehensive income (loss) attributable to non-controlling interest and ADTRAN Holdings, Inc. in connection with the filing of this Form 10-K, the December 31, 2022 the balance sheet items and comprehensive loss for the year ended December 31, 2022 have been corrected to reflect the impact of this immaterial error. Accumulated Other Comprehensive Income (Loss) and Non-Controlling Interest were also adjusted within the Consolidated Statement of Changes in Equity to correct these errors.

The following table reflects the impact of the revision to the specific line items presented in the Company's previously reported Consolidated Balance Sheet and Consolidated Statement of Changes in Equity as of December 31, 2022:

<i>(In thousands)</i>	December 31, 2022		
	As Reported	Adjustment	As Revised
Accumulated Other Comprehensive Income (Loss)	\$ 46,713	\$ (20,587)	\$ 26,126
Non-Controlling Interest	\$ 309,072	\$ 20,587	\$ 329,659

The following table reflects the impact of the revision to the specific line items presented in the Company's previously reported Consolidated Statements of Comprehensive Loss for the year ended December 31, 2022:

<i>(In thousands)</i>	Year Ended December 31, 2022		
	As Reported	Adjustment	As Revised
Comprehensive (Loss) Income attributable to non-controlling interest	\$ (918)	\$ 13,736	\$ 12,818
Comprehensive Income attributable to ADTRAN Holdings, Inc., net of tax	\$ 49,739	\$ (13,736)	\$ 36,003

The accompanying applicable Notes have been updated to reflect the effects of the revision.

Summary of Significant Accounting Policies

Cash and Cash Equivalents

Cash and cash equivalents represent demand deposits, money market funds and short-term investments classified as available-for-sale with original maturities of three months or less. We maintain depository investments with certain financial institutions. As of December 31, 2023, \$83.2 million of our cash and cash equivalents, primarily certain domestic money market funds and foreign depository accounts, were in excess of government provided insured depository limits. Although these depository investments may exceed government insured depository limits, we have evaluated the credit worthiness of these applicable financial institutions and determined the risk of material financial loss due to the exposure of such credit risk to be minimal.

Fair Value of Financial Instruments

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Where available, fair value is based on observable market prices or parameters or derived from such prices or parameters. Where observable prices or inputs are not available, valuation models may be applied. Assets and liabilities recorded at fair value in our consolidated balance sheets are categorized based upon the level of judgment associated with the inputs used to measure their fair values.

The carrying amounts reported in the Consolidated Balance Sheets for cash and cash equivalents, accounts receivable and accounts payable approximate fair value due to the immediate or short-term maturity of these financial instruments.

The fair value measurements of our derivative instruments are determined using models that maximize the use of the observable market inputs including interest rate curves and both forward and spot prices for currencies, and are classified as Level II under the fair value hierarchy. The fair values of our derivatives are included in Note 11.

The estimated fair value of our notes payable, approximates the carrying value and is classified as Level II under the fair value hierarchy. The carrying value of our notes payable is included in Note 13.

Investments with contractual maturities beyond one year may be classified as short-term based on their highly liquid nature and because such marketable securities represent the investment of cash that is available for current operations. Despite the long-term nature of their stated contractual maturities, we routinely buy and sell these securities and we believe we have the ability to quickly sell them to the remarketing agent, tender agent or issuer at par value plus accrued interest in the event we decide to liquidate our investment in a particular variable rate demand note. All income generated from these investments is recorded as interest income. We have not recorded any losses relating to variable rate demand notes.

Long-term investments is comprised of our deferred compensation plan assets, corporate bonds, municipal fixed-rate bonds, asset-backed bonds, mortgage/agency-backed bonds, U.S. and foreign government bonds, marketable equity securities and other equity investments. Marketable equity securities are reported at fair value as determined by the most recently traded price of the securities at the balance sheet date, although the securities may not be readily marketable due to the size of the available market. Any changes in fair value are recognized in net investment gain (loss). Realized gains and losses on sales of debt securities are computed under the specific identification method and are included in other income, net. See Note 5 for additional information.

Accounts Receivable

We record accounts receivable at amortized cost. Prior to establishing payment terms for a new customer, we evaluate the credit risk of the customer. Credit limits and payment terms established for new customers are re-evaluated periodically based on customer collection experience and other financial factors. As of December 31, 2023, a single customer comprised more than 10% of our total accounts receivable balance, which accounted for 11.9% of our total accounts receivable. As of December 31, 2022, single customers comprising more than 10% of our total accounts receivable balance included three customers, which accounted for 33.1% of our total accounts receivable. As of December 31, 2022, these three customers individually accounted for 11.4%, 11.1% and 10.6%, respectively, of our total accounts receivable.

We regularly review the need for an allowance for credit losses related to our outstanding accounts receivable balances using the historical loss-rate method, as well as assessing asset-specific risks. The assessment of asset-specific risks included the evaluation of relevant available information, from internal and external sources, relating to current conditions that may affect a customer's ability to pay, such as the customer's current financial condition or credit rating by geographic location, as provided by a third party and/or by customer, if needed, and overall macro-economic conditions in which the customer operates. Based on this assessment, an allowance for credit losses would be recorded if the Company determined that, based on our historical write-offs, which have been immaterial, and such asset specific risks, there was risk in collectability of the full amount of any accounts receivable.

Accounts Receivable Factoring

New Accounts Receivable Factoring Agreement

On December 19, 2023, the Company entered into a new factoring agreement with a third-party financial institution to replace the Company's prior accounts receivable purchase agreement, to sell on a revolving basis, undivided interests in the Company's accounts receivable. The new factoring agreement qualifies for treatment as a secured borrowing with a pledge of collateral under Accounting Standards Codification ("ASC") Topic 810, *Consolidations*, as the Company is considered the primary beneficiary in a variable interest entity created to hold the factored receivables and the Company retains a residual claim on reserves related to the factored receivables. Within the Consolidated Balance Sheets, the receivables factored continue to be carried in accounts receivable, less allowance for credit losses, and the secured borrowings are carried as a current liability within accounts payable. The proceeds and repayments of secured borrowings are reflected as cash flows provided by (used in) financing activities within the Consolidated Statements of Cash Flows, and program fees are recorded as interest expense in the Consolidated Statements of Loss. The short-term liability classification of the

secured borrowings is based on the estimated timing of the collection of the accounts receivable which are expected to be received within 12 months. See Note 3 for additional information.

Previous Accounts Receivable Factoring Agreement

The Company had previously entered into a factoring agreement to sell certain receivables to an unrelated third-party financial institution on a non-recourse basis. These transactions were accounted for in accordance with ASC Topic 860 and resulted in a reduction in accounts receivable because the agreement transferred effective control over and risk related to the receivables to the buyers. Trade accounts receivables balances sold were removed from the Consolidated Balance Sheets and cash received was reflected as cash flows (used in) provided by operating activities in the Consolidated Statements of Cash Flow. Factoring related interest expense was recorded to interest expense on the Consolidated Statements of Loss. On each sale date, the financial institution retained from the sale price a default reserve, up to a required balance, which was held by the financial institution in a reserve account and pledged to the Company. The financial institution was entitled to withdraw from the reserve account the sale price of a defaulted receivable. The balance in the reserve account was included in other assets on the Consolidated Balance Sheets.

Inventory

Inventory is carried at the lower of cost and estimated net realizable value, with cost being determined using the first-in, first-out method. Standard costs for material, labor and manufacturing overhead are used to value inventory and are updated at least quarterly. We establish reserves for estimated excess and obsolete inventory equal to the difference between the cost of the inventory and the estimated net realizable value of the inventory based on estimated reserve percentages, which consider historical usage, known trends, inventory age and market conditions. When we dispose of excess and obsolete inventories, the related disposals are charged against the inventory reserve. See Note 6 for additional information.

Property, Plant and Equipment

Property, plant and equipment, which is stated at cost, is depreciated using the straight-line method over the estimated useful lives of the assets. We depreciate building and land improvements from five to 39 years, office machinery and equipment from three to seven years, engineering machinery and equipment from three to seven years, and computer software from three to five years. Expenditures for repairs and maintenance are charged to expense as incurred. Major improvements that materially prolong the lives of the assets are capitalized. Gains and losses on the disposal of property, plant and equipment are recorded in operating loss. See Note 7 for additional information.

Intangible Assets

Purchased intangible assets with finite lives are carried at cost less accumulated amortization. Amortization is recorded over the estimated useful lives of the respective assets. See Note 10 for additional information.

Impairment of Long-Lived Assets and Intangibles

The Company's annual impairment assessment is done at the reporting unit level whenever events or changes in circumstances indicate that the carrying amount of assets within a reporting unit may not be recoverable and the undiscounted cash flows estimated to be generated by the assets are less than the reporting units carrying value. The identification of our reporting units begins at the operating segment level and considers whether components one level below the operating segment levels should be identified as reporting units for the purpose of testing assets for impairment. For impairment testing purposes, we determined the Company's reporting units are generally the same as its operating segments, which are identified in Note 18 to the Consolidated Financial Statements. Our general policy is to qualitatively assess the carrying value of assets in our reporting units each reporting period for events or changes in circumstances that would more likely than not reduce the fair value of the reporting unit below its carrying amount.

During the fourth quarter of 2023, the Company qualitatively assessed the carrying value of each reporting unit for events or circumstance changes that would more likely than not reduce the fair value of the reporting unit below its carrying amount. actors and overall financial performance, management concluded that the fair value of the reporting unit was more likely than not greater than its carrying amount as of December 31, 2023.

In connection with the planned integration of information technology following the Business Combination, we determined that certain projects no longer fit our needs. As a result the Company recognized impairment charges of \$17.4 million during the year ended December 31, 2022 primarily related to capitalized implementation costs for a cloud computing arrangement. The impairment charges were determined based on actual costs incurred.

There were no impairment losses for long-lived assets during the years ended December 31, 2023 and 2021, or for intangible assets recognized during the years ended December 31, 2023, 2022 or 2021.

Goodwill

Goodwill represents the excess purchase price over the fair value of net assets acquired. The Company's annual impairment assessment is done at the reporting unit level, which we determined are generally the same as our operating segments, which are identified in Note 18 to the Consolidated Financial Statements. We review goodwill for impairment annually during the fourth quarter and also test for impairment between annual tests if an event occurs or circumstances change that would more likely than not reduce the fair value of our reporting unit below its carrying amount. Such events and circumstances may include among others: a significant adverse change in legal factors or in the general business climate; significant decline in our stock price and market capitalization; unanticipated competition; the testing for recoverability of a significant asset group within the reporting unit; and an adverse action or assessment by a regulator. Any adverse change in these factors could have a significant impact on the recoverability of goodwill and could have a material impact on our consolidated financial statements.

Due to the Company's decreased market capitalization and long-term projections, a reassessment of our estimated future undiscounted cash flows within our two identified reporting units was triggered. Therefore an interim impairment test over goodwill was performed as of September 30, 2023. The Company determined the fair value of each reporting unit using a combination of an income approach and a market based peer group analysis. Management's determination of the fair value of our reporting units, based on future cash flows for the reporting units, requires significant judgment and the use of estimates and assumptions related to cash flow projections, discount rate, peer group determination and market multiple selection. It was determined that the decreases in projected future cash flows, discount rates, overall macroeconomic conditions, as well as the decrease in our market capitalization applied in the valuation, were required to align with market-based assumptions and company-specific risk, which resulted in lower fair values of the Services & Support reporting unit. As a result of the interim assessment, the Company recorded a goodwill impairment charge of \$37.9 million as its estimated fair value was less than its book value on that date.

The Company's annual impairment test date is October 1, 2023. The Company concluded that there was no goodwill impairment as of that date as there was no change in enterprise value from the September 30, 2023 testing date. Between the annual impairment date of October 1, 2023 and year-end December 31, 2023, there were no additional triggering events.

As a result of the Business Combination during 2022, the Company recognized \$350.5 million of goodwill. During the fourth quarter of 2022, we decided to proceed directly to the quantitative test of goodwill and forego the qualitative assessment. We estimated the fair value of our reporting units based on an income approach, whereby we calculated the fair value of a reporting unit based on the present value of estimated future cash flows. Our discounted cash flow analysis required us to make various judgmental assumptions about future sales, operating margins, growth rates and discount rates, which are based on our budgets, business plans, economic projections, anticipated future cash flows and market participants. We also estimated the fair value of our reporting units based on a peer group analysis, whereby companies in the telecommunications industry or with a comparable product and market structure are used to calculate a fair enterprise value using revenue, EBITDA and debt multiples of trading value. Based on our analysis, management concluded that there was no impairment of goodwill as of December 31, 2022.

No goodwill impairment charge was recorded in 2021 as a result of the Company's internal assessment.

Other Non-Current Assets

Implementation costs incurred for hosting arrangements that are related to service contracts are capitalized and amortized over the term of the arrangement. Capitalized implementation costs totaled \$0.3 million and \$6.2 million as of December 31, 2023 and 2022, respectively, and are included in other non-current assets on the Consolidated Balance Sheets. In connection with the planned integration of information technology following the Business Combination, we determined that certain projects no longer fit our needs. As a result the Company recognized impairment charges of \$16.9 million during the year ended December 31, 2022 primarily related to capitalized implementation costs for a cloud computing arrangement. The impairment charges were determined based on actual costs incurred. During the year ended December 31, 2023 and 2021, no impairment charges were recognized. We depreciate capitalized implementation costs over various lives. Amortization expense was \$5.9 million, \$3.9 million and \$1.0 million for the years ended December 31, 2023, 2022 and 2021, respectively, which is recorded almost entirely in selling, general and administrative expenses in the Consolidated Statements of Loss.

Liability for Warranty

Our products generally include warranties of 90 days to five years for product defects. We accrue for warranty returns at the time of product shipment based on our historical return rate and estimate of the cost to repair or replace the defective products. We engage in extensive product quality programs and processes, including actively monitoring and evaluating the quality of our component suppliers. The increasing complexity of our products will cause warranty incidences, when they arise, to be more costly. Our estimates regarding future warranty obligations may change due to product failure rates, material usage and other rework costs incurred in correcting a product failure. In addition, from time to time, specific warranty accruals may be recorded if unforeseen problems arise. Should our actual experience relative to these factors be worse than our estimates, we will be required to record additional warranty expense. Our liability for warranty returns totaled \$6.4 million and \$7.2 million as of December 31, 2023 and 2022, respectively.

Pension Benefit Plan Obligations

We maintain a defined benefit pension plan covering employees in certain foreign countries. Pension benefit plan obligations are based on various assumptions used by our actuaries in calculating these amounts. These assumptions include discount rates, compensation rate increases, expected return on plan assets, retirement rates and mortality rates. Actual results that differ from the assumptions and changes in assumptions could affect future expenses and obligations. Our net pension liability totaled \$12.7 million and \$10.6 million as of December 31, 2023 and 2022, respectively.

Lease Obligations

We have operating leases for office space, automobiles and various other equipment in the U.S. and in certain international locations. Other contracts, such as manufacturing agreements and service agreements, are reviewed to determine if they contain potential embedded leases. These other contracts are specifically reviewed to determine whether we have the right to substantially all of the economic benefit from the use of any specified assets or the right to direct the use of any specified assets, either of which would indicate the existence of a lease. Some of our leases include options to renew. For those leases that are reasonably assured to be renewed, we have included the option to extend as part of our right of use asset and lease liability. The exercise of lease renewal options is at our sole discretion. The depreciable life of leased assets and leasehold improvements are limited by the expected lease term. Leases with an initial term of 12 months or less are not recorded on the balance sheet and lease expense for these leases is recognized on a straight-line basis over the lease term. For lease agreements entered into or reassessed after the adoption of Topic 842, we elected to not separate lease and non-lease components. Our lease agreements do not contain any material residual value guarantees or material restrictive covenants.

Stock-Based Compensation

We have two stock incentive plans from which stock options, performance stock units (“PSUs”), restricted stock units (“RSUs”) and restricted stock are available for grant to employees and directors. Costs related to these awards are recognized over their vesting periods.

Stock-based compensation expense recognized for the years ended December 31, 2023, 2022 and 2021 was approximately \$16.0 million, \$28.3 million and \$7.5 million, respectively. See Note 4 for additional information.

Research and Development Costs

Research and development costs include compensation for engineers and support personnel, contracted services, depreciation and material costs associated with new product development, enhancement of current products and product cost reductions. We continually evaluate new product opportunities and engage in intensive research for product and software development efforts. Research and development costs totaled \$258.3 million, \$173.8 million and \$108.7 million for the years ended December 31, 2023, 2022 and 2021, respectively.

Adtran Networks has arrangements with governmental entities for the purposes of obtaining funding for research and development activities. The Company classifies government grants received under these arrangements as a reduction to research and development expense incurred. For the years ended December 31, 2023 and 2022, the Company recognized \$5.2 million and \$1.1 million, respectively as a reduction of research and development expense.

Income Taxes

The provision for income taxes has been determined using the asset and liability approach of accounting for income taxes. Under this approach, deferred taxes represent the future tax consequences expected to occur when the reported amounts of assets and liabilities are recovered or paid. The provision for income taxes represents income taxes paid or payable for the current year plus the change in deferred taxes during the year. Deferred taxes result from the difference between financial and tax basis of our assets and liabilities and are adjusted for changes in tax rates and tax laws when such changes are enacted. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized.

We establish reserves to remove some or all of the tax benefit of any of our tax positions at the time we determine that the positions become uncertain. We adjust these reserves, including any impact on the related interest and penalties, as facts and circumstances change.

Foreign Currency

Transactions with customers that are denominated in foreign currencies are recorded using the appropriate exchange rates from throughout the year. Assets and liabilities denominated in foreign currencies are remeasured at the balance sheet dates using the closing rates of exchange between those foreign currencies and the functional currency with any transaction gains or losses reported in other income, net. Our primary exposures to foreign currency exchange rate movements are with our German and United Kingdom subsidiaries, whose functional currencies are the Euro and the British pound sterling. Adjustments resulting from translating financial statements of international subsidiaries are recorded as a component of accumulated other comprehensive income.

Revenue

Revenue is measured based on the consideration expected to be received in exchange for transferring goods or providing services to a customer and as performance obligations under the terms of the contract are satisfied. Generally, this occurs with the transfer of control of a product to the customer. Review of contracts with customers, for both direct customers and distributors, are performed and assessment made regarding principal versus agent considerations to determine primary responsibility for delivery of performance obligation, presumed inventory risk, and discretion in establishing pricing, when applicable. For transactions where there are multiple performance obligations, individual products and services are accounted for separately if they are distinct (if a product or service is separately identifiable from other items and if a customer can benefit from it on its own or with other resources that are readily available to the customer). The consideration, including any discounts, is allocated between separate products and services based on their stand-alone selling prices. Stand-alone selling prices are determined based on the prices at which the separate products and services are sold and are allocated based on each item's relative value to the total value of the products and services in the arrangement. For items that are not sold separately, we estimate stand-alone selling prices primarily using the "expected cost plus a margin" approach. Payment terms are generally 30 days in the U.S. and typically longer in many geographic markets outside the U.S. Shipping fees are recorded as revenue and the related cost is included in cost of revenue. Revenue, value-added and other taxes collected concurrently with revenue-producing activities are excluded from revenue. Costs of obtaining a contract, if material, are capitalized and amortized over the period that the related revenue is recognized if greater than one year. We have elected to account for shipping fees as a cost of fulfilling the related contract. We have also elected to apply the practical expedient related to the incremental costs of obtaining contracts and recognize those costs as an expense when incurred if the amortization period of the assets is one year or less. These costs are included in selling, general and administrative expenses. Capitalized costs with an amortization period greater than one year were immaterial.

Revenue is generated by two reportable segments: Network Solutions and Services & Support.

Network Solutions Segment - Includes hardware products and software defined next-generation virtualized solutions used in Service Provider or business networks, as well as prior generation products. The majority of the revenue from this segment is from hardware revenue.

Hardware and Software Revenue

Revenue from hardware sales is recognized when control is transferred to the customer, which is generally when the products are shipped. Shipping terms are generally FOB shipping point. Revenue from software license sales is recognized at delivery and transfer of control to the customer. Revenue is recognized net of estimated discounts and rebates using historical trends. Customers are typically invoiced when control is transferred and revenue is recognized. Our products generally include assurance-based warranties of 90 days to five years for product defects, which are accrued at the time products are delivered.

Services & Support Segment - Includes a complete portfolio of maintenance, network implementation and solutions integration and managed services, which include hosted cloud services and subscription services to complement our Network Solutions segment.

Maintenance Revenue

Our maintenance service periods range from one month to five years. Customers are typically invoiced and pay for maintenance services at the beginning of the maintenance period. We recognize revenue for maintenance services on a straight-line basis over the maintenance period as our customers benefit evenly throughout the contract term and deferred revenue, when applicable, are recorded in current and non-current unearned revenue.

Network Implementation Revenue

We recognize revenue for network implementation, which primarily consists of engineering, execution and enablement services at a point in time when each performance obligation is complete. If we have recognized revenue but have not billed the customer, the right to consideration is recognized as a contract asset that is included in other receivables on the Consolidated Balance Sheet. The contract asset is transferred to accounts receivable when the completed performance obligation is invoiced to the customer.

See Notes 3 and 18 for additional information on reportable segments.

Unearned Revenue

Unearned revenue primarily represents customer billings on maintenance service programs and unearned revenue related to multiple element contracts where we still have contractual obligations to our customers. We currently offer maintenance contracts ranging from one month to five years. Revenue attributable to maintenance contracts is recognized on a straight-line basis over the related contract term. In addition, we provide software maintenance and a variety of hardware maintenance services to customers under contracts with terms up to ten years. When we defer revenue related to multiple performance obligations where we still have contractual obligations, we also defer the related costs. Current deferred costs are included in prepaid expenses and other current assets on the accompanying Consolidated Balance Sheets and totaled \$2.1 million and \$1.5 million as of December 31, 2023 and 2022, respectively. Non-current deferred costs included in other non-current assets on the accompanying Consolidated Balance Sheets were less than \$0.1 million as of December 31, 2023 and December 31, 2022.

Loss per Share

Loss per common share and loss per common share assuming dilution are based on the weighted average number of common shares and, when dilutive, common equivalent shares outstanding during the year. See Note 22 for additional information.

Business Combinations

The Company records assets acquired, liabilities assumed, contractual contingencies, when applicable, and intangible assets recognized as part of business combinations based on their fair values on the date of acquisition subject to purchase accounting adjustments. The excess of the purchase price over the estimated fair values of the net tangible and intangible assets and liabilities assumed or acquired is recorded as goodwill. If the estimated fair values of net tangible and intangible assets acquired and liabilities assumed exceed the purchase price, a bargain purchase gain is recorded. The Company's estimates of fair value are based on historical experience, industry knowledge, certain information obtained from the management of the acquired company and, in some cases, valuations performed by independent third-party firms. The results of operations of acquired companies are included in the accompanying Consolidated Statements of Loss since their dates of acquisition. Costs incurred to complete the Business Combination, such as legal, accounting or other professional fees are charged to selling, general and administrative expenses as incurred.

Redeemable Non-Controlling Interest

As of December 31, 2023 and 2022, the non-controlling Adtran Networks stockholders' equity ownership percentage in Adtran Networks was approximately 34.7% and 34.7%, respectively.

As a result of the effectiveness of the DPLTA on January 16, 2023, the Adtran Networks shares, representing the equity interest in Adtran Networks held by holders other than the Company, can be tendered at any time and are, therefore, redeemable and must be classified outside stockholders' equity. Therefore, the permanent equity noncontrolling interest balance was reclassified to redeemable non-controlling interest (RNCI) on January 16, 2023 and was remeasured to fair value based on the trading market price of the Adtran Networks shares.

Subsequently, the carrying value of the RNCI is adjusted to its maximum redemption value at each reporting date when the maximum redemption value is greater than the initial carrying amount of the RNCI. However, the RNCI will be remeasured using the current exchange rate at each reporting date as long as the RNCI is currently redeemable. For the period of time that the DPLTA is in effect, the RNCI will continue to be presented as RNCI outside of stockholders' equity in the Condensed Consolidated Balance Sheets. *See Note 17, Redeemable Non-Controlling Interest, for additional information on RNCI.*

Recent Accounting Pronouncements Not Yet Adopted

In December 2023, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2023-09, "Income Taxes (Topic 740): Improvements to Income Tax Disclosures", which is intended to enhance the transparency, decision usefulness and effectiveness of income tax disclosures. The amendments in this ASU require a public entity to disclose a tabular tax rate reconciliation, using both percentages and currency, with specific categories. A public entity is also required to provide a qualitative description of the states and local jurisdictions that make up the majority of the effect of the state and local income tax category and the net amount of income taxes paid, disaggregated by federal, state and foreign taxes and also disaggregated by individual jurisdictions. The amendments also remove certain disclosures that are no longer considered cost beneficial. The amendments are effective prospectively for annual periods beginning after December 15, 2024, and early adoption and retrospective application are permitted. The Company is currently evaluating the effect that adoption of ASU 2023-09 will have on our disclosures.

In November 2023, the FASB issued ASU 2023-7, "Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures", which is intended to improve reportable segment disclosure requirements, primarily through enhanced disclosures about significant segment expenses, allowing financial statement users to better understand the components of a segment's profit or loss to assess potential future cash flows for each reportable segment and the entity as a whole. The amendments expand a public entity's segment disclosures by requiring disclosure of significant segment expenses that are regularly provided to the chief operating decision maker ("CODM"), clarifying when an entity may report one or more additional measures to assess segment performance, requiring enhanced interim disclosures, providing new disclosure requirements for entities with a single reportable segment, and requiring other new disclosures. The amendments are effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, and early adoption is permitted. The Company expect to adopt the new disclosures as required for the year ended December 31, 2024. The Company is currently evaluating the impact on the related disclosures.

Recent Securities and Exchange Commission (SEC) Final Rules Not Yet Adopted

In March 2024, the SEC adopted final rules under SEC Release No. 33-11275, *The Enhancement and Standardization of Climate-Related Disclosures for Investors*, which requires registrants to provide certain climate-related information in their registration statements and annual reports. The rules require information about a registrant's climate-related risks that are reasonably likely to have a material impact on its business, results of operations, or financial condition. The required information about climate-related risks will also include disclosure of a registrant's greenhouse gas emissions. In addition, the rules will require registrants to present certain climate-related financial metrics in their audited financial statements. These requirements are effective for the Company in various fiscal years, starting with its fiscal year beginning January 1, 2025. Disclosures will be required prospectively, with information for prior periods required only to the extent it was previously disclosed in an SEC filing. The Company is currently evaluating the impact of these final rules on its consolidated financial statements and disclosures.

Recently Adopted Accounting Pronouncements

In October 2021, the FASB issued ASU 2021-08, "Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers", which would require an acquirer to recognize and measure acquired contract assets and contract liabilities in a manner consistent with how the acquiree recognized and measured them in its pre-acquisition financial statements in accordance with Topic 606, Revenue Recognition. The Company early adopted ASU 2021-08 on July 1, 2022 and the standard was applied retrospectively beginning with January 1, 2022.

Note 2 – Business Combination Agreement

There were no business combinations during the years ended December 31, 2023 and 2021.

Adtran Networks (formerly ADVA Optical Networking SE)

On August 30, 2021, ADTRAN, Inc. and Adtran Networks (then known as ADVA Optical Networking SE) entered into a Business Combination Agreement, pursuant to which both companies agreed to combine their respective businesses and each become subsidiaries of a new holding company, ADTRAN Holdings, Inc. (formerly known as Acorn HoldCo, Inc.), which was formed as a wholly-owned subsidiary of ADTRAN, Inc. in order to consummate the transactions under the Business Combination Agreement. Under the terms of the Business Combination Agreement, on July 8, 2022, Acorn MergeCo, Inc, a Delaware corporation and wholly-owned direct subsidiary of the Company, merged with and into ADTRAN, Inc., with ADTRAN, Inc. surviving the Business Combination as a wholly-owned direct subsidiary of the Company.

Additionally, pursuant to the Business Combination Agreement, on July 15, 2022, the Company made a public offer to exchange each issued and outstanding no-par value bearer share of Adtran Networks for 0.8244 shares of Company Common Stock, par value \$0.01 per share of the Company. The Exchange Offer was settled on July 15, 2022 (the "Exchange Offer Settlement Date"), on which date the Company acquired 33,957,538 bearer shares of Adtran Networks, or 65.43% of Adtran Networks' outstanding bearer shares as of the Exchange Offer Settlement Date, in exchange for the issuance of an aggregate of 27,994,595 shares of Company Common Stock. Additionally, pursuant to the Business Combination Agreement, Adtran Networks stock option holders were entitled to have their Adtran Networks stock options assumed by ADTRAN Holdings, Inc. (applying the exchange ratio in the Business Combination Agreement), thereafter representing options to acquire stock of ADTRAN, Holdings, Inc. The fair value of the Adtran Networks stock options assumed by ADTRAN Holdings, Inc. was \$12.8 million, estimated using the Monte Carlo method.

ADTRAN, Inc. and Adtran Networks became subsidiaries of ADTRAN Holdings, Inc. as a result of the Business Combination. ADTRAN, Inc. was determined to be the accounting acquirer of Adtran Networks based on ADTRAN, Inc. shareholders' majority equity stake in the combined company, the composition of the board of directors and senior management of the combined company, among other factors. The Business Combination with Adtran Networks has been accounted for using the acquisition method of accounting as per the provisions of Accounting Standards Codification 805, "Business Combinations" ("ASC 805"). The Business Combination Agreement used a fixed exchange ratio of Company Common Stock for Adtran Networks shares of common stock, which resulted in a 36.0% equity stake for Adtran Networks stockholders and a 64.0% equity stake for ADTRAN, Inc. stockholders in the post-closing combined company (calculated on a fully diluted basis and utilizing the tender of 65.43% of Adtran Networks' current issued and outstanding share capital) as of July 15, 2022. Therefore, ADTRAN, Inc. shareholders continued to hold a majority interest in the combined company following the completion of the Business Combination. Additionally, following the transaction, the Board of Directors was comprised of six members from ADTRAN, Inc. and three members from Adtran Networks; the ADTRAN, Inc. chief executive officer became and continues to act as the chairman of the Board of Directors and the former Adtran Networks chief executive officer became the vice chairman of the Board of Directors. Additionally, the ADTRAN, Inc. chief executive officer and ADTRAN, Inc. chief financial officer held these positions within the combined company immediately following the completion of the Business Combination. Based upon these and other considerations as outlined in ASC 805, ADTRAN, Inc. represented the accounting acquirer.

The following table summarizes the purchase price for the Adtran Networks business combination:

<i>(In thousands, except shares, share price and exchange ratio)</i>	Purchase Price
Adtran Networks shares exchanged	33,957,538
Exchange ratio	0.8244
ADTRAN Holdings, Inc. shares issued	27,994,595
ADTRAN Holdings, Inc. share price on July 15, 2022	\$ 20.20
Purchase price paid for Adtran Networks shares	\$ 565,491
Equity compensation (1)	\$ 12,769
Total purchase price	\$ 578,260

⁽¹⁾ Represents the portion of replacement share-based payment awards that relates to pre-combination vesting.

Assets acquired and liabilities assumed were recognized at their respective fair values as of July 15, 2022. In determining the fair value, the Company utilized various methods of the income, cost and market approaches depending on the asset or liability being fair valued. The estimation of fair value required significant judgment related to future net cash flows reflecting the risk inherent in each cash flow stream, competitive trends, market comparables and other factors. Inputs were generally determined by taking into account historical data, current and anticipated market conditions, and growth rates.

Developed technology and customer relationships were valued using the multi-period excess earnings method. Backlog was valued using the distributor method. Significant assumptions used in the discounted cash flow analysis for (i) developed technology were the revenue growth rates, long-term revenue growth rate, discount rate, and earnings before interest, taxes, depreciation and amortization (“EBITDA”) margins, obsolescence factors, income tax rate, tax depreciation, and economic depreciation; (ii) customer relationships were earnings before interest and taxes (“EBIT”) margins, contributory asset charges, and customer attrition rate; and (iii) backlog were EBIT margins, adjusted EBIT margins, and contributory asset charges.

The allocation of the purchase price to the assets acquired and liabilities assumed was subject to adjustment within the measurement period (up to one year from the acquisition date). The measurement period adjustments since initial preliminary estimates resulted from changes to the fair value estimates of the acquired assets and assumed liabilities based on finalizing the valuations of inventory, prepaid expenses and other current assets, property plant and equipment, intangible assets, other non-current assets and deferred tax assets and liabilities. The cumulative effect of all measurement period adjustments resulted in a decrease to recognized goodwill of \$8.7 million.

The following table summarizes the final purchase price allocation for each major class of assets acquired and liabilities assumed in the Business Combination (in thousands):

(In thousands)

Total purchase price	\$	578,260
Non-controlling interest	\$	316,415
Net Assets:		
Cash and cash equivalents	\$	44,003
Accounts receivable		114,659
Other receivables		1,457
Inventory		200,331
Prepaid expenses and other current assets		28,208
Property plant and equipment		55,480
Deferred tax assets		1,759
Identifiable intangible assets		403,780
Other non-current assets		31,074
Accounts payable		(98,587)
Current unearned revenue		(26,047)
Accrued expenses and other liabilities		(59,600)
Income tax payable, net		(4,898)
Current portion of notes payable		(25,254)
Tax liabilities		(1,400)
Non-current unearned revenue		(11,498)
Pension liability		(6,820)
Other non-current liabilities		(6,094)
Non-current portion of revolving credit agreements and notes payable		(15,250)
Non-current lease obligations		(20,046)
Deferred tax liabilities		(61,040)
Total net assets acquired	\$	544,217
Goodwill	\$	350,458

The fair value of the assets acquired included accounts receivable of \$114.7 million and other receivables of \$1.5 million as of the date of the Business Combination. The unpaid principal balance under these receivables as of the date of the Business Combination was \$118.5 million and \$1.5 million, respectively. The difference between the fair value and the unpaid principal balance represents an allowance for credit losses that was factored into the fair value calculation as of the date of the Business Combination.

The fair value of the identifiable intangible assets acquired as of the acquisition date:

(In thousands)	Estimated-average useful life (in years) ⁽¹⁾	Fair value	Income Statement Amortization Classification
Developed technology	8.5	\$ 291,925	Cost of revenue - Network Solutions
Backlog	1.4	52,165	Cost of revenue - Network Solutions and Services & Support
Customer relationships	10.5	32,704	Selling, general and administrative expenses
Trade name	2.8	26,986	Selling, general and administrative expenses
Total		\$ 403,780	

⁽¹⁾ Determination of the weighted average period of the individual categories of intangible assets was based on the nature of the applicable intangible asset and the expected future cash flows to be derived from the intangible asset. Amortization of intangible assets with definite lives is recognized over the period of time the assets are expected to contribute to future cash flows.

Goodwill represents the excess of the purchase price over the fair value of the net tangible and intangible assets acquired. The Business Combination resulted in the recognition of goodwill of \$350.5 million, which the Company believes is attributable to the value driven by the Company's expected growth of the business, synergies, and expanded market and product opportunities. Goodwill created as a result of the Business Combination is not deductible for tax purposes.

After the Business Combination, the chief operating decision maker assessed and will continue to assess the Company's performance and allocate resources to its two segments (1) Network Solutions and (2) Services & Support. The goodwill resulting from the Business Combination of \$272.8 million was allocated to the Network Solutions segment, and \$77.7 million was allocated to the Services & Support segment. See Note 18 of the Notes to Consolidated Financial Statements, included in this report for more information about the Company's segments.

As of the acquisition date, the fair value of the non-controlling interest was approximately \$316.4 million and determined using a market approach. As a portion of Adtran Networks' shares remains trading after the Business Combination, the non-controlling interest was calculated using 17,941,496 Adtran Networks shares held by non-controlling interest multiplied by the Adtran Networks closing share price of €17.58 (\$17.64 using the July 15, 2022 EUR to USD conversion rate of \$1.00318) on July 15, 2022.

The Company has included the financial results of Adtran Networks in its consolidated financial statements since July 15, 2022, the acquisition date. The net revenue from the Adtran Networks business for the Adtran Networks business for the period from July 15, 2022 through December 31, 2022, was \$365.9 million and the net loss from the Adtran Networks business for the period from July 15, 2022 through December 31, 2022, was \$12.9 million which are included in the Company's Consolidated Statement of Loss. The net revenue from the Adtran Networks business for the year ended December 31, 2023, was \$666.3 million and the net loss from the Adtran Networks business for the year ended December 31, 2023, was \$93.6 million which are included in the Company's Consolidated Statement of Loss. The net (income) loss attributable to non-controlling interest from the Adtran Networks business for the years ended December 31, 2023 and 2022 was \$8.4 million and (\$6.9) million, respectively. For the year ended December 31, 2023, we recognized \$11.5 million, representing the portion of the annual recurring cash compensation to the non-controlling shareholders accrued during such periods, which will be paid after the ordinary general shareholders' meeting of Adtran Networks beginning in 2024. See Note 1 and Note 17 for additional information on RNCI and the annual dividend.

As of December 31, 2023, the Company has incurred \$26.2 million of transaction costs related to the Business Combination, of which \$0.1 million, \$14.2 million and \$11.9 million were incurred during the years ended December 31, 2023, 2022 and 2021, respectively. These transaction costs are recorded in selling, general and administrative expenses in the Consolidated Statements of Loss.

Supplemental Pro Forma Information (Unaudited)

The unaudited pro forma financial information in the table below summarizes the combined results of operations for ADTRAN, Inc. and Adtran Networks as though the Business Combination had occurred on January 1, 2021. The pro forma amounts have been adjusted for differences in basis of accounting which are determined before taking into effect the impacts of purchase accounting and Business Combination accounting impacts.

The following unaudited pro forma information is presented for illustrative purposes only. It is not necessarily indicative of the results of operations of future periods, the results of operations that actually would have been realized had the entities been a single company as of January 1, 2021, or the future operating results of the combined entities. The unaudited pro forma information does not give effect to the potential impact of current financial conditions, regulatory matters or any anticipated synergies, operating efficiencies or cost savings that may be associated with the acquisition. The unaudited pro forma information also does not include any integration costs that the Company has incurred and may continue to incur related to the Business Combination as part of combining the operations of the companies.

<i>(In thousands)</i>	For the Years Ended December 31,	
	2022	2021
Revenue	\$ 1,410,296	\$ 1,210,201
Net loss attributable to ADTRAN Holdings, Inc.	\$ (46,204)	\$ (91,423)

Note 3 - Revenue

The following is a description of the principal activities from which revenue is generated by reportable segment:

Network Solutions Segment - Includes hardware and software products that enable a digital future which support the Company's Subscriber, Access and Aggregation, and Optical Networking Solutions.

Services & Support Segment - Includes network design, implementation, maintenance and cloud-hosted services supporting the Company's Subscriber, Access and Aggregation, and Optical Networking Solutions.

Revenue by Category

In addition to operating under two reportable segments, the Company also reports revenue across three categories – Subscriber Solutions, Access & Aggregation Solutions and Optical Networking Solutions.

Prior to the Business Combination with Adtran Networks on July 15, 2022, ADTRAN, Inc. reported revenue across the following three categories: (1) Access & Aggregation, (2) Subscriber Solutions & Experience and (3) Traditional & Other Products. Following the Business Combination with Adtran Networks, we have recast these revenues such that ADTRAN, Inc.'s former Access & Aggregation revenue is combined with a portion of the applicable Adtran Networks solutions to create Access & Aggregation Solutions, ADTRAN's former Subscriber Solutions & Experience revenue is combined with a portion of the applicable Adtran Networks solutions to create Subscriber Solutions, and the revenue from Traditional & Other products is now included in the applicable Access & Aggregation Solutions or Subscriber Solutions category. Optical Networking Solutions was added as a new revenue category to represent a meaningful portion of Adtran Networks' portfolio.

Our Subscriber Solutions portfolio is used by Service Providers to terminate their access services infrastructure at the customer premises while providing an immersive and interactive experience for residential, business and wholesale subscribers. This revenue category includes hardware- and software-based products and services. These solutions include fiber termination solutions for residential, business and wholesale subscribers, Wi-Fi access solutions for residential and business subscribers, Ethernet switching and network edge virtualization solutions for business subscribers, and cloud software solutions covering a mix of subscriber types.

Our Access & Aggregation Solutions are solutions that are used by communications Service Providers to connect residential subscribers, business subscribers and mobile radio networks to the Service Providers' metro network, primarily through fiber-based connectivity. This revenue category includes hardware- and software-based products and services. Our solutions within this category are a mix of fiber access and aggregation platforms, precision network synchronization and timing solutions, and access orchestration solutions that ensure highly reliable and efficient network performance.

Our Optical Networking Solutions are used by communications Service Providers, internet content providers and large-scale enterprises to securely interconnect metro and regional networks over fiber. This revenue category includes hardware- and software-based products and services. Our solutions within this category include open optical terminals, open line systems, optical subsystems and modules, network infrastructure assurance systems, and automation platforms that are used to build high-scale, secure and assured optical networks.

The following table disaggregates revenue by reportable segment and revenue category for the year ended December 31, 2023:

<i>(In thousands)</i>	<u>Network Solutions</u>	<u>Services & Support</u>	<u>Total</u>
Subscriber Solutions	\$ 263,192	\$ 34,516	\$ 297,708
Access & Aggregation Solutions	304,074	54,344	358,418
Optical Networking Solutions	407,123	85,851	492,974
Total	\$ 974,389	\$ 174,711	\$ 1,149,100

The following table disaggregates revenue by reportable segment and revenue category for the year ended December 31, 2022:

<i>(In thousands)</i>	<u>Network Solutions</u>	<u>Services & Support</u>	<u>Total</u>
Subscriber Solutions	\$ 364,238	\$ 26,216	\$ 390,454
Access & Aggregation Solutions	326,934	47,068	374,002
Optical Networking Solutions	225,621	35,459	261,080
Total	\$ 916,793	\$ 108,743	\$ 1,025,536

The following table disaggregates revenue by reportable segment and revenue category for the year ended December 31, 2021:

<i>(In thousands)</i>	<u>Network Solutions</u>	<u>Services & Support</u>	<u>Total</u>
Subscriber Solutions	\$ 189,825	\$ 16,385	\$ 206,210
Access & Aggregation Solutions	309,009	47,785	356,794
Optical Networking Solutions	—	—	—
Total	\$ 498,834	\$ 64,170	\$ 563,004

The aggregate amount of transaction price allocated to remaining performance obligations that have not been satisfied as of December 31, 2023 and December 31, 2022 related to contractual maintenance agreements, contractual SaaS and subscription services, and hardware contracts that exceed one year in duration amounted to \$314.8 million and \$277.2 million, respectively. As of December 31, 2023, approximately 55% is expected to be recognized over the next 12 months, and the remainder recognized thereafter. The majority of the Company's remaining performance obligations at December 31, 2023 are related to contracts or orders that have an original expected duration of one year or less, for which the Company is electing to utilize the practical expedient available within the guidance, and are excluded from the transaction price related to these future obligations. The Company will generally satisfy the remaining performance obligations as we transfer control of the products ordered or services to our customers, excluding maintenance services, which are satisfied over time.

The following table provides information about accounts receivable, contract assets and unearned revenue from contracts with customers:

<i>(In thousands)</i>	December 31, 2023		December 31, 2022	
Accounts receivable	\$	216,445	\$	279,435
Contract assets ⁽¹⁾	\$	691	\$	1,852
Unearned revenue	\$	46,731	\$	41,193
Non-current unearned revenue	\$	25,109	\$	19,239

⁽¹⁾ Included in other receivables on the Consolidated Balance Sheets.

The Company was party to a receivable purchase agreement with a third-party financial institution (the “Factor”), which accelerates receivable collection and helps to better manage cash flow. Total accounts receivables factored as of the end of December 31, 2022, totaled \$14.9 million of which \$1.2 million was retained pursuant to the Factoring Agreement in the reserve account. As of December 31, 2023 no accounts receivable were factored under the agreement or held in the reserve account. The cost of receivables purchase agreement is included in interest expense in the Consolidated Statements of Loss and totaled \$0.9 million and \$0.3 million for the years ended December 31, 2023 and December 31, 2022, respectively.

On December 19, 2023, the agreement with the Factor was terminated and the Company, entered into a receivables purchase agreement with a third-party financial institution (the “New Factor”) to replace the Company’s prior accounts receivable purchase agreement and to sell, on a revolving basis, undivided interests in the Company’s accounts receivable. The New Factor provides for up to \$40.0 million in borrowing capacity, subject to eligible receivables and reserve requirements, secured by the receivables. The New Factor qualifies for treatment as a secured borrowing with a pledge of collateral under Accounting Standards Codification (“ASC”) Topic 810, *Consolidations*. Total secured borrowings under the agreement were \$14.3 million as of December 31, 2023, leaving \$25.4 million available for future borrowings. Accounts receivable pledged as collateral related to the secured borrowings were \$16.9 million as of December 31, 2023. For the year ended December 31, 2023, the Company incurred program fee expenses of \$13 thousand. As of December 31, 2023, the program fee rate was 6.9% percent for receivables denominated in the U.S. dollar and 5.5% for receivables denominated in the Euro.

Of the outstanding unearned revenue balances as of December 31, 2022, \$36.2 million was recognized as revenue during the year ended December 31, 2023. Of the outstanding unearned revenue balances as of December 31, 2021, \$14.0 million was recognized as revenue during the year ended December 31, 2022.

Note 4 – Stock-Based Compensation

The following table summarizes stock-based compensation expense related to stock options, PSUs, RSUs and restricted stock for the years ended December 31, 2023, 2022 and

2021:

<i>(In thousands)</i>	2023	2022	2021
Stock-based compensation expense included in cost of revenue	\$ 1,293	\$ 2,876	\$ 543
Selling, general and administrative expenses	10,701	20,844	4,571
Research and development expenses	4,022	4,602	2,366
Stock-based compensation expense included in operating expenses	14,723	25,446	6,937
Total stock-based compensation expense	16,016	28,322	7,480
Tax benefit for expense associated with non-qualified stock options, PSUs, RSUs and restricted stock	(3,837)	(5,152)	(1,849)
Total stock-based compensation expense, net of tax	\$ 12,179	\$ 23,170	\$ 5,631

Stock Incentive Program Descriptions

2020 Stock Incentive Plans

At the annual meeting of stockholders held on May 13, 2020, the Company’s stockholders approved, upon recommendation of the Board of Directors, the adoption of the ADTRAN, Inc. 2020 Employee Stock Incentive Plan (the “2020 Employee Plan”), as well as the ADTRAN, Inc. 2020 Directors Stock Plan (the “2020 Directors Plan”), which were assumed by the Company upon consummation of the Merger. No additional awards will be granted under the Company’s previous stock incentive plans, the ADTRAN, Inc. 2015 Employee Stock Incentive Plan (the “2015 Employee Plan”) or the 2010 Directors Stock Plan (the “2010 Directors Plan”) subsequent to the stockholders’ approval of these new stock plans. Outstanding awards granted under the 2015 Employee Plan and the 2010 Directors Plan will remain subject to the terms of such plans, and shares underlying awards granted under such plans that are cancelled or forfeited will be available for issuance under the 2020 Employee Plan or the 2020 Directors Plan, as applicable.

Under the 2020 Employee Plan, the Company is authorized to issue 2.8 million shares of common stock to certain employees, key Service Providers and advisors through incentive stock options and non-qualified stock options, stock appreciation rights, RSUs and restricted stock, any of which may be subject to performance-based conditions. RSUs and restricted stock granted under the 2020 Employee Plan will typically vest pursuant to a four-year vesting schedule beginning on the first anniversary of the grant date. Stock options granted under the 2020 Employee Plan will typically become exercisable beginning after one year of continued employment, normally pursuant to a four-year vesting schedule beginning on the first anniversary of the grant date and have a ten-year contractual term. Stock options, RSUs and restricted stock granted under the 2020 Employee Plan reduce the shares authorized for issuance under the 2020 Employee Plan by one share of common stock for each share underlying the award. Forfeitures, cancellations or expirations of awards granted under the 2015 Employee Plan increase the shares authorized for issuance under the 2020 Employee Plan, with forfeitures, cancellations or expirations of RSUs and restricted stock increasing the shares authorized for issuance by 2.5 shares of common stock for each share underlying the award. Forfeitures, cancellations or expirations of stock options from the 2015 Employee Plan increase the shares authorized for issuance under the 2020 Employee Plan by one share of common stock for each share underlying the award.

Under the 2020 Directors Plan, the Company is authorized to issue 0.4 million shares of common stock through stock options, restricted stock and RSUs to non-employee directors. Stock awards issued under the 2020 Directors Plan typically will become vested in full on the first anniversary of the grant date. Stock options issued under the 2020 Directors Plan will have a ten-year contractual term. Stock options, restricted stock and RSUs granted under the 2020 Directors Plan reduce the shares authorized for issuance under the 2020 Directors Plan by one share of common stock for each share underlying the award. Forfeitures, cancellations and expirations of awards granted under the 2010 Directors Stock Plan increase the shares authorized for issuance under the 2020 Directors Plan by one share of common stock for each share underlying the award.

As of December 31, 2023, 1.1 million shares were available for issuance under shareholder-approved equity plans in connection with the grant and exercise of stock options, PSU's, RSU's or restricted stock.

Previous Stock Incentive Plans

In January 2015, the Board of Directors adopted the 2015 Employee Plan, which authorized 7.7 million shares of common stock for issuance to certain employees and officers through incentive stock options and non-qualified stock options, stock appreciation rights, PSUs, RSUs and restricted stock. The 2015 Employee Plan was adopted by stockholder approval at our annual meeting of stockholders held in May 2015. PSUs, RSUs and restricted stock granted under the 2015 Plan reduce the shares authorized for issuance under the 2015 Employee Plan by 2.5 shares of common stock for each share underlying the award. Options granted under the 2015 Employee Plan typically become exercisable beginning after one year of continued employment, normally pursuant to a four-year vesting schedule beginning on the first anniversary of the grant date and have a ten-year contractual term. Expiration dates of options outstanding as of December 31, 2023 under the 2015 Employee Plan range from 2024 to 2029.

In January 2006, the Board of Directors adopted the ADTRAN, Inc. 2006 Employee Stock Incentive Plan (the "2006 Plan"), which authorized 13.0 million shares of common stock for issuance to officers and certain employees through incentive stock options and non-qualified stock options, stock appreciation rights, RSUs and restricted stock. Options granted under the 2006 Plan typically become exercisable beginning after one year of continued employment, normally pursuant to a four-year vesting schedule beginning on the first anniversary of the grant date and had a ten-year contractual term. The 2006 Plan was replaced in May 2015 by the 2015 Employee Plan. Options outstanding as of December 31, 2023 under the 2006 Plan expire in 2024.

PSUs, RSUs and restricted stock - ADTRAN Holdings, Inc.

The following table is a summary of our PSUs, RSUs and restricted stock outstanding as of December 31, 2022 and 2023 and the changes that occurred during 2023:

	Number of shares (In thousands)	Weighted Average Grant Date Fair Value (Per Share)
Unvested PSUs, RSUs and restricted stock outstanding, December 31, 2022	1,086	\$ 17.54
PSUs, RSUs and restricted stock granted	1,509	\$ 16.43
PSUs, RSUs and restricted stock vested	(501)	\$ 14.67
PSUs, RSUs and restricted stock forfeited	(152)	\$ 17.04
Unvested PSUs, RSUs and restricted stock outstanding, December 31, 2023	1,942	\$ 17.46

The following table details the significant assumptions that impact the fair value estimate of the market-based PSUs:

	2023		2022		2021	
Estimated fair value per share	\$	19.26	\$	24.01	\$	26.07
Expected volatility		51.52 %		45.77 %		53.27 %
Risk-free interest rate		3.93 %		4.28 %		0.85 %
Expected dividend yield		2.55 %		1.76 %		1.63 %

For market-based PSUs, the number of shares of common stock earned by a recipient is subject to a market condition based on ADTRAN's relative total shareholder return against all companies in the NASDAQ Telecommunications Index at the end of a three-year performance period. Depending on the relative total shareholder return over the performance period, the recipient may earn from 0% to 150% of the shares underlying the PSUs, with the shares earned distributed upon the vesting. The fair value of the award is based on the market price of our common stock on the date of grant, adjusted for the expected outcome of the impact of market conditions using a Monte Carlo Simulation valuation method. A portion of the granted PSUs vests and the underlying shares become deliverable upon the death or disability of the recipient or upon a change of control of ADTRAN, as defined by the 2020 Employee Plan. The recipients of the PSUs receive dividend credits based on the shares of common stock underlying the PSUs. The dividend credits vest and are earned in the same manner as the PSUs and are paid in cash upon the issuance of common stock for the PSUs.

During the year ended December 31, 2023, the Company granted 0.9 million performance-based PSUs to its executive officers and certain employees. The grant-date fair value of these performance-based awards was based on the closing price of the Company's stock on the date of grant. These awards vest over either a two or three-year period, subject to the grantee's continued employment, with the ability to earn shares in a range of 0% to either 100% or 150% of the awarded number of PSUs based on the achievement of defined performance targets. Equity-based compensation expense and liabilities with respect to these awards may be adjusted over the vesting period to reflect the probability of achievement of performance targets defined in the award agreements.

During each of the years ended December 2022 and 2021, the Company granted 0.3 million performance-based PSUs to its executive officers and certain employees. The grant-date fair value of these performance-based awards was based on the closing price of the Company's stock on the date of grant. These awards vested over one-year and two-year periods, respectively, subject to the grantee's continued employment, with the ability to earn shares in a range of 0% to 142.8% of the awarded number of PSUs based on the achievement of defined performance targets. Equity-based compensation expense with respect to these awards may be adjusted over the vesting period to reflect the probability of achievement of performance targets defined in the award agreements. Pursuant to the Business Combination, the unearned performance-based PSUs converted to time-based RSUs which were treated as an award modification during the third quarter of 2022. This resulted in incremental compensation expense totaling \$17.8 million being recognized during the twelve months ended December 31, 2022. These awards were fully vested as of December 31, 2022.

Pursuant to the Business Combination, 0.3 million shares of market-based PSU awards converted to time-based RSU awards which were treated as an award modification during the third quarter of 2022. Given that the fair value of these awards after the modification was less than the fair value of the awards immediately before the modification, no incremental compensation expense was recognized. The Company continued to recognize compensation expense based on the award's original grant date fair value.

The fair value of RSUs and restricted stock is equal to the closing price of our stock on the grant date. RSUs and restricted stock vest ratably over four-year and one-year periods, respectively.

We will continue to assess the assumptions and methodologies used to calculate the estimated fair value of stock-based compensation. If circumstances change, and additional data becomes available over time, we may change our assumptions and methodologies, which may materially impact our fair value determination.

As of December 31, 2023, total unrecognized compensation expense related to the non-vested portion of market-based PSUs, RSUs and restricted stock was approximately \$15.5 million, which is expected to be recognized over an average remaining recognition period of 2.1 years. There was \$10.5 million of unrecognized compensation expense related to unvested 2023 performance-based PSUs, which will be recognized over the remaining requisite service period of 2.0 years if achievement of the performance obligation becomes probable. Unrecognized compensation expense will be adjusted for actual forfeitures as they occur.

Stock Options - ADTRAN Holdings, Inc.

The following table is a summary of stock options outstanding as of December 31, 2023 and 2022 and the changes that occurred during 2023:

	Number of Options <i>(In thousands)</i>	Weighted Average Exercise Price <i>(Per share)</i>	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value <i>(In thousands)</i>
Stock options outstanding, December 31, 2022	3,148	\$ 14.37	3.42	\$ 16,251
Stock options granted	1,330	\$ 5.27		
Stock options exercised	(23)	\$ 7.02		
Stock options forfeited	(74)	\$ 11.20		
Stock options expired	(487)	\$ 22.74		
Stock options outstanding, December 31, 2023	3,894	\$ 10.32	5.25	\$ 3,087
Stock options exercisable, December 31, 2023	1,478	\$ 12.47	1.62	\$ 254

As of December 31, 2023, there was \$8.1 million of unrecognized compensation expense related to stock options which will be recognized over the remaining weighted-average period of 1.8 years.

Pursuant to the Business Combination, which closed on July 15, 2022, Adtran Networks stock option holders were entitled to have their Adtran Networks stock options assumed by ADTRAN Holdings (applying the exchange ratio in the Business Combination Agreement), thereafter representing options to acquire stock of ADTRAN Holdings. The maximum number of shares of ADTRAN Holdings stock potentially issuable upon such assumption was 2.3 million shares. The period in which such options could be assumed ended July 22, 2022. A total of 2.1 million shares of ADTRAN Holdings stock are subject to assumed Adtran Networks options.

As part of our Business Efficiency Program, on October 25, 2023, all employees were informed of certain personnel measures, which included the reduction of salary for select employees. The Company provided the employees subject to the salary reductions with 1.3 million of stock option awards for retention purposes. Our Chief Executive Officer voluntarily reduced his salary by 50% and did not receive any awards under the Business Efficiency Program.

The determination of the fair value of stock options assumed or granted by ADTRAN Holdings was estimated using the Monte Carlo method and is affected by its stock price, as well as assumptions regarding a number of complex and subjective variables that may have a significant impact on the fair value estimate. The stock option pricing model requires the use of several assumptions that impact the fair value estimate. These variables include, but are not limited to, the volatility of the Company's stock price and employee exercise behaviors.

All of the options were previously issued at exercise prices that approximated fair market value at the date of grant.

The aggregate intrinsic value of stock options represents the total pre-tax intrinsic value (the difference between ADTRAN's closing stock price on the last trading day of the quarter and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on December 31, 2023. The amount of aggregate intrinsic value was \$3.1 million as of December 31, 2023 and will change based on the fair market value of ADTRAN's stock. The total pre-tax intrinsic value of options exercised during the years ended December 31, 2023, 2022 and 2021 was \$0.1 million, \$4.0 million and \$1.5 million, respectively. The fair value of options fully vesting during the years ended December 31, 2023 and 2022 was \$1.1 million and \$0.2 million, respectively. No options vested during the year ended December 31, 2021.

The following table further describes our stock options outstanding as of December 31, 2023:

Range of Exercise Prices (Per Share)	Options Outstanding			Options Exercisable	
	Options Outstanding at December 31, 2023 <i>(In thousands)</i>	Weighted Average Remaining Contractual Life in Years	Weighted Average Exercise Price <i>(Per Share)</i>	Options Exercisable at December 31, 2023 <i>(In thousands)</i>	Weighted Average Exercise Price
\$5.23 – \$5.23	1,320	9.92	\$ 5.23	—	\$ —
\$5.24 – \$8.58	716	2.01	\$ 7.37	559	\$ 7.45
\$8.59 – \$12.17	773	3.72	\$ 11.49	195	\$ 9.49
\$12.18 – \$15.33	415	2.20	\$ 15.33	362	\$ 15.33
\$15.34 – \$19.08	670	2.93	\$ 19.02	362	\$ 18.97
	3,894			1,478	

The Black-Scholes option pricing model (the “Black-Scholes Model”) is used to determine the estimated fair value of stock option awards on the date of grant. The Black-Scholes Model requires the input of certain assumptions that involve judgment. Because our stock options have characteristics significantly different from those of traded options, and because changes in the input assumptions can materially affect the fair value estimate, existing models may not provide reliable measures of fair value of our stock options. The stock option pricing model requires the use of several assumptions that impact the fair value estimate. These variables include, but are not limited to, the volatility of our stock price and employee exercise behaviors.

The stock option pricing model requires the use of several assumptions that impact the fair value estimate. These variables include, but are not limited to, the volatility of our stock price and employee exercise behaviors.

The weighted-average estimated fair value of stock options granted to employees during the years ended December 31, 2023 and 2022 was \$2.99 and \$5.81 per share, respectively, with the following weighted-average assumptions:

	2023	2022
Expected volatility	51.78 %	45.00 %
Risk-free interest rate	4.13 %	3.00 %
Expected dividend yield	—	1.77 %
Expected life (in years)	5.8	2.4

There were no stock options granted during the year ended December 31, 2021.

Stock Options - Adtran Networks

The following table summarizes Adtran Networks stock options outstanding as of December 31, 2022 and December 31, 2023 and the changes that occurred during the year ended December 31, 2023:

	Number of Options (In thousands)	Weighted Average Exercise Price (Per share)	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value (In thousands)
Stock options outstanding, December 31, 2022	81	\$ 8.58	4.00	\$ 1,222
Stock options exercised	(50)	\$ 7.64		
Stock options forfeited	(12)	\$ 10.45		
Stock options expired	(1)	\$ 9.60		
Stock options outstanding, December 31, 2023	18	\$ 11.04	4.48	\$ 193
Stock options exercisable, December 31, 2023	—	\$ —	—	\$ —

As of December 31, 2023, there was \$24 thousand of unrecognized compensation expense related to stock options which will be recognized over the remaining weighted-average period of 1.4 years.

All of the options were previously issued at exercise prices that approximated fair market value at the date of grant.

The aggregate intrinsic value of stock options represents the total pre-tax intrinsic value (the difference between Adtran Networks' closing stock price on the last trading day of the quarter and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on December 31, 2023. The amount of aggregate intrinsic value was \$0.2 million as of December 31, 2023 and will change based on the fair market value of Adtran Networks' stock. The total pre-tax intrinsic value of options exercised during the year ended December 31, 2023 was \$0.7 million. The total pre-tax intrinsic value of options exercised during the period July 15, 2022 through December 31, 2022 was \$1.6 million.

The following table further describes Adtran Networks' stock options outstanding as of December 31, 2023:

Range of Exercise Prices (Per Share)	Options Outstanding			Options Exercisable	
	Options Outstanding at December 31, 2023 (In thousands)	Weighted Average Remaining Contractual Life in Years	Weighted Average Exercise Price (Per Share)	Options Exercisable at December 31, 2023 (In thousands)	Weighted Average Exercise Price
€10.00 - €10.00	18	4.48	\$ 11.04	—	\$ —
	18			—	

Note 5 – Investments

Debt Securities and Other Investments

The Company did not have any debt securities and other investments as of December 31, 2023.

As of December 31, 2022, the following debt securities and other investments were included in short-term investments and long-term investments on the Consolidated Balance Sheet and recorded at fair value:

<i>(In thousands)</i>	Amortized Cost	Gross Unrealized		Fair Value
		Gains	Losses	
Corporate bonds	\$ 2,538	\$ 5	\$ (81)	\$ 2,462
Municipal fixed-rate bonds	185		(5)	180
Asset-backed bonds	818	1	(24)	795
Mortgage/Agency-backed bonds	1,853		(105)	1,748
U.S. government bonds	3,870	3	(188)	3,685
Foreign government bonds	407		(24)	383
Available-for-sale debt securities held at fair value	\$ 9,671	\$ 9	\$ (427)	\$ 9,253

Realized gains and losses on sales of securities are computed under the specific identification method. The following table presents gross realized gains and losses related to our debt securities for the years ended December 31, 2023, 2022 and 2021:

<i>(In thousands)</i>	For the year ended December 31,		
	2023	2022	2021
Gross realized gains on debt securities	\$ 9	\$ 17	\$ 241
Gross realized losses on debt securities	(355)	(1,211)	(159)
Total (loss) gain recognized, net	\$ (346)	\$ (1,194)	\$ 82

The Company's investment policy provides limitations for issuer concentration, which limits, at the time of purchase, the concentration in any one issuer to 5% of the market value of the total investment portfolio. The Company did not purchase any available-for-sale debt with credit deterioration during the years ended December 31, 2023, 2022 and 2021.

The following table presents the breakdown of debt securities and other investments with unrealized losses as of December 31, 2022:

<i>(In thousands)</i>	Continuous Unrealized Loss Position for Less than 12 Months		Continuous Unrealized Loss Position for 12 Months or Greater		Total	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
	Corporate bonds	\$ 1,367	\$ (39)	\$ 583	\$ (42)	\$ 1,950
Municipal fixed-rate bonds	—	—	180	(5)	180	(5)
Asset-backed bonds	524	(14)	117	(10)	641	(24)
Mortgage/Agency-backed bonds	825	(23)	844	(82)	1,668	(105)
U.S. government bonds	2,215	(106)	1,063	(82)	3,278	(188)
Foreign government bonds	—	—	383	(24)	383	(24)
Total	\$ 4,931	\$ (182)	\$ 3,170	\$ (245)	\$ 8,100	\$ (427)

Marketable Equity Securities

Marketable equity securities consist of publicly traded stock, funds and certain other investments measured at fair value or cost, where appropriate.

Realized and unrealized gains and losses for our marketable equity securities for the year ended December 31, 2023, 2022 and 2021 were as follows:

<i>(In thousands)</i>	For the year ended December 31,		
	2023	2022	2021
Realized gains (losses) on equity securities sold	\$ 17	\$ (1,675)	\$ (992)
Unrealized gains (losses) on equity securities held	3,083	(8,470)	2,671
Total gain (loss) recognized, net	\$ 3,100	\$ (10,145)	\$ 1,679

As of December 31, 2022, gross unrealized losses related to individual investments in a continuous loss position for twelve months or longer were not material.

U.S. GAAP establishes a three-level valuation hierarchy based upon observable and unobservable inputs for fair value measurement of financial instruments:

- Level 1 – Observable outputs; values based on unadjusted quoted prices for identical assets or liabilities in an active market;
- Level 2 – Significant inputs that are observable; values based on quoted prices in markets that are not active or model inputs that are observable either directly or indirectly;
- Level 3 – Significant unobservable inputs; values based on prices or valuation techniques that require inputs that are both unobservable and significant to the overall fair value measurement; inputs could include information supplied by investees.

The Company's cash equivalents and investments held at fair value are categorized into this hierarchy as follows:

Fair Value Measurements as of December 31, 2023 Using				
<i>(In thousands)</i>	Fair Value	Quoted Prices in Active Market for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents				
Money market funds	\$ 5,302	\$ 5,302	\$ —	\$ —
Marketable equity securities				
Marketable equity securities - various industries	905	905	—	—
Deferred compensation plan assets	26,838	26,838	—	—
Total	\$ 33,045	\$ 33,045	\$ —	\$ —

Fair Value Measurements as of December 31, 2022 Using				
<i>(In thousands)</i>	Fair Value	Quoted Prices in Active Market for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents				
Money market funds	\$ 228	\$ 228	\$ —	\$ —
Available-for-sale debt securities				
Corporate bonds	2,462	—	2,462	—
Municipal fixed-rate bonds	180	—	180	—
Asset-backed bonds	795	—	795	—
Mortgage/Agency-backed bonds	1,748	—	1,748	—
U.S. government bonds	3,685	3,685	—	—
Foreign government bonds	383	—	383	—
Marketable equity securities				
Marketable equity securities - various industries	804	804	—	—
Deferred compensation plan assets	22,942	22,942	—	—
Total	\$ 33,227	\$ 27,659	\$ 5,568	\$ —

The fair value of our Level 2 securities is calculated using a weighted average market price for each security. Market prices are obtained from a variety of industry standard data providers, large financial institutions and other third-party sources. These multiple market prices are used as inputs into a distribution-curve-based algorithm to determine the daily market value of each security.

The fair value of Level 3 securities is calculated based on unobservable inputs. Quantitative information with respect to unobservable inputs consisted of third-party valuations performed in accordance with ASC 820 – *Fair Value Measurement*. Inputs used in preparing the third-party valuation included the following assumptions, among others: estimated discount rates and fair market yields.

Our variable rate demand notes have a structure that implies a standard expected market price. The frequent interest rate resets make it reasonable to expect the price to stay at par. These securities are priced at the expected market price.

Note 6 – Inventory

As of December 31, 2023 and 2022, inventory, net was comprised of the following:

<i>(In thousands)</i>	<u>2023</u>	<u>2022</u>
Raw materials	\$ 152,140	\$ 186,346
Work in process	17,239	12,087
Finished goods	192,916	229,098
Total Inventory, net	\$ 362,295	\$ 427,531

Inventory reserves are established for estimated excess and obsolete inventory equal to the difference between the cost of the inventory and the estimated net realizable value of the inventory based on estimated reserve percentages, which consider historical usage, known trends, inventory age and market conditions. As of December 31, 2023 and 2022, our inventory reserve was \$83.1 million and \$57.0 million, respectively.

In connection with the Company’s restructuring efforts, for the year ended December 31, 2023, management determined that there would be a discontinuation of product lines in the Network solutions segment and, as a result, wrote-down related inventories of \$24.3 million, which is included in cost of revenue in the Condensed Consolidated Statements of Loss.

Note 7 – Property, Plant and Equipment

As of December 31, 2023 and 2022, property, plant and equipment, net was comprised of the following:

<i>(In thousands)</i>	<u>2023</u>	<u>2022</u>
Engineering and other equipment	\$ 183,336	\$ 170,785
Building	79,215	82,932
Computer hardware and software	101,572	80,455
Building and land improvements	58,238	47,861
Furniture and fixtures	21,368	22,403
Land	5,242	5,364
Total Property, Plant and Equipment	448,971	409,800
Less: accumulated depreciation	(325,951)	(299,101)
Total Property, Plant and Equipment, net	\$ 123,020	\$ 110,699

Long-lived assets used in operations are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable and the undiscounted cash flows estimated to be generated by the asset are less than the asset's carrying value. In connection with the planned integration of information technology following the Business Combination, we determined that certain projects no longer fit our needs or strategic plan. As a result, the Company recognized impairment charges of \$0.5 million during the year ended December 31, 2022 related to software and web site development. The impairment charges were determined based on actual costs incurred. During the years ended December 31, 2023 and 2021, no impairment charges were recognized.

Depreciation expense was \$30.2 million, \$20.9 million and \$12.0 million for the years ended December 31, 2023, 2022 and 2021, respectively, which is recorded in cost of revenue, selling, general and administrative expenses and research and development expenses in the Consolidated Statements of Loss.

Note 8 – Leases

We have operating leases for office space, automobiles and various other equipment in the U.S. and in certain international locations. As of December 31, 2023, our operating leases had remaining lease terms of two months to 116 months, some of which included options to extend the leases for up to one year, and some of which included options to terminate the leases within three months. Supplemental balance sheet information related to operating leases is as follows:

<i>(In thousands)</i>	Classification	December 31, 2023	December 31, 2022
Assets			
Operating lease assets	Other non-current assets	\$ 37,474	\$ 30,340
Total lease asset		\$ 37,474	\$ 30,340
Liabilities			
Current operating lease liability	Accrued expenses and other liabilities	\$ 7,720	\$ 7,596
Non-current lease obligations	Non-current lease obligations	31,420	22,807
Total lease liability		\$ 39,140	\$ 30,403

Lease expense related to short-term leases was less than \$0.1 million for the twelve months ended December 31, 2023, 2022 and 2021, and is included in cost of revenue, selling, general and administrative expenses and research and development expenses in the Consolidated Statements of Loss. Lease expense related to variable lease payments that do not depend on an index or rate, such as real estate taxes and insurance reimbursements, was \$0.7 million, \$0.6 million and \$0.5 million for the twelve months ended December 31, 2023, 2022 and 2021, respectively.

The components of lease expense included in the Consolidated Statements of Loss were as follows:

<i>(In thousands)</i>	For the Year Ended December 31,		
	2023	2022	2021
Cost of revenue	\$ 163	\$ 110	\$ 51
Research and development expenses	990	942	1,071
Selling, general and administrative expenses	9,708	3,961	883
Total operating lease expense	\$ 10,861	\$ 5,013	\$ 2,005

As of December 31, 2023, operating lease liabilities included on the Consolidated Balance Sheet by future maturity were as follows:

<i>(In thousands)</i>	Amount
2024	9,639
2025	8,423
2026	6,608
2027	4,923
2028	4,723
Thereafter	13,210
Total lease payments	47,526
Less: Interest	(8,386)
Present value of lease liabilities	\$ 39,140

Future operating lease payments include \$3.3 million related to options to extend lease terms that are reasonably certain of being exercised. There are no legally binding leases that have not yet commenced.

An incremental borrowing rate is used based on information available at the commencement date in determining the present value of lease payments. The incremental borrowing rate is determined on a portfolio basis by grouping leases with similar terms, as well as grouping leases based on a U.S. dollar or euro functional currency. The following table provides information about our weighted average lease terms and weighted average discount rates:

	As of December 31,	
	2023	2022
Weighted average remaining lease term (years)		
Operating leases with USD functional currency	8.1	7.9
Operating leases with EUR functional currency	5.8	4.2
Weighted average discount rate		
Operating leases with USD functional currency	3.70 %	3.77 %
Operating leases with EUR functional currency	3.92 %	3.70 %

Note 9 – Goodwill

The changes in the carrying amount of goodwill for the year ended December 31, 2023 are as follows:

<i>(In thousands)</i>	Network Solutions	Services & Support	Total
As of December 31, 2022	\$ 298,280	\$ 83,444	\$ 381,724
Goodwill impairment	—	(37,500)	(37,500)
Correction of a purchase allocation adjustment	(9,662)	9,662	—
Foreign currency translation adjustments	8,413	778	9,191
As of December 31, 2023	\$ 297,031	\$ 56,384	\$ 353,415

Due to the Company's decreased market capitalization and long-term projections, a reassessment of our estimated future undiscounted cash flows within our two identified reporting units was triggered. Therefore an interim impairment test over goodwill was performed as of September 30, 2023. The Company determined the fair value of each reporting unit using a combination of an income approach and a market based peer group analysis. Management's determination of the fair value of our reporting units, based on future cash flows for the reporting units, requires significant judgment and the use of estimates and assumptions related to cash flow projections, discount rate, peer group determination and market multiple selection. It was determined that the decreases in projected future cash flows, discount rates, overall macroeconomic conditions, as well as the decrease in our market capitalization applied in the valuation, were required to align with market-based assumptions and company-specific risk, which resulted in lower fair values of the Services & Support reporting unit. As a result of the interim assessment, the Company recorded a goodwill impairment charge of \$37.9 million as its estimated fair value was less than its book value on that date.

The Company's annual impairment test date is October 1, 2023. The Company concluded that there was no goodwill impairment as of that date as there was no change in enterprise value from the September 30, 2023 testing date. Between the annual impairment date of October 1, 2023 and year-end December 31, 2023, there were no additional triggering events.

As of December 31, 2023, accumulated goodwill impairment losses in total were \$37.9 million. There were no accumulated goodwill impairment losses as of December 31, 2022. No impairment charges on goodwill were recognized during the years ended December 31, 2022 and 2021.

Note 10 – Intangible Assets

Intangible assets as of December 31, 2023 and 2022, consisted of the following:

<i>(In thousands)</i>	Weighted Average Useful Life (in years)	2023			2022		
		Gross Value	Accumulated Amortization	Net Value	Gross Value	Accumulated Amortization	Net Value
Customer relationships	10.9	\$ 54,856	\$ (15,943)	\$ 38,913	\$ 53,847	\$ (11,102)	\$ 42,745
Backlog	1.6	57,391	(52,022)	5,369	55,782	(22,725)	33,057
Developed technology	8.5	329,369	(61,271)	268,098	320,364	(21,856)	298,508
Licensed technology	9.0	5,900	(3,797)	2,103	5,900	(3,141)	2,759
Licensing agreements	8.5	560	(368)	192	560	(298)	262
Patents	7.3	500	(500)	—	500	(431)	69
Trade names	3.0	29,689	(16,379)	13,310	28,856	(5,045)	23,811
Total		\$ 478,265	\$ (150,280)	\$ 327,985	\$ 465,809	\$ (64,598)	\$ 401,211

The Company evaluates impairment at the reporting unit level, whenever events or changes in circumstances indicate that the carrying amount of assets within a reporting unit may not be recoverable and the undiscounted cash flows estimated to be generated by the assets are less than the reporting units carrying value. The Company assessed impairment triggers related to our reporting units during each financial period in 2023, 2022 and 2021 and no impairment losses of intangible assets were recorded during the years ended December 31, 2023, 2022 and 2021. See Note 1 for additional information regarding our assessment of impairment for our reporting units.

Amortization expense was \$82.8 million, \$47.3 million and \$4.1 million for the years ended December 31, 2023, 2022 and 2021, respectively, and was included in cost of revenue, selling, general and administrative expenses and research and development expenses in the Consolidated Statements of Loss.

As of December 31, 2023, estimated future amortization expense of intangible assets was as follows:

<i>(In thousands)</i>	As of December 31, 2023
2024	\$ 59,112
2025	47,337
2026	44,040
2027	42,647
2028	42,504
Thereafter	92,345
Total	\$ 327,985

Note 11 - Hedging

The Company has certain forward rate agreements to hedge foreign currency exposure of expected future cash flows in foreign currency. The Company does not hold or issue derivative instruments for trading or other speculative purposes. Derivatives are initially recognized at fair value on the date a derivative contract is entered into and are subsequently re-measured to their fair value at the end of each reporting period. All changes in the fair value of derivative instruments are recognized as other income, net in the Consolidated Statements of Loss. The derivative instruments are not subject to master netting agreements and are not offset in the Consolidated Balance Sheets. We are exposed to risk from credit-related losses resulting from nonperformance by counterparties to our financial instruments. We perform credit evaluations of our counterparties under forward exchange contracts and expect all counterparties to meet their obligations. We have not experienced credit losses from our counterparties.

As of December 31, 2023, the Company had 47 forward rate contracts outstanding.

Foreign Currency Hedging Agreement

On November 3, 2022, the Company entered into a euro/U.S. dollar forward contract arrangement (the "Initial Forward") with Wells Fargo Bank, N.A. (the "Hedge Counterparty"). The Initial Forward, which is governed by the provisions of an ISDA Master Agreement (including schedules thereto and transaction confirmations that supplement such agreement) entered into between the Company and the Hedge Counterparty, enable the Company to convert a portion of its euro denominated payment obligations under the proposed DPLTA into U.S. Dollars. Under the Initial Forward, the Company agreed to exchange an aggregate notional amount of €160.0 million for U.S. dollars at a daily fixed forward rate ranging from \$1.0141 to \$1.0305. The aggregate amount of €160.0 million is divided into eight quarterly tranches of €20.0 million, which commenced in the fourth quarter of 2022. During the twelve months ended December 31, 2023, the Company settled four €20.0 million forward contract tranches and the remaining amount will be divided into four quarterly tranches of €20.0 million over the course of 2024. The Company, at its sole discretion, may exchange all or part of each tranche on any given day within the applicable quarter; provided, however, that it must exchange the full tranche by the end of such quarter. The Initial Forward may be accelerated or terminated early for a number of reasons, including but not limited to (i) non-payment by the Company or the Hedge Counterparty, (ii) breach of representation or warranty or covenant by either party or (iii) insolvency or bankruptcy of either party.

On March 21, 2023, the Company entered into a euro/U.S. dollar forward contract arrangement (the "Forward") with the Hedge Counterparty. Under the Forward, which is governed by the provisions of an ISDA Master Agreement (including schedules thereto and transaction confirmations that supplement such agreement) entered into between the Company and the Hedge Counterparty, the Company will exchange an aggregate notional amount of €160.0 million U.S. dollars for euros at a daily fixed forward rate ranging from \$1.0882 to \$1.0955 per €1.00. During the twelve months ended December 31, 2023, the Company settled four \$20.0 million forward contract tranches and the remaining amount will be divided into four quarterly tranches of \$20.0 million. These forward contracts were executed on March 21, 2023 (to sell EUR/buy USD) and were entered into for the purpose of unwinding the Initial Forward (to buy EUR/sell USD). The drawdown dates of the Initial Forward are set to the same date as the maturity of the new offsetting Forward.

The fair values of the Company's derivative instruments recorded in the Condensed Consolidated Balance Sheet as of December 31, 2023 were as follows:

<i>(In thousands)</i>	Balance Sheet Location	December 31, 2023	December 31, 2022
Derivatives Not Designated as Hedging Instruments (Level 2):			
Foreign exchange contracts – derivative assets	Other receivables	\$ 7,125	\$ 11,992
Foreign exchange contracts – derivative liabilities	Accounts payable	\$ (2,277)	\$ (633)
Total derivatives		\$ 4,848	\$ 11,359

The change in the fair values of the Company's derivative instruments recorded in the Condensed Consolidated Statements of Loss during the years ended December 31, 2023, 2022 and 2021 were as follows:

<i>(In thousands)</i>	Income Statement Location	2023	2022	2021
Derivatives Not Designated as Hedging Instruments:				
Foreign exchange contracts	Other income, net	\$ 758	\$ 10,793	\$ —

Note 12 – Revolving Credit Agreements

The carrying amounts of the Company's revolving credit agreements in its Consolidated Balance Sheets were as follows:

<i>(In thousands)</i>	As of December 31,	
	2023	2022
Wells Fargo credit agreement	\$ 195,000	\$ 60,000
Nord/LB revolving line of credit	—	16,091
Syndicated credit agreement working capital line of credit	—	10,727
DZ bank revolving line of credit	—	9,118
Total revolving credit agreements	\$ 195,000	\$ 95,936

As of December 31, 2023 and 2022, the estimated fair value of our revolving credit agreements, approximates the carrying value. As of December 31, 2023 and 2022, the weighted average interest rate on our revolving credit agreements was 7.45% and 4.12%, respectively.

Wells Fargo Credit Agreement

On July 18, 2022, ADTRAN, Inc., as the borrower, and ADTRAN Holdings, Inc. entered into a credit agreement with a syndicate of banks, including Wells Fargo Bank, National Association, as administrative agent (“Administrative Agent”), and the other lenders named therein (the “Credit Agreement”). As of the date of this filing, the Credit Agreement allows for revolving credit borrowings of up to \$400.0 million in aggregate principal amount, as well as the \$50.0 million delayed draw term loan facility described below.

On August 9, 2023, (the "First Amendment Effective Date") the Company, its wholly-owned direct subsidiary, ADTRAN, Inc. and the Administrative Agent entered into a First Amendment to the Credit Agreement (the “First Amendment” and together with the Credit Agreement, the "Credit Facility").

The First Amendment, provided for, among other things, a new \$50.0 million delayed draw term loan (“DDTL”), which (subject to certain conditions) is available for borrowing in the event of the purchase by the Company of at least sixty percent (60.0%) of the outstanding shares of Adtran Networks SE that were not owned by the Company and its subsidiaries as of the First Amendment Effective Date (such event, a “Springing Covenant Event”). Proceeds of the DDTL may only be used to repurchase minority shares of Adtran Networks SE. The DDTL remains available for borrowing from the occurrence of a Springing Covenant Event through August 9, 2024.

The First Amendment further added additional financial flexibility by permitting, subject to certain requirements, the incurrence of convertible indebtedness by the Company in an aggregate principal amount of up to \$172.5 million. Any such convertible indebtedness must, among other things, be incurred in pro forma compliance with the financial covenants in the Credit Agreement, be unsecured, and otherwise rank junior to borrowings under the Credit Agreement, and have a stated maturity date of at least 91 days after the latest scheduled maturity date of loans and commitments under the Credit Agreement. Net cash proceeds from any incurrence of convertible indebtedness must be used to repurchase minority shares of Adtran Networks or repay revolver borrowings under the Credit Agreement.

On January 16, 2024, the Company entered into a Second Amendment to the Credit Agreement and First Amendment to the Collateral Agreement. The Second Amendment, among other things, provides the Company and its subsidiaries with additional covenant headroom for the fourth quarter of 2023 through the third quarter of 2024 (the "Covenant Relief Period") and adds certain other financial covenants which are described below. See Note 24 for additional information.

On March 12, 2024, the Company entered into a Third Amendment to the Credit Agreement. The Third Amendment, among other things, amends the definition of “Consolidated Funded Indebtedness” (which is used in the calculation of the Consolidated Total Net Leverage Ratio and the Consolidated Senior Secured Net Leverage Ratio) to exclude obligations of the Company and its subsidiaries under certain factoring arrangements when calculated for the fiscal quarters ending March 31, 2024 and June 30, 2024. The Company is also currently in negotiations with the Administrative Agent regarding a potential further amendment to the Credit Agreement to address the addition of certain foreign subsidiary guarantors.

As of December 31, 2023, ADTRAN, Inc.’s borrowings under the revolving line of credit were \$195.0 million. As of December 31, 2023, there were no borrowings under the DDTL. The Credit Facility matures in July 2027; however, the Company has an option to request extensions subject to customary conditions. In addition, we may issue up to \$50.0 million in letters of credit against our \$400.0 million total facility. As of December 31, 2023, we had a total of \$2.3 million in letters of credit under ADTRAN, Inc. outstanding against our eligible borrowings, leaving a net amount of \$202.7 million available for future borrowings. Any future credit extensions under the Credit Agreement are subject to customary conditions precedent. The proceeds of any loans are expected to be used for general corporate purposes and to pay a portion of the Exchange Offer consideration. As of December 31, 2023, the Company was in compliance with all material covenants.

Revolving Line of Credit Interest Rate

All U.S. dollar borrowings under the revolving line of credit (other than swingline loans, which bear interest at the Base Rate (as defined below plus the applicable margin) bear interest, at the Company's option, at a rate per annum equal to either (A) the Base Rate plus an applicable margin ranging from 0.65% to 1.65% per annum based on the Company's Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 2.15% per annum), or (B) Adjusted Term SOFR (as defined below) plus an applicable margin ranging from 1.65% to 2.65% per annum based on the Company's Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 3.15% per annum).

"Base Rate" means the highest of (a) the federal funds rate (i.e., for any day, the rate per annum equal to the weighted average of the rates on overnight federal funds transactions with members of the Federal Reserve System, as published by the Federal Reserve Bank of New York on the business day next succeeding such day) plus ½ of 1.0%, (b) the prime commercial lending rate of the Administrative Agent, as established from time to time at its principal U.S. office (which such rate is an index or base rate and will not necessarily be its lowest or best rate charged to its customers or other banks), and (c) the daily Adjusted Term SOFR (as defined in the Credit Agreement) for a one-month tenor plus 1.0%. The Base Rate is subject to a floor of 1.00% per annum.

"Adjusted Term SOFR" means Term SOFR for the applicable interest period *plus* 0.10% per annum. Adjusted Term SOFR is subject to a floor of 0.00% per annum.

All Euro borrowings under the revolving line of credit bear interest at a rate per annum equal to EURIBOR (as defined in the Credit Agreement and subject to a 0.00% per annum floor) plus an applicable margin ranging from 1.75% to 2.75% per annum based on the Company's Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 3.25% per annum).

In addition, (x) if on or prior to December 31, 2024 we have not reduced the aggregate revolving credit commitment to \$340.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum, and (y) if on or prior to June 30, 2025 we have not reduced the aggregate revolving credit commitment to \$300.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum.

In addition to paying interest on outstanding principal under the Credit Agreement, the Company is required to pay a quarterly commitment fee to the lenders under the Credit Agreement in respect of unutilized revolving loan commitments on the average daily unused portion of the revolving credit commitment of each lender, which commitment fee ranges from 0.20% to 0.25% per annum based on the Company's Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, is equal to 0.25% per annum). The Company is also required to pay a participation fee to the Administrative Agent for the account of each lender with respect to the Company's participation in letters of credit at the then applicable rate for Adjusted Term SOFR Loans or EURIBOR Loans, and other customary fronting, issuance and administration fees with respect to letters of credit.

The increases in the commitment fee and margin rates during the Covenant Relief Period (referenced above) continue until the first date when each of the following conditions have been met (the period during which such increases are in place is hereinafter referred to as the "Applicable Margin Interest Period"): (a) the Covenant Relief Period has ended, (b) since the Second Amendment effective date, the Company has repaid the revolving credit outstanding borrowings by a principal amount of at least \$75.0 million, (c) the Company has reduced the aggregate revolving credit commitment to an amount no greater than \$300.0 million and (d) the Company is in compliance with all financial covenants based on the financial statements for the most recently completed reference period.

Default interest is 2.0% per annum in excess of the rate otherwise applicable.

DDTL Interest Rate

All U.S. dollar borrowings under the DDTL bear interest, at the Company's option, at a rate per annum equal to either (A) the Base Rate plus an applicable margin ranging from 0.90% to 1.90% per annum based on the Company's Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 2.40% per annum), or (B) Adjusted Term SOFR plus an applicable margin ranging from 1.90% to 2.90% per annum based on the Company's Consolidated Total Net Leverage Ratio (or, during the Covenant Relief Period, an applicable margin of 3.40% per annum).

In addition, (x) if on or prior to December 31, 2024 we have not reduced the aggregate revolving credit commitment to \$340.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum, and (y) if on or prior to June 30, 2025 we have not reduced the aggregate revolving credit commitment to \$300.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum.

In addition to paying interest on outstanding principal under the DDTL loan, the Company is required to pay a quarterly commitment fee to the lenders under the Credit Agreement in respect of unutilized DDTL commitments at a rate of 0.25% per annum on the daily unused portion of the aggregate DDTL commitment.

The increases in the commitment fee and margin rates during the Covenant Relief Period (referenced above) continue until the first date when each of the following conditions have been met (the period during which such increases are in place is hereinafter referred to as the “Applicable Margin Interest Period”): (a) the Covenant Relief Period has ended, (b) since the Second Amendment effective date, the Company has repaid the revolving credit outstanding borrowings by a principal amount of at least \$75.0 million, (c) the Company has reduced the aggregate revolving credit commitment to an amount no greater than \$300.0 million and (d) the Company is in compliance with all financial covenants based on the financial statements for the most recently completed reference period.

Default interest is 2.0% per annum in excess of the rate otherwise applicable.

Nord/LB Revolving Line of Credit

On March 29, 2023, Adtran Networks entered into a \$16.1 million unsecured revolving line of credit with Norddeutsche Landesbank - Girozentrale (Nord/LB) that bears interest of Euro Short Term Rate plus 1.94%. The line of credit had a perpetual term that could be terminated by the Company or Nord/LB at any time. As of December 31, 2023, the Company repaid the outstanding borrowing and terminated the line of credit.

Prior Nord/LB Revolving Line of Credit

On August 8, 2022, Adtran Networks entered into a \$16.1 million revolving line of credit with Norddeutsche Landesbank - Girozentrale (Nord/LB) that bears interest of Euro Short Term Rate plus 1.4% and matured in August 2023. On January 31, 2023, the Company repaid the outstanding borrowings under the Nord/LB revolving line of credit and terminated the line of credit.

Syndicated Credit Agreement Working Capital Line of Credit

In September 2018, Adtran Networks entered into a syndicated credit agreement with Bayerische Landesbank and Deutsche Bank AG Branch German Business to borrow up to \$10.7 million as part of a working capital line of credit. On January 31, 2023, the Company repaid the outstanding borrowings and terminated the syndicated credit agreement working capital line of credit.

DZ Bank Revolving Line of Credit

In the fourth quarter of 2022, Adtran Networks entered into a revolving line of credit with DZ Bank to borrow up to \$9.1 million. Interest on the line of credit reset monthly based on renewal of the loan and was 2.8% at the time the loan was repaid. On March 12, 2023, the Company repaid the outstanding borrowings and terminated the DZ Bank revolving line of credit.

Note 13 – Notes Payable

The carrying amounts of the Company's notes payable in its Condensed Consolidated Balance Sheets were as follows:

<i>(In thousands)</i>	Fair Value as of December 31, 2023	Carrying Value as of December 31, 2023	Carrying Value as of December 31, 2022
Syndicated credit agreement note payable	\$ —	\$ —	\$ 24,598
Total Notes Payable	\$ —	\$ —	\$ 24,598

Syndicated Credit Agreement Note Payable

In September 2018, Adtran Networks entered into a syndicated credit agreement with Bayerische Landesbank and Deutsche Bank AG Branch German Business to borrow \$63.7 million. As of December 31, 2022, the amount outstanding under the note payable is \$24.6 million. On January 31, 2023, the Company repaid the outstanding borrowings under the syndicated credit agreement working capital line of credit. No amounts are available for future borrowings and terminated the Syndicated credit agreement note payable.

Note 14 – Income Taxes

The components of income tax expense (benefit) for the years ended December 31, 2023, 2022 and 2021 are as follows:

<i>(In thousands)</i>	2023	2022	2021
Current			
Federal	\$ 2,545	\$ 4,572	\$ 11
State	26	88	(63)
International	10,004	(4,347)	4,166
Total Current	12,575	313	4,114
Deferred			
Federal	46,252	(47,429)	—
State	6,607	(6,776)	—
International	(37,301)	(8,183)	(1,784)
Total Deferred	15,558	(62,388)	(1,784)
Total Income Tax Expense (Benefit)	\$ 28,133	\$ (62,075)	\$ 2,330

The effective income tax rate differs from the federal statutory rate due to the following:

	2023	2022	2021
Tax provision computed at the federal statutory rate	21.00 %	21.00 %	21.00 %
State income tax provision, net of federal benefit	1.34	2.60	13.33
Federal research credits	3.26	6.74	53.77
Foreign taxes	3.52	6.29	(4.69)
Tax-exempt income	0.06	0.21	3.75
Change in valuation allowance	(35.19)	63.92	(75.26)
Non-deductible transaction costs	—	(2.74)	(39.48)
Foreign tax credits	2.45	(0.40)	0.14
Stock-based compensation	(0.57)	(2.09)	10.74
Withholding taxes	0.01	0.03	0.14
Alabama law change	—	—	(25.39)
Adtran Networks tax exempt income	1.42	—	—
Return to accrual	0.62	0.24	9.48
Global intangible low-taxed income ("GILTI")	(5.87)	(8.08)	(4.29)
Adtran Networks Goodwill Impairment	(4.62)	—	—
Other, net	0.40	(0.24)	(0.19)
Effective Tax Rate	(12.17) %	87.48 %	(36.95) %

Loss before expense (benefit) for income taxes for the years ended December 31, 2023, 2022 and 2021 is as follows:

<i>(In thousands)</i>	2023	2022	2021
U.S. entities	\$ (113,951)	\$ (33,720)	\$ (14,982)
International entities	(117,259)	(37,243)	8,677
Total	\$ (231,210)	\$ (70,963)	\$ (6,305)

Loss before expense (benefit) for income taxes for international entities reflects loss based on statutory transfer pricing agreements. This amount does not correlate to consolidated international revenue, which occurs from our U.S. entity.

Deferred income taxes on the Consolidated Balance Sheets result from temporary differences between the amount of assets and liabilities recognized for financial reporting and tax purposes. The significant components of current and non-current deferred taxes as of December 31, 2023 and 2022 consist of the following:

<i>(In thousands)</i>	<u>2023</u>	<u>2022</u>
Deferred tax assets:		
Inventory	\$ 19,623	\$ 5,818
Accrued expenses	3,533	7,865
Deferred compensation	6,284	5,792
Stock-based compensation	2,023	1,373
Uncertain tax positions related to state taxes and related interest	105	102
Pensions	8,607	5,952
Foreign losses	2,705	4,744
State losses and credit carry-forwards	4,259	3,516
Federal loss and research carry-forwards	78,450	64,995
Lease liabilities	7,701	4,093
Capitalized research and development expenditures	48,192	31,248
Investments	—	160
Valuation allowance	(86,567)	(5,201)
Total Deferred Tax Assets	<u>94,915</u>	<u>130,457</u>
Deferred tax liabilities:		
Property, plant and equipment	(9,093)	(8,982)
Intellectual property	(86,572)	(108,671)
Right of use lease assets	(8,424)	(6,594)
Investments	(694)	—
Total Deferred Tax Liabilities	<u>(104,783)</u>	<u>(124,247)</u>
Net Deferred Tax (Liabilities) Assets	<u>\$ (9,868)</u>	<u>\$ 6,210</u>

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act") was signed into law. Subsequently, the Internal Revenue Service ("IRS") released its final GILTI regulations on July 9, 2020. The passage of the CARES Act and subsequent issuance of the GILTI final regulations together resulted in the Company's recognition of a tax benefit in the amount of \$10.8 million during 2020, \$7.9 million of which related to the utilization of deferred tax assets which had previously been offset with a valuation allowance and \$2.9 million primarily related to the tax rate differential on carrying back losses from 2018 and 2019 tax years to prior years in which the U.S. Corporate tax rate was 35% versus the current 21% federal tax rate.

On February 12, 2021, the Alabama Business Tax Competitiveness Act (the "Alabama Act") was signed into law. As a result of the Alabama Act, we recognized an expense of \$1.6 million in the three months ended March 31, 2021 related to the revaluation of our deferred tax assets, which was offset by changes in our valuation allowance previously recorded against our domestic deferred tax assets.

During the three months ended September 30, 2021, Management decided to pursue a claim for refund related to the revocation of our IRC Section 59(e) election that was made on our originally filed 2018 U.S. federal tax return. The Company filed a related carryback claim of net operating losses generated in 2018 to prior years as allowed under the CARES Act that was passed in 2020. An IRS Section 59(e) election is generally non-revocable except in cases for which IRS Commissioner's approval is given. Approval is granted only in rare and unusual circumstances. We filed a private letter ruling ("PLR") request to revoke our election. During the three months ended December 31, 2021, a response to our PLR was published denying our request to revoke the previously made 59(e). As a result of these filings, and Management's initial position was to pursue them through appeals; therefore, we have established a receivable in the amount of \$15.2 million and a deferred tax asset related to additional research and development credit carryforward in the amount of \$1.8 million that would be available if our revocation request is successful, offset with an uncertain tax liability of \$17.0 million. As of the year ended December 31, 2023, management no longer wishes to pursue the appeals process; therefore, the receivable, the deferred tax asset and the offsetting uncertain tax liability have been released.

As of December 31, 2023 and 2022, non-current deferred taxes reflected deferred taxes on net unrealized gains and losses on available-for-sale investments and deferred taxes on unrealized losses in our pension plan. The net change in non-current deferred taxes associated with these items, which resulted in a deferred tax benefit of \$0.3 million and \$2.0 million in 2023 and 2022, respectively, was recorded as an adjustment to other comprehensive income (loss), presented in the Consolidated Statements of Comprehensive Income (Loss).

The Company continually reviews the adequacy of our valuation allowance and recognizes the benefits of deferred tax assets only as the reassessment indicates that it is more likely than not that the deferred tax assets will be realized in accordance with ASC 740, *Income Taxes* (ASC 740). Due to our recent decrease in revenue and profitability for 2023 and all other positive and negative objective evidence considered as part of our analysis, our ability to consider other subjective evidence such as projections for future growth is limited when evaluating whether our deferred tax assets will be realized. As such, the Company is no longer able to conclude that it is more likely than not that our domestic deferred tax assets will be realized and a valuation allowance against our domestic deferred tax assets was established in the fourth quarter of 2023. The amount of the deferred tax assets considered realizable, however, could be adjusted in future periods in the event sufficient evidence is present to support a conclusion that it is more likely than not that all or a portion of our domestic deferred tax assets will be realized.

As of December 31, 2023 and 2022, the Company had gross deferred tax assets totaling \$76.7 million offset by a valuation allowance totaling \$86.6 million and gross deferred tax assets totaling \$11.4 million offset by a valuation allowance of \$5.2 million, respectively. Of the current valuation allowance, \$84.8 million was established against our domestic deferred tax assets and the remaining \$1.8 million is related to foreign net operating loss and research and development credit carryforwards where we lacked sufficient activity to realize those deferred tax assets. The change in our valuation allowance for the year ending December 31, 2023 was an increase of \$81.4 million. The change in the valuation allowance was primarily related to the previously mentioned establishment of the valuation allowance in the fourth quarter of 2023. The large increase during the year in our international deferred tax liabilities was primarily related to purchase price accounting, partially offset with acquired deferred tax assets as a result of the Adtran Networks acquisition, that was completed in the third quarter of 2022.

Supplemental balance sheet information related to deferred tax assets (liabilities) as of December 31, 2023 and 2022 were as follows:

<i>(In thousands)</i>	December 31, 2023		
	Deferred Tax Assets (Liabilities)	Valuation Allowance	Deferred Tax Assets (Liabilities), net
Domestic	\$ 101,120	\$ (84,767)	\$ 16,353
International	(24,421)	(1,800)	(26,221)
Total	\$ 76,699	\$ (86,567)	\$ (9,868)

<i>(In thousands)</i>	December 31, 2022		
	Deferred Tax Assets	Valuation Allowance	Deferred Tax Assets, net
Domestic	\$ 61,726	\$ (3,177)	\$ 58,549
International	(50,315)	(2,024)	(52,339)
Total	\$ 11,411	\$ (5,201)	\$ 6,210

As of December 31, 2023 and 2022, the deferred tax assets for foreign and domestic loss carry-forwards, research and development tax credits, unamortized research and development costs and state credit carry-forwards totaled \$135.1 million and \$104.5 million, respectively. As of December 31, 2023, \$87.2 million of these deferred tax assets will expire at various times between 2024 and 2039. The remaining deferred tax assets will either amortize through 2039 or carryforward indefinitely.

As of December 31, 2023 and 2022, respectively, our cash and cash equivalents were \$87.2 million and \$108.6 million and short-term investments were \$0.0 million and \$0.3 million, which provided available short-term liquidity of \$87.2 million and \$108.9 million. Of these amounts, our foreign subsidiaries held cash of \$76.5 million and \$86.3 million, respectively, representing approximately 88% and 79% of available short-term liquidity, which is used to fund ongoing liquidity needs of these subsidiaries. As part of our restructuring plan, the Company's assertion on being indefinitely reinvested changed in a particular jurisdiction in a previous year. The Company has a withholding tax liability of \$0.4 million and \$0.4 million as of December 31, 2023 and 2022, respectively. The Company maintains its assertion in all other jurisdictions that it is indefinitely reinvesting its funds held in foreign jurisdictions outside of the U.S., except to the extent any of these funds can be repatriated without withholding tax. However, if all of these funds were repatriated to the U.S., or used for U.S. operations, certain amounts could be subject to tax. Due to the timing and circumstances of repatriation of such earnings, if any, it is not practicable to determine the amount of funds subject to unrecognized deferred tax liability.

During 2023, 2022 and 2021, no income tax benefit or expense was recorded for stock options exercised as an adjustment to equity.

The change in the unrecognized income tax benefits for the years ended December 31, 2023, 2022 and 2021 were as follows:

<i>(In thousands)</i>	2023	2022	2021
Balance at beginning of period	\$ 17,885	\$ 17,836	\$ 1,078
Increases for tax position related to:			
Prior years	—	—	17,025
Current year	129	123	136
Decreases for tax positions related to:			
Prior years	(17,025)	(13)	(27)
Expiration of applicable statute of limitations	—	(61)	(376)
Balance at end of period	\$ 989	\$ 17,885	\$ 17,836

As of December 31, 2023, 2022 and 2021, our total liability for unrecognized tax benefits was \$1.0 million, \$17.9 million and \$17.8 million, respectively, of which \$1.0 million, \$17.9 million and \$17.8 million, respectively, would reduce our effective tax rate if we were successful in upholding all of the uncertain positions and recognized the amounts recorded. We classify interest and penalties recognized on the liability for unrecognized tax benefits as income tax expense. As of December 31, 2023, 2022 and 2021, the balances of accrued interest and penalties were \$0.1 million, \$0.1 million and \$0.2 million, respectively.

We do not anticipate a single tax position generating a significant increase or decrease in our liability for unrecognized tax benefits within 12 months of this reporting date, unless a resolution is reached regarding the appeal of our PLR denial noted above. We file income tax returns in the U.S. for federal and various state jurisdictions and several foreign jurisdictions. We are not currently under audit by the Internal Revenue Service. Generally, we are not subject to changes in income taxes by any taxing jurisdiction for the years prior to 2018.

Note 15 – Employee Benefit Plans

Pension Benefit Plan

We maintain a defined benefit pension plan covering employees in certain foreign countries. Pension benefit plan obligations are based on various assumptions used by our actuaries in calculating these amounts. These assumptions include discount rates, compensation rate increases, expected return on plan assets, retirement rates and mortality rates. Actual results that differ from the assumptions and changes in assumptions could affect future expenses and obligations. Details regarding the pension plans are set forth below.

- In Germany, there is one defined benefit pension plan and one defined contribution plan. Both plans provide benefits in the event of retirement, death or disability. The plan's benefits are based on age, years of service and salary. The defined benefit plan is financed by contributions paid by the Company and the defined contribution plan is financed by contributions paid by the participants.
- In Switzerland, there are two defined benefit pension plans. Both plans provide benefits in the event of retirement, death or disability. The plan's benefits are based on age, years of service, salary and on a participant's old age account. The plans are financed by contributions paid by the participants and by the Company.
- In Italy, the post-employment benefit plan is required due to statutory provisions. The plan is financed directly by the Company on a pay as you go basis. Employees receive their pension payments as a function of salary, inflation and a notional account.
- In Israel, there is a defined benefit pension plan that provides benefits in the event of a participant being dismissed involuntarily, retirement or death. The plan's benefits are based on the higher of the severance benefit required by law or the cash surrender value of the severance benefit component of any qualifying insurance policy or long-term employee benefit fund that is registered in the participants name. The plan is financed by contributions paid by the Company.
- In India, the post-employment benefit plan is required due to statutory provisions. The plan is financed directly by the Company on a pay as you go basis.

The pension benefit plan obligations and funded status as of December 31, 2023 and 2022, were as follows:

<i>(In thousands)</i>	2023	2022
Change in projected benefit obligation:		
Projected benefit obligation at beginning of period	\$ 59,344	\$ 73,779 ⁽¹⁾
Service cost	1,579	1,426
Interest cost	1,851	1,168
Actuarial loss (gain) - experience	1,181	(2,039)
Actuarial loss (gain) - assumptions	1,791	(11,128)
Benefit payments	(1,966)	(1,400)
Plan amendments	966	—
Effects of foreign currency exchange rate changes	3,151	(2,462)
Projected benefit obligation at end of period	67,897	59,344
Change in plan assets:		
Fair value of plan assets at beginning of period	48,720	55,084 ⁽¹⁾
Actual gain (loss) on plan assets	3,125	(4,372)
Contributions	1,215	382
Benefit payments	(231)	—
Effects of foreign currency exchange rate changes	2,389	(2,374)
Fair value of plan assets at end of period	55,218	48,720
Unfunded status at end of period	\$ (12,679)	\$ (10,624)

(1) In connection with the Business Combination, we acquired \$29.6 million of additional projected benefit obligations and \$22.3 million of plan assets whose beginning of period measurement date is July 15, 2022.

The accumulated benefit obligation was \$67.1 million and \$56.8 million as of December 31, 2023 and 2022, respectively. The decrease in the accumulated benefit obligation, projected benefit obligation and the actuarial loss was primarily attributable to an increase in the discount rate during 2023.

The net amounts recognized in the Consolidated Balance Sheets for the unfunded pension liability as of December 31, 2023 and 2022 were as follows:

<i>(In thousands)</i>	2023	2022
Current pension liability	\$ 136	\$ —
Non-current pension liability	12,543	10,624
Total	\$ 12,679	\$ 10,624

The components of net periodic pension cost, other than the service cost component, are included in other income, net in the Consolidated Statements of Loss. The components of net periodic pension cost and amounts recognized in other comprehensive (loss) income for the years ended December 31, 2023, 2022 and 2021 were as follows:

<i>(In thousands)</i>	2023	2022	2021
Net periodic benefit cost:			
Service cost	\$ 1,579	\$ 1,426	\$ 1,229
Interest cost	1,851	1,168	339
Expected return on plan assets	(1,750)	(2,129)	(1,842)
Amortization of actuarial losses	26	355	1,088
Net periodic benefit cost	1,706	820	814
Other changes in plan assets and benefit obligations recognized in other comprehensive income (loss):			
Net actuarial loss (gain)	2,304	(6,549)	(4,984)
Amortization of actuarial losses	(145)	(113)	(825)
Amount recognized in other comprehensive income (loss)	2,159	(6,662)	(5,809)
Total recognized in net periodic benefit cost and other comprehensive income (loss)	\$ 3,865	\$ (5,842)	\$ (4,995)

The amounts recognized in accumulated other comprehensive income as of December 31, 2023 and 2022 were as follows:

<i>(In thousands)</i>	<u>2023</u>	<u>2022</u>
Net actuarial loss	\$ (3,231)	\$ (1,073)

The defined benefit pension plan is accounted for on an actuarial basis, which requires the use of various assumptions, including an expected rate of return on plan assets and a discount rate. The expected return on our plan's assets is utilized in determining the benefit obligation and net periodic benefit cost is derived from periodic studies, which include a review of asset allocation strategies, anticipated future long-term performance of individual asset classes, risks using standard deviations and correlations of returns among the asset classes that comprise the plans' asset mix. While the studies give appropriate consideration to recent plan performance and historical returns, the assumptions are primarily long-term, prospective rates of return. The discount rate has been derived from the returns of high-quality, corporate bonds denominated in euro currency with durations close to the duration of our pension obligations.

The weighted-average assumptions that were used to determine the net periodic benefit cost for the years ended December 31, 2023, 2022 and 2021 were as follows:

	<u>2023</u>	<u>2022</u>	<u>2021</u>
Discount rate	2.84 %	3.24 %	1.16 %
Rate of compensation increase	2.22 %	2.17 %	2.00 %
Expected long-term rates of return	4.83 %	4.65 %	5.90 %

The weighted-average assumptions that were used to determine the benefit obligation as of December 31, 2023 and 2022:

	<u>2023</u>	<u>2022</u>	<u>2021</u>
Discount rate	3.17 %	3.10 %	1.16 %
Rate of compensation increase	2.22 %	2.17 %	2.00 %

Actuarial gains and losses are recorded in accumulated other comprehensive income. To the extent unamortized gains and losses exceed 10% of the higher of the market-related value of assets or the projected benefit obligation, the excess is amortized as a component of net periodic pension cost over the remaining service period of active participants.

The Company anticipates making approximately \$2.2 million in contributions to the pension plans in 2024.

The following pension benefit payments, which reflect expected future service, as appropriate, are expected to be paid to participants:

<i>(In thousands)</i>	
2024	\$ 2,851
2025	3,725
2026	3,183
2027	3,683
2028	3,313
2029 - 2032	18,498
Total	\$ 35,253

U.S. GAAP establishes a three-level valuation hierarchy based upon observable and unobservable inputs for fair value measurement of financial instruments:

- Level 1 – Observable outputs; values based on unadjusted quoted prices for identical assets or liabilities in an active market;
- Level 2 – Significant inputs that are observable; values based on quoted prices in markets that are not active or model inputs that are observable either directly or indirectly;
- Level 3 – Significant unobservable inputs; values based on prices or valuation techniques that require inputs that are both unobservable and significant to the overall fair value measurement. These inputs could include information supplied by investees.

We have categorized our cash equivalents and our investments held at fair value into this hierarchy as follows:

<i>(In thousands)</i>	Fair Value Measurements at December 31, 2023 Using			
	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash and cash equivalents	\$ 987	\$ 987	\$ —	\$ —
Available-for-sale securities				
Bond funds	20,155	18,840	1,315	—
Equity funds	21,525	21,288	237	—
Other funds	6,054	5,343	711	—
Insurance contracts	353	—	353	—
Real estate funds	6,144	546	2,326	3,272
Available-for-sale securities	54,231	46,017	4,942	3,272
Total	\$ 55,218	\$ 47,004	\$ 4,942	\$ 3,272

<i>(In thousands)</i>	Fair Value Measurements at December 31, 2022 Using			
	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash and cash equivalents	\$ 1,423	\$ 1,423	\$ —	\$ —
Available-for-sale securities				
Bond funds:				
Corporate bonds	13,256	11,667	1,590	—
Government bonds	5,490	5,490	—	—
Equity funds:				
Global equity	15,452	15,150	301	—
Balanced fund	5,190	4,148	1,042	—
Emerging markets	1,707	1,707	—	—
Large cap value	194	194	—	—
Global real estate fund	6,008	742	1,577	3,689
Available-for-sale securities	47,297	39,098	4,510	3,689
Total	\$ 48,720	\$ 40,521	\$ 4,510	\$ 3,689

Our investment policy includes various guidelines and procedures designed to ensure assets are invested in a manner necessary to meet expected future benefits earned by participants and consider a broad range of economic conditions. The objectives of the target allocations are to maintain investment portfolios that diversify risk through prudent asset allocation parameters, achieve asset returns that meet or exceed the plans' actuarial assumptions and achieve asset returns that are competitive with like institutions employing similar investment strategies.

The investment policy is periodically reviewed by the Company and a designated third-party fiduciary for investment matters. The policy is established and administered in a manner that is compliant at all times with applicable government regulations.

401(k) Savings Plans

We maintain the ADTRAN, Inc. 401(k) Retirement Plan and the Adtran Networks SE 401(k) Retirement Plan (the “Savings Plans”) for the benefit of eligible employees. The Savings Plans are intended to qualify under Sections 401(a) and 401(k) of the Internal Revenue Code of 1986, as amended (the “Code”), and is intended to be a “safe harbor” 401(k) plan under Code Section 401(k)(12). The Savings Plans allows employees to save for retirement by contributing part of their compensation to the plan on a tax-deferred basis. The Savings Plans also requires us to contribute a “safe harbor” amount each year. In our legacy ADTRAN, Inc. plan, we match up to 4% of employee contributions (100% of an employee’s first 3% of contributions and 50% of their next 2% of contributions), beginning on the employee’s one-year anniversary date. All matching contributions under the legacy ADTRAN, Inc. Savings Plan vest immediately. In our legacy ADTRAN Networks, plan, we match up to 1.5% of employee contributions (25% of an employee’s first 6% of contributions). All matching contributions under the legacy ADTRAN Networks Savings Plan vest ratably over five years beginning on the employee’s one-year anniversary date. In addition, under the legacy ADTRAN Networks plan, an annual matching employer contribution is made which is based on the Company’s achievement against a yearly relative Pro-forma EBIT target which can range from no additional match up to an additional 50% match. In calculating our matching contributions, compensation up to the statutory maximum under the Code is used (\$330,000 for 2023). Employer contribution expense and plan administration costs for both Savings Plan amounted to approximately \$4.2 million, \$4.1 million and \$3.9 million in 2023, 2022 and 2021, respectively.

Deferred Compensation Plans

We maintain four deferred compensation programs for certain executive management employees and our Board of Directors.

The ADTRAN, Inc. Deferred Compensation Program for Employees is offered as a supplement to our tax-qualified 401(k) plan and is available to certain executive management employees who have been designated by our Board of Directors. This deferred compensation plan allows participants to defer all or a portion of certain specified bonuses and up to 25% of remaining cash compensation and permits us to make matching contributions on a discretionary basis without the limitations that apply to the 401(k) plan. To date, we have not made any matching contributions under this plan. We also maintain the ADTRAN, Inc. Equity Deferral Program for Employees. Under this plan, participants may elect to defer all or a portion of their vested PSUs and RSUs to the plan. Such deferrals shall continue to be held and deemed to be invested in shares of ADTRAN stock unless and until the amounts are distributed or such deferrals are moved to another deemed investment pursuant to an election made by the participant.

For our Board of Directors, we maintain the ADTRAN, Inc. Deferred Compensation Program for Directors. This program allows our Board of Directors to defer all or a portion of monetary remuneration paid to the Director, including, but not limited to, meeting fees and annual retainers. We also maintain the ADTRAN, Inc. Equity Deferral Program for Directors. Under this plan, participants may elect to defer all or a portion of their vested restricted stock awards. Such deferrals shall continue to be held and deemed to be invested in shares of ADTRAN stock unless and until the amounts are distributed or such deferrals are moved to another deemed investment pursuant to an election made by the director.

We have set aside the plan assets for all plans in a rabbi trust (the “Trust”) and all contributions are credited to bookkeeping accounts for the participants. The Trust assets are subject to the claims of our creditors in the event of bankruptcy or insolvency. The assets of the Trust are deemed to be invested in pre-approved mutual funds as directed by each participant and the participant’s bookkeeping account is credited with the earnings and losses attributable to those investments. Benefits are scheduled to be distributed six months after termination of employment in a single lump sum payment or annual installments paid over a three or ten-year term based on the participant’s election. Distributions will be made on a pro-rata basis from each of the hypothetical investments of the participant’s account in cash. Any whole shares of ADTRAN, Inc. common stock that are distributed will be distributed in-kind.

Assets of the Trust are deemed invested in mutual funds that cover an investment spectrum ranging from equities to money market instruments. These mutual funds are publicly quoted and reported at fair value. The fair value of the assets held by the Trust and the amounts payable to the plan participants as of December 31, 2023 and 2022 were as follows:

<i>(In thousands)</i>	2023	2022
Fair Value of Plan Assets		
Long-term investments	\$ 26,838	\$ 22,943
Total Fair Value of Plan Assets	\$ 26,838	\$ 22,943
Amounts Payable to Plan Participants		
Deferred compensation liability	\$ 29,039	\$ 26,668
Total Amounts Payable to Plan Participants	\$ 29,039	\$ 26,668

The Trust held \$2.2 million and \$3.7 million of common stock in the Company as of December 31, 2023 and 2022, respectively. Shares of the Company held by the Trust are recorded at cost and classified as treasury stock on the Consolidated Balance Sheet.

Interest and dividend income of the Trust are included in interest and dividend income in the accompanying 2023, 2022 and 2021 Consolidated Statements of Loss. Changes in the fair value of the plan assets held by the Trust have been included in other income, net in the accompanying 2023, 2022 and 2021 Consolidated Statements of Loss. Changes in the fair value of the deferred compensation liability are included as selling, general and administrative expense in the accompanying 2023, 2022 and 2021 Consolidated Statements of Loss. Based on the changes in the total fair value of the Trust's assets, the Company recorded deferred compensation income in 2023, 2022 and 2021 of \$3.0 million, \$6.3 million and \$0.9 million, respectively.

Retiree Medical Coverage

Medical, dental and prescription drug coverage is provided to certain spouses and former spouses of current and former officers on the same terms as provided to our active officers for up to 30 years. As of December 31, 2023 and 2022, this liability totaled \$0.3 million and \$0.2 million, respectively.

Note 16 – Equity

The following table presents changes in accumulated other comprehensive income (loss), net of tax, by components of accumulated other comprehensive income (loss) for the years ended December 31, 2023, 2022 and 2021:

<i>(In thousands)</i>	Unrealized Gains (Losses) on Available- for-Sale Securities	Defined Benefit Plan Adjustments	Foreign Currency Adjustments	ASU 2018-02 Adoption ⁽¹⁾	Total
Balance as of December 31, 2020	\$ 32	\$ (9,621)	\$ (2,435)	\$ 385	\$ (11,639)
Other comprehensive (loss) income before reclassifications	(705)	3,439	(3,699)	—	(965)
Amounts reclassified from accumulated other comprehensive (loss) income	121	569	—	—	690
Balance as of December 31, 2021	(552)	(5,613)	(6,134)	385	(11,914)
Other comprehensive (loss) income before reclassifications	(41)	4,519	53,396	—	57,874
Amounts reclassified from accumulated other comprehensive (loss) income	(243)	78	—	—	(165)
Net current period other comprehensive (loss) income	(284)	4,597	53,396	—	57,709
Less: Other comprehensive income attributable to non-controlling interest, net of tax	—	—	19,669	—	19,669
Balance as of December 31, 2022	(836)	(1,016)	27,593	385	26,126
Other comprehensive income (loss) before reclassifications	734	(1,590)	22,753	—	21,897
Amounts reclassified from accumulated other comprehensive (loss) income	(280)	100	—	—	(180)
Net current period other comprehensive income (loss)	454	(1,490)	22,753	—	21,717
Less: Other comprehensive income attributable to non-controlling interest, net of tax	—	—	382	—	382
Balance as of December 31, 2023	\$ (382)	\$ (2,506)	\$ 49,964	\$ 385	\$ 47,461

- (1) With the adoption of ASU 2018-02 on January 1, 2019, stranded tax effects related to the Tax Cuts and Jobs Act of 2017 were reclassified to retained earnings.

The following tables present the details of reclassifications out of accumulated other comprehensive income (loss) for the years ended December 31, 2023, 2022 and 2021:

<i>(In thousands)</i>	For the year ended December 31,			Affected Line Item in the Statement Where Net (Loss) Income Is Presented
	2023	2022	2021	
Details about Accumulated Other Comprehensive (Loss) Income Components				
Unrealized (loss) gains on available-for-sale securities:				
Net realized gain (loss) on sales of securities	\$ 378	\$ 328	\$ (164)	Net investment gain ⁽¹⁾
Defined benefit plan adjustments – actuarial losses	(145)	(113)	(825)	
Total reclassifications for the period, before tax	233	215	(989)	
Tax (benefit) expense	(53)	(50)	299	
Total reclassifications for the period, net of tax	\$ 180	\$ 165	\$ (690)	

(1) Included in the computation of net periodic pension cost. See Note 15 for additional information.

The following tables present the tax effects related to the change in each component of other comprehensive income (loss) for the years ended December 31, 2023, 2022 and 2021:

<i>(In thousands)</i>	2023		
	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized gains (losses) on available-for-sale securities	\$ 992	\$ (258)	\$ 734
Reclassification adjustment for amounts related to available-for-sale investments included in net (loss) income	(378)	98	(280)
Defined benefit plan adjustments	(2,304)	714	(1,590)
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net (loss) income	145	(45)	100
Foreign currency translation adjustment	22,753	—	22,753
Total Other Comprehensive Income	\$ 21,208	\$ 509	\$ 21,717

<i>(In thousands)</i>	2022		
	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized (losses) gains on available-for-sale securities	\$ (55)	\$ 14	\$ (41)
Reclassification adjustment for amounts related to available-for-sale investments included in net (loss) income	(328)	85	(243)
Defined benefit plan adjustments	6,549	(2,030)	4,519
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net income (loss)	113	(35)	78
Foreign currency translation adjustment	53,396	—	53,396
Total Other Comprehensive Income (Loss)	\$ 59,675	\$ (1,966)	\$ 57,709

<i>(In thousands)</i>	2021		
	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized (losses) gains on available-for-sale securities	\$ (953)	\$ 248	\$ (705)
Reclassification adjustment for amounts related to available-for-sale investments included in net income (loss)	164	(43)	121
Defined benefit plan adjustments	4,984	(1,545)	3,439
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net income (loss)	825	(256)	569
Foreign currency translation adjustment	(3,699)	—	(3,699)
Total Other Comprehensive Income (Loss)	\$ 1,321	\$ (1,596)	\$ (275)

Note 17 – Redeemable Non-Controlling Interest

As of December 31, 2023 and 2022, the non-controlling Adtran Networks stockholders' equity ownership percentage in Adtran Networks was approximately 34.7% and 34.7%, respectively.

As a result of the effectiveness of the DPLTA on January 16, 2023, the Adtran Networks shares, representing the equity interest in Adtran Networks held by holders other than the Company, can be tendered at any time and are, therefore, redeemable and must be classified outside stockholders' equity. Therefore, the permanent equity noncontrolling interest balance was reclassified to redeemable non-controlling interest (RNCI) on January 16, 2023 and was remeasured to fair value based on the trading market price of the Adtran Networks shares.

Subsequently, the carrying value of the RNCI is adjusted to its maximum redemption value at each reporting date when the maximum redemption value is greater than the initial carrying amount of the RNCI. However, the RNCI will be remeasured using the current exchange rate at each reporting date as long as the RNCI is currently redeemable. For the period of time that the DPLTA is in effect, the RNCI will continue to be presented as RNCI outside of stockholders' equity in the Condensed Consolidated Balance Sheets.

The following table summarizes the redeemable non-controlling interest activity for the year ended December 31, 2023:

<i>(In thousands)</i>	For the Year Ended December 31, 2023	
Balance at beginning of period	\$	—
Reclassification of non-controlling interests		443,757
Fair value on redemption of redeemable non-controlling interests		(1,657)
Net income attributable to redeemable non-controlling interests		11,525
Annual recurring compensation earned		(11,525)
Translation adjustment		9,604
Adtran Networks stock option exercises		52
Balance as of December 31, 2023	\$	451,756

Annual recurring compensation payable on untendered outstanding shares under the DPLTA must be recognized as it is accrued. For the year ended December 31, 2023, we have recognized \$11.5 million representing the portion of the annual recurring cash compensation to the non-controlling shareholders accrued during such periods, which will be paid after the ordinary general shareholders' meeting of Adtran Networks beginning in 2024. See Note 1 and Note 20 for additional information on RNCI and the annual dividend.

Note 18 – Segment Information and Major Customers

The chief operating decision maker regularly reviews the Company's financial performance based on two reportable segments: (1) Network Solutions and (2) Services & Support.

The Network Solutions segment includes hardware and software products that enable a digital future which support the Company's Subscriber, Access and Aggregation, and Optical Networking Solutions. The Company's cloud-managed Wi-Fi gateways, virtualization software, and switches provide a mix of wired and wireless connectivity at the customer premises. In addition, its Carrier Ethernet products support a variety of applications at the network edge ranging from mobile backhaul to connecting enterprise customers ("Subscriber Solutions"). The Company's portfolio includes products for multi-gigabit service delivery over fiber or alternative media to homes and businesses.

The Services & Support segment offers a comprehensive portfolio of network design, implementation, maintenance and cloud-hosted services supporting its Subscriber, Access and Aggregation, and Optical Networking Solutions. These services assist operators in the deployment of multi-vendor networks while reducing their cost to maintain these networks. The cloud-hosted services include a suite of SaaS applications under the Company's Mosaic One platform that manages end-to-end network and service optimization for both fiber access infrastructure and mesh Wi-Fi connectivity. The Company backs these services with a global support organization that offers on-site and off-site support services with varying SLAs.

The performance of these segments is evaluated based on revenue, gross profit and gross margin; therefore, selling, general and administrative expenses, research and development expenses, interest and dividend income, interest expense, net investment gain (loss), other income, net and income tax (expense) benefit are reported on a Company-wide basis only. There is no inter-segment revenue. Asset information by reportable segment is not produced and, therefore, is not reported.

The following table presents information about revenue and gross profit of our reportable segments for each of the years ended December 31, 2023, 2022 and 2021:

<i>(In thousands)</i>	2023		2022		2021	
	Revenue	Gross Profit	Revenue	Gross Profit	Revenue	Gross Profit
Network Solutions	\$ 974,389	\$ 227,494	\$ 916,793	\$ 269,688	\$ 498,834	\$ 190,993
Services & Support	174,711	105,569	108,743	57,564	64,170	27,384
Total	\$ 1,149,100	\$ 333,063	\$ 1,025,536	\$ 327,252	\$ 563,004	\$ 218,377

For the years ended December 31, 2023, 2022 and 2021, \$6.5 million, \$3.2 million and \$1.2 million, respectively, of depreciation expense was included in gross profit for our Network Solutions segment. For the years ended December 31, 2023, 2022 and 2021, \$20 thousand, \$10 thousand and \$14 thousand, respectively, of depreciation expense was included in gross profit for our Services & Support segment.

Revenue by Category

In addition to operating under two reportable segments, the Company also reports revenue across three categories – Subscriber Solutions, Access & Aggregation Solutions and Optical Networking Solutions.

Prior to the Business Combination with Adtran Networks on July 15, 2022, ADTRAN, Inc. reported revenue across the following three categories: (1) Access & Aggregation, (2) Subscriber Solutions & Experience and (3) Traditional & Other Products. Following the Business Combination with Adtran Networks, the Company has recast these revenues such that ADTRAN, Inc's former Access & Aggregation revenue is combined with a portion of the applicable Adtran Networks solutions to create Access & Aggregation Solutions, ADTRAN's former Subscriber Solutions & Experience revenue is combined with a portion of the applicable Adtran Networks solutions to create Subscriber Solutions, and the revenue from Traditional & Other products is now included in the applicable Access & Aggregation Solutions or Subscriber Solutions category. Optical Networking Solutions was added as a new revenue category to represent a meaningful portion of Adtran Networks' portfolio.

Our Subscriber Solutions portfolio is used by Service Providers to terminate their access services infrastructure at customers' premises while providing an immersive and interactive experience for residential, business and wholesale subscribers. This revenue category includes hardware- and software-based products and services. These solutions include fiber termination solutions for residential, business and wholesale subscribers, Wi-Fi access solutions for residential and business subscribers, Ethernet switching and network edge virtualization solutions for business subscribers, and cloud software solutions covering a mix of subscriber types.

Our Access & Aggregation Solutions are solutions that are used by communications Service Providers to connect residential subscribers, business subscribers and mobile radio networks to the Service Providers' metro network, primarily through fiber-based connectivity. This revenue category includes hardware- and software-based products and services. Our solutions within this category are a mix of fiber access and aggregation platforms, precision network synchronization and timing solutions, and access orchestration solutions that ensure highly reliable and efficient network performance.

Our Optical Networking Solutions are used by communications Service Providers, internet content providers and large-scale enterprises to securely interconnect metro and regional networks over fiber. This revenue category includes hardware- and software-based products and services. Our solutions within this category include open optical terminals, open line systems, optical subsystems and modules, network infrastructure assurance systems, and automation platforms that are used to build high-scale, secure and assured optical networks.

The following tables disaggregate our revenue by category for the years ended December 31, 2023, 2022 and 2021:

<i>(In thousands)</i>	2023		
	Network Solutions	Services & Support	Total
Subscriber Solutions	\$ 263,192	\$ 34,516	\$ 297,708
Access & Aggregation Solutions	304,074	54,344	358,418
Optical Networking Solutions	407,123	85,851	492,974
Total	\$ 974,389	\$ 174,711	\$ 1,149,100

<i>(In thousands)</i>	2022		
	Network Solutions	Services & Support	Total
Subscriber Solutions	\$ 364,238	\$ 26,216	\$ 390,454
Access & Aggregation Solutions	326,934	47,068	374,002
Optical Networking Solutions	225,621	35,459	261,080
Total	\$ 916,793	\$ 108,743	\$ 1,025,536

<i>(In thousands)</i>	2021		
	Network Solutions	Services & Support	Total
Subscriber Solutions	\$ 189,825	\$ 16,385	\$ 206,210
Access & Aggregation Solutions	309,009	47,785	356,794
Optical Networking Solutions	—	—	—
Total	\$ 498,834	\$ 64,170	\$ 563,004

Additional Information

The following table presents revenue information by geographic area for the years ended December 31, 2023, 2022 and 2021:

<i>(In thousands)</i>	2023	2022	2021
United States	\$ 460,985	\$ 517,433	\$ 374,600
United Kingdom	214,655	189,685	56,355
Germany	230,922	146,797	65,229
Other international	242,538	171,621	66,820
Total	\$ 1,149,100	\$ 1,025,536	\$ 563,004

Customers comprising more than 10% of revenue can change from year to year. The Company had one customer comprising more than 10% of revenue in 2023 at 11.0% and was included in both our Network Solutions and Services & Support segments. Single customers comprising more than 10% of revenue in 2022 included one customer at 10.4% and was included in both our Network Solutions and Services & Support segments. Single customers comprising more than 10% of revenue in 2021 included one customer at 18% and was included in both our Network Solutions and Services & Support segments. Other than those with more than 10% of revenue disclosed above, our next five largest customers can change, and have historically changed, from year-to-year. The next five largest customers combined represented 28%, 33% and 38% of total revenue in 2023, 2022 and 2021, respectively.

As of December 31, 2023, property, plant and equipment, net totaled \$123.0 million, which included \$56.8 million held in the U.S. and \$66.2 million held outside the U.S. As of December 31, 2022, property, plant and equipment, net totaled \$110.7 million, which included

\$56.2 million held in the U.S. and \$54.5 million held outside the U.S. Property, plant and equipment, net is reported on a Company-wide, functional basis only.

Note 19 – Liability for Warranty Returns

The liability for warranty obligations totaled \$6.4 million and \$7.2 million as of December 31, 2023 and 2022, respectively. These liabilities are included in accrued expenses and other liabilities and other non-current liabilities in the accompanying Consolidated Balance Sheets.

A summary of warranty expense and write-off activity for the years ended December 31, 2023, 2022 and 2021 is as follows:

<i>(In thousands)</i>	Year Ended December 31,		
	2023	2022	2021
Balance at beginning of period	\$ 7,196	\$ 5,403	\$ 7,146
Plus: Adtran Networks acquisition	—	3,756	—
Plus: Amounts charged to cost and expenses	2,952	3,104	855
Plus: Foreign currency translation adjustments	82	334	—
Less: Deductions	(3,784)	(5,401)	(2,598)
Balance at end of period	\$ 6,445	\$ 7,196	\$ 5,403

Note 20 – Commitments and Contingencies

Legal Matters

From time to time the Company is subject to or otherwise involved in various lawsuits, claims, investigations and legal proceedings that arise out of or are incidental to the conduct of our business (collectively, “Legal Matters”), including those relating to employment matters, patent rights, regulatory compliance matters, stockholder claims, and contractual and other commercial disputes. Such Legal Matters, even if not meritorious, could result in the expenditure of significant financial and managerial resources. Additionally, an unfavorable outcome in a legal matter, including in a patent dispute, could require the Company to pay damages, entitle claimants to other relief, such as royalties, or could prevent the Company from selling some of its products in certain jurisdictions. At this time, the Company is unable to predict the outcome of or estimate the possible loss or range of loss, if any, associated with such legal matters.

Adtran Networks Legal Matter

On May 8, 2023, Adtran Networks SE and its subsidiary, ADVA Optical Networking North America, Inc. (together, “Adtran Networks”), filed a lawsuit in the U.S District Court for the Eastern District of Texas (“EDTX”) against Huawei Technologies Co. Ltd (“Huawei”) seeking a declaration from the court that Huawei violated its commitments to negotiate in good faith and to license standard essential patents (“SEPs”), to the extent any SEPs are practiced by Adtran Networks, on Fair, Reasonable and Non-Discriminatory (“FRAND”) terms and conditions. The case also sought to obtain a ruling by the EDTX that Adtran Networks has complied with its own commitments and requested that the Court establish FRAND terms and conditions for obtaining a FRAND license on any SEPs to the extent they are practiced by Adtran Networks. The lawsuit further sought to enjoin Huawei from enforcing certain Huawei patents that Adtran Networks considers invalid and/or not practiced, and Adtran Networks alleged that Huawei had infringed upon an Adtran Networks patent. On July 20, 2023, Adtran Networks SE was served with a complaint filed by Huawei against Adtran Networks SE in the District Court München I, Germany, alleging that certain of its products infringe upon one of Huawei’s patents. On August 22, 2023, Adtran Networks entered into a settlement agreement with Huawei pursuant to which the parties agreed to, among other things, dismiss the lawsuits described above.

DPLTA Exit and Recurring Compensation Costs

Pursuant to the terms of the DPLTA, each Adtran Networks shareholder (other than the Company) has received an offer to elect either (1) to remain an Adtran Networks shareholder and receive from us an Annual Recurring Compensation payment, or (2) to receive Exit Compensation plus guaranteed interest. The guaranteed interest under the Exit Compensation is calculated from the effective date of the DPLTA to the date the shares are tendered, less any Annual Recurring Compensation paid. The guaranteed interest rate is 5.0% plus a variable component (according to the German Civil Code) that was 3.12% as of December 31, 2023. Assuming all the minority holders of currently outstanding Adtran Networks shares were to elect the second option, we would be obligated to make aggregate Exit Compensation payments, including guaranteed interest, of approximately €310.3 million or approximately \$342.5 million, based on an exchange rate as of December 31, 2023 and reflecting interest accrued through December 31, 2023 during the pendency of the appraisal proceedings discussed below. Shareholders electing the first option of Annual Recurring Compensation may later elect the second option. The opportunity for outside Adtran Networks shareholders to tender Adtran Networks shares in exchange for Exit Compensation had been scheduled to expire on March 16, 2023. However, due to the appraisal proceedings that have been initiated in accordance with applicable German law, this time period for tendering shares has been extended pursuant to the German Stock Corporation Act (*Aktiengesetz*) and will end two months after the date on which a final decision in such appraisal proceedings has been published in the Federal Gazette (*Bundesanzeiger*).

Our obligation to pay Annual Recurring Compensation under the DPLTA is a continuing payment obligation, which will amount to approximately €10.6 million or \$11.7 million (based on the current exchange rate) per year assuming none of the minority Adtran Networks shareholders were to elect Exit Compensation. The foregoing amounts do not reflect any potential increase in payment obligations that we may have depending on the outcome of ongoing appraisal proceedings in Germany. During the year ended December 31, 2023, we accrued \$11.5 million in Annual Recurring Compensation, which was reflected as an increase to retained (deficit) earnings.

On October 18, 2022, the Company's Board of Directors authorized the Company to purchase additional shares of Adtran Networks through open market purchases not to exceed 15,346,544 shares. For the year ended December 31, 2023, 67 thousand shares, respectively, of Adtran Networks stock was tendered to the Company and Exit Compensation payments of approximately €1.2 million, respectively, or approximately \$1.3 million based on an exchange rate as of December 31, 2023, were paid to Adtran Networks shareholders.

Performance Bonds

Certain contracts, customers and jurisdictions in which the Company do business require us to provide various guarantees of performance such as bid bonds, performance bonds and customs bonds. As of December 31, 2023 and December 31, 2022, the Company had commitments related to these bonds totaling \$10.8 million and \$22.0 million, respectively, which expire at various dates through April 2031. In general the Company would only be liable for the amount of these guarantees in the event of default under each contract, the probability of which the Company believes is remote.

Purchase Obligations

The Company purchases components from a variety of suppliers and use contract manufacturers to provide manufacturing services for our products. Our inventory purchase obligations are for short-term product manufacturing requirements, as well as for obligations to suppliers to secure manufacturing capacity. Certain of our inventory purchase obligations with contract manufacturers and suppliers relate to arrangements to secure supply and pricing for certain product components for multi-year periods. As of December 31, 2023, purchase obligations totaled \$252.5 million.

Note 21 – Current Expected Credit Losses

Under ASC 326 – *Financial Instruments – Credit Losses*, the Company estimates credit losses for the contractual life of assets that are measured at amortized cost and are within the scope of this guidance, which includes accounts receivable, net investment in sales-type leases, contract assets under the revenue recognition model and outstanding notes receivable. Where appropriate, the Company pools assets if similar risk characteristics exist. Additionally, the Company analyzes its available-for-sale debt securities for impairment and records a credit loss allowance as needed.

Assets Measured at Amortized Cost

Accounts Receivable

The Company records accounts receivable in the normal course of business as products are shipped or services are performed and invoiced, but payment has not yet been remitted by the customer. Accounts receivable balances are considered past due when payment has not been received by the date indicated on the relevant invoice or based on agreed upon terms between the customer and the Company.

As of December 31, 2023 and 2022, the Company's net outstanding accounts receivable balance was \$216.4 million and \$279.4 million, respectively. The Company assessed the need for an allowance for credit losses related to its outstanding accounts receivable using the historical loss-rate method as well as assessing asset-specific risks. The Company's historical losses related to accounts receivable have been immaterial as evidenced by its historical allowance and write-offs due to collectability. The assessment of asset-specific risks included the evaluation of relevant available information, from internal and external sources, relating to current conditions that may affect a customer's ability to pay, such as the customer's current financial condition, credit rating by geographic location, as provided by a third party and/or by customer, if needed, and the overall macro-economic conditions in which the customer operates. The Company pooled assets by geographic location to determine if an allowance should be applied to its accounts receivable balance, assessing the specific country risk rating and overall economics of that particular country. If elevated risk existed, or customer specific risk indicated the accounts receivable balance was at risk, the Company further analyzed the need for an allowance related to specific accounts receivable balances. Additionally, the Company determined that significant changes to customer country risk rating from period-to-period and from the end of the prior year to the end of the current quarter would require further review and analysis by the Company.

Credit losses totaling \$0.4 million and less than \$0.1 million were recorded for the years ended December 31, 2023 and 2022 respectively, related to accounts receivable. No credit losses were recorded for the year ended December 31, 2021 related to accounts receivable.

Contract Assets

The Company records contract assets when it has recognized revenue but has not yet billed the customer. As of December 31, 2023 and 2022, the Company's outstanding contract asset balance was \$0.7 million and \$1.9 million, respectively, which is included in other receivables on the Consolidated Balance Sheets. The Company assessed the need for an allowance for credit losses related to its outstanding contract assets using the historical loss-rate method as well as asset-specific risks. The Company's historical losses related to contract assets receivable have been immaterial as evidenced by historical write-offs due to collectability. Asset-specific risk included the evaluation of relevant available information, from internal and external sources, relating to current conditions that may affect a customer's ability to pay once invoiced, such as the customer's financial condition, credit rating by geographic location as provided by a third party and/or by customer, if needed, and the overall macro-economic conditions in which the customer operates. The Company pooled assets by geographic location to determine if an allowance should be applied to its contract asset balance, assessing the specific country risk rating and the overall economics of that particular country. If elevated risk existed, or customer specific risk indicated the contract balance was at risk, the Company further analyzed the need for an allowance related to specific customer balances. Additionally, the Company determined that significant changes to customer country risk rating from period-to-period and from the end of the prior year to the end of the current quarter would be subject to further review and analysis by the Company.

No allowance for credit losses was recorded for the years ended December 31, 2023 and 2022 related to contract assets.

Off-Balance Sheet Arrangements

We have exposure to credit losses from off-balance sheet exposures, to provide various guarantees of performance such as bid bonds, performance bonds and customs bonds, where we believe the risk of loss is immaterial to our financial statements as of December 31, 2023 and 2022, respectively. Otherwise, we do not have off-balance sheet financing arrangements and have not engaged in any related party transactions or arrangements with unconsolidated entities or other persons that are reasonably likely to materially affect liquidity or the availability of or requirements for capital resources. *See Note 20 of the Notes to Condensed Consolidated Financial Statements, included in Part II, Item 8 of this report for additional information.*

Available-for-Sale Debt Securities

As of December 31, 2023 the Company had sold all available-for-sale debt securities. As of December 31, 2022 the Company's available-for-sale debt securities totaled \$9.3 million. These securities were analyzed at the individual investment level, by Committee on Uniform Securities Identification Procedures ("CUSIP"), to limit credit losses, if applicable, to reflect only the amount by which the fair value of the security was less than its amortized cost. The Company noted that, as of December 31, 2022, there was no intent to sell any of its available-for-sale debt securities before maturity, and, therefore, the Company assessed the need for an allowance for each of its available-for-sale debt securities in which the fair value was less than its amortized cost as of December 31, 2022. Accrued interest receivable on available-for-sale debt securities, which is included in other receivables on the Consolidated Balance Sheets as of December 31, 2022 totaled less than \$0.1 million and was excluded from the estimate of credit losses for both periods based on the Company's accounting policy election. Income generated from available-for-sale debt securities was recorded as interest and dividend income in the Consolidated Statements of Loss.

The Company had 99 positions in available-for-sale debt securities that were in an unrealized loss position as of December 31, 2022. See Note 5 for additional information.

For those available-for-sale debt securities whose fair value was less than its amortized cost basis, the Company analyzed additional criteria such as adverse conditions specifically related to the security, an industry or geographic area, failure of the issuer of the security to make scheduled interest or principal payments, if applicable, and any changes to the rating of the security by a rating agency to determine if a credit loss existed. The Company used information provided by its investment manager to determine if any scheduled interest or principal payments had not been received and used a third party to determine if any changes to credit ratings had occurred. Principal and interest payments are considered past due when payment has not been received based on scheduled terms of each debt security. The Company ceases to accrue interest on debt securities on a case by case basis. As of December 31, 2023, the Company noted that all principal and interest payments had been received as scheduled and that there had been no changes in credit ratings year-over-year or period-over-period that warranted further review.

No allowance for credit losses was recorded for the year ended December 31, 2022 related to the Company's available-for-sale debt securities.

Note 22 – Loss per Share

The calculations of basic and diluted loss per share for the years ended December 31, 2023, 2022 and 2021 are as follows:

<i>(In thousands, except for per share amounts)</i>	2023	2022	2021
Numerator			
Net Loss attributable to ADTRAN Holdings, Inc.	\$ (267,688)	\$ (2,037)	\$ (8,635)
Denominator			
Weighted average number of shares – basic	78,416	62,346	48,582
Effect of dilutive securities:			
Stock options	—	—	—
PSUs, RSUs and restricted stock	—	—	—
Weighted average number of shares – diluted	78,416	62,346	48,582
Loss per share attributable to ADTRAN Holdings, Inc. – basic	\$ (3.41)	\$ (0.03)	\$ (0.18)
Loss per share attributable to ADTRAN Holdings, Inc. – diluted	\$ (3.41)	\$ (0.03)	\$ (0.18)

For each of the years ended December 31, 2023, 2022 and 2021, less than 0.5 million, 0.1 million and 0.1 million shares of unvested or unearned, as applicable, PSUs, RSUs and restricted stock were excluded from the calculation of diluted loss per share due to their anti-dilutive effect.

For the years ended December 31, 2023, 2022 and 2021, 1.8 million, 0.2 million and 0.3 million stock options, respectively, were outstanding but were not included in the computation of diluted loss per share due to their exercise prices being greater than the average market price of the common shares during the quarter, making them anti-dilutive under the treasury stock method.

Note 23 – Restructuring

During the fourth quarter of 2022, the Company initiated a restructuring program designed to optimize the assets, business processes, and information technology systems of the Company in relation to the Business Combination with Adtran Networks. The restructuring program is expected to maximize cost synergies by realizing operation scale, combining sales channels, streamlining corporate and general and administrative functions, including human capital resources and combining sourcing and production costs. This restructuring program is expected to be completed in late 2024 and includes expenses specifically associated with achieving run-rate synergies as well as Business Efficiency Program expenses described below.

On November 6, 2023, due to the uncertainty around the current macroeconomic environment and its impact on customer spending levels, the Company's management decided to implement a business efficiency program (the "Business Efficiency Program") targeting the reduction of ongoing operating expenses and focusing on capital efficiency inclusive of certain salary reductions, an early retirement program, a site consolidation plan to include lease impairments and the partial sale of owned real estate (including the potential sale of portions of our headquarters), inventory write downs from product discontinuances, and the suspension of the quarterly dividend. The Business Efficiency Program expands upon other recently implemented restructuring efforts and synergy costs following the Business Combination. For instance, on August 17, 2023, the Company's management determined to discontinue its copper-based Digital Subscriber Line broadband access technology products and its fixed wireless access products in its Network Solutions segment. Furthermore, on September 29, 2023, the Company's management decided to exit the "IoT" gateway market (indoor and outdoor), a subset of the broader IoT market (together with the other product discontinuations, the "Discontinuities"). Additionally, on October 25, 2023, all employees were informed of certain personnel measures, which included the reduction of salary for select management, a reduction of approximately 5% of the workforce, an early retirement program and a hiring freeze.

During the year ended December 31, 2023, we recognized \$25.1 million of costs relating to the Business Efficiency Program. We expect costs in the first quarter 2024 and thereafter relating to the Business Efficiency Program to range between \$22.2 million and \$35.2 million. Management expects these planned costs to include severance costs ranging from \$12.2 million to \$18.9 million in connection with an early retirement program and reductions in workforce, inventory write downs from product discontinuances ranging from \$7.6 million to \$10.3 million, and site consolidation transaction expenses (primarily brokers fees) ranging from \$2.4 million to \$6.0 million. Future cash payments include: severance costs and outplacement fees that are anticipated to be in the range of \$12.2 million to \$18.9 million, payments relating to the site consolidation transaction expenses that are anticipated to be in the range of \$2.4 million to \$6.0 million, and potential cash payments of \$3.6 million to \$6.3 million for anticipated product discontinuances. We may also incur other charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, the Business Efficiency Program, including potential impairment charges related to the discontinuance of additional product lines, regulatory requirements related to personnel measures, and site closures. However, we are not able to estimate the amount or range of amounts of such potential incremental charges as of the date of this filing. If required, we will amend this disclosure at such time as management is able in good faith to estimate the amount, or range of amounts, of these charges.

For the years ended December 31, 2023 and 2022, we recognized \$21.5 million and \$1.6 million of restructuring costs relating to the Business Combination under the multi-year integration program and synergy realization, respectively, that are included in cost of revenue, selling, general and administrative expenses and research and development expenses in the Condensed Consolidated Statement of Loss.

In February 2019, the Company announced the restructuring of a certain portion of its workforce predominantly in Germany, which included the closure of the Company's office location in Munich, Germany accompanied by relocation or severance benefits for the affected employees. Voluntary early retirement was offered to certain other employees and was announced in March 2019 and again in August 2020. This plan was completed in 2021 and all amounts paid in 2022.

A reconciliation of the beginning and ending restructuring liability, which is included in accrued wages and benefits in the Consolidated Balance Sheets as of December 31, 2023 and 2022, is as follows:

<i>(In thousands)</i>	2023	2022
Balance at beginning of period	\$ 159	\$ 1,514
Plus: Amounts charged to cost and expense	22,241	1,629
Less: Amounts paid	(14,091)	(2,984)
Balance at end of period	\$ 8,309	\$ 159

Restructuring expenses included in the Consolidated Statements of Loss are for the years ended December 31, 2023, 2022 and 2021:

<i>(In thousands)</i>	2023	2022	2021
Network solutions - cost of revenue	\$ 2,910	\$ 8	\$ 13
Network solutions - inventory write-down	24,313	—	—
Services & support - cost of revenue	—	—	3
Cost of revenue	\$ 27,223	\$ 8	\$ 16
Selling, general and administrative expenses	11,603	117	221
Research and development expenses	7,728	1,504	174
Total restructuring expenses	\$ 46,554	\$ 1,629	\$ 411

The following table represents the components of restructuring expense by geographic area for the years ended December 31, 2023, 2022 and 2021:

<i>(In thousands)</i>	2023	2022	2021
United States	\$ 34,629	\$ 2	\$ 289
International	11,925	1,627	122
Total restructuring expenses	\$ 46,554	\$ 1,629	\$ 411

Note 24 – Subsequent Events

Third Amendment to Wells Fargo Credit Agreement

On March 12, 2024, the Company, its wholly-owned direct subsidiary, ADTRAN, Inc. (the “Borrower”), the lenders party thereto and Wells Fargo Bank, National Association, as administrative agent (the “Administrative Agent”), entered into a Third Amendment to Credit Agreement (the “Third Amendment”), which amends that certain Credit Agreement, dated as of July 18, 2022 (as amended or otherwise modified, including by the Third Amendment, the “Credit Agreement”), by and among the Borrower, the Company, the lenders party thereto and the Administrative Agent.

The Third Amendment, among other things, amends the definition of “Consolidated Funded Indebtedness” (which is used in the calculation of the Consolidated Total Net Leverage Ratio and the Consolidated Senior Secured Net Leverage Ratio) to exclude obligations of the Company and its subsidiaries under certain factoring arrangements when calculated for the fiscal quarters ending March 31, 2024 and June 30, 2024.

Second Amendment to Wells Fargo Credit Agreement

On January 16, 2024, the Company, its wholly-owned direct subsidiary, ADTRAN, Inc. (the “Borrower”), the lenders party thereto and Wells Fargo Bank, National Association, as administrative agent (the “Administrative Agent”), entered into a Second Amendment to Credit Agreement and First Amendment to Collateral Agreement (the “Second Amendment”), which amends (i) that certain Credit Agreement, dated as of July 18, 2022 (as amended or otherwise modified, including by the Second Amendment, the “Credit Agreement”), by and among the Borrower, the Company, the lenders party thereto and the Administrative Agent and (ii) that certain Collateral Agreement, dated as of July 18, 2022, by and among the Borrower, the Company and the Administrative Agent. Capitalized terms used in this Note 24 and not otherwise defined herein have the meanings assigned to them in the Second Amendment or the Credit Agreement, as applicable. The Second Amendment, among other things, provides the Company and its subsidiaries with additional covenant headroom from (and including) the fourth quarter of 2023 through and including the third quarter of 2024 (the “Covenant Relief Period”) and revises and/or adds certain other financial covenants. The full set of financial covenants includes the following:

- As of the last day of any fiscal quarter, commencing with the fiscal quarter ended December 31, 2023, the Consolidated Total Net Leverage Ratio may not exceed 5.00x.
- As of the last day of any fiscal quarter, commencing with the fiscal quarter ended December 31, 2023, the Consolidated Senior Secured Net Leverage Ratio may not exceed:
 - In the event of the purchase by the Company of at least sixty percent (60%) of the outstanding shares of Adtran Networks SE not owned by the Company as of August 9, 2023 that have been tendered (such event, a “Springing Covenant Event” and the fiscal quarter in which the Springing Covenant Event Occurs and the three consecutive quarterly test periods thereafter, the “Springing Covenant Period”), the following covenant levels:
 - First fiscal quarter ending after a Springing Covenant Event: 4.00x
 - Second fiscal quarter ending after a Springing Covenant Event: 3.75x
 - Third and fourth fiscal quarters ending after a Springing Covenant Event: 3.50x
- If the Company or any of its subsidiaries incurs certain unsecured Indebtedness in excess of \$50,000,000 in connection with a transaction that is a Springing Covenant Event or during a Springing Covenant Period, the Consolidated Senior Secured Net Leverage Ratio covenant will step down to 3.50x at the time of such incurrence.
- If a Springing Covenant Period is not in effect, the following covenant levels:
 - From December 31, 2023 through and including March 31, 2024: 3.25x.
 - From April 1, 2024 through and including June 30, 2024: 3.50x.

- From July 1, 2024 and thereafter: 3.25x.
- As of the last day of any fiscal quarter, commencing with the fiscal quarter ended December 31, 2023, the Consolidated Fixed Charge Coverage Ratio may not exceed 1.25x.
- During the Covenant Relief Period or a Springing Covenant Period, as of the last day of any fiscal quarter (i) cash and cash equivalents of the Credit Parties must be at least \$50.0 million and (ii) cash and cash equivalents of the Company and its subsidiaries must be at least \$75.0 million.

The Credit Agreement is guaranteed by certain domestic subsidiaries of the Company, and the Company is also required to add certain additional domestic and international subsidiaries as guarantors under the Credit Agreement (such existing and new guarantors, collectively, the “Guarantors”). In addition to the guarantees provided by the Guarantors, the Guarantors have granted (or will grant) security interests in favor of the Administrative Agent over substantially all tangible and intangible assets, and the Borrower will grant mortgages in favor of the Administrative Agent over certain owned real estate assets.

The Credit Agreement continues to provide for revolving borrowings of up to \$400.0 million in aggregate principal amount, as well as an additional \$50.0 million delayed draw term loan tranche that would be available upon a Springing Covenant Event. It also continues to permit the Company to prepay any or all of the outstanding loans or to reduce the commitments under the Credit Agreement subject to certain limitations and minimum payment thresholds.

During the Covenant Relief Period, the Company is not permitted to make certain dividend payments to the Company's Stockholders or certain other Restricted Payments. However, the Company is permitted to make the Recurring Compensation Payment to each Adtran Networks shareholder (other than the Company), pursuant to the terms of the DPLTA. See Note 20 for additional information.

Furthermore, the Credit Agreement continues to contain customary affirmative and negative covenants, including incurrence covenants and certain other limitations on the ability of the Company and the Company's subsidiaries to incur additional debt, guarantee other obligations, grant liens on assets, make investments, dispose of assets, make restricted payments, engage in mergers or consolidations, engage in transactions with affiliates, modify its organizational documents, and enter into certain restrictive agreements. The negative covenants are subject to various exceptions and carveouts; however, certain of the exceptions and carveouts are not permitted to be used during the Covenant Relief Period. It also contains customary events of default, such as misrepresentation and a default in the performance or observance of any covenant (subject to customary cure periods and materiality thresholds). Upon the occurrence and during the continuance of an event of default, the Administrative Agent is entitled to take various actions, including the acceleration of all amounts due under the Credit Agreement.

Upon the effective date of the Second Amendment, (A) the applicable commitment fee increased to 0.25% per annum, (B) for any revolving credit loan that is a Term SOFR Loan, the applicable margin rate increased to 3.15% per annum, (C) for any revolving credit loan that is a Eurocurrency Rate Loan, the applicable margin rate increased to 3.25% per annum, (D) for any revolving credit loan that is a Base Rate Loan (including any Swingline Loan), the applicable margin rate increased to 2.15% per annum, (E) for any Delayed Draw Term Loan that is a Term SOFR Loan, the applicable margin rate increased to 3.40% per annum and (F) for any Delayed Draw Term Loan that is a Base Rate Loan, the applicable margin rate increased to 2.40% per annum. The aforementioned increases in the commitment fee and margin rates continues to the first date when each of the following conditions have been met (the period during which such increases are in place is hereinafter referred to as the “Applicable Margin Interest Period”): (a) the Covenant Relief Period has ended, (b) since the Second Amendment effective date, we have repaid the revolving credit outstanding borrowings by a principal amount of at least \$75.0 million, (c) we have reduced the aggregate revolving credit commitment to an amount no greater than \$300.0 million and (d) we are in compliance with all financial covenants based on the financial statements for the most recently completed reference period.

In addition, (x) if on or prior to December 31, 2024 we have not reduced the aggregate revolving credit commitment to \$340.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum, and (y) if on or prior to June 30, 2025 we have not reduced the aggregate revolving credit commitment to \$300.0 million or less, the applicable margin for all loans shall be increased by 1.00% per annum.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that the information required to be disclosed by us in reports that we file or submit under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), is recorded, processed, summarized and reported within the time periods specified in the rules and forms promulgated by the SEC, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and our Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

As of the end of the period covered by this report, an evaluation was carried out by management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e)) under the Exchange Act. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that due to the material weaknesses in our internal control over financial reporting described below, our disclosure controls and procedures were not effective as of December 31, 2023.

Management's Report on Internal Control over Financial Reporting

Management of ADTRAN Holdings, Inc. (“ADTRAN”) is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. ADTRAN’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. ADTRAN’s internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of ADTRAN;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of ADTRAN are being made only in accordance with authorizations of management and directors of ADTRAN; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of ADTRAN’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of ADTRAN’s internal control over financial reporting as of December 31, 2023. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) in *Internal Control-Integrated Framework (2013)*.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. In its assessment of the effectiveness of internal control over financial reporting as of December 31, 2023, management determined that there were deficiencies in ADTRAN’s internal control over financial reporting that constituted material weaknesses as follows:

- The Company did not design and maintain effective controls in response to the risks of material misstatement. Specifically, changes to existing controls or the implementation of new controls have not been sufficient to respond to changes to the risks of material misstatement to financial reporting. This material weakness contributed to the following additional material weaknesses:
- The Company did not design and maintain effective controls over financial statement preparation, presentation and disclosure commensurate with its financial reporting requirements. Specifically, the Company did not design and maintain effective controls over the presentation and disclosure of transactions, including non-controlling interest.

- The Company did not design and maintain effective controls to address the initial application of complex accounting standards and accounting of non-routine, unusual or complex events and transactions. Specifically, the Company did not design and maintain effective controls to timely analyze and account for (i) non-controlling interest and (ii) the receivable purchase and servicing agreement.

The material weaknesses resulted in the restatements and revisions of and immaterial adjustments to our consolidated financial statements for the year ended December 31, 2022, as well as the condensed consolidated financial statements for the quarterly and year-to-date periods ended September 30, 2022, March 31, 2023, June 30, 2023, and September 30, 2023. The material weaknesses also resulted in material adjustments to our consolidated financial statements for the year ended December 31, 2023. Additionally, these material weaknesses could result in misstatements of the Company's accounts or disclosures that would result in a material misstatement to the annual or interim consolidated financial statements that would not be prevented or detected.

Because of these material weaknesses, management has concluded that the Company did not maintain effective internal control over financial reporting as of December 31, 2023.

The effectiveness of our internal control over financial reporting as of December 31, 2023 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears in Item 8.

Management's Remediation Efforts for Unremediated Material Weaknesses

To remediate the material weaknesses in the Company's internal control over financial reporting related to the risks of material misstatement, including financial statement preparation, presentation and disclosure of transactions and the non-controlling interest, the Company plans to initiate a remediation plan that includes designing and implementing new or enhanced controls over the review of our consolidated financial statements and identification and assessment of risks of material misstatement. We believe that the foregoing actions will support the improvement of the Company's internal control over financial reporting, and, through our efforts to identify, design, and implement the necessary control activities, will be effective in remediating such material weaknesses.

To remediate the material weaknesses in the Company's internal control over financial reporting relating to accounting of non-routine unusual or complex events and transactions for non-controlling interest and the receivable purchase and servicing agreement, the Company plans to initiate a remediation plan that includes designing and implementing new controls over the identification and review of contracts, transactions or arrangements that may result in a financial obligation including the use of an accounting specialist as needed to ensure proper presentation of these items within our financial statements.

We will continue to devote significant time and attention to these remediation efforts. As we continue to evaluate and work to improve our internal control over financial reporting, management may determine to take additional measures to address the material weaknesses or determine to modify the remediation plans described above. Until the remediation steps set forth above, including the efforts to implement the necessary control activities that we identify, are fully completed, and there has been time for us to conclude through testing that the control activities are operating effectively, the material weaknesses described above will not be considered remediated.

Remediation of Previously Disclosed Material Weakness

As previously reported in Item 9A of our Annual Report on Form 10-K for the year ended December 31, 2022 of Amendment No. 1, we identified the following material weakness in our internal control over financial reporting, which was remediated as of December 31, 2023.

- We identified that we did not design and maintain effective controls over the presentation and disclosure of debt agreements, specifically to ensure the presentation and disclosure reflect the terms of the agreements.

During the three months ended September 30, 2023, our management implemented a new control over the review of new or amendments to our agreements for terms and conditions that impact the presentation or disclosure of debt. As of December 31, 2023, our management determined that the new control has been in place for a sufficient period of time and concluded, through testing, that the material weakness identified above has been remediated.

Changes in Internal Control over Financial Reporting

There were no changes in the Company's internal control over financial reporting that occurred during the most recent fiscal quarter covered by this report that have materially affected, or are reasonably likely to materially affect, its internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

(a) *Entry into a Material Definitive Agreement - Third Amendment to Wells Fargo Credit Agreement*

On March 12, 2024, the Company, its wholly-owned direct subsidiary, ADTRAN, Inc. (the “Borrower”), the lenders party thereto and Wells Fargo Bank, National Association, as administrative agent (the “Administrative Agent”), entered into a Third Amendment to Credit Agreement (the “Third Amendment”), which amends that certain Credit Agreement, dated as of July 18, 2022 (as amended or otherwise modified, including by the Third Amendment, the “Credit Agreement”), by and among the Borrower, the Company, the lenders party thereto and the Administrative Agent. Capitalized terms used in this Item 9B(a) and not otherwise defined herein have the meanings assigned to them in the Third Amendment or the Credit Agreement, as applicable.

The Third Amendment, among other things, amends the definition of “Consolidated Funded Indebtedness” (which is used in the calculation of the Consolidated Total Net Leverage Ratio and the Consolidated Senior Secured Net Leverage Ratio) to exclude obligations of the Company and its subsidiaries under certain factoring arrangements when calculated for the fiscal quarters ending March 31, 2024 and June 30, 2024.

Cost Associated with Exit or Disposal Activities

As the Company previously reported in Item 5 of its Quarterly Report on Form 10-Q for the quarter ended September 30, 2023 filed with the Securities and Exchange Commission on November 9, 2023, on November 6, 2023, the Company’s management resolved to implement the Business Efficiency Program targeting the reduction of ongoing operating expenses and focusing on capital efficiency inclusive of certain salary reductions, an early retirement program, a site consolidation plan to include lease impairments and the partial sale of owned real estate (including the potential sale of portions of our headquarters), inventory write downs from product discontinuances, and the suspension of the quarterly dividend. At such time, management expected the total cost of the Business Efficiency Program to fall within the range of \$35.5 million to \$45.5 million.

During the year ended December 31, 2023, we recognized \$25.1 million of costs relating to the Business Efficiency Program. We expect costs in the first quarter 2024 and thereafter relating to the Business Efficiency Program to range between \$22.2 million and \$35.2 million. Management expects these planned costs to include severance costs ranging from \$12.2 million to \$18.9 million in connection with an early retirement program and reductions in workforce, inventory write down of product discontinuances ranging from \$7.6 million to \$10.3 million, and site consolidation transaction expenses (primarily brokers fees) ranging from \$2.4 million to \$6.0 million. Future cash payments include: severance costs and outplacement fees that are anticipated to be in the range of \$12.2 million to \$18.9 million, payments relating to the site consolidation transaction expenses that are anticipated to be in the range of \$2.4 million to \$6.0 million, and potential cash payments of \$3.6 million to \$6.3 million for anticipated product discontinuances. We may also incur other charges or cash expenditures not currently contemplated due to events that may occur as a result of, or associated with, the Business Efficiency Program, including potential impairment charges related to the discontinuance of additional product lines, regulatory requirements related to personnel measures, and site closures. However, we are not able to estimate the amount or range of amounts of such potential incremental charges as of the date of this filing. If required, we will amend this disclosure at such time as management is able in good faith to estimate the amount, or range of amounts, of these charges.

The Business Efficiency Program is expected to be substantially completed by the end of 2024, with expected cash payments continuing into 2025.

(b) During the fiscal quarter ended December 31, 2023, none of the Company’s directors or executive officers adopted or terminated any contract, instruction or written plan for the purchase or sale of Company securities that was intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or any “non-Rule 10b5-1 trading arrangement.”

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Code of Ethics

We have adopted a Code of Business Conduct and Ethics, which applies to all employees, officers and directors of ADTRAN. The Code of Business Conduct and Ethics meets the requirements of a "code of ethics" as defined by Item 406 of Regulation S-K, and applies to our Chief Executive Officer, Chief Financial Officer (who is both our principal financial and principal accounting officer), as well as all other employees, as indicated above. The Code of Business Conduct and Ethics also meets the requirements of a code of conduct under NASDAQ listing standards. The Code of Business Conduct and Ethics is posted on our website at www.adtran.com under the links "About – Investor Relations – Corporate Governance – Charters and Documents." We intend to disclose any amendments to the Code of Business Conduct and Ethics, as well as any waivers for executive officers or directors, on our website at www.adtran.com. The information found on our website is not incorporated by reference in this report or any other report that we file or furnish to the SEC.

Certain information required by this Item regarding ADTRAN's executive officers is included in Part I of this report under the caption "Information about our Executive Officers" in accordance with the Instructions to Item 401 of Regulation S-K.

Other information required by this Item is incorporated by reference pursuant to General Instruction G(3) of Form 10-K from ADTRAN's definitive Proxy Statement for the 2024 Annual Meeting of Stockholders (the "2024 Proxy Statement") to be filed with the SEC pursuant to Regulation 14A.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item is incorporated by reference pursuant to General Instruction G(3) of Form 10-K from the 2024 Proxy Statement to be filed with the SEC pursuant to Regulation 14A.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item is incorporated by reference pursuant to General Instruction G(3) of Form 10-K from the 2024 Proxy Statement to be filed with the Securities and Exchange Commission pursuant to Regulation 14A.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

The information required by this Item is incorporated by reference pursuant to General Instruction G(3) of Form 10-K from the 2024 Proxy Statement to be filed with the SEC pursuant to Regulation 14A.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item is incorporated by reference pursuant to General Instruction G(3) of Form 10-K from the 2024 Proxy Statement to be filed with the SEC pursuant to Regulation 14A.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

Documents Filed as Part of This Report.

1. Consolidated Financial Statements

The consolidated financial statements of ADTRAN and the report of independent registered public accounting firm thereon are set forth under Part II, Item 8 of this report.

Consolidated Balance Sheets as of December 31, 2023 and 2022

Consolidated Statements of Loss for the years ended December 31, 2023, 2022 and 2021

Consolidated Statements of Comprehensive (Loss) Income for the years ended December 31, 2023, 2022 and 2021

Consolidated Statements of Changes in Equity for the years ended December 31, 2023, 2022 and 2021

Consolidated Statements of Cash Flows for the years ended December 31, 2023, 2022 and 2021

Notes to Consolidated Financial Statements

2. Consolidated Financial Statement Schedule

Schedule II - Valuation and Qualifying Accounts

3. Exhibits

The following exhibits are filed with or incorporated by reference in this report. Where such filing is made by incorporation by reference to a previously filed registration statement or report, such registration statement or report is identified in parentheses. We will furnish any exhibit upon request to: ADTRAN Holdings, Inc., Attn: Investor Relations, 901 Explorer Boulevard, Huntsville, Alabama 35806. There is a charge of \$0.50 per page to cover expenses for copying and mailing.

Effective as of July 8 2022, ADTRAN Holdings, Inc. became the successor to ADTRAN, Inc. Any reference to "ADTRAN, Inc." in these exhibits should be read as "ADTRAN Holdings, Inc." as set forth in the Exhibit List below.

Furthermore, effective June 8, 2023, ADVA Optical Networking SE ("ADVA"), a subsidiary of ADTRAN Holdings, Inc., changed its name to Adtran Networks SE. By operation of law, any reference to ADVA Optical Networking SE in these exhibits should be read as Adtran Networks SE as set forth in the Exhibit List below.

<u>Exhibit Number</u>	<u>Description</u>
2.1	<u>Business Combination Agreement, dated August 30, 2021, by and among ADTRAN, Inc., Acorn HoldCo, Inc., Acorn MergeCo, Inc. and ADVA Optical Networking SE (incorporated by reference to Exhibit 2.1 to ADTRAN's Form 8-K filed August 30, 2021)</u>
3.1	<u>Amended and Restated Certificate of Incorporation of ADTRAN Holdings, Inc. (incorporated by reference to Exhibit 3.1 to ADTRAN's Form 8-K filed July 8, 2022)</u>
3.2	<u>Second Amended and Restated Bylaws of ADTRAN Holdings, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed October 24, 2023)</u>
4.1	<u>Description of Securities (incorporated by reference to Exhibit 4.1 to the Company's Form 10-Q filed May 10, 2023)</u>
10.1	Management Contracts and Compensatory Plans:
(a)	<u>ADTRAN, Inc. 2006 Employee Stock Incentive Plan (incorporated by reference to Exhibit 4.1 to ADTRAN's Registration Statement on Form S-8 (File No. 333-133927) filed May 9, 2006)</u>
(b)	<u>First Amendment to the ADTRAN, Inc. 2006 Employee Stock Incentive Plan (incorporated by reference to Exhibit 10.3(h) to ADTRAN's 2007 Form 10-K filed February 28, 2008)</u>
(c)	<u>Form of Nonqualified Stock Option Agreement under the 2006 Employee Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed June 8, 2006)</u>

- (d) [Form of Incentive Stock Option Agreement under the 2006 Employee Stock Incentive Plan \(incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed June 8, 2006\)](#)
- (e) [ADTRAN, Inc. 2010 Directors Stock Plan \(incorporated by reference to Exhibit 4.3 to ADTRAN's Form S-8 filed July 30, 2010\)](#)
- (f) [Form of Restricted Stock Award Agreement under the ADTRAN, Inc. 2010 Directors Stock Plan \(incorporated by reference to Exhibit 10.3\(l\) to the Company's Form 10-K filed February 25, 2020\)](#)
- (g) [ADTRAN, Inc. 2015 Employee Stock Incentive Plan \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed May 15, 2015\)](#)
- (h) [Form of Restricted Stock Unit Agreement under the ADTRAN, Inc. 2015 Employee Stock Incentive Plan \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed November 16, 2016\)](#)
- (i) [Form of Option Award Agreement under the ADTRAN, Inc. 2015 Employee Stock Incentive Plan \(incorporated by reference to Exhibit 10.3\(p\) to the Company's Form 10-K filed February 25, 2020\)](#)
- (j) [ADTRAN, Inc. Deferred Compensation Program for Employees, as amended and restated as of June 1, 2010 \(incorporated by reference to Exhibit 10.3\(n\) to the Company's Form 10-K filed February 24, 2016\)](#)
- (k) [ADTRAN, Inc. Deferred Compensation Program for Directors, as amended and restated as of June 1, 2010 \(incorporated by reference to Exhibit 10.3\(o\) to the Company's Form 10-K filed February 24, 2016\)](#)
- (l) [ADTRAN, Inc. Equity Deferral Program for Employees, as amended and restated as of October 1, 2011 \(incorporated by reference to Exhibit 10.3\(p\) to the Company's Form 10-K filed February 24, 2016\)](#)
- (m) [ADTRAN, Inc. Equity Deferral Program for Directors, as amended and restated as of October 1, 2011 \(incorporated by reference to Exhibit 10.3\(q\) to the Company's Form 10-K filed February 24, 2016\)](#)
- (n) [Amended and Restated ADTRAN Holdings, Inc. 2020 Employee Stock Incentive Plan](#)
- (o) [Amended and Restated ADTRAN Holdings, Inc. 2020 Directors Stock Plan](#)
- (p) [Form of Notice Letter with respect to RSU and PSU awards under the ADTRAN, Inc. 2020 Employee Stock Incentive Plan \(incorporated by reference to Exhibit 10.3 \(ae\) to the Company's Form 10-K filed February 26, 2021\)](#)
- (q) [Form of ADTRAN Sales Incentive Compensation Program – General Terms \(participants include James D. Wilson\) \(incorporated by reference to Exhibit 10.3\(ad\) to the Company's Form 10-K filed February 26, 2021\)](#)

- (r) [Form of Notice Letter with respect to Restricted Stock Awards under the ADTRAN, Inc. 2020 Directors Stock Incentive Plan \(incorporated by reference to Exhibit 10.3\(af\) to the Company's Form 10-K filed February 26, 2021\).](#)
- (s) [Form of Market-Based Performance Stock Unit Agreement under the ADTRAN, Inc. 2020 Employee Stock Incentive Plan \(incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q filed May 6, 2021\)](#)
- (t) [Form of Restricted Stock Unit Agreement under the ADTRAN, Inc. 2020 Employee Stock Incentive Plan \(incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q filed May 6, 2021\)](#)
- (u) [Form of Performance Shares Agreement \(and Notice Letter\) under the ADTRAN, Inc. 2020 Employee Stock Incentive Plan \(incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q filed May 6, 2021\)](#)
- (v) [Form of Stock Option Award Agreement under the ADTRAN, Inc. 2020 Employee Stock Incentive Plan \(incorporated by reference to Exhibit 10.3 to the Company's Form 8-K filed December 5, 2023\)](#)
- (w) [Summary of Terms of Assumed Options \(incorporated by reference to Exhibit 4.1 to the Company's Form S-8 filed July 11, 2022\)](#)
- (x)(i) [Employment Agreement, dated July 13, 2022, by and between Thomas R. Stanton and ADTRAN Holdings, Inc. \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed July 15, 2022\) \("CEO Employment Agreement"\)](#)
- (x)(ii) [First Amendment to the CEO Employment Agreement dated March 29, 2023 \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed April 3, 2023\).](#)
- (y) [Settlement Agreement, dated August 4, 2022, by and between ADVA Optical Networking SE and Brian Protiva \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed September 30, 2022\)](#)
- (z) [Amended and Restated Variable Incentive Compensation Plan \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed January 26, 2023\)](#)
- (aa) † [Form of VICC Award Letter for Quarterly Bonus Program \(incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed January 26, 2023\)](#)
- (bb) [Form of 2022 Integration Award Agreement for ADTRAN Holdings, Inc. \(incorporated by reference to Exhibit 10.1\(ag\) to the Company's Annual Report on Form 10-K filed March 1, 2023\)](#)
- (cc)(i) [Employment Agreement, dated January 28, 2015, and Amendment Nos. 1-9, by and between ADVA Optical Networking SE and Ulrich Dopfer \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed March 30, 2023\)](#)
- (cc)(ii) [† Eighth Amendment, dated May 26, 2023 including Exhibit 1 thereto, to the Employment Agreement by and between Adtran Networks SE and Ulrich Dopfer \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed June 1, 2023\)](#)
- (cc)(iii) [Ninth Amendment, dated December 4, 2023, to the Employment Agreement by and between Adtran Networks SE and Ulrich Dopfer \(incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed December 5, 2023\)](#)
- (dd)(i) [Employment Agreement, dated September 29, 2006 and Amendment Nos. 1-16, by and between ADVA Optical Networking SE and Christoph Glingener \(incorporated by reference to Exhibit 10.3 to the Company's Form 8-K filed April 3, 2023\)](#)
- (dd)(ii) [Seventeenth Amendment, dated March 28, 2023, to Employment Agreement by and between ADVA Optical Networking SE and Christoph Glingener \(incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed April 3, 2023\)](#)
- (dd)(iii) [† Exhibit 1 to the Seventeenth Amendment, dated March 28, 2023 and executed May 31, 2023, to the Employment Agreement by and between Adtran Networks SE and Christoph Glingener \(incorporated by reference to Exhibit 10.3 to the Company's Form 8-K filed June 1, 2023\)](#)

- (dd)(iv) [Eighteenth Amendment, dated December 4, 2023, to the Employment Agreement by and between Adtran Networks SE and Christoph Glingener \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed December 5, 2023\)](#)
- (ee) [Consulting Agreement, dated June 28, 2023, by and between ADTRAN, Inc. and Michael Foliano \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed June 28, 2023\)](#)
- (ff) [ADTRAN Holdings, Inc. Amended and Restated Clawback Policy \(incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed October 24, 2023\)](#)
- (gg) [Separation Agreement, dated December 4, 2023, by and between the Company and Ronald D. Centis \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed December 6, 2023\)](#)

- 10.2+ [Credit Agreement dated July 18, 2022, by and among ADTRAN Holdings, Inc. and ADTRAN, Inc. as borrowers, in favor of Wells Fargo Bank, National Association as lender \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed July 22, 2022\)](#)
- 10.3+ [First Amendment to Credit Agreement, dated August 9, 2023, by and between ADTRAN Holdings, Inc. and Wells Fargo Bank, National Association \(incorporated by reference to Exhibit 10.7 to the Company's Form 10-Q filed August 14, 2023\)](#)
- 10.4+ [Second Amendment to Credit Agreement and First Amendment to Collateral Agreement, dated as of January 16, 2024, by and among ADTRAN Holdings, Inc., ADTRAN, Inc., Wells Fargo Bank, National Association, and the lenders party thereto \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed January 22, 2024\)](#)
- 10.5* [Third Amendment to Credit Agreement, dated as of March 12, 2024, by and among ADTRAN Holdings, Inc., ADTRAN, Inc., Wells Fargo Bank, National Association, and the lenders party thereto](#)
- 10.5+ [Collateral Agreement dated July 18, 2022, by and among ADTRAN Holdings, Inc., ADTRAN, Inc., and Wells Fargo Bank, National Association \(incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed July 22, 2022\)](#)
- 10.6 [Guaranty Agreement dated July 18, 2022, by and between ADTRAN Holdings, Inc. and ADTRAN, Inc. in favor of Wells Fargo Bank, National Association \(incorporated by reference to Exhibit 10.3 to the Company's Form 8-K filed July 22, 2022\)](#)
- 10.7 [Domination and Profit and Loss Transfer Agreement between ADTRAN Holdings, Inc. and ADVA Optical Networking SE, dated November 30, 2022 \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed December 5, 2022\)](#)
- 21* [Subsidiaries of ADTRAN.](#)
- 23* [Consent of PricewaterhouseCoopers LLP.](#)
- 24* [Powers of Attorney.](#)
- 31* [Rule 13a-14\(a\)/15d-14\(a\) Certifications.](#)
- 32* [Section 1350 Certifications.](#)
- 97 [ADTRAN Holdings, Inc. Policy for the Recovery of Erroneously Awarded Incentive Based Compensation \(incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed October 24, 2023\)](#)
- 101 The following financial statements from the Company's Annual Report on Form 10-K for the year ended December 31, 2023, formatted in inline eXtensible Business Reporting Language (iXBRL): (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Loss, (iii) Consolidated Statements of Comprehensive (Loss) Income, (iv) Consolidated Statements of Changes in Equity, (v) Consolidated Statements of Cash Flows, (vi) Notes to Consolidated Financial Statements, and (vii) Schedule II – Valuation and Qualifying Accounts
- 104 Cover Page Interactive Data File (formatted in iXBRL and contained in Exhibit 101)

* Furnished or filed herewith, as applicable

+ Schedules and exhibits omitted pursuant to Item 601(a)(5) of Regulation S-K. The Company agrees to furnish a copy of any omitted schedule or exhibit to the SEC upon request.

† Certain identified information has been excluded from these exhibits because it is not material and is the type of information that the Company customarily and actually treats as private and confidential. Redacted information is indicated by [] or [***].

ITEM 16. FORM 10-K SUMMARY

ADTRAN has elected not to provide a summary of the information contained in this report at this time.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on this 15th day of March 2024.

**ADTRAN Holdings, Inc.
(Registrant)**

By: /s/ Ulrich Dopfer
Ulrich Dopfer
Chief Financial Officer
(Principal Accounting Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities indicated on March 15, 2024.

<u>Signature</u>	<u>Title</u>
<u>/s/ Thomas R. Stanton</u> Thomas R. Stanton	Chief Executive Officer and Chairman of the Board (Principal Executive Officer)
<u>/s/ Ulrich Dopfer</u> Ulrich Dopfer	Chief Financial Officer (Principal Accounting Officer)
<u>/s/ H. Fenwick Huss*</u> H. Fenwick Huss	Director
<u>/s/ Gregory McCray*</u> Gregory McCray	Director
<u>/s/ Balan Nair*</u> Balan Nair	Director
<u>/s/ Brian Protiva*</u> Brian Protiva	Director
<u>/s/ Jacqueline H. Rice*</u> Jacqueline H. Rice	Director
<u>/s/ Nikos Theodosopoulos*</u> Nikos Theodosopoulos	Director
<u>/s/ Kathryn A. Walker*</u> Kathryn A. Walker	Director

*By: /s/ Ulrich Dopfer
Ulrich Dopfer as Attorney in Fact

ADTRAN Holdings, Inc.
SCHEDULE II
VALUATION AND QUALIFYING ACCOUNTS

<i>(In thousands)</i>	<u>Balance at Beginning of Period</u>	<u>Charged to Costs & Expenses</u>	<u>Deductions</u>	<u>Balance at End of Period</u>
<i>Year ended December 31, 2023</i>				
Allowance for Credit Losses	\$ 49	351	—	\$ 400
Deferred Tax Asset Valuation Allowance	\$ 5,201	81,590	224	\$ 86,567
<i>Year ended December 31, 2022</i>				
Allowance for Credit Losses	\$ —	49	—	\$ 49
Deferred Tax Asset Valuation Allowance	\$ 50,564	—	45,363	\$ 5,201
<i>Year ended December 31, 2021</i>				
Allowance for Credit Losses	\$ 38	(38)	—	\$ —
Deferred Tax Asset Valuation Allowance	\$ 45,818	6,347	1,601	\$ 50,564

THIRD AMENDMENT TO CREDIT AGREEMENT

THIRD AMENDMENT TO CREDIT AGREEMENT (this "Amendment"), dated as of March 12, 2024, among ADTRAN, INC., a Delaware corporation (the "Borrower"), ADTRAN HOLDINGS, INC., a Delaware corporation ("Holdings"), the Lenders (as defined below) party hereto (constituting the Required Lenders) and WELLS FARGO BANK, NATIONAL ASSOCIATION, as administrative agent (the "Administrative Agent"). Unless otherwise indicated, all capitalized terms used herein and not otherwise defined herein shall have the respective meanings provided such terms in the Credit Agreement referred to below.

WITNESSETH:

WHEREAS, the Borrower, Holdings, the lenders party thereto (the "Lenders"), the Administrative Agent and the other parties thereto have entered into that certain Credit Agreement, dated as of July 18, 2022 (as amended or otherwise modified prior to the date hereof, the "Existing Credit Agreement"; the Existing Credit Agreement, as amended by this Amendment, the "Credit Agreement"); and

WHEREAS, the Borrower has requested, and subject to the terms and conditions set forth herein, the Administrative Agent and the Lenders party hereto (constituting the Required Lenders) have agreed, to amend the Existing Credit Agreement as more specifically set forth herein.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

Section 1. Amendment to Existing Credit Agreement. Effective as of the Amendment Effective Date (as defined below) and subject to the terms and conditions set forth herein and in reliance upon representations and warranties set forth herein, the definition of "Consolidated Funded Indebtedness" set forth in Section 1.1 of the Existing Credit Agreement is hereby amended to delete the period at the end of such definition and add the following proviso at the end of such definition:

“; provided that for the fiscal quarters ending March 31, 2024 and June 30, 2024, Consolidated Funded Indebtedness shall exclude all obligations and liabilities of such Person under the Receivables Purchase and Servicing Agreement dated December 19, 2023, among ADVA, ADTRAN Networks North America, Inc., the Borrower, Holdings and True Value s.à r.l., acting for the account of its Compartment 8.”

Section 2. Conditions to Effectiveness. This Amendment shall become effective on the date when the following conditions shall have been satisfied or waived (such date, the "Amendment Effective Date”):

(a) The Administrative Agent's receipt of this Amendment, duly executed by Holdings, the Borrower, the Administrative Agent and the Required Lenders, which shall be originals or facsimiles (followed promptly by originals); and

(b) The Borrower shall have paid, or caused to be paid, (i) to the Administrative Agent for the account of the Lenders that have provided (and not withdrawn) their consent to this Amendment by delivery of its executed signature page to this Amendment to the Administrative Agent (or its counsel) on or prior to 5:00 p.m. (Eastern time) on March 12, 2024 (collectively, the "Consenting Lenders"), a consent fee in an amount equal to 0.025% (2.5 basis points) times the aggregate principal amount of outstanding Loans

and

unused Commitments of each of the Consenting Lenders under the Credit Agreement on the Amendment Effective Date and (ii) all expenses due in accordance with this Amendment and under the other Loan Documents to the extent an invoice has been provided therefor or set forth on a funds flow approved by the Borrower, in each case, on or prior to the Amendment Effective Date.

For purposes of determining compliance with the conditions specified in this Section 2, each Lender that has signed this Amendment shall be deemed to have consented to, approved or accepted or to be satisfied with, each document or other matter required thereunder to be consented to or approved by or acceptable or satisfactory to a Lender unless the Administrative Agent shall have received notice from such Lender prior to the proposed Amendment Effective Date specifying its objection thereto.

Section 3. Representations and Warranties. To induce the Administrative Agent and the other Lenders to enter into this Amendment, each Credit Party represents and warrants to the Administrative Agent and the other Lenders on and as of the Amendment Effective Date that, in each case:

(a) all of the representations and warranties set forth in Article VII of the Credit Agreement and the other Loan Documents shall be true and correct in all material respects, except for any representation and warranty that is qualified by materiality or reference to Material Adverse Effect, which such representation and warranty shall be true and correct in all respects, on and as of the Amendment Effective Date with the same effect as if made on and as of such date (except for any such representation and warranty that by its terms is made only as of an earlier date, which representation and warranty shall remain true and correct in all material respects as of such earlier date, except for any representation and warranty that is qualified by materiality or reference to Material Adverse Effect, which such representation and warranty shall be true and correct in all respects as of such earlier date);

(b) no Default or Event of Default has occurred and is continuing;

(c) it has the right, power and authority and has taken all necessary corporate and other action to authorize the execution, delivery and performance of this Amendment in accordance with its terms; and

(d) this Amendment has been duly executed and delivered by the duly authorized officers of each Credit Party that is a party hereto, and constitutes the legal, valid and binding obligation of each such Credit Party, enforceable in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium or similar state or federal Debtor Relief Laws from time to time in effect which affect the enforcement of creditors' rights in general and the availability of equitable remedies.

Section 4. Reference to and Effect on the Credit Agreement and the Loan Documents. Except as expressly provided herein, the Existing Credit Agreement and the other Loan Documents shall remain unmodified and in full force and effect. This Amendment shall not be deemed (a) to be a waiver of, or consent to, or a modification or amendment of, any other term or condition of the Existing Credit Agreement or any other Loan Document other than as expressly set forth herein, (b) to prejudice any right or rights which the Administrative Agent or the Lenders may now have or may have in the future under or in connection with the Existing Credit Agreement or the other Loan Documents or any of the instruments or agreements referred to therein, as the same may be amended, restated, supplemented or modified from time to time, or (c) to be a commitment or any other undertaking or expression of any willingness to engage in any further discussion with the Borrower, any of its Subsidiaries or any other Person with respect to any other waiver, amendment, modification or any other change to the Existing Credit Agreement or the other Loan Documents or any rights or remedies arising in favor of the Lenders or the Administrative Agent, or any of them, under or with respect to any such documents. References in the Existing Credit Agreement to "this Agreement" (and indirect references such as "hereunder", "hereby", "herein", "hereof" or other words of like import) and in any Loan Document to the "Credit Agreement" shall be deemed to be references to the Credit Agreement.

Section 5. Further Assurances. Each Credit Party agrees to, to the extent required by the Loan Documents, make, execute and deliver all such additional and further acts, things, deeds, instruments and documents as the Administrative Agent may reasonably require for the purposes of implementing or effectuating the provisions of this Amendment and the other Loan Documents.

Section 6. Acknowledgement and Reaffirmation. Each Credit Party (a) consents to this Amendment and agrees that the transactions contemplated by this Amendment shall not limit or diminish the obligations of such Person under, or release such Person from any obligations under, any of the Loan Documents to which it is a party (as amended pursuant to this Amendment), (b) confirms and reaffirms its obligations under each of the Loan Documents to which it is a party (as amended pursuant to this Amendment) and (c) agrees that each of the Loan Documents to which it is a party (as amended pursuant to this Amendment) remains in full force and effect and is hereby ratified and confirmed. Each Credit Party hereby reaffirms its obligations under Section 3 of that certain Second Amendment to Credit Agreement and First Amendment to Collateral Agreement, dated as of January 16, 2024, and acknowledges that such obligations remain in full force and effect (in each case after giving effect to any extensions, waivers or other modifications thereto).

Section 7. Costs and Expenses. The Borrower hereby reconfirms its obligations pursuant to Section 12.3(a) of the Credit Agreement to pay and reimburse the Administrative Agent in accordance with the terms thereof.

Section 8. General Release.

(a) In consideration of, among other things, the Administrative Agent's and the Lenders' execution and delivery of this Amendment, each of Borrower and the other Credit Parties, on behalf of itself and its Related Parties, successors and assigns (collectively, "Releasors"), hereby forever agrees and covenants not to sue or prosecute against any Releasee (as hereinafter defined) and hereby forever waives, releases and discharges, to the fullest extent permitted by law, each Releasee from any and all claims (including, without limitation, crossclaims, counterclaims, rights of set-off and recoupment), actions, causes of action, suits, debts, accounts, interests, liens, promises, warranties, damages and consequential damages, demands, agreements, bonds, bills, specialties, covenants, controversies, variances, trespasses, judgments, executions, costs, expenses or claims whatsoever, that such Releasor now has or hereafter may have, of whatsoever nature and kind, whether known or unknown, whether now existing or hereafter arising, whether arising at law or in equity (collectively, the "Claims"), against the Administrative Agent (and any sub-agent thereof), each Lender and each Issuing Lender and their respective Related Parties, and their respective successors and assigns (collectively, the "Releasees"), based in whole or in part on facts, whether or not now known, existing on or before the Amendment Effective Date, that relate to, arise out of or otherwise are in connection with any or all of the Loan Documents or transactions contemplated thereby or any actions or omissions in connection therewith. In entering into this Amendment, Borrower and each other Credit Party consulted with, and has been represented by, legal counsel and expressly disclaims any reliance on any representations, acts or omissions by any of the Releasees and hereby agrees and acknowledges that the validity and effectiveness of the releases set forth above do not depend in any way on any such representations, acts and/or omissions or the accuracy, completeness or validity thereof.

(b) Each of Borrower and the other Credit Parties, on behalf of itself and its Related Parties and its successors, assigns, hereby absolutely, unconditionally and irrevocably, covenants and agrees with and in favor of each Releasee that it will not sue (at law, in equity, in any regulatory proceeding or otherwise) any Releasee on the basis of any Claim released, remised and discharged by Borrower or any other Credit Party pursuant to Section 8(a) hereof.

(c) Each party's obligations under this Section shall survive the termination of the Loan Documents and payment of the obligations thereunder.

Section 9. Governing Law. THIS AMENDMENT SHALL BE GOVERNED BY, AND

CONSTRUED IN ACCORDANCE WITH, THE LAW OF THE STATE OF NEW YORK.

Section 10. Counterparts. This Amendment may be executed in any number of counterparts and by the different parties hereto on separate counterparts, each of which counterparts when executed and delivered shall be an original, but all of which shall together constitute one and the same instrument. Delivery by facsimile or electronic transmission of an executed counterpart of a signature page to this Amendment shall be effective as delivery of an original executed counterpart of this Amendment.

Section 11. Entire Agreement. This Amendment is the entire agreement, and supersedes any prior agreements and contemporaneous oral agreements, of the parties concerning its subject matter. This Amendment is a Loan Document and is subject to the terms and conditions of the Credit Agreement.

Section 12. Successors and Assigns. This Amendment shall be binding on and inure to the benefit of the parties hereto and their successors and permitted assigns.

[Signature pages follow]

IN WITNESS WHEREOF, the parties hereto have caused their duly authorized officers to execute and deliver this Amendment as of the date first above written.

ADTRAN, INC., as Borrower

By: /s/ Ulrich Dopfer

Name: Ulrich Dopfer

Title: President and Chief Financial Officer

ADTRAN HOLDINGS, INC., as Holdings

By: /s/ Ulrich Dopfer

Name: Ulrich Dopfer

Title: Senior Vice President, Chief Financial
Officer, Secretary and Treasurer

ADTRAN, INC.
Third Amendment to Credit Agreement
Signature

WELLS FARGO BANK, NATIONAL ASSOCIATION,
as Administrative Agent, Swingline Lender, an Issuing Lender
and a Lender

By: s/ Patrick McGovern
Name: Patrick McGovern
Title: Senior Vice President

ADTRAN, INC.
Third Amendment to Credit Agreement
Signature

BANK OF AMERICA, N.A., as a Lender

By: s/ Nathan Muller
Name: Nathan Muller
Title: SVP

ADTRAN, INC.
Third Amendment to Credit Agreement
Signature

CITIBANK, N.A., as a Lender

By: /s/ Jeremy Fernandez
Name: Jeremy Fernandez
Title: Senior Vice President

ADTRAN, INC.
Third Amendment to Credit Agreement
Signature

HSBC BANK USA, N.A., as a Lender

By: /s/ Ketak Sampat

Name: Ketak Sampat

Title: Senior Vice President

ADTRAN, INC.

Third Amendment to Credit Agreement Signature

Page

FIRST HORIZON BANK, as a Lender

By: /s/ Brian Daniels
Name: Brian Daniels
Title: SVP

ADTRAN, INC.
Third Amendment to Credit Agreement
Signature

NORDDEUTSCHE LANDESBANK
GIROZENTRALE, as a Lender

By: /s/ Nockemann
Name: Nockemann
Title:

By: /s/ Prinzhausen
Name: PRINZHAUSEN
Title:

ADTRAN, INC.
Third Amendment to Credit Agreement
Signature

Exhibit 21**SUBSIDIARIES OF ADTRAN HOLDINGS, INC.**

December 31, 2023

<u>Name of Subsidiary</u>	<u>Country or State of Incorporation</u>
ADTRAN Networks Pty. Ltd	Australia
ADTRAN Networks Comunicações Ltda.	Brazil
ADTRAN Canada, Inc.	Canada
ADTRAN d.o.o.	Croatia
ADTRAN, Inc.	State of Delaware
ADTRAN International, Inc.	State of Delaware
ADTRAN Networks Worldwide, Inc.	State of Delaware
ADTRAN Networks, LLC	State of Delaware
Bluesocket, Inc.	State of Delaware
ADTRAN Oy	Finland
ADTRAN GmbH	Germany
ADTRAN Networks M.E.P.E.	Greece
ADTRAN Networks India Private Limited	India
ADTRAN Holdings Ltd.	Israel
ADTRAN S.R.L.	Italy
ADTRAN Networks Sdn Bhd	Malaysia
ADTRAN Networks S.A. de C.V.	Mexico
ADTRAN Peru S.R.L.	Peru
ADTRAN Sp. z.o.o.	Poland
ADTRAN, Unipessoal Lda.	Portugal
ADTRAN International, Inc. - Saudi Arabia branch	Saudi Arabia
ADTRAN s.r.o.	Slovakia
ADTRAN Proprietary Ltd.	South Africa
ADTRAN Switzerland GmbH	Switzerland
ADTRAN GmbH (Tunisia Permanent Establishment Branch Office)	Tunisia
ADTRAN SARL	Tunisia
ADTRAN Europe Limited	United Kingdom
ADTRAN Networks and Services Egypt, LLC	Egypt
ADTRAN Networks New Zealand Ltd.	New Zealand
Adtran Networks SE	Germany
Adtran Networks North America, Inc.	State of Delaware
Adtran Networks (UK) Limited	United Kingdom
Oscilloquartz SA	Switzerland
Adtran Networks Spólka z o.o.	Poland
Adtran Networks Israel Ltd.	Israel
ADVA Optical Networking (Shenzhen) Ltd.	China
Oscilloquartz Finland Oy	Finland
ADVA IT Solutions Pvt. Ltd.	India
ADVA Optical Networking Trading (Shenzhen) Ltd.	China
Adtran Networks Singapore Pte. Ltd.	Singapore
Adtran Networks Hong Kong Limited	China
ADVA Optical Networking (India) Private Ltd.	India
ADVA Optical Networking Serviços Brazil Ltda.	Brazil
Adtran Networks Japan Co., Ltd.	Japan
Adtran Networks AB	Sweden
ADVA NA Holdings Inc.	State of Georgia
Adtran Networks Australia Pty Ltd.	Australia
Adtran Networks B.V.	Netherlands
Adtran Networks Canada, Inc.	Canada
ADVA Network Security GmbH	Germany

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 268998) and Form S-8 (Nos. 333-266089 and 333-266091) of ADTRAN Holdings, Inc. of our report dated March 15, 2024 relating to the financial statements, financial statement schedule and the effectiveness of internal control over financial reporting, which appears in this Annual Report on Form 10-K.

/s/ PricewaterhouseCoopers LLP
Birmingham, Alabama
March 15, 2024

Exhibit 24

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each of the undersigned, being a director of ADTRAN Holdings, Inc., a Delaware corporation (the “Company”), by his or her execution hereof or an identical counterpart hereof, hereby constitutes and appoints Thomas R. Stanton and Ulrich Dopfer, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign the Annual Report on Form 10-K of the Company for the fiscal year ended December 31, 2023 and any and all amendments thereto, and any other documents in connection therewith as they or any one of them may deem necessary or desirable, each in such form as they or any one of them may approve, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done, as fully and to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, each of the undersigned has hereunto set his or her hand this 15th day of March, 2024.

/s/ H. Fenwick Huss

H. Fenwick Huss

Director

/s/ Gregory McCray

Gregory McCray

Director

/s/ Balan Nair

Balan Nair

Director

/s/ Brian Protiva

Brian Protiva

Director

/s/Jacqueline H. Rice

Jacqueline H. Rice

Director

/s/ Nikos Theodosopoulos

Nikos Theodosopoulos

Director

/s/Kathryn A. Walker

Kathryn A. Walker

Director

Exhibit 31

CERTIFICATIONS

I, Thomas R. Stanton, certify that:

1. I have reviewed this Annual Report on Form 10-K of ADTRAN Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 15, 2024

/s/ Thomas R. Stanton

Thomas R. Stanton

Chief Executive Officer and Chairman of the Board

I, Ulrich Dopfer, certify that:

1. I have reviewed this Annual Report on Form 10-K of ADTRAN Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 15, 2024

/s/ Ulrich Dopfer

Ulrich Dopfer

Chief Financial Officer

(Principal Accounting Officer)

Exhibit 32

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of ADTRAN Holdings, Inc. (the “Company”) on Form 10-K for the period ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Thomas R. Stanton, Chief Executive Officer and Chairman of the Board of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company for the periods described herein.

/s/ Thomas R. Stanton

Thomas R. Stanton
Chief Executive Officer and Chairman of the Board
Date: March 15, 2024

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of ADTRAN Holdings, Inc. (the “Company”) on Form 10-K for the period ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Ulrich Dopfer, Chief Financial Officer, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company for the periods described herein.

/s/ Ulrich Dopfer

Ulrich Dopfer

Chief Financial Officer

(Principal Accounting Officer)

Date: March 15, 2024
