
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

FORM 10-Q

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

For the quarterly period ended June 30, 2018

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

Commission File Number: 001-37824

IMPINJ, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

91-2041398
(I.R.S. Employer
Identification No.)

400 Fairview Avenue North, Suite 1200, Seattle, Washington
(Address of principal executive offices)

98109
(Zip Code)

Registrant's telephone number, including area code: (206) 517-5300

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

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

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input checked="" type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Small reporting company	<input type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

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

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

As of September 6, 2018 24,412,612 shares of common stock were outstanding.

IMPINJ, INC.
QUARTERLY REPORT ON FORM 10-Q

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PART I — FINANCIAL INFORMATION**Item 1. Financial Statements (unaudited)**

IMPINJ, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except par value, unaudited)

	June 30, 2018	December 31, 2017
Assets:		
Current assets:		
Cash and cash equivalents	\$ 15,500	\$ 19,285
Short-term investments	37,307	38,831
Accounts receivable, net	20,016	22,244
Inventory	53,278	47,083
Prepaid expenses and other current assets	1,533	2,359
Total current assets	127,634	129,802
Property and equipment, net	16,918	18,110
Other non-current assets	214	241
Goodwill and other intangible assets, net	3,881	3,881
Total assets	<u>\$ 148,647</u>	<u>\$ 152,034</u>
Liabilities and stockholders' equity:		
Current liabilities:		
Accounts payable	\$ 5,299	\$ 4,666
Accrued compensation and employee related benefits	5,992	5,729
Accrued liabilities	3,140	3,162
Accrued restructuring costs	1,590	—
Current portion of long-term debt	1,593	4,088
Current portion of capital lease obligations	703	936
Current portion of deferred rent	374	628
Current portion of deferred revenue	509	714
Total current liabilities	19,200	19,923
Long-term debt, net of current portion	18,266	5,500
Capital lease obligations, net of current portion	495	745
Long-term liabilities — other	560	532
Long-term restructuring liabilities	685	—
Deferred rent, net of current portion	5,495	5,891
Deferred revenue, net of current portion	219	501
Total liabilities	44,920	33,092
Stockholders' equity:		
Preferred stock, \$0.001 par value — 5,000 shares authorized, no shares issued and outstanding at June 30, 2018 and December 31, 2017	—	—
Common stock, \$0.001 par value — 495,000 shares authorized, 21,395 and 20,973 shares issued and outstanding at June 30, 2018 and December 31, 2017, respectively	21	21
Additional paid-in capital	330,441	323,482
Accumulated other comprehensive loss	(36)	(36)
Accumulated deficit	(226,699)	(204,525)
Total stockholders' equity	103,727	118,942
Total liabilities and stockholders' equity	<u>\$ 148,647</u>	<u>\$ 152,034</u>

See accompanying notes to condensed consolidated financial statements.

IMPINJ, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data, unaudited)

	Three Months Ended		Six Months Ended	
	June 30,		June 30,	
	2018	2017	2018	2017
Revenue	\$ 28,542	\$ 34,111	\$ 53,610	\$ 65,838
Cost of revenue	14,882	15,940	28,188	30,899
Gross profit	13,660	18,171	25,422	34,939
Operating expenses:				
Research and development	8,363	7,119	16,366	14,462
Sales and marketing	8,023	7,044	16,882	14,380
General and administrative	5,061	4,822	10,286	8,909
Restructuring costs	(178)	—	3,749	—
Total operating expenses	21,269	18,985	47,283	37,751
Loss from operations	(7,609)	(814)	(21,861)	(2,812)
Other income (expense), net	267	189	357	458
Interest expense	(351)	(307)	(580)	(681)
Loss before income taxes	(7,693)	(932)	(22,084)	(3,035)
Income tax expense	(39)	(45)	(90)	(102)
Net loss	\$ (7,732)	\$ (977)	\$ (22,174)	\$ (3,137)
Net loss per share — basic and diluted	\$ (0.36)	\$ (0.05)	\$ (1.04)	\$ (0.15)
Weighted-average shares outstanding — basic and diluted	21,333	20,636	21,229	20,491

See accompanying notes to condensed consolidated financial statements.

IMPINJ, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands, unaudited)

	Three Months Ended		Six Months Ended	
	June 30,		June 30,	
	2018	2017	2018	2017
Net loss	\$ (7,732)	\$ (977)	\$ (22,174)	\$ (3,137)
Other comprehensive loss, net of tax:				
Unrealized gain / (loss) on investments	20	(4)	—	(40)
Total other comprehensive income / (loss)	20	(4)	—	(40)
Comprehensive loss	<u>\$ (7,712)</u>	<u>\$ (981)</u>	<u>\$ (22,174)</u>	<u>\$ (3,177)</u>

See accompanying notes to condensed consolidated financial statements.

IMPINJ, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands, unaudited)

	Six Months Ended June 30,	
	2018	2017
Operating activities:		
Net loss	\$ (22,174)	\$ (3,137)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	2,258	1,847
Stock-based compensation	4,678	2,623
Restructuring costs	(454)	—
Accretion of discount or amortization of premium on short-term investments	(143)	105
Amortization of debt issuance costs	39	48
Changes in operating assets and liabilities:		
Accounts receivable	2,228	(8,042)
Inventory	(6,195)	(15,685)
Prepaid expenses and other assets	864	724
Deferred revenue	(487)	196
Deferred rent	(87)	857
Accounts payable	579	(1,121)
Accrued compensation and benefits	341	(1,886)
Accrued liabilities	(34)	691
Accrued restructuring costs	2,275	—
Net cash used in operating activities	<u>(16,312)</u>	<u>(22,780)</u>
Investing activities:		
Purchases of investments	(19,154)	(17,293)
Proceeds from maturities of investments	20,800	24,362
Purchases of property and equipment	(1,071)	(4,131)
Net cash provided by investing activities	<u>575</u>	<u>2,938</u>
Financing activities:		
Payments on capital lease financing obligations	(483)	(557)
Payments on term loans	(2,147)	(688)
Proceeds from term loans, net of debt issuance costs	12,379	—
Proceeds from exercise of stock options and employee stock purchase plan	2,203	2,933
Payments of deferred offering costs	—	(650)
Net cash provided by financing activities	<u>11,952</u>	<u>1,038</u>
Net decrease in cash and cash equivalents	<u>(3,785)</u>	<u>(18,804)</u>
Cash and cash equivalents		
Beginning of period	19,285	33,636
End of period	<u>\$ 15,500</u>	<u>\$ 14,832</u>

See accompanying notes to condensed consolidated financial statements.

IMPINJ, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(unaudited)

Note 1. Description of Business

Impinj, Inc. ("we", "us" or "our"), a Delaware corporation, is headquartered in Seattle, Washington. We enables wireless connectivity for everyday items, delivering each item's unique identity, location and authenticity to business and consumer applications. Our platform spans endpoints, connectivity and software and provides wireless item connectivity and information delivery. We derive revenue from selling endpoint integrated circuits, or ICs, reader ICs and modules, readers, gateways and software. Our integrated platform connects billions of everyday items to applications, delivering real-time information to businesses about items they create, manage, transport and sell.

Note 2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying condensed consolidated financial statements include Impinj, Inc. and its wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation. These condensed consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles, or GAAP, and applicable rules and regulations of the Securities and Exchange Commission, or SEC, regarding interim financial reporting. Certain information and note disclosures normally included in the financial statements prepared in accordance with GAAP have been condensed or omitted pursuant to such rules and regulations. Accordingly, these interim condensed consolidated financial statements should be read in conjunction with the audited financial statements and accompanying notes as of and for the year ended December 31, 2017 included in Impinj, Inc.'s Annual Report on Form 10-K, which was filed with the SEC on March 15, 2018. The condensed consolidated balance sheet as of December 31, 2017, included herein, was derived from the audited financial statements of Impinj, Inc.

The unaudited condensed consolidated interim financial statements, in the opinion of management, reflect all adjustments, consisting of normal recurring adjustments, necessary to state fairly our financial position, results of operations, and our cash flows for the periods presented. Interim results are not necessarily indicative of the results for a full year or for any other future period.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make certain estimates, judgments and assumptions that affect the reported amounts of assets and liabilities and the related disclosures at the date of the financial statements, as well as the reported amounts of revenue and expenses during the periods presented. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, reserve for sales returns, inventory excess and obsolescence, recoverability of long-lived assets and stock-based compensation, among others. To the extent there are material differences between these estimates, judgments, or assumptions and actual results, our financial statements will be affected.

Risks and Uncertainties

Inherent in our business are various risks and uncertainties, including that we are developing advanced technologies and new applications in a rapidly changing industry. These risks include the failure to develop and extend our products and the rejection of our products by consumers, as well as other risks and uncertainties. If we do not successfully implement our business plan, certain assets may not be recoverable, certain liabilities may not be paid and investments in our capital stock may not be recoverable. Our success depends upon the acceptance and necessity of our technology, development of sales and distribution channels and our ability to generate significant revenue from the use of our technology.

Revenue Recognition

We generate revenue primarily from sales of hardware products. We also generate revenue from software, extended warranty, enhanced maintenance, support services, and non-recurring engineering development services, all of which are not material.

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We recognize revenue when control of the promised goods or services is transferred to our customers, which for hardware sales is generally at the time of product shipment as determined by the agreed-upon shipping terms. We measure revenue based on the amount of consideration we expect to be entitled to in exchange for those goods or services. The period between when we transfer control of promised goods or services and when we receive payment is expected to be one year or less, and that expectation is consistent with our historical experience. As such, we do not adjust our revenues for the effects of a significant financing component. Any variable consideration, which consists primarily of sales incentives, is recognized as a reduction of revenue at the time of revenue recognition. Sales incentives are estimated at the time of revenue recognition and updated at the end of each reporting period as additional information becomes available. We present revenue net of sales tax in our consolidated statements of operations. Shipping charges billed to customers are included in revenue and the related shipping costs are included in cost of revenue.

Our reader and gateway products are highly dependent on, and interrelated with, embedded software and cannot function without this embedded software. In these cases, we account for the hardware and software license as a single performance obligation and recognize revenue at the point in time when ownership is transferred. Additionally, we sell standalone operating system and other software that configures, manages and controls readers and gateways and performs other functions. This standalone software is not integrated directly in the functionality of the reader or gateway. Our software licenses, both for embedded and standalone software, provide the customer with a right to use the software as it exists when we make it available to the customer. Based on the software product, customers purchase either perpetual licenses or subscribe to licenses, which differ mainly in the duration over which the customer benefits from the software. We recognize revenue at the point in time when the software is made available to the customer.

Our contracts with customers with multiple performance obligations generally include a combination of hardware products, standalone software, extended warranty, enhanced maintenance and support services. For these contracts, we account for individual performance obligations separately if they are distinct. The transaction price is allocated to the separate performance obligations on a relative standalone selling-price basis. In instances where standalone selling price is not directly observable, such as when we do not sell the product or service separately, we determine the standalone selling price using one, or a combination of, the adjusted market assessment or expected cost-plus margin. Amounts allocated to extended warranty and enhanced maintenance sold with our reader and gateway products are deferred and recognized on a straight-line basis over the term of the arrangement, which is typically from one to three years. Amounts allocated to support services sold with our reader and gateway products are deferred and recognized when control of the promised services is transferred to our customers.

For non-recurring engineering development agreements that involve significant production, modification or customization of our products, we generally recognize revenue over the performance period using the percentage-of-completion method. We receive payments under these agreements based on a billing schedule. Contract assets relate to our conditional right to consideration for our completed performance under these agreements. Accounts receivable are recorded when the right to consideration becomes unconditional. Contract liability relates to payments received in advance of performance under the contract. Contract liabilities are recognized as revenue as we perform under the contract. For the periods presented in this report, our contract assets, contract liabilities and the value of unsatisfied performance obligations for non-recurring engineering development agreements are not material.

For details on our revenue and changes in deferred revenue, respectively, please refer to Note 11 and Note 12 of these condensed consolidated financial statements.

Practical Expedients and Exemptions: We generally expense sales commissions when incurred because the amortization period would have been one year or less. These costs are recorded within sales and marketing expenses. We do not disclose the value of unsatisfied performance obligations for (i) contracts with an original expected length of one year or less and (ii) contracts for which we recognize revenue at the amount to which we have the right to invoice for services performed.

Allowance for Sales Returns

Sales agreements do not generally provide for a right of return for refund but for certain distributors provide for a right of return in exchange for other similar products, subject to time and quantity limitations. The allowance for sales returns is our best estimate based on historical returns and currently available evidence. We record changes in our estimate to the allowance for sales returns through revenue and reduce the allowance when product returns are received.

Recently Adopted Accounting Standards

In May 2014, the Financial Accounting Standards Board, or FASB, issued guidance on revenue recognition. This guidance provides that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This guidance also requires more detailed disclosures to enable users of financial statements to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers. The guidance is effective for interim and annual reporting periods beginning after December 15, 2017, early adoption is permitted, and the guidance must be applied retrospectively to each prior period presented or retrospectively with the cumulative effect of initially applying the guidance recognized at the date of initial application. We adopted the new revenue standard on January 1, 2018 utilizing the full retrospective transition method. Revenue recognition related to our hardware products, standalone software, extended warranty, enhanced maintenance services and non-recurring engineering development agreements, and recognition of cost of sales commissions will remain substantially unchanged. The primary impact of adopting the new standard relates to software license revenue that will generally be recognized at the time of delivery, rather than ratably over the subscription period. Unrecognized software license revenue at December 31, 2017 and 2016 was not material. As adoption of the standard had no material impact on our consolidated financial position, results of operations or cash flows, we did not restate each prior reporting period presented in the period of initial application.

Recently Issued Accounting Standards Not Yet Adopted

In June 2016, the FASB issued guidance on the measurement of credit losses on financial instruments. This guidance requires the measurement and recognition of expected credit losses for financial assets held at amortized cost. This guidance is effective for interim and annual reporting periods beginning after December 15, 2019, and early adoption is permitted. We expect to adopt this guidance on January 1, 2020. The adoption of this guidance requires a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective. While we continue to assess all potential impacts of this new standard, we do not expect the adoption of this guidance to have a material impact on our financial position, results of operations or cash flows.

In February 2016, the FASB issued guidance on leases. This standard requires the recognition of a right-of-use asset and lease liability on the balance sheet for all leases. This standard also requires more detailed disclosures to enable users of financial statements to understand the amount, timing, and uncertainty of cash flows arising from leases. This guidance is effective for interim and annual reporting periods beginning after December 15, 2018 and should be applied through a modified retrospective transition approach for leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, and early adoption is permitted. We expect to adopt this guidance on January 1, 2019. While we continue to assess all potential impacts of this new standard, we anticipate this standard will have a material impact on our financial position, primarily due to our office space operating leases, as we will be required to recognize right-of-use assets and lease liabilities on our consolidated balance sheets. However, we do not expect the adoption to have a significant impact on our results of operations or cash flows.

Note 3. Fair Value Measurements

Accounting standards define fair value as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market in an orderly transaction between market participants on the measurement date. The standards also establish a fair value hierarchy, which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. There are three levels of inputs that may be used to measure fair value:

- Level 1 — Quoted prices in active markets for identical assets or liabilities.
- Level 2 — Assets and liabilities valued based on observable market data for similar instruments, such as quoted prices for similar assets or liabilities.
- Level 3 — Unobservable inputs that are supported by little or no market activity; instruments valued based on the best available data, some of which is internally developed, and considers risk premiums that a market participant would require.

We applied the following methods and assumptions in estimating our fair value measurements:

Cash Equivalents — Cash equivalents comprise highly liquid investments, including money market funds and certificates of deposit, with original maturities of less than three months at the acquisition date. The fair value measurement of these assets is based on quoted market prices in active markets and these assets are recorded at fair value.

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Investments — Our investments consist of fixed income securities, which include U.S. government agency securities and corporate notes and bonds. The fair value measurement of these assets is based on observable market-based inputs or inputs that are derived principally from or corroborated by observable market data by correlation or other means.

Long-term Debt — The fair values of our long-term debt approximates carrying value based on the borrowing rates currently available to us for loans with similar terms using Level 2 inputs.

The following tables present the balances of assets measured at fair value on a recurring basis, by level within the fair value hierarchy, as of the date presented (in thousands):

	June 30, 2018	
	LEVEL 1	LEVEL 2
Cash equivalents:		
Money market funds	\$ 13,008	\$ —
Commercial paper	—	—
Short-term investments:		
U.S. government agency securities	—	9,957
Corporate notes and bonds	—	9,438
Commercial paper	—	6,978
Treasury bill	—	10,934
Total	<u>\$ 13,008</u>	<u>\$ 37,307</u>

	December 31, 2017	
	LEVEL 1	LEVEL 2
Cash equivalents:		
Money market funds	\$ 10,393	\$ —
Commercial paper	—	1,000
Short-term investments:		
U.S. government agency securities	—	13,970
Corporate notes and bonds	—	7,503
Commercial paper	—	8,972
Treasury bills	—	8,386
Total	<u>\$ 10,393</u>	<u>\$ 39,831</u>

We did not have any Level 3 assets as of June 30, 2018 or December 31, 2017. There were no liabilities measured at fair value as of June 30, 2018 or December 31, 2017.

Note 4. Cash, Cash Equivalents and Investments

The following tables present the amortized cost, gross unrealized gains and losses, and estimated fair market value of our cash and cash equivalents and available-for-sale securities as of the dates presented (in thousands):

	June 30, 2018			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash	\$ 2,492	\$ —	\$ —	\$ 2,492
Cash equivalents:				
Money market funds	13,008	—	—	13,008
Commercial paper	—	—	—	—
Short-term investments:				
U.S. government agency securities	9,971	—	(14)	9,957
Corporate notes and bonds	9,448	—	(10)	9,438
Commercial paper	6,978	—	—	6,978
Treasury bill	10,946	—	(12)	10,934
Total	<u>\$ 52,843</u>	<u>\$ —</u>	<u>\$ (36)</u>	<u>\$ 52,807</u>
	December 31, 2017			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash	\$ 7,892	\$ —	\$ —	\$ 7,892
Cash equivalents:				
Money market funds	10,393	—	—	10,393
Commercial paper	1,000	—	—	1,000
Short-term investments:				
U.S. government agency securities	13,979	—	(9)	13,970
Corporate notes and bonds	7,514	—	(11)	7,503
Commercial paper	8,972	—	—	8,972
Treasury bills	8,402	—	(16)	8,386
Total	<u>\$ 58,152</u>	<u>\$ —</u>	<u>\$ (36)</u>	<u>\$ 58,116</u>

The contractual maturities are due in one year or less on our available-for-sale securities as of June 30, 2018.

Note 5. Inventory

The following table presents the detail of inventories as of the dates presented (in thousands):

	June 30, 2018	December 31, 2017
Raw materials	\$ 3,345	\$ 1,351
Work-in-process	20,556	15,647
Finished goods	29,377	30,085
Total	<u>\$ 53,278</u>	<u>\$ 47,083</u>

Note 6. Stock-Based Awards

Option Awards

On April 18, 2018, we commenced a voluntary stock option exchange program, designed to provide eligible employees an opportunity to exchange certain outstanding underwater stock options for a lesser amount of new options to be granted with lower exercise prices. Stock options eligible for exchange were those with an exercise price per share equal to or greater than \$21.72, whether vested or unvested. All employees (including executive officers, but excluding the chief executive officer) who held options and remain employed through the date of grant for new options were eligible to participate in the offer. Members of the board of directors were not eligible to participate. The option exchange program expired on May 16, 2018. Options for an aggregate of

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approximately 1.0 million shares were tendered by employees, representing 73% of the total shares underlying stock options eligible for exchange. On May 16, 2018, we granted options for an aggregate of 0.7 million shares in exchange for the eligible options surrendered. The new options are granted under, and subject to, the terms and conditions of the 2016 Equity Incentive Plan. The exercise price of the new stock options is \$17.33, which was the closing price of our common stock on May 16, 2018. No incremental stock option expense was recognized for the exchange, because the fair value of the surrendered options, as determined based on the Black-Scholes option pricing model, was equal to or greater to the fair value of the new stock options issued in the exchange.

The following table summarizes option award activity, including the option exchange program, for the six months ended June 30, 2018 (in thousands):

	Number of Shares
Outstanding at December 31, 2017	2,850
Granted or exchanged	2,173
Exercised	(271)
Forfeited, cancelled, or exchanged	(1,385)
Outstanding at June 30, 2018	<u>3,367</u>

Unvested Shares

The following table summarizes activity of unvested shares of our common stock for the six months ended June 30, 2018 (in thousands):

	Number Of Shares
Outstanding at December 31, 2017	48
Vested	(26)
Outstanding at June 30, 2018	<u>22</u>

Restricted Stock Units

The following table summarizes activity for restricted stock units for the six months ended June 30, 2018 (in thousands):

	Number Of Shares
Outstanding at December 31, 2017	12
Granted	10
Vested	(18)
Outstanding at June 30, 2018	<u>4</u>

Share-Based Compensation Expense

The following table presents the effects of stock-based compensation in our condensed consolidated statements of operations during the periods presented (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Cost of revenue	\$ 98	\$ 37	\$ 181	\$ 83
Research and development expense	822	415	1,581	898
Sales and marketing expense	931	572	1,688	1,179
General and administrative expense	762	229	1,228	463
Total	<u>\$ 2,613</u>	<u>\$ 1,253</u>	<u>\$ 4,678</u>	<u>\$ 2,623</u>

Note 7. Commitments and Contingencies

For information on our commitments and contingencies, see Part II, Item 8 (Financial Statements and Supplementary Data, Note 11. Commitments and Contingencies) of our Annual Report on Form 10-K for the year ended December 31, 2017. As discussed in “Note 10. Restructuring”, we have subleased certain office space, which is effective July 1, 2018 and expires January 2023. The following table presents future minimum payments as of June 30, 2018 under our non-cancellable operating leases for our office locations, inclusive of any sublease income (in thousands):

	<u>Operating</u>
2018	\$ 2,181
2019	3,490
2020	3,308
2021	3,306
2022	3,193
Thereafter	13,087
Total minimum lease payments	<u>\$ 28,565</u>

There have been no material changes to our capital leases commitments as previously disclosed in our Annual Report on Form 10-K for the year ended December 31, 2017.

Obligations with Third-Parties

We have certain non-cancelable obligations under other agreements, including obligations with third-party manufacturers who manufacture our products. We are committed to purchase \$15.4 million, which includes \$9.7 million of inventory, as of June 30, 2018.

Note 8. Debt Facilities

On March 5, 2018, we amended our senior credit facility, to, among other things, extend the maturity date of the \$25.0 million revolving credit facility, with a \$5.0 million letter of credit subfacility, to March 5, 2020, and provide for a new \$20.0 million term loan. We incurred \$9.0 million in term loan borrowings to refinance \$7.9 million of term loan borrowings and \$1.1 million of equipment loans and have \$11.0 million of term loan borrowings available for general corporate purposes. The new term loan will amortize over 36 months, beginning on April 1, 2019, following an initial interest-only period, and mature on March 1, 2022. We may prepay the term loan at any time, subject to a prepayment fee equal to 2.0% of the outstanding principal amount if prepaid on or before March 5, 2019, or 1.0% of the outstanding principal amount if prepaid after March 5, 2019, but on or before March 5, 2020. At June 30, 2018, we had no revolver borrowings outstanding and \$20.0 million of term loan borrowings outstanding.

The loans accrue interest, at our option, at (1) a LIBOR rate determined in accordance with the senior credit facility, plus a margin of 2.75% or 3.25%, in the case of revolving borrowings, or 3.0% or 3.5%, in the case of the term loan borrowings, or (2) a prime rate determined in accordance with the senior credit facility, plus a margin of 0.0% or 0.5%, in the case of revolving borrowings, or 0.25% or 0.75%, in the case of the term loan borrowings, in each case with such margin determined based on our adjusted EBITDA for the preceding 12 month period. Interest is due and payable in arrears monthly for prime rate loans and at the end of an interest period for LIBOR rate loans.

The amendment also amended the financial covenants under the senior credit facility such that if our cash and investments in accounts maintained with the lender, plus available revolver borrowings, falls below \$60.0 million for the period of time beginning on March 5, 2018 and ending on December 31, 2018, or \$55.0 million for the period of time beginning on January 1, 2019 and at all times thereafter, we must comply with an amended covenant to not exceed maximum adjusted EBITDA loss thresholds that vary by period and the existing minimum liquidity ratio, each determined in accordance with the terms of the senior credit facility.

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At June 30, 2018, \$20.0 million of term loan borrowings were outstanding, excluding unamortized debt issuance costs of \$141,000 and the interest rate was 5.5%. The following table presents the scheduled principal maturities as of June 30, 2018 (in thousands):

2018	\$	—
2019		5,000
2020		6,667
2021		6,667
2022		1,666
Total	<u>\$</u>	<u>20,000</u>

The senior credit facility contains customary conditions to borrowing, events of default and covenants, including covenants that restrict our and our subsidiaries' ability to dispose of assets, have a change of control, merge with or acquire other entities, incur indebtedness, incur encumbrances, make distributions to holders of their capital stock, make investments or engage in transactions with their affiliates, in each case subject to customary exceptions. We were in compliance with the covenants under our senior credit facility as of June 30, 2018. Our obligations under the senior credit facility are collateralized by substantially all of our assets other than intellectual property. All of our future subsidiaries are required to become co-borrowers under the senior credit facility. The guarantees by future subsidiaries are and will be collateralized by substantially all of the assets of such subsidiaries.

Note 9. Net Loss Per Share

The following table provides a reconciliation of the numerator and denominator used in computing basic and diluted net loss per share for the periods presented (in thousands, except per share amounts):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Numerator:				
Net loss	\$ (7,732)	\$ (977)	\$ (22,174)	\$ (3,137)
Denominator:				
Weighted-average shares outstanding	21,359	20,728	21,262	20,591
Weighted-average vested shares subject to repurchase	(26)	(92)	(33)	(100)
Weighted-average shares outstanding — basic and diluted	21,333	20,636	21,229	20,491
Net loss per share — basic and diluted	<u>\$ (0.36)</u>	<u>\$ (0.05)</u>	<u>\$ (1.04)</u>	<u>\$ (0.15)</u>

The following table presents the outstanding option awards and unvested shares excluded from the computation of diluted net loss per share as of the dates presented because their effect would have been antidilutive (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Stock options	3,477	2,249	2,994	2,210
Unvested shares of common stock subject to repurchase	22	84	26	92

Note 10. Restructuring

On February 13, 2018, we began implementing a restructuring to match strategic and financial objectives and optimize resources for long-term growth, including a reduction-in-force program affecting approximately 9% of our employees, subleasing unused office space, and closing some remote offices.

As a result of the restructuring plan, we recorded a restructuring charge of approximately \$3.9 million and a restructuring benefit of \$(0.2) million during the three months ended March 31, 2018 and June 30, 2018, respectively, for a total of \$3.7 million.

The following table summarizes the activity associated with the restructuring (in thousands):

	<u>Employee Termination Benefits</u>	<u>Cease-Use Costs</u>	<u>Other Associated Costs</u>	<u>Total</u>
Restructuring costs	\$ 1,177	\$ 2,494	\$ 78	\$ 3,749
Cash payments	(1,040)	(810)	(78)	(1,928)
Non-cash benefit, net	—	454	—	454
Accrued restructuring costs of June 30, 2018	<u>\$ 137</u>	<u>\$ 2,138</u>	<u>\$ -</u>	<u>\$ 2,275</u>

Employee termination benefits primarily include severance and other personnel related expenses. Cease-use costs primarily relate to non-cancellable lease rental obligations and a non-cash net restructuring benefit of \$454,000 associated with the write-off of certain leasehold improvement and deferred rent. As the office space was vacant, the cease-use costs were primarily recorded during the three months ended March 31, 2018 and included estimates related to the timeframe it would take to sublease the space and the related sublease income. During the three months ended June 30, 2018 we executed a sub-lease agreement and updated our estimate of cease-use costs, which was the primary driver of the \$(0.2) million restructuring benefit recognized for the period. Other associated costs represent various professional fees incurred associated with the restructuring. The restructuring plan is substantially complete as of June 30, 2018. The portion of the restructuring liability related to cease-use costs will decrease over the remaining lease period which goes through January 2023.

Note 11. Segment Information and Geographic Data

We have one operating and reportable segment which has been identified based on how our chief operating decision maker manages our business, makes operating decisions and evaluates operating performance. The chief executive officer acts as the chief operating decision maker and reviews financial and operational information on an entity-wide basis. There are no segment managers who are held accountable for operations, operating results or plans for levels or components.

The chief executive officer reviews information about revenue categories, including endpoint ICs, connectivity, software and other revenue. The following table presents our revenue by major categories for the periods presented (in thousands):

	<u>Three Months Ended June 30,</u>		<u>Six Months Ended June 30,</u>	
	<u>2018</u>	<u>2017</u>	<u>2018</u>	<u>2017</u>
	Revenue:			
Endpoint ICs	\$ 20,022	\$ 26,429	\$ 39,431	\$ 50,196
Systems	8,520	7,682	14,179	15,642
Total revenue	<u>\$ 28,542</u>	<u>\$ 34,111</u>	<u>\$ 53,610</u>	<u>\$ 65,838</u>

Systems revenue includes sales of reader ICs and modules, readers, gateways and software. For the three months ended June 30, 2018 and June 30, 2017, revenue from readers and gateways as a percentage of total revenue was 17%. For the six months ended June 30, 2018 and June 30, 2017, revenue from readers and gateways as a percentage of total revenue was 16% and 18%, respectively. None of our other product families within the above categories were above 10% of total revenue for the periods presented requiring disclosure.

The following table is based on the location of the value-added resellers, inlay manufacturers, reader OEMs, distributors or end users who purchased products and services directly from us. For sales to our resellers and distributors, their location may be different from the locations of the ultimate end users. The following table presents our sales by geography for the periods presented (in thousands):

	<u>Three Months Ended June 30,</u>		<u>Six Months Ended June 30,</u>	
	<u>2018</u>	<u>2017</u>	<u>2018</u>	<u>2017</u>
	Americas	\$ 6,516	\$ 7,288	\$ 10,889
Asia Pacific	18,989	22,950	36,193	42,314
Europe, Middle East and Africa	3,037	3,873	6,528	7,764
Total revenue	<u>\$ 28,542</u>	<u>\$ 34,111</u>	<u>\$ 53,610</u>	<u>\$ 65,838</u>

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Total revenue in the United States was \$6.3 million and \$7.2 million for the three months ended June 30, 2018 and June 30, 2017, respectively. Total revenue in the United States was \$10.4 million and \$15.4 million for the six months ended June 30, 2018 and June 30, 2017, respectively.

Note 12. Deferred Revenue

Deferred revenue, consisting of individually immaterial amounts for extended warranty, enhanced maintenance and advanced payments on non-recurring engineering services contracts, represents contracted revenue that has not yet been recognized.

The following table presents the changes in deferred revenue for the periods presented (in thousands):

	Six Months Ended	
	June 30,	
	2018	2017
Balance, beginning of period	\$ 1,215	\$ 1,411
Deferral of revenue	218	816
Recognition of deferred revenue	(705)	(620)
Balance, end of period	\$ 728	\$ 1,607

Note 13. Subsequent Event

On August 17, 2018, we amended our Senior Credit Facility, to provide for a \$4.0 million equipment advance which will be used solely to purchase equipment. The equipment advance will amortize over 48 months, beginning September 1, 2018 and mature on August 1, 2022. We may prepay the equipment advance at any time, subject to a prepayment fee equal to 2% of the principal amount of the equipment advance if prepaid on or before August 17, 2019, or 1% of the principal amount of the equipment advance if prepaid after August 17, 2019, but on or before August 17, 2020. There were no changes to financial covenants under the Senior Credit Facility.

On August 7, 2018, a class action complaint for violation of the federal securities laws was filed in the U.S. District Court for the Central District of California against us, our chief executive officer and chief operations officer. Captioned *Schultz v. Impinj, Inc., et al*, the complaint, purportedly brought on behalf of all purchasers of our common stock from May 7, 2018 through and including August 2, 2018, asserts claims that our quarterly statement filed on Form 10-Q for the first quarter of 2018 and a concurrent press release made false or misleading statements about our business prospects and financial condition. The complaint seeks monetary damages, costs and expenses.

On August 27, 2018, a second class action complaint for violation of the federal securities laws was filed in the U.S. District Court for the Western District of Washington against us, our chief executive officer, chief operations officer and former chief financial officer. Captioned *Montemarano v. Impinj, Inc., et al.*, the complaint, purportedly brought on behalf of all purchasers of our common stock from May 4, 2017 through and including August 2, 2018, asserts claims that we made false or misleading statements in our financial statements, press releases and conference calls during the purported class period. The complaint seeks monetary damages, costs and expenses.

We cannot predict the outcome of these proceedings or provide an estimate of damages, if any. We believe that these claims are without merit and intend to defend against them vigorously. Failure by us to obtain a favorable resolution of the claims set forth in the complaints could have a material adverse effect on our business, results of operations and financial condition.

Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations.

This report contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Statements containing words such as “may,” “believe,” “anticipate,” “expect,” “intend,” “plan,” “project,” “projections,” “business outlook,” “estimate,” or similar expressions constitute forward-looking statements. You should read these statements carefully because they discuss future expectations, contain projections of future results of operations or financial condition or state other “forward-looking” information. These statements relate to our future plans, objectives, expectations, intentions and financial performance and the assumptions that underlie these statements. They include, but are not limited to, statements about:

- *our market opportunity; the adoption of RAIN RFID technology and solutions; our ability to compete effectively against competitors and competing technologies; and our market share and technology leadership;*
- *our future financial performance, including our average selling prices and gross margins and future macroeconomic conditions;*
- *the performance of third parties on which we rely for product manufacture, assembly and testing; and our relationship with third parties on which we rely for product distribution, sales, integration and development;*
- *our ability to adequately protect our intellectual property; the regulatory regime for our products and services; and*
- *our leadership of standards-setting processes.*

Our actual results may differ materially from those contained in or implied by any forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this report, including those factors discussed in Part II, Item 1A (Risk Factors).

In light of the significant uncertainties and risks inherent in these forward-looking statements, you should not regard these statements as a representation or warranty by us or anyone else that we will achieve our objectives and plans in any specified time frame, or at all, or as predictions of future events. Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

Our Business

Our vision is digital life for everyday items. We are driving toward a future in which everyday physical items have digital counterparts, digital twins, in the cloud, and in which businesses and people engage with trillions of those everyday physical items via their digital twins. Our mission is to deliver a platform that powers that item-to-cloud connectivity, enabling developers to innovate Internet-of-Things, or IoT, applications on our platform. Today, we deliver the identity, location and authenticity of billions of physical items; our future is enabling those cloud-based digital twins, each storing an individual item’s ownership, history and available services, and enabling ubiquitous access to them. We believe the item-to-cloud connectivity we will deliver will enhance businesses efficiencies and commerce and, ultimately, improve peoples’ lives.

Our platform comprises endpoint ICs, connectivity and software that together deliver item data to business applications. We link the layers of our platform to deliver advanced capabilities and performance that surpasses mix-and-match solutions built from competitor products. Within each layer we sell one or more product families.

Endpoints ICs

Our endpoint IC product family, branded Monza, comprises a family of miniature radios-on-a-chip that attach-to and uniquely identify their host items. Monza ICs include a number to identify a host item and may also include features such as user data storage, security, authentication, loss prevention, consumer privacy and value-added Impinj custom features, all accessible by our platform. Our Monza ICs power themselves from a reader’s radio waves so they do not need a battery, can wirelessly connect almost any item, are readable to 30 feet without line-of-sight, yet sell for pennies.

Our OEM partners attach each Monza IC to a thin printed or etched antenna on a paper or Mylar backing, then typically cover the composite inlay with a paper face to form a tag. End customers attach the tag to an item in markets including retail, healthcare, automotive, industrial and manufacturing, consumer experience, food, datacenter, travel and banking. We refer to a tag and its host item as an endpoint.

Endpoint ICs differ from traditional silicon ICs in that most endpoint ICs are disposable. For example, when consumers purchase retail items they discard the price tags containing the endpoint ICs. We believe endpoint ICs are the first market for consumable silicon and are a recurring revenue source for us.

Connectivity

Our connectivity offering comprises a family of reader ICs and modules, readers and gateways that wirelessly identify, locate, authenticate and engage items. Our connectivity products wirelessly provide power to, and communicate bidirectionally with, endpoint ICs on those items, identifying and locating up to 1,000 items per second.

Readers read, write, authenticate or otherwise engage endpoint ICs on items. Gateways integrate stationary readers with scanning antennas to locate and track items. Our readers and gateways are easy to deploy and use, can be powered via power-over-Ethernet and are certified for operation in more than 40 countries. Our customers have deployed our readers and gateways in applications ranging from retail inventory-taking to automated fuel filling to shipping-container tracking to airport luggage handling.

Our reader ICs and modules, branded Indy, comprise a suite of ICs and modules that combine our reader ICs with peripheral circuitry in an easy-to-use format. We sell our reader ICs and modules to original equipment manufacturing, or OEM, and original design manufacturing, or ODM, partners that use them in a variety of products such as mobile or handheld readers, fixed readers, gateway, and RAIN-enabled appliances. We offer easy-to-use APIs, development environments, sample code, drivers and libraries. We sell our reader ICs and modules for tens of dollars.

Our reader product family, branded Speedway, comprises high-performance finished products. We sell our Speedway readers through an established channel of distributors, system integrators, or SIs, value-added resellers, or VARs, and solution providers. Our readers sell for hundreds of dollars.

Our gateway product family integrates our Speedway readers with beamforming antennas to electrically steer a radio beam like a searchlight. Their always-on, autonomous operation delivers timely item data without ongoing labor costs. Our portal gateways, branded xPortal and xSpan, scan doorways or hallways such as front-to-back store transitions, entryways and exits. Our array gateway, branded xArray, scans up to 1,500 square feet of floor space such as in a store, manufacturing facility or hospital room. Our gateways sell for thousands of dollars.

Software

Our primary software offering, ItemSense, is a distributed operating system for our platform. ItemSense transforms item-level RAIN data into actionable business information, enabling analytics and insights about items a business manufactures, transports and sells. ItemSense's key capabilities include enterprise-class RAIN deployment management and health monitoring; software-defined algorithms for item inventory and location determination; and easy-to-use, easy-to-integrate APIs that enable application developers to quickly build powerful IoT solutions on our platform to solve business problems. We believe software revenue will grow over time, but it has not been material to date, and we expect modest software revenue for the foreseeable future.

Filing Delay; Audit Committee Investigation Findings

The filing of this report was delayed to allow the audit committee of our board of directors to conduct an investigation related to a complaint filed by a former employee. The audit committee retained independent counsel to oversee a thorough and careful investigation of the claims and the independent investigation did not uncover any credible evidence supporting them. Accordingly, the audit committee determined that no additional actions were necessary or warranted with respect to the claims or the investigation, including that no adjustments to past financial statements were appropriate or required, and that, as of the date of this report, no further investigatory steps need to be taken. With the filing of this report, the Company is in compliance with its SEC filing obligations.

Factors Affecting Our Performance

Investing in Growth

We have invested, and plan to continue investing, significantly in research and development to enhance and extend our platform, including enhancing existing platform products and introducing new platform products. We plan to enhance our operating-system software, including its deployment models and functionalities. We plan to enhance our fixed readers and gateways and leverage them for platform deployments in retail, healthcare and other industries. We also plan to develop next-generation reader and endpoint ICs. We may enter into arrangements with customers, vendors and channel partners to fund a portion of certain of these research and development initiatives. If we are unsuccessful in attracting such funding, our operating results and product time-to-market may be adversely affected.

We are also investing in sales and marketing and are deepening product integration with our software partners to accelerate the development and adoption of solutions based on our platform. These investments will increase research, development, sales and

marketing expenses on an absolute dollar basis for the foreseeable future. Many of these investments will occur in advance of experiencing any direct benefit from them and may affect our profitability in future periods.

Market Adoption

Our financial performance generally depends upon the rate, scope and depth of end-user adoption of our platform in multiple industries, including the retail industry which is our largest market. In 2015 and 2016 some major retailers, brand owners and other entities initiated new deployments that significantly increased our product sales. In 2016, our endpoint IC sales exceeded both our expectations and those of our industry's analysts. We believe these deployments indicate a trend toward greater RAIN adoption in retail and other markets, and intend to continue introducing new products to further grow overall market adoption. As a result of these 2016 trends, we invested in endpoint IC inventory both to meet forecasted demand and to enhance our ability to deliver in the event of another unexpected demand surge. However, in the second half of 2017 the growth rate in endpoint IC shipments decelerated due to multiple factors including, but not limited to, delays in both new deployments and the planned expansions at several large retailers.

As another example of growing RAIN adoption, our reader and gateway sales in the second half of 2017 exceeded our expectations, due to end users deploying shipment-verification and asset-tracking use cases that demand real-time fixed reading and RAIN data integration with enterprise software systems. In addition, retailers demanding more transformative business value from RAIN are beginning to turn to real-time fixed reading. However, in the first quarter of 2018 our reader and gateway sales decelerated, which we believe was primarily due to deal timing, our APAC reorganization and first-quarter seasonality. We believe greater adoption of fixed readers and our software will increase the value of our platform, which could further drive adoption over the longer term.

If market adoption of RAIN technology, and our platform products specifically, does not meet our expectations, our growth prospects and operating results will be adversely affected. If endpoint IC, reader IC and module, reader or gateway sales exceed expectations, our revenue and profitability may be positively affected; if we discount prices to win opportunities, our gross margins may be negatively affected. In addition, if we are unable to meet end user or customer volume or performance expectations in the near term our business and prospects may be adversely affected.

Timing and Complexity of Customer Deployments

From 2010 to 2017, our endpoint IC unit sales volume increased at a compounded annual growth rate of 33%. However, deployment of RAIN-based solutions has been uneven and unpredictable in scope, timing and implementation. For example, growth in endpoint IC unit sales volumes decelerated in the second half of 2017. For end users to gain business value from our platform, they typically must integrate our platform with their applications and information systems. End-users may only deploy certain of our hardware products, which may affect the value they derive from our platform, and in turn, our operating results. We have a large and multi-tiered partner channel which serves many markets and end users; we rely on these channel partners to deploy or integrate our platform and products with end user applications and information systems. If our partners fail to deploy or integrate our platform and products as planned then sales of our products and our reputation may be adversely affected. As a result of these factors and our reliance on our channel partners, we may experience significant fluctuation in revenue on a quarterly basis, and we anticipate these factors will continue to characterize our business for the foreseeable future.

Average Selling Price

We occasionally discount prices of our products to win opportunities, particularly large opportunities. In future periods we expect our hardware ASPs to fluctuate based on the level of discounting and competitive price pressures, and generally to decline over time. Historically, we have been able to implement manufacturing and quality improvements that effectively reduce the cost per unit of most of our products, allowing us to maintain, and in some cases increase, gross margins, although the timing variability of these cost reductions likewise fluctuates, and may not materialize or may even increase in any given quarter.

Inventory Supply

From time to time we may experience high inventory levels or shortages of products available for sale. These inventory dynamics can impact some of our hardware components or key SKUs within a particular product line. High inventory levels and potential obsolescence could result in unexpected expenses or increases in reserves that could adversely affect our business. In periods of rapidly increasing demand, lead times for our products can be lengthy, causing us to occasionally experience product shortages. If we underestimate customer demand or if sufficient manufacturing capacity is unavailable, we could potentially lose market share and damage our customer relationships.

Components of Results of Operations

Revenue

We generate substantially all of our revenue from sales of our platform hardware. We sell our products through a broad network of OEMs, ODMs and distribution channel partners; many of these channel partners sell multiple Impinj products. We deliver products and solutions that are easy for our partner ecosystem to sell and deploy. We engender preference for our platform in all sales engagements, encouraging end users to deploy our multiple products to gain full benefit from our platform. As a result, we evaluate our performance primarily on total revenue rather than on the revenue associated with any particular product line.

For our endpoint and reader ICs and modules, we generally recognize revenue upon shipment because the relevant criteria for revenue recognition are met at that time. For our reader and gateway products, which are occasionally sold with other products and support, transaction price is allocated to the separate performance obligations on a relative standalone selling price basis and we generally recognize revenue upon shipment or defer and recognize revenue on a straight-line basis over the term of the arrangement.

We also occasionally derive revenue from non-recurring engineering, or NRE, development agreements under which we develop custom products or services. Although we will continue to pursue strategic NRE opportunities, we expect NRE-based revenue to remain a small percentage of total revenue.

Cost of Revenue and Gross Margin

Cost of revenue includes costs associated with manufacturing our endpoint ICs, reader ICs and modules, readers and gateways, including direct materials and manufacturing costs as well as associated overhead costs such as occupancy, logistics, quality control, planning and procurement. We outsource all our product manufacturing to third-party manufacturers that build our products to our design specifications. This capital-efficient operating model scales efficiently with volume, allowing us to focus our resources on accelerating development of new products and solutions. Cost of revenue also includes charges for inventory write-downs, warranty costs and accrued losses on purchase commitments to third-party contract manufacturers. Our gross margin varies from period to period based on total revenue, average selling price, product mix, and cost of revenue. Historical gross margin has remained relatively consistent at between 47% and 55% for the interim and annual periods during the last three fiscal years.

Operating Expenses

Research and Development

Research and development expense consists primarily of personnel expenses (salaries, benefits, and other employee related costs), stock-based compensation expense for our product development personnel, contract developers, prototype materials, occupancy and other expenses related to the development of new and innovative products and solutions. We expect research and development expense to moderately increase in absolute dollars in future periods for platform product development.

Selling and Marketing

Selling and marketing expense consists primarily of personnel expenses (salaries, variable compensation, benefits, and other employee related costs), stock-based compensation expense for our sales personnel, occupancy, as well as travel, advertising and promotional expenses and other related expenses to expand our market penetration, develop strategic partnerships and drive adoption of our platform. We expect sales and marketing expense to remain relatively consistent on an absolute dollar basis due to the implementation of the restructuring plan during the first quarter of 2018. We expect incentive sales compensation to fluctuate as a function of sales.

General and Administrative

General and administrative expense consists primarily of personnel expenses (salaries, benefits, and other employee related costs), stock-based compensation expense, for our executive, finance, accounting, legal, human resources, facilities, recruiting, corporate information technology costs and other administrative support and other professional services, travel and related expenses, insurance, occupancy and other overhead costs. We expect general and administrative expense to remain relatively consistent on an absolute dollar basis due to the implementation of the restructuring plan during the first quarter of 2018.

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Restructuring Costs

Restructuring costs consist of workforce reduction expenses and lease termination costs related to a restructuring plan to match strategic and financial objectives and optimize resources for long-term growth.

Other Income (Expense), net

Other income consists primarily of interest income earned on our cash, cash equivalents and investments and foreign currency remeasurement gains and losses.

Interest Expense

Interest expense consists primarily of interest on our senior credit facility and amortization of deferred financing fees.

Results of Operations

The following table presents our results of operations for the periods indicated:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
(in thousands, except per share data)				
Statements of Operations Data:				
Revenue	\$ 28,542	\$ 34,111	\$ 53,610	\$ 65,838
Cost of revenue (1)	<u>14,882</u>	<u>15,940</u>	<u>28,188</u>	<u>30,899</u>
Gross profit	13,660	18,171	25,422	34,939
Operating expenses:				
Research and development (1)	8,363	7,119	16,366	14,462
Sales and marketing (1)	8,023	7,044	16,882	14,380
General and administrative (1)	5,061	4,822	10,286	8,909
Restructuring costs	<u>(178)</u>	<u>—</u>	<u>3,749</u>	<u>—</u>
Total operating expenses	<u>21,269</u>	<u>18,985</u>	<u>47,283</u>	<u>37,751</u>
Loss from operations	(7,609)	(814)	(21,861)	(2,812)
Other income (expense), net	267	189	357	458
Interest expense	<u>(351)</u>	<u>(307)</u>	<u>(580)</u>	<u>(681)</u>
Loss before income taxes	<u>(7,693)</u>	<u>(932)</u>	<u>(22,084)</u>	<u>(3,035)</u>
Income tax expense	<u>(39)</u>	<u>(45)</u>	<u>(90)</u>	<u>(102)</u>
Net loss	<u>\$ (7,732)</u>	<u>\$ (977)</u>	<u>\$ (22,174)</u>	<u>\$ (3,137)</u>
Net loss per share — basic and diluted (2)	\$ (0.36)	\$ (0.05)	\$ (1.04)	\$ (0.15)
Weighted-average shares outstanding — basic and diluted	21,333	20,636	21,229	20,491
 (1) Includes stock-based compensation as follows:				
Cost of revenue	\$ 98	\$ 37	\$ 181	\$ 83
Research and development expense	822	415	1,581	898
Sales and marketing expense	931	572	1,688	1,179
General and administrative expense	<u>762</u>	<u>229</u>	<u>1,228</u>	<u>463</u>
Total stock-based compensation expense	<u>\$ 2,613</u>	<u>\$ 1,253</u>	<u>\$ 4,678</u>	<u>\$ 2,623</u>

(2) For an explanation of the calculation of our net loss per share — basic and diluted, please refer to Note 9 of our consolidated financial statements included elsewhere in this report.

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The following table presents our results of operations for the periods indicated as a percentage of total revenue. Percentages from certain line items may not sum to the subtotal or total line items due to rounding. The period-to-period comparisons of results are not necessarily indicative of results for future periods.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Percentage of Revenue:				
Revenue	100.0%	100.0%	100.0%	100.0%
Cost of revenue	52.1	46.7	52.6	46.9
Gross profit	47.9	53.3	47.4	53.1
Operating expenses:				
Research and development	29.3	20.9	30.5	22.0
Sales and marketing	28.1	20.7	31.5	21.8
General and administrative	17.7	14.1	19.2	13.5
Restructuring costs	(0.6)	—	7.0	—
Total operating expenses	74.5	55.7	88.2	57.3
Loss from operations	(26.7)	(2.4)	(40.8)	(4.3)
Other income	0.9	0.6	0.7	0.7
Interest expense	(1.2)	(0.9)	(1.1)	(1.0)
Loss before income taxes	(27.0)	(2.7)	(41.2)	(4.6)
Income tax expense	(0.1)	(0.1)	(0.2)	(0.2)
Net loss	(27.1)%	(2.9)%	(41.4)%	(4.8)%

Revenue

(in thousands, except percentages)	For the Three Months Ended June 30,			For the Six Months Ended June 30,		
	2018	2017	Percentage Change	2018	2017	Percentage Change
Revenue:						
Endpoint ICs	\$ 20,022	\$ 26,429	(24.2%)	\$ 39,431	\$ 50,196	(21.4%)
Systems	8,520	7,682	10.9	14,179	15,642	(9.4)
Total revenue	\$ 28,542	\$ 34,111	(16.3%)	\$ 53,610	\$ 65,838	(18.6%)

Three months ended June 30, 2018 compared with three months ended June 30, 2017

Endpoint IC revenue decreased \$6.4 million due primarily to a 38% decrease in shipment volumes of Monza 4 and Monza 5, while shipment volumes related to our Monza 6 family were comparable, and a decrease in the average selling prices of our endpoint ICs due to the competitive environment and product mix. Systems revenue, which primarily includes sales of reader ICs and modules, readers and gateways, increased \$0.8 million due to a 110% increase in our reader ICs shipment volumes, offset by a 16% decrease in reader and gateway shipment volumes.

Six months ended June 30, 2018 compared with six months ended June 30, 2017

Endpoint IC revenue decreased \$10.8 million due to a 47% decrease in shipment volumes of Monza 4 and Monza 5, a 4% decrease in shipment volumes for our Monza 6 product family and a decrease in the average selling prices of our endpoint ICs due to the competitive environment and product mix. Partially offsetting these decreases was revenue of \$3.2 million recognized in the first quarter due to the completion of a one-time product exchange that required us to take a sales returns reserve in the fourth quarter of 2017. Systems revenue, which primarily includes sales of reader ICs and modules, readers and gateways, decreased \$1.5 million due to a 22% decrease in reader and gateway shipment volumes, partially offset by a 27% increase in reader ICs shipment volumes.

Gross Profit

(in thousands, except percentages)	For the Three Months Ended June 30,			For the Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Gross profit	\$ 13,660	\$ 18,171	\$ (4,511)	\$ 25,422	\$ 34,939	\$ (9,517)
Gross margin	47.9%	53.3%		47.4%	53.1%	

Three months ended June 30, 2018 compared with three months ended June 30, 2017

The decrease in gross profit was primarily attributable to decreased shipment volumes of our Monza 4, Monza 5, and readers and gateways, partially offset by the increased shipment volumes of reader ICs, mentioned above. Gross margin percentage decreased primarily due to decreases in average selling prices for our endpoint ICs due to the competitive environment and product mix within endpoint ICs. The decrease in gross margin was partially offset by an increase in the percentage of total revenue attributable to systems, which generally have higher margins.

Six months ended June 30, 2018 compared with six months ended June 30, 2017

The decrease in gross profit was primarily attributable to decreased shipment volumes of our Monza 4, Monza 5, Monza 6, readers and gateways, partially offset by increased shipment volumes of reader ICs, mentioned above. Gross margin percentage decreased primarily due to decreases in average selling prices for our endpoint ICs due to the competitive environment and product mix within endpoint ICs. The decrease in gross margin was partially offset by an increase in the percentage of total revenue attributable to systems, which generally have higher margins.

Operating Expenses

Research and Development

(in thousands)	For the Three Months Ended June 30,			For the Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Research and development	\$ 8,363	\$ 7,119	\$ 1,244	\$ 16,366	\$ 14,462	\$ 1,904

Three months ended June 30, 2018 compared with three months ended June 30, 2017

The increase in research and development expense was due primarily to an increase of \$0.5 million in personnel expenses and \$0.4 million in stock-based compensation, as we continue to grow our engineering headcount to support current and future product initiatives.

Six months ended June 30, 2018 compared with six months ended June 30, 2017

The increase in research and development expense was due primarily to an increase of \$1.2 million in personnel expenses and \$0.7 million in stock-based compensation, as we continue to grow our engineering headcount to support current and future product initiatives.

Sales and Marketing

(in thousands)	For the Three Months Ended June 30,			For the Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Sales and marketing	\$ 8,023	\$ 7,044	\$ 979	\$ 16,882	\$ 14,380	\$ 2,502

Three months ended June 30, 2018 compared with three months ended June 30, 2017

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The increase in sales and marketing expense was due to increases of \$0.6 million in personnel expenses due primarily to increased commissions and \$0.4 million in stock-based compensation.

Six months ended June 30, 2018 compared with six months ended June 30, 2017

The increase in sales and marketing expense was due to increases of \$1.6 million in personnel expenses due primarily to growth in the size of our sales team, and \$0.5 million in stock-based compensation.

General and Administrative

(in thousands)	For the Three Months Ended June 30,			For the Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
General and administrative	\$ 5,061	\$ 4,822	\$ 239	\$ 10,286	\$ 8,909	\$ 1,377

Three months ended June 30, 2018 compared with three months ended June 30, 2017

The increase in general and administrative expense was due to an increase of \$0.3 million in personnel expenses driven primarily by higher headcount and \$0.5 million in stock-based compensation, offset by \$0.5 million decrease in professional services and recruiting.

Six months ended June 30, 2018 compared with six months ended June 30, 2017

The increase in general and administrative expense was due to increases of \$1.0 million in personnel expenses driven primarily by higher headcount and \$0.8 million in stock-based compensation, offset by a \$0.4 million decrease in recruiting.

Restructuring Costs

(in thousands)	For the Three Months Ended June 30,			For the Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Restructuring costs	\$ (178)	\$ —	\$ (178)	\$ 3,749	\$ —	\$ 3,749

Restructuring costs were \$(0.2) million and \$3.7 million for the three and six months ended June 30, 2018, respectively, resulting from the implementation of a restructuring plan that began in February 2018 to match our strategic and financial objectives and to optimize resources for long-term growth. Our restructuring plan is substantially complete and comprised cash restructuring charges of \$4.2 million, of which \$1.2 million relates to employee severance costs, \$2.9 million is associated with reduced leased office space and closed remote offices, \$0.1 million associated with other costs incurred and a non-cash net restructuring benefit of \$0.5 million associated with a write-off of leasehold improvements and deferred rent.

Other Income (Expense), net

(in thousands)	For the Three Months Ended June 30,			For the Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Other income (expense), net	\$ 267	\$ 189	\$ 78	\$ 357	\$ 458	\$ (101)

Three months ended June 30, 2018 compared with three months ended June 30, 2017

Other income (expense), net were comparable to the prior period.

Six months ended June 30, 2018 compared with six months ended June 30, 2017

Other income (expense), net were comparable to the prior period.

Interest Expense

(in thousands)	For the Three Months Ended June 30,			For the Six Months Ended June 30,		
	2018	2017	Change	2018	2017	Change
Interest expense	\$ (351)	\$ (307)	\$ (44)	\$ (580)	\$ (681)	\$ 101

Three months ended June 30, 2018 compared with three months ended June 30, 2017

Interest expense was comparable to the prior period.

Six months ended June 30, 2018 compared with six months ended June 30, 2017

Interest expense was comparable to the prior period.

Non-GAAP Financial Measures

Our key non-GAAP liquidity and performance measures include adjusted EBITDA and non-GAAP net income (loss), as defined below. We use adjusted EBITDA and non-GAAP net income (loss) as key measures to understand and evaluate our core operating performance and trends, to prepare and approve our annual budget and to develop short- and long-term operating plans. We believe excluding those income and expenses inherent in calculating adjusted EBITDA and non-GAAP net income (loss) can provide useful measures for period-to-period comparisons of our business. Accordingly, we believe that adjusted EBITDA and non-GAAP net income (loss) provide useful information to investors and others in understanding and evaluating our operating results in the same manner as it does for our management and board of directors. Our presentation of these non-GAAP financial measures is not meant to be considered in isolation or as a substitute for our financial results prepared in accordance with GAAP, and our non-GAAP measures may be different from non-GAAP measures used by other companies.

Adjusted EBITDA

We define adjusted EBITDA as net income (loss) determined in accordance with GAAP, excluding the effects of stock-based compensation, depreciation, restructuring costs, other income (expense), net, interest expense and income tax expense. Restructuring costs relate to an effort in the first quarter of 2018 to reduce headcount and sublease office space to match strategic and financial objectives and optimize resources for long term growth. We believe that adjusted EBITDA provides meaningful supplemental information regarding our performance and liquidity.

The following table presents a reconciliation of net loss to adjusted EBITDA:

(in thousands)	For the Three Months Ended		For the Six Months Ended	
	June 30,		June 30,	
	2018	2017	2018	2017
Net loss	\$ (7,732)	\$ (977)	\$ (22,174)	\$ (3,137)
Depreciation	1,138	973	2,258	1,847
Stock-based compensation	2,613	1,253	4,678	2,623
Other (income) expense, net	(267)	(189)	(357)	(458)
Interest expense	351	307	580	681
Income tax expense	39	45	90	102
Restructuring costs	(178)	—	3,749	-
Adjusted EBITDA	<u>\$ (4,036)</u>	<u>\$ 1,412</u>	<u>\$ (11,176)</u>	<u>\$ 1,658</u>

Non-GAAP Net Income (Loss)

We define non-GAAP net income (loss) to consist of net income (loss) determined in accordance with GAAP, excluding the effects of stock-based compensation, depreciation, restructuring costs (for more information about restructuring costs, please refer to description in adjusted EBITDA above), amortization of debt issuance costs and non-cash income tax expense. We exclude the non-cash portion of income taxes because of our ability to offset a substantial portion of future income tax liabilities by utilizing our deferred tax assets, which primarily consist of federal net operating loss carryforwards and federal research and experimentation credit carryforwards. We have added back all of the net restructuring costs because of the non-recurring nature of restructuring costs.

The following table presents a reconciliation of net loss to non-GAAP net income (loss) and weighted-average shares — basic and diluted — to non-GAAP weighted-average shares — diluted:

(in thousands, except per share amounts)

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
	2018	2017	2018	2017
Net Loss	\$ (7,732)	\$ (977)	\$ (22,174)	\$ (3,137)
Adjustments:				
Depreciation	1,138	973	2,258	1,847
Stock-based compensation	2,613	1,253	4,678	2,623
Restructuring costs	(178)	-	3,749	-
Amortization of debt issuance costs	18	25	39	48
Non-cash income tax expense	12	23	28	45
Non-GAAP Net income (loss)	\$ (4,129)	\$ 1,297	\$ (11,422)	\$ 1,426
Non-GAAP Net income (loss) per share:				
Basic	\$ (0.19)	\$ 0.06	\$ (0.54)	\$ 0.07
Diluted	\$ (0.19)	\$ 0.06	\$ (0.54)	\$ 0.07
GAAP and non-GAAP Weighted-average shares — basic	21,333	20,636	21,229	20,490
Adjustments:				
Effects of dilutive securities				
Unvested shares of common stock subject to repurchase	-	84	-	92
Stock options	-	1,194	-	1,219
Non-GAAP Weighted-average shares — diluted	21,333	21,914	21,229	21,801

Seasonality

We typically renegotiate pricing with many of our endpoint IC customers with an effective date in the first quarter of the calendar year, especially for our endpoint IC products, impacting both revenue and gross margins when compared with prior periods. In addition, endpoint IC volumes tend to be lower in the fourth quarter than the third quarter.

System sales tend to be stronger in the fourth quarter of the calendar year, and less strong in the first quarter. We believe this seasonality is due to the availability of residual funding for capital expenditures prior to the end of many customers' fiscal year.

While we expect these seasonal trends to continue, quarter-to-quarter variability in our revenue can be caused by a number of factors (e.g., the timing of large deployments, supply constraints, etc.) that can mask seasonality in any given year. These risks and uncertainties, as well as other risks and uncertainties that could cause our actual results to differ significantly from management's expectations, are described in greater detail in Item 1A of Part II, "Risk Factors."

Liquidity and Capital Resources

As of June 30, 2018, we had cash, cash equivalents and investments of \$52.8 million, consisting of cash deposits held at major financial institutions, money market funds and short-term investments in a variety of securities, including U.S. government agencies, corporate notes and bonds, commercial paper and Treasury bills. We had working capital of \$108.4 million as of June 30, 2018. Historically, we funded our operations principally by issuing equity securities or incurring debt. In 2018, our principal uses of cash are funding operations to capture our market opportunity, investments in inventory to ensure our ability to meet customer demand, debt service payments, and capital expenditures.

[Table of Contents](#)**Sources of Funds**

We believe, based on our current operating plan, that our existing cash, cash equivalents, short-term investments and available borrowings under our senior credit facility will be sufficient to meet our anticipated cash needs for at least the next 12 months.

From time to time, we may explore additional financing sources and means to lower our cost of capital, which could include equity, equity-linked and debt financing. In addition, in connection with any future acquisitions, we may require additional funding which may be provided in the form of additional debt, equity or equity-linked financing or a combination thereof. There can be no assurance that any additional financing will be available to us on acceptable terms.

Senior Credit Facility

In March 2018, we amended our senior credit facility, to, among other things, extend the maturity date of the revolving credit facility to March 5, 2020, and provide for a new \$20.0 million term loan. We incurred \$9.0 million in term loan borrowings to refinance \$7.9 million of term loan borrowings and \$1.1 million of equipment loans and have \$11.0 million of term loan borrowings available for general corporate purposes. The new term loan will amortize over 36 months, beginning on April 1, 2019, following an initial interest-only period, and mature on March 1, 2022. We retain the ability to prepay the term loan at any time, subject to a prepayment fee equal to 2.0% of the outstanding principal amount if prepaid on or before March 5, 2019, or 1.0% of the outstanding principal amount if prepaid after March 5, 2019, but on or before March 5, 2020. The amendment also amended the financial covenants under the senior credit facility such that if our cash in accounts maintained with the lender, plus available revolver borrowings, falls below \$60.0 million for the period of time beginning on March 5, 2018 and ending on December 31, 2018, or \$55.0 million for the period of time beginning on January 1, 2019 and at all times thereafter, we must comply with an amended covenant to not exceed maximum adjusted EBITDA loss thresholds that vary by period and the existing minimum liquidity ratio, each determined in accordance with the terms of the senior credit facility.

At June 30, 2018, \$20.0 million of term loan borrowings were outstanding under our senior credit facility, excluding unamortized debt issuance costs of \$141,000, and the interest rate was 5.50%.

In August 2018, we amended our senior credit facility, to provide for a \$4.0 million equipment advance which will be used solely to purchase equipment. The equipment advance will amortize over 48 months, beginning September 1, 2018 and mature on August 1, 2022. We may prepay the equipment advance at any time, subject to a prepayment fee equal to 2% of the principal amount of the equipment advance if prepaid on or before August 17, 2019, or 1% of the principal amount of the equipment advance if prepaid after August 17, 2019, but on or before August 17, 2020. There were no changes to financial covenants under the senior credit facility.

For information on our debt facilities, please refer to Note 8 of our consolidated financial statements included elsewhere in this report.

Use of Funds

Our principal uses of cash are operating expenses, inventory purchases, debt repayment and other working capital requirements.

Cash Flows

The following table presents selected cash flow data for the periods presented:

	Six Months Ended June 30,	
	2018	2017
	(in thousands)	
Net cash used in operating activities	\$ (16,312)	\$ (22,780)
Net cash provided by investing activities	575	2,938
Net cash provided by financing activities	11,952	1,038

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Operating Cash Flows

For the six months ended June 30, 2018, net cash used in operating activities was \$16.3 million. This cash usage was primarily driven by a net loss of \$22.2 million, a \$6.2 million increase in inventory, and a \$0.5 million decrease in deferred revenue. Partially offsetting these uses of cash in operations were benefits of a \$6.4 million impact of non-cash items, a \$2.2 million decrease in accounts receivable, a \$2.3 million increase in accrued restructuring costs, a \$0.9 million decrease in prepaid expenses and other assets, and \$0.6 million increase in accounts payable.

For the six months ended June 30, 2017, net cash used in operating activities was \$22.8 million. This cash usage was primarily driven by a net loss of \$3.1 million, a \$8.0 million increase in accounts receivable due to increased revenue and timing of product shipments period over period, a \$15.7 million increase in inventory and a \$2.3 million net decrease in accounts payable, accrued liabilities and accrued compensation and benefits. Partially offsetting these uses of cash in operations were benefits of a \$4.6 million net impact of non-cash items, a \$0.9 million net increase in deferred rent, a \$0.7 million increase in prepaid expenses and other assets and a \$0.2 increase in deferred revenue.

Investing Cash Flows

For the six months ended June 30, 2018, net cash provided by investing activities was \$0.6 million. This cash benefit was driven by investment maturities of \$20.8 million. These maturities were partially offset by purchases of investments and equipment of \$19.2 million and \$1.1, respectively.

For the six months ended June 30, 2017, net cash provided by investing activities was \$2.9 million. This cash benefit was driven by maturities of investments of \$24.4 million. These maturities were partially offset by purchases of investments and equipment of \$17.3 million and \$4.1 million, respectively.

Financing Cash Flows

For the six months ended June 30, 2018, net cash provided by financing activities was \$12.0 million. This cash benefit consisted of proceeds of \$12.4 million and \$2.2 million, respectively, from the term loan and exercise of stock options and employee stock purchase plan. These proceeds were partially offset by repayments of indebtedness of \$2.1 million of principal under our senior credit facility and payments of \$0.5 million for capital lease financing obligations.

For the six months ended June 30, 2017, net cash provided by financing activities was \$1.0 million. This cash benefit consisted of proceeds of \$2.9 million from the exercise of stock options and employee stock purchase plan. These proceeds were partially offset by payments of offering costs of \$0.7 million, payments of \$0.6 million for capital lease financing obligations and repayments of indebtedness of \$0.7 million of principal under our senior credit facility.

Contractual Obligations

The following table reflects a summary of our contractual obligations as of June 30, 2018:

	Payments Due By Period				
	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
	(in thousands)				
Senior credit facility	\$ 20,000	\$ 1,667	\$ 13,333	\$ 5,000	\$ —
Capital lease obligations	1,306	781	525	—	—
Operating lease obligations: (1)					
Operating lease obligations	34,089	4,536	9,360	8,683	11,510
Sublease income	(5,524)	(480)	(2,746)	(2,298)	—
Net operating lease commitments	28,565	4,056	6,614	6,385	11,510
Purchase commitments (2)	15,370	14,462	908	—	—
Total	\$ 65,241	\$ 20,966	\$ 21,380	\$ 11,385	\$ 11,510

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- (1) We have non-cancellable operating leases for our office locations. As discussed in “Note 10. Restructuring”, we have subleased certain office space, which was effective July 1, 2018 and expires on January 30, 2023, consistent with the underlying operating lease.
- (2) We manufacture products with third-party manufacturers. Amounts include commitments to purchase \$9.7 million of inventory and other non-cancellable purchase commitments.

Off-Balance Sheet Arrangements

Since inception, we have not had any relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or for another contractually narrow or limited purpose.

Critical Accounting Policies and Significant Estimates

Our condensed consolidated financial statements are prepared in accordance with GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, expenses and related disclosures. We evaluate our estimates and assumptions on an ongoing basis. Our estimates are based on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Our actual results could differ from these estimates. For information on our critical accounting policies and estimates, see Part II, Item 7 (Management’s Discussion and Analysis of Financial Condition and Results of Operations) of our Annual Report on Form 10-K for the year ended December 31, 2017. Except for the accounting policies for revenue recognition that were updated as a result of adopting Accounting Standards Update No. 2014-09, *Revenue from Contracts with Customers*, there have been no material changes to our critical accounting policies and estimates as previously disclosed in our Annual Report on Form 10-K for the year ended December 31, 2017. For more information about our revenue recognition accounting policies, please refer to Note 2 to our consolidated financial statements included elsewhere in this report.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risks in the ordinary course of our business. These risks primarily consist of fluctuations in interest rates.

Interest Rate Risk

Under our current investment policy, we invest our excess cash in money market funds, U.S. government agency securities, corporate notes and bonds and commercial paper. Our current investment policy seeks first to preserve principal, second to provide liquidity for our operating and capital needs and third to maximize yield without putting our principal at risk. We do not enter into investments for trading or speculative purposes.

We had cash, cash equivalents and short-term investments of \$52.8 million and \$58.1 million as of June 30, 2018 and December 31, 2017, respectively. Our investments are exposed to market risk due to the fluctuation of prevailing interest rates that may reduce the yield on our investments or their fair value. As our investment portfolio is short-term in nature, we do not believe a hypothetical 100 basis point increase in interest rates or a hypothetical decrease of 10% in the effective yield of our investments would have a material effect on our interest income, and therefore we do not expect our results of operations or cash flows to be materially affected by a sudden change in market interest rates.

We are subject to interest rate risk in connection with the borrowings under our senior credit facility, which accrue interest at variable rates. As of June 30, 2018, our borrowings under our senior credit facility had an interest rate of 5.5%. A hypothetical 100 basis point increase in interest rates would result in a \$0.4 million increase in our interest expense until the scheduled maturity date in 2022.

Inflation Risk

We do not believe that inflation has had a material effect on our business, financial condition or results of operations. If our costs were to become subject to significant inflationary pressures, we may not be able to fully offset such higher costs through price increases. Our inability or failure to do so could adversely affect our business, financial condition and results of operations.

Foreign Currency Exchange Risk

Prices for our products are denominated in U.S. dollars, and as a result, we do not face significant risk with respect to foreign currency exchange rates.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our chief executive officer and our president and chief operating officer, evaluated the effectiveness of our disclosure controls and procedures as of June 30, 2018. Disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is (1) recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and (2) accumulated and communicated to management, including its principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure. Based on the evaluation of our disclosure controls and procedures, our chief executive officer and our president and chief operating officer concluded that, due to the material weakness in our internal control over financial reporting as described below, our disclosure controls and procedures were not effective as of June 30, 2018 at a reasonable assurance level.

Previously Identified Material Weakness in Internal Control Over Financial Reporting

We previously identified and disclosed in our Annual Report on Form 10-K for the period ended December 31, 2017, a material weakness in our internal control over financial reporting relating to the accounting and financial statement disclosure over complex accounting matters.

The impact of this material weakness resulted in the restatement of our consolidated financial statements for the years ended December 31, 2012 and 2013 and the restatement of our consolidated financial statements for the three and nine months ended September 30, 2015 and 2016.

Remediation Efforts to Address Previously Disclosed Material Weakness

Our management, with oversight from our audit committee, has taken steps to implement the following remediation actions to address the previously disclosed material weakness and to improve our internal control over financial reporting, primarily through:

- increasing the depth and experience within our accounting and finance organization;
- enhancing the communication and coordination among our accounting and financial reporting department and expanded cross-functional involvement and input into period-end disclosures; and
- implementing additional internal reporting procedures, including enhancing the analytical procedures used to assess period-end balances, to add depth to our review process and improve our segregation of duties.

During the three months ended June 30, 2018, we continued to assess the design of existing controls and implement new controls as needed to remediate the previously identified material weakness. Accordingly, we concluded the previously reported material weakness remained unremediated as of June 30, 2018.

Changes in Internal Control over Financial Reporting

Besides the above changes related to remediation efforts, there were no changes in our internal control over financial reporting identified during the six months ended June 30, 2018 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Limitations on Controls

Our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving the desired control objectives. Management recognizes that any control system, no matter how well designed and operated, is based upon certain judgments and assumptions and cannot provide absolute assurance that its objectives will be met. Similarly, an evaluation of controls cannot provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected.

PART II — OTHER INFORMATION

Item 1. Legal Proceedings.

In the normal course of business, we may be named as a party to various legal claims, actions and complaints. We cannot predict whether any resulting liability would have a material adverse effect on our financial position, results of operations or cash flows.

In August 2018, two class action complaints for violation of federal securities laws were filed against us and certain of our officers. For further information, please refer to Note 13 of our consolidated financial statements included elsewhere in this report.

Item 1A. Risk Factors.

You should carefully consider the following risk factors, in addition to the other information contained in this report, including the section of this report captioned "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes. If any of the events described in the following risk factors and the risks described elsewhere in this report occurs, our business, operating results and financial condition could be seriously harmed. This report also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of factors that are described below and elsewhere in this report.

Risks Relating to Our Business and Industry

RAIN market adoption is uncertain. If RAIN market adoption does not continue to develop, or develops more slowly than we expect, our business will suffer.

The RAIN market is relatively new and, to a large extent, unproven. RAIN technology and product adoption, including that of Impinj's products and platform, will depend on numerous factors, including:

- whether end users embrace the benefits we believe RAIN offers, and if so whether RAIN will achieve and sustain high demand and market adoption;
- whether end users perceive that the benefits of RAIN adoption outweigh the cost and time to install, replace or modify their existing systems and processes; and
- whether the technological capabilities of RAIN products and applications meet end users' current or anticipated needs.

The adoption of RAIN technology and products has historically been slower than anticipated or forecasted by us and industry sources. Our industry has also experienced periods of accelerated adoption that were not sustained. For example, RAIN adoption accelerated in 2016, but then decelerated in 2017, in part, we believe, due to delays in the implementation of planned programs by certain large retailers. Near-term RAIN adoption depends on large organizations with market influence, particularly in the retail industry, continuing to deploy RAIN solutions. Long-term RAIN market growth will depend on adoption by other industries and government agencies. End users and our prospective customers may not be familiar with our products or RAIN in general, or may use other products and technologies to identify, locate, authenticate, engage, track and prevent loss of their items. Additionally, even if prospective customers are familiar with RAIN, our products or platform, a negative perception of, or experience with, RAIN or a competitor's RAIN products may deter them from adopting RAIN or our products or platform. Before they adopt RAIN, businesses, government agencies and other organizations may need education on the benefits of using RAIN in their operations, and how they outweigh the costs, including potentially significant costs of modifying or replacing existing systems and processes. These educational efforts may not be successful, and organizations may decide that the costs of adopting RAIN outweigh the benefits, or may decide to defer near term RAIN adoption in favor of a more advanced or comprehensive future deployment. Failure of organizations to adopt RAIN generally, and our products and platform specifically, for any reason will hurt the development of our market and, consequently, impair our business and prospects.

Fluctuations in the adoption of RAIN may affect our ability to forecast our future operating results, including revenue, gross margins, cash flows and profitability. Moreover, to ensure adequate inventory supply, we must forecast inventory needs and expenses and place orders sufficiently in advance with our suppliers and contract manufacturers based on our estimates of future demand for particular products. In the near term, we expect to invest significantly in endpoint IC and gateway inventory to support the projected growth in our business. Our failure to accurately forecast demand for RAIN solutions may cause us to experience excess inventory levels or a shortage of products available for sale.

If RAIN adoption by retailers does not continue at the rate we expect, our business will be adversely affected.

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The retail apparel industry leads RAIN adoption, and end users in the retail industry were the largest consumers of our endpoint ICs in 2016 and 2017. We believe the retail industry is a leading indicator of RAIN market adoption and if large apparel retailers in particular continue adopting our platform then adoption within the retail industry and in other industries will accelerate. As such, the retail industry is one of our key strategic areas of focus.

If retailers or others deploying RAIN fail to realize demonstrable benefits from RAIN or delay or abandon their deployments, overall RAIN market acceptance may be materially and adversely affected. For example, in 2017, we believe our growth decelerated due, in part, to delays in the implementation of planned programs by certain large retailers. This contributed toward sequential declines in endpoint IC sales in the third and fourth quarters of 2017. In addition, retailers that have a primarily physical presence in the marketplace have experienced financial stress in recent periods. Many of these retailers have deployed RAIN to improve competitiveness; however, if they fail to compete effectively, the number of stores they maintain, and thus the scope of their RAIN deployments, may decrease significantly. Any widespread delay, slowdown or failure by retailers or other organizations to implement RAIN-based systems generally, and our products and platform specifically, will materially and adversely affect our business, operating results, financial condition and long-term prospects.

If we are unsuccessful in fostering meaningful adoption of our products and platform by end users other than retailers, our business prospects may be adversely affected.

We expect end users to deploy our platform in sectors beyond retail, including, for example, healthcare and supply chain. If we fail to make our products and platform an easy-to-deploy, economical solution for use cases in these other sectors, our ability to penetrate them may suffer and our business prospects may be adversely affected.

We have a history of losses and have only achieved profitability intermittently. We cannot be certain that we will increase or sustain profitability in the future.

We have incurred losses since our inception in 2000. While we were profitable between 2013 and 2015, we had a net loss of \$7.7 million and \$22.2 million for the three and six months ended June 30, 2018 and an accumulated deficit of \$226.7 million as of June 30, 2018. Our ability to regain or sustain profitability depends on numerous factors, many of which are out of our control, including continued RAIN adoption, our market share and our margins. We expect significant expenditures to support operations, product development, and business and headcount expansion in sales, engineering, and marketing as a public company. If we fail to increase our revenue or manage our expenses, we may not increase or sustain profitability in the future.

Fluctuations in our quarterly and annual operating results may adversely affect our business, prospects and stock price.

You must consider our business and prospects in light of the risks and difficulties we encounter in the uncertain and rapidly evolving RAIN market. Because this market is new and evolving, predicting its future growth rate and size is difficult. The rapidly evolving nature of the markets in which we sell our products, as well as other factors that are beyond our control, reduce our ability to accurately evaluate our future prospects and forecast quarterly or annual performance.

End users drive demand for our products. Because we sell nearly all of our products through channel partners, our ability to determine and forecast end-user demand is limited. For example, our 2016 endpoint IC sales exceeded both our expectations and those of our industry's analysts due in large part to several coincident large-scale deployments. However, in the second quarter of 2017 several large end users that had planned 2017 deployments delayed or slowed those deployments, leading us to reduce expectations for endpoint IC growth for the year. This volatility for demand for RAIN solutions makes accurate forecasting difficult. In addition, we rely on our channel partners to integrate our products with end-user information systems and this integration has been uneven and unpredictable in scope, timing and implementation. Partly as a consequence, in the past, both we and other industry participants have at times overestimated the RAIN market size and growth rates, then failed to meet expectations.

To date, we have had limited success in accurately predicting future sales of our products and platform. Due to our shorter lead-times for endpoint ICs, we are increasingly receiving customer orders and shipping the products within a quarter. A shortened sales cycle decreases our ability to accurately predict both optimal inventory supply and order volume for a quarter. Additionally, customer orders for readers and gateways are generally weighted toward the end of a quarter. If we do not have adequate supply of readers and gateways to fulfill the orders within a quarter or if we do not accurately predict the sales cycle for reader and gateways, sales of some sizeable transactions might extend into a subsequent quarter. We expect that for the foreseeable future our visibility into future sales, including both volumes and prices, will continue to be limited. This poor visibility may cause fluctuations in our operating results, particularly on a quarterly basis, that we are unable to predict as well as failure to achieve our expected operating results.

In addition, if endpoint IC sales (one indicator of market adoption) exceed expectations or if we discount prices to win a particularly large opportunity or in response to competition, our revenue and profitability may be positively affected, but gross margins may be negatively affected depending on product mix for the applicable period. If research analysts or investors perceive such product mix shift negatively, the trading price of our common stock could be adversely affected.

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Numerous other factors, many of which are outside our control, may cause or contribute to significant fluctuations in our quarterly and annual operating results. These fluctuations may make financial planning and forecasting difficult. In addition, these fluctuations may result in unanticipated decreases in our available cash, which could negatively affect our business and prospects. Factors that may contribute to fluctuations in our operating results and revenue include:

- variations in RAIN adoption and deployment delays by end users;
- fluctuations in demand for our products or platform, including by tag manufacturers and other significant customers on which we rely for a substantial portion of our revenue;
- fluctuations in the available supply of our products;
- variations in the quality of our products and return rates;
- declines in selling prices for our products;
- delays in our product-shipment timing, customer or end-user sales or deployment cycles, or work performed under development contracts;
- intellectual property disputes involving us, our customers, end users or other participants in our industry;
- adverse outcomes of litigation or governmental proceedings;
- timing variability in product introductions, enhancements, services, and technologies by us and our competitors and market acceptance of these new or enhanced products, services and technologies;
- unanticipated excess or obsolete inventory as a result of supply-chain mismanagement, new-product introduction, quality issues or otherwise;
- changes in the amount and timing of our operating costs, including those related to the expansion of our business, operations and infrastructure;
- changes in business cycles or seasonal fluctuations that may affect the markets in which we sell;
- changes in industry standards or specifications, or changes in government regulations, relating to RAIN, or Impinj's products or platform;
- late, delayed or cancelled payments from our customers; and
- unanticipated impairment of long-lived assets and goodwill.

A substantial portion of our operating expenses are fixed for the short-term, and as a result, fluctuations in revenue or unanticipated expenses can have a material and immediate impact on our profitability. The occurrence of any one of these risks could negatively affect our operating results in any particular period, which could cause the price of our common stock to decline.

Our market is very competitive. If we fail to compete successfully, our business and operating results will suffer.

We face significant competition from both established and emerging competitors. We believe our principal current competitors are: in readers and gateways, Zebra Technologies Corporation and Alien Technology Corporation, or Alien; in reader ICs and modules, STMicroelectronics N.V. and Phychips Inc.; and in endpoint ICs, NXP Semiconductors N.V., or NXP. Our channel partners, including distributors, system integrators, or SIs, value-added resellers, or VARs, and software solution partners, may enter our market and compete with us rather than purchase our products, which would not only reduce our customer base but also increase competition in the market, adversely affecting our operating results, business and prospects. In addition, companies in adjacent markets or newly formed companies may decide to enter our market, particularly as RAIN adoption grows.

Competition for customers is intense. Because the RAIN market is evolving rapidly, winning customer and end-user accounts at an early stage in the development of the market is critical to growing our business. End users that instead use competing products and technologies may face high switching costs, which may affect our and our channel partners' ability to successfully convert them to our products. Failure to obtain orders from customers and end users, for competitive reasons or otherwise, will materially adversely affect our operating results, business and prospects.

Some of our competitors may devote more resources than we can to the development, promotion, sale and support of their products. Our competitors include companies that have much greater financial, operating, research and development, marketing and other resources than us. These competitors may discount their products to gain market share. In doing so, they could simply accept smaller margins or they could maintain margins by achieving cost savings through better, more efficient designs or production methods. To gain share, competitors could also bundle near-field communication, or NFC, products with RAIN products, or stationary readers with handheld readers. New competitors could enter the gateway market or develop RAIN platforms or solutions. Larger or more established companies may deliver and directly compete with our products or platform. Smaller companies could launch new products and applications we do not offer and could gain market acceptance quickly. Moreover, consolidation in the RAIN industry could intensify the competitive pressures that we face. Many of our existing and potential competitors may be better positioned than we are to acquire other companies, technologies or products.

Some of our customers have policies requiring diverse supplier bases to enhance competition and maintain multiple RAIN product providers. They do not have an interest in purchasing exclusively from one supplier or promoting a particular brand. Our ability to increase order sizes from these customers and maintain or increase our market share is constrained by these policies. In addition, any decline in quality or availability of our products or any increase in the number of suppliers that such a customer uses may decrease demand for our products and adversely affect our operating results, business and prospects.

We cannot assure you that our products will continue to compete favorably or that we will be successful in the face of increasing competition from new products, or enhancements introduced by our existing competitors, or new companies entering our market. In addition, we cannot assure you that our competitors do not have, or will not develop, processes or product designs that currently or in the future will enable them to produce competitive products at lower costs than ours. Any failure to compete successfully will materially adversely affect our business, prospects, operating results and financial condition.

Downturns in the industries we serve, particularly retail, may adversely affect our business.

Worldwide economic conditions have exhibited significant fluctuations in the past, and customers remain guarded with respect to market volatility and uncertainty. As a consequence, we and our customers have had difficulty forecasting and planning future business activities accurately. Volatile economic conditions could cause our customers or end users to reduce their capital-expenditure budgets, which could decrease spending for our products resulting in delayed and lengthened deployment, a decrease in sales or a loss of sales opportunities. The retail industry is subject to volatility, especially during uncertain economic conditions. A downturn in the retail industry in particular may disproportionately affect us because retailers comprise a significant portion of the RAIN end users. We cannot predict the timing, strength or duration of any economic slowdown or recovery, whether global, regional or within specific markets. If the conditions of the general economy or markets in which we operate worsen, our business could be harmed.

If we fail to obtain quality products in adequate quantity and in a timely and cost-effective manner, our operating results and growth prospects will be adversely affected.

We do not own or operate manufacturing facilities. Currently, all our endpoint IC wafers are manufactured by Taiwan Semiconductor Manufacturing Company Limited, or TSMC, and primarily post-processed by our subcontractor Stars Microelectronics (Thailand) Public Company Limited, or Stars; all our reader IC wafers are manufactured by Tower Semiconductors Ltd., or TowerJazz, and our modules are manufactured by Stars and Microelectronics Technology Inc., or MTI; and all our readers and gateways are manufactured by Plexus Corp., or Plexus, or Computrol Corporation. We also use subcontractors for post-processing, assembly and testing.

We do not control our manufacturers' or subcontractors' ability or willingness to meet our supply requirements.

Currently, we do not have long-term supply contracts with TSMC, TowerJazz, MTI, Plexus or Computrol Corporation, and neither they nor our subcontractors are required to supply us with products for any specific period or in any specific quantity. Suppliers can allocate production capacity to other companies' and reduce deliveries to us on short notice. Our suppliers may allocate capacity to other companies, which could impair our ability to secure sufficient product supply for sale.

Some components of our products have very long lead times, so we place orders with some of our suppliers five or more months before our anticipated product delivery dates to our customers. We base these orders on our customer-demand forecasts. If we inaccurately forecast this customer demand then we may be unable to obtain adequate and cost-effective components, or foundry or assembly capacity to meet our customers' delivery requirements, or we may accumulate excess inventory.

Manufacturing capacity may not be available when we need it or at reasonable prices. For example, in 2010 we experienced wafer shortages from TSMC relative to our submitted endpoint IC wafer purchase orders because of high worldwide demand for semiconductor foundry capacity. These shortages adversely affected our ability to meet our customers' demand and, in some cases, caused customers to cancel orders, qualify alternative suppliers or purchase from our competitors. As another example, in mid-2016, as a consequence of rapid growth in endpoint IC demand, we depleted our endpoint IC buffer stock and were temporarily unable to satisfy demand for all customers, causing some customers to purchase from alternative suppliers even as we increased our wafer orders from TSMC, ramped up our wafer post-processing and rebuilt our inventory. In response to any future shortages, our customers may act similarly or, alternatively, may overbuy our products, which could artificially inflate sales in near-term periods while leading to sales declines in future periods as our customers consume their accumulated inventory.

At times, our suppliers ask us to purchase excess products to ensure we do not face a subsequent shortage. For example, in certain quarters of 2014, 2015 and 2016, we purchased more wafers from TSMC than required, which affected our available cash for that quarter. In addition, we may invest significantly in inventory to support anticipated growth in our business, as we have done with endpoint IC inventory in 2017. If we are unable to sell the additional inventory we purchased, or if we must sell it at lower prices due to obsolescence, our operating results may be adversely affected.

If our suppliers fail to deliver products at reasonable prices or with satisfactory quality levels then our ability to bring products to market and our reputation could suffer. For example, if supplier capacity diminishes, including from a catastrophic loss of facilities or otherwise, we could have difficulty fulfilling our orders, our revenue could decline and our growth prospects could be impaired. We anticipate requiring three to 18 months to transition our assembly services or foundries to new providers. Such a transition would likely require a qualification process by our customers or end users, which could also adversely affect our ability to sell our products and our operating results. Moreover, in the event of a suspected quality issue, the process of testing suspect products and diagnosing and fixing defects could be time consuming and costly, and could constrain our ability to supply customers with product.

If we are unsuccessful introducing new products and enhancements, our operating results will be harmed.

To keep pace with technology developments, satisfy increasingly stringent end-user requirements and achieve market acceptance, we plan to introduce new products and solutions. We commit significant resources to developing these new products and solutions while improving performance, reliability and reducing costs. For example, we are investing substantial resources to develop and enhance our operating-system software but do not expect to realize material revenue from this software in the near future. The market for our software is nascent, and we need to create market awareness of its benefits to drive end-user adoption. Creating market awareness includes promoting our software as a foundation on which end users, ISVs, consultants, SIs, and others can develop applications that meet end-user needs and drive adoption. We may be late in delivering or improving our software to meet our partners' or end users' needs. In addition, we have limited experience developing and selling software products and cannot be certain that our proposed pricing model, sales strategy, or software quality and reliability will be successful. We rely on and must train our channel partners to sell, develop applications for and integrate our software with end users' systems, but we cannot guarantee that we or they will be successful doing so. We believe that we must continue to dedicate a significant amount of resources to our development efforts to develop and maintain our competitive position. We also cannot be certain that our software will generate revenue from these investments for several years, if at all, or that such revenue will exceed the investment we are committing to develop and deploy our software.

The success of a new or enhanced product is impacted by accurate forecasts of long-term market demand. For example, our xArray and xSpan gateways are relatively new products that incorporate enhanced technological features, but we cannot be certain whether demand for such gateways will develop as forecasted. We may also fail to anticipate or meet market requirements for new features and functionality. By focusing on certain new products and industries, we may miss opportunities for other products and applications that may be more widely adopted.

If we are unable to develop new products and services using new or enhanced technologies, our competitive position will be adversely affected.

In the future, we may not succeed in developing the underlying technologies or processes necessary to create new or enhanced products and services, or license or otherwise acquire these technologies from third parties. In some instances we may be late to market with our innovations, or may choose to be a "fast follower" but subsequently be unable to overcome the lead we gave to our competition. The success of a new or enhanced product depends on technological developments, market positioning and timing, as well as on various implementation factors, including:

- our timely and efficient completion of the design process;
- our timely and efficient implementation of manufacturing, assembly and testing procedures;
- product or service performance;
- product certification;
- our ability to attract, retain and manage technical personnel;
- the quality, reliability and selling price of the product or service; and
- effective marketing, sales and service.

If we are unable to develop new products, features and services to compete effectively, our market share could be adversely affected, which would harm our business, financial condition and operating results.

An inability or limited ability of enterprise systems to exploit RAIN information may adversely affect the market for our products.

A successful end-user RAIN deployment requires not only tags and readers or gateways, but integration with information systems and applications that derive business value from endpoint data. Unless technology providers continue developing and advancing business-analytics tools, and end users install or enhance their information systems and applications to use these tools, deployments of RAIN products and applications could stall. Our efforts to foster development and deployment of these tools by providing software that delivers item-level data could fail. In addition, our guidance to business-analytics tool providers for integrating our products with their tools could prove ineffective.

Solution providers and systems integrators form an essential part of the RAIN market by providing deployment know-how to end users who are unable to deploy RAIN solutions on their own. Our efforts to train and support these solution providers and systems integrators could fail. Further, integrating our products with end-user information systems could prove more difficult or time consuming than we or they anticipate, which could delay deployments. If end users are unable to successfully exploit RAIN data, or if we are unable to support solution providers or systems integrators adequately, or if deployments of our platform are delayed, we could see a material adverse impact on our business, operating results, financial condition or prospects.

Our reliance on a small number of customers could adversely affect our business and operating results.

We sell our endpoint ICs directly to inlay and tag original equipment manufacturers, or OEMs, and original design manufacturers, or ODMs. In 2017, sales to Avery Dennison, Smartrac, Arizon and Blue Star accounted for 18%, 14%, 13% and 10% of our total revenue, respectively. This sales concentration to a relatively small number of tag OEMs lowers our bargaining power, and increases the risk that our pricing or sales could decline quickly based on aggressive pricing or sales measures taken by our competitors or our own failure to compete effectively.

We sell our reader ICs and modules to reader OEMs and ODMs, and our readers and gateways to VARs and SIs, primarily through distribution. We are beginning to sell software through these same partners as well as through ISV partners. We have experienced in the past and may again experience in the future purchasing delays or disruptions by some of these channel partners due to conditions within their organizations that are independent of market demand for our products or the RAIN market generally.

Although our strategy is to diversify our partner base by pursuing increased orders from smaller partners, add new partners, and increase end-user demand for our products, we cannot assure you we will succeed in doing so. The number of tag OEMs may decrease by consolidation or otherwise. Even if we are successful in obtaining and retaining new partners, our small number of existing large tag OEMs may continue to account for a substantial portion of our future sales. Changes in markets, channel partners, end-user customers, products, negative economic or financial developments, or poor or limited credit availability may adversely affect the ability of our tag OEMs, reader and gateway partners and distributors to bring our products to market.

Our future performance will depend, in part, on our ability to attract new tag OEMs, reader and gateway partners and distributors that use, market and support our products effectively, especially in market segments where we have not sold products previously. If we cannot retain our current tag manufacturers, reader and gateway partners and distributors or establish new relationships, our business, financial condition and operating results could be harmed. In addition, our competitors' strategic relationships with or acquisitions of these tag OEMs, reader and gateway partners or distributors could disrupt our relationships with them. Any such disruption could impair or delay our product sales to end users and increase our costs of distribution, which could adversely affect our sales or operating results.

Our reliance on distributors, SIs, VARs and software solution providers to sell and distribute our products to end users could harm our business and revenue.

We rely on our partner ecosystem to sell and distribute our products to end users. Our revenue depends on their ability to successfully market, sell, install and provide technical support for the solutions in which our products are integrated or to sell our products on a standalone basis. Our revenue will decline if our channel partners fail. Further, faulty or negligent implementation and installation of our products by systems integrators may harm our reputation.

Because we fulfill through channel partners, our ability to determine end-user demand is constrained. End users drive demand for our products and because we are often at least one step removed from these end users, we may be unable to rectify damage to our reputation caused by our channel partners who have more direct contact with these end users. For strategic or other reasons, our channel partners may choose to prioritize the sale of our competitors' products over our products. Furthermore, some of our channel partners may offer some products that compete with our products and may limit sales of our competing products. If reader IC or module OEMs are unable to obtain components for products in which our products are included, our product sales could be adversely affected. If our distributors, SIs, VARs or software solution providers are unable to sell an adequate amount of our products in a given quarter or if they choose to decrease their inventories of our products for any reason, our sales to these channel partners and our revenue will decline.

Many of our channel partners provide us with customer referrals and cooperate with us in marketing our products; however, our relationships with them may end at any time. If we fail to successfully manage our relationships with our channel partners, our ability to sell our products into new industries and to increase our penetration into existing industries may be impaired and our business will be harmed.

If our channel partners do not properly forecast end users' demand for our products then they may carry excess product inventory, which could adversely affect our revenue and operating results.

If some or all of our channel partners purchase more of our products than they need to satisfy end-user demand in any particular period, inventories held by the channel partners will grow during that period. The channel partners are then likely to reduce future orders until they realign inventory levels with end-user demand, which could adversely affect our product revenue in a subsequent period. Distributors may also return our products in exchange for other products, subject to time and quantity limitations. Our reserve estimates for products stocked by our distributors are based principally on reports provided to us by our distributors, typically on a monthly basis. To the extent this resale and channel-inventory information is inaccurate or we do not receive it in a timely manner, we may not be able to make accurate reserve estimates for future periods, which could adversely affect our operating results.

Our growth strategy depends in part on the success of strategic relationships with third parties and their continued performance and alignment.

To continue our growth, we are investing in our relationships with SIs, VARs and software solution providers that have product offerings that complement our platform and through which we will fulfill sales. Our business will be harmed if we fail to successfully develop and implement such strategic relationships. For example, operating results may suffer if our efforts towards developing our go-to-market relationships consume resources and incur costs, but do not result in a commensurate increase in revenue. In addition, such relationships may involve exclusivity provisions, additional levels of distribution, discount pricing or investments in other companies. The cost of developing and maintaining such relationships may go unrecovered or unrewarded and our efforts may not generate a correspondingly significant increase in revenue.

Selling prices of our products could decrease substantially, which could have a material adverse effect on our revenue and gross margins.

Historically, our market has experienced price erosion. The average selling price, or ASPs, of our products has decreased as the RAIN market has developed. We may experience substantial fluctuations in future operating results due to further ASP reductions.

From time-to-time we reduce the selling prices of our products to meet end-customer demands or due to market pressure from our competition. For example, during the second half of 2017 competitive pressures led to larger declines in ASPs of our endpoint ICs than in recent, prior quarters. As the market has grown, we have generally seen competitive pressures increase. We also sometimes reduce prices to encourage adoption, address macroeconomic conditions or for other reasons. We expect to do so again in the future. If we are unable to offset ASP reductions with increased sales volumes or reduced product costs then our revenue and gross margins will suffer. Further, our customers may be slow to migrate to new, higher margin products. Some competitors have significantly greater resources than we have and may be better able to absorb the negative impact on operating results as a result of such trends.

Rapid market innovation, which we continue to experience, can drive intense pricing pressure, particularly for older products or products using older technology. Short product life cycles cause our channel partners and end users to replace older products with newer ones on a regular basis. When demand for older products declines, ASPs may drop, in some cases precipitously. To profitably sell our products we must continually improve our technology, and processes, and reduce costs in line with the lower selling prices. If we and our third-party suppliers and manufacturers cannot advance process technologies or improve efficiencies to a degree sufficient to maintain required margins, we may not be able to sell our products profitably. Should our cost reductions fail to keep pace with reductions in market prices, our business, financial condition and operating results will be materially adversely affected.

Changes in our product mix could cause our overall gross margin to decline, adversely affecting our operating results and financial condition.

We cannot assure you that we will be able to maintain our historical gross margins. Our gross margins depend strongly on product mix. A shift in sales mix away from our higher margin products to lower margin products will adversely affect our gross margins. We generate a majority of our revenue from sales of our endpoint ICs, which have lower gross margins than our other products, and endpoint IC revenue may continue to increase as a percentage of our total revenue over time. In addition, gross margins can be affected by endpoint IC product mix. As the market for our newer, higher-margin endpoint IC products matures, we expect to experience price erosion for those products which may adversely affect gross margins if we are not able to realize cost reductions or shift towards newer or other higher margin products. If endpoint IC revenue continues to grow relative to our other products, our company-wide gross margin will decline. Additionally, competitive alternatives to our products, overall increased competition, weaker than expected demand, currency exchange rates and other factors may lead to lower prices, revenue and margins in the future, adversely affecting our operating results and financial condition.

We generate most of our revenue from our endpoint ICs, and a decline in sales of these products or increased price competition in the market for endpoint ICs could adversely affect our operating results and financial condition.

We derive, and expect to continue to derive, a majority of our product revenue from our endpoint ICs. Accordingly, we are vulnerable to fluctuations in demand for our endpoint ICs, and if demand for them declines, our business and operating results will be adversely affected. In addition, the continued adoption of our endpoint ICs and maintaining demand for them and our new endpoint IC products, derives in part from our ability to continually innovate and to demonstrate the benefits of using our endpoint ICs with our reader ICs and modules, readers and gateways to achieve superior performance over our competitors. If we are not successful in establishing the benefits of using our products and platform, we may not be successful in countering competitive pressures to lower prices for our endpoint ICs and our business and operating results could be adversely affected.

Our products must meet exacting technical and quality specifications. Defects, errors or interoperability issues with our products, the failure of our products to operate as expected, or undue difficulty in deploying our products in actual operations could affect our reputation, result in significant costs to us and impair our ability to sell our products.

Our products may contain defects or errors or may not operate as we or our channel partners or end-user customers expect, which could materially and adversely affect our reputation, result in significant costs to us and impair our ability to sell our products in the future. Our products must meet demanding specifications for quality, performance and reliability. Our products are highly technical and designed to be deployed in large, complex systems under a variety of conditions. Channel partners and end users may discover errors, defects or incompatibilities only after deploying our products. For example, harsh environments or radio-frequency interference may negatively affect gateway performance. In addition, our channel partners or end users may experience compatibility or interoperability issues between our products and their enterprise software systems or networks, or between our products and other RAIN products they may use.

We may experience quality problems with our products combined with or incorporated into products from other vendors, such as tags produced by our tag OEMs using our endpoint ICs, or readers or gateways assembled by OEMs and ODMs using our reader ICs or modules. We may have difficulty identifying and correcting the source of problems when third parties are combining, incorporating or assembling our products.

If we are unable to fix errors or other problems, we could experience:

- loss of customers or customer orders;
- lost or delayed market acceptance and sales of our products;
- loss of market share;
- damage to our brand and reputation;
- impaired ability to attract new customers or achieve market acceptance;
- diversion of development resources;
- increased service and warranty costs;
- replacement costs;
- legal actions by our customers; and
- increased insurance costs.

Given the technical and business requirements against which end users evaluate RAIN and our products and platform, our business results and prospects could suffer if we are unable to make our products and our platform easy to deploy. To demonstrate the benefits of our platform, or layers of it, in fulfilling business needs and to develop deployment methods to meet those needs, we frequently enter into proof-of-concept deployments, or POCs, with prospective end users. These POCs can extend for relatively long periods of time, and their ultimate outcome can be mixed for a variety of reasons, including changes in end-user business requirements, changes in end-user commitment to the POC as well as deployment challenges. If we fail to deliver deployable solutions through POCs or otherwise, adoption of our products and platform could be adversely affected and our reputation and our business prospects could suffer.

Although our agreements typically contain provisions that purport to limit our liability for damages resulting from defects in our products, such limitations and disclaimers may not be enforceable or otherwise effectively protect us from claims. We may be required to indemnify our customers against liabilities arising from defects in our products or in their solutions that incorporate our products. These liabilities may also include costs incurred by our channel partners or end users to correct problems or replace our products.

The costs we incur correcting product defects or errors may be substantial and could adversely affect our operating results. Although we test our products for defects or errors prior to product release and during production, our customers still occasionally catch defects or errors that we miss. Such defects or errors have occurred in the past and may occur in the future. To the extent product failures are material, they could adversely affect our business, operating results, customer relationships, reputation and prospects. Also, we assert that our products conform to the UHF Gen2 protocol. Compatibility issues between our products and the protocol, or among different products that each nominally conform to the protocol, could disrupt our customers' operations, hurt our customer relations and materially adversely affect our business and prospects.

We will lose market share and may not be successful if end users or customers do not design our products into their products and systems.

End users often undertake extensive pilot programs or qualification processes prior to placing orders for large quantities of our products, in particular for reader and gateway products, because these products must function as part of a larger system or network or meet certain other specifications. We spend significant time and resources to have our products selected by a potential end user or customer, which is known as a "design-in." In the case of reader and gateway products, a "design-in" means the product has been selected to be designed into the end user's system and, in the case of an endpoint IC, may mean the endpoint IC has met certain unique performance criteria established by the end user or customer. If we fail to develop new products that adequately or competitively address the needs of potential end users, they may not select our products to be designed into their systems, which could adversely affect our business, prospects and operating results.

Our business is dependent upon our brand recognition and reputation, and if we fail to maintain or enhance our brand recognition or reputation, our business could be harmed.

We believe that maintaining and enhancing our brand and our reputation is critical to our relationships with our customers and end users and to our ability to attract new customers and end users. We also believe that our brand and reputation will be increasingly important as competition in our market continues to develop. Our success in this area will depend on a wide range of factors, some of which are beyond our control, including the following:

- the efficacy of our marketing efforts;
- our ability to continue to offer high-quality, innovative and defect-free products;
- our ability to maintain the security and privacy of our customers' sensitive and proprietary information;
- our ability to retain existing customers and obtain new customers;
- our ability to maintain high customer satisfaction;
- the quality and perceived value of our products;
- our ability to successfully differentiate our products from those of our competitors;
- actions of competitors and other third parties; and
- positive or negative publicity.

If our brand promotion activities are not successful, our operating results and growth may be harmed.

Furthermore, negative publicity, whether or not justified, relating to events or activities attributed to us, employees, channel partners or others associated with any of these parties, may tarnish our reputation and reduce the value of our brand. Damage to our reputation and loss of brand equity may reduce demand for our products and platform and have an adverse effect on our business, operating results and financial condition. Moreover, any attempts to rebuild our reputation and restore the value of our brands may be costly and time consuming, and such efforts may not ultimately be successful.

If we are unable to protect our intellectual property then our business could be adversely affected.

Our success depends in part upon our ability to obtain, maintain and enforce patents, copyrights, trade secrets, trademarks and other intellectual property rights and to prevent third parties from infringing, misappropriating or circumventing the rights we own or license. Given our industry-leading innovation in RAIN technology, there is a high likelihood that material elements of our endpoint ICs have been or will be copied by competitors, and while we take appropriate and feasible measures to protect our intellectual property rights, we cannot be sure that we will be able to prevent such conduct by simply enforcing, or threatening to enforce, those rights.

We rely on a variety of intellectual property rights, including patents in the United States and copyrights, trademarks and trade secrets in the United States and foreign countries. Because many RAIN products are used in or imported into the United States, we have historically focused on filing U.S. patent applications. We have filed and received a small number of foreign patent applications, but the number of issued and allowed foreign patents is still small. By seeking patent protection primarily in the United States, our ability to assert our intellectual property rights outside the United States is limited. We have registered trademarks and domain names in selected foreign countries where we believe filing for such protection is appropriate. Regardless, some of our products and technologies may not be covered adequately by any patent, patent application, trademark, copyright, trade secret or domain name.

We cannot guarantee that:

- any of the patents, trademarks, copyrights, trade secrets or other intellectual property rights we presently employ in our business will not lapse or be invalidated, circumvented, challenged or abandoned;
- our intellectual property rights will provide competitive advantages to us;
- our ability to assert our intellectual property rights against potential competitors or to settle current or future disputes will not be limited by our agreements with third parties;
- any of our pending or future patent applications will be issued or have the coverage we originally sought;
- our intellectual property rights will be enforced, particularly in jurisdictions where competition may be intense or where legal protections may be weak;
- we will not lose the ability to assert our intellectual property rights against, or to license our technology to, others and collect royalties or other payments; or
- we will retain the right to ask for a royalty-bearing license in relation to ratification of a standard for which we participate in the standards process if we fail to file an intellectual property declaration pursuant to such standards process.

In addition, our competitors or others may design around our patents or protected technologies. Effective intellectual property protection may be unavailable or more limited in one or more relevant jurisdictions relative to those protections available in the United States. If we pursue litigation to assert our intellectual property rights, an adverse decision in any legal action could limit our ability to assert our intellectual property rights, limit the value of our technology or otherwise negatively impact our business, financial condition and operating results.

Monitoring unauthorized use of our intellectual property is difficult and costly. Unauthorized use of our intellectual property may have already occurred or may occur in the future. Our failure to identify unauthorized use or otherwise adequately protect our intellectual property could adversely affect our business.

Moreover, any actual or threatened litigation to enforce our intellectual property could be time consuming, distracting, expensive and could result in outcomes or trigger consequences that are harmful to us. We could incur significant costs and divert our attention and the efforts of our employees by threatening or initiating litigation. This could, in turn, result in lower revenue and higher expenses. To the extent we discuss our concerns regarding possible or actual infringement with others prior to or in lieu of litigation, we could also become subject to claims brought by alleged infringers. Because outcomes in litigation are uncertain, we could lose in our enforcement action or weaken our intellectual property through the litigation process. At the same time, any decision not to enforce our intellectual property rights through litigation could embolden others to violate or potentially violate our intellectual property rights, and thus weaken them over time.

Some of our know-how or technology is not patented or patentable and may constitute trade secrets. To protect our trade secrets, we have a policy of requiring our employees, consultants, advisors and other collaborators to enter into confidentiality agreements. We also rely on customary contractual protections with our channel partners, suppliers and end users, and we implement security measures intended to protect our trade secrets, know-how or other proprietary information. However, we cannot guarantee we have entered into appropriate agreements with all parties that have had access to our trade secrets, know-how or other proprietary information. We also cannot assure you that those agreements will provide meaningful protection for our trade secrets, know-how or other proprietary information in the event of any unauthorized use or disclosure. Our trade secrets, know-how or other proprietary information could be obtained by third parties as a result of breaches of our physical or electronic security systems or our suppliers, employees or consultants could assert rights to our intellectual property.

Finally, our use of overseas manufacturers may involve particular risks. The intellectual property protection in countries where our third-party contractors operate is weaker than in the United States. If the steps we have taken and the protection provided by law do not adequately safeguard our intellectual property rights then we could suffer losses in profits due to the sales of competing products that exploit our intellectual property rights.

We may face claims of intellectual property infringement which could be time consuming, costly to defend or settle, result in the loss of significant rights, and adversely affect RAIN adoption generally.

Many companies in our industry, as well as so-called non-practicing entities, hold large numbers of patents and other intellectual property rights and may vigorously pursue, protect and enforce their intellectual property rights. We have in the past, and may in the future, receive invitations to license patent and other intellectual property rights to technologies that are important to our business. We may also receive assertions against us, our channel partners or end users claiming that we or they infringe patent or other intellectual property rights. Claims that our products, processes, technology or other aspects of our business infringe third-party intellectual property rights, regardless of their merit or resolution, could be costly to defend or settle and could divert the efforts and attention of our management and technical personnel. If we decline to accept an offer, the offering party may allege that we infringe such patents, which could result in litigation.

Intellectual property disputes affecting our industry may adversely affect RAIN adoption. For example, in 2011 Round Rock Research filed lawsuits against 11 end users, including Walmart and Macy's, for patent infringement in the RAIN products these retailers use. We believe these lawsuits materially and adversely affected demand for our products by retailers and others from 2011 to 2014. In 2013, Round Rock Research entered into licensing settlement agreements with a substantial number of RAIN vendors, including us; in early 2015, they reached a settlement agreement with the last of the end-user defendants. We, our channel partners, suppliers or end users could be involved in similar disputes in the future which would materially and adversely affect our operating results and growth prospects.

Many of our agreements require us to indemnify and defend our channel partners and end users from third-party infringement claims and pay damages in the case of adverse rulings. Moreover, we may not know whether we are infringing a third party's rights due to the large number of RAIN-related patents or to other systemic factors. For example, patent applications in the United States are maintained in confidence for up to 18 months after filing or, in some instances, for the entire time prior to patent issuance. Consequently, we may not be able to account for such rights until after publication. Competitors may also have filed patent applications or received patents and may obtain additional patents and proprietary rights that block or compete with our patents. Claims of this sort could harm our relationships with our channel partners or end users and might deter future customers from doing business with us. We do not know whether we will prevail in any such future proceedings given the complex technical issues and inherent uncertainties in intellectual property litigation. If any pending or future proceedings result in an adverse outcome then we could be required to:

- cease the manufacture, use or sale of the infringing products, processes or technology;
- pay substantial damages for infringement;
- expend significant resources to develop non-infringing products, processes or technology;
- license technology from the party claiming infringement, which license may not be available on commercially reasonable terms, or at all;
- cross-license our technology to a competitor to resolve an infringement claim, which could weaken our ability to compete with that competitor; or
- pay substantial damages to our channel partners or end users to cause them to discontinue their use of, or replace, infringing products with non-infringing products.

Any of the foregoing results could have a material adverse effect on our business, financial condition and operating results.

We have limited visibility into the length of the sales and deployment cycles for our products.

Because we have limited sales history for our products, we have limited visibility into the lengths of the product sales and deployment cycles, and from time-to-time these cycles have been longer than we anticipated. For new types of products, such as our gateways and ItemSense software, our visibility into the sales and deployment cycle lengths is even more limited; inasmuch as these products are components in a systems sale, our experience in the systems-selling cycle is even more limited. Numerous factors can contribute to uncertainties in the cycle lengths, including the time channel partners and end users spend evaluating our products, our time educating them on the products' benefits, and our time integrating our systems with their systems. The length and uncertain timing of the sales and deployment cycles can lead to delayed product orders. In anticipation of product orders, we may incur substantial costs before the sales cycle is complete and before we receive any customer orders or payments. If a sale is not completed or is cancelled or delayed, we may incur substantial expenses, which could hinder our ability to achieve or maintain profitability or otherwise negatively affect our financial results.

Significant developments stemming from the current U.S. presidential administration's priorities or initiatives, or the U.K.'s referendum on membership in the EU could have a material adverse effect on us.

The current U.S. presidential administration has pursued trade policy that is starkly different than past administrations. Its actions have included, withdrawing the United States from negotiations for the TPP; renegotiating NAFTA; announcing and imposing tariffs on a wide variety of trade partners including, as of the date of this report, tariffs on up to \$200 billion of goods imported into the United States from China; proposing restrictions on free trade generally and immigration to the United States. Changes in U.S. social, political, regulatory and economic conditions or in laws and policies governing foreign trade, manufacturing, development and investment in the territories and countries where we currently develop and sell products, and immigration to the United States, and any negative sentiments towards the United States as a result of such changes, including our trading partners potentially imposing tariffs on imports of our products, could materially affect our business. In addition, negative sentiments towards the United States among non-U.S. customers and among non-U.S. employees or prospective employees, or the imposition of restrictions on immigration to the United States, could adversely affect sales or hiring and retention, respectively. To the extent U.S. policies engender an economic downturn, in the United States or abroad, the effects could materially affect our business, in many ways only some of which we can identify as of the date of this report.

In June 2016, the United Kingdom held a referendum and voted in favor of leaving the European Union, or EU, and in March 2017 the United Kingdom began the official process to leave the EU by April 2019. This action has created political and economic uncertainty, particularly in the United Kingdom and the EU, and this uncertainty may last for years. Our business in the United Kingdom, the EU and worldwide could be affected during this period of uncertainty, and perhaps longer, by the impact of the United Kingdom's decision to leave the EU. There are many ways in which our business could be affected, only some of which we can identify as of the date of this report.

In August 2018, the United States imposed tariffs on products manufactured in China. This tariff affects certain pre-Monza R6 endpoint IC wafer SKUs that our inlay partners import into, and process in, the United States. If we are unable to work with our supply chain and sourcing options to implement a long-term strategy for mitigating the impact of tariffs on imports, our business could be adversely impacted.

The withdrawal of the United Kingdom from the EU, along with events that could occur in the future as a consequence of the United Kingdom's withdrawal, including the possible breakup of the United Kingdom, may cause significant volatility in global financial markets, including in global currency and debt markets. This volatility could cause a slowdown in economic activity in the United Kingdom, Europe or globally, which could adversely affect our operating results and growth prospects. In addition, our business could be negatively affected by new trade agreements between the United Kingdom and other countries, including the United States, and by the possible imposition of trade or other regulatory barriers in the United Kingdom. Furthermore, we currently operate in Europe through an Impinj subsidiary based in the United Kingdom, which currently provides us with certain operational, tax and other benefits. The United Kingdom's withdrawal from the EU could adversely affect our ability to realize those benefits and we may incur costs and suffer disruptions in our European operations as a result. These possible negative impacts, and others resulting from the United Kingdom's withdrawal from the EU, may adversely affect our operating results and growth prospects.

We are subject to order and shipment uncertainties. Inaccuracies in our estimates of end-customer or channel-partner demand and product mix could negatively affect our inventory levels, sales and operating results.

We sell our products primarily through channel partners, and we derive revenue primarily from purchase orders rather than from long-term purchase commitments. To ensure product availability, we typically manufacture from channel-partner forecasts in advance of received purchase orders. However, many of our channel partners have difficulty accurately forecasting their product requirements and estimating the timing of demand for our products. In addition, when we release new products, we may carry higher inventories or have slower inventory turnover depending on our ability to anticipate market acceptance.

Our estimates of channel-partner and end-user demand have historically been inaccurate. Some of the inaccuracies have been material, leading to excess inventory with associated costs or product shortages with its concomitant loss of revenue and gross margin. Further, our channel partners can cancel purchase orders or defer product shipments, in some cases with little or no advance notice to us. Additionally, we sometimes receive soft commitments for larger order sizes which do not materialize.

For all these reasons, our ability to accurately plan purchases or manufacturing is limited. This may cause us to experience excess inventory levels or a shortage of products available for sale. High inventory levels and increased obsolescence could result in unexpected expenses or increases in reserves that could adversely affect our business, operating results and financial condition. Lead times for our products can be lengthy so experiencing product shortages may require us to defer revenue into subsequent periods, or may cause us to lose revenue opportunities entirely. Further, if we underestimate customer demand or if sufficient manufacturing capacity is unavailable, we could potentially lose market share and damage our customer relationships. Any significant product-order cancellations or deferrals or the return of previously sold products could materially and adversely impact our profit margins, increase our write-offs due to product obsolescence and restrict our ability to fund our operations.

We are subject to risks inherent in foreign operations, including social, political and economic flux and compliance with additional U.S. and international laws, including those related to anti-bribery and anti-corruption, and may not be able to successfully maintain or expand our international operations.

In 2017, 77% of our total revenue was derived from sales outside the United States. We anticipate growing our business, in part, by continuing to expand our international operations, which involves a variety of risks, including:

- changes, some unexpected or unanticipated, in regulatory requirements, taxes, trade laws, tariffs, export quotas, custom duties or other trade restrictions;
- lack of established, clear, or fairly implemented standards or regulations with which our products must comply;
- greater difficulty in enforcing contracts, judgments and arbitration awards in international courts, and in collecting accounts receivable and longer payment and collection periods;
- difficulty in supporting and localizing our international products;
- different or unique competitive pressures as a result of, among other things, the presence of, or preference for, local businesses and market players;
- challenges in managing employees, some foreign nationals, over large geographic distances, including the need to implement appropriate systems, policies, benefits and compliance programs;
- challenges in doing business in different languages and in business cultures with varying norms of transparency and compliance with policies than in the United States;
- limited or unfavorable intellectual property protection;
- misappropriation of our intellectual property;
- inflation and fluctuations in foreign-currency exchange rates and interest rates;
- withholding taxes or other taxes, or changes thereof, on our foreign income;
- restrictions, or changes thereof, on foreign trade or investment, including currency exchange controls;
- changes in a country's or region's political, regulatory, legal or economic conditions;
- political uncertainty, strife, unrest, or conflict;
- differing regulations with regard to maintaining operations, products and public information;
- inequities or difficulties obtaining or maintaining export and import licenses;
- differing labor regulations, including where labor laws may be more advantageous to employees than in the United States
- restrictions on earnings repatriation;
- corrupt or unethical practices in foreign jurisdictions that may subject us to exposure under applicable anti-corruption and anti-bribery laws such as the Foreign Corrupt Practices Act and the United Kingdom Bribery Act of 2010, or U.K. Bribery Act; and
- regulations, and changes thereof, relating to data privacy and the unauthorized use of, or access to, commercial and personal information, particularly in Europe.

Various foreign regulatory or other governmental bodies may issue rulings that invalidate prior laws, regulations, or legal frameworks in manners that may adversely impact our business. The Court of Justice of the European Union in October 2015 issued a ruling immediately invalidating the EU-U.S. Safe Harbor Framework, which facilitated personal data transfers to the United States in compliance with applicable EU data protection laws. EU and U.S. political authorities adopted the -EU-U.S. Privacy Shield on July 12, 2016, which provides a new mechanism for companies to transfer EU personal data to the United States. It is unclear as of the date of this report whether we will make use of the EU-U.S. Privacy Shield, and it has been subject to challenges in EU courts. In view of these developments, there is significant regulatory uncertainty surrounding the future of data transfers from the European Economic Area to the United States. In addition, the European Commission adopted the General Data Protection Regulation, or GDPR, which became effective on May 25, 2018. The GDPR imposes more stringent data protection requirements than the former regulatory regime in the EU and provides for greater penalties for noncompliance. Additionally, the United Kingdom enacted the Data Protection Act 2018 in May 2018 to implement GDPR at the national level, but as of the date of this report, it remains uncertain how data protection laws or regulations will develop in the United Kingdom following that country's withdrawal from the European Union.

We opened an office in Shanghai, China in 2011. In addition to the risks listed above, we are also exposed to risks associated with changes in laws and policies governing Chinese operations and, to a lesser extent, changes in U.S. laws and regulations relating to foreign trade and investment. To date, legal, policy or regulatory changes have not had a material adverse effect on our business or financial condition, but we cannot assure you they will not in the future. We may experience increased costs for, or significant impact to, our Chinese operations in the event of changes in Chinese government policies or political unrest or unstable economic conditions in China. The nationalization or other expropriation of private enterprises by the Chinese government could result in total loss of our China investment. Any of these matters could materially and adversely affect our business and results of operations.

Failure to comply with anti-corruption and anti-bribery laws in our foreign activities could subject us to penalties and other adverse consequences. Anti-corruption and anti-bribery laws generally prohibit companies and their employees and intermediaries from making payments to foreign officials for the purpose of obtaining or keeping business, securing an advantage or directing business to another person, and require companies to maintain accurate books and records and a system of internal accounting controls. Under the U.S. Foreign Corrupt Practices Act of 1977, as amended, or the FCPA, U.S. companies may be held liable for corrupt actions taken by directors, officers, employees, agents, or other strategic or local partners or representatives. If we, our intermediaries or our solution providers, SIs, OEMs, VARs, distributors, tag manufacturers, and other channel partners fail to comply with FCPA requirements or similar legislation, government authorities in the United States and elsewhere could seek to impose civil or criminal fines and penalties which could have a material adverse effect on our business, operating results and financial conditions. Moreover, China is an area of heightened exposure regarding compliance with anticorruption laws such as the FCPA and the U.K. Bribery Act. We intend to increase our international sales and business there and, as such, our risk of violating laws such as the FCPA or U.K. Bribery Act also increases.

We have limited experience marketing, selling and supporting our products and services abroad and may not be able to increase or maintain international market demand for our products. In addition, regulations or standards adopted by other countries may require us to redesign existing products or develop new products for those countries. For example, foreign governments may impose regulations or standards with which our current products do not comply, or may require operation in frequency bands in which our products do not operate. Furthermore, if we are unable to expand international operations in a timely and cost-effective manner in response to increased demand, we could miss sales opportunities and our revenue may decline, adversely affecting our operating results, business and prospects. If we invest substantial time and resources but are unable to expand our international operations successfully and in a timely manner, our business, prospects and operating results will suffer.

We generally conduct our China operations through a wholly owned subsidiary and our European operations through our U.K. subsidiary. We generally report our taxable income in worldwide jurisdictions based on our business operations in those jurisdictions. The relevant taxing authorities may disagree with our determinations as to the income and expenses attributable to the jurisdiction or subsidiary. In the event of a disagreement, if our position was not sustained, we could be required to pay additional taxes, interest and penalties, which could result in tax charges, higher effective tax rates, reduced cash flows and lower overall profitability.

We are subject to governmental export and import controls that could subject us to liability or impair our ability to compete in international markets.

The U.S. and various foreign governments have imposed controls, export license requirements and restrictions on the import or export of certain products, technologies and software. We must export our products in compliance with U.S. export controls, including the Commerce Department's Export Administration Regulations and various economic and trade sanctions established by the Treasury Department's Office of Foreign Assets Controls. We may not always be successful in obtaining necessary export licenses, and our failure to obtain required import or export approval for our products or limitations on our ability to export or sell our products imposed by these laws may harm our international and domestic sales and adversely affect our revenue. Noncompliance with these laws could have negative consequences, including government investigations, penalties and reputational harm.

Changes in our products or changes in export, import and economic sanctions laws and regulations may delay our introduction of new products in international markets, prevent our customers from deploying our products internationally or, in some cases, prevent the export or import of our products to or from certain countries altogether. While we are not aware of any current or proposed export or import regulations that will materially restrict our ability to sell our products, any change in export or import regulations or legislation, shift or change in enforcement, or change in the countries, persons or technologies targeted by these regulations, could result in decreased use of our products by, or in our decreased ability to export or sell our products to, existing or potential customers with international operations. In such event, our business and results of operations could be adversely affected.

Political unrest, as well as changes in the political, social, business or economic conditions in Thailand, could harm our business, financial condition and operating results.

We post-process many of our IC wafers, including testing, dicing and other wafer operations, using subcontractors in Bangkok, Thailand. Deterioration in the political, social, business and economic conditions in Thailand could have a material effect on our business. Thailand has experienced ongoing political and social upheaval over the past two decades, such as in May 2014 when the Royal Thai Army staged a military coup, banned demonstrations and enforced monitoring of civilian activities. In August 2014, Thailand's national assembly appointed the coup leader as prime minister. Thailand may also experience political unrest stemming from the results of its August 2016 constitutional referendum, as well as the death of its king in October 2016. We do not know what direction the political situation may take or if subsequent issues will affect us. Any changes to tax regimes, laws, exchange controls or political action in Thailand may harm our business, financial condition and operating results.

Instability in Thailand could prevent wafer shipments from entering or leaving the country and disrupt our ability to test or post-process wafers in Thailand. In such an event, we could be forced to transfer our testing and dicing activities to more stable, and potentially more costly, regions and find alternative sources for testing and dicing, which could harm our business, financial condition and operating results.

Intellectual property licensing from or to others, including competitors, may subject us to requirements or limitations that could adversely affect our business and prospects.

We have intellectual property license agreements that give us access to certain patents and intellectual property of others. We have not licensed our patents or intellectual property to others except as necessary for our customers to practice their business using our products and as required pursuant to agreements we have entered into in connection with our participation in the development of GS1 EPCglobal protocols and International Standards Organization, or ISO, standards. In the course of our participation in the development of GS1 EPCglobal protocols, including UHF Gen2, UHF Gen2 V2, tag data standards, low-level reader protocol, and others, we have agreed to license on a royalty-free basis those of our patents that are necessarily infringed by the practice of these protocols to other GS1 EPCglobal members, subject to reciprocal royalty-free rights from those other members. Because it may not be clear whether a member's intellectual property is necessary or optional to the practice of a protocol, disputes could arise among members, resulting in our inability to receive a license on royalty-free terms. Further, some GS1 EPCglobal members declined to provide licenses to some of their intellectual property under royalty-free terms, instead choosing reasonable and non-discriminatory, or RAND, terms. Disputes or confusion may arise about whether we may invoke our necessary intellectual property if these members choose to assert their RAND intellectual property, potentially causing or at least complicating any ensuing litigation and harming our business, financial condition and operating results.

In the course of our participation in the development of certain ISO standards we have agreed to grant to all users worldwide a license to those of our patents that are necessarily infringed by the practice of those standards, including at frequencies other than UHF, on RAND terms, again subject to reciprocity. As a result, we are not always able to limit to whom and, to a certain extent, on what terms we license our technologies, and our control over and our ability to generate licensing revenue from some of our technologies may be limited. We may choose to license our patents or intellectual property to others in the future. We cannot guarantee that any patents and technology that we provide in such future licenses will not be used to compete against us.

We rely on third-party license agreements; impairment of those agreements may cause production or shipment delays that could harm our business.

We have licensing agreements with other entities for patents, software and technology used in our manufacturing operations and products. For example, we license tools from design-automation software vendors to design our silicon products. Third-party licenses for patents, software and other technology important to our business may not continue to be available on commercially reasonable terms, if at all. Loss of any such licenses could cause significant manufacturing interruptions, delays or reductions in product shipments until we can develop, license, integrate, and deploy alternative technologies, if even possible, which would materially harm our business and operating results.

Our use of open-source software may expose us to additional risks and harm our intellectual property.

Our products, processes and technology sometimes use or incorporate software that is subject to an open-source license. Open-source software is typically freely accessible, usable and modifiable, and is made available to the general public on an "as-is" basis under the terms of a non-negotiable license. Use and distribution of open-source software may entail greater risks than use of third-party commercial software. Certain open-source software licenses require a user who intends to distribute the open-source software as a component of the user's software to disclose publicly part or all of the user's source code. In addition, certain open-source software licenses require the user of such software to make derivative works of the open-source code available to others at low or no cost. Consequently, open-source licensing can subject our previously proprietary software to open-source licensing terms, which could enable our competitors to create similar offerings with lower development effort and time and ultimately could result in a loss of sales. In addition, open-source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of their code, opening us to business risks that could materially harm our operating results.

We may face claims alleging noncompliance with open-source license terms or infringement or misappropriation of proprietary software. These claims could result in litigation, require us to purchase a costly license, or require us to devote research and development resources to change our software, any of which would have a negative effect on our business and operating results. Few courts have interpreted open-source licenses, and these licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our offerings. In addition, if there are changes in the licensing terms for the open-source software we use, we may be forced to re-engineer our solutions, incur additional costs or discontinue sale of our offerings. We cannot guarantee that we have incorporated all open-source software in our software in a manner that is consistent with our current policies and procedures, or in a manner that will not subject us to liability.

Privacy and security concerns relating to RAIN could damage our reputation and deter current or potential customers from using our products.

Privacy advocates and others have raised and may continue raising concerns about RAIN compromising consumer privacy or facilitating theft. These concerns include unauthorized parties collecting personally identifiable information, tracking consumers, stealing identities or causing other privacy-related issues. Consumers may be subject to unauthorized readers or gateways surreptitiously identifying and tracking their RAIN tags to gain information a consumer considers private, even if the consumer employs protective measures. Retailers may inadvertently or perhaps even intentionally read consumers' tags to gain information, such as shopping behavior, that may be illegal to collect, or if not illegal, may be considered intrusive by consumers. Unauthorized readers or gateways could gain access to sensitive information stored in tags despite measures designed to thwart such unauthorized access. For example, criminals seeking to divert or steal high-value pharmaceutical products could seek to identify these products by looking for tags with Electronic Product Codes, or EPCs, corresponding to these products. If such concerns increase, or if actual malicious or inadvertent breaches of privacy or theft occur, then our reputation could be damaged, our business and prospects may suffer, and we could incur significant liability.

In addition to concerns over privacy or theft, it may be possible for those with malicious intent to misuse RAIN in ways that actually facilitate theft or damage the public trust, such as by changing the EPC on a narcotic to misrepresent it as an over-the-counter product. It may even be possible to embed computer viruses or other malicious code into endpoint ICs so that by reading endpoint IC memory, the malicious code can be inserted into end-user systems. If a breach occurs, our customers could be the target of regulatory actions or private lawsuits. In such cases, a customer might allege that our products did not function as promised and may sue us for breach of contract, breach of warranty, negligence or another cause of action. Additionally, if our customers' security measures are breached, even if through means beyond our control, our reputation may be damaged, we may be subject to litigation and our business and prospects could suffer. Moreover, concerns about security and privacy risks, even if unfounded, could damage our reputation and operating results and could delay the development of the overall RAIN industry. Security breaches could expose us to litigation and possible liability. Even if our products meet new standards or regulations, if our security measures are breached as a result of third-party action, our error or criminal act or otherwise, and, as a result, someone obtains unauthorized access to customer or end-user data, our reputation could be damaged, our business and prospects may suffer, and we could incur significant liability.

Government regulations and guidelines relating to consumer privacy may adversely impact adoption of our products, require us to make design changes or constrain our ability to implement new and desired product features.

Our customers are subject to laws and regulations related to collecting, storing, transmitting and using personal information, as well as additional laws and regulations that address privacy and security issues related to radiofrequency identification, or RFID. For example, some U.S. states have enacted statutes specifically governing the use of RFID, including prohibitions on mandatory implantation of an RFID IC, unauthorized skimming of information from ID cards and documents, unauthorized personnel tracking using RFID and improper use of RFID tags in drivers' licenses or on vehicles. Because RAIN uses RFID technology, we believe these statutes and regulations apply to RAIN systems.

The European Commission, or EC, has issued guidance to address privacy concerns about RFID. In May 2009, the EC issued a recommendation that retail companies in the EU inform their customers when RFID tags are either on or embedded within products. In April 2011, the EC signed a voluntary agreement with private and public stakeholders to develop privacy guidelines for companies using RFID in the EU. The agreement requires companies to conduct privacy impact assessments of new RFID applications and to take measures to address risks identified by the assessment before the RFID application is deployed. While compliance with the guidelines is voluntary, our customers that do business in the EU may have a preference for products that comply with the guidelines. If our RAIN products do not provide the necessary functionality to allow customers to comply with the guidelines then our business may suffer.

The data security and privacy legislative and regulatory landscape in the United States and EU, and other foreign jurisdictions is evolving, and changes in laws and regulations may adversely impact our business, including our ability to develop future products. If we fail to develop products that implement end-user privacy requirements then end users may choose not to use our products in certain applications, which would harm our business, operating results and financial condition.

Although the Gen2 V2 protocol described below includes features for addressing consumer privacy and authenticating a tag, a third party may still breach these features, including as implemented in our products, in which case our reputation could be damaged and our business and prospects may suffer.

Alternative technologies or standards, or changes in existing technologies or standards, may adversely affect RAIN market growth.

Technology developments may affect our business in ways we cannot anticipate. Breakthroughs in legacy RFID technologies or markets, including those using low frequency or high frequency technology, could adversely affect RAIN market growth generally and demand for our products in particular. For example, NFC technology, which today addresses a different market than RAIN, could, with breakthrough innovations, compete with RAIN in item tagging. Likewise, new technologies such as organic transistors may allow lower-cost ICs than our current silicon-based technology allows. These competing technologies could use intellectual property that is either not royalty free or to which we do not have access. If we are unable to innovate using new or enhanced technologies or processes, or are slow to react to changes in existing technologies or in the market, or have difficulty competing with advances in new or legacy technologies, then our development of new or enhanced products could be materially impacted and potentially result in product obsolescence, decreased revenue and reduced market share.

To encourage widespread RAIN market adoption, we have participated in the development of industry standards, and we have designed our products to comply with these standards. In 2013, GS1 EPCglobal ratified “UHF Gen2 Version 2” or simply “Gen2 V2,” a new version of the protocol that underlies RAIN communications. In the future, we could lose our position in GS1 EPCglobal or we could lose our project-editorship role for UHF Gen2. If one of our competitors introduces a Gen2 V2 product that gains market adoption before we do, we could lose market share and face difficulty selling our products. The introduction of new industry standards, or changes to existing industry standards, could make our products incompatible with the new or changed standards and could cause us to incur substantial development costs to adapt to these new or changed standards, particularly if they were to achieve, or be perceived as likely to achieve, greater penetration in the marketplace. If Gen2 V2 diverges significantly from our or the RAIN market’s needs then our products may likewise fail to keep pace with the market, our competitors’ products and end-user requirements, in which case end users could delay RAIN adoption. Moreover, the adoption or expected adoption of new or changed standards could slow the sale of our existing products before products based on the new or changed standards become available. New industry standards or changes to existing standards could also limit our ability to implement new features in our products if those features do not meet the new or changed standards. The lost opportunities as well as time and expense required for us to develop new products or change our existing products to comply with new or changed standards could be substantial, and we cannot assure you that we could successfully develop products that comply with new or changed standards. If we are not successful in complying with any new or changed industry standards, then we could lose market share, causing our business to suffer.

We are a founding member of the RAIN Alliance. Our chief executive officer is presently an Alliance Director and was previously the Alliance Chairman. Board membership is an elected position that we could lose in future elections. It provides industry stature and attendant benefits but is not without risk. If the RAIN market falters, or if the RAIN Alliance falters, then we could be blamed, our reputation and industry position could be impacted, and our business could suffer.

Compliance with, and changes in, government spectrum regulations could adversely affect our ability to sell products and impair our operating results.

Government radio regulations require that our readers and gateways be certified for spectral compliance in jurisdictions where they are sold or operated. Our readers and gateways are collectively certified for use in more than 40 countries worldwide, including the United States, Canada, Mexico, China, Japan, South Korea and each country in the EU. If one of our reader or gateway products is found to be noncompliant despite having such certification then we could be required to modify field-deployed readers or gateways to regain certification and could spend significant resources as well as miss sales opportunities in the process. Our revenue could decline, adversely affecting our operating results, financial condition, business and prospects. Additionally, government regulations may change, requiring us to redesign our products to the new regulations or constraining our ability to implement new and desired features into our products, thereby causing us to incur significant expenses or forego opportunities to improve our products, potentially delaying time-to-market, adversely affecting our operating results, financial condition, business and prospects.

Our products may cannibalize revenue from each other, which could harm our business.

Sales of some of our products enable our channel partners to develop their own products that compete with other of our products. For example, sales of our reader ICs allow technology companies to build and sell readers and gateways that compete with our products. Similarly, sales of our readers allow our channel partners to build and sell products that compete with our xPortal, xArray and xSpan. We even see cannibalization within our own product line—for example, our xSpan sometimes competes with our xPortal. In the future, we may see one product line expand at the expense of another, or we may be asked by channel partners to disadvantage or divest a product line. We cannot predict whether we can manage such conflicts in the future, or retain channel partners despite conflicts. Any of the foregoing could have a material adverse effect on our business, financial condition and operating results.

Acquisitions could result in operating difficulties, dilution and other harmful consequences.

We have evaluated, and expect to continue evaluating, potential strategic transactions, and we may pursue one or more transactions, including acquisitions. We have limited experience executing acquisitions. Any transaction could be material to our financial condition and operating results. Integrating an acquired company, business or technology may create unforeseen operating difficulties and expenditures. Acquisition-related risks include:

- diverting management time and focus from operating our business to acquisition integration;
- difficulties integrating acquired products into our strategy and product plans;
- customers switching from us to new suppliers because of the acquisition;
- inability to retain employees from the business we acquire;
- challenges associated with integrating employees from the acquired company into our organization;
- difficulties integrating accounting, management information, human resource and other administrative systems to permit effective management of the business we acquire;
- potential requirements for remediating controls, procedures and policies appropriate for a public company in the acquired business that prior to the acquisition lacked these controls, procedures and policies;
- potential liability for past or present environmental, hazardous substance, or contamination concerns associated with the acquired business or its predecessors;
- possible write-offs or impairment charges resulting from the acquisition; and
- unanticipated or unknown liabilities relating to the acquired business.

Foreign acquisitions involve additional risks beyond those above, including risks related to integrating operations across different cultures and languages, currency risks and the economic, political and regulatory risks associated with other countries. Also, the anticipated benefit of any acquisition, domestic or foreign, may not materialize. Future acquisitions or dispositions could result in potentially dilutive issuances of our equity securities, debt incurrence, contingent liabilities or amortization expenses or goodwill write-offs, any of which could harm our financial condition. Future acquisitions may require us to obtain additional equity or debt financing, which may not be available on favorable terms or at all.

Our business could be adversely affected if one or more members of our executive management team departed.

Our success depends, in large part, on the continued contributions of our executive management team including Chris Diorio, Ph.D., our chief executive officer, and Eric Brodersen, our chief operating officer. None of our executive management team is bound by employment contracts to remain with us for a specified period. The loss of any member of our executive management team could harm our ability to implement our business strategy and respond to the rapidly changing market conditions in which we operate.

If we are unable to attract, train and retain qualified personnel, especially technical, sales and marketing personnel, then we may not be able to effectively execute our business strategy.

Our success depends on our ability to attract, motivate and retain qualified personnel. Our technical personnel, the source of our technical and product innovations, and our sales and marketing personnel that drive our go-to-market initiatives are especially important. There is no guarantee we can attract and retain such personnel as we continue to pursue our business strategy. The availability of, and competition for, qualified personnel in the Seattle area, where we are headquartered, constrains our ability to attract qualified personnel. The loss of the services of one or more of our key employees, or our inability to attract, retain and motivate qualified personnel could have a material adverse effect on our business, financial condition and operating results.

Pricing and other provisions in our customer agreements could adversely affect our operating results.

In the ordinary course of business we enter into agreements containing pricing terms; in some instances the terms, whether advertently or inadvertently, may adversely affect our operating results and gross margins. For example, some contracts specify future reader, gateway or IC pricing, or contain most-favored customer pricing for certain products. As another example, some agreements contain exclusivity terms that prevent us from pursuing certain business with other customers during the exclusivity period. Further, reducing prices or offering other favorable terms to one customer could adversely affect our ability to negotiate favorable terms with other customers. We may decide for competitive or strategic reasons to enter into similar types of agreements in the future, and such agreements could impair our operating results.

We and our suppliers are subject to environmental laws and regulations that could impose substantial costs on us and may adversely affect our business, operating results and financial condition.

Some of our facilities, including those devoted to research and development, are regulated under federal, state, local, foreign and international environmental laws. Those laws govern pollutant discharge into air and water; managing, disposing, handling, labeling, and exposure to hazardous substances/wastes; and contaminated site cleanup. We could incur costs, fines and civil or criminal sanctions; third-party property damage or personal-injury claims; or could be required to pay substantial investigation or remediation costs, if we were to violate or become liable under environmental laws. Liability under certain environmental laws can be joint and several and without regard to comparative fault. In addition, some of our products contain hazardous substances and are subject to requirements that regulate their content, such as the EU's Restriction of Hazardous Substances Directive and analogous regulations elsewhere. Although we design our products to be compliant with environmental regulations and require our third-party contractors to comply, we cannot guarantee that we or our products will always be in compliance with these requirements. Environmental laws also tend to become more stringent over time, and we cannot predict the ultimate costs under environmental laws or the timing of these costs. Failure to comply with these and other environmental laws could result in fines, penalties and decreased revenue, which could adversely affect our operating results.

If our third-party contractors fail to operate in compliance with environmental requirements, properly dispose of wastes associated with our products, or comply with requirements governing the hazardous-substance content of our products, we could be held liable or suffer reputational harm.

We may not sustain or effectively manage our growth.

We have experienced significant revenue growth in a short period of time. We may not experience similar growth rates in future periods. For example, revenue declined in the second half of 2017 and first half of 2018. You should not rely on our operating results for any prior periods as an indication of our future operating performance. If we are unable to maintain adequate revenue growth then our financial results could suffer and our stock price would decline.

To manage our growth and the responsibilities of being a public company, we believe we must effectively:

- recruit, hire, train and manage qualified engineers for our research and development activities;
- add sales and marketing personnel and expand our customer-support offices;
- implement and improve administrative, financial and operational systems, procedures and controls;
- integrate and train new employees quickly and effectively; and
- coordinate growth among our executive, engineering, finance, marketing, sales, operations and customer-support organizations.

All the above activities add to our organizational complexity and increase our operating expenses.

We may have insufficient management capabilities or resources to manage our growth and business effectively. As a consequence of our small management team we may be unable to pursue all commercial opportunities. Accordingly, we may require significant additional resources as we increase the complexity and scale of our business operations. We cannot assure you that we will have adequate resources when we need them or that we will have sufficient capital to fund our resource needs. If we are unable to manage our growth effectively, we may not be able to exploit market opportunities or develop new products, and we may fail to satisfy customer requirements, maintain product quality, execute our business plan or respond to competitive pressures.

Our management has limited public-company experience. We are subject to additional regulatory compliance requirements, including Section 404 of the Sarbanes-Oxley Act of 2002. If we fail to maintain an effective system of internal controls then we may not be able to accurately report our consolidated financial results or prevent fraud. In the course of preparing our consolidated financial statements, we previously identified a material weakness in our internal control over financial reporting.

We have a short history of operating as a public company. Some of our executive team, including our chief executive officer, have never managed a publicly traded company prior to our initial public offering and have little experience complying with the complex and everchanging laws pertaining to public companies. In addition, our chief financial officer resigned from our company effective March 30, 2018 and we are in process of identifying a replacement. Our entire management team as well as other company personnel will need to devote substantial time to compliance, and may not effectively or efficiently manage our maturation as a public company. We have incurred and will continue to incur significant legal, accounting and other expenses that we did not incur as a private company.

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We expect rules and regulations such as the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, to continue to increase our legal and finance compliance time and costs, and also to increase the time and costs of other activities. For example, Section 404 of the Sarbanes-Oxley Act requires that management report on, and in the future, that our independent registered public accounting firm attest to, the effectiveness of our internal control over financial reporting. Effective internal controls are necessary for us to provide reliable financial reports and prevent fraud. Section 404 compliance will continue to divert resources and take significant time and effort to complete. We may be unable to successfully complete the procedures and certification and attestation requirements of Section 404 in a timely manner. In addition, the Sarbanes-Oxley Act requirements may be modified, supplemented or amended from time to time. Implementing the changes may take significant time and may require additional employee compliance training. We may discover internal controls that need improvement. Our or our independent registered public accounting firm's discovery of a material weakness, even if quickly remedied, could reduce the market's confidence in our financial statements and harm our stock price. Any inability to provide reliable financial reports or prevent fraud could harm our business.

We may be unable to effectively implement, or effectively implement in a timely manner, the necessary controls and employee training to ensure continued compliance with the Sarbanes-Oxley Act and other regulatory and reporting requirements. Our growth will challenge our ability to maintain the internal control and disclosure standards applicable to public companies. If we fail to successfully complete the procedures and certification and attestation requirements of Section 404, or if in the future our chief executive officer, chief financial officer or independent registered public accounting firm determines that our internal control over financial reporting is not effective as defined under Section 404, we could be subject to sanctions or investigations by the Securities and Exchange Commission, or SEC, or by other regulatory authorities. Investor perceptions of our company may suffer, likely causing a decline in our stock's market price. We cannot assure you that we will be able to fully comply with the requirements of the Sarbanes-Oxley Act or that management or our independent registered public accounting firm will conclude that our internal controls are effective in future periods. Irrespective of compliance with Section 404, any failure of our internal controls could have a material adverse effect on our stated operating results and harm our reputation.

In the course of preparing our consolidated financial statements in prior years, we, in conjunction with our independent registered public accounting firm, identified an error in the accounting treatment for the recapitalization of our company in 2012 and the impact of the recapitalization on earnings per share that resulted in the restatement of our previously issued financial statements for the years ended December 31, 2012 and 2013. In 2015, we, in conjunction with our independent registered public accounting firm, identified an error related to the cash flow statement presentation of lease incentives in our consolidated interim financial statements for the nine months ended September 30, 2015. Also, in 2016, we identified that we inadvertently did not reflect the correction of the identified error related to the cash flow statement presentation of lease incentive in our consolidated interim financial statements for the nine months ended September 30, 2015 on the statement of cash flows included in our quarterly report on Form 10-Q filed with the SEC on November 7, 2016. These financial statement errors, combined with other identified control deficiencies, were considered to indicate a material weakness in our internal control over financial reporting related to the accounting and financial statement disclosure over complex accounting matters. A material weakness is a deficiency, or combination of control deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim consolidated financial statements will not be prevented or detected on a timely basis. We have taken and continue to take steps to remediate the material weakness, including increasing the depth and experience within our accounting and finance organization, as well as designing and implementing improved processes and internal controls. As of June 30, 2018, this material weakness had not been remediated. Our remediation of this material weakness in future periods may not be effective or prevent future material weaknesses or significant deficiencies in our internal control over financial reporting.

We are currently subject to securities class action litigation and may be subject to similar or other litigation in the future, all of which will require significant management time and attention, result in significant legal expenses and may result in unfavorable outcomes, which may have a material adverse effect on our business, operating results and financial condition, and negatively affect the price of our common stock.

We are, and may in the future become, subject to various legal proceedings and claims that arise in or outside the ordinary course of business. For example, on August 7, 2018, a class action complaint for violation of the federal securities laws was filed in the U.S. District Court for the Central District of California against us, our chief executive officer and chief operations officer. Captioned *Schultz v. Impinj, Inc., et al*, the complaint, purportedly brought on behalf of all purchasers of our common stock from May 7, 2018 through and including August 2, 2018, asserts claims that our quarterly statement filed on Form 10-Q for the first quarter of 2018 and a concurrent press release made false or misleading statements about our business prospects and financial condition. The complaint seeks monetary damages, costs and expenses. On August 27, 2018, a second class action complaint for violation of the federal securities laws was filed in the U.S. District Court for the Western District of Washington against us, our chief executive officer, chief operations officer and former chief financial officer. Captioned *Montemarano v. Impinj, Inc., et al.*, the complaint, purportedly brought on behalf of all purchasers of our common stock from May 4, 2017 through and including August 2, 2018, asserts claims that we made false or misleading statements in our financial statements, press releases and conference calls during the purported class period. The complaint seeks monetary damages, costs and expenses.

We cannot predict the outcome of these proceedings or provide an estimate of damages, if any. We believe that these claims are without merit and intend to defend against them vigorously. Failure by us to obtain a favorable resolution of the claims set forth in the complaints could have a material adverse effect on our business, results of operations and financial condition. Also, our insurance coverage may be insufficient, our assets may be insufficient to cover any amounts that exceed our insurance coverage, and we may have to pay damage awards or otherwise may enter into settlement arrangements in connection with such claims. Any such payments or settlement arrangements in current or future litigation could have a material adverse effect on our business, operating results or financial condition. Even if the plaintiffs' claims are not successful, current or future litigation could result in substantial costs and significantly and adversely impact our reputation and divert management's attention and resources, which could have a material adverse effect on our business, operating results and financial condition, and negatively affect the price of our common stock. In addition, such lawsuits may make it more difficult to finance our operations.

If we fail to retain finance personnel or fail to maintain our financial reporting systems and infrastructure then we may be unable to timely and accurately report our financial results or comply with the requirements of being a public company, including compliance with the Sarbanes-Oxley Act and SEC reporting requirements, which in turn could significantly harm our reputation and our business.

We have hired personnel with financial reporting and Sarbanes-Oxley Act compliance expertise. Our ability to retain personnel could adversely impact our ability to timely and accurately prepare our financial statements. Further, our ability to retain employees with the requisite experience could adversely affect our financial statements because new employees require time and training to learn our business and operating procedures. If our finance and accounting organization is unable for any reason to meet the increased demands of being a public company then the quality and timeliness of our financial reporting may suffer, which could result in material weaknesses in our internal controls. The consequences of inaccuracies or delays in our reported financial statements could cause the trading price of our common stock to decline and could harm our business, operating results and financial condition.

We may need to raise additional capital which may not be available on favorable terms, if at all, causing dilution to stockholders, restricting our operations or adversely affecting our ability to operate our business.

In the course of running our business we may need to raise capital, diluting our stockholders. If our need is due to unforeseen circumstances or material expenditures or if our operating results are worse than expected then we cannot be certain that we will be able to obtain additional financing on favorable terms, if at all, and these additional financings could cause additional dilution to our stockholders. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions such as incurring additional debt, expending capital, or declaring dividends, or which impose financial covenants on us that limit our ability to achieve our business objectives. If we need but cannot raise additional capital on acceptable terms then we may not be able to meet our business objectives, our stock price may fall, and you may lose some or all of your investment.

Our debt obligations contain restrictions that impact our business and expose us to risks that could adversely affect our liquidity and financial condition.

We have a loan and security agreement, or senior credit facility, with Silicon Valley Bank. As amended in March 2018, the senior credit facility provides for (1) a \$25.0 million revolving credit facility, with a \$5.0 million letter of credit subfacility and (2) a \$20.0 million term loan. At June 30, 2018, we had \$20.0 million term loan borrowings outstanding and no revolver borrowings outstanding.

Our senior credit facility contains customary covenants, which limit our and our subsidiaries' ability to, among other things:

- incur additional indebtedness or guarantee indebtedness of others;
- create liens on our assets;
- enter into mergers or consolidations;
- dispose of assets;
- pay dividends and make other distributions on our capital stock, and redeem and repurchase our capital stock;
- make investments, including acquisitions; and
- enter into transactions with affiliates.

The amendment also amended the financial covenants under the senior credit facility such that if our cash in accounts maintained with the lender, plus available revolver borrowings, falls below \$60.0 million for the period of time beginning on March 5, 2018 and ending on December 31, 2018, or \$55.0 million for the period of time beginning on January 1, 2019 and at all times thereafter, we must comply with an amended covenant to not exceed maximum adjusted EBITDA loss thresholds that vary by period and the existing minimum liquidity ratio, each determined in accordance with the terms of the senior credit facility.

If we experience a decline in cash flow due to any of the factors described in this "Risk Factors" section or otherwise, we could have difficulty paying interest and principal amounts due on our indebtedness and meeting the financial covenants set forth in our

senior credit facility. If we are unable to generate sufficient cash flow or otherwise obtain the funds necessary to make required payments under our senior credit facility, or if we fail to comply with the requirements of our indebtedness, we could default under our senior credit facility. Any such default that is not cured or waived could result in the acceleration of the obligations under the senior credit facility, an increase in the applicable interest rate under the senior credit facility, and would permit our lender to exercise remedies with respect to all of the collateral that is securing the senior credit facility, including substantially all of our assets, other than intellectual property. Any such default could have a material adverse effect on our liquidity and financial condition.

Even if we comply with all of the applicable covenants, the restrictions on the conduct of our business could adversely affect our business by, among other things, limiting our ability to take advantage of financings, mergers, acquisitions and other corporate opportunities that may be beneficial to the business.

A breach of our security systems could have a material adverse effect on our business.

We use security systems to maintain our facility's physical security and to protect our proprietary and confidential information, including that of our customers, suppliers and employees. Accidental or willful security breaches or other unauthorized access to our facilities or information systems, or viruses, loggers, or other malware code in our data or software, could compromise access to and the integrity of this information. The consequences of such loss and possible misuse of our proprietary and confidential information could include, among other things, unfavorable publicity, damage to our reputation, difficulty marketing our products, customer allegations of breach-of-contract, litigation by affected parties and possible financial liabilities for damages, any of which could have a material adverse effect on our business, financial condition, reputation and relationships with customers and partners. We also rely on third-party providers of corporate infrastructure services relating to, among other things, human resources, electronic communication services and some financial functions, and we are therefore dependent on the security systems of these providers. Any security breaches or other unauthorized access to our service-providers' systems or viruses, loggers, or other malware code in their data or software could expose us to information loss and misappropriation of confidential information. Because the techniques used to obtain unauthorized access to or sabotage security systems change frequently and are often not recognized until after an attack, we may be unable to anticipate the techniques or implement adequate preventative measures, thereby exposing us to material adverse effect on our business, operations and financial condition.

Our operations could be disrupted by natural disasters.

An earthquake, fire, flood or other natural or manmade disaster could disable our facilities, disrupt operations, or cause catastrophic losses. We have facilities in areas with a known history of seismic activity, such as our headquarters in Seattle, Washington. We also have facilities in areas with a known history of flooding, such as our office in Shanghai, China. We have a wafer testing and dicing subcontractor in Thailand, a region with a known, and quite recent, history of flooding. A loss at or of any of these or other of our or our suppliers' facilities could disrupt operations, delay production and shipments, reduce revenue and engender potentially large expenses to repair or replace the facility. As a specific example, in 2011 and 2012 floods in Thailand disrupted our subcontractor's facility for approximately six months. During that time, we relied on a secondary subcontractor that had longer lead times for, and decreased yield of, our endpoint IC wafers. We do not carry insurance policies that cover potential losses caused by earthquakes, floods or other disasters.

Our ability to use net operating losses to offset future taxable income may be limited.

As of December 31, 2017, we had federal net operating loss carryforwards, or NOLs, of \$126.4 million and federal research and experimentation credit carryforwards of \$9.7 million which we may use to reduce future taxable income or offset income taxes due. We have established a valuation allowance against the carrying value of our deferred tax assets, as it is not currently more likely than not that we will be able to realize these deferred tax assets. The tax loss and research and development credit carryforwards begin to expire in 2023. Insufficient future taxable income will adversely affect our ability to utilize these NOLs and credit carryforwards. Reductions in corporate tax rates may reduce the realization of the NOLs. In addition, under Sections 382 and 383 of the U.S. Internal Revenue Code, or the Code, a corporation that experiences a more-than 50% ownership change over a three-year testing period is limited in its ability to use its pre-change NOLs and other tax assets to offset future taxable income or income taxes due. Our existing NOLs and credit carryforwards may be subject to limitations arising from previous ownership changes; if we undergo an ownership change then our ability to use our NOLs and credit carryforwards could be further limited by Sections 382 and 383 of the Code. Future changes in our stock ownership, the causes of which may be outside our control, could result in an ownership change under Sections 382 and 383 of the Code. Our NOLs may also be impaired under state law. As a result of these limitations, we may not be able to utilize a material portion of, or possibly any of, the NOLs and credit carryforwards.

We could be subject to additional income tax liabilities.

We are subject to income taxes in the United States and certain foreign jurisdictions. We use significant judgment in evaluating our worldwide income-tax provision. During the ordinary course of business, we conduct many transactions for which the ultimate tax determination is uncertain. For example, our effective tax rates could be adversely affected by earnings being lower than anticipated in countries where we have lower statutory rates and higher than anticipated in countries where we have higher statutory rates, by changes in currency exchange rates, by changes in the valuation of our deferred tax assets and liabilities or by changes in the relevant tax, accounting and other laws, regulations, principles and interpretations. We are subject to audit in various jurisdictions, and such jurisdictions may assess additional income tax against us. Although we believe our tax estimates are reasonable, the final determination of tax audits and any related litigation could be materially different from our historical income-tax provisions and accruals. The results of an audit or litigation could have a material effect on our operating results or cash flows in the period or periods for which that determination is made.

Taxing authorities may successfully assert that we should have collected or in the future should collect sales and use, value-added or similar taxes, and we could be subject to liability with respect to past or future sales, which could adversely affect our operating results.

We do not collect sales and use, value-added or similar taxes in all jurisdictions in which we have sales, based on our belief that such taxes are either not applicable or an exemption from such taxes applies. Sales and use, value-added and similar tax laws and rates vary greatly by jurisdiction. Certain jurisdictions in which we do not collect such taxes may assert that such taxes are applicable, which could result in tax assessments, penalties and interest, and we may be required to collect such taxes in the future, including as a result of a change in law. Such tax assessments, penalties and interest or future requirements may adversely affect our operating results.

Risks Relating to the Ownership of Our Common Stock

The market price of our common stock has been and will likely continue to be volatile, and the value of your investment could decline significantly.

There was no public market for our common stock prior to our initial public offering. Since July 2016, when we sold shares of our common stock in our initial public offering at a price of \$14.00 per share, our stock price has ranged from \$9.95 to \$60.85 through September 6, 2018. Securities of companies similar to ours experience significant price and volume fluctuations. The following factors, in addition to other risks described in this report, may have a significant effect on our common stock price:

- price and volume fluctuations in the overall stock market from time to time;
- changes in operating performance, stock market valuations, and volatility in the market prices of other technology companies generally, or those in our industry in particular;
- actual or anticipated quarterly variations in our results of operations or those of our competitors;
- actual or anticipated changes in our growth rate relative to our competitors;
- delays in end-user deployments of RAIN systems;
- announcements by us or our competitors of acquisitions, new products, significant contracts, commercial relationships or capital commitments;
- supply interruptions;
- developments with respect to intellectual property rights;
- our ability to develop and market new and enhanced products on a timely basis;
- commencement of, or our involvement in, litigation;
- changes in our board of directors or management;
- changes in governmental regulations or in the status of our regulatory approvals;
- unstable regional political and economic conditions, such as those caused by the U.S. presidential election and the U.K. referendum to leave the EU;
- the trading volume of our stock;
- limited public float;
- any future sales of our common stock or other securities;
- failure of financial analysts to maintain coverage of us, changes in financial estimates by any analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- fluctuations in the values of companies perceived by investors to be comparable to us;
- the financial projections we may provide to the public, any changes in these projections or our failure to meet these projections; and
- general economic conditions and slow or negative growth of related markets.

In addition, the stock market in general, and the market for technology companies in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors may seriously affect our stock price, regardless of our actual operating performance. In addition, in the past, securities class action litigation has often been instituted against companies whose stock prices have declined, especially following periods of volatility in the overall market. Any litigation instituted against us could result in substantial costs and a diversion of our management's attention and resources. For further information regarding this risk, please refer to Note 13 of our consolidated financial statements included elsewhere in this report.

If securities or industry analysts do not publish research reports about our business, or if they issue an adverse opinion about our business, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. If one or more of the analysts who cover us issues an adverse opinion about our company, our stock price would likely decline. If one or more of these analysts ceases coverage of us or fails to regularly publish reports on us, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

Future sales of our common stock in the public market could cause our stock price to fall.

Sales of a substantial number of shares of our common stock into the public market, particularly sales by our directors, executive officers, and principal stockholders, or the perception that these sales might occur, could cause the market price of our common stock to decline. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

In addition, in the future, we may issue additional shares of common stock or other equity or debt securities convertible into common stock in connection with a financing, acquisition, litigation settlement, employee arrangement or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and could cause our stock price to decline.

Our principal stockholders and management own a significant percentage of our stock and are able to exercise significant influence over matters subject to stockholder approval.

As of September 6, 2018, our executive officers, directors and principal stockholders, together with their respective affiliates, beneficially owned approximately 67.4% of our capital stock. As a result, our executive officers, directors and principal stockholders, if acting together, may be able to significantly influence, in their capacity as stockholders, matters requiring approval by our stockholders, including the election of directors and the approval of mergers, acquisitions or other extraordinary transactions. They may also have interests that differ from yours and may vote in a way with which you disagree and which may be adverse to your interests. This concentration of ownership could have the effect of delaying or preventing a change in our control or otherwise discouraging a potential acquirer from attempting to obtain control of us, which in turn could have a material adverse effect on our stock price and may prevent attempts by our stockholders to replace or remove our board of directors or management.

Anti-takeover provisions in our charter documents and under Delaware or Washington law could make an acquisition of us difficult, limit attempts by our stockholders to replace or remove our current management and limit our stock price.

Provisions of our certificate of incorporation and bylaws may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our stock. Among other things, our certificate of incorporation and bylaws:

- permit our board of directors to issue up to 5,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate;
- provide that the authorized number of directors may be changed only by resolution of the board of directors;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- divide our board of directors into three classes;
- restrict the forum for certain litigation against us to Delaware;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and may not be taken by written consent;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner, and also specify requirements as to the form and content of a stockholder's notice;
- do not provide for cumulative voting rights (therefore allowing the holders of a plurality of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose);
- provide that special meetings of our stockholders may be called only by the chair of the board, our chief executive officer or by the board of directors; and
- provide that stockholders will be permitted to amend our bylaws only upon receiving at least two-thirds of the total votes entitled to be cast by holders of all outstanding shares then entitled to vote generally in the election of directors, voting together as a single class.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with any "interested" stockholder for a period of three years following the date on which the stockholder became an "interested" stockholder. Likewise, because our principal executive offices are located in Washington, the anti-takeover provisions of the Washington Business Corporation Act may apply to us under certain circumstances now or in the future. These provisions prohibit a "target corporation" from engaging in any of a broad range of business combinations with any stockholder constituting an "acquiring person" for a period of five years following the date on which the stockholder became an "acquiring person."

Our bylaws provide that the Court of Chancery of the State of Delaware is the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our bylaws provide that, unless we otherwise consent in writing, the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our bylaws or any action asserting a claim against us that is governed by the internal affairs doctrine. The choice of forum provision may limit stockholders' ability to bring a claim in a judicial forum favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. Alternatively, if a court were to find the choice of forum provision contained in our bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

As an emerging growth company within the meaning of the Securities Act, we will utilize certain modified disclosure requirements, and we cannot be certain if these reduced requirements will make our common stock less attractive to investors.

We are an emerging growth company, and for as long as we continue to be an emerging growth company, we may choose to take advantage of exemptions from various reporting requirements applicable to other public companies but not to "emerging growth companies" including:

- not being required to have our independent registered public accounting firm audit our internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act;
- reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We plan in filings with the SEC to continue to utilize the modified disclosure requirements available to emerging growth companies. As a result, our stockholders may not have access to certain information they may deem important.

We could remain an "emerging growth company" for up to five years, or until the earliest of:

- the last day of the first fiscal year in which our annual gross revenue exceeds \$1 billion;
- the date that we become a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act, which would occur if the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the last business day of our most recently completed second fiscal quarter; or
- the date on which we have issued more than \$1 billion in non-convertible debt during the preceding three-year period.

We have incurred and will continue to incur costs by being a public company.

As a public company, we have and will incur significant legal, accounting and other expenses, including costs associated with public company reporting requirements. We have and will incur costs associated with recently adopted corporate governance requirements, including requirements of the SEC and The Nasdaq Global Select Market. We expect these rules and regulations to incur ongoing legal and financial compliance costs and to make some activities incrementally more time-consuming and costly. We also expect these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. As a result, we may have more difficulty attracting and retaining qualified individuals to serve on our board of directors or as executive officers. We are currently evaluating and monitoring developments with respect to these rules, and we cannot predict or estimate the additional costs we may incur or the timing of such costs.

So long as we remain an "emerging growth company," we expect to avail ourselves of the exemption from the requirement that our independent registered public accounting firm attest to the effectiveness of our internal control over financial reporting under Section 404. When our independent registered public accounting firm is required to undertake an assessment of our internal control over financial reporting, the cost of our compliance with Section 404 will correspondingly increase. Moreover, if we are not able to comply with the requirements of Section 404 applicable to us in a timely manner, or if we or our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by the SEC or other regulatory authorities, which would require additional financial and management resources.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

Use of Proceeds from Public Offerings of Common Stock

On July 20, 2016, our registration statement on Form S-1 (No. 333-211779) was declared effective for our initial public offering, or IPO. There has been no material change in the planned use of proceeds from our IPO from that described in the final prospectus dated July 20, 2016 filed with the SEC pursuant to Rule 424(b)(4) under the Securities Act. Pending the uses described, we have invested the net proceeds in short-term, investment-grade interest-bearing securities such as U.S. government agencies, corporate notes and bonds and money market funds.

Item 6. Exhibits

Exhibit Number	Exhibit Description	Incorporation by Reference			Filed Herewith
		Form	Date	Number	
10.1	Letter Agreement, dated as of June 20, 2018, among Impinj, Inc., Sylebra HK Company Limited, Sylebra Capital Management and Daniel P. Gibson	8-K	6/26/2018	10.1	
31.1	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended				X
31.2	Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended				X
32.1*	Certification of Principal Executive Officer Required Under Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350				X
32.2*	Certification of Principal Financial Officer Required Under Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350				X
101.INS	XBRL Instance Document				X
101.SCH	XBRL Taxonomy Extension Schema Linkbase Document				X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document				X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document				X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document				X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document				X

* The certifications attached as Exhibits 32.1 and 32.2 that accompany this Quarterly Report on Form 10-Q are not deemed filed with the Securities and Exchange Commission and are not to be incorporated by reference into any filing of Impinj, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Form 10-Q, irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Impinj, Inc.

By: /s/ Eric Brodersen
Eric Brodersen
President and Chief Operating Officer (principal financial officer and duly authorized signatory)

Date: September 12, 2018

CERTIFICATIONS

I, Chris Diorio, Ph.D., certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Impinj, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the small business issuer as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: September 12, 2018

/s/ Chris Diorio

Chris Diorio, Ph.D.

Chief Executive Officer

(Principal Executive Officer)

CERTIFICATIONS

I, Eric Brodersen, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Impinj, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the small business issuer as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: September 12, 2018

/s/ Eric Brodersen

Eric Brodersen

President and Chief Operating Officer

(Principal Financial Officer)

IMPINJ, INC.
CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Impinj, Inc. (the "Company") on Form 10-Q for the quarter ended June 30, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Chris Diorio, Ph.D., Chief Executive Officer (*Principal Executive Officer*) of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Chris Diorio

Chris Diorio, Ph.D.

Chief Executive Officer

(Principal Executive Officer)

September 12, 2018

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

This certification accompanies the Report to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Impinj, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Report), irrespective of any general incorporation language contained in such filing.

IMPINJ, INC.
CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Impinj, Inc. (the "Company") on Form 10-Q for the quarter ended June 30, 2018, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Eric Brodersen, President and Chief Operating Officer (*Principal Financial Officer*) of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Eric Brodersen

Eric Brodersen

President and Chief Operating Officer
(Principal Financial Officer)

September 12, 2018

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

This certification accompanies the Report to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Impinj, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Report), irrespective of any general incorporation language contained in such filing.