ADTRAN®

Lighting the Future

2019 ANNUAL REPORT

Lighting the Future

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Lighting the Future

The connected world has changed our lives forever. We now have the world at our fingertips, where we are confined only by our imagination and the bandwidth to which we have access. The availability of gigabit-speed broadband services is making the impossible possible, and driving innovation around the world. ADTRAN's next-generation fiber and fiber-extension technologies are lighting the future.

> making the impossssible possible, and driving innovation

Looking Back at 2019

We entered the first half of the year with 20 percent year-over-year revenue growth and over 50 percent of our revenue coming from international markets. However, this progress was overshadowed in the second half of the year with a pause in shipments by a Tier-1 customer in Latin America and a spending slowdown by a Tier-1 operator in Europe, which caused us to fall short of our expectations for the year. However, despite these setbacks, we still made continued progress toward our business strategy in our three focal areas: Broadband Access, Subscriber Solutions & Experience, and Global Services.

several key additions to our 10G PON portfolio

Broadband access driven by fiber deployment continues to have a positive impact on our business. Despite an overall flat year from a revenue perspective, Fiber Access and Aggregation was up 11 percent over the previous year, with fiber Customer Premises Equipment (CPE) up 13 percent in that same period indicating the strength in this market segment.

Over the past few years, we have focused on the expansion of our Passive Optical Network (PON) portfolio and Fiber-to-the-Premises (FTTP) customer base. During 2019, we had hundreds of unique customer rollouts of our PON solutions for residential, business, or mobile applications.

Our open and flexible 10G PON platforms offer scalable service offerings, which is a key operator consideration as they work to enhance their customers' broadband experience. We continued to gain significant market traction during the year as we secured awards with new and existing customers in our target regions around the globe.

As 10G PON moves from the network planning stage to real-world deployments, we saw interest from and execution by a wide range of service providers for our market-leading XGS-PON solutions, especially in North America and Europe. These are complemented by emerging opportunities in Australia, the Middle East, Africa, and Latin America. Our industry-leading 10G PON portfolio is enabling our customers to push more robust fiber services, further — lighting the future.

We announced several key additions to our 10G PON portfolio this year, including the ADTRAN 600 Series of 10G PON Optical Network Terminals (ONTs) that enable any type of operator serving residential, business, and retail customers to deliver multi-gigabit services. Additionally, we strengthened our SDX portfolio with the addition of the SDX 6010 fiber access solution that helps customers expand the range and reach of PON with an open, disaggregated architecture.

> expanding our customer base internationally has been a strategic focus ”

In North America, there are some positive trends in fiber broadband deployment with Tier-2 and regional service providers as well as among rural electric co-ops and rural communities building fiber networks of their own. We are well-positioned to capitalize on global fiber densification opportunities supporting Multi-Dwelling Units. While fiber is lighting the future, service providers take a number of different paths to deliver gigabit services depending on their market dynamics, infrastructure, and customer base. Our second-generation Gfast portfolio continues to be recognized for its excellence in gigabit service delivery innovation as the industry's leading fiber extension portfolio. Development of the ADTRAN Gfast fiber extension solutions is currently underway in multiple Tier-1 carrier networks in the Pacific Rim, North America, and Europe.

Expanding our customer base internationally has been a strategic focus for ADTRAN for some time. In Europe, the investment in fiber infrastructure is being led by emerging alternative network operators, which in turn is pushing incumbent providers to invest in their networks. In Australia, the national broadband network build has entered into a mixed technology phase, where we will see some fiber-to-the-node migration to Fiber-to-the-Premises along with the ramp-up of CPE deployments.

We continue to invest in our field-proven widely deployed Total Access 5000 platform, and we are winning new customers with this solution. During the year, we announced several new capabilities for this product, including 100G transport capabilities to support the ramp-up of 10G services and a 100G switch module. This platform is particularly attractive due to its pay-as-you-grow design, which enables operators to add new subscribers or services easily. Over a dozen utility providers in the U.S. and Canada, which plan to offer broadband services, recently selected our Total Access 5000 platform as the foundation for a rich set of gigabit services in their communities, and we look for this momentum to continue throughout the coming years.

5G is another hot topic in the broadband arena. We announced an enhancement to our Fixed Wireless Access (FWA) portfolio with the addition of new millimeter-wave mesh and point-to-point solutions that enable rapid deployment of dense 5G networks. These technologies are accelerating the densification of millimeter wave backhaul networks needed to handle the advancements in the Internet of Things, smart cities, connected cars, and ultra-high-speed broadband by connecting multiple nodes wirelessly with other nodes receiving bandwidth from fiber links.

Moving forward, we expect continued growth in our Broadband Access portfolio from net new awards, building upon the progress we have already made. We are well-positioned and expect to continue the sustained momentum we achieved with Connect America Fund funding. On January 30, 2020, the Federal Communications Commission adopted the Rural Digital Opportunity Fund order, which will provide $20.4 billion of federal subsidies for broadband deployment to four million homes in rural America over the next 10 years, and it fits perfectly into our solution portfolio and services. We believe that our market-leading 10G PON fiber access platforms will play a fundamental role in how next-generation networks are built during the next decade.

As you may know, at the end of 2018, we acquired SmartRG, Inc. (SmartRG), an innovative company that leads the market in helping service providers leverage the connected-home opportunity to improve and monetize the subscriber experience. The promise that we saw in its teams, solutions, and technologies continues to have a positive impact on our customers' ability to leverage their investments in broadband and delivers a clear path to higher-value, over-the-top services that have previously been provided by third parties. Our Subscriber Solutions & Experience segment was up 14 percent year-over-year.

Additionally, we expanded our business with a strategic Pacific Tier-1 operator with a new award that now includes CPE solutions that build upon our SmartRG capabilities and our Gfast leadership in that carrier. We expect that these opportunities will have a positive impact on our Subscriber Solutions & Experience growth and recurring revenue in 2020 and beyond.

During 2019, we marked the first shipments of our Integrated RG ONTs utilizing SmartRG technology. We expanded our devices under software subscription management services, which include Mosaic Subscriber Insight, smart home analytics, and device manager. There are now over 2 million devices under management across a vast array of network topologies, including fiber, copper, cable, and wireless.

We also announced ADTRAN's first Software-Defined Wide Area Network (SD-WAN) solution. This cloud solution is designed to help small businesses and distributed enterprises take advantage of cloud-based networking while keeping existing voice and security solutions in place. Topping off our list of advancements was the introduction of SmartOS 11, the industry's first Purple Foundation-compliant operating system.

Broadband Access and Subscriber Solutions & Experience are complemented by our Global Services Business. This area has proven to enable ADTRAN to be a trusted partner with expanded services capability for our service provider customers. Operators focus on not only delivering the capacity but also on customer experience to stay competitive. ADTRAN's unmatched experience in access networks has proven to be a critical asset. It is helping our customers in Europe, Latin America, and the U.S. plan, provision, support, and build their best networks. We are helping customers better understand how to maximize opportunities, find new paths to revenue, reduce operational expenses, and realize faster time to market with new services.

"ADTRAN's unmatched experience in access networks has proven to be a critical asset. It is helping our customers in Europe, Latin America, and the U.S. plan, provision, support, and build their best networks."

Looking Ahead to 2020 and Beyond

We are excited about the future for ADTRAN, our customers, and the markets that we serve, driven by technology evolution, positive governmental influences, and vendor disruption. We enter 2020 with cautious optimism as service providers around the world are entering a new investment cycle in 10G PON and are making vendor selections for their fiber broadband platforms of the future. They desire to take fiber further into the network and light the future. We have diligently focused on strengthening our product portfolios to support these efforts and feel that we are well-positioned to take advantage of these opportunities.

For the last four years, we have focused our development efforts on the access network platform for the future. We made a big bet on building an open, disaggregated software-defined network architecture that breaks from the traditional monolithic chassis-based approach. This architecture combines modern Web-scale technology with open-source platforms to facilitate rapid innovation in multi-technology, multi-vendor environments. Over the next 18-months, more than a dozen of the world's leading Tier-1 operators will be selecting their fiber access platforms for the future. These platform selections will chart the course for the network for the next decade and beyond.

> We are excited about the future for ADTRAN

I am pleased to report that our investment in the SDX platform is beginning to pay off. Already this year, we have been selected as the winner of the first two major Tier-1 awards. ADTRAN's SDX Optical Line Terminal (OLT) platform and Mosaic Cloud Platform were selected by a Tier-1 service provider in the U.S. as its broadband platform for the future. This award was highly competitive, and ADTRAN emerged as the sole-source winner. Likewise, in Europe, a leading Tier-1 selected our SDX OLT as the foundation of its network for the future. We are excited to have clinched these first two major platform awards that firmly establish ADTRAN as the leader in 10G PON and open, disaggregated software networks. These awards put the company in a strong position for many years to come.

I would like to thank our employees. Over the past year, we have gone through many challenges. As a result, we have made adjustments within the company that will enable us to better respond to the ebbs and flows of the industry. One thing that has not changed is the unwavering commitment of the members of the ADTRAN family. They come to work each day looking for ways to help our customers solve their problems and help them build their best networks and light the future. For this, I say thank you.

One final note, as we are writing this letter, our company, like the rest of the world is in the grips of dealing with the novel Coronavirus. We are doing everything possible to mitigate risks to our employees and our business. We have enacted our Business Continuity Plan to help ensure the health and safety of our employees and to assess and plan for supply chain, transport, and other issues as they arise. We are working diligently to provide our customers with the solutions that they need in a timely manner, especially during this crucial time. It is our hope that this cloud of uncertainty will quickly pass, and we will all be able to return to our daily routines.

Tom Stanton,
Chairman & CEO
ADTRAN, Inc.

Financial Highlights

Company Financial Summary

(Dollars in Millions, Except Per Share Amounts)

Annual Revenue

Gross Margin

Operating Income (Loss)

Annual Earnings (Loss) ***Per Share*** *(Diluted)*

Consolidated Statements of Income Data

(In thousands, except per share amounts)

Years Ended December 31	2019	2018
Total Sales	$530,061	$529,277
Loss Before Income Taxes	$(24,777)	$(33,371)
Net Loss	$(52,982)	$(19,342)
Loss per Common Share (Diluted)	$(1.11)	$(0.40)

Consolidated Balance Sheets Data

(In thousands)

Years Ended December 31	2019	2018
Unrestricted Cash and Marketable Securities	$153,609[1]	$173,319[1]
Total Assets	$545,118	$628,027
Stockholders' Equity	$380,426	$446,279

Financial Results

10 **Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities**

11 **Stock Performance Graph**

12 **Selected Financial Data**

14 **Management's Discussion and Analysis of Financial Condition and Results of Operations**

Overview
Results of Operations
Comparison of Years Ended December 31, 2019 and December 31, 2018
Liquidity and Capital Resources
Critical Accounting Policies and Estimates
Recently Issued Accounting Pronouncements
Subsequent Events

29 **Quantitative and Qualitative Disclosures About Market Risk**

31 **Report of Independent Registered Public Accounting Firm**

34 **Financial Statements**

39 **Notes to Consolidated Financial Statements**

Note 1 – Nature of Business
Note 2 – Business Combinations
Note 3 – Revenue
Note 4 – Stock-Based Compensation
Note 5 – Investments
Note 6 – Derivative Instruments and Hedging Activities
Note 7 – Inventory
Note 8 – Property, Plant and Equipment
Note 9 – Leases
Note 10 – Goodwill
Note 11 – Intangible Assets
Note 12 – Alabama State Industrial Development Authority Financing and Economic Incentives
Note 13 – Income Taxes
Note 14 – Employee Benefit Plans
Note 15 – Segment Information and Major Customers
Note 16 – Commitments and Contingencies
Note 17 – Earnings (Loss) per Share
Note 18 – Restructuring
Note 19 – Summarized Quarterly Financial Data (Unaudited)
Note 20 – Subsequent Events

84 **Directors and Executive Officers**

This annual report contains forward-looking statements which reflect management's best judgment based on factors currently known. However, these statements involve risks and uncertainties, including the successful development and market acceptance of new products, the degree of competition in the market for such products, the product and channel mix, component costs, manufacturing efficiencies, and other risks detailed in our annual report on Form 10-K for the year ended December 31, 2019. These risks and uncertainties could cause actual results to differ materially from those in the forward-looking statements included in this annual report.

Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

ADTRAN's common stock is traded on the NASDAQ Global Select Market under the symbol ADTN. As of February 19, 2020, ADTRAN had 163 stockholders of record and approximately 6,972 beneficial owners of shares held in street name. The following table shows the high and low closing prices per share for our common stock as reported by NASDAQ for the periods indicated.

COMMON STOCK PRICES

2019	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
High	$15.40	$17.81	$16.40	$11.59
Low	$10.49	$13.76	$ 9.92	$ 8.09
2018	**First Quarter**	**Second Quarter**	**Third Quarter**	**Fourth Quarter**
High	$20.00	$16.05	$18.80	$18.12
Low	$15.35	$13.95	$14.95	$10.43

STOCK REPURCHASES

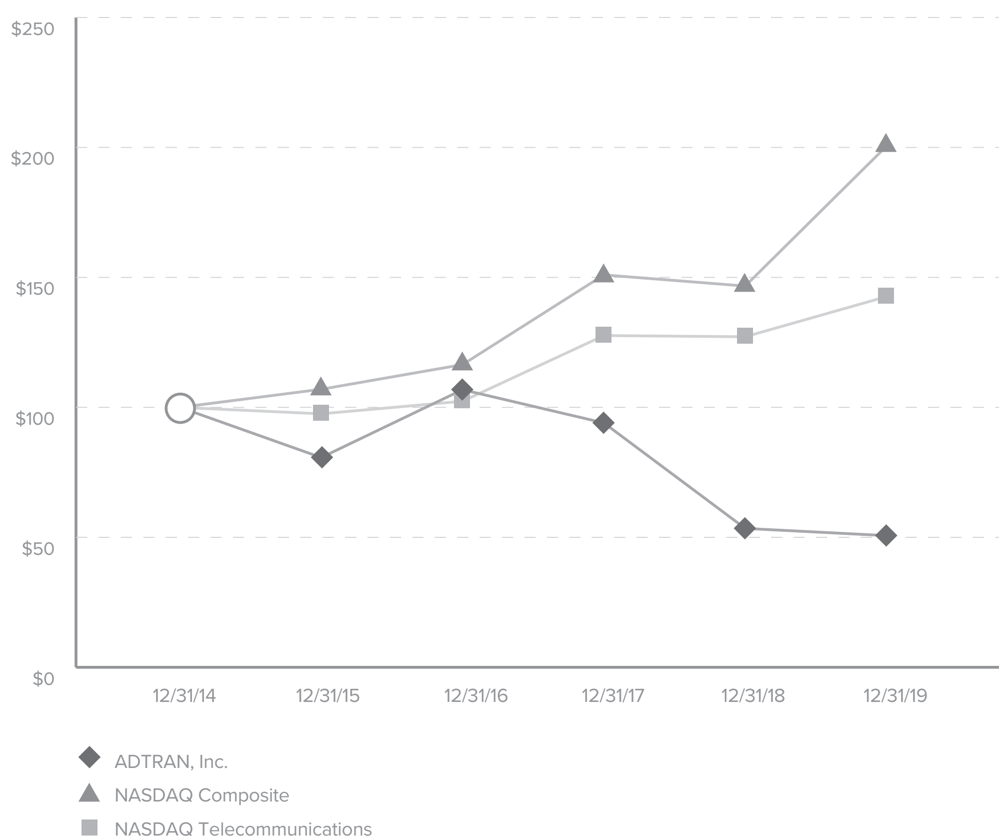
The following table sets forth repurchases of our common stock for the months indicated.

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, 2019 – October 31, 2019	—	$ —	—	2,545,430
November 1, 2019 – November 30, 2019	—	$ —	—	2,545,430
December 1, 2019 – December 31, 2019	—	$ —	—	2,545,430
Total	—	$ —	—	

(1) Since 1997, our Board of Directors has approved multiple share repurchase programs that have authorized open market repurchase transactions of our common stock, which are implemented through open market or private purchases from time to time as conditions warrant. We currently have authorization to repurchase an additional 2.5 million shares of our common stock under the current authorization of up to 5.0 million shares.

Stock Performance Graph

Our common stock began trading on the NASDAQ National Market on August 9, 1994. The price information reflected for our common stock in the following performance graph and accompanying table represents the closing sales prices of the common stock for the period from December 31, 2014, through December 31, 2019, on an annual basis. The graph and the accompanying table compare the cumulative total stockholders' return on our common stock with the NASDAQ Telecommunications Index and the NASDAQ Composite Index. The calculations in the following graph and table assume that $100 was invested on December 31, 2014, in each of our common stock, the NASDAQ Telecommunications Index and the NASDAQ Composite Index and also assume dividend reinvestment.



	12/31/14	12/31/15	12/31/16	12/31/17	12/31/18	12/31/19
ADTRAN, Inc.	$100.00	$ 80.70	$106.80	$ 94.01	$ 53.43	$ 50.66
NASDAQ Composite	$100.00	$106.96	$116.45	$150.96	$146.67	$200.49
NASDAQ Telecommunications	$100.00	$ 97.52	$102.36	$127.62	$127.16	$142.60

Selected Financial Data

INCOME STATEMENT DATA

(In thousands, except per share amounts)

Year Ended December 31,	2019	2018	2017	2016	2015
Sales	$530,061	$529,277	$666,900	$636,781	$600,064
Cost of sales	310,894	325,712	363,265	345,451	333,166
Gross profit	**219,167**	**203,565**	**303,635**	**291,330**	**266,898**
Selling, general and administrative expenses	130,288	124,440	135,583	131,848	123,540
Research and development expenses	126,200	124,547	130,666	124,909	129,868
Asset impairments	3,872	—	—	—	—
Gain on contingency	(1,230)	—	—	—	—
Operating income (loss)	**(39,963)**	**(45,422)**	**37,386**	**34,573**	**13,490**
Interest and dividend income	2,765	4,026	4,380	3,918	3,953
Interest expense	(511)	(533)	(556)	(572)	(596)
Net investment gain (loss)	11,434	(4,050)	4,685	5,923	10,337
Other income (expense), net	1,498	1,286	(1,208)	(489)	(1,476)
Gain on bargain purchase of a business	—	11,322	—	3,542	—
Income (Loss) Before Income Taxes	**(24,777)**	**(33,371)**	**44,687**	**46,895**	**25,708**
Income tax (expense) benefit	(28,205) [1]	14,029	(20,847) [2]	(11,666)	(7,062)
Net income (loss)	**$(52,982)**	**$(19,342)**	**$23,840**	**$35,229**	**$18,646**
Weighted average shares outstanding – basic	47,836	47,880	48,153	48,724	51,145
Weighted average shares outstanding – assuming dilution [3]	47,836	47,880	48,699	48,949	51,267
Earnings (loss) per common share – basic	($1.11)	($0.40)	$0.50	$0.72	$0.36
Earnings (loss) per common share – assuming dilution [3]	($1.11)	($0.40)	$0.49	$0.72	$0.36
Dividends declared and paid per common share	$0.36	$0.36	$0.36	$0.36	$0.36

(1) Provision for income taxes in 2019 reflected a valuation allowance of $42.8 million is primarily related to our domestic deferred tax assets with respect to which the Company is no longer able to conclude that it is more likely than not that these deferred tax assets will be realized. See Note 13 of Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report, for additional information.

(2)Provision for income taxes in 2017 reflected an estimated expense of $11.9 million related to the Tax Cuts and Jobs Act, which was signed into law on December 22, 2017. See Note 13 of Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report, for additional information.

(3)Assumes exercise of dilutive stock options calculated under the treasury method. See Notes 1 and 16 of Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report. As a result of the net loss for each of the years ended December 31, 2019 and 2018, we excluded 0.1 million of unvested stock options, PSUs, RSUs and restricted stock from the calculation of diluted EPS due to their anti-dilutive effect.

BALANCE SHEET DATA

(In thousands)

As of December 31,	2019	2018	2017	2016	2015
Working capital (1)	$207,599	$237,416	$306,296	$226,367	$219,219
Total assets	$545,118	$628,027	$669,094	$667,235	$632,904
Total debt (2)	$24,600	$25,600	$26,700	$27,800	$28,900
Stockholders' equity	$380,426	$446,279	$497,911	$479,517	$480,160

(1) Working capital consists of current assets less current liabilities. Amounts prior to 2016 have been recast to conform to the current period's presentation as a result of our adoption of Accounting Standards Update 2015-17, Balance Sheet Classification of Deferred Taxes. See Note 1 of Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report for additional information.

(2) Total debt outstanding consisted of taxable revenue bonds due to the State of Alabama Industrial Development Authority. The bonds matured on January 1, 2020 and were repaid in full on January 2, 2020. See Note 12 of Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report for additional information.

Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion of our financial condition and results of operations in conjunction with our audited consolidated financial statements and the related notes included in Part II, Item 8 of this Annual Report on Form 10-K. 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, 2018, filed with the SEC on February 28, 2019, which is available free of charge on the SEC's website at sec.gov and on our website at **www.adtran.com**.

Overview

ADTRAN is a leading global provider of networking and communications equipment, serving a diverse domestic and international customer base in multiple countries that includes Tier-1, -2 and -3 service providers, cable/MSOs 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 lower selling prices and increased functionality as compared to both the prior generation of a product and to the products of competitors. In order to service our customers and grow revenue, we are constantly conducting research and development of new products addressing customer needs and testing those products for the particular specifications of the particular customers. We are focused on being a top global supplier of access infrastructure and related value-added solutions from the cloud edge to the subscriber edge. 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 corporate headquarters in Huntsville, Alabama, we have research and development facilities in strategic global locations.

An important part of our strategy is to reduce the cost of each succeeding product generation and then lower the product's selling price based on the cost savings achieved in order to gain market share and/or improve gross margins. As a part of this strategy, we seek to be a high-quality, and in most instances the low-cost, provider of products in our markets. Our success to date is attributable in large measure to our ability to design our products initially with a view to their subsequent redesign, allowing both increased functionality and reduced manufacturing costs in each succeeding product generation. This strategy enables us to sell succeeding generations of products to existing customers, while increasing our market share by selling these enhanced products to new customers.

We ended the first half of 2019 with 20.6% year-over-year revenue growth and good geographical diversity with 50.8% of our revenue coming from international markets. During the third quarter of 2019, we experienced a slowdown in capital spending by a Tier-1 customer in Europe and an unforeseen pause in spending from a LATAM Tier-1 customer. While shipments to the LATAM customer resumed in the fourth quarter, these delays, combined with seasonality, resulted in a softer than expected second half of the year. During 2019, we had three 10% revenue customers geographically diversified with one each in the U.S., Europe and LATAM. Our domestic revenue growth of 4.2% year-over-year was driven by an increase in sales to RSPs and additional fiber deployments across all customers. In addition, we saw an increase in sales to a Tier-1 customer with diversified business among our fiber access and CPE, service provider CPE and services as well as sales to a Tier-2 customer. Our LATAM Tier-1 customer expanded their FTTx deployments in 2019 with ADTRAN solutions. In Europe, a Tier-1 customer continued expansion of their vectoring and super-vectoring VDSL2 solutions. We also experienced increases in our service provider CPE business in 2019. Among our customers,

we made progress with our fiber and fiber-extension solutions, including Gfast and PON, while also continuing to engage various Services & Support opportunities that we expect will contribute in 2020 and beyond. In addition, we believe we are at the beginning of a significant investment cycle for fiber deployment driven by technology advancements, regulatory influences and vendor disruption. The transition to next-generation network architectures is beginning, and we are seeing demand for our next-generation SD-Access solutions. In the latter part of 2020, we anticipate that payments to service providers under government funding programs such as the FCC Rural Digital Opportunity Fund will begin and continue into 2021.

We made two acquisitions in 2018, strengthening our position in both the cable/MSOs and connected home markets. In the first quarter of 2018, we acquired Sumitomo Electric Lightwave Corp.'s North American EPON business and certain assets for North America and entered into a technology license and original equipment manufacturer supply agreement with Sumitomo Electric Industries, Ltd. These solutions, combined with our organic fiber access product portfolio and our distributed access expertise, present new opportunities in the cable/MSO market. Also, in the fourth quarter of 2018, we acquired U.S.-based SmartRG, an industry-leading provider of carrier-class, connected-home software platforms and cloud services for broadband service providers. With this acquisition, ADTRAN now offers a complete cloud-to-consumer portfolio of virtualized management, data analytics, Wi-Fi-enabled residential gateways and software platforms.

In addition to classifying our operations into two reportable segments, we report revenue across three categories of products and services – (1) Access & Aggregation, (2) Subscriber Solutions & Experience (formerly Customer Devices) and (3) Traditional & Other Products.

Our Access & Aggregation solutions are used by CSPs to connect their network infrastructure to subscribers. This revenue category includes hardware- and software-based products and services that aggregate and/or originate access technologies. ADTRAN solutions within this category include a wide array of modular or fixed platforms designed to deliver the best technology and economy based on subscriber density and environmental conditions.

Our Subscriber Solutions & Experience portfolio is used by service providers to terminate their infrastructure at the customers premises while providing an immersive and interactive experience for the subscriber. These solutions include copper and fiber WAN termination, LAN switching, Wi-Fi access, and cloud software services, for both residential and business markets.

In alignment with our increased focus on enhancing the customer experience for both business and consumer broadband customers as well as the addition of SmartRG during 2018, what was previously known as our Customer Devices category became our Subscriber Solutions & Experience category, as this more accurately represents this revenue category and our vision moving forward.

Our Traditional & Other Products category generally includes a mix of prior-generation technologies' products and services, as well as other products and services that do not fit within the other revenue categories.

Our operating results have fluctuated, and may continue to fluctuate, on a quarterly basis due to a number of factors, including customer order activity and backlog. A substantial portion of our shipments in any fiscal period relates 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. These factors normally result in a varying order backlog and limited order flow visibility. Additionally, backlog levels may vary because of seasonal trends, the timing of customer projects, and other factors that affect customer order lead times. Because many of our customers require prompt delivery of products, we are required to maintain sufficient inventory levels to satisfy anticipated customer demand. If near-term demand for our products declines, or if potential sales in any quarter do not occur as anticipated, our financial results could be adversely affected. Operating expenses are relatively fixed in the short term; therefore, a shortfall in quarterly revenues could significantly impact our financial results in a given quarter.

Our operating results may also fluctuate as a result of a number of other factors, including a decline in general economic and market conditions, foreign currency exchange rate movements, 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. 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 assure prompt delivery of our products may cause us to incur expediting costs to meet customer delivery requirements, which may negatively impact our operating results in a given quarter. During 2019, the Company implemented restructuring plans to realign its expense structure with the reduction in revenue experienced in recent years and with overall Company objectives. Management assessed the efficiency of our operations and consolidated locations and personnel, among other things, and has implemented certain cost savings initiatives, where possible. We expect to see a reduction in our operating expenses, both in the U.S. and internationally, as a result of our implementation of these restructuring plans.

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. See Note 19 of Notes to Consolidated Financial Statements, included in Part II, Item 8 of this report, for additional information on quarterly results for 2018 and 2019. For a discussion of risks associated with our operating results, see Part I, Item 1A of this report.

Results of Operations

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

Year Ended December 31,	2019	2018	2017
Sales			
Network Solutions	85.9%	86.6%	81.0%
Services & Support	14.1	13.4	19.0
Total sales	**100.0**	**100.0**	**100.0**
Cost of sales			
Network Solutions	49.7	52.7	41.9
Services & Support	8.9	8.8	12.6
Total cost of sales	**58.7**	**61.5**	**54.5**
Gross profit	**41.3**	**38.5**	**45.5**
Selling, general and administrative expenses	24.6	23.5	20.3
Research and development expenses	23.8	23.5	19.6
Asset impairments	0.7	—	—
Gain on contingency	(0.2)	—	—
Operating income (loss)	**(7.5)**	**(8.6)**	**5.6**
Interest and dividend income	0.5	0.8	0.7
Interest expense	(0.1)	(0.1)	(0.1)
Net investment gain (loss)	2.2	(0.8)	0.7
Other income (expense), net	0.3	0.2	(0.2)
Gain on bargain purchase of a business	—	2.1	—
Income (Loss) Before Income Taxes	**(4.7)**	**(6.3)**	**6.7**
Income tax (expense) benefit	(5.3)	2.7	(3.1)
Net income (loss)	**(10.0)%**	**(3.7)%**	**3.6%**

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, 2019 and December 31, 2018. For a discussion of a comparison of the years ended December 31, 2018 and December 31, 2017, please refer to Management's Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on February 28, 2019.

Comparison of Years Ended December 31, 2019 and December 31, 2018

Sales

Our sales increased 0.1% from $529.3 million for the year ended December 31, 2018 to $530.1 million for the year ended December 31, 2019. Our Services & Support sales increased $3.8 million compared to 2018 and our Network Solutions sales decreased $3.0 million versus the prior year. The increase in our 2019 sales was primarily attributable to an increase in Subscriber Solutions & Experience sales of $18.5 million, partially offset by decreases in Access & Aggregation sales of $10.0 million and Traditional & Other Products sales of $7.7 million.

Network Solutions sales decreased by 0.7% from $458.2 million in 2018 to $455.2 million in 2019, due primarily to a decrease in sales of our Access & Aggregation products and Traditional & Other Products. The decrease in sales of 3.9% of our Access & Aggregation products for 2019 was primarily attributable to decreased FTTN products, offset by an increase in sales of Gfast DPUs. The increase of 12.1% in 2019 for sales of our Subscriber Solutions & Experience products was primarily attributable to increased residential CPE and fiber CPE sales, partially offset by a decrease in sales of SP Business CPE and WiFi access points and infrastructure. While we expect that revenues from Traditional & Other Products will continue to decline over time, these revenues may fluctuate and continue for years because of the time required for our customers to transition to newer technologies.

Services & Support sales increased by 5.3% from $71.0 million in 2018 to $74.8 million in 2019. The increase in sales for 2019 was primarily attributable to an increase in network installation and maintenance services for Access & Aggregation products and Subscriber Solutions & Experience.

Domestic sales increased 4.2% from $288.8 million in 2018 to $300.9 million in 2019. Our domestic growth was driven by an increase in sales to the RSP market segment and additional fiber deployments across all customers. In addition, such growth was driven by an increase in sales to a Tier-1 customer with diversified business among our fiber access and CPE, service provider CPE and services, as well as increased sales to a Tier-2 customer.

International sales, which are included in the amounts for the Network Solutions and Services & Support segments amounts discussed above, decreased 4.7% from $240.4 million for the year ended December 31, 2018 to $229.2 for the year ended December 31, 2019. International sales, as a percentage of total sales, decreased from 45.4% for the year ended December 31, 2018 to 43.2% for the year ended December 31, 2019. The decrease in international sales for 2019 was primarily attributable to the slowdown in shipments to two international Tier-1 customers.

Our international revenue is largely focused on broadband infrastructure and is 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. The competitive landscape in certain international markets is also affected by the increased presence of Asian manufacturers that seek to compete aggressively on price. Our revenue and operating income in some international markets can be negatively impacted by a strengthening U.S. dollar. 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 negative pressure on revenue and operating income.

Cost of Sales

As a percentage of sales, cost of sales decreased from 61.5% for the year ended December 31, 2018 to 58.7% for the year ended December 31, 2019. The decrease was primarily attributable to regional revenue shifts, changes in customer and product mix, changes in services and support mix and a decrease in labor expense as a result of restructuring programs which were initiated in 2018 and continued throughout 2019.

Network Solutions cost of sales, as a percent of that segment's sales, decreased from 60.9% of sales in 2018 to 57.9% of sales in 2019. The decrease in Network Solutions cost of sales as a percentage of that segment's sales was primarily attributable to regional revenue shifts, changes in customer and product mix and a decrease in labor expense due to restructuring programs which were initiated in 2018 and continued throughout 2019, offset by an increase in freight and shipping charges.

An important part of our strategy is to reduce the cost of each succeeding generation of product and then lower the product's selling price based on the cost savings achieved in order to gain market share and/or improve gross margins. This may cause variations in our gross profit percentage due to timing differences between the recognition of cost reductions and the lowering of product selling prices.

Services & Support cost of sales, as a percent of that segment's sales, decreased from 65.8% of sales in 2018 to 63.1% of sales in 2019. The decrease in Services & Support cost of sales as a percentage of that segment's sales in 2019 was primarily attributable to lower fixed personnel costs due to restructuring programs which were initiated in 2018 and continued throughout 2019, changes in customer mix, changes in services support mix and an increase in volume.

Our 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.

As our network planning and implementation revenue grew to become the largest component of our Services & Support segment business, our Services & Support segment gross margins decreased versus those reported when maintenance and support comprised the majority of the business. Further, because the growth in our network planning and implementation services has resulted in our Services & Support segment revenue comprising a larger percentage of our overall revenue, and because our Services & Support segment gross margins are generally below those of the Network Solutions segment, our overall corporate gross margins may decline as that business continues to grow. Within the Services & Support segment, we do expect variability in gross margins from quarter-to-quarter based on the mix of the services recognized.

Selling, General and Administrative Expenses

Selling, general and administrative expenses as a percentage of sales increased from 23.5% for the year ended December 31, 2018 to 24.6% for the year ended December 31, 2019. Selling, general and administrative expenses as a percentage of sales will generally fluctuate whenever there is a significant fluctuation in revenues for the periods being compared as these costs are relatively fixed in the short term.

Selling, general and administrative expenses increased by 4.7% from $124.4 million for the year ended December 31, 2018 to $130.3 million for the year ended December 31, 2019. Selling, general and administrative expenses include personnel costs for administration, finance, information technology, human resources, sales and marketing and general management, as well as rent, utilities, legal and accounting expenses, advertising, promotional material, trade show expenses and related travel costs. The increase in selling, general and administrative expenses was primarily attributable to deferred compensation related costs, incremental expenses as a result of the SmartRG acquisition, IP litigation and other legal related costs, partially offset by decreases in labor expense and use tax expense.

Research and Development Expenses

Research and development expenses as a percentage of sales increased from 23.5% for the year ended December 31, 2018 to 23.8% for the year ended December 31, 2019. Research and development expenses as a percentage of sales will fluctuate whenever there are incremental product development activities or significant fluctuations in revenues for the periods being compared.

Research and development expenses increased by 1.3% from $124.5 million for the year ended December 31, 2018 to $126.2 million for the year ended December 31, 2019. The increase in research and development expenses was primarily attributable to increases in incremental expenses as a result of the SmartRG acquisition and lease expense offset by a decrease in labor expense, certain material engineering costs and contract services.

We expect to continue to incur research and development expenses in connection with our new and existing products and our expansion into international markets. We continually evaluate new product and market opportunities and engage in significant research and development efforts which provide 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 revenues from a major new product group.

Asset Impairments

Asset impairments, which were $3.9 million for the year ended December 31, 2019, relate to the abandonment of certain information technology implementation projects which we had previously capitalized costs for these projects. There were no asset impairments recognized during the year ended December 31, 2018. See Note 1 and Note 8 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.

Gain on Contingency

Gain on contingency, which was $1.2 million for the year ended December 31, 2019, relates to the reversal of contingent liabilities which were initially recognized upon the acquisition of SmartRG in the fourth quarter of 2018. See Note 2 of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information. There was no gain on contingency recognized during the year ended December 31, 2018.

Interest and Dividend Income

Interest and dividend income decreased by 31.3% from $4.0 million for the year ended December 31, 2018 to $2.8 million for the year ended December 31, 2019. The decrease in interest and dividend income was primarily attributable to a decrease in interest income. Our investments increased from $112.1 million as of December 31, 2018 to $127.7 million as of December 31, 2019.

Interest Expense

Interest expense, which is primarily related to our taxable revenue bond, remained constant at $0.5 million for the years ended December 31, 2019 and 2018, as we had no substantial change in our fixed-rate borrowing. See “Financing Activities” in “Liquidity and Capital Resources” below for additional information on our taxable revenue bond.

Net Investment Gain (Loss)

We recognized a net investment loss of $4.0 million for the year ended December 31, 2018 and a net investment gain of $11.4 million for the year ended December 31, 2019. The fluctuation in our net investment gain was primarily attributable to changes in fair value of equity securities recognized during the period. We expect that any future equity market volatility will result in continued volatility in gains or losses from our equity investment portfolios. See “Investing Activities” in “Liquidity and Capital Resources” 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 (Expense), net

Other income (expense), net, which is comprised primarily of miscellaneous income, gains and losses on foreign currency transactions, net periodic pension costs, investment account management fees and gains and losses on foreign exchange forward contracts, increased 16.5% from income of $1.3 million for the year ended December 31, 2018 to income of $1.5 million for the year ended December 31, 2019. The change was primarily attributable to a gain on a life insurance recovery recognized in 2019 partially offset by losses on foreign exchange contracts and transactions in 2019 as compared to foreign exchange gains in 2018.

Gain on Bargain Purchase of a Business

Gain on bargain purchase of a business is related to our acquisition of Sumitomo Electric Lightwave Corp.'s North American EPON business and entry into a technology license and supply agreement with Sumitomo Electric Industries, Ltd. in March 2018. See Note 2 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.

Income Tax (Expense) Benefit

Our effective tax rate increased from a benefit of 42.0%, excluding the tax effect of the bargain purchase gain, for the year ended December 31, 2018 to an expense of (113.9%) for the year ended December 31, 2019. The increase in the effective tax rate between the two periods was primarily driven by the establishment of a valuation allowance against our domestic deferred tax assets in the amount of $42.8 million during the year ended December 31, 2019, offset by a 15.5% rate reduction related to the generation of federal research and development credits, and a 16.7% rate reduction for the generation of foreign tax credits. See Note 13 of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.

Net Loss

As a result of the above factors, our net loss increased from $19.3 million for the year ended December 31, 2018 to a net loss of $53.0 million for the year ended December 31, 2019. As a percentage of sales, net loss increased from 3.7% for the year ended December 31, 2018 to 10.0% for the year ended December 31, 2019.

Liquidity and Capital Resources

Liquidity

We have historically and we currently expect to finance our ongoing business with existing cash and cash flow from operations. We have used, and expect to continue to use, existing cash and cash generated from operations for working capital, business acquisitions, purchases of treasury stock, shareholder dividends and other general corporate purposes, including product development activities to enhance our existing products and develop new products, expansion of our sales and marketing activities and capital expenditures. We believe our cash and cash equivalents, investments and cash generated from operations to be adequate to meet our operating and capital needs for at least the next 12 months.

As of December 31, 2019, cash on hand was $73.8 million and short-term investments were $33.2 million, which resulted in available short-term liquidity of $107.0 million, of which $52.3 million was held by our foreign subsidiaries. As of December 31, 2018, cash on hand was $105.5 million and short-term investments were $3.2 million, which resulted in available short-term liquidity of $108.7 million, of which $87.1 million was held by our foreign subsidiaries. The decrease in short-term liquidity from December 31, 2018 to December 31, 2019 was primarily attributable to the use of cash for operating, investing and financing activities and income tax payments, offset by the reclassification of our certificate of deposit from long-term to short-term investments.

Operating Activities

Our working capital, which consists of current assets less current liabilities, decreased 12.6% from $237.4 million as of December 31, 2018 to $207.6 million as of December 31, 2019. The current ratio, defined as current assets divided by current liabilities, decreased from 3.01 as of December 31, 2018 to 2.84 as of December 31, 2019. The decrease in our working capital and current ratio was primarily attributable to a decrease in cash and cash

equivalents, net accounts receivable and other receivables as described below. The quick ratio, defined as cash and cash equivalents, short-term investments, and net accounts receivable, divided by current liabilities, decreased from 1.76 as of December 31, 2018 to 1.75 as of December 31, 2019. The decrease in the quick ratio was primarily attributable to a decrease in cash and cash equivalents and net accounts receivable. This decrease was offset by an increase in short-term investments.

Net accounts receivable decreased 8.91% from $99.4 million as of December 31, 2018 to $90.5 million as of December 31, 2019. Our allowance for doubtful accounts was $0.1 million as of December 31, 2018 and $38 thousand as of December 31, 2019. Quarterly accounts receivable DSO increased from 65 days as of December 31, 2018 to 72 days as of December 31, 2019. The decrease in net accounts receivable and increase in DSO was attributable to the timing of sales in the fourth quarter, customer specific payment terms and other collections during the quarter.

Other receivables decreased 54.9% from $36.7 million as of December 31, 2018 to $16.6 million as of December 31, 2019. The decrease in other receivables was primarily attributable to a decrease in current lease payments receivable related to our sales-type leases, income tax receivables and purchasing shipments.

Annual inventory turnover increased from 2.93 turns as of December 31, 2018 to 3.14 turns as of December 31, 2019. Inventory decreased 1.6% from $99.8 million as of December 31, 2018 to $98.3 million as of December 31, 2019. We expect inventory levels to fluctuate as we attempt to maintain sufficient inventory in response to seasonal cycles of our business ensuring competitive lead times while managing the risk of excess inventory.

Accounts payable decreased 25.3% from $60.1 million as of December 31, 2018 to $44.9 million as of December 31, 2019. Accounts payable will fluctuate due to variations in the timing of the receipt of supplies, inventory and services and our subsequent payments for these purchases.

Investing Activities

Capital expenditures totaled approximately $9.5 million, $8.1 million and $14.7 million for the years ended December 31, 2019, 2018 and 2017, respectively. These expenditures were primarily used to purchase computer hardware, software, manufacturing and test equipment and for building improvements.

Our combined short-term and long-term investments increased $15.7 million from $112.1 million as of December 31, 2018 to $127.7 million as of December 31, 2019. This increase reflects the increase in fair market value of our equity investments.

We invest all available cash not required for immediate use in operations primarily in securities that we believe bear minimal risk of loss. See Note 5 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information. As of December 31, 2019, our corporate bonds, municipal fixed-rate bonds, asset-backed bonds, mortgage/agency-backed bonds, U.S. government bonds, and foreign government bonds were classified as available-for-sale and had a combined duration of 1.71 years with an average credit rating of AA. Because our bond portfolio has a high-quality rating and contractual maturities of short duration, we are able to obtain prices for these bonds derived from observable market inputs, or for similar securities traded in an active market, on a daily basis.

Our long-term investments decreased 16.5% from $108.8 million as of December 31, 2018 to $94.5 million as of December 31, 2019. Long-term investments as of December 31, 2018 included an investment in a certificate of deposit of $25.6 million, which served as collateral for our revenue bonds. This certificate of deposit was included in short-term investments as of December 31, 2019, as these bonds matured on January 1, 2020, and were repaid in full on January 2, 2020. We also have investments in various marketable equity securities classified as long-term investments with a fair market value of $35.8 million and $27.0 million, as of December 31, 2019 and December 31, 2018, respectively. Long-term investments as of December 31, 2019 and 2018 also included $21.7 million and $18.3 million, respectively, related to our deferred compensation plan, and $0.3 million and $0.4 million, respectively, of other investments, consisting of interests in two private equity funds.

No businesses were acquired during the year ended December 31, 2019. Acquisition of businesses, net of cash acquired, totaled $22.0 million for the year ended December 31, 2018. See Note 2 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.

Financing Activities

In conjunction with the 1995 expansion of our Huntsville, Alabama, facility, we were approved for participation in an incentive program offered by the State of Alabama Industrial Development Authority ("the Authority"). Pursuant to the program, on January 13, 1995, the Authority issued $20.0 million of its taxable revenue bonds (the "Taxable Revenue Bonds") and loaned the proceeds from the sale of the Taxable Revenue Bonds to ADTRAN. Further advances on the Taxable Revenue Bonds were made by the Authority, bringing the total amount outstanding to $50.0 million. The bonds matured on January 1, 2020, and the current outstanding balance of $24.6 million was repaid in full on January 2, 2020. We were required to make payments to the Authority in amounts necessary to pay the interest on the Taxable Revenue Bonds which totaled $1.0 million, $1.1 million and $1.1 million, respectively, for the years ended December 31, 2019, 2018 and 2017. See Note 12 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.

Dividends

During 2019, 2018 and 2017, we paid shareholder dividends totaling $17.2 million, $17.3 million and $17.4 million, respectively. The Board of Directors presently anticipates that it will declare a regular quarterly dividend so long as the present tax treatment of dividends exists and adequate levels of liquidity are maintained. The following table shows dividends per common share paid to our shareholders in each quarter of 2019, 2018 and 2017.

DIVIDENDS PER COMMON SHARE

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2019	$0.09	$0.09	$0.09	$0.09
2018	$0.09	$0.09	$0.09	$0.09
2017	$0.09	$0.09	$0.09	$0.09

Stock Repurchase Program

Since 1997, our Board of Directors has approved multiple share repurchase programs that have authorized open market repurchase transactions of our common stock, which are implemented through open market or private purchases from time to time as conditions warrant. For the years ended December 31, 2019, 2018 and 2017, we repurchased 13 thousand shares, 1.0 million shares and 0.9 million shares, respectively, for $0.2 million, $15.5 million and $17.3 million, respectively, at an average price of $14.06, $15.52 and $20.27 per share, respectively. We currently have authorization to repurchase an additional 2.5 million shares of our common stock under the current authorization of up to 5.0 million shares.

Stock Option Exercises

To accommodate employee stock option exercises, we issued 34 thousand shares of treasury stock for $0.5 million during the year ended December 31, 2019, 0.1 million shares of treasury stock for $1.5 million during the year ended December 31, 2018 and 0.7 million shares of treasury stock for $13.4 million during the year ended December 31, 2017.

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.

Our defined benefit plan assets consist of a balanced portfolio of equity funds, bond funds, real estate funds and managed futures. 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. Central to the policy are target allocation ranges by asset class, which is currently 50% for bond funds, 40% for equity funds and 10% cash, real estate and managed futures. 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 us 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. At December 31, 2019, the estimated fair market value of our defined benefit pension plans assets increased to $28.0 million from $24.2 million at December 31, 2018.

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 $43.9 million and $37.2 million as of December 31, 2019 and 2018, respectively.

The components of net periodic pension cost, other than the service cost component, are included in other income (expense), net in the Consolidated Statements of Income (Loss). The components of net periodic pension cost and amounts recognized in other comprehensive income (loss) for the years ended December 31, 2019, 2018 and 2017 was $3.2 million, $6.1 million and $(0.2) million, respectively.

Actuarial gains and losses are recorded in accumulated other comprehensive income (loss). 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 $0.8 million will be amortized from accumulated other comprehensive income (loss) into net periodic pension cost in 2020 for the net actuarial loss. The net actuarial loss recognized in accumulated other comprehensive income (loss) as of December 2019 and 2018 was $(13.0) million and $(11.3) million, respectively.

See Note 14 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.

Off-Balance Sheet Arrangements and Contractual Obligations

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.

CONTRACTUAL OBLIGATIONS

We have various contractual obligations and commercial commitments. The following table sets forth the annual payments we are required to make under contractual cash obligations and other commercial commitments as of December 31, 2019:

(In thousands)	Total	2020	2021	2022	2023	2024	After 2024
Bonds payable [1]	$24,600	$24,600	$ —	$ —	$ —	$ —	$ —
Purchase obligations [2]	99,210	98,324	759	83	28	16	—
Operating lease obligations [3]	8,879	2,856	2,412	1,705	1,160	482	264
Totals	**$132,689**	**$125,780**	**$3,171**	**$1,788**	**$1,188**	**$498**	**$264**

(1) As of December 31, 2019, we were required to make payments necessary to pay the interest on the Taxable Revenue Bonds, which were outstanding in the aggregate principal amount of $24.6 million as of December 31, 2019. The bonds had an interest rate of 2% per annum and matured on January 1, 2020. Included in short-term investments as of December 31, 2019 was a certificate of deposit of $25.6 million, which served a collateral deposit against the principal amount of the bonds. See Note 12 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.

(2) Primarily relates to open purchase orders to our contract manufacturers, component suppliers, service partners and other vendors.

(3) Primarily relates to future minimum rental payments under non-cancelable operating leases, including renewals determined to be reasonably assured, with original maturities of greater than 12 months.

We have committed to invest up to an aggregate of $7.9 million in two private equity funds, of which $7.7 million has been applied to these commitments. The additional $0.2 million commitment has been excluded from the table above due to the uncertainty of when it will be applied.

Certain contracts, customers and/or 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, 2019, we had commitments related to these bonds totaling $9.3 million, which expire at various dates through August 2024. Although the triggering events vary from contract to contract, in general we would only be liable for the amount of these guarantees in the event of default in our performance under each contract, the probability of which we believe is remote.

We also have obligations related to uncertain income tax positions that have been excluded from the table above due to the uncertainty of when the related expense will be recognized. See Note 13 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report for additional information.

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 Recognition

Revenue is measured based on the consideration we expect to receive 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 or service to the customer. For transactions where there are multiple performance obligations, we account for individual products and services 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. The stand-alone selling prices are determined based on the prices at which we sell the separate products and services 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 sales. Sales, value-added and other taxes collected concurrently with revenue-producing activities are excluded from revenue. Costs of obtaining a contract are capitalized and amortized over the period that the related revenue is recognized if greater than one year. We have 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.

The following is a description of the principal activities from which we generate our revenue by reportable segment.

Network Solutions Segment

Network Solutions includes software and 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 sales.

Hardware and Software Revenue

Revenue from hardware sales is recognized when control is transferred to our customers, which is generally when we ship the products. Shipping terms are generally FOB shipping point. This segment also includes revenues from software license sales which 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 revenue is recognized.

In certain transactions, we are also the lessor in sales-type lease arrangements for network equipment that have terms of 18 months to five years. These arrangements typically include network equipment, network implementation services and maintenance services. Product revenue for these leases is generally recorded when we transfer control of the product to our customers. Revenue for network implementation and maintenance services is recognized as described below. Customers are typically invoiced and pay in equal installments over the lease term. In relation to these lease agreements, during the years ended December 31, 2019, 2018 and 2017 we recognized revenue of $1.7 million, $13.7 million and $16.5 million, respectively.

Services & Support Segment

To complement our Network Solutions segment, we offer a complete portfolio of maintenance, network implementation, and solutions integration and managed services, which include hosted cloud services and subscription services.

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 in services revenue as our customers benefit evenly throughout the contract term and deferred revenues 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 in the Consolidated Balance Sheets. The contract asset is transferred to accounts receivable when the completed performance obligation is invoiced to the customer.

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 a quarterly. Any 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 marketing 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 $34.1 million and $30.0 million at December 31, 2019 and 2018, respectively. Inventory disposals charged against the reserve were $1.8 million, $0.4 million and $8.3 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Stock-Based Compensation

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. For purposes of determining the estimated fair value of our market-based performance stock unit (PSU) awards on the date of grant, we use a Monte Carlo Simulation valuation method. 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, restricted stock units (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 will be recognized over the requisite service period of three years as the achievement of the performance obligation becomes probable. 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.

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. The excess of the purchase price over the estimated fair values of the net tangible and intangible assets acquired is recorded as goodwill. If the estimated fair values of net tangible and intangible assets acquired 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 Operations since their dates of acquisition. Costs incurred to complete the business combination, such as legal, accounting, or other professional fees, are charged to general and administrative expenses as they are incurred.

Goodwill

Goodwill represents the excess purchase price over the fair value of net assets acquired. We evaluate the carrying value of goodwill during the fourth quarter of each year and between annual evaluations if events occur or circumstances change that would more likely than not reduce the fair value of the reporting unit below its carrying amount. We have elected to by-pass a qualitative assessment to determine whether it is more likely than not that the fair value of the reporting unit to which the goodwill is assigned is less than its carrying amount and, in turn, performed a step-1 analysis of goodwill. Based on the results of our step-1 analysis, no impairment charges on goodwill were recognized during the years ended December 31, 2019, 2018 and 2017.

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* (ASC 740). Due to our recent decrease in revenue and profitability for 2019, 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 third quarter of 2019. 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.

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 for warranty returns at the time revenue is recognized 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. Alternatively, if we provide for more reserves than we require, we will reverse a portion of such provisions in future periods. The liability for warranty obligations totaled $8.4 million and $8.6 million at December 31, 2019 and 2018, respectively. These liabilities are included in accrued expenses in the accompanying consolidated balance sheets.

Pension Benefit 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 $15.9 million and $13.1 million at December 31, 2019 and 2018, respectively. This liability is included in pension liability in the accompanying Consolidated Balance Sheets.

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.

Subsequent Events

On January 2, 2020, we paid off the outstanding balance of $24.6 million of the Taxable Revenue Bonds upon their maturity. We used a certificate of deposit which was held as collateral to repay the outstanding balance.

On February 5, 2020, the Board declared a quarterly cash dividend of $0.09 per common share to be paid to shareholders of record at the close of business on February 20, 2020. The quarterly dividend payment will be paid on March 5, 2020 in the aggregate amount of approximately $4.3 million. In July 2003, our Board of Directors elected to begin declaring quarterly dividends on our common stock considering the tax treatment of dividends and adequate levels of Company liquidity.

Quantitative and Qualitative Disclosures About Market Risk

We are exposed to financial market risks, including changes in interest rates, foreign currency rates and prices of marketable equity and fixed-income securities. The primary objective of the large majority of our investment activities is to preserve principal while at the same time achieving 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. Although these depository investments may 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. As of December 31, 2019, $71.6 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.

As of December 31, 2019, approximately $39.0 million of our cash and investments may be directly affected by changes in interest rates. As of December 31, 2019, we held $3.7 million of cash and variable-rate investments where a change in interest rates would impact our interest income. A hypothetical 50 basis points ("bps") decline in interest rates, assuming all other variables remain constant, as of December 31, 2019 would reduce annualized interest income on our cash and investments by approximately $19 thousand. In addition, we held $35.3 million of fixed-rate bonds whose fair values may be directly affected by a change in interest rates. A hypothetical 50 bps increase in interest rates, assuming all other variables remain constant, as of December 31, 2019 would reduce the fair value of our fixed-rate bonds by approximately $0.3 million.

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, 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 our German subsidiary, whose functional currency is the Euro, and our Australian subsidiary, whose functional currency is the Australian dollar. 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, our global supply chain predominately invoices us in the respective functional currency of the subsidiary and is paid in U.S. dollars and some of our operating expenses are invoiced and paid in certain local currencies (approximately 13% of total operating expense for the year ended December 31, 2019). Therefore, our revenues, gross margins, operating expense and operating income are all subject to foreign currency fluctuations. As a result, changes in currency exchange rates could cause variations in our operating income.

We have certain international customers 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 $1.2 million if the U.S. dollar weakened or strengthened 10% against the billing currencies. This change represents a decrease in the amount of hypothetical gain or loss compared to prior periods and is mainly due to a decrease in U.S. dollar-denominated billings in a non-U.S. dollar denominated subsidiary. Although we do not currently hold any derivative instruments, any gain or loss would be partially mitigated by any derivative instruments held.

As of December 31, 2019, 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, 2019, we did not have any forward contracts outstanding.

For further information about the fair value of our available-for-sale investments and our derivative and hedging activities as of December 31, 2019, see Notes 5 and 6 of Notes to Consolidated Financial Statements included in Part II, Item 8 of this report.

Report of Independent Registered Public Accounting Firm

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

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of ADTRAN, Inc. and its subsidiaries (the “Company”) as of December 31, 2019 and 2018, and the related consolidated statements of income (loss), comprehensive income (loss), changes in stockholders’ equity and cash flows for each of the three years in the period ended December 31, 2019, 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, 2019, 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, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 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, 2019, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO because a material weakness in internal control over financial reporting existed as of that date related to ineffective controls over the Company’s determination of its estimated reserve for excess and obsolete inventory.

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 weakness referred to above is described in Management’s Report on Internal Control over Financial Reporting appearing under Item 9A. We considered this material weakness in determining the nature, timing, and extent of audit tests applied in our audit of the 2019 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.

Excess and Obsolete Inventory Reserve

As described in Notes 1 and 7 to the consolidated financial statements, the Company's consolidated net inventory and inventory reserves as of December 31, 2019 were $98.3 million and $34.1 million, respectively. Management establishes 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.

The principal considerations for our determination that performing procedures relating to the excess and obsolete inventory reserve is a critical audit matter are there was significant judgment by management in estimating the excess and obsolete inventory reserve, which in turn led to a high degree of auditor judgment, subjectivity and effort in performing procedures and evaluating the reasonableness of the significant assumptions used in developing the reserve, including the estimated reserve percentages. As described in the "Opinions on the Financial Statements and Internal Control over Financial Reporting" section, a material weakness was identified as of December 31, 2019 related to ineffective controls over the Company's determination of its estimated reserve for excess and obsolete inventory.

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, among others, testing management's process for developing the excess and obsolete inventory reserve; evaluating the appropriateness of the approach; testing the completeness and accuracy of underlying data used in the approach, including historical usage and inventory age; and evaluating the reasonableness of the estimated reserve percentages used by management to determine the excess and obsolete inventory reserve. Evaluating the reasonableness of the estimated reserve percentages involved assessing whether they were consistent with the historical data and evidence obtained in other areas of the audit.

PricewaterhouseCoopers LLP
Birmingham, Alabama
February 25, 2020

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

Financial Statements

ADTRAN, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except per share amount)
December 31, 2019 and 2018

Assets	2019	2018
Current Assets		
Cash and cash equivalents	$73,773	$105,504
Short-term investments	33,243	3,246
Accounts receivable, less allowance for doubtful accounts of $38 and $128 at December 31, 2019 and 2018, respectively	90,531	99,385
Other receivables	16,566	36,699
Inventory, net	98,305	99,848
Prepaid expenses and other current assets	7,892	10,744
Total Current Assets	**320,310**	**355,426**
Property, plant and equipment, net	73,708	80,635
Deferred tax assets, net	7,561	37,187
Goodwill	6,968	7,106
Intangibles, net	27,821	33,183
Other assets	14,261	5,668
Long-term investments	94,489	108,822
Total Assets	**$545,118**	**$628,027**
Liabilities and Stockholders' Equity		
Current Liabilities		
Accounts payable	$44,870	$60,054
Bonds payable	24,600	1,000
Unearned revenue	11,963	17,940
Accrued expenses and other current liabilities	13,876	11,746
Accrued wages and benefits	13,890	14,752
Income tax payable, net	3,512	12,518
Total Current Liabilities	**112,711**	**118,010**
Non-current unearned revenue	6,012	5,296
Pension liability	15,886	13,086
Deferred compensation liability	21,698	18,256
Other non-current liabilities	8,385	2,500
Bonds payable	—	24,600
Total Liabilities	**164,692**	**181,748**
Commitments and contingencies (see Note 16)		
Stockholders' Equity		
Common stock, par value $0.01 per share; 200,000 shares authorized; 79,652 shares issued and 48,020 shares outstanding as of December 31, 2019 and 779,652 shares issued and 47,751 shares outstanding as of December 31, 2018	797	797
Additional paid-in capital	274,632	267,670
Accumulated other comprehensive loss	(16,417)	(14,416)
Retained earnings	806,702	883,975
Less treasury stock at cost: 31,638 and 31,901 shares as of December 31, 2019 and 2018, respectively	(685,288)	(691,747)
Total Stockholders' Equity	**380,426**	**446,279**
Total Liabilities and Stockholders' Equity	**$545,118**	**$628,027**

See accompanying notes to consolidated financial statements.

ADTRAN, INC.
CONSOLIDATED STATEMENTS OF INCOME (LOSS)

(In thousands, except per share amounts)

Years ended December 31, 2019, 2018 and 2017

	2019	2018	2017
Sales			
Network Solutions	$455,226	$458,232	$540,396
Services & Support	74,835	71,045	126,504
Total Sales	**530,061**	**529,277**	**666,900**
Cost of Sales			
Network Solutions	263,677	278,929	279,563
Services & Support	47,217	46,783	83,702
Total Cost of Sales	**310,894**	**325,712**	**363,265**
Gross Profit	**219,167**	**203,565**	**303,635**
Selling, general and administrative expenses	130,288	124,440	135,583
Research and development expenses	126,200	124,547	130,666
Asset impairments	3,872	—	—
Gain on contingency	(1,230)	—	—
Operating Income (Loss)	**(39,963)**	**(45,422)**	**37,386**
Interest and dividend income	2,765	4,026	4,380
Interest expense	(511)	(533)	(556)
Net investment gain (loss)	11,434	(4,050)	4,685
Other income (expense), net	1,498	1,286	(1,208)
Gain on bargain purchase of a business	—	11,322	—
Income (Loss) Before Income Taxes	**(24,777)**	**(33,371)**	**44,687**
Income tax (expense) benefit	(28,205)	14,029	(20,847)
Net Income (Loss)	**$(52,982)**	**$(19,342)**	**$23,840**
Weighted average shares outstanding—basic	47,836	47,880	48,153
Weighted average shares outstanding—diluted	47,836	47,880	48,699
Earnings (loss) per common share—basic	$(1.11)	$(0.40)	$0.50
Earnings (loss) per common share—diluted	$(1.11)	$(0.40)	$0.49

See accompanying notes to consolidated financial statements.

ADTRAN, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(In thousands)

Years ended December 31, 2019, 2018 and 2017

	2019	2018	2017
Net Income (Loss)	$(52,982)	$(19,342)	$23,840
Other Comprehensive Income (Loss), net of tax:			
Net unrealized gains (losses) on available-for-sale securities	279	(3,130)	2,163
Defined benefit plan adjustments	(1,185)	(3,755)	731
Foreign currency translation	(1,480)	(4,236)	5,999
Other Comprehensive Income (Loss), net of tax	**(2,386)**	**(11,121)**	**8,893**
Comprehensive Income (Loss), net of tax	**$(55,368)**	**$(30,463)**	**$32,733**

See accompanying notes to consolidated financial statements.

ADTRAN, INC.

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

(In thousands)

Years ended December 31, 2019, 2018 and 2017

	Common Shares	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance as of December 31, 2016	**79,652**	**$797**	**$252,957**	**$921,942**	**$(683,991)**	**$(12,188)**	**$479,517**
Net income	—	—	—	23,840	—	—	23,840
Other comprehensive income, net of tax	—	—	—	—	—	8,893	8,893
Dividend payments ($0.09 per share)	—	—	—	(17,368)	—	—	(17,368)
Dividends accrued on unvested restricted stock units	—	—	—	(37)	—	—	(37)
Stock options exercised	—	—	—	(2,827)	16,239	—	13,412
PSUs, RSUs and restricted stock vested	—	—	—	(3,257)	2,816	—	(441)
Purchase of treasury stock	—	—	—	—	(17,348)	—	(17,348)
Stock-based compensation expense	—	—	7,433	—	—	—	7,433
ASU 2016-09 adoption	—	—	125	(115)	—	—	10
Balance as of December 31, 2017	**79,652**	**797**	**260,515**	**922,178**	**(682,284)**	**(3,295)**	**497,911**
Net loss	—	—	—	(19,342)	—	—	(19,342)
ASU 2014-09 adoption	—	—	—	278	—	—	278
ASU 2016-01 adoption	—	—	—	3,220	—	—	3,220
Other comprehensive loss, net of tax	—	—	—	—	—	(11,121)	(11,121)
Dividend payments ($0.09 per share)	—	—	—	(17,267)	—	—	(17,267)
Dividends accrued on unvested restricted stock units	—	—	—	(7)	—	—	(7)
Stock options exercised	—	—	—	(603)	2,086	—	1,483
PSUs, RSUs and restricted stock vested	—	—	—	(4,482)	3,983	—	(499)
Purchase of treasury stock	—	—	—	—	(15,532)	—	(15,532)
Stock-based compensation expense	—	—	7,155	—	—	—	7,155
Balance as of December 31, 2018	**79,652**	**797**	**267,670**	**883,975**	**(691,747)**	**(14,416)**	**446,279**
Net loss	—	—	—	(52,982)	—	—	(52,982)
ASU 2016-02 adoption (see Note 1)	—	—	—	4	—	—	4
ASU 2018-02 adoption (see Note 1)	—	—	—	(385)	—	385	—
Other comprehensive loss, net of tax	—	—	—	—	—	(2,386)	(2,386)
Dividend payments ($0.09 per share)	—	—	—	(17,212)	—	—	(17,212)
Dividends accrued on unvested restricted stock units	—	—	—	(10)	—	—	(10)
Stock options exercised	—	—	—	(208)	734	—	526
PSUs, RSUs and restricted stock vested	—	—	—	(6,480)	5,909	—	(571)
Purchase of treasury stock	—	—	—	—	(184)	—	(184)
Stock-based compensation expense	—	—	6,962	—	—	—	6,962
Balance as of December 31, 2019	**79,652**	**$797**	**$274,632**	**$806,702**	**$(685,288)**	**$(16,417)**	**$380,426**

See accompanying notes to consolidated financial statements.

ADTRAN, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
Years ended December 31, 2019, 2018 and 2017

	2019	2018	2017
Cash flows from operating activities			
Net income (loss)	$(52,982)	$(19,342)	$23,840
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	17,771	15,891	15,692
Asset impairments	3,872	—	—
Amortization of net premium (discount) on available-for-sale investments	(100)	(50)	425
Net (gain) loss on long-term investments	(11,434)	4,050	(4,685)
Net (gain) loss on disposal of property, plant and equipment	67	67	(145)
Gain on bargain purchase of a business	—	(11,322)	—
Gain on contingency payment	(1,230)	—	—
Gain on life insurance proceeds	(1,000)	—	—
Stock-based compensation expense	6,962	7,155	7,433
Deferred income taxes	30,070	(17,257)	14,073
Change in operating assets and liabilities:			
Accounts receivable, net	8,282	49,200	(49,103)
Other receivables	20,046	(8,522)	(10,222)
Inventory, net	1,252	24,192	(15,518)
Prepaid expenses and other assets	2,749	10,727	(4,830)
Accounts payable, net	(13,494)	(3,799)	(17,742)
Accrued expenses and other liabilities	(4,598)	(3,226)	(5,455)
Income taxes payable	(8,705)	7,690	3,858
Net cash provided by (used in) operating activities	**(2,472)**	**55,454**	**(42,379)**
Cash flows from investing activities			
Purchases of property, plant and equipment	(9,494)	(8,110)	(14,720)
Proceeds from disposals of property, plant and equipment	—	—	151
Proceeds from sales and maturities of available-for-sale investments	47,268	153,649	173,752
Purchases of available-for-sale investments	(48,578)	(123,209)	(93,141)
Life insurance proceeds received	1,000	—	—
Acquisition of business, net of cash acquired	13	(22,045)	—
Net cash provided by (used in) investing activities	**(9,791)**	**285**	**66,042**
Cash flows from financing activities			
Proceeds from stock option exercises	526	1,483	13,412
Purchases of treasury stock	(184)	(15,532)	(17,348)
Dividend payments	(17,212)	(17,267)	(17,368)
Payments on long-term debt	(1,000)	(1,100)	(1,100)
Net cash used in financing activities	**(17,870)**	**(32,416)**	**(22,404)**
Net increase (decrease) in cash and cash equivalents	(30,133)	23,323	1,259
Effect of exchange rate changes	(1,598)	(4,252)	5,279
Cash and cash equivalents, beginning of year	**105,504**	**86,433**	**79,895**
Cash and cash equivalents, end of year	**$73,773**	**$105,504**	**$86,433**
Supplemental disclosure of cash flow information			
Cash paid during the year for interest	$512	$534	$555
Cash paid during the year for income taxes	$9,357	$4,104	$2,988
Supplemental disclosure of non-cash investing activities			
Purchases of property, plant and equipment included in accounts payable	$90	$62	$408
Contingent payment	—	$1,230	$ —

See accompanying notes to consolidated financial statements.

Notes to Consolidated Financial Statements

Note 1 – Nature of Business

ADTRAN, Inc. ("ADTRAN" or the "Company") is a leading global provider of networking and communications solutions. Our vision is to enable a fully connected world where the power to communicate is available to everyone, everywhere. Our unique approach, unmatched industry expertise and innovative solutions enable us to address almost any customer need. Our products and services are utilized by a diverse global customer base of network operators that range from those having national or regional reach, operating as telephone or cable television network operators, to alternative network providers such as municipalities or utilities, as well as managed service providers who serve small- and medium-sized businesses and distributed enterprises.

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 income (loss), 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 expenses during the reporting period. Our more significant estimates include excess and obsolete inventory reserves, warranty reserves, customer rebates, determination and accrual of the deferred revenue components of multiple element sales agreements, estimated costs to complete obligations associated with deferred revenues and network installations, 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, estimated pension liability, fair value of investments and evaluation of other-than-temporary declines in the value of investments. Actual amounts could differ significantly from these estimates.

Correction of Immaterial Misstatement

During the three months ended June 30, 2019, the Company determined that there was an immaterial misstatement of its excess and obsolete inventory reserves in its previously issued annual and interim financial statements. The Company corrected this misstatement by recognizing a $0.8 million out-of-period adjustment during the three months ended June 30, 2019, which increased its excess and obsolete inventory reserves and cost of goods sold for the period. For the six months ended June 30, 2019, the out-of-period adjustment was a cumulative $0.2 million reduction in the Company's excess and obsolete inventory reserves and cost of goods sold.

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. 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. As of December 31, 2019, $71.6 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.

Financial Instruments

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 carrying amount reported for bonds payable was $24.6 million, which was its fair value as of December 31, 2019.

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 was recorded as interest income. We have not recorded any losses relating to variable rate demand notes.

Long-term investments is comprised of 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 (expense). See Note 5 for additional information.

Accounts Receivable

We record accounts receivable at net realizable value. 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, 2019, single customers comprising more than 10% of our total accounts receivable balance included four customers, which accounted for 53.2% of our total accounts receivable. As of December 31, 2018, single customers comprising more than 10% of our total accounts receivable balance included two customers, which accounted for 36.9% of our total accounts receivable.

We regularly review the need to maintain an allowance for doubtful accounts and consider factors such as the age of accounts receivable balances, the current economic conditions that may affect a customer's ability to pay, significant one-time events impacting these customers and our historical experience. If the financial condition of a customer deteriorates, resulting in an impairment of their ability to make payments, we may be required to record an allowance for doubtful accounts. If circumstances change with regard to individual receivable balances that have previously been determined to be uncollectible, and for which a specific reserve has been established, a reduction in our allowance for doubtful accounts may be required. Our allowance for doubtful accounts was $38 thousand and $0.1 million as of December 31, 2019 and December 31, 2018, respectively.

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 7 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 income (loss). See Note 8 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, which is two to 14 years. See Note 11 for additional information.

Impairment of Long-Lived Assets and Intangibles

Long-lived assets used in operations and intangible assets 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. An impairment loss would be recognized in the amount by which the recorded value of the asset exceeds the fair value of the asset, measured by the quoted market price of an asset or an estimate based on the best information available in the circumstances. During the year ended December 31, 2019, we recognized an impairment loss of approximately $3.9 million related to the abandonment of certain information technology implementation projects which we had previously capitalized expenses related to these projects. There were no impairment losses for long-lived assets during the years ended December 31, 2018 or 2017, or for intangible assets recognized during the years ended December 31, 2019, 2018 or 2017.

Goodwill

Goodwill represents the excess purchase price over the fair value of net assets acquired. We evaluate the carrying value of goodwill during the fourth quarter of each year and between annual evaluations if events occur or circumstances change that would more likely than not reduce the fair value of the reporting unit below its carrying amount. We have elected to by-pass a qualitative assessment to determine whether it is more likely than not that the fair value of the reporting unit to which the goodwill is assigned is less than its carrying amount and, in turn, performed a step-1 analysis of goodwill. Based on the results of our step-1 analysis, no impairment charges on goodwill were recognized during the years ended December 31, 2019, 2018 and 2017.

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 revenue is recognized 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. Alternatively, if we provide for more reserves than we require, we will reverse a portion of such provisions in future periods. The liability for warranty obligations totaled $8.4 million and $8.6 million as of December 31, 2019 and 2018, respectively. These liabilities are included in accrued expenses in the accompanying Consolidated Balance Sheets. During 2017, we recorded a reduction in warranty expense related to a settlement with a third-party supplier for a defective component, the impact of which is reflected in the following table.

A summary of warranty expense and write-off activity for the years ended December 31, 2019, 2018 and 2017 is as follows:

(In thousands)

Year Ended December 31,	2019	2018	2017
Balance at beginning of period	$8,623	$9,724	$8,548
Plus: Amounts charged to cost and expenses	4,569	7,392	6,951
Less: Deductions	(4,798)	(8,493)	(5,775)
Balance at end of period	**$8,394**	**$8,623**	**$9,724**

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 $15.9 million and $13.1 million as of December 31, 2019 and 2018, respectively.

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. All employee and director stock options granted under our stock option plans have an exercise price equal to the fair market value of the award, as defined in the plan, of the underlying common stock on the grant date. All of our outstanding stock option awards are classified as equity awards and therefore are measured at fair value on their grant date.

Stock-based compensation expense recognized for the years ended December 31, 2019, 2018 and 2017 was approximately $7.0 million, $7.2 million and $7.4 million, respectively. As of December 31, 2019, total unrecognized compensation cost related to non-vested stock options, PSUs, RSUs and restricted stock was approximately $17.2 million, which is expected to be recognized over an average remaining recognition period of 3.0 years. See Note 4 for additional information.

Research and Development Costs

Research and development costs include compensation for engineers and support personnel, outside 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 and product development efforts. Research and development costs totaled $126.2 million, $124.5 million and $130.7 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Other Comprehensive Income (Loss)

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, 2019 2018 and 2017:

(In thousands)	Unrealized Gains (Losses) on Available-for-Sale Securities	Unrealized Gains (Losses) on Cash Flow Hedges	Defined Benefit Plan Adjustments	Foreign Currency Adjustments	ASU 2018-02 Adoption[2]	Total
Balance at December 31, 2016	**$404**	**$ —**	**$(5,017)**	**$(7,575)**	**$ —**	**$(12,188)**
Other comprehensive income before reclassifications	5,020	(619)	451	5,999	—	10,851
Amounts reclassified from accumulated other comprehensive loss	(2,857)	619	280	—	—	(1,958)
Balance at December 31, 2017	**2,567**	**—**	**(4,286)**	**(1,576)**	**—**	**(3,295)**
Other comprehensive income loss before reclassifications	685	—	(3,890)	(4,236)	—	(7,441)
Amounts reclassified to retained earnings[1]	(3,220)	—	—	—	—	(3,220)
Amounts reclassified from accumulated other comprehensive loss	(595)	—	135	—	—	(460)
Balance at December 31, 2018	**(563)**	**—**	**(8,041)**	**(5,812)**	**—**	**(14,416)**
Other comprehensive income loss before reclassifications	573	—	(1,717)	(1,480)	—	(2,624)
Amounts reclassified to retained earnings[1]	—	—	—	—	385	(385)
Amounts reclassified from accumulated other comprehensive loss	(294)	—	532	—	—	(238)
Balance at December 31, 2019	**$(284)**	**$ —**	**$(9,226)**	**$(7,292)**	**$385**	**$(16,417)**

(1) With the adoption of ASU 2016-01, the unrealized gains on our equity investments were reclassified to retained earnings. See Recently Issued Accounting Standards *below for more information.*

(2) 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. See Note 13 for additional information.

The following tables present the details of reclassifications out of accumulated other comprehensive income (loss) for the years ended December 31, 2019, 2018 and 2017:

(In thousands) Details about Accumulated Other Comprehensive Loss Components	2019 Amount Reclassified from Accumulated Other Comprehensive Loss	2019 Affected Line Item in the Statement Where Net Income Is Presented
Unrealized gains (losses) on available-for-sale securities:		
Net realized gain on sales of securities	$397	Net investment gain (loss)
Defined benefit plan adjustments – actuarial losses	(771) [1]	
Total reclassifications for the period, before tax	(374)	
Tax benefit	136	
Total reclassifications for the period, net of tax	**$(238)**	

(1) Included in the computation of net periodic pension cost. See Note 14 for additional information.

(In thousands) Details about Accumulated Other Comprehensive Loss Components	2018 Amount Reclassified from Accumulated Other Comprehensive Loss	2018 Affected Line Item in the Statement Where Net Income Is Presented
Unrealized gains on available-for-sale securities:		
Net realized gain on sales of securities	$804	Net investment gain (loss)
Defined benefit plan adjustments – actuarial losses	(196) [1]	
Total reclassifications for the period, before tax	608	
Tax expense	(148)	
Total reclassifications for the period, net of tax	**$460**	

(1) Included in the computation of net periodic pension cost. See Note 14 for additional information.

(In thousands) Details about Accumulated Other Comprehensive Loss Components	2017 Amount Reclassified from Accumulated Other Comprehensive Loss	2017 Affected Line Item in the Statement Where Net Income Is Presented
Unrealized gains (losses) on available-for-sale securities:		
Net realized gain on sales of securities	$4,864	Net investment gain (loss)
Impairment expense	(180)	Net investment gain (loss)
Net losses on derivatives designated as hedging instruments	(897)	Cost of sales
Defined benefit plan adjustments – actuarial losses	(406) [1]	
Total reclassifications for the period, before tax	3,381	
Tax expense	(1,423)	
Total reclassifications for the period, net of tax	**$1,958**	

(1) Included in the computation of net periodic pension cost. See Note 14 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, 2019, 2018 and 2017:

			2019
(In thousands)	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized gains (losses) on available-for-sale securities	$774	$(201)	$573
Reclassification adjustment for amounts related to available-for-sale investments included in net loss	(397)	103	(294)
Defined benefit plan adjustments	(2,488)	771	(1,717)
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net loss	771	(239)	532
Foreign currency translation adjustment	(1,480)	—	(1,480)
Total Other Comprehensive Income (Loss)	**$(2,820)**	**$434**	**$(2,386)**

			2018
(In thousands)	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized gains (losses) on available-for-sale securities	$926	$(241)	$685
Reclassification adjustment for amounts related to available-for-sale investments included in net loss	(804)	209	(595)
Reclassification adjustment for amounts reclassed to retained earnings related to the adoption of ASU 2016-01	(4,351)	1,131	(3,220)
Defined benefit plan adjustments	(5,638)	1,748	(3,890)
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net loss	196	(61)	135
Foreign currency translation adjustment	(4,236)	—	(4,236)
Total Other Comprehensive Income (Loss)	**$(13,907)**	**$2,786**	**$(11,121)**

			2017
(In thousands)	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized gains (losses) on available-for-sale securities	$8,230	$(3,210)	$5,020
Reclassification adjustment for amounts related to available-for-sale investments included in net income	(4,684)	1,827	(2,857)
Unrealized gains (losses) on cash flow hedges	(897)	278	(619)
Reclassification adjustment for amounts related to cash flow hedges included in net income	897	(278)	619
Defined benefit plan adjustments	654	(203)	451
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net income	406	(126)	280
Foreign currency translation adjustment	5,999	—	5,999
Total Other Comprehensive Income (Loss)	**$10,605**	**$(1,712)**	**$8,893**

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 bases 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

We record transactions denominated in foreign currencies using 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 (expense). Our primary exposures to foreign currency exchange rate movements are with our German subsidiary, whose functional currency is the Euro, our Australian subsidiary, whose functional currency is the Australian dollar and our Mexican subsidiary, whose functional currency is the U.S. dollar as most invoices are paid in Mexican Pesos. Adjustments resulting from translating financial statements of international subsidiaries are recorded as a component of accumulated other comprehensive income (loss).

Revenue

On January 1, 2018, we adopted ASU 2014-09, Revenue from Contracts with Customers (Topic 606), which supersedes the revenue recognition requirements in Topic 605, Revenue Recognition.

Accounting Policy under Topic 606

Revenue is measured based on the consideration we expect to receive 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. For transactions where there are multiple performance obligations, we account for individual products and services 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 we sell the separate products and services 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 sales. Sales, 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.

The following is a description of the principal activities from which we generate our revenue by reportable segment.

- **Network Solutions Segment**
  Network Solutions 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 sales.

  - *Hardware and Software Revenue*
    Revenue from hardware sales is recognized when control is transferred to our customers, which is generally when we ship the products. Shipping terms are generally FOB shipping point. This segment also includes revenues from software license sales which 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 revenue is recognized.

    In certain transactions, we are also the lessor in sales-type lease arrangements for network equipment that have terms of 18 months to five years. These arrangements typically include network equipment, network implementation services and maintenance services.

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

  - *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 revenues, 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.

Accounting Policy under Topic 605

Revenue was generally recognized when persuasive evidence of an arrangement exists, delivery has occurred, the product price was fixed or determinable, collection of the resulting receivable was reasonably assured, and product returns were reasonably estimable. For product sales, revenue was generally recognized upon shipment of the product to our customer in accordance with the title transfer terms of the sales agreement, generally Ex Works, per International Commercial Terms. In the case of consigned inventory, revenue was recognized when the end customer assumes ownership of the product. Contracts that contained multiple deliverables were evaluated to determine the units of accounting, and the consideration from the arrangement was allocated to each unit of accounting based on the relative selling price and corresponding terms of the contract. When this was not available, we were generally not able to determine third-party evidence of selling price because of the extent of customization among competing products or services from other companies.

In these instances, we used best estimates to allocate consideration to each respective unit of accounting. These estimates included analysis of respective bills of material and review and analysis of similar product and service offerings. We recorded revenue associated with installation services when respective contractual obligations are complete. In instances where customer acceptance was required, revenue was deferred until respective acceptance criteria were met. Contracts that included both installation services and product sales were evaluated for revenue recognition in accordance with contract terms. As a result, installation services may have been considered a separate deliverable or may have been considered a combined single unit of accounting with the delivered product. Generally, either the purchaser, ADTRAN, or a third party would perform the installation of our products. Shipping fees were recorded as revenue and the related costs were included in cost of sales. Sales taxes invoiced to customers were included in revenues and represented less than one percent of total revenues. The corresponding sales taxes paid were included in cost of goods sold. Value-added taxes collected from customers in international jurisdictions were recorded in accrued expenses as a liability. Revenue was recorded net of discounts. Sales returns were recorded as a reduction of revenue and accrued based on historical sales return experience, which we believed provided a reasonable estimate of future returns.

Unearned Revenue

Unearned revenue primarily represents customer billings on our maintenance service programs and unearned revenues 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 $1.6 million and $2.4 million as of December 31, 2019 and 2018, respectively. Non-current deferred costs are included in other assets on the accompanying Consolidated Balance Sheets and totaled $0.1 million and $0.8 million as of December 31, 2019 and 2018, respectively.

Earnings (Loss) per Share

Earnings (loss) per common share and earnings (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 17 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. The excess of the purchase price over the estimated fair values of the net tangible and intangible assets and liabilities assumed 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 Operations 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.

Derivative Instruments and Hedging Activities

Historically, we have participated in foreign exchange forward contracts in connection with the management of exposure to fluctuations in foreign exchange rates as outlined below.

Cash Flow Hedges

Our cash flow hedging activities utilize foreign exchange forward contracts to reduce the risk that movements in exchange rates will adversely affect the net cash flows resulting from the planned purchase of products from foreign suppliers. Purchases of U.S. denominated inventory by our European subsidiary represent our primary exposure. Changes in the fair value of derivatives designated as cash flow hedges are recorded in accumulated other comprehensive income. Amounts related to cash flow hedges are reclassified from accumulated other comprehensive income to earnings when the underlying hedged item impacts earnings. This reclassification is recorded in the same line item of the consolidated statements of income as where the effects of the hedged item are recorded, which is cost of sales.

Undesignated Hedges

We have certain customers and suppliers who are invoiced or pay in a non-functional currency. Changes in the monetary exchange rates may adversely affect our results of operations and financial condition, as outstanding non-functional balances are revalued to the functional currency through earnings. When appropriate, we utilize foreign exchange forward contracts to help manage the volatility relating to these valuation exposures. All changes in the fair value of our derivative instruments that do not qualify for, or are not designated for, hedged accounting transactions are recognized in other income (expense), net in the Consolidated Statements of Income.

We do not hold or issue derivative instruments for trading or other speculative purposes. Our derivative instruments are recorded on the Consolidated Balance Sheets at their fair values. Our derivative instruments are not subject to master netting arrangements and are not offset on the Consolidated Balance Sheets.

Recent Accounting Pronouncements Not Yet Adopted

In June 2016, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments.* ASU 2016-13 requires the measurement and recognition of expected credit losses for financial instruments held at amortized cost. In November 2018, the FASB issued ASU 2018-19, *Codification Improvements to Topic 326 Financial Instruments – Credit Losses*, that clarifies receivables arising from operating leases are not within the scope of the credit losses standard, but rather should be accounted for in accordance with the leases standard. In April 2019, the FASB issued ASU 2019-04, *Codification Improvements to Topic 326, Financial Instruments–Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments,* which clarifies the accounting for transfers between classifications of debt securities and clarifies that entities should include expected recoveries on financial assets in the calculation of the current expected credit loss allowance. In addition, renewal options that are not unconditionally cancelable should be considered in the determination of expected credit losses. In May 2019, the FASB issued ASU 2019-05, *Financial Instruments – Credit Losses (Topic 326): Targeted Transition Relief*, which amends ASU 2016-13 to allow companies, upon adoption, to elect the fair value option on financial instruments that were previously recorded at amortized cost if they meet certain criteria. In November 2019, the FASB issued ASU 2019-11, *Codification improvements to Topic 326, Financial Instruments – Credit Losses,* which makes various narrow-scope amendments to the new credit losses standard, such as, providing disclosure relief for accrued interest receivables. All of these ASUs are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. We are currently evaluating the effect these ASUs will have on our consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. ASU 2017-04 simplifies the measurement of goodwill by eliminating step 2 of the goodwill impairment test. Under ASU 2017-04, entities will be required to compare the fair value of a reporting unit to its carrying amount and recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit’s fair value. ASU 2017-04 is effective for annual or interim impairment tests

performed in fiscal years beginning after December 15, 2019, with early adoption permitted for annual or interim impairment tests performed on testing dates after January 1, 2017. The amendments should be applied prospectively. We are currently evaluating ASU 2017-04, but do not expect it will have a material effect on our consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement,* which changes the fair value measurement disclosure requirements of ASC 820, *Fair Value Measurement*. The amendments in this ASU are the result of a broader disclosure project, *Concepts Statement No. 8 — Conceptual Framework for Financial Reporting — Chapter 8 — Notes to Financial Statements*, which the FASB finalized on August 28, 2018. The FASB used the guidance in the Concepts Statement to improve the effectiveness of ASC 820's disclosure requirements. ASU 2018-13 provides users of financial statements with information about assets and liabilities measured at fair value in the statement of financial position or disclosed in the notes to the financial statements. More specifically, ASU 2018-13 requires disclosures about the valuation techniques and inputs that are used to arrive at measures of fair value, including judgments and assumptions that are made in determining fair value. In addition, ASU 2018-13 requires disclosures regarding the uncertainty in the fair value measurements as of the reporting date and how changes in fair value measurements affect performance and cash flows. ASU 2018-13 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. We are currently evaluating the effect of ASU 2018-13, but do not expect it will have a material effect on our financial statement disclosures.

In August 2018, the FASB issued ASU 2018-14, *Compensation-Retirement Benefits-Defined Benefit Plans-General (Subtopic 715-20): Disclosure Framework-Changes to the Disclosure Requirements for Defined Benefit Plans*, which makes changes to and clarifies the disclosure requirements related to defined benefit pension and other postretirement plans. ASU 2018-14 requires additional disclosures related to the reasons for significant gains and losses affecting the benefit obligation and an explanation of any other significant changes in the benefit obligation or plan assets that are not otherwise apparent in other disclosures required by ASC 715. ASU 2018-14 also clarifies the guidance in ASC 715 to require disclosure of the projected benefit obligation ("PBO") and fair value of plan assets for pension plans with PBOs in excess of plan assets and the accumulated benefit obligation ("ABO") and fair value of plan assets for pension plans with ABOs in excess of plan assets. ASU 2018-14 is effective for public business entities for fiscal years ending after December 15, 2020. We are currently evaluating the effect of ASU 2018-14, but do not expect it will have a material effect on our financial statement disclosures.

In August 2018, the FASB issued ASU 2018-15, *Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*. ASU 2018-15 clarifies certain aspects of ASU 2015-05, *Customer's Accounting for Fees Paid in a Cloud Computing Arrangement*. Specifically, ASU 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementations costs incurred to develop or obtain internal use software. ASU 2018-15 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. We are currently evaluating the effect of ASU 2018-15, but do not expect it will have a material effect on our consolidated financial statements.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*. The amendments in this update simplify the accounting for income taxes by removing various exceptions, such as, the exception to the incremental approach for intra-period tax allocation when there is a loss from continuing operations and income or a gain from other items. The amendments in this update, also simplify the accounting for income taxes related to income-based franchise taxes and requiring that an entity

reflect enacted tax laws or rates in the annual effective tax rate computation in the interim period that includes the enactment date. ASU 2019-12 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020, with early adoption permitted. We are currently evaluating the effect of ASU 2019-12, but do not expect it will have a material effect on our consolidated financial statements.

Recently Adopted Accounting Pronouncements

During 2019, we adopted the following accounting standards, which had the following impacts on our consolidated financial statements:

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842),* which requires an entity to recognize right-of-use assets and lease liabilities on the balance sheet and to disclose key information about the entity's leasing arrangements. In July 2018, the FASB issued ASU 2018-10, *Codification Improvements to Topic 842, Leases*, which clarified certain aspects of ASU 2016-02, as well as ASU 2018-11, *Leases (Topic 842), Targeted Improvements*, which provided for an optional transition method allowing for the application of the legacy lease guidance, *Leases (Topic 840)*, including its disclosure requirements, for the comparative periods presented in the year of adoption, with the cumulative effect of initially applying the new lease standard recognized as an adjustment to retained earnings as of the date of adoption. In March 2019, the FASB issued ASU 2019-01, *Leases (Topic 842) Codification Improvements*, which removed the requirement for an entity to disclose in the interim periods after adoption, the effect of the change on income from continuing operations, net income, any other affected financial statement line item and any affected per share amount. For lessors, the new leasing standard requires leases to be classified as sales-type, direct financing or operating leases. These criteria focus on the transfer of control of the underlying lease asset. This standard, and its related updates, were effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years.

The Company adopted the new standard on January 1, 2019, the effective date of our initial application, using the optional transition method. At that time, the Company elected to carry forward the legacy ASC 840 disclosures for comparative periods and, therefore, did not adjust the comparative period financial information prior to January 1, 2019. In addition, the Company elected the package of practical expedients which allows for companies to not reassess whether any expired or existing contracts are or contain leases, not reassess historical lease classifications for expired or existing contracts and not reassess initial direct costs for existing leases. Additionally, the Company elected the practical expedients which allow the use of hindsight when determining the lease term, the short-term lease recognition exemption and the option to not separate lease and nonlease components. The adoption of this standard resulted in the recognition of a right-of-use asset and corresponding right-of-use liability on our Consolidated Balance Sheets of $10.3 million as of January 1, 2019, primarily related to our operating leases for office space, automobiles and other equipment.

As a lessee, the adoption of this standard did not have a material impact on our Consolidated Statement of Income or Statement of Cash Flows. See Note 9 for additional information.

As a lessor, the adoption of this standard did not have a material impact on our Consolidated Balance Sheet, Consolidated Statement of Income or Consolidated Statement of Cash Flows. Prior to and after adoption, all of our leases in which we are the lessor were classified as sales-type leases.

In March 2017, the FASB issued ASU 2017-08, *Receivables – Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities*, which shortened the amortization period for the premium on certain purchased callable debt securities to the earliest call date. ASU 2017-08 was effective for fiscal years and interim periods within those fiscal years, beginning after December 15, 2018. The amendments were required to be applied through a modified-retrospective transition approach that required a cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption. The Company adopted ASU 2017-08 on January 1, 2019, and the adoption of this standard did not have a material effect on our consolidated financial statements.

In August 2017, the FASB issued ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*. ASU 2017-12 expanded and refined hedge accounting for both financial and non-financial risk components, aligned the recognition and presentation of the effects of hedging instruments and hedge items in the financial statements, and included certain targeted improvements to ease the application of current guidance related to the assessment of hedge effectiveness. In October 2018, the FASB issued ASU 2018-16, *Derivatives and Hedging (Topic 815): Inclusion of the Secured Overnight Financing Rate ("SOFR") Overnight Index Swap ("OIS") Rate as a Benchmark Interest Rate for Hedge Accounting,* which permits the OIS rate based on SOFR as a U.S. benchmark interest rate. Both ASU 2017-12 and ASU 2018-16 were effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. The Company adopted ASU 2017-12 on January 1, 2019, and the adoption of this standard did not have a material effect on our consolidated financial statements as we did not have any hedging instruments as of the date of adoption.

In February 2018, the FASB issued ASU 2018-02, *Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Comprehensive Income.* ASU 2018-02 allowed for an optional reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act of 2017. ASU 2018-02 was effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. The Company adopted ASU 2018-02 on January 1, 2019, and upon adoption reclassified $0.4 million of stranded tax effects created by rate changes related to the Tax Cuts and Jobs Act of 2017 to retained earnings.

Note 2 – Business Combinations

In November 2018, we acquired SmartRG, Inc., a provider of carrier-class, open-source connected home platforms and cloud services for broadband service providers for cash consideration. This transaction was accounted for as a business combination. We have included the financial results of this acquisition in our consolidated financial statements since the date of acquisition. These revenues are included in the Subscriber Solutions & Experience category within the Network Solutions and Services & Support reportable segments.

Contingent liabilities with a fair value totaling $1.2 million were recognized at the acquisition date, the payments of which were dependent upon SmartRG achieving future revenue, EBIT or customer purchase order milestones during the first half of 2019. The required milestones were not achieved and therefore, we recognized a gain of $1.2 million upon the reversal of these liabilities during the second quarter of 2019.

An escrow in the amount of $2.8 million was set up at the acquisition date to fund post-closing working capital settlements and to satisfy indemnity obligations to the Company arising from any inaccuracy or breach of representations, warranties, covenants, agreements or obligations of the sellers. The escrow is subject to arbitration. In December 2019, $1.3 million of the $2.8 million was released from the escrow account pursuant to the agreement, with the final settlement of the remaining balance expected during the fourth quarter of 2020. The remaining minimum and maximum potential release of funds to the seller ranges from no payment to $1.5 million.

We recorded goodwill of $3.5 million as a result of this acquisition, which represents the excess of the purchase price over the fair value of net assets acquired and liabilities assumed. We assessed the recognition and measurement of the assets acquired and liabilities assumed based on historical and forecasted data for future periods and concluded that our valuation procedures and resulting measures were appropriate.

On March 19, 2018, we acquired Sumitomo Electric Lightwave Corp.'s (SEL) North American EPON business and entered into a technology license and OEM supply agreement with Sumitomo Electric Industries, Ltd. (SEI). This acquisition establishes ADTRAN as the North American market leader for EPON solutions for the cable MSO industry and it will accelerate the MSO market's adoption of our open, programmable and scalable architectures. This transaction was accounted for as a business combination. We have included the financial results of this acquisition in our consolidated financial statements since the date of acquisition. These revenues are included in the Access & Aggregation and Subscriber Solutions & Experience categories within the Network Solutions reportable segment.

We recorded a bargain purchase gain of $11.3 million during the first quarter of 2018, net of income taxes, which is subject to customary working capital adjustments between the parties. The bargain purchase gain of $11.3 million represents the difference between the fair-value of the net assets acquired over the cash paid. SEI, an OEM supplier based in Japan, is the global market leader in EPON. SEI's Broadband Networks Division, through its SEL subsidiary, operated a North American EPON business that included sales, marketing, support, and region-specific engineering development. The North American EPON market is primarily driven by the Tier 1 cable MSO operators and has developed more slowly than anticipated. Through the transaction, SEI divested its North American EPON assets and established a relationship with ADTRAN. The transfer of these assets to ADTRAN, which included key customer relationships and a required assumption by ADTRAN of relatively low incremental expenses, along with the value of the technology license and OEM supply agreement, resulted in the bargain purchase gain. We have assessed the recognition and measurement of the assets acquired and liabilities assumed based on historical and forecasted data for future periods and we have concluded that our valuation procedures and resulting measures were appropriate. The gain is included in the line item "Gain on bargain purchase of a business" in the 2018 Consolidated Statements of Income.

The final allocation of the purchase price to the estimated fair value of the assets acquired and liabilities assumed at the acquisition date for SmartRG and the final allocation of the purchase price to the estimated fair value of the assets acquired and liabilities assumed at the acquisition date for Sumitomo are as follows:

(In thousands)	Sumitomo	SmartRG
Assets		
Tangible assets aquired	$1,006	$8,594
Intangible assets	22,100	9,960
Goodwill	—	3,476
Total assets acquired	**23,106**	**22,030**
Liabilities		
Liabilities Assumed	(3,978)	(6,001)
Total liabilities assumed	**(3,978)**	**(6,001)**
Total net assets	**19,128**	**16,029**
Gain on bargain purchase of a business, net of tax	(11,322)	—
Total purchase price	**$7,806**	**$16,029**

Our Consolidated Statements of Income include the following revenue and net loss attributable to SmartRG and Sumitomo since the date of acquisition:

(In thousands)	March 19, 2018 to December 31, 2018
Revenue	$9,186
Net Loss	$(1,297)

The details of the acquired intangible assets from the SmartRG and Sumitomo acquisitions are as follows:

(In thousands)	**Value**	**Life (in years)**
Customer relationships	$15,190	3 – 12
Developed technology	7,400	7
Licensed technology	5,900	9
Supplier relationship	2,800	2
Licensing agreements	560	5 – 10
Trade name	210	3
Total	**$32,060**	

The following unaudited supplemental pro forma information presents the financial results as if the acquisition of SmartRG and Sumitomo had occurred on January 1, 2017. This unaudited supplemental pro forma information does not purport to be indicative of what would have occurred had the acquisition been completed on January 1, 2017, nor is it indicative of any future results. Aside from revising the 2017 net income for the effect of the bargain purchase gains, there were no material, non-recurring adjustments to this unaudited pro-forma information.

(In thousands)	**2018**	**2017**
Pro forma revenue	$559,050	$702,573
Pro forma net income (loss)	$(33,862)	$33,206

For the years ended December 31, 2019 and 2018, we incurred acquisition and integration related expenses and amortization of acquired intangibles of $5.0 million and $2.9 million, respectively, related to the SmartRG and Sumitomo acquisitions. No acquisition expenses related to the SmartRG and Sumitomo acquisitions were recorded during the year ended December 31, 2017.

Note 3 – Revenue

The following table disaggregates our revenue by major source for the year ended December 31, 2019:

(In thousands)	**Network Solutions**	**Services & Support**	**Total**
Access & Aggregation	$289,980	$58,894	$348,874
Subscriber Solutions & Experience [(1)]	144,651	8,269	152,920
Traditional & Other Products	20,595	7,672	28,267
Total	**$455,226**	**$74,835**	**$530,061**

(1) Subscriber Solutions & Experience was formerly reported as Customer Devices. With the increasing focus on enhancing the customer experience for both our business and consumer broadband customers and the addition of SmartRG during the fourth quarter of 2018, Subscriber Solutions & Experience more accurately represents this revenue category.

The following table disaggregates our revenue by major source for the year ended December 31, 2018:

(In thousands)	Network Solutions	Services & Support	Total
Access & Aggregation	$301,801	$57,069	$358,870
Subscriber Solutions & Experience [1]	129,067	5,393	134,460
Traditional & Other Products	27,364	8,583	35,947
Total	**$458,232**	**$71,045**	**$529,277**

(1) Subscriber Solutions & Experience was formerly reported as Customer Devices. With the increasing focus on enhancing the customer experience for both our business and consumer broadband customers and the addition of SmartRG during the fourth quarter of 2018, Subscriber Solutions & Experience more accurately represents this revenue category.

Revenue allocated to remaining performance obligations represents contract revenues that have not yet been recognized for contracts with a duration greater than one year. As of December 31, 2019, we did not have any significant performance obligations related to customer contracts that had an original expected duration of one year or more, other than maintenance services, which are satisfied over time. As a practical expedient, for certain contracts recognize revenue equal to the amounts we are entitled to invoice which correspond to the value of completed performance obligations to date. The amount related to these performance obligations was $13.3 million as of December 31, 2018. The amount related to these performance obligations was $13.6 million as of December 31, 2019, and the Company expects to recognize 64% of such revenue over the next 12 months with the remainder thereafter.

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

(In thousands)	December 31, 2019	December 31, 2018
Accounts receivable	$90,531	$99,385
Contract assets [1]	$2,812	$3,766
Unearned revenue	$11,963	$17,940
Non-current unearned revenue	$6,012	$5,296

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

Of the outstanding unearned revenue balance as of December 31, 2018, $12.7 million was recognized as revenue during the year ended December 31, 2019.

Note 4 – Stock-Based Compensation

Stock Incentive Program Descriptions

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 certain employees and officers through incentive stock options and non-qualified stock options, stock appreciation rights, RSUs and restricted stock. The 2006 Plan was adopted by stockholder approval at our annual meeting of stockholders held in May 2006. 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 ADTRAN, Inc. 2015 Employee Stock Incentive Plan (the “2015 Plan”). Expiration dates of options outstanding as of December 31, 2019 under the 2006 Plan range from 2020 to 2024.

In January 2015, the Board of Directors adopted the 2015 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 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 Plan by 2.5 shares of common stock for each share underlying the award. Options granted under the 2015 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, 2019 under the 2015 Plan range from 2025 to 2026.

Our stockholders approved the 2010 Directors Stock Plan (the “2010 Directors Plan”) in May 2010, under which 0.5 million shares of common stock have been reserved for issuance. This plan replaced the 2005 Directors Stock Option Plan. Under the 2010 Directors Plan, the Company may issue stock options, restricted stock and RSUs to our non-employee directors. Stock awards issued under the 2010 Directors Plan become vested in full on the first anniversary of the grant date. Options issued under the 2010 Directors Plan had a ten-year contractual term. All remaining options under the 2010 Directors Plan expired in 2019.

The following table summarizes stock-based compensation expense related to stock options, PSUs, RSUs and restricted stock for the years ended December 31, 2019, 2018 and 2017, which was recognized as follows:

(In thousands)	2019	2018	2017
Stock-based compensation expense included in cost of sales	**$369**	**$418**	**$379**
Selling, general and administrative expense	3,889	3,989	4,063
Research and development expense	2,704	2,748	2,991
Stock-based compensation expense included in operating expenses	**6,593**	**6,737**	**7,054**
Total stock-based compensation expense	**6,962**	**7,155**	**7,433**
Tax benefit for expense associated with non-qualified options, PSUs, RSUs and restricted stock	(1,659)	(1,432)	(1,699)
Total stock-based compensation expense, net of tax	**$5,303**	**$5,723**	**$5,734**

PSUs, RSUs and restricted stock

Under the 2015 Plan, awards other than stock options, including PSUs, RSUs and restricted stock, may be granted to certain employees and officers.

Under our market-based PSU program, 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 2015 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 first quarter of 2017, the Compensation Committee of the Board of Directors approved a one-time PSU grant of 0.5 million shares that contained performance conditions and would have vested at the end of a three-year period if such performance conditions were met. The fair value of these performance-based PSU awards was equal to the closing price of our stock on the date of grant. These awards were forfeited during the first quarter of 2020 as the performance conditions were not achieved.

The fair value of RSUs and restricted stock is equal to the closing price of our stock on the business day immediately preceding 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.

The following table is a summary of our PSUs, RSUs and restricted stock outstanding as of December 31, 2018 and 2019 and the changes that occurred during 2019:

(In thousands, except per share amounts)	Number of Shares	Weighted Average Grant Date Fair Value
Unvested PSUs, RSUs and restricted stock outstanding, December 31, 2018	**1,570**	**$18.52**
PSUs, RSUs and restricted stock granted	897	$9.63
PSUs, RSUs and restricted stock vested	(368)	$17.23
PSUs, RSUs and restricted stock forfeited	(208)	$18.24
Unvested RSUs and restricted stock outstanding, December 31, 2019	**1,891**	**$14.58**

As of December 31, 2019, total unrecognized compensation expense related to the non-vested portion of market-based PSUs, RSUs and restricted stock was approximately $17.2 million, which is expected to be recognized over an average remaining recognition period of 2.9 years and adjusted for actual forfeitures as they occur.

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

	2019	2018	2017
Estimated fair value per share	$9.53 to $18.05	$16.59	$24.17
Expected volatility	32.7% to 38.9%	27.98% to 31.58%	27.03%
Risk-free interest rate	1.6% to 2.46%	2.11% to 2.99%	1.78%
Expected dividend yield	2.3% to 4.09%	1.83% to 2.49%	1.74%

As of December 31, 2019, 1.0 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.

Stock Options

The following table is a summary of our stock options outstanding as of December 31, 2019 and 2018 and the changes that occurred during 2019:

(In thousands, except per share amounts)	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Stock options outstanding, December 31, 2018	**4,382**	**$22.91**	**4.10**	**$ —**
Stock options granted	—	$ —		
Stock options exercised	(34)	$15.53		
Stock options forfeited	(32)	$15.56		
Stock options expired	(744)	$23.72		
Stock options outstanding, December 31, 2019	**3,572**	**$22.88**	**3.40**	**$ —**
Stock options exercisable, December 31, 2019	**3,570**	**$22.89**	**3.40**	**$ —**

All of the options above were issued at exercise prices that approximated fair market value at the date of grant. As of December 31, 2019, total unrecognized compensation expense related to non-vested stock options was approximately $11 thousand, which is expected to be recognized over an average remaining recognition period of one year and will be adjusted for actual forfeitures as they occur.

The aggregate intrinsic values in the table above represent the total pre-tax intrinsic value (the difference between ADTRAN's closing stock price on the last trading day of 2019 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, 2019. The amount of aggregate intrinsic value will change based on the fair market value of ADTRAN's stock and was $0 as of December 31, 2019.

The total pre-tax intrinsic value of options exercised during 2019, 2018 and 2017 was $0.1 million, $0.2 million and $3.4 million, respectively. The fair value of options fully vesting during 2019, 2018 and 2017 was $0.9 million, $2.5 million and $4.3 million, respectively.

The following table further describes our stock options outstanding as of December 31, 2019:

	Options Outstanding			**Options Exercisable**	
Range of Exercise Prices	Options Outstanding in 12/31/19 *(In thousands)*	Weighted Avg. Remaining Contractual Life in Years	Weighted Average Exercise Price	Options Exercisable in 12/31/19 *(In thousands)*	Weighted Average Exercise Price
$14.88 – $18.96	1,135	4.90	$15.89	1,133	$15.89
$18.97 – $23.45	685	4.70	$19.10	685	$19.10
$23.46 – $30.35	686	3.67	$24.17	686	$24.17
$30.36 – $41.92	1,066	1.29	$31.93	1,066	$31.93
	3,572			**3,570**	

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.

There were no stock options granted in during the years ended December 31, 2019, 2018 or 2017.

Note 5 – Investments

Debt Securities and Other Investments

As of December 31, 2019, we held the following debt securities and other investments, recorded at fair value:

(In thousands)	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Corporate bonds	$9,304	$80	$ —	$9,384
Municipal fixed-rate bonds	930	—	—	930
Asset-backed bonds	6,867	26	(3)	6,890
Mortgage/Agency-backed bonds	6,944	26	(8)	6,962
U.S. government bonds	12,311	21	(9)	12,323
Foreign government bonds	372	—	(1)	371
Valuable rate demand notes	800	—	—	800
Available-for-sale debt securities held at fair value	**$37,528**	**$153**	**$(21)**	**$37,660**

As of December 31, 2018, we held the following debt securities and other investments, recorded at fair value:

(In thousands)	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Corporate bonds	$20,777	$19	(112)	$20,684
Municipal fixed-rate bonds	1,339	—	(26)	1,313
Asset-backed bonds	5,230	5	(14)	5,221
Mortgage/Agency-backed bonds	3,833	2	(44)	3,791
U.S. government bonds	9,271	1	(66)	9,206
Foreign government bonds	592	—	(8)	584
Available-for-sale debt securities held at fair value	**$41,042**	**$27**	**$(270)**	**$40,799**

As of December 31, 2019, our debt securities had the following contractual maturities:

(In thousands)	Corporate Bonds	Municipal Fixed-rate Bonds	Asset-backed Bonds	Mortgage/ Agency-backed Bonds	U.S. Government Bonds	Foreign Government Bonds
Less than one year	$4,005	$ —	$396	$ —	$ —	$ —
One to two years	4,120	930	760	213	1,347	—
Two to three years	967	—	1,632	1,424	9,344	—
Three to five years	292	—	2,092	494	1,632	371
Five to ten years	—	—	1,719	792	—	—
More than ten years	—	—	291	4,039	—	—
Total	**$9,384**	**$930**	**$6,890**	**$6,962**	**$12,323**	**$371**

Actual maturities may differ from contractual maturities as some borrowers have the right to call or prepay obligations with or without call or prepayment penalties.

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, 2019, 2018 and 2017:

(In thousands) Year Ended December 31,	2019	2018	2017
Gross realized gains on debt securities	$108	$57	$169
Gross realized losses on debt securities	(50)	(592)	(226)
Total gain (loss) recognized, net	**$58**	**$(535)**	**$(57)**

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.

The following table presents the breakdown of debt securities and other investments with unrealized losses as of December 31, 2019:

	Continuous Unrealized Loss Position for Less than 12 Months		Continuous Unrealized Loss Position for 12 Months or Greater		Total	
(In thousands)	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
Corporate bonds	$203	$ —	$ —	$ —	$203	$ —
Municipal fixed-rate bonds	930	—	—	—	930	—
Asset-backed bonds	797	(3)	—	—	797	(3)
Mortgage/Agency-backed bonds	2,594	(6)	136	(2)	2,730	(8)
U.S. government bonds	4,070	(9)	—	—	4,070	(9)
Foreign government bonds	371	(1)	—	—	371	(1)
Total	**$8,965**	**$(19)**	**$136**	**$(2)**	**$9,101**	**$(21)**

The following table presents the breakdown of debt securities and other investments with unrealized losses as of December 31, 2018:

	Continuous Unrealized Loss Position for Less than 12 Months		Continuous Unrealized Loss Position for 12 Months or Greater		Total	
(In thousands)	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unreal-ized Losses
Corporate bonds	$11,129	$(60)	$3,608	$(52)	$14,737	$(112)
Municipal fixed-rate bonds	—	—	1,136	(26)	1,136	(26)
Asset-backed bonds	1,874	(2)	1,257	(12)	3,131	(14)
Mortgage/Agency-backed bonds	1,021	(5)	1,918	(39)	2,939	(44)
U.S. government bonds	6,527	(48)	537	(18)	7,064	(66)
Foreign government bonds	584	(8)	—	—	584	(8)
Total	**$21,135**	**$(123)**	**$8,456**	**$(147)**	**$29,591**	**$(270)**

The decrease in unrealized losses during 2019, as reflected in the table above, results from changes in market positions associated with our fixed income portfolio.

Marketable Equity Securities

Our marketable equity securities consist of publicly traded stocks or funds measured at fair value.

Prior to January 1, 2018, our marketable equity securities were classified as available-for-sale. Realized gains and losses on marketable equity securities were included in net investment gain (loss). Unrealized gains and losses were recognized in accumulated other comprehensive income (loss), net of deferred taxes, on the balance sheet.

On January 1, 2018, we adopted ASU 2016-01, which requires us to measure all equity investments that do not result in consolidation and are not accounted for under the equity method at fair value, with any changes in fair value recognized in net investment gain (loss). Upon adoption, we reclassified $3.2 million of net unrealized gains related to marketable equity securities from accumulated other comprehensive income (loss) to opening retained earnings.

ASU 2016-01 also provides a measurement alternative for equity investments that do not have a readily determinable fair value in which investments can be recorded at cost less impairment, if any, adjusted for observable price changes for an identical or similar investment. We elected to record our equity investment that does not have a readily determinable fair value using the measurement alternative method. As of December 31, 2018, the Company had a note receivable of approximately $4.3 million, which was included in other receivables on the Consolidated Balance Sheets. During the three months ended March 31, 2019, this amount was repaid and reissued in the form of debt and equity. Approximately $3.4 million was issued as an equity investment, which represented a non-cash investing activity. The carrying value of this investment under the measurement alternative was $3.4 million as of December 31, 2019. The remaining amount, approximately $0.9 million, was converted into a new note receivable, which is included in other receivables on the Consolidated Balance Sheets and represents a non-cash operating activity.

Realized and unrealized gains and losses for our marketable equity securities for the twelve months ended December 31, 2019 were as follows:

(in thousands)	**2019**	**2018**
Realized gains (losses) on equity securities sold	$(96)	$1,306
Unrealized gains (losses) on equity securities held	(11,472)	(4,821)
Total gain (loss) recognized, net	**$(11,376)**	**$(3,515)**

As of December 31, 2019 and 2018, 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. 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:

Fair Value Measurements at December 31, 2019 Using

(In thousands)	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents				
Money market funds	$1,309	$1,309	$ —	$ —
Available-for-sale debt securities				
Corporate bonds	9,384	—	9,384	—
Municipal fixed-rate bonds	930	—	930	—
Asset-backed bonds	6,890	—	6,890	—
Mortgage/Agency-backed bonds	6,962	—	6,962	—
U.S. government bonds	12,323	12,323	—	—
Foreign government bonds	371	—	371	—
Variable rate demand notes	800	—	800	
Marketable equity securities				
Marketable equity securities – various industries	35,501	35,501	—	—
Equity in escrow	298	298	—	—
Deferred compensation plan assets	21,698	21,698	—	—
Other investments	2,442	2,442	—	—
Total	**$98,908**	**$73,571**	**$25,337**	**$ —**

Fair Value Measurements at December 31, 2018 Using

(In thousands)	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents				
Money market funds	$1,554	$1,554	$ —	$ —
Available-for-sale debt securities				
Corporate bonds	20,684	—	20,684	—
Municipal fixed-rate bonds	1,313	—	1,313	—
Asset-backed bonds	5,221	—	5,221	—
Mortgage/Agency-backed bonds	3,791	—	3,791	—
U.S. government bonds	9,206	9,206	—	—
Foreign government bonds	584	—	584	—
Marketable equity securities				
Marketable equity securities – various industries	26,763	26,763	—	—
Equity in escrow	253	253	—	—
Deferred compensation plan assets	18,256	18,256	—	—
Total	**$87,625**	**$56,032**	**$31,593**	**$ —**

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, security master files from 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.

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 – Derivative Instruments and Hedging Activities

As of December 31, 2019 and 2018, we had no foreign exchange forward contracts.

The change in the fair values of our derivative instruments recorded in the Consolidated Statements of Income (Loss) during the years ended December 31, 2019, 2018 and 2017 were as follows:

(In thousands)	**Income Statement Location**	**2019**	**2018**	**2017**
Derivatives Not Designated as Hedging Instruments:				
Foreign exchange contracts	Other income (expense)	$ —	$13	$(754)

The change in our derivatives designated as hedging instruments recorded in other comprehensive income and reclassified to income, net of tax, during the twelve months ended December 31, 2019, 2018 and 2017 were as follows:

	Location of Losses Reclassifed from AOCI into Income	Amount of Losses Reclassified from AOCI into Income		
(In thousands)		**2019**	**2018**	**2017**
Derivatives Designated as Hedging Instruments:				
Foreign exchange contracts	Cost of Sales	$ —	$ —	$(897)

Note 7 – Inventory

As of December 31, 2019 and 2018, inventory was comprised of the following:

(In thousands)	**2019**	**2018**
Raw materials	$36,987	$45,333
Work in process	1,085	1,638
Finished goods	60,233	52,877
Total Inventory, net	**$98,305**	**$99,848**

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, 2019 and 2018, our inventory reserve was $34.1 million and $30.0 million, respectively.

Note 8 – Property, Plant and Equipment

As of December 31, 2019 and 2018, property, plant and equipment was comprised of the following:

(In thousands)	2019	2018
Land	$4,575	$4,575
Building and land improvements	34,797	34,379
Building	68,157	68,183
Furniture and fixtures	19,959	19,831
Computer hardware and software	74,399	92,071
Engineering and other equipment	130,430	127,060
Total Property, Plant and Equipment	**332,317**	**346,099**
Less accumulated depreciation	(258,609)	(265,464)
Total Property, Plant and Equipment, net	**$73,708**	**$80,635**

Depreciation expense was $12.5 million, $12.7 million and $12.8 million for the years ended December 31, 2019, 2018 and 2017, respectively, which is recorded in cost of sales, selling, general and administrative expense and research and development expense in the consolidated statements of income.

We assess long-lived assets used in operations for potential 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. During the year ended December 31, 2019, the Company recognized impairment charges of $3.9 million related to the abandonment of certain information technology projects in which we had previously capitalized expenses related to these projects. The impairment charges were determined based on actual costs incurred as part of the projects. No impairment charges were recognized during the years ended December 31, 2018 and 2017.

Note 9 – Leases

We have operating leases for office space, automobiles and various other equipment in the U.S. and in certain international locations. We also reviewed other contracts, such as manufacturing agreements and service agreements, for potential embedded leases. We specifically reviewed these other contracts 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.

As of December 31, 2019, our operating leases had remaining lease terms of one month to six years, some of which included options to extend the leases for up to nine years, and some of which included options to terminate the leases within three months. 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. Leases with an initial term of 12 months or less were not recorded on the balance sheet and lease expense for these leases is recognized on a straight-line basis over the lease term. Lease expense related to these short-term leases was $0.4 million for the twelve months ended December 31, 2019, and is included in cost of sales, selling, general and administrative expenses and research and development expenses in the Consolidated Statements of Income. 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 $0.9 million for the twelve months ended December 31, 2019. For lease agreements entered into or reassessed after the adoption of Topic 842, we elected to not separate lease and nonlease components. Our lease agreements do not contain any material residual value guarantees or material restrictive covenants.

Supplemental balance sheet information related to operating leases is as follows:

(In thousands)	Classification	December 31, 2019	January 1, 2019 (1)
Assets			
Right of use lease assets	Other Assets	$8,452	$10,322
Total lease asset		**$8,452**	**$10,322**
Liabilities			
Current lease liability	Accrued expenses	$2,676	$2,948
Non-current lease liability	Other non-current liabilities	5,818	7,374
Total lease liability		**$8,494**	**$10,322**

(1) Reflects the adoption of the new lease accounting standard on January 1, 2019.

The components of lease expense included in the Consolidated Statements of Income for the twelve months ended December 31, 2019 were as follows:

(In thousands)	2019
Research and development expenses	$2,417
Selling, general and administrative expenses	1,400
Cost of sales	64
Total operating lease expense	**$3,881**

As of December 31, 2019, operating lease liabilities included on the Consolidated Balance Sheet by future maturity were as follows:

(In thousands)	Amount
2020	$2,856
2021	2,412
2022	1,705
2023	1,160
2024	482
Thereafter	264
Total lease payments	**8,879**
Less: Interest	(385)
Present value of lease liabilities	**$8,494**

Future operating lease payments include $0.7 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.

As of December 31, 2018, future minimum rental payments under non-cancelable operating leases, including renewals determined to be reasonably assured as of December 31, 2018, with original maturities of greater than 12 months, were as follows:

(In thousands)	**Amount [1]**
2019	$3,873
2020	3,580
2021	2,771
2022	2,053
2023	1,317
Thereafter	762
Total	**$14,356**

(1) Certain renewal options were subsequently determined to not be reasonably assured of renewal upon the Company's adoption of the new lease accounting standard on January 1, 2019.

Our leases do not provide an implicit rate and therefore we use an incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. We used the incremental borrowing rate on January 1, 2019, for operating leases that commenced on or prior to that date. The incremental borrowing rate was 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 actual rate was then determined based on a credit spread over LIBOR as well as the Bloomberg Curve Matrix for the U.S. Communications section. The following table provides information about our weighted average lease terms and weighted average discount rates as of December 31, 2019:

	As of December 31, 2019
Weighted average remaining lease term (years)	
Operating leases with USD functional currency	2.6
Operating leases with Euro functional currency	4.4
Weighted average discount rate	
Operating leases with USD functional currency	4.02%
Operating leases with Euro functional currency	1.84%

Supplemental cash flow information related to operating leases is as follows:

(In thousands)	**As of December 31, 2019**
Cash paid for amounts included in the measurement of operating lease assets / liabilities	
Cash used in operating activities related to operating leases	$3,439
Right-of-use assets obtained in exchange for lease obligations	$11,615

Sales-Type Leases

We are the lessor in sales-type lease arrangements for network equipment, which have initial terms of up to five years. Our sales-type lease arrangements contain either a provision whereby the network equipment reverts back to us upon the expiration of the lease or a provision that allows the lessee to purchase the network equipment at a bargain purchase amount at the end of the lease. In addition, our sales-type lease arrangements do not contain any residual value guarantees or material restrictive covenants. The allocation of the consideration between lease and nonlease components is determined by stand-alone selling price by component. The net investment in sales-type leases consists of lease receivables less unearned income. Collectability of sales-type leases is evaluated periodically at an individual customer level. The Company has elected to exclude taxes related to sales-type leases from revenue and the associated expense of such taxes. As of December 31, 2019 and 2018, we did not have an allowance for credit losses for our net investment in sales-type leases. As of December 31, 2019 and 2018, the components of the net investment in sales-type leases were as follows:

(In thousands)	**December 31, 2019**	**December 31, 2018**
Current minimum lease payments receivable[1]	$1,201	$11,339
Non-current minimum lease payments receivable[2]	889	1,670
Total minimum lease payments receivable	**2,090**	**13,009**
Less: Current unearned revenue[1]	365	631
Less: Non-current unearned revenue[2]	163	473
Net investment in sales-type leases	**$1,562**	**$11,905**

(1) Included in other receivables on the Consolidated Balance Sheet.
(2)Included in other assets on the Consolidated Balance Sheet.

The components of sales-type lease gross profit recognized at the lease commencement date and interest and dividend income, included in the Consolidated Statements of Income for the twelve months ended December 31, 2019 were as follows:

(In thousands)	**For the Year Ended December 31, 2019**
Sales - Network Solutions	$1,723
Cost of sales - Network Solutions	675
Gross profit	**$1,048**
Interest and dividend income	$357

As of December 31, 2019 future minimum lease payments to be received from sales-type leases were as follows:

(In thousands)	**Amount**
2020	$1,201
2021	565
2022	232
2023	86
2024	6
Total	**$2,090**

Note 10 – Goodwill

Goodwill, all of which relates to our acquisitions of Bluesocket, Inc. in 2011 and SmartRG in 2018, was $7.0 million as of December 31, 2019 and $7.1 million as of December 31, 2018 of which $6.6 million and $0.4 million was allocated to our Network Solutions and Services & Support reportable segments, respectively, for the year ended December 31, 2019, and of which $6.7 million and $0.4 million was allocated to our Network Solutions and Services & Support reportable segments, respectively, for the year ended December 31, 2018. Goodwill related to our SmartRG acquisition was reduced by $0.1 million during the twelve months ended December 31, 2019 as a result of a measurement period adjustment.

We evaluate the carrying value of goodwill during the fourth quarter of each year and between annual evaluations if events occur or circumstances change that would more likely than not reduce the fair value of the reporting unit below its carrying amount. We have elected to first assess the qualitative factors to determine whether it is more likely than not that the fair value of the reporting unit to which the goodwill is assigned is less than its carrying amount as a basis for determining whether it is necessary to perform the two-step impairment test. If we determine that it is more likely than not that its fair value is less than its carrying amount, then the two-step impairment test will be performed. Based on the results of our qualitative assessment for the years ended December 31, 2019, 2018 and 2017, there were no events or circumstances that occurred that would more likely than not reduce the fair value of goodwill below its carrying value.

Note 11 – Intangible Assets

As of December 31, 2019 and 2018, our intangible assets were comprised of the following:

	2019			2018		
(In thousands)	Gross Value	Accumulated Amortization	Net Value	Gross Value	Accumulated Amortization	Net Value
Customer relationships	$22,356	$(7,233)	$15,123	$22,455	$(5,380)	$17,075
Developed technology	10,170	(3,379)	6,791	12,801	(4,867)	7,934
Licensed technology	5,900	(1,174)	4,726	5,900	(520)	5,380
Supplier relationships	2,800	(2,508)	292	2,800	(1,108)	1,692
Intellectual property	—	—	—	930	(930)	—
Licensing agreements	560	(79)	481	560	(5)	555
Patents	500	(226)	274	500	(157)	343
Trade names	310	(176)	134	310	(106)	204
Non-compete	—	—	—	200	(200)	—
Total	**$42,596**	**$(14,775)**	**$27,821**	**$46,456**	**$(13,273)**	**$33,183**

Amortization expense was $5.3 million, $2.3 million and $2.9 million for the years ended December 31, 2019, 2018 and 2017, respectively.

As of December 31, 2019, the estimated future amortization expense of intangible assets is as follows:

(In thousands)	Amount
2020	$4,444
2021	4,095
2022	3,471
2023	3,320
2024	3,226
Thereafter	9,265
Total	**$27,821**

Note 12 – Alabama State Industrial Development Authority Financing and Economic Incentives

In conjunction with the 1995 expansion of our Huntsville, Alabama facility, we were approved for participation in an incentive program offered by the State of Alabama Industrial Development Authority ("the Authority"). Pursuant to the program, on January 13, 1995, the Authority issued $20.0 million of its taxable revenue bonds (the "Taxable Revenue Bonds") and loaned the proceeds from the sale of the Taxable Revenue Bonds to ADTRAN. Further advances on the Taxable Revenue Bonds were made by the Authority, bringing the total amount outstanding to $50.0 million. The Taxable Revenue Bonds bore interest, payable monthly with an interest rate of 2% per annum. The Taxable Revenue Bond's outstanding aggregate principal amount of $24.6 million matured on January 1, 2020 and was repaid in full on January 2, 2020. The fair value of the bond as of December 31, 2019 was $24.6 million. We are required to make payments to the Authority in amounts necessary to pay the interest on the Taxable Revenue Bonds. Included in short-term investments as of December 31, 2019 is $25.6 million which is invested in a certificate of deposit. These funds serve as a collateral deposit against the principal of this bond, and we have the right to set-off the balance of the Taxable Revenue Bonds with the collateral deposit in order to reduce the balance of the indebtedness.

In conjunction with this program, we were eligible to receive certain economic incentives from the state of Alabama that reduce the amount of payroll withholdings that we were required to remit to the state for those employment positions that qualify under the program. We realized economic incentives related to payroll withholdings totaling $1.2 million, $1.4 million and $1.5 million for the years ended December 31, 2019, 2018 and 2017, respectively. This program concluded on January 2, 2020 following the maturity of the Taxable Revenue Bonds. No additional benefits will be received in future periods.

We made principal payments of $1.0 million and $1.1 million for the years ended December 31, 2019 and 2018. No additional principal payments will be made in future periods.

Note 13 – Income Taxes

A summary of the components of the expense (benefit) for income taxes for the years ended December 31, 2019, 2018 and 2017 is as follows:

(In thousands)	**2019**	**2018**	**2017**
Current			
Federal	$(518)	$(8,001)	$466
State	(1,065)	(476)	(150)
International	(282)	11,705	6,458
Total Current	**(1,865)**	**3,228**	**6,774**
Deferred			
Federal	24,801	(14,448)	8,024
State	5,815	(3,390)	1,882
International	(546)	581	4,167
Total Deferred	**30,070**	**(17,257)**	**14,073**
Total Income Tax Expense (Benefit)	**$28,205**	**$(14,029)**	**$20,847**

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

	2019	2018	2017
Tax provision computed at the federal statutory rate	21.00%	21.00%	35.00%
State income tax provision, net of federal benefit	6.97	14.53	2.17
Federal research credits	15.53	14.23	(11.88)
Foreign taxes	2.83	(11.45)	(2.27)
Tax-exempt income	0.49	0.45	(0.75)
State tax incentives	3.85	3.15	(2.71)
Change in valuation allowance	(172.82)	—	—
Foreign tax credits	16.69	—	—
Stock-based compensation	(6.01)	(2.87)	1.43
Domestic production activity deduction	—	—	(1.13)
Bargain purchase	—	8.82	—
Impact of U.S. tax reform	—	12.00	26.70
Global intangible low-taxed income ("GILTI")	(1.87)	(17.48)	—
Other, net	(0.49)	(0.34)	0.09
Effective Tax Rate	**(113.83)%**	**42.04%**	**46.65%**

Income (loss) before expense (benefit) for income taxes for the years ended December 31, 2019, 2018 and 2017 is as follows:

(In thousands)	2019	2018	2017
U.S. entities	$(29,829)	$(74,131)	$26,552
International entities	5,052	40,760	18,135
Total	**$(24,777)**	**$(33,371)**	**$44,687**

Income (loss) before expense (benefit) for income taxes for international entities reflects income (loss) based on statutory transfer pricing agreements. This amount does not correlate to consolidated international revenue, many of which occur 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 principal components of our current and non-current deferred taxes were as follows:

(In thousands)	**2019**	**2018**
Deferred tax assets		
Inventory	$7,144	$6,609
Accrued expenses	2,330	2,850
Investments	—	1,122
Deferred compensation	5,660	4,779
Stock-based compensation	2,451	3,069
Uncertain tax positions related to state taxes and related interest	241	326
Pensions	7,074	5,538
Foreign losses	2,925	3,097
State losses and credit carry-forwards	3,995	8,164
Federal loss and research carry-forwards	12,171	17,495
Lease liabilities	2,496	—
Capitalized research and development expenditures	22,230	—
Valuation allowance	(48,616)	(5,816)
Total Deferred Tax Assets	**20,101**	**47,233**
Deferred tax liabilities		
Property, plant and equipment	(2,815)	(3,515)
Intellectual property	(5,337)	(6,531)
Right of use lease assets	(2,496)	—
Investments	(1,892)	—
Total Deferred Tax Liabilities	**(12,540)**	**(10,046)**
Net Deferred Tax Assets	**$7,561**	**$37,187**

In December 2017, the Tax Cuts and Jobs Act ("the Act") was signed into law. As a result of the Act, we recognized an estimated expense of $11.9 million in the fourth quarter of 2017, of which $9.2 million related to the write-down of deferred tax assets and $2.7 million related to tax on unrepatriated foreign earnings. We calculated our best estimate of the impact of the Act in our 2017 year-end income tax provision in accordance with Staff Accounting Bulletin No. 118, which was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared or analyzed to finalize the accounting for certain income tax effects of the Act. Additional work to complete a more detailed analysis of historical foreign earnings, as well as the full impact relating to the write-down of deferred tax assets, was completed in the third quarter of 2018 and resulted in a tax benefit of $4.0 million for the year ended December 31, 2018.

As of December 31, 2019 and 2018, non-current deferred taxes related to our investments and our defined benefit pension plan reflect deferred taxes on the 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 $0.4 million and $2.8 million in 2019 and 2018, 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. Due to our recent decrease in revenue and profitability for 2019, 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 was no longer able to conclude that it was more likely than not that our domestic deferred tax assets would be realized and a valuation allowance against our domestic deferred tax assets was established in the third quarter of 2019. The amount of the deferred tax assets considered realizable may be adjusted in future periods in the event that 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, 2019, the Company had gross deferred tax assets totaling $56.2 million offset by a valuation allowance totaling $48.6 million. Of the valuation allowance, $42.8 million was established in the current year primarily related to our domestic deferred tax assets. The remaining $5.8 million established in prior periods related to state research and development credit carryforwards and foreign net operating loss and research and development credit carryforwards where we lack sufficient activity to realize those deferred tax assets. The remaining $7.6 million in deferred tax assets that were not offset by a valuation allowance are located in various foreign jurisdictions where the Company believes it is more likely than not we will realize these deferred tax assets.

Supplemental balance sheet information related to deferred tax assets is as follows:

	December 31, 2019		
(In thousands)	Deferred Tax Assets	Valuation Allowance	Deferred Tax Assets, net
Domestic	$46,266	$(46,266)	$ —
International	9,911	(2,350)	7,561
Total	**$56,177**	**$(48,616)**	**$7,561**

As of December 31, 2019 and 2018, 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 $41.3 million and $28.8 million, respectively. As of December 31, 2019, $19.1 million of these deferred tax assets will expire at various times between 2020 and 2039. The remaining deferred tax assets will either amortize through 2029 or carryforward indefinitely.

As of December 31, 2019 and 2018, respectively, our cash and cash equivalents were $73.8 million and $105.5 million and short-term investments were $33.2 million and $3.2 million, which provided available short-term liquidity of $107.0 million and $108.7 million. Of these amounts, our foreign subsidiaries held cash of $52.3 million and $87.1 million, respectively, representing approximately 48.9% and 80.1% of available short-term liquidity, which is used to fund on-going liquidity needs of these subsidiaries. We intend to permanently reinvest these funds outside the U.S. except to the extent any of these funds can be repatriated without withholding tax and our current business plans do not indicate a need to repatriate to fund domestic operations. 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 practical to determine the amount of funds subject to unrecognized deferred tax liability.

During 2019, 2018 and 2017, 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, 2019, 2018 and 2017 is reconciled below:

(In thousands)	2019	2018	2017
Balance at beginning of period	**$1,868**	**$2,366**	**$2,226**
Increases for tax position related to:			
Prior years	—	3	465
Current year	161	254	285
Decreases for tax positions related to:			
Prior years	(71)	—	(14)
Expiration of applicable statute of limitations	(471)	(755)	(596)
Balance at end of period	**$1,487**	**$1,868**	**$2,366**

As of December 31, 2019, 2018 and 2017, our total liability for unrecognized tax benefits was $1.5 million, $1.9 million and $2.4 million, respectively, of which $1.4 million, $1.7 million and $2.2 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, 2019, 2018 and 2017, the balances of accrued interest and penalties were $0.5 million, $0.7 million and $0.8 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. 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 2016.

Note 14 – Employee Benefit Plans

Pension Benefit Plan

We maintain a defined benefit pension plan covering employees in certain foreign countries.

The pension benefit plan obligations and funded status as of December 31, 2019 and 2018, were as follows:

(In thousands)	2019	2018
Change in projected benefit obligation:		
Projected benefit obligation at beginning of period	$37,245	$34,893
Service cost	1,471	1,193
Interest cost	634	727
Actuarial loss - experience	453	38
Actuarial loss - assumptions	5,091	2,139
Benefit payments	(166)	(138)
Effects of foreign currency exchange rate changes	(826)	(1,607)
Projected benefit obligation at end of period	**43,902**	**37,245**
Change in plan assets:		
Fair value of plan assets at beginning of period	24,159	26,624
Actual gain (loss) on plan assets	4,392	(2,024)
Contributions	—	688
Effects of foreign currency exchange rate changes	(535)	(1,129)
Fair value of plan assets at end of period	**28,016**	**24,159**
Unfunded status at end of period	**$(15,886)**	**$(13,086)**

The accumulated benefit obligation was $43.9 million and $37.2 million as of December 31, 2019 and 2018, respectively. The increase in the accumulated benefit obligation and the actuarial loss was primarily attributable to a decrease in the discount rate during 2019.

The net amounts recognized in the balance sheet for the unfunded pension liability as of December 31, 2019 and 2018 were as follows:

(In thousands)	**2019**	**2018**
Current liability	$ —	$ —
Pension liability	15,886	13,086
Total	**$15,886**	**$13,086**

The components of net periodic pension cost, other than the service cost component, are included in other income (expense), net in the Consolidated Statements of Income (Loss). The components of net periodic pension cost and amounts recognized in other comprehensive income (loss) for the years ended December 31, 2019, 2018 and 2017 were as follows:

(In thousands)	**2019**	**2018**	**2017**
Net periodic benefit cost:			
Service cost	$1,471	$1,193	$1,260
Interest cost	634	727	607
Expected return on plan assets	(1,392)	(1,548)	(1,267)
Amortization of actuarial losses	795	247	309
Net periodic benefit cost	**1,508**	**619**	**909**
Other changes in plan assets and benefit obligations recognized in other comprehensive income:			
Net actuarial (gain) loss	2,488	5,638	(654)
Amortization of actuarial losses	(771)	(196)	(406)
Amount recognized in other comprehensive income (loss)	**1,717**	**5,442**	**(1,060)**
Total recognized in net periodic benefit cost and other comprehensive income (loss)	**$3,225**	**$6,061**	**$(151)**

The amounts recognized in accumulated other comprehensive income (loss) as of December 31, 2019 and 2018 were as follows:

(In thousands)	**2019**	**2018**
Net actuarial loss	$(12,973)	$(11,256)

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 weighted-average assumptions that were used to determine the net periodic benefit cost for the years ended December 31, 2019, 2018 and 2017 were as follows:

	2019	2018	2017
Discount rate	1.75%	2.13%	1.90%
Rate of compensation increase	2.00%	2.00%	2.00%
Expected long-term rates of return	5.90%	5.90%	5.90%

The weighted-average assumptions that were used to determine the benefit obligation as of December 31, 2019 and 2018:

	2019	2018
Discount rate	1.00%	1.75%
Rate of compensation increase	2.00%	2.00%

Actuarial gains and losses are recorded in accumulated other comprehensive income (loss). 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 $0.8 million will be amortized from accumulated other comprehensive income (loss) into net periodic pension cost in 2020 for the net actuarial loss.

We do not anticipate making any contributions to the pension plan in 2020.

The following pension benefit payments, which reflect expected future service, as appropriate, are expected to be paid to participants:

(In thousands)	
2020	$515
2021	582
2022	619
2023	706
2024	789
Thereafter	4,872
Total	**$8,083**

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:

	Fair Value Measurements at December 31, 2019, Using			
(In thousands)	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	$691	$691	$ —	$ —
Available-for-sale securities				
Bond funds:				
Government bonds	6,645	6,645	—	—
Corporate bonds	5,514	5,514	—	—
Emerging markets bonds	531	531	—	—
Equity funds:				
Global equity	11,071	11,071	—	—
Emerging markets	956	956	—	—
Balanced fund	863	863	—	—
Large-cap value	312	312	—	—
Global real estate fund	902	902	—	—
Managed futures fund	531	531	—	—
Available-for-sale securities	**27,325**	**27,325**	**—**	**—**
Total	**$28,016**	**$28,016**	**$ —**	**$ —**

	Fair Value Measurements at December 31, 2018, Using			
(In thousands)	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	$1,010	$1,010	$ —	$ —
Available-for-sale securities				
Bond funds:				
Government bonds	6,268	6,268	—	—
Corporate bonds	4,840	4,840	—	—
Emerging markets bonds	443	443	—	—
Equity funds:				
Global equity	7,743	7,743	—	—
Emerging markets	1,188	1,188	—	—
Balanced fund	815	815	—	—
Large-cap value	262	262	—	—
Global real estate fund	926	926	—	—
Managed futures fund	664	664	—	—
Available-for-sale securities	**23,149**	**23,149**	**—**	**—**
Total	**$24,159**	**$24,159**	**$ —**	**$ —**

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. Central to the policy are target allocation ranges by asset class, which is currently 50% for bond funds, 40% for equity funds and 10% cash, real estate and managed futures. 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 us 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 Plan

We maintain the ADTRAN, Inc. 401(k) Retirement Plan (the "Savings Plan") for the benefit of our eligible employees. The Savings Plan is 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 Plan allows employees to save for retirement by contributing part of their compensation to the plan on a tax-deferred basis. The Savings Plan also requires us to contribute a "safe harbor" amount each year. 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. In calculating our matching contribution, we only use compensation up to the statutory maximum under the Code ($280,000 for 2019). All matching contributions under the Savings Plan vest immediately. Employer contribution expense and plan administration costs for the Savings Plan amounted to approximately $4.4 million, $4.4 million and $4.6 million in 2019, 2018 and 2017, respectively.

Deferred Compensation Plans

We maintain four deferred compensation programs for certain executive management employees and our Board of Directors.

For our executive management employees, 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, 2019 and 2018 were as follows:

(In thousands)	**2019**	**2018**
Fair Value of Plan Assets		
Long-term investments	$21,698	$18,256
Total Fair Value of Plan Assets	**$21,698**	**$18,256**
Amounts Payable to Plan Participants		
Deferred compensation liability	$21,698	$18,256
Total Amounts Payable to Plan Participants	**$21,698**	**$18,256**

Interest and dividend income of the Trust are included in interest and dividend income in the accompanying 2019, 2018 and 2017 Consolidated Statements of Income (Loss). Changes in the fair value of the plan assets held by the Trust have been included in other income (expense) in the accompanying 2019, 2018 and 2017 Consolidated Statements of Income (Loss). Changes in the fair value of the deferred compensation liability are included as selling, general and administrative expense in the accompanying 2019, 2018 and 2017 Consolidated Statements of Income (Loss). Based on the changes in the total fair value of the Trust's assets, we recorded deferred compensation income (expense) in 2019, 2018 and 2017 of $3.6 million, $(2.1) million and $(2.6) million, respectively.

Retiree Medical Coverage

We provided medical, dental and prescription drug coverage to two spouses of retired former officers on the same terms as provided to our active officers for up to 30 years. As of December 31, 2019 and 2018, this liability totaled $0.1 million.

Note 15 – Segment Information and Major Customers

Our chief operating decision maker regularly reviews our financial performance based on two reportable segments across our segments– (1) Network Solutions and (2) Services & Support. Network Solutions includes hardware and software products and next-generation virtualized solutions used in service provider or business networks, as well as prior-generation products. Services & Support includes a portfolio of maintenance, network implementation and solutions integration services, which include hosted cloud services and subscription services.

We evaluate the performance of our segments based on gross profit, selling, general and administrative expenses, research and development expenses, interest and dividend income, interest expense, net investment gain (loss), other income (expense) and income tax (expense) benefit are reported on a company-wide, functional basis only. There are no inter-segment revenues.

The following table presents information about the reported sales and gross profit of our reportable segments for each of the years ended December 31, 2019, 2018 and 2017. Asset information by reportable segment is not reported, since we do not produce such information internally.

	2019		2018		2017	
(In thousands)	Sales	Gross Profit	Sales	Gross Profit	Sales	Gross Profit
Network Solutions	$455,226	$191,549	$458,232	$179,303	$540,396	$260,833
Services & Support	74,835	27,618	71,045	24,262	126,504	42,802
Total	**$530,061**	**$219,167**	**$529,277**	**$203,565**	**$666,900**	**$303,635**

Sales by Category

In addition to the above reporting segments, we also report revenue for the following three categories – (1) Access & Aggregation, (2) Subscriber Solutions & Experience and (3) Traditional & Other Products.

The following tables disaggregates our revenue by major source for the years ended December 31, 2019, 2018 and 2017:

			2019
(In thousands)	Network Solutions	Services & Support	Total
Access & Aggregation	$289,980	$58,894	$348,874
Subscriber Solutions & Experience (1)	144,651	8,269	152,920
Traditional & Other Products	20,595	7,672	28,267
Total	**$455,226**	**$74,835**	**$530,061**

			2018
(In thousands)	Network Solutions	Services & Support	Total
Access & Aggregation	$301,801	$57,069	$358,870
Subscriber Solutions & Experience (1)	129,067	5,393	134,460
Traditional & Other Products	27,364	8,583	35,947
Total	**$458,232**	**$71,045**	**$529,277**

			2017
(In thousands)	Network Solutions	Services & Support	Total
Access & Aggregation	$361,955	$111,989	$473,944
Subscriber Solutions & Experience (1)	132,294	6,162	138,456
Traditional & Other Products	46,147	8,353	54,500
Total	**$540,396**	**$126,504**	**$666,900**

(1) Subscriber Solutions & Experience was formerly reported as Customer Devices. With the increasing focus on enhancing the customer experience for both our business and consumer broadband customers and the addition of SmartRG during the fourth quarter of 2018, Subscriber Solutions & Experience more accurately represents this revenue category.

Additional Information

The following table presents sales information by geographic area for the years ended December 31, 2019, 2018 and 2017:

(In thousands)	2019	2018	2017
United States	$300,853	$288,843	$508,178
Mexico	90,795	12,186	2,246
Germany	78,062	167,251	119,502
Other international	60,351	60,997	36,974
Total	**$530,061**	**$529,277**	**$666,900**

Customers comprising more than 10% of revenue can change from year to year. Single customers comprising more than 10% of our revenue in 2019 included three customers at 19%, 17% and 13%. Single customers comprising more than 10% of our revenue in 2018 included two customers at 27% and 17%. Single customers comprising more than 10% of our revenue in 2017 included two customers at 40% and 16%. Other than those with more than 10% of revenues disclosed above, and excluding distributors, our next five largest customers can change, and has historically changed, from year-to-year. These combined customers represented 15%, 18% and 15% of total revenue in 2019, 2018 and 2017, respectively.

As of December 31, 2019, property, plant and equipment, net totaled $73.7 million, which included $69.9 million held in the U.S. and $3.9 million held outside the U.S. As of December 31, 2018, property, plant and equipment, net totaled $80.6 million, which included $77.3 million held in the U.S. and $3.3 million held outside the U.S. Property, plant and equipment, net is reported on a company-wide, functional basis only.

Note 16 – Commitments and Contingencies

Securities Class Action Lawsuit

On October 17, 2019, a purported stockholder class action lawsuit, captioned Burbridge v. ADTRAN, Inc. et al., Docket No. 19-cv-09619, was filed in the United States District Court for the Southern District of New York against the Company, two of its current executive officers and one of its former executive officers. The complaint alleges violations of federal securities laws and seeks unspecified compensatory damages on behalf of purported purchasers of ADTRAN securities between February 28, 2019 and October 9, 2019. The lawsuit claims that the defendants made materially false and misleading statements regarding, and/or failed to disclose material adverse facts about, the Company's business, operations and prospects, specifically relating to the Company's internal control over financial reporting, excess and obsolete inventory reserves, financial results and shipments to a Latin American customer. Investors in ADTRAN securities had until December 16, 2019 to move the court to serve as lead plaintiff in this action.

On December 16, 2019, two purported investors in ADTRAN securities filed motions seeking to be appointed lead plaintiff in the case. On January 6, 2020, the United States District Court for the Southern District of New York granted Defendants' unopposed request to transfer the case to the United States District Court for the Northern District of Alabama, where the case is now pending as Burbridge v. ADTRAN, Inc. et al., Docket No. 5:20-cv-00050-LCB. On January 27, 2020, the two prospective lead plaintiff movants filed a stipulation among plaintiffs seeking to be appointed as co-lead plaintiffs in the case.

We disagree with the claims made in the complaint and intend to vigorously defend against this lawsuit. At this time, we are unable to predict the outcome of or estimate the possible loss or range of loss, if any, associated with this lawsuit.

Other Legal Matters

In addition to the litigation described above, 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, 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. While the Company cannot predict with certainty the results of the Legal Matters in which it is currently involved, the Company does not expect that the ultimate outcome of such Legal Matters will individually or in the aggregate have a material adverse effect on its business, results of operations, financial condition or cash flows.

Investment Commitment

We have committed to invest up to an aggregate of $7.9 million in two private equity funds, of which $7.7 million has been applied to these commitments as of December 31, 2019.

Performance Bonds

Certain contracts, customers and/or 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, 2019, we had commitments related to these bonds totaling $9.3 million which expire at various dates through August 2024. As of December 31, 2018, we had commitments related to these bonds totaling $6.5 million. Although the triggering events vary from contract to contract, in general we would only be liable for the amount of these guarantees in the event of default in our under each contract, the probability of which we believe is remote.

Note 17 – Earnings (Loss) per Share

A summary of the calculation of basic and diluted earnings (loss) per share for the years ended December 31, 2019, 2018 and 2017 is as follows:

(In thousands, except for per share amounts)	2019	2018	2017
Numerator			
Net Income (Loss)	$(52,982)	$(19,342)	$23,840
Denominator			
Weighted average number of shares—basic	47,836	47,880	48,153
Effect of dilutive securities:			
Stock options	—	—	406
Restricted stock and restricted stock units	—	—	140
Weighted average number of shares—diluted	**47,836**	**47,880**	**48,699**
Earnings (loss) per share—basic	$(1.11)	$(0.40)	$0.50
Earnings (loss) per share—diluted	$(1.11)	$(0.40)	$0.49

For each of the years ended December 31, 2019 and 2018, 5.7 million and 2.5 million, respectively, shares of unvested stock options, PSUs, RSUs and restricted stock were excluded from the calculation of diluted EPS due to their anti-dilutive effect.

For the year ended December 31, 2017, 3.2 million stock options were outstanding but were not included in the computation of diluted earnings (loss) per share because the options’ exercise prices were greater than the average market price of the common shares, therefore making them anti-dilutive under the treasury stock method.

Note 18 – Restructuring

During the second half of 2019, the Company implemented a restructuring plan to realign its expense structure with the reduction in revenue experienced in recent years and overall Company objectives. Management assessed the efficiency of our operations and consolidated locations and personnel, among other things, where possible. As part of this restructuring plan, the Company announced plans to reduce its overall operating expenses, both in the U.S and internationally.

In February 2019, the Company announced the restructuring of certain of our workforce predominantly in Germany, which included the closure of our office location in Munich, Germany accompanied by relocation or severance benefits for the affected employees. We also offered voluntary early retirement to certain other employees, which was announced in March 2019.

In January 2018, the Company announced an early retirement incentive program for employees that met certain defined requirements. The cumulative amount incurred during the year ended December 31, 2018 related to this restructuring program was $7.3 million. We did not incur any additional expenses related to this restructuring program during the year ended December 31, 2019.

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, 2019 and 2018, is as follows:

(In thousands)	2019	2018
Balance at beginning of period	$185	$205
Plus: Amounts charged to cost and expense	6,014	7,261
Less: Amounts paid	(4,631)	(7,281)
Balance at end of period	**$1,568**	**$185**

The components of restructuring expense in the Consolidated Statements of Income are for the years ended December 31, 2019, 2018 and 2017:

(In thousands)	2019	2018	2017
Selling, general and administrative expenses	$2,360	$2,655	$152
Research and development expenses	2,869	1,831	122
Cost of sales	785	2,775	—
Total restructuring expenses	**$6,014**	**$7,261**	**$274**

The following table represents the components of restructuring expense by geographic area for the years ended December 31, 2019, 2018 and 2017:

(In thousands)	2019	2018	2017
United States	$3,336	$7,120	$274
International	2,678	141	—
Total restructuring expenses	**$6,014**	**$7,261**	**$274**

Note 19 – Summarized Quarterly Financial Data (Unaudited)

The following table presents unaudited quarterly operating results for each of our last eight fiscal quarters. This information has been prepared on a basis consistent with our audited financial statements and includes all adjustments, consisting only of normal recurring adjustments, considered necessary for a fair presentation of the data.

UNAUDITED QUARTERLY OPERATING RESULTS

(In thousands, except for per share amounts)

Three Months Ended	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019
Net sales	$143,791	$156,391	$114,092	$115,787
Gross profit	$60,612	$65,015	$46,331	$47,209
Operating income (loss)	$(6,167)	$562	$(20,288)	$(14,070)
Net income (loss)	$770	$3,995	$(46,123)	$(11,624)
Earnings (loss) per common share - basic	$0.02	$0.08	$(0.96)	$(0.25)
Earnings (loss) per common share - diluted	$0.02[(1)]	$0.08[(1)]	$(0.96)	$(0.25)
Three Months Ended	**March 31, 2018**	**June 30, 2018**	**September 30, 2018**	**December 31, 2018**
Net sales	$120,806	$128,048	$140,335	$140,088
Gross profit	$39,733	$49,996	$58,448	$55,388
Operating income (loss)	$(26,647)	$(12,813)	$(2,179)	$(3,783)
Net income (loss)	$(10,814)	$(7,670)	$7,589	$(8,447)
Earnings (loss) per common share - basic	$(0.22)	$(0.16)	$0.16	$(0.18)
Earnings (loss) per common share - diluted	$(0.22)	$(0.16)	$0.16[(1)]	$(0.18)

(1) Assumes exercise of dilutive securities calculated under the treasury stock method.

Note 20 – Subsequent Events

On January 2, 2020, we paid off the outstanding balance of $24.6 million of the Taxable Revenue Bonds upon their maturity. We used a restricted certificate of deposit which was held as collateral to repay the outstanding balance.

On February 5, 2020, the Board declared a quarterly cash dividend of $0.09 per common share to be paid to shareholders of record at the close of business on February 20, 2020. The quarterly dividend will be paid on March 5, 2020 payment in the aggregate amount of approximately $4.3 million. In July 2003, our Board of Directors elected to begin declaring quarterly dividends on our common stock considering the tax treatment of dividends and adequate levels of Company liquidity.

Directors and Executive Officers

Thomas R. Stanton
Chairman and Chief Executive Officer

H. Fenwick Huss
Director of the Company
Willem Kooyker Dean of the Zicklin School
of Business at Baruch College

William L. Marks
Director of the Company
Former Chairman of the Board and Chief Executive
Officer of Whitney Holding Corp. (the holding company
for Whitney National Bank of New Orleans)

Gregory McCray
Director of the Company
CEO of FDH

Anthony J. Melone
Director of the Company
Former Executive Vice President and Chief Technology
Officer for Verizon Communications

Balan Nair
Director of the Company
President and Chief Executive Officer of
Liberty Latin America

Jacqueline H. Rice
Director of the Company
Principal of RH Associates

Kathryn A. Walker
Director of the Company
Managing Director for OpenAir Equity Partners

Roy J. Nichols
Director Emeritus
Founder and former President of
Nichols Research Corporation

Ronald D. Centis
Senior Vice President
Global Operations

Michael K. Foliano
Chief Financial Officer

Raymond Harris
Chief Information Officer

Marc Kimpe
Senior Vice President
Research and Development

Jeffery F. McInnis
Senior Vice President
Subscriber Solutions & Experience

Eduard Scheiterer
Senior Vice President
Research and Development

Daniel T. Whalen
Chief Product Officer

James D. Wilson, Jr.
Chief Revenue Officer

Transfer Agent
American Stock Transfer and Trust Company
New York, NY

Independent Registered Public Accounting Firm
PricewaterhouseCoopers LLP
Birmingham, Alabama

Outside Counsel
Maynard Cooper & Gale
Birmingham, AL

Form 10-K
ADTRAN's 2019 Annual Report on Form 10-K
(without exhibits) as filed with the Securities and
Exchange Commission is available to stockholders
without charge upon written request to:
Investor Relations
ADTRAN, Inc.
901 Explorer Blvd.
P.O. Box 140000
Huntsville, Alabama 35814-4000
256 963-8220
investorrelations@adtran.com (email)

Annual Meeting
The 2020 Annual Meeting of Stockholders will be
held at ADTRAN corporate headquarters, 901 Explorer
Boulevard, Huntsville, Alabama, on Wednesday,
May 13, 2020, at 10:30 a.m. Central time.*

** We intend to hold our Annual Meeting in person. However, we are actively monitoring the coronavirus (COVID-19) and we are sensitive to the public health and travel concerns our shareholders may have and the protocols that federal, state, and local governments may impose. In the event that it is not possible or advisable to hold our Annual Meeting in person, we will announce alternative arrangements for the meeting as promptly as practicable, which may include holding the meeting solely by means of remote communication. Please monitor our website annual meeting website at https://investors.adtran.com for updated information. If you are planning to attend our meeting, please check the website one week prior to the meeting date. As always, we encourage you to vote your shares prior to the Annual Meeting.*

Corporate Headquarters

ADTRAN, Inc.
901 Explorer Boulevard
Huntsville, AL 35806
USA

P.O. Box 140000
Huntsville, AL 35814-4000

1 800 9ADTRAN
1 256 963-8000
1 256 963-8004 fax
investor.relations@adtran.com
www.adtran.com

International Offices

ADTRAN Networks Pty. Ltd.
Melbourne, Australia

ADTRAN GmbH
Berlin and Greifswald, Germany

ADTRAN Networks India Private Ltd.
Hyderabad, India

ADTRAN Holdings Ltd.
Tel Aviv, Israel

ADTRAN S.R.L.
Milan, Italy

ADTRAN Networks Sdn. Bhd.
Penang, Malaysia

ADTRAN Networks S.A. de C.V.
Mexico City, Mexico

ADTRAN Networks & Services S. de R.L. de C.V.
Mexico City, Mexico

ADTRAN Sp. z.o.o.
Warsaw, Poland

Saudi Arabian Branch of ADTRAN International, Inc.
Riyadh, Saudi Arabia

ADTRAN s.r.o.
Bratislava, Slovakia

ADTRAN SARL Permanent Establishment
Tunis, Tunisia

ADTRAN Europe Limited
Basingstoke, Hampshire, United Kingdom