Rubicon Technology, Inc.
Form 10-Q
November 13, 2018

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark one)

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

For the quarterly period ended **September 30, 2018**

or

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

For the transition period from __________ to

Commission file number **001-33834**

RUBICON TECHNOLOGY, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware State or Other Jurisdiction of Incorporation or Organization	**36-4419301** I.R.S. Employer Identification No.
900 East Green Street **Bensenville, Illinois** Address of Principal Executive Offices	**60106** Zip Code

Registrant's Telephone Number, Including Area Code: **(847) 295-7000**

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	Accelerated filer
Non-accelerated filer	Smaller reporting company
Emerging growth company	

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 November 2, 2018 the Registrant had 2,741,699 shares of common stock, par value $.001 per share, outstanding.

RUBICON TECHNOLOGY, INC.

Quarterly Report on Form 10-Q

For the quarterly period ended September 30, 2018

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PART I FINANCIAL INFORMATION

ITEM 1. Consolidated Financial Statements

Rubicon Technology, Inc.

Consolidated balance sheets

	September 30, 2018	**December 31, 2017**
	(unaudited)	
	(in thousands, other than share data)	
Assets		
Cash and cash equivalents	$10,152	$ 11,544
Restricted cash	169	181
Short-term investments	14,579	6,451
Accounts receivable, net	786	718
Inventories	2,562	3,030
Other inventory supplies	185	837
Prepaid expenses and other current assets	140	270
Assets held for sale	4,145	11,202
Total current assets	32,718	34,233
Property and equipment, net	2,773	815
Total assets	$35,491	$ 35,048
Liabilities and stockholders’ equity		
Accounts payable	$260	$ 582
Accrued payroll	80	101
Accrued and other current liabilities	284	430
Corporate income and franchise taxes	280	294
Accrued real estate taxes	43	249
Advance payments	41	59
Total current liabilities	988	1,715
Commitments and contingencies		
Stockholders’ equity		
	—	—

Preferred stock, $.001 par value, 1,000,000 undesignated shares authorized, no shares issued or outstanding		
Common stock, $.001 par value, 8,200,000 shares authorized; 2,919,183 and 2,910,334 shares issued; 2,741,699 and 2,732,850 shares outstanding	29	29
Additional paid-in capital	375,962	375,611
Treasury stock, at cost, 177,484 shares	(12,148)	(12,148)
Accumulated other comprehensive loss	(4)	(3)
Accumulated deficit	(329,336)	(330,156)
Total stockholders’ equity	34,503	33,333
Total liabilities and stockholders’ equity	$35,491	$ 35,048

The accompanying notes are an integral part of these consolidated financial statements.

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Rubicon Technology, Inc.

Consolidated statements of operations

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
	(unaudited)			
	(in thousands, other than share data)			
Revenue	$978	$1,345	$2,818	$3,667
Cost of goods sold	885	1,537	2,738	8,276
Gross profit (loss)	93	(192)	80	(4,609)
Operating expenses:				
General and administrative	488	812	1,802	3,921
Sales and marketing	73	141	298	579
Research and development	33	50	108	887
(Gain) loss from sale or disposal of assets	(1,124)	(46)	(2,738)	1,135
Long-lived asset impairment charge	—	—	—	675
Income (loss) from operations	623	(1,149)	610	(11,806)
Other income:				
Interest income	99	39	237	73
Realized gain (loss) on foreign currency translation	(6)	8	(8)	27
Total other income	93	47	229	100
Income (loss) before income taxes	716	(1,102)	839	(11,706)
Income tax expense	(6)	(7)	(19)	(85)
Net income (loss)	$710	$(1,109)	$820	$(11,791)
Net income (loss) per common share				
Basic	$0.26	$(0.41)	$0.30	$(4.37)
Diluted	$0.26	$(0.41)	$0.30	$(4.37)
Weighted average common shares outstanding used in computing net income (loss) per common share				
Basic	2,733,597	2,716,994	2,732,722	2,696,008
Diluted	2,739,593	2,716,994	2,736,720	2,696,008

The accompanying notes are an integral part of these consolidated financial statements.

Rubicon Technology, Inc.

Consolidated statements of comprehensive income (loss)

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
	(unaudited) (in thousands)			
Net income (loss)	$710	$(1,109)	$820	$(11,791)
Other comprehensive income (loss):				
Unrealized gain (loss) on investments, net of tax	(2)	—	(1)	12
Unrealized gain on currency translation	—	—	—	8
Other comprehensive income (loss)	(2)	—	(1)	20
Comprehensive income (loss)	$708	$(1,109)	$819	$(11,771)

The accompanying notes are an integral part of these consolidated financial statements.

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Rubicon Technology, Inc.

Consolidated statements of cash flows

	Nine months ended September 30,	
	2018	2017
	(unaudited)	
	(in thousands)	
Cash flows from operating activities		
Net income (loss)	$820	$(11,791)
Adjustments to reconcile net income (loss) to net cash used in operating activities		
Depreciation and amortization	309	1,023
Net (gain) loss from sale or disposal of assets	(2,738)	1,135
Long-lived asset impairment charge	—	675
Stock-based compensation	359	786
Changes in operating assets and liabilities:		
Accounts receivable	(68)	1,907
Inventories	468	3,907
Other inventory supplies	74	314
Prepaid expenses and other assets	130	789
Accounts payable	(321)	(241)
Accrued payroll	(21)	16
Corporate income and franchise taxes	(15)	(63)
Accrued real estate taxes	(206)	(27)
Advanced payments	(18)	50
Accrued and other current liabilities	(145)	(113)
Net cash used in operating activities	(1,372)	(1,633)
Cash flows from investing activities		
Purchases of assets	(2,280)	—
Proceeds from sale or disposal of assets	10,387	2,144
Purchases of investments	(8,314)	(24)
Proceeds from sale of investments	184	37
Net cash (used in) provided by investing activities	(23)	2,157
Cash flows from financing activities		
Taxes paid related to net share settlement of equity awards	(9)	(173)
Net cash used in financing activities	(9)	(173)

Net effect of currency translation	—	9
Net increase (decrease) in cash and cash equivalents	(1,404)	360
Cash and cash equivalents, beginning of period	11,725	17,835
Cash and cash equivalents, end of period	$10,321	$18,195

The accompanying notes are an integral part of these consolidated financial statements.

Rubicon Technology, Inc.

NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS

September 30, 2018

1. BASIS OF PRESENTATION

Interim financial data

The accompanying unaudited consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP") for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, they do not include all of the information and notes required by GAAP for complete consolidated financial statements and should be read in conjunction with Rubicon Technology, Inc.'s (the "Company") annual report filed on Form 10-K for the fiscal year ended December 31, 2017. In the opinion of management, all adjustments (consisting only of adjustments of a normal and recurring nature) considered necessary for a fair presentation of the results of operations have been included. Consolidated operating results for the three and nine month periods ended September 30, 2018, are not necessarily indicative of results that may be expected for the year ending December 31, 2018.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of consolidation

The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries, Rubicon Technology Worldwide LLC, Rubicon Technology BP LLC, Rubicon Sapphire Technology (Malaysia) SDN BHD and Rubicon Technology Hong Kong Limited. All intercompany transactions and balances have been eliminated in consolidation.

Investments

The Company invests available cash primarily in U.S. Treasury securities, investment grade commercial paper, FDIC guaranteed certificates of deposit, common stock and corporate notes. Investments classified as available-for-sale securities are carried at fair value with unrealized gains and losses recorded in accumulated other comprehensive income (loss). Investments in trading securities are reported at fair value, with both realized and unrealized gains and losses recorded in other income (expense), in the Consolidated Statement of Operations. Investments in which the Company has the ability and intent, if necessary, to liquidate are classified as short-term.

The Company reviews its available-for-sale securities investments at the end of each quarter for other-than-temporary declines in fair value based on the specific identification method. The Company considers various factors in determining whether an impairment is other-than-temporary, including the severity and duration of the impairment, changes in underlying credit ratings, forecasted recovery, its ability and intent to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value and the probability that the scheduled cash payments will continue to be made. When the Company concludes that an other-than-temporary impairment has resulted, the difference between the fair value and carrying value is written off and recorded as a charge on the consolidated statement of operations.

Accounts receivable

The majority of the Company's accounts receivable is due from defense subcontractors, industrial manufacturers, fabricators and resellers. Credit is extended based on an evaluation of the customer's financial condition. Accounts receivable are due based on contract terms and at stated amounts due from customers, net of an allowance for doubtful accounts. Losses from credit sales are provided for in the financial statements.

Accounts outstanding longer than the contractual payment terms are considered past due. The Company determines its allowance by considering a number of factors, including length of time a customer's account is past due, the customer's current ability to pay and the condition of the general economy and industry as a whole. The Company writes off accounts receivable when they are deemed uncollectible and such write-offs, net of payments received, are recorded as a reduction to the allowance. The following table shows the activity of the allowance for doubtful accounts:

	September 30, 2018	December 31, 2017
	(in thousands)	
Beginning balance	$ 7	$ 31
Charges to costs and expenses	1	(20)
Accounts charged off, less recoveries	—	(4)
Ending balance	$ 8	$ 7

Inventories

Inventories are valued at the lower of cost or net realizable value. Raw materials cost is determined using the first-in, first-out method, and work-in-process and finished goods costs are determined on a standard cost basis, which includes materials, labor and manufacturing overhead. The Company reduces the carrying value of its inventories for differences between the cost and the estimated net realizable value, taking into account usage, expected demand, technological obsolescence and other information.

The Company establishes inventory reserves when conditions exist that suggest inventory may be in excess of anticipated demand or is obsolete based on customer specifications. The Company evaluates the ability to realize the value of its inventory based on a combination of factors, including forecasted sales, estimated current and future market value and changes in customers' product specifications. The Company's method of estimating excess and obsolete inventory has remained consistent for all periods presented.

Inventories consisted of the following:

	September 30, 2018	December 31, 2017
	(in thousands)	
Raw materials	$469	$ 476
Work-in-process	1,875	2,334
Finished goods	218	220
	$2,562	$ 3,030

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Property and equipment

Property and equipment consisted of the following:

	September 30, 2018	December 31, 2017
	(in thousands)	
Leasehold improvements	$3,620	$ 4,624
Machinery, equipment and tooling	3,293	6,105
Buildings	1,686	—
Information systems	819	819
Land and land improvements	594	—
Furniture and fixtures	8	8
Total cost	10,020	11,556
Accumulated depreciation and amortization	(7,247)	(10,741)
Property and equipment, net	$2,773	$ 815

Assets held for sale and long-lived assets

When circumstances, such as adverse market conditions, indicate that the carrying value of a long-lived asset may be impaired, the Company performs an analysis to review the recoverability of the asset's carrying value. The Company makes estimates of the undiscounted cash flows (excluding interest charges) from the expected future operations of the asset. These estimates consider factors such as expected future operating income, operating trends and prospects, as well as the effects of demand, competition and other factors. If the analysis indicates that the carrying value is not recoverable from future cash flows, an impairment loss is recognized to the extent that the carrying value exceeds the estimated fair value. The estimated fair value of assets is determined using appraisal techniques, which assume the highest and best use of the asset by market participants, considering the use of the asset that is physically possible, legally permissible, and financially feasible at the measurement date. Any impairment losses are recorded as operating expenses, which reduce net income.

In connection with the Company's decision in 2016 to limit its focus to the optical and industrial sapphire markets and exit the LED market, the Company developed a plan to close its Malaysia facility, scale down and consolidate remaining operations in the U.S. and sell additional assets that would not be needed. The Company evaluated its U.S. and Malaysia asset portfolios to identify assets needed for its current business strategy and excess assets that were no longer needed. The Company determined it had excess machinery, equipment and facilities. Excess U.S. and Malaysia assets were evaluated based on assuming an orderly liquidation plan, which considers economic obsolescence and sales of comparable equipment, as it is the Company's intention to sell these assets. Additionally, the Company

evaluated its U.S. assets continuing to be used in operations using a cost and market approach to determine the current fair value.

As a result, for the year ended December 31, 2017, the Company recorded an impairment charge of $1.0 million on lower than expected sales prices for certain machinery and equipment held for sale, and identification of assets that will not be needed to support the Company's current operations. Additionally, for the year ended December 31, 2017, the Company recorded an impairment charge of $4.0 million on its U.S. and Malaysia land and building assets on lower than expected sale price. At September 30, 2018, and at the end of the two preceding fiscal quarters, the Company reviewed the current fair value of its assets and concluded no adjustments were needed. The Company will continue to assess its long-lived assets to ensure the carrying amount of these assets is still appropriate given any changes in the asset usage, marketplace and other factors used in determining the current fair value.

In September 2018, the Company completed the sale of its 134,400 square-foot manufacturing and office facility located in Batavia, Illinois, with the net book value of $5.9 million. The selling price for the property was $6.7 million. The Company realized net proceeds of approximately $6.4 million after the payment of real estate taxes, brokerage and legal fees, transfer taxes and other expenses, and recorded a gain on sale of this asset of $504,000.

In the nine months ended September 30, 2018, the Company completed individual sales and held auctions for equipment and consumable assets located at each of its U.S. properties, resulting in the sale of a significant amount of its excess U.S. assets, which had a total net book value of $1.6 million. In the beginning of 2018, the Company intended to sell a certain number of its crystal growth furnaces. Due to the Company's changed needs and business plan, it reduced the number of furnaces it wanted to sell. The difference in the number of furnaces it originally intended to sell and the number it actually disposed of, had a net book value of $236,000. The additional furnaces that the Company decided to retain were reclassified from current assets held for sale to fixed assets held and used at September 30, 2018. Additionally, in the nine months ended September 30, 2018, the Company completed sales of Malaysia equipment with a total net book value of $131,000. Based on these sales, a gain on disposal of equipment and consumable assets of $2.2 million was recorded for the nine months ended September 30, 2018. Unsold excess Malaysia equipment continued to be classified as current assets held for sale at September 30, 2018.

The Company is actively pursuing the sale of a parcel of land it owns in Batavia, Illinois, and the sale or lease of its 65,000 square-foot facility located in Penang, Malaysia. Although the Company cannot assure the timing of these sales, it is the Company's intention to complete these sales within the next twelve-month period, hence, these properties were classified as current assets held for sale at September 30, 2018, and December 31, 2017.

The Company cannot guarantee that it will be able to successfully complete the sale or lease of any assets.

In September 2018, the Company completed the purchase of a property located in Bensenville, Illinois. The purchase price for the property was $2.3 million. Previously, the Bensenville property was leased by the Company and it was the headquarters of its operations and one of its growth facilities. Going forward, this will be the Company's sole operating facility and will also be used for its fabrication operations. The Company used its cash on hand to purchase the property.

Revenue recognition

The Company recognizes revenue in accordance with ASC Topic 606, *Revenue From Contracts with Customers* ("Topic 606") which was adopted on January 1, 2018, using the full retrospective transition method. Adoption of Topic 606 had no impact on periods reported. Under Topic 606, the Company recognizes revenue when performance obligations under a purchase order or signed quotation are satisfied. Revenue is recognized when products are shipped and title and risk of loss transfer to a customer. The Company's business practice commits the Company to manufacture and deliver product upon acceptance of a customer's purchase order or signed quotation ("agreement"). The agreement with the customer includes specifications of the product to be delivered, price, expected ship date and payment terms. The Company's agreements generally do not contain variable, financing, rights of return or non-cash components. There are no up-front costs to develop the production process. The performance obligation is satisfied at the point in time (single performance obligation) when the product is manufactured to the customer's specification, as performance does not create an asset with an alternative use to the Company. Accordingly, the Company recognizes revenue when title and risk of loss have been transferred to the customer, generally at the time of shipment of product. The Company grants credit terms considering normal collection risk. If there is doubt about collection, full prepayment for the order is required. Any payments received prior to shipment are recorded as deferred revenue and included in Advance Payments in the Consolidated Balance Sheets.

Government Contracts

The Company recognizes research and development revenue in the period during which the related costs are incurred over the contractually defined period. In July 2012, the Company signed a contract with the Air Force Research

Laboratory to produce large-area sapphire windows on a cost plus fixed fee basis. The deliverables under the contract included development of machinery and technology to be able to produce large area sapphire windows, prove the concept of growing large windows with that equipment and delivery of large-area sapphire windows. The Company records research and development revenue on a gross basis as costs are incurred, plus a portion of the fixed fee over a period of time as the obligations (machinery, proof of concept and finished windows) are completed following the input method of measuring progress which recognizes revenue as resources are consumed, labor hours expended and costs are incurred. To date, the Company has recorded $4.7 million in revenue and the total value of the contract is $4.7 million. As the Company has completed its government contract, no additional revenue attributable to this contract was recorded in the three months ended September 30, 2018, and the total revenue recorded in the nine months ended September 30, 2018, was $56,000. For the three and nine months ended September 30, 2017, $273,000 and $301,000 of revenue was recorded, respectively. At December 31, 2017, the estimated costs to complete the contract were in excess of the contract value. For the year ended December 31, 2017, the Company recorded estimated costs expected to be incurred in excess of this contract value of $243,000. No additional adjustments for the excess contract costs were recorded for the three and nine months ended September 30, 2018. In reviewing its current estimates, the Company expects its remaining payments to be less than $200,000.

The Company does not provide maintenance or other services and it does not have sales that involve multiple elements or deliverables.

Net income (loss) per common share

Basic net income (loss) per common share is computed by dividing net income (loss) by the weighted-average number of common shares outstanding during the period. Diluted net income (loss) per common share is computed by dividing net income (loss) by the weighted-average number of diluted common shares outstanding during the period. Diluted shares outstanding are calculated by adding to the weighted-average shares (a) any outstanding stock options based on the treasury stock method and (b) restricted stock units (“RSU”).

Diluted net income (loss) per share was the same as basic net income (loss) per share for the three and nine months ended September 30, 2018 and 2017, because the effects of potentially dilutive securities did not have a material impact on the calculation of diluted net income (loss) per share. The Company had outstanding options exercisable into 26,812 shares of the Company’s common stock that were deemed anti-dilutive at September 30, 2018.

New accounting pronouncements adopted

In January 2016, the FASB issued ASU No. 2016-01 (“ASU 2016-01”), *Financial Instruments – Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. Further clarifications were made in February 2018 with the issuance of ASU No. 2018-03 (“ASU 2018-03”). The amended guidance requires certain equity investments that are not consolidated and not accounted for under the equity method to be measured at fair value with changes recognized in net income rather than as a component of accumulated other comprehensive income (loss). It further states that an entity may choose to measure equity investments that do not have readily determinable fair values using a quantitative approach, or measurement alternative, which is equal to its cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. The adoption of ASU 2016-01 and ASU 2018-03 did not have a material impact on the Company’s financial statements.

In April 2016, the FASB issued ASU No. 2016-10 (“ASU 2016-10”), *Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing.* This update clarifies how an entity identifies performance obligations related to customer contracts as well as helps to improve the operability and understanding of the licensing implementation guidance. The amendments in this update affect the guidance in ASU No. 2014-09, (“ASU 2014-09”), *Revenue from Contracts with Customers (Topic 606),* which supersedes most of the current revenue recognition requirements. The underlying principle is that an entity will recognize revenue to depict the transfer of goods or services to customers at an amount that the entity expects to be entitled to in exchange for those goods or services. The guidance provides a five-step analysis of transactions to determine when and how revenue is recognized. Other major provisions include capitalization of certain contract costs, consideration of time value of money in the transaction price, and allowing estimates of variable consideration to be recognized before contingencies are resolved in certain circumstances. The guidance also requires enhanced disclosures regarding the nature, amount, timing and uncertainty of revenue and cash flows arising from an entity’s contracts with customers. The guidance is effective for the interim and annual periods beginning on or after December 15, 2017. The guidance permits the use of either a retrospective or cumulative effect transition method. In May 2016, the FASB issued ASU No. 2016-12, (“ASU 2016-12”), Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients. This update clarifies the objectives of collectability, sales and other taxes, noncash consideration, contract modifications at transition, completed contracts at transition and technical correction. The amendments in this update affect the guidance in ASU 2014-09. In September 2017, the FASB issued additional amendments providing clarification and implementation guidance. The Company’s revenue is primarily generated from the sale of finished products to customers. Sales predominantly contain a single delivery element and revenue is recognized at a single point in time when ownership, risks and rewards transfer. These are largely unaffected by the new standard as they closely align with the new standards principles relating to the measurement of revenue and timing of recognition. The Company adopted Topic 606 effective January 1, 2018, using the full retrospective transition method. As the underlying principles of the new standard, relating to the measurement of revenue and the timing of recognition, are closely aligned with the Company’s current business model and practices, the adoption of ASU 2014-09 did not have a material impact on the consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15 (“ASU 2016-15”), *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments* which adds or clarifies guidance on the classification of certain cash receipts and payments in the statement of cash flows. The standard addresses eight specific cash flow issues with the objective of reducing diversity in practice. ASU 2016-15 is effective for the interim and annual periods beginning after December 15, 2017, with early adoption permitted. The Company’s adoption of ASU 2016-15 did not have a material impact on its consolidated financial statements.

In November 2016, the FASB issued ASU No. 2016-18 (“ASU 2016-18”), *Statement of Cash Flows (Topic 230): Restricted Cash.* The standard requires that amounts generally described as restricted cash and restricted cash equivalents to be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amount shown on the statement of cash flows. In addition, the standard requires disclosure of the nature of restrictions on cash balances and how the statement of cash flows reconciles to the balance sheet in any situation in which the balance sheet includes more than one line item of cash, cash equivalents and restricted cash. ASU 2016-18 is effective for the interim and annual periods beginning after December 15, 2017, with early adoption permitted. The Company’s adoption of ASU 2016-18 did not have a material impact on its consolidated financial statements.

In February 2018, the FASB issued ASU No. 2018-02 (“ASU 2018-02), *Income Statement-Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Comprehensive Income*. The new guidance allows companies to reclassify stranded tax effects resulting from the Tax Act, from accumulated other comprehensive income to retained earnings. The guidance also requires certain new disclosures regardless of the election. Early adoption is permitted. The Company’s adoption of ASU 2018-02 did not have a material impact on its consolidated financial statements.

Recent accounting pronouncements

In February 2016, the FASB issued ASU No. 2016-02 (“ASU 2016-02”), *Leases (Topic 842),* which modifies the lease recognition requirements and requires entities to recognize the assets and liabilities arising from leases on the balance sheet. ASU 2016-02 requires entities to use a modified retrospective approach for leases that exist or are entered into after the beginning of the earliest comparative period in the financial statements. ASU 2016-02 is effective for interim and annual reporting periods beginning after December 15, 2018, with early adoption permitted. The Company is evaluating the impact, if any, of adopting ASU 2016-02 on its financial statements.

In March 2018, the FASB issued ASU No. 2018-05 (“ASU 2018-05), *Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118*. This standard amends ASC 740, *Income Taxes*, to provide guidance on accounting for tax effects of the Tax Cuts and Jobs Act (the “Tax Act”) pursuant to Staff Accounting Bulletin No. 118, which allows companies to complete the accounting under ASC 740 within one-year measurement period from the Tax Act enactment date. This standard is effective upon issuance. The Company has decided to follow the guidance provided by ASU 2018-05 and will leave the one-year measurement period open to evaluate the impact of the Tax Act.

In June 2018, the FASB issued ASU No. 2018-07 (“ASU 2018-07”), *Compensation - Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*. These amendments expand the scope of Topic 718, *Compensation – Stock Compensation* which currently only includes share-based payments to employees to include share-based payments issued to non-employees for goods or services. Consequently, the accounting for share-based payments to non-employees and employees will be substantially aligned. ASU 2018-07 supersedes Subtopic 505-50, *Equity – Equity-Based Payments to Non-Employees*. The guidance is effective for public companies for the interim and annual periods beginning after December 15, 2018. Early adoption is permitted, but no earlier than a company’s adoption date of Topic 606, *Revenue from Contracts with Customers*. At this time, the Company does not recognize the existence of any non-employee relationships involving share-based payments. The Company will continue to assess applicability of ASU 2018-07 prior to adoption.

3. INVESTMENTS

The Company invests its available cash primarily in U.S. Treasury securities, investment grade commercial paper, FDIC guaranteed certificates of deposit, common stock and corporate notes. The Company's investments are classified as available-for-sale securities and are carried at fair value with unrealized gains and losses recorded in accumulated other comprehensive income (loss).

The following table presents the amortized cost and gross unrealized losses on all securities at September 30, 2018:

	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
	(in thousands)			
Short-term investments:				
U.S. Treasury securities	$10,137	$ —	$ (2)	$10,135
Commercial paper	4,445	—	(1)	$4,444
Total short-term investments	$14,582	$ —	$ (3)	$14,579

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The following table presents the amortized cost and gross unrealized losses on all securities at December 31, 2017:

	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
	(in thousands)			
Short-term investments:				
Commercial paper	$4,994	$ —	$ (1)	$4,993
Corporate notes / bonds	1,458	—	—	1,458
Total short-term investments	$6,452	$ —	$ (1)	$6,451

The Company values its investments at fair value, defined 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 for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value, which are the following:

Level 1—Quoted prices in active markets for identical assets or liabilities.

Level 2—Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The Company's fixed income available-for-sale securities consist of U.S. Treasury securities, high-quality investment grade commercial paper, FDIC guaranteed certificates of deposit, common stock and corporate notes. The Company values these securities based on pricing from pricing vendors, who may use quoted prices in active markets for identical assets (Level 1 inputs) or inputs other than quoted prices that are observable either directly or indirectly (Level 2 inputs) in determining fair value. The valuation techniques used to measure the fair value of the Company's financial instruments having Level 2 inputs were derived from non-binding market consensus prices that are corroborated by observable market data, quoted market prices for similar instruments, or pricing models, such as discounted cash flow techniques.

The following table summarizes the Company's financial assets measured at fair value on a recurring basis as of September 30, 2018:

	Level 1	Level 2	Level 3	Total
	(in thousands)			
Cash equivalents:				
Money market funds	$2,505	$—	$ —	$2,505
Investments:				
Available-for-sale securities — current:				
U.S. Treasury securities	—	10,135	—	10,135
Commercial paper	—	4,444	—	4,444
Total	$2,505	$14,579	$ —	$17,084

The following table summarizes the Company's financial assets measured at fair value on a recurring basis as of December 31, 2017:

	Level 1	Level 2	Level 3	Total
	(in thousands)			
Cash equivalents:				
Money market funds	$4,575	$—	$ —	$4,575
Investments:				
Available-for-sale securities — current:				
Commercial paper	—	4,993	—	4,993
Corporate notes / bonds	—	1,458	—	1,458
Total	$4,575	$6,451	$ —	$11,026

There are no terms or conditions restricting the Company from redeeming any of its investments.

In addition to the debt securities noted above, the Company had approximately $7.6 million and $6.9 million of time deposits included in cash and cash equivalents as of September 30, 2018, and December 31, 2017, respectively.

4. SIGNIFICANT CUSTOMERS

For the three months ended September 30, 2018, the Company had four customers individually that accounted for approximately 32%, 12%, 12% and 10% of revenue. For the three months ended September 30, 2017, the Company had four customers individually that accounted for approximately 17%, 12%, 11% and 11% of revenue.

For the nine months ended September 30, 2018, the Company had four customers that accounted for approximately 21%, 11%, 11% and 10% of revenue. For the nine months ended September 30, 2017, the Company had four customers individually that accounted for approximately 17%, 13%, 11% and 10% of revenue. No other customer accounted for 10% or more of the Company's revenues during the three and nine months ended September 30, 2018 and 2017.

Customers individually representing more than 10% of trade receivables accounted for approximately 77% and 69% of accounts receivable as of September 30, 2018, and December 31, 2017, respectively.

5. STOCKHOLDERS’ EQUITY

Common shares reserved

As of September 30, 2018, the Company had reserved 113,643 shares of common stock for issuance upon the exercise of outstanding common stock options and vesting of restricted stock units (“RSUs”). Also, 303,443 shares of the Company’s common stock were reserved for future grants of stock options and RSUs (or other similar equity instruments) under the Rubicon Technology, Inc. 2016 Stock Incentive Plan (the “2016 Plan”) as of September 30, 2018.

Preferred stock

At the Company’s annual meeting of stockholders held on May 10, 2018, the Company’s stockholders approved an amendment to the Company’s Eighth Amended and Restated Certificate of Incorporation (as amended, the “Certificate of Incorporation”) to decrease the Company’s authorized number of shares of preferred stock from 5,000,000 shares to 1,000,000 shares. The Company filed with the Secretary of State of the State of Delaware a Certificate of Amendment to decrease the authorized number of preferred shares, consequently reducing the number of total authorized shares from 13,200,000 to 9,200,000.

6. STOCK INCENTIVE PLANS

In August 2007, the Company adopted the Rubicon Technology Inc. 2007 Stock Incentive Plan, which was amended and restated effective in March 2011 (the “2007 Plan”), and which allowed for the grant of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock, RSUs, performance awards and bonus shares. The maximum number of shares that could be awarded under the 2007 Plan was 440,769 shares. Options granted under the 2007 Plan entitle the holder to purchase shares of the Company’s common stock at the specified option exercise price, which could not be less than the fair value of the common stock on the grant date. On June 24, 2016, the plan terminated with the adoption of the Rubicon Technology, Inc. 2016 Stock Incentive Plan, (the “2016 Plan”). Any existing awards under the 2007 Plan remain outstanding in accordance with their current terms under the 2007 Plan.

In June 2016, the Company’s stockholders approved adoption of the 2016 Plan effective as of March 17, 2016, which allows for the grant of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock, RSUs, performance awards and bonus shares. The Compensation Committee of the Board administers the 2016 Plan. The committee determines the type of award to be granted, the fair value, the number of shares covered by the award, and the time when the award vests and may be exercised.

Pursuant to the 2016 Plan, 222,980 shares of the Company’s common stock plus any shares subject to outstanding awards under the 2007 Plan that subsequently expire unexercised, are forfeited without the delivery of shares or are settled in cash, will be available for issuance under the 2016 Plan. The 2016 Plan will automatically terminate on March 17, 2026, unless the Company terminates it sooner.

The Company uses the Black-Scholes option pricing model to value stock options. The Company uses a three-year historical stock price average to determine its volatility assumptions. The assumed risk-free rates were based on U.S. Treasury rates in effect at the time of grant with a term consistent with the expected option lives. The expected term is based upon the vesting term of the Company’s options, a review of a peer group of companies, and expected exercise behavior. The forfeiture rate of 24.43% is based on the history of forfeited options. The expense is allocated using the straight-line method. For the three and nine months ended September 30, 2018, the Company recorded $8,000 and $38,000, respectively, of stock option compensation expense. For the three and nine months ended September 30, 2017, the Company recorded $20,000 and $258,000, respectively, of stock option compensation expense. As of September 30, 2018, the Company had $56,000 of total unrecognized compensation cost related to non-vested stock option awards granted under the Company’s stock-based plans that it expects to recognize over a weighted-average period of 1.17 years.

Pursuant to an employment agreement in March 2017, which was subsequently amended on May 12, 2017, the Company granted 30,902 and 59,098 RSUs to a key executive in the nine months ended September 30, 2018 and

2017, respectively.

The following table summarizes the award vesting terms for the RSUs granted on January 1, 2018:

Number of RSUs	Target price
902	$11.00
15,000	$12.50
15,000	$14.00

The following table summarizes the award vesting terms for the RSUs granted on March 17, 2017:

Number of RSUs	Target price
15,000	$6.50
15,000	$8.00
15,000	$9.50
14,098	$11.00

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The RSUs vest in the amounts set forth below on the first date the 15-trading day average closing price of the Company's common stock equals or exceeds the corresponding target price for the common stock before May 12, 2021. At the time the negotiation of the terms of the employment agreement began, the closing price of the common stock was $5.50. On the date of grant, the closing price of the common stock was $6.30.

The Company used a Monte Carlo simulation model valuation technique to determine the fair value of RSUs granted because the awards vest based upon achievement of market price targets. The Monte Carlo simulation model utilizes multiple input variables that determine the probability of satisfying the market condition stipulated in the award and calculates the fair value of each RSU. The Company used the following assumptions in determining the fair value of the RSUs:

	Granted January 2018	March 2017
Daily expected stock price volatility	4.2806 %	4.4237 %
Daily expected mean return on equity	(0.2575)%	(0.2226)%
Daily expected dividend yield	0.0 %	0.0 %
Average daily risk-free interest rate	0.0078 %	0.0063 %

The daily expected stock price volatility is based on a four-year historical volatility of the Company's common stock. The daily expected dividend yield is based on annual expected dividend payments. The average daily risk-free interest rate is based on the three-year treasury yield as of the grant date. Each of the tranches is calculated to have its own fair value and requisite service period. The fair value of each tranche is amortized over the requisite or derived service period which is up to four years. The RSUs granted in January 2018 and March 2017 had a grant date fair value of $209,000 and $323,000, respectively.

The following table summarizes the activity of the stock incentive and equity plans as of September 30, 2018, and changes during the nine months then ended:

	Shares available for grant	**Number of options outstanding**	**Weighted-average option exercise price**	**Number of restricted stock and board shares**	**Number of RSUs outstanding**

				issued	
At January 1, 2018	274,494	125,564	$ 19.53	97,692	22,384
Granted	(36,953)	—	—	1,878	35,075
Exercised/issued	—	—	—	—	(3,477)
Cancelled/forfeited	65,902	(62,919)	32.64	—	(2,983)
At September 30, 2018	303,443	62,645	$ 12.54	99,570	50,999

The Company's aggregate intrinsic value is calculated as the difference between the exercise price of the underlying stock options and the fair value of the Company's common stock. Based on the fair value of the common stock at September 30, 2018 and 2017, there was no intrinsic value for options outstanding.

A summary of the Company's non-vested options during the nine months ended September 30, 2018, is presented below:

	Options	**Weighted-average exercise price**
Non-vested options at January 1, 2018	46,842	$ 8.26
Granted	—	—
Vested	(7,942)	6.97
Forfeited	(23,813)	9.07
Non-vested options at September 30, 2018	15,087	$ 7.66

For the three and nine months ended September 30, 2018, the Company recorded $50,000 and $256,000, respectively, of RSU expense. For the three and nine months ended September 30, 2017, the Company recorded $94,000 and $418,000, respectively, of RSU expense. As of September 30, 2018, there was $46,000 of unrecognized compensation cost related to the non-vested RSUs. This cost is expected to be recognized over a weighted-average period of 0.37 years.

A summary of the Company's RSUs during the nine months ended September 30, 2018, is presented below:

	RSUs outstanding	**Weighted average price at time of grant**	**Aggregate intrinsic value**
Non-vested RSUs as of January 1, 2018	22,384	$ 4.65	
Granted	35,075	7.89	
Vested	(3,477)	7.05	
Cancelled	(2,983)	8.88	
Non-vested RSUs at September 30, 2018	50,999	$ 6.46	$ 329,614

For the three and nine months ended September 30, 2018, the Company recorded $4,000 and $65,000, respectively, of stock compensation expense related to restricted stock. For the three and nine months ended September 30, 2017, the Company recorded $49,000 and $110,000, respectively, of stock compensation expense related to restricted stock.

The Company's board of directors are compensated partially in cash and partially in restricted stock. As such, for the nine months ended September 30, 2018, 1,878 shares of restricted common stock were issued to outside directors.

An analysis of restricted stock issued is as follows:

Non-vested restricted stock as of January 1, 2018	4,904
Granted	1,878
Vested	(4,328)
Non-vested restricted stock as of September 30, 2018	2,454

7. COMMITMENTS AND CONTINGENCIES

Litigation

From time to time, the Company experiences routine litigation in the normal course of its business. The management of the Company does not believe any pending litigation, will have a material adverse effect on the financial condition or results of operations of the Company.

On October 31, 2018, the Company received a summons from Bartmann, Perales & Dolter, LLC, the former lessor of the Franklin Park, Illinois, property the Company leased previously, alleging that the Company owes $175,000 in overdue rent payments, property taxes and restoration costs. The Company intends to vigorously defend the allegation and intends to assert a counterclaim pursuant to the terms of the lease agreement for reimbursement of costs and expenses to maintain the condition and repair for said property.

8. INCOME TAXES

On December 22, 2017, the U.S. enacted the Tax Cuts and Jobs Act (the "Act") which, among other provisions, reduced the U.S. corporate tax rate form 35% to 21% effective January 1, 2018. The SEC issued guidance on accounting for the tax effects of the Act. The guidance allows the Company to record provisional amounts for those impacts, with the requirement that the accounting be completed in a period not to exceed one year from the date of enactment. The Company has not completed its accounting for the tax effects of enactment of the Act; however, the Company has made reasonable estimates of the effects on its existing deferred tax balances and the transition tax or deemed repatriation tax. Estimates will true up within the measurement period with the completion of filing of the federal and state tax returns.

The Company is subject to income taxes in the U.S. and Malaysia. On a quarterly basis, the Company assesses the recoverability of deferred tax assets and the need for a valuation allowance. Such evaluations involve the application of significant judgment, and multiple factors, both positive and negative, are considered. For the period ended September 30, 2018, a valuation allowance has been included in the 2018 forecasted effective tax rate. The Company is in a cumulative loss position for the past three years, which is considered significant negative evidence that is difficult to overcome on a "more likely than not" standard through objectively verifiable data. Under the accounting standards, objective verifiable evidence is given greater weight than subjective evidence such as the Company's projections for future growth. Based on an evaluation in accordance with the accounting standards, as of December 31, 2015, a valuation allowance has been recorded against the net U.S. deferred tax assets in order to measure only the portion of the deferred tax assets that are more likely than not to be realized based on the weight of all available evidence. At September 30, 2018, the Company continues to be in a three-year cumulative loss position, therefore, until an appropriate level of profitability is attained, the Company expects to maintain a full valuation allowance on its U.S. and Malaysia net deferred tax assets. Any U.S. and Malaysia tax benefits or tax expense recorded on the Company's consolidated statement of operations will be offset with a corresponding valuation allowance until such time that the Company changes its determination related to the realization of deferred tax assets. In the event that the Company changes its determination as to the amount of deferred tax assets that can be realized, the Company will adjust its valuation allowance with a corresponding impact to the provision for income taxes in the period in which such determination is made.

The tax provision for the nine months ended September 30, 2018, is based on an estimated combined statutory effective tax rate. The Company recorded for the three and nine months ended September 30, 2018, a tax expense of $6,000 and $19,000, respectively, for an effective tax rate of 0.8% and 2.2%, respectively. For the three and nine months ended September 30, 2018, the difference between the Company's effective tax rate and the U.S. federal 21% statutory rate and state 6.2% (net of federal benefit) statutory rate was primarily related to U.S. and Malaysia valuation allowances, Malaysia foreign tax rate differential, and Malaysia withholding taxes on intercompany loan interest.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward Looking Statements

All statements, other than statements of historical facts, included in this Quarterly Report on Form 10-Q, including statements regarding our estimates, expectations, beliefs, intentions, projections or strategies for the future, results of operations, financial position, net sales, projected costs, prospects and plans and objectives of management for future operations may be "forward-looking statements" within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. We have based these forward-looking statements on our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives and financial needs. These forward looking statements can be identified by the use of terms and phrases such as "believe," "plan," "intend," "anticipate," "target," "estimate," "expect," "forecast," "prospects," "goals," "potential," "likely," and the like future-tense or conditional constructions such as "will," "may," "could," "should," etc. (or the negative thereof). Items contemplating or making assumptions about actual or potential future sales, market size and trends or operating results also constitute forward-looking statements.

Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. Before investing in our common stock, investors should be aware that the occurrence of the risks, uncertainties and events described in the section entitled "Risk Factors" in our Annual Report on Form 10-K, for the year ended December 31, 2017, and elsewhere in this Quarterly Report could have a material adverse effect on our business, results of operations and financial condition.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, forward-looking statements are inherently subject to known and unknown business, economic and other risks and uncertainties that may cause actual results to be materially different from those discussed in these forward-looking statements. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date of this Quarterly Report. We assume no obligation to update any forward-looking statements in order to reflect any event or circumstance that may arise after the date of this Quarterly Report, other than as may be required by applicable law or regulation. If one or more of these risks or uncertainties materialize, or if the underlying assumptions prove incorrect, our actual results may vary materially from those expected or projected.

You should read this Quarterly Report, the documents that we reference in this Quarterly Report and have filed with the SEC as exhibits, and our Annual Report on Form 10-K for the year ended December 31, 2017, with the understanding that our actual future results, levels of activity, performance and events and circumstances may be

materially different from what we expect.

Unless otherwise indicated, the terms “Rubicon,” the “Company,” “we,” “us,” and “our” refer to Rubicon Technology, Inc. and our consolidated subsidiaries.

OVERVIEW

We are a vertically integrated, advanced materials provider specializing in monocrystalline sapphire for applications in optical and industrial systems. We use our proprietary crystal growth technology to produce high-quality sapphire products to meet our customers exacting specifications. Historically, we have also provided sapphire products to the LED and mobile device markets, which are the largest markets for sapphire. However, given competitive pressures in those markets, in the fourth quarter of 2016 we announced our decision to limit our focus in the near-term to the optical and industrial sapphire markets and exit the LED market. We believe that we continue to have a reputation as one of the highest quality sapphire producers in the market. We provide optical and industrial sapphire products in various shapes and sizes, including round and rectangular windows and blanks, domes, tubes and rods.

Following the decision in the fourth quarter of 2016 to limit our focus to the optical and industrial sapphire markets and exit the LED market, we developed a plan to close our Malaysia facility, scale down and consolidate remaining operations in the U.S. and sell additional assets that would not be needed for our current business strategy. We evaluated our U.S. and Malaysia asset portfolios and determined we had excess machinery, equipment and facilities assets.

In March 2017, we held auctions at our U.S. and Malaysia properties in an effort to sell excess machinery and equipment with mixed results. Since the March 2017 auction, we have sold some additional Malaysia equipment, and continue to seek buyers for our remaining unsold Malaysia equipment. In the nine months ended September 30, 2018, we completed individual sales and held auctions for assets located at each of our U.S. properties, resulting in the sale of a significant amount of our excess U.S. equipment and consumable assets.

In September 2018, we completed the sale of our manufacturing and office facility located in Batavia, Illinois. The selling price for the property was $6.7 million and we realized net proceeds of approximately $6.4 million after the payment of real estate taxes, brokerage and legal fees, transfer taxes and other expenses.

We are actively pursuing the sale of a parcel of our land in Batavia, IL, and the sale or lease of our 65,000 square-foot manufacturing facility in Penang, Malaysia. The timing on the sale or lease of this real estate is difficult to predict.

We operate in a very competitive market. Our ability to expand our optical and industrial business and acceptance of new product offerings are difficult to predict. In addition, our current optical and industrial sapphire business serves smaller markets than our historical undertakings, therefore, we are actively evaluating the acquisition of profitable companies outside of the sapphire market to utilize our substantial net operating loss carry-forwards.

Historically, a significant portion of our revenue has been derived from sales to relatively few customers. For the three months ended September 30, 2018, we had had four customers individually that accounted for approximately 32%, 12%, 12% and 10% of revenue. For the three months ended September 30, 2017, we had four customers individually that accounted for approximately 17%, 12%, 11% and 11% of revenue. For the nine months ended September 30, 2018, we had four customers that accounted for approximately 21%, 11%, 11% and 10% of revenue and for the nine months ended September 30, 2017, we had four customers that accounted for approximately 17%, 13%, 11% and 10% of revenue. Our principal customers have been defense subcontractors, industrial manufacturers, fabricators and resellers. No other customer accounted for 10% or more of our revenues during the three and nine months ended September 30, 2018 and 2017. We expect our sales to continue to be concentrated among a small number of customers. However, we also expect that our significant customers may change from time to time.

We recognize revenue based upon the shipping terms with our customers, and from our government contract as costs and fees are incurred. Delays in product orders or changes to the timing of shipments could cause our quarterly revenue to vary significantly. We sell our products on a global basis, and historically derived a significant portion of our revenue from customers outside of the U.S., with the majority of our sales to the European and Asian markets. Following the decision to limit our focus to the optical and industrial sapphire markets, a major source of our revenue is derived from the North American market. All of our revenue and corresponding accounts receivable are denominated in U.S. dollars. Substantially all of our revenue is generated by our direct sales force and we expect this to continue in the future.

We manage direct sales, grow and fabricate sapphire parts and ship our products from our Bensenville, Illinois, facility. Previously, we leased this property, and it served as the headquarters of our operations and one of our growth facilities. In the third quarter of 2018, we vacated our leased Franklin Park, Illinois, facility due to the expiration of our lease. In September 2018, we completed the purchase of our Bensenville property and consolidated all of our operations into this facility. Going forward, this will be our sole operating facility.

Our cost of goods sold consists primarily of manufacturing materials, labor, manufacturing-related overhead, such as utilities, depreciation and rent, provisions for excess and obsolete inventory reserves, idle plant charges, outsourcing costs, freight and warranties. We purchase materials and supplies to support current and future demand for our products. We are subject to variations in the cost of consumable assets from period to period because we do not have long-term fixed-price agreements with our suppliers. We currently outsource some of our production processes and needs.

Our operating expenses are comprised of sales and marketing, research and development ("R&D"), and general and administrative ("G&A") expenses. G&A expenses consist primarily of compensation and associated costs for finance, human resources, information technology and administrative activities, including charges for accounting, legal, insurance and stock-based compensation. The majority of our stock-based compensation relates to administrative personnel and is accounted for as a G&A expense.

Other income (expense) consists of interest income and realized gains and losses on investments and currency translation.

We account for income taxes under the asset and liability method, whereby the expected future tax consequences of temporary differences between the book value and the tax basis of assets and liabilities are recognized as deferred tax assets and liabilities, using enacted tax rates in effect for the year in which the differences are expected to be recognized. Our analysis of ownership changes that limit the utilization of our net operating loss ("NOL") carryforwards as of December 31, 2017, shows no impact on such utilization. In order to protect our NOL carryforwards, in December 2017, we implemented a stockholders' rights plan. We are in a cumulative loss position for the past three years. Based on an evaluation in accordance with the accounting standards, a valuation allowance has been recorded against the net U.S. and Malaysia deferred tax assets in order to measure only the portion of the deferred tax assets that are more likely than not to be realized based on the weight of all the available evidence. Until an appropriate level of profitability is attained, we expect to maintain a full valuation allowance on our U.S. and Malaysia net deferred tax assets.

We continue to review a variety of alternatives with a goal of providing greater value to our stockholders. These alternatives could result in, among other things, further modifying or eliminating certain of our operations, selling material assets, seeking additional financing, a sale of the business, a merger, consolidation or other business combination, partnering or other collaboration agreements, potential acquisitions or recapitalizations, or we may continue to operate with our current business plan and strategy. We cannot provide assurance that this process will result in the consummation of any transaction, or that the consummation of any transaction will provide greater value to our stockholders.

RESULTS OF CONSOLIDATED OPERATIONS THREE MONTHS ENDED SEPTEMBER 30, 2018 AND 2017

The following table sets forth our consolidated statements of operations for the periods indicated:

	Three months ended September 30,	
	2018	2017
	(in millions)	
Revenue	$ 1.0	$ 1.3
Cost of goods sold	0.9	1.5
Gross profit (loss)	0.1	(0.2)
Operating expenses:		
General and administrative	0.4	0.8
Sales and marketing	0.1	0.2
Research and development	0.1	0.1
Gain from sale or disposal of assets	(1.1)	(0.1)
Total operating (income) expenses	(0.5)	1.0
Income (loss) from operations	0.6	(1.2)
Other income	0.1	0.1
Income (loss) before income taxes	0.7	(1.1)
Income tax expense	—	—
Net income (loss)	$ 0.7	$ (1.1)

The following table sets forth our consolidated statements of operations as a percentage of revenue for the periods indicated:

	Three months ended September 30,	
	2018	2017
	(percentage of total)	
Revenue	100 %	100 %
Cost of goods sold	90	116
Gross profit (loss)	10	(16)
Operating expenses:		
General and administrative	40	62
Sales and marketing	10	15
Research and development	10	8

Gain from sale or disposal of assets	(110	)	(8	)
Total operating (income) expenses	(50	)	77	
Income (loss) from operations	60		(93	)
Other income	10		8	
Income (loss) before income taxes	70		(85	)
Income tax expense	—		—	
Net income (loss)	70	%	(85	)%

Revenue. Revenue was $978,000 and $1,345,000 for the three months ended September 30, 2018 and 2017, respectively, a decrease of $367,000. As we have completed our government contract, we did not record any revenue attributable to this contract in the three months ended September 30, 2018, which resulted in a decrease in such revenue of $273,000 from the three months ended September 30, 2017. Additionally, due to fluctuations in demand and timing of orders, revenue from our optical and industrial sapphire business decreased by $94,000.

Gross profit (loss). Gross profit was $93,000 for the three months ended September 30, 2018, and gross loss was $192,000 for the three months ended September 30, 2017, a difference of $285,000. This improvement was primarily attributable to an increase in pricing and a decrease in production costs of $273,000 due to improved production efficiency. An additional decrease of $64,000 in gross loss is related to the reversal of estimated expenses for the restoration of our Bensenville leased facility, as we purchased this facility in the third quarter of 2018. This decrease was partially offset by the increase of $52,000 in costs incurred in connection with our consolidation of operations and moving of manufacturing equipment during the three months ended September 30, 2018.

General and administrative expenses. General and administrative expenses were $488,000 and $812,000 for the three months ended September 30, 2018 and 2017, respectively, a decrease of $324,000. The decrease was partially attributable to a reduction in employee compensation costs of $94,000 on a lower headcount. In addition, we experienced a decrease in the board of directors’ compensation costs of $61,000. We also experienced a decrease in the administrative office maintenance and connectivity costs of $60,000 on renegotiated contracts, a decrease in audit and tax consulting expense of $53,000 due to appointment of a new audit firm, a decrease of $22,000 in franchise tax and a decrease in insurance costs of $18,000 on renegotiated policy contracts. Additionally, we recorded lower legal and stockholder relations expenses of $16,000 for the three months ended September 30, 2018.

Sales and marketing expenses. Sales and marketing expenses were $73,000 and $141,000 for the three months ended September 30, 2018 and 2017, respectively, a decrease of $68,000. The decrease in sales and marketing expenses was primarily attributable to a decrease in employee compensation costs on a lower headcount.

Research and development expenses. Research and development expenses were $33,000 and $50,000 for the three months ended September 30, 2018 and 2017, respectively, a decrease of $17,000. This was attributable primarily to a decrease in employee compensation costs on a lower headcount.

(Gain) loss on disposal of assets. Following the decision in 2016 to limit our focus to the smaller optical and industrial sapphire markets, we held multiple auctions and completed individual sales of a significant amount of the excess equipment and consumable assets located in the U.S. and Malaysia. As the result of these sales, for the three months ended September 30, 2018, we recorded a gain on disposal of assets of $620,000 on the sales of fully depreciated and previously written down equipment, small tools and consumable assets. Additionally, in the three months ended September 2018, we completed the sale of our manufacturing and office facility located in Batavia with the net book value of $5.9 million. The net proceeds for the property were approximately $6.4 million, and we recorded the gain on sale of asset of $504,000. For the three months ended September 30, 2017, we recorded a gain on disposal of assets of $46,000, which was primarily attributable to the sale of machinery and equipment.

Other income. Other income was $93,000 and $47,000 for the three months ended September 30, 2018 and, 2017, respectively, an increase of $46,000. The increase in other income was primarily due to an increase in the interest

income of $60,000 on short-term investment securities. This was partially offset by an increase in the realized loss on foreign currency translation of $14,000.

Income tax (benefit) expense. In accordance with ASC740 “Accounting for Income Taxes” (“ASC740”), we evaluate our deferred income tax assets quarterly to determine if valuation allowances are required or should be adjusted. At September 30, 2018, we continue to be in a three-year cumulative loss position, therefore, until an appropriate level of profitability is attained, we expect to maintain a valuation allowance on net deferred tax assets related to future U.S. and Malaysia tax benefits and will no longer accrue tax benefits or tax expense on our Consolidated Statement of Operations. The tax provision for the three months ended September 30, 2018, is based on an estimated combined statutory effective tax rate. For the three months ended September 30, 2018, the difference between the Company’s effective tax rate of 0.8% and the U.S. federal 21% statutory rate and state 6.2% (net of federal benefit) statutory rate was primarily related to U.S. and Malaysia valuation allowances, Malaysia foreign tax rate differential and Malaysia withholding taxes on intercompany loan interest.

RESULTS OF CONSOLIDATED OPERATIONS NINE MONTHS ENDED SEPTEMBER 30, 2018 AND 2017

The following table sets forth our consolidated statements of operations for the periods indicated:

	Nine months ended September 30,	
	2018	2017
	(in millions)	
Revenue	$ 2.8	$ 3.7
Cost of goods sold	2.7	8.3
Gross profit (loss)	0.1	(4.6)
Operating expenses:		
General and administrative	1.8	3.9
Sales and marketing	0.3	0.6
Research and development	0.1	0.9
(Gain) loss from sale or disposal of assets	(2.7)	1.1
Long-lived asset impairment charge	—	0.7
Total operating (income) expenses	(0.5)	7.2
Income (loss) from operations	0.6	(11.8)
Other income	0.2	0.1
Income (loss) before income taxes	0.8	(11.7)
Income tax expense	—	(0.1)
Net income (loss)	$ 0.8	$ (11.8)

The following table sets forth our consolidated statements of operations as a percentage of revenue for the periods indicated:

	Nine months ended September 30,	
	2018	2017
	(percentage of total)	
Revenue	100 %	100 %
Cost of goods sold	96	224
Gross profit (loss)	4	(124)
Operating expenses:		
General and administrative	63	106
Sales and marketing	11	16
Research and development	4	24

(Gain) loss from sale or disposal of assets	(96)	30
Long-lived asset impairment charge	—	19
Total operating expenses	(18)	195
Income (loss) from operations	22	(319)
Other income	7	3
Income (loss) before income taxes	29	(316)
Income tax expense	—	(3)
Net income (loss)	29 %	(319)%

Revenue. Revenue was $2,818,000 and $3,667,000 for the nine months ended September 30, 2018 and 2017, respectively, a decrease of $849,000. Due to fluctuations in demand and timing of orders, revenue from our optical and industrial sapphire business decreased by $604,000. As we have completed our government contract, the total revenue recorded in the nine months ended September 30, 2018, amounted to $56,000, which resulted in a decrease in such revenue of $245,000.

Gross profit (loss). Gross profit was $80,000 for the nine months ended September 30, 2018, and gross loss was $4,609,000 for the nine months ended September 30, 2017, a difference of $4,689,000. This decrease in gross loss was primarily related to the cost of excess raw material and core write-down of $2,500,000 recorded during the nine months ended September 30, 2017. Additionally, we experienced a decrease in gross loss due to an increase in pricing and a decrease in production costs of $2,000,000 due to improved production efficiency, a decrease of $200,000 in costs incurred in connection with our consolidation of operations and moving of manufacturing equipment. This was partially offset by $66,000 of estimated expenses for the restoration of our leased facilities that we may incur in order to comply with the terms of their respective leases.

General and administrative expenses. General and administrative expenses were $1,802,000 and $3,921,000 for the nine months ended September 30, 2018 and 2017, respectively, a decrease of $2,119,000. The decrease was partially attributable to a reduction in employee compensation costs of $753,000 on a lower headcount, of which $93,000 of the decrease was related to a lower executive stock grant compensation and $458,000 of the decrease was related to the employee severance compensation cost recorded for the nine months ended September 30, 2017. We also recorded lower legal and stockholders meeting expenses of $491,000 for the nine months ended September 30, 2018. The decrease was related to the SEC compliance counsel cost incurred in the nine months ended September 30, 2017. In addition, we experienced a decrease in the administrative office maintenance and connectivity costs of $347,000 on renegotiated contracts, a decrease in the board of directors' compensation costs of $211,000, a decrease of $144,000 in franchise tax and a decrease in insurance costs of $110,000 on renegotiated policy contracts. We also recorded a decrease in audit and tax consulting expense of $83,000 due to appointment of a new audit firm.

Sales and marketing expenses. Sales and marketing expenses were $298,000 and $579,000 for the nine months ended September 30, 2018 and 2017, respectively, a decrease of $281,000. The decrease in sales and marketing expenses was attributable to a decrease in employee compensation costs of $254,000 on a lower headcount and a decrease in marketing services and other costs related to sales and marketing of $27,000.

Research and development expenses. Research and development expenses were $108,000 and $887,000 for the nine months ended September 30, 2018 and 2017, respectively, a decrease of $779,000. This is attributable primarily to a decrease in employee compensation costs of $708,000 on a lower headcount, of which $160,000 was related to the employee severance compensation cost recorded for the nine months ended September 30, 2017. Additionally, we experienced a decrease in project expenses and equipment costs of $71,000.

(Gain) loss on disposal of assets. Following the decision in 2016 to limit our focus to the smaller optical and industrial sapphire markets, we have held multiple auctions and completed individual sales of a significant amount of the excess equipment and consumable assets located in the U.S. and Malaysia. As a result of these sales, for the nine months ended September 30, 2018, we recorded gain on disposal of assets of $2.2 million, of which $1.8 million was attributable to the sale of fully depreciated and previously written down equipment, and $400,000 was attributable to the sale of previously written down consumable assets, small tools and equipment. Additionally, in the third quarter of 2018, we completed the sale of our manufacturing and office facility located in Batavia with the net book value of

$5.9 million. The net proceeds for the property were approximately $6.4 million, and we recorded the gain on sale of asset of $504,000. For the nine months ended September 30, 2017, we recorded loss on disposal of assets of $1.1 million, which was primarily attributable to the loss on sale of machinery and equipment.

Long-lived asset impairment charge. With the scaling down of our U.S. operations, for the nine months ended September 30, 2017, we reduced the net book value of certain machinery and equipment and recorded an asset impairment charge of $675,000. We did not record any additional asset impairment expenses for the nine months ended September 30, 2018.

Other income. Other income was $229,000 and $100,000 for the nine months ended September 30, 2018 and 2017, respectively, an increase of $129,000. The increase in other income was primarily due to an increase in the interest income of $164,000 on short-term investment securities. This was partially offset by an increase in the realized loss on foreign currency translation of $35,000.

Income tax benefit (expense). In accordance with ASC740 “Accounting for Income Taxes” (“ASC740”), we evaluate our deferred income tax assets quarterly to determine if valuation allowances are required or should be adjusted. At September 30, 2018, we continue to be in a three-year cumulative loss position, therefore, until an appropriate level of profitability is attained, we expect to maintain a valuation allowance on net deferred tax assets related to future U.S. and Malaysia tax benefits and will no longer accrue tax benefits or tax expense on our Consolidated Statement of Operations. The tax provision for the nine months ended September 30, 2018, is based on an estimated combined statutory effective tax rate. For the nine months ended September 30, 2018, the difference between the Company’s effective tax rate of 2.2% and the U.S. federal 21% statutory rate and state 6.2% (net of federal benefit) statutory rate was primarily related to U.S. and Malaysia valuation allowances, Malaysia foreign tax rate differential and Malaysia withholding taxes on intercompany loan interest.

LIQUIDITY AND CAPITAL RESOURCES

We have historically funded our operations using a combination of issuances of common stock and cash generated from our operations. In addition to this, recently, we have used the funds obtained through selling our excess equipment to fund our operations.

As of September 30, 2018, we had cash and short-term investments totaling $24.7 million, including cash of $7.6 million held in deposits at major banks, $2.5 million invested in money market funds and $14.6 million of short-term investments in U.S. Treasury securities and commercial paper.

Cash flows from operating activities

The following table represents the major components of our cash flows from operating activities for the nine months ended September 30, 2018 and 2017:

	Nine months ended September 30,	
	2018	2017
	(in millions)	
Net income (loss)	$ 0.8	$ (11.8)
Non-cash items:		
Depreciation and amortization	0.3	1.0
Net (gain) loss from sale or disposal of assets	(2.7)	1.1

Long-lived asset impairment charge	—	0.7
Stock-based compensation	0.3	0.8
Total non-cash items:	(2.1)	3.6
Working capital:		
Accounts receivable	(0.1)	1.9
Inventories	0.6	3.9
Prepaid expenses and other assets	0.1	1.1
Accounts payable	(0.3)	(0.2)
Other accruals	(0.4)	(0.1)
Total working capital items:	(0.1)	6.6
Net cash used in operating activities	$ (1.4)	$ (1.6)

Cash used in operating activities was $1.4 million for the nine months ended September 30, 2018. During such period, we generated a net income of $820,000, including non-cash items of ($2.1) million, and a decrease in cash from net working capital of $128,000. The net working capital cash decrease was primarily driven by a decrease in accounts payable of $321,000 and a decrease in other accruals of $205,000 on a lower spending, a decrease in accrued real estate taxes of $206,000 due to the sale of our Batavia facility and an increase in accounts receivable of $68,000 on higher sales volume. This was partially offset by a decrease of $542,000 in raw materials, work-in-process and consumable assets inventories used in operations. Additionally, we experienced a decrease in prepaid expenses and other assets of $130,000 due to a decrease in prepaid lease expense and deposits on expired lease agreements and consolidation of operations in our Bensenville property, which we purchased in the third quarter of 2018.

Cash used in operating activities was $1.6 million for the nine months ended September 30, 2017. During such period, we generated a net loss of $11.8 million, non-cash expenses of $3.6 million, and an increase in cash from net working capital of $6.6 million. The net working capital cash increase was driven by a decrease in inventory of $3.9 million primarily related to a decrease in raw materials of $3.0 million due to sales and a write-down of excess raw materials and decrease in work-in-process and finished goods inventories of $900,000 due to downsized operations. Additionally, we experienced a decrease in accounts receivable of $1.9 million on decreased revenue and improved collections and a decrease in prepaid and other assets of $1.1 million due to excess asset disposals and write-downs and on amounts collected on asset sales. This decrease was partially offset by a decrease in accounts payable and other accruals of $383,000 on timing of payments and due to downsized operations.

Cash flows from investing activities

The following table represents the major components of our cash flows from investing activities for the nine months ended September 30, 2018 and 2017:

	Nine months ended September 30,	
	2018	2017
	(in millions)	
Purchases of assets	$ (2.3)	$ —
Proceeds from sale or disposal of assets	10.4	2.1
Purchases of investments	(8.3)	—
Proceeds from sales of investments	0.2	—
Net cash (used in) provided by investing activities	$ —	$ 2.1

Net cash used in investing activities was $23,000 for the nine months ended September 30, 2018, primarily due to the purchases of investments in U.S. Treasury securities and commercial paper of $8.3 million and the purchase of our Bensenville office and manufacturing facility of $2.3 million. This was partially offset by the proceeds from sales of our Batavia facility of approximately $6.4 million and proceeds from sales of equipment and other assets of $3.9 million, as the result of the auctions we held and completion of individual sales at our U.S. and Malaysia locations. Additionally, this was offset by the proceeds from sales of investments of $184,000.

Net cash provided by investing activities was $2.1 million for the nine months ended September 30, 2017, primarily due to sales of equipment and other assets at our Penang, Malaysia, and Batavia, IL, locations, as the result of our decision to close the Malaysia facility and consolidate our operations in the U.S.

We anticipate our capital expenditures will be kept to a minimum.

Cash flows from financing activities

Net cash used in financing activities was $9,000 and $173,000 for the nine months ended September 30, 2018 and 2017, respectively. This was primarily from cash used for taxes on net share settlement of equity awards.

Future liquidity requirements

We believe that our existing cash, cash equivalents, anticipated cash flows from operating activities and proceeds from sales or lease of fixed assets will be sufficient to meet our anticipated cash needs for at least the next twelve months. However, if our ability to generate sufficient operating cash flow or our use of cash in the next twelve months were to significantly adversely change, we may not have enough funds available to continue operating at our current level in future periods. Our cash needs include cash required to fund our operations. If the assumptions underlying our business plan regarding future revenues and expenses change, or if unexpected opportunities or needs arise, we may seek to raise additional cash by selling equity or convertible debt securities. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

We consider to be critical those accounting policies that require our most subjective or complex judgments, which often result from a need to make estimates about the effect of matters that are inherently uncertain, and that are among the most important of our accounting policies in the portrayal of our financial condition and results of operations. We believe the following to be our critical accounting policies, including the more significant estimates and assumptions used in preparation of our financial statements.

Revenue recognition

We recognize revenue in accordance with ASC Topic 606, *Revenue From Contracts with Customers* (“Topic 606”) which was adopted on January 1, 2018, using the full retrospective transition method. Adoption of Topic 606 had no impact on periods reported. Under Topic 606, we recognize revenue when performance obligations under a purchase order or signed quotation are satisfied. Revenue is recognized when products are shipped and title and risk of loss transfer to a customer. Our business practice commits us to manufacture and deliver product upon acceptance of a customer’s purchase order or signed quotation (“agreement”). The agreement with the customer includes specifications of the product to be delivered, price, expected ship date and payment terms. Our agreements generally do not contain variable, financing, rights of return or non-cash components. There are no up-front costs to develop the production process. The performance obligation is satisfied at the point in time (single performance obligation) when the product is manufactured to the customer’s specification as performance does not create an asset with an alternative use to us. Accordingly, we recognize revenue when title and risk of loss have been transferred to the customer, generally at the time of shipment of product. We grant credit terms considering normal collection risk. If there is doubt about collection, full prepayment for the order is required. Any payments received prior to shipment are recorded as deferred revenue and included in Advance Payments in the Consolidated Balance Sheets.

Government Contracts

We recognize research and development revenue in the period during which the related costs are incurred over the contractually defined period. In July 2012, we signed a contract with the Air Force Research Laboratory to produce large-area sapphire windows on a cost plus fixed fee basis. The deliverables under the contract included development of machinery and technology to be able to produce large area sapphire windows, prove the concept of growing large windows with that equipment and delivery of large-area sapphire windows. We record research and development revenue on a gross basis as costs are incurred, plus a portion of the fixed fee over a period of time as the obligations (machinery, proof of concept and finished windows) are completed following the input method of measuring progress which recognizes revenue as resources are consumed, labor hours expended and costs are incurred. For the nine months ended September 30, 2018 and 2017, $56,000 and $301,000 of revenue was recognized, respectively. To date, we have recorded $4.7 million in revenue and the total value of the contract is $4.7 million. At December 31, 2017, the estimated costs to complete the contract were in excess of the contract value. For the year ended December 31, 2017, we recorded estimated costs expected to be incurred in excess of this contract value of $243,000. No additional adjustments for the excess contract costs were recorded for the nine months ended September 30, 2018. In reviewing our current estimates, we expect our remaining payments to be less than $200,000.

We do not provide maintenance or other services and we do not have sales that involve multiple elements or deliverables.

Assets held for sale and long-lived assets

When circumstances, such as adverse market conditions, indicate that the carrying value of a long-lived asset may be impaired, we perform an analysis to review the recoverability of the asset's carrying value. We make estimates of the undiscounted cash flows (excluding interest charges) from the expected future operations of the asset. These estimates consider factors such as expected future operating income, operating trends and prospects, as well as the effects of demand, competition and other factors. If the analysis indicates that the carrying value is not recoverable from future cash flows, an impairment loss is recognized to the extent that the carrying value exceeds the estimated fair value. The estimated fair value of assets is determined using appraisal techniques which assume the highest and best use of the asset by market participants, considering the use of the asset that is physically possible, legally permissible, and financially feasible at the measurement date. Any impairment losses are recorded as operating expenses, which reduce net income.

In connection with the decision in 2016 to limit our focus to the optical and industrial sapphire markets and exit the LED market, we developed a plan to close our Malaysia facility, scale down and consolidate remaining operations in the U.S. and sell additional assets that would not be needed. We evaluated our U.S. and Malaysia asset portfolios to identify assets needed for our current business strategy and excess assets that were no longer needed. We determined we had excess machinery, equipment and facilities. Excess U.S. and Malaysia assets were evaluated based on assuming an orderly liquidation plan, which considers economic obsolescence and sales of comparable equipment, as it is our intention to sell these assets. Additionally, we evaluated our U.S. assets continuing to be used in operations using a cost and market approach to determine the current fair value.

As a result, for the year ended December 31, 2017, we recorded an impairment charge of $1.0 million on lower than expected sales prices for certain machinery and equipment held for sale, and identification of assets that will not be needed to support our current operations. Additionally, for the year ended December 31, 2017, we recorded an impairment charge of $4.0 million on our U.S. and Malaysia land and building assets on lower than expected sale price. At September 30, 2018, and at the end of the two preceding fiscal quarters, we reviewed the current fair value of our assets and concluded no adjustments were needed. We will continue to assess our long-lived assets to ensure the carrying amount of these assets is still appropriate given any changes in the asset usage, marketplace and other factors used in determining the current fair value.

In September 2018, we completed the sale of our 134,400 square-foot manufacturing and office facility located in Batavia, Illinois, with the net book value of $5.9 million. The selling price for the property was $6.7 million, we realized net proceeds of approximately $6.4 million after the payment of real estate taxes, brokerage and legal fees, transfer taxes and other expenses, and recorded a gain on sale of this asset of $504,000.

In the nine months ended September 30, 2018, we completed individual sales and held auctions for equipment and consumable assets located at each of our U.S. properties, resulting in the sale of a significant amount of our excess U.S. equipment and excess consumable assets, which had a total net book value of $1.6 million. In the beginning of 2018, we intended to sell a certain number of our crystal growth furnaces. Due to our changed needs and business plan, we reduced the number of furnaces we wanted to sell. The difference in the number of furnaces we originally intended to sell and the number we actually disposed of, had a net book value of $236,000. The additional furnaces that we decided to retain were reclassified from current assets held for sale to fixed assets held and used at September 30, 2018. Additionally, in the nine months ended September 30, 2018, we completed sales of Malaysia equipment with a total net book value of $131,000. Based on these sales, a gain on disposal of equipment and consumable assets of $2.2 million was recorded for the nine months ended September 30, 2018. Unsold excess Malaysia equipment continued to be classified as current assets held for sale at September 30, 2018.

We are actively pursuing the sale of a parcel of land we own in Batavia, Illinois, and the sale or lease of our 65,000 square-foot facility located in Penang, Malaysia. Although we cannot assure the timing of these sales, as it is our intention to complete these sales within the next twelve-month period, hence, these properties were classified as current assets held for sale at September 30, 2018, and December 31, 2017.

In September 2018, we completed the purchase of a property located in Bensenville, Illinois. The purchase price for the property was approximately $2.3 million. Previously, we leased the Bensenville property and it was the headquarters of our operations and one of our growth facilities. Going forward, this will be our sole operating facility and will also be used for our fabrication operations. We used our cash on hand to purchase the property.

Inventory valuation

We value our inventory at the lower of cost or net realizable value. Net realizable value is determined based on an estimated selling price in the ordinary course of business less reasonably predictable costs of completion and disposal. Raw materials cost is determined using the first-in, first-out method, and work-in-process and finished goods costs are determined on a standard cost basis which includes materials, labor and manufacturing overhead. We establish inventory reserves when conditions exist that suggest inventory may be in excess of anticipated demand or is obsolete based on customer required specifications. We evaluate the ability to realize the value of our inventory based on a combination of factors, including forecasted sales, estimated current and future market value and changes in customers' product specifications.

Our method of estimating excess and obsolete inventory has remained consistent for all periods presented. However, if our recognition of excess or obsolete inventory is, or if our estimates of our inventory's potential utility become, less favorable than currently expected, additional inventory reserves may be required.

We determine our normal operating capacity and record as an expense costs attributable to lower utilization of equipment and staff. For the three and nine months ended September 30, 2018, we determined that we were not operating at capacity and recorded costs associated with lower utilization of equipment and staff of $239,000 and $684,000, respectively. For the three and nine months ended September 30, 2017, costs associated with lower utilization of equipment and staff were $260,000 and $2.0 million, respectively. It is likely we will incur additional adjustments for lower utilization of our equipment and staff in 2018.

Investments

We invest our available cash primarily in U.S. Treasury securities, investment grade commercial paper, FDIC guaranteed certificates of deposit, common stock and corporate notes. Investments classified as available-for-sale securities are carried at fair value with unrealized gains and losses recorded in accumulated other comprehensive income (loss). Investments in trading securities are reported at fair value, with both realized and unrealized gains and losses recorded in other income (expense), in the Consolidated Statements of Operations. Investments in which we have the ability and intent, if necessary, to liquidate are classified as short-term.

We review our available-for-sale securities investments at the end of each quarter for other-than-temporary declines in fair value based on the specific identification method. We consider various factors in determining whether an impairment is other-than-temporary, including the severity and duration of the impairment, changes in underlying credit ratings, forecasted recovery, our ability and intent to hold the investment for a period of time sufficient to allow

for any anticipated recovery in market value and the probability that the scheduled cash payments will continue to be made. When we conclude that an other-than-temporary impairment has resulted, the difference between the fair value and carrying value is written off and recorded as a charge on the Consolidated Statement of Operations. As of September 30, 2018 and 2017, no impairment was recorded.

Stock-based compensation

We grant stock-based compensation in the form of stock options, RSUs and restricted stock. We expense stock-based compensation based upon the fair value on the date of grant. We use the Black-Scholes option pricing model to determine the fair value of stock options. The determination of the fair value of stock-based payment awards on the date of grant using an option-pricing model will be affected by assumptions regarding a number of complex and subjective variables. These variables include our expected stock volatility over the term of the awards, actual and projected employee stock option exercise behaviors, risk-free interest rates, forfeitures and expected dividends.

The expected term represents the weighted-average period that our stock options are expected to be outstanding and is based upon five years of historical data. We estimate the volatility of our common stock based on a five-year historical stock price. We base the risk-free interest rate that we use in the option pricing model on U.S. Treasury zero-coupon issues with remaining terms similar to the expected term on the options. We do not anticipate paying any cash dividends in the foreseeable future and, therefore, use an expected dividend yield of zero in the option pricing model. We are required to estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates. The current forfeiture rate of 24.43% was based on our past history of forfeitures.

The RSUs vest in the amounts set forth below on the first date the 15-trading day average closing price of our common stock equals or exceeds the corresponding target price for the common stock before May 12, 2021.

We used a Monte Carlo simulation model valuation technique to determine the fair value of RSUs granted because the awards vest based upon achievement of market price targets. The Monte Carlo simulation model utilizes multiple input variables that determine the probability of satisfying the market condition stipulated in the award and calculates the fair value of each RSU.

The daily expected stock price volatility is based on a four-year historical volatility of our common stock. The daily expected dividend yield is based on annual expected dividend payments. The average daily risk-free interest rate is based on the three-year treasury yield as of the grant date. Each of the tranches is calculated to have its own fair value and requisite service period. The fair value of each tranche is amortized over the requisite or derived service period which is up to four years.

We allocate stock-based compensation costs using a straight-line method, which amortizes the fair value of each award on a straight-line basis over the service period.

All option grants are granted at an exercise price per share equal to the closing market price of our common stock on the day before the date of grant. Therefore, there is no intrinsic value because the exercise price per share of each option was equal to the fair value of the common stock on the date of grant.

Based on the fair value of the common stock at September 30, 2018, there is no aggregate intrinsic value of all stock options exercisable or outstanding.

Income tax valuation allowance

In accordance with ASC 740 “Accounting for Income Taxes” (“ASC 740”), we evaluate our deferred income tax assets quarterly to determine if valuation allowances are required or should be adjusted. Evaluating the need for and amount of a valuation allowance for deferred tax assets often requires significant judgment and extensive analysis of all positive and negative evidence available to determine whether all or some portion of the deferred tax assets will not be realized. A valuation allowance must be established for deferred tax assets when it is more likely than not (a probability level of more than 50%) that they will not be realized. In general, “realization” refers to the incremental benefit achieved through the reduction in future taxes payable or an increase in future taxes refundable from the

deferred tax assets, assuming that the underlying deductible differences and carryforwards are the last items to enter into the determination of future taxable income. In determining our valuation allowance, we consider the source of taxable income including taxable income in prior carryback years, future reversals of existing temporary differences, the required use of tax planning strategies, and future taxable income exclusive of reversing temporary differences and carryforwards. We are in a cumulative loss position for the past three years, which is considered significant negative evidence by the accounting standards that is difficult to overcome on a “more likely than not” standard through objectively verifiable data. The accounting standards attribute greater weight to objective verifiable evidence than to subjective positive evidence, such as our projections for future growth. Based on an evaluation in accordance with the accounting standards, as of September 30, 2018, a valuation allowance has been recorded against the net U.S. and Malaysia deferred tax assets in order to measure only the portion of the deferred tax assets that are more likely than not to be realized based on the weight of all the available evidence. Any U.S. and Malaysia tax benefits or tax expense recorded on the Consolidated Statement of Operations will be offset with a corresponding valuation allowance until such time that we change our determination related to the realization of deferred tax assets. In the event that we change our determination as to the amount of deferred tax assets that can be realized, we will adjust our valuation allowance with a corresponding impact to the provision for income taxes in the period in which such determination is made.

RECENT ACCOUNTING PRONOUNCEMENTS

See Note 2 to the Consolidated Financial Statements for a discussion of new accounting standards.

OFF-BALANCE SHEET ARRANGEMENTS

We do not have any off-balance sheet arrangements.

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ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

For the nine months ended September 30, 2018, there were no material changes in the information regarding market risk contained in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

ITEM 4. CONTROLS AND PROCEDURES

Management's evaluation of disclosure controls and procedures

Based on evaluations at September 30, 2018, our chief executive officer and chief financial officer (together, our "certifying officers"), with the participation of the management team, have concluded that our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) are effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC, and that material information relating to the Company is accumulated and communicated to management, including our certifying officers, as appropriate to allow timely decisions regarding required disclosures.

Changes in internal control over financial reporting

Our certifying officers have concluded that there were no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during the three months ended September 30, 2018, that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II

ITEM 6. EXHIBITS

The exhibits filed or incorporated by reference as a part of this report are listed in the Exhibit Index which appears following the signature page to this Quarterly Report on Form 10-Q and is incorporated by reference.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

	Rubicon Technology, Inc.
Date: November 13, 2018	By: /s/ Timothy E. Brog Timothy E. Brog President and Chief Executive Officer
Date: November 13, 2018	By: /s/ Inga A. Slavutsky Inga A. Slavutsky Chief Financial Officer

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EXHIBIT INDEX

The Exhibits listed below are filed or incorporated by reference as part of this Quarterly Report on Form 10-Q.

Exhibit No.	Description	Incorporation by Reference
3.1	Eighth Amended and Restated Certificate of Incorporation of Rubicon Technology, Inc.	Filed as Exhibit 3.1 to the registrant's Registration Statement on Form S-1/A, filed on November 1, 2007 (File No. 333-145880)
3.2	Amendment No. 1 to Eighth Amended and Restated Certificate of Incorporation of Rubicon Technology, Inc.	Filed as Appendix A to the registrant's Definitive Proxy Statement on Schedule 14A, filed on April 29, 2011 (File No. 1-33834)
3.3	Amendment No. 2 to Eighth Amended and Restated Certificate of Incorporation of Rubicon Technology, Inc.	Filed as Exhibit 3.1 to the registrant's Current Report on Form 8-K, filed on May 4, 2017 (File No. 1-33834)
3.4	Second Amended and Restated Bylaws of Rubicon Technology, Inc.	Filed as Exhibit 3.3 to the registrant's Quarterly Report on Form 10-Q, filed on May 10, 2016 (File No. 1-33834)
3.5	Certificate of Designations of Series A Junior Participating Preferred Stock of Rubicon Technology, Inc. filed with the Secretary of State of Delaware on December 18, 2017.	Filed as Exhibit 3.1 to the registrant's Current Report on Form 8-K, filed on December 18, 2017 (File No. 1-33834)
3.6	Amendment No. 3 to Eighth Amended and Restated Certificate of Incorporation of Rubicon Technology, Inc.	Filed as Exhibit 3.1 to the registrant's Current Report on Form 8-K, filed on May 15, 2018 (File No. 1-33834)
10.1	Agreement of Sale of 950 Douglas, Batavia, IL	Filed as Exhibit 10.1 to the registrant's Current Report on Form 8-K, filed on August 20, 2018 (File No. 1-33834)
10.2	Agreement of Purchase of 900 East Green Street, Bensenville, IL	Filed as Exhibit 10.1 to the registrant's Current Report on Form 8-K, filed on September 27, 2018 (File No. 1-33834)
31.1*	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the	

	Sarbanes-Oxley Act of 2002
31.1*	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certifications of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document

*Filed electronically with this Quarterly Report on Form 10-Q