

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 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 June 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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

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

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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

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

As of August 3, 2018 the Registrant had 2,741,383 shares of common stock, par value \$.001 per share, outstanding.

RUBICON TECHNOLOGY, INC.

Quarterly Report on Form 10-Q
For the quarterly period ended June 30, 2018

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PART I FINANCIAL INFORMATION

ITEM 1. Consolidated Financial Statements

Rubicon Technology, Inc.

Consolidated balance sheets

	June 30, 2018	December 31, 2017
	(unaudited)	
	(in thousands, other than share data)	
Assets		
Cash and cash equivalents	\$ 6,023	\$ 11,544
Restricted cash	179	181
Short-term investments	13,489	6,451
Accounts receivable, net	507	718
Inventories	2,788	3,030
Other inventory supplies	206	837
Prepaid expenses and other current assets	830	270
Assets held for sale	10,382	11,202
Total current assets	34,404	34,233
Property and equipment, net	412	815
Total assets	\$ 34,816	\$ 35,048
Liabilities and stockholders' equity		
Accounts payable	\$ 169	\$ 582
Accrued payroll	35	101
Accrued and other current liabilities	420	430
Corporate income and franchise taxes	273	294
Accrued real estate taxes	149	249
Advance payments	34	59
Total current liabilities	1,080	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; 2,918,393 and 2,910,334 shares issued; 2,740,909 and 2,732,850 shares outstanding	29	29
Additional paid-in capital	375,903	375,611
Treasury stock, at cost, 177,484 shares	(12,148)	(12,148)
Accumulated other comprehensive loss	(2)	(3)
Accumulated deficit	(330,046)	(330,156)
Total stockholders' equity	33,736	33,333
Total liabilities and stockholders' equity	\$ 34,816	\$ 35,048

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

Rubicon Technology, Inc.

Consolidated statements of operations

	Three months ended June 30,		Six months ended June 30,	
	2018	2017	2018	2017
	(unaudited)			
	(in thousands, other than share data)			
Revenue	\$ 801	\$ 1,053	\$ 1,840	\$ 2,322
Cost of goods sold	921	3,889	1,853	6,739
Gross loss	(120)	(2,836)	(13)	(4,417)
Operating expenses:				
General and administrative	692	1,299	1,314	3,110
Sales and marketing	106	194	225	438
Research and development	42	195	75	836
(Gain) loss on disposal of assets	(1,052)	432	(1,614)	1,181
Asset impairment charge	—	675	—	675
Income (loss) from operations	92	(5,631)	(13)	(10,657)
Other income:				
Interest income	80	28	138	34
Realized gain (loss) on foreign currency translation	(16)	13	(2)	19
Total other income	64	41	136	53
Income (loss) before income taxes	156	(5,590)	123	(10,604)
Income tax expense	(6)	(17)	(13)	(78)
Net income (loss)	\$ 150	\$ (5,607)	\$ 110	\$ (10,682)

Rubicon Technology, Inc.

NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS

June 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 six-month periods ended June 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 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 investment grade commercial paper, corporate notes, FDIC guaranteed certificates of deposit, common stock, and government securities. Investments classified as available-for-sale securities are carried at fair market 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 sub-contractors, 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 the 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:

	June 30, 2018	December 31, 2017
	(in thousands)	
Beginning balance	\$ 7	\$ 31
Charges to costs and expenses	(2)	(20)
Accounts charged off, less recoveries	—	(4)
Ending balance	<u>\$ 5</u>	<u>\$ 7</u>

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:

	June 30, 2018	December 31, 2017
	(in thousands)	
Raw materials	\$ 476	\$ 476
Work-in-process	2,109	2,334

Property and equipment

Property and equipment consisted of the following:

	June 30, 2018	December 31, 2017
(in thousands)		
Machinery, equipment and tooling	\$ 5,435	\$ 6,105
Leasehold improvements	4,624	4,624
Information systems	819	819
Furniture and fixtures	8	8
Total cost	10,886	11,556
Accumulated depreciation and amortization	(10,474)	(10,741)
Property and equipment, net	\$ 412	\$ 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 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 June 30, 2018, 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 the six months ended June 30, 2018, the Company completed individual sales and held auctions for assets located at each of its U.S. properties, resulting in the sale of a portion of its excess U.S. equipment and consumables, which had a total net book value of \$1.5 million. Additionally, in the six months ended June 30, 2018, the Company completed sales of Malaysia equipment with a total net book value of \$131,000. Unsold excess equipment continued to be classified as current assets held for sale at June 30, 2018. Based on these sales, a gain on disposal of assets of \$1.6 million was recorded for the six months ended June 30, 2018.

The Company is actively pursuing the sale or lease of its 134,400 square-foot manufacturing and office facility located in Batavia, Illinois, a parcel of extra land the Company owns in Batavia, Illinois, and a 65,000 square-foot facility located in Penang, Malaysia. Although the Company cannot assure the timing of these sales, as 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 June 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.

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 alternate 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. For the three and six months ended June 30, 2018, the same amount of revenue of \$56,000 was recorded, as no revenue was recorded for the three months ended March 31, 2018. For the three and six months ended June 30, 2017, \$3,000 and \$29,000 of revenue was recorded, respectively. To date, the Company has 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, 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 six months ended June 30, 2018.

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 is the same as basic net income (loss) per share for the three and six months ended June 30, 2018 and 2017 because the effects of potentially dilutive securities do not have a material impact on the calculation of diluted net income (loss) per share.

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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.

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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 annual reporting periods beginning after December 15, 2018. Early adoption is permitted. The Company is evaluating the impact, if any, of adopting ASU 2016-02 on its 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.

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.

3. INVESTMENTS

The Company invests its available cash primarily in investment grade commercial paper, corporate notes, FDIC guaranteed certificates of deposit, common stock and

government securities. 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 gains and losses on all securities at June 30, 2018:

	<u>Amortized cost</u>	<u>Gross unrealized gains</u> (in thousands)		<u>Gross unrealized losses</u>	<u>Fair value</u>
Short-term investments:					
U.S. Treasury securities	\$ 1,499	\$ —	\$ —	\$ —	\$ 1,499
Commercial paper	11,730	—	(1)	—	11,729
Corporate notes / bonds	261	—	—	—	261
Total short-term investments	<u>\$ 13,490</u>	<u>\$ —</u>	<u>\$ (1)</u>	<u>\$ —</u>	<u>\$ 13,489</u>

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

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

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 high-quality investment grade commercial paper, FDIC guaranteed certificates of deposits, corporate notes and government securities. 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 June 30, 2018:

	<u>Level 1</u>	<u>Level 2</u> (in thousands)		<u>Level 3</u>	<u>Total</u>
Cash equivalents:					
Money market funds	\$ 3,514	\$ —	\$ —	\$ —	\$ 3,514
Investments:					
Available-for-sales securities — current:					
U.S. Treasury securities	—	1,499	—	—	1,499
Commercial paper	—	11,729	—	—	11,729
Corporate notes / bonds	—	261	—	—	261
Total	<u>\$ 3,514</u>	<u>\$ 13,489</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 17,003</u>

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

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

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 \$2.5 million and \$6.9 million of time deposits included in cash and cash equivalents as of June 30, 2018 and December 31, 2017, respectively.

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4. SIGNIFICANT CUSTOMERS

For the three months ended June 30, 2018, the Company had three customers individually that accounted for approximately 21%, 15% and 13% of revenue. For the three months ended June 30, 2017, the Company had three customers individually that accounted for approximately 17%, 12% and 10% of revenue. For the six months ended June 30, 2018, the Company had three customers that accounted for approximately 15%, 15% and 10% of revenue. For the six months ended June 30, 2017, the Company had four customers that accounted for approximately 17%, 13%, 11% and 11% of revenue. No other customer accounted for 10% or more of the Company's revenues during the three and six months ended June 30, 2018 and 2017.

Customers individually representing more than 10% of trade receivables accounted for approximately 60% and 69% of accounts receivable as of June 30, 2018 and December 31, 2017, respectively.

5. STOCKHOLDERS' EQUITY

Common shares reserved

As of June 30, 2018, the Company had reserved 130,489 shares of common stock for issuance upon the exercise of outstanding common stock options and vesting of restricted stock units. Also, 286,597 shares of the Company's common stock were reserved for future grants of stock options and restricted stock units (or other similar equity instruments) under the Rubicon Technology, Inc. 2016 Stock Incentive Plan (the "2016 Plan") as of June 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 Ninth 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, restricted stock units ("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 market 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 market value, the number of shares covered by the award, and the time when the award vests and may be exercised.

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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 six months ended June 30, 2018, the Company recorded \$13,000 and \$30,000, respectively, of stock option compensation expense. For the three and six months ended June 30, 2017, the Company recorded \$40,000 and \$238,000, respectively, of stock option compensation expense. As of June 30, 2018, the Company had \$66,000 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 1.42 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 six months ended June 30, 2018 and 2017, respectively.

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 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.

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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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 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 June 30, 2018 and changes during the six months then ended:

	Shares available for grant	Number of options outstanding	Weighted- average option exercise price	Number of restricted stock and board shares issued	Number of restricted stock units outstanding
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	49,056	(46,073)	23.94	—	(2,983)
At June 30, 2018	<u>286,597</u>	<u>79,491</u>	<u>\$ 21.84</u>	<u>99,570</u>	<u>50,999</u>

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 June 30, 2018 and 2017, there was no intrinsic value for options outstanding.

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

	Options	Weighted- average exercise price
Non-vested at January 1, 2018	46,842	\$ 8.26
Granted	—	—
Vested	(250)	11.40
Forfeited	(23,813)	9.07
Non-vested at June 30, 2018	<u>22,779</u>	<u>\$ 7.38</u>

For the three and six months ended June 30, 2018, the Company recorded \$115,000 and \$206,000, respectively, of RSU expense. For the three and six months ended June 30, 2017, the Company recorded \$188,000 and \$324,000, respectively, of RSU expense. As of June 30, 2018, there was \$52,000 of unrecognized compensation cost related to the non-vested RSUs. This cost is expected to be recognized over a weighted-average period of 0.24 years.

A summary of the Company's restricted stock units is as follows:

	RSUs outstanding	Weighted average price at time of grant	Aggregate intrinsic value
Non-vested restricted stock units 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 at June 30, 2018	<u>50,999</u>	<u>\$ 6.46</u>	<u>\$ 329,614</u>

For the three and six months ended June 30, 2018, the Company recorded \$4,000 and \$61,000, respectively, of stock compensation expense related to restricted stock. For the three and six months ended June 30, 2017, the Company recorded \$57,000 and \$61,000, 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 six months ended June 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 June 30, 2018	<u>2,454</u>

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.

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 from 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 June 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 June 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 six months ended June 30, 2018 is based on an estimated combined statutory effective tax rate. The Company recorded for the three and six months ended June 30, 2018 a tax expense of \$6,000 and \$13,000, respectively, for an effective tax rate of 3.8% and 10.2%, respectively. For the three and six months ended June 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, and/or 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 equipment with mixed results. Since the March 2017 auction, we have sold some additional U.S. and Malaysia equipment, and continue to seek buyers for our remaining unsold U.S. and Malaysia equipment. In May 2018, we held auctions for assets located at each of our U.S. properties, resulting in the sale of a portion of the excess U.S. equipment.

We are actively pursuing the sale or lease of the Batavia, Illinois, manufacturing and office facility. We are also actively trying to sell a parcel of extra land in Batavia and a 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 is 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 June 30, 2018, we had three customers individually that accounted for approximately 21%, 15% and 13% of revenue. For the three months ended June 30, 2017, we had three customers individually that accounted for approximately 17%, 12% and 10% of revenue. For the six months ended June 30, 2018, we had three customers that accounted for approximately 15%, 15% and 10% of revenue and for the six months ended June 30, 2017, we had four customers that accounted for approximately 17%, 13%, 11% and 11% 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 six months ended June 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.

We manage direct sales from our Bensenville, Illinois offices. Substantially all of our revenue is generated by our direct sales force and we expect this to continue in the future.

We manufacture and ship our products from our facilities in the Chicago metropolitan area. We have an aggregate of approximately 196,400 square feet of manufacturing and office space in Batavia, Franklin Park and Bensenville, Illinois, and a 65,000 square-foot facility in Penang, Malaysia. However, we are no longer operating out of our Batavia facility of 134,400 square feet. Additionally, it is likely that, as of the third quarter of 2018, we will vacate the Franklin Park facility due to expiration of our lease agreement, and will consolidate our operations into our Bensenville facility. The Malaysia and Batavia facilities are currently held for sale. Additional land in Batavia is also held for sale.

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 consumables 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 JUNE 30, 2018 AND 2017

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

	Three months ended	
	June 30,	
	2018	2017
	(in millions)	
Revenue	\$ 0.8	\$ 1.1
Cost of goods sold	0.9	3.9
Gross loss	(0.1)	(2.8)
Operating expenses:		
General and administrative	0.7	1.3
Sales and marketing	0.1	0.2
Research and development	0.1	0.2
(Gain) loss on disposal of assets	(1.1)	0.4

Asset impairment charge	—	0.7
Total operating (income) expenses	(0.2)	2.8
Income (loss) from operations	0.1	(5.6)
Other income	0.1	—
Income (loss) before income taxes	0.2	(5.6)
Income tax expense	—	—
Net income (loss)	\$ 0.2	\$ (5.6)

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

	Three months ended	
	June 30,	
	2018	2017
	(percentage of total)	
Revenue	100%	100%
Cost of goods sold	113	369
Gross loss	(13)	(269)
Operating expenses:		
General and administrative	87	123
Sales and marketing	13	19
Research and development	13	19
(Gain) loss on disposal of assets	(139)	41
Asset impairment charge	—	64
Total operating (income) expenses	(26)	266
Income (loss) from operations	13	(535)
Other income	13	4
Income (loss) before income taxes	26	(531)
Income tax expense	—	—
Net income (loss)	26%	(531)%

Revenue. Revenue was \$801,000 and \$1.1 million for the three months ended June 30, 2018 and 2017, respectively, a decrease of \$252,000. Due to fluctuations in demand and timing of orders, revenue from optical and industrial sapphire business decreased by \$305,000. This was partially offset by the increase in the revenue from our government contract of \$53,000.

We operate in an extremely volatile market, so the amount of price or volume change and acceptance of new product offerings are difficult to predict.

Gross loss. Gross loss was \$120,000 and \$2.8 million for the three months ended June 30, 2018 and 2017, respectively, a decrease in gross loss of \$2.7 million. This decrease in gross loss was primarily related to the cost of excess raw material write-down of \$2.4 million during the three months ended June 30, 2017. An additional decrease in gross loss was attributable to an increase in pricing and a decrease in production costs of \$356,000 due to improved production efficiency. This was partially offset by \$130,000 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 \$692,000 and \$1.3 million for the three months ended June 30, 2018 and 2017, respectively, a decrease of \$607,000. The decrease was partially attributable to a reduction in the employee compensation costs of \$127,000 on lower headcount. We also recorded lower legal and shareholder relations expenses of \$127,000 for the three months ended June 30, 2018. The decrease was related to the SEC compliance counsel cost incurred in the three months ended June 30, 2017. In addition, we experienced a decrease in the administrative office maintenance and connectivity costs of \$140,000 on renegotiated contracts, a decrease in the board of directors' compensation costs of \$75,000, a decrease of \$68,000 in franchise tax, a decrease in insurance costs of \$42,000 on renegotiated contracts and a decrease in audit and tax consulting expense of \$28,000 due to appointment of a new audit firm.

Sales and marketing expenses. Sales and marketing expenses were \$106,000 and \$194,000 for the three months ended June 30, 2018 and 2017, respectively, a decrease of \$88,000. The decrease in sales and marketing expenses was attributable to a decrease in employee compensation costs of \$105,000 on a lower headcount. This was partially offset by an increase of \$17,000 related to the costs of marketing exhibitions and customer development incurred during the three months ended June 30, 2018.

Research and development expenses. Research and development expenses were \$42,000 and \$195,000 for the three months ended June 30, 2018 and 2017, respectively, a decrease of \$153,000. This is attributable primarily to a decrease in employee compensation costs of \$146,000 on a lower headcount. Additionally, we experienced a decrease in project expenses and equipment costs of \$7,000.

(Gain) loss on disposal of assets. Following the decision to limit our focus to the smaller optical and industrial sapphire markets, we held multiple auctions and completed individual sales of the excess equipment and consumable parts located in the U.S. and Malaysia. As a result of these sales, for the three months ended June 30, 2018, we recorded gain on disposal of assets of \$1.1 million, of which \$996,000 was attributable to the sale of fully depreciated and previously written down equipment, and \$56,000 was attributable to the sale of previously written down consumable parts, small tools and equipment. For the three months ended June 30, 2017, we recorded a loss on disposal of assets of \$432,000, which was primarily attributable to the loss on sale of machinery and equipment.

Asset impairment charge. With the scaling down of our U.S. operations, for the three months ended June 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 three months ended June 30, 2018.

Other income. Other income was \$64,000 and \$41,000 for the three months ended June 30, 2018 and 2017, respectively, an increase of \$23,000. The increase in other income was primarily due to an increase in the interest income of \$52,000 on short-term investment securities. This was partially offset by an increase in the realized loss on foreign currency translation of \$29,000.

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 June 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 June 30, 2018 is based on an estimated combined statutory effective tax rate. For the three months ended June 30, 2018, the difference between the Company's effective tax rate of 3.8% 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 SIX MONTHS ENDED JUNE 30, 2018 AND 2017

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

	Six months ended June 30,	
	2018	2017
	(in millions)	
Revenue	\$ 1.8	\$ 2.3
Cost of goods sold	1.8	6.7
Gross loss	—	(4.4)
Operating expenses:		
General and administrative	1.3	3.1
Sales and marketing	0.2	0.5
Research and development	0.1	0.8
(Gain) loss on disposal of assets	(1.6)	1.2
Asset impairment charge	—	0.7
Total operating expenses	—	6.3
Loss from operations	—	(10.7)
Other income	0.1	0.1
Income (loss) before income taxes	0.1	(10.6)
Income tax expense	—	(0.1)
Net income (loss)	\$ 0.1	\$ (10.7)

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

	Six months ended June 30,	
	2018	2017
	(percentage of total)	
Revenue	100%	100%
Cost of goods sold	100	290
Gross profit (loss)	—	(190)
Operating expenses:		
General and administrative	72	134
Sales and marketing	11	19
Research and development	6	36
(Gain) loss on disposal of assets	(89)	51
Asset impairment charge	—	29
Total operating expenses	—	269
Loss from operations	—	(459)
Other income	6	2
Income (loss) before income taxes	6	(457)
Income tax expense	—	(3)
Net income (loss)	6%	(460)%

Revenue. Revenue was \$1.8 million and \$2.3 million for the six months ended June 30, 2018 and 2017, respectively, a decrease of \$482,000. Due to fluctuations in demand and timing of orders, revenue from optical and industrial sapphire business decreased by \$509,000. This was partially offset by the increase in the revenue from our government contract of \$27,000.

We operate in an extremely volatile market, so the amount of price or volume change and acceptance of new product offerings are difficult to predict.

Gross loss. Gross loss was \$13,000 and \$4.4 million for the six months ended June 30, 2018 and 2017, respectively, a decrease in gross loss of \$4.4 million. This decrease in gross loss was primarily related to the cost of excess raw material write-down of \$2.4 million and costs of restructuring our operations of \$250,000 recorded during the six months ended June 30, 2017. An additional decrease in gross loss was attributable to an increase in pricing and a decrease in production costs of \$1.8 million due to improved production efficiency. This was partially offset by \$130,000 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 \$1.3 million and \$3.1 million for the six months ended June 30, 2018 and 2017, respectively, a decrease of \$1.8 million. The decrease was partially attributable to a reduction in the employee compensation costs of \$660,000 on lower headcount, of which \$458,000 of the decrease was related to the employee severance compensation cost recorded for the six months ended June 30, 2017. We also recorded lower legal and shareholders meeting expenses of \$475,000 for the six months ended June 30, 2018. The decrease was related to the SEC compliance counsel cost incurred in the six months ended June 30, 2017. In addition, we experienced a decrease in the administrative office maintenance and connectivity costs of \$287,000 on renegotiated contracts, a decrease in the board of directors' compensation costs of \$150,000, a decrease of \$122,000 in franchise tax and a decrease in insurance costs of \$92,000 on renegotiated contracts.

Sales and marketing expenses. Sales and marketing expenses were \$225,000 and \$438,000 for the six months ended June 30, 2018 and 2017, respectively, a decrease of \$213,000. The decrease in sales and marketing expenses was attributable to a decrease in employee compensation costs of \$195,000 on a lower headcount, a decrease in marketing services and other costs related to sales and marketing of \$18,000.

Research and development expenses. Research and development expenses were \$75,000 and \$836,000 for the six months ended June 30, 2018 and 2017, respectively, a decrease of \$761,000. This is attributable primarily to a decrease in employee compensation costs of \$696,000 on a lower headcount, of which \$160,000 was related to the employee severance compensation cost recorded for the six months ended June 30, 2017. Additionally, we experienced a decrease in project expenses and equipment costs of \$65,000.

(Gain) loss on disposal of assets. Following the decision to limit our focus to the smaller optical and industrial sapphire markets, we have held multiple auctions and completed individual sales of the excess equipment and consumable parts located in the U.S. and Malaysia. As a result of these sales, for the six months ended June 30, 2018, we recorded gain on disposal of assets of \$1.6 million, of which \$1.2 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 parts, small tools and equipment. For the six months ended June 30, 2017, we recorded loss on disposal of assets of \$1.2 million, which was primarily attributable to the loss on sale of machinery and equipment.

Asset impairment charge. With the scaling down of our U.S. operations, for the six months ended June 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 six months ended June 30, 2018.

Other income. Other income was \$136,000 and \$53,000 for the six months ended June 30, 2018 and 2017, respectively, an increase of \$83,000. The increase in other income was primarily due to an increase in the interest income of \$104,000 on short-term investment securities. This was partially offset by an increase in the realized loss on foreign currency translation of \$21,000.

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 June 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 six months ended June 30, 2018 is based on an estimated combined statutory effective tax rate. For the six months ended June 30, 2018, the difference between the Company’s effective tax rate of 10.2% 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 June 30, 2018, we had cash and short-term investments totaling \$19.5 million, including cash of \$2.5 million held in deposits at major banks, \$3.5 million invested in money market funds and \$13.5 million of short-term investments in commercial paper and corporate notes and bonds.

Cash flows from operating activities

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

	Six months ended June 30,	
	2018	2017
	(in millions)	
Net income (loss)	\$ 0.1	\$ (10.7)
Non-cash items:		
Depreciation and amortization	0.2	0.9
Net (gain) loss on disposal of assets	(1.6)	1.2
Asset impairment charge	—	0.7
Stock-based compensation	0.3	0.6
Total non-cash items:	(1.1)	3.4
Working capital:		
Accounts receivable	0.2	2.0
Inventories	0.3	3.3
Prepaid expenses and other assets	(0.5)	0.9
Accounts payable	(0.4)	(0.4)
Other accruals	(0.3)	(0.1)
Total working capital items:	(0.7)	5.7
Net cash used in operating activities	\$ (1.7)	\$ (1.6)

Cash used in operating activities was \$1.7 million for the six months ended June 30, 2018. During such period, we generated a net income of \$110,000, including non-cash items of (\$1.1) million, and a decrease in cash from net working capital of \$675,000. The net working capital cash decrease was primarily driven by an increase in prepaid expenses and other assets of \$560,000 due to collections on sales of assets completed after the end of the period. Additionally, we experienced a decrease in accounts payable of \$413,000 and a decrease in other accruals of \$227,000 on decreased spending. This was partially offset by a decrease of \$314,000 in raw materials, work-in-process and consumable parts inventories used in operations, and a decrease in accounts receivable of \$211,000 on lower sales volume.

Cash used in operating activities was \$1.6 million for the six months ended June 30, 2017. During such period, we generated a net loss of \$10.7 million, non-cash expenses of \$3.4 million, and an increase in cash from net working capital of \$5.7 million. The net working capital decrease was driven by a decrease in inventory of \$3.3 million primarily related to a write-downs of excess raw material inventories of \$2.4 million, a decrease in accounts receivable of \$2.0 million on decreased revenue and collection of a LED customer account, and a decrease in prepaid and other assets of \$948,000 on amounts collected on asset sales and a deposit refund. This decrease was partially offset by a decrease in accounts payable and other accruals of \$505,000 on timing of payments.

Cash flows from investing activities

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

	Six months ended June 30,	
	2018	2017
	(in millions)	
Purchases of investments	\$ (7.1)	\$ —
Proceeds from disposal of assets	3.2	1.8
Proceeds from sales of investments	0.1	0.1
Net cash (used in) provided by investing activities	\$ (3.8)	\$ 1.9

Net cash provided by investing activities was \$3.8 million for the six months ended June 30, 2018, primarily due to the purchases of investments of investment paper, corporate notes and bonds and U.S. Treasury securities of \$7.1 million. This was partially offset by the proceeds from sales of equipment and other assets of \$3.2 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 \$102,000.

Net cash provided by investing activities was \$1.9 million for the six months ended June 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 \$5,000 and \$173,000 for the six months ended June 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 alternate 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 six months ended June 30, 2018 and 2017, \$56,000 and \$29,000 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 six months ended June 30, 2018.

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 reduces net income.

In connection with the decision 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 June 30, 2018, 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 the six months ended June 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 portion of our excess U.S. equipment and excess consumables, which had a total net book value of \$1.5 million. Additionally, in the six months ended June 30, 2018, we completed sales of Malaysia equipment with a total net book value of \$131,000. Unsold excess equipment continued to be classified as current assets held for sale at June 30, 2018. Based on these sales, a gain on disposal of assets of \$1.6 million was recorded for the six months ended June 30, 2018.

We are actively pursuing the sale or lease of a 134,400 square-foot manufacturing and office facility located in Batavia, Illinois, a parcel of extra land in Batavia and a 65,000 square-foot manufacturing facility 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, these properties were classified as current assets held for sale at June 30, 2018 and December 31, 2017.

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 six months ended June 30, 2018, we determined that we were not operating at capacity and recorded costs associated with lower utilization of equipment and staff of \$207,000 and \$445,000, respectively. For the three and six months ended June 30, 2017, costs associated with lower utilization of equipment and staff were \$595,000 and \$1.7 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 investment grade commercial paper, FDIC guaranteed certificates of deposit, corporate notes, common stock and government securities. Investments classified as available-for-sale securities are carried at fair market 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 June 30, 2018 and 2017, no impairment was recorded.

Stock-based compensation

We grant stock-based compensation in the form of stock options, restricted stock units ("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.

Pursuant to an employment agreement in March 2017, which was subsequently amended on May 12, 2017, we granted 30,902 and 59,098 RSUs to a key executive in the six months ended June 30, 2018 and 2017, respectively.

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 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.

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

At the time the negotiation of the terms of the employment agreement began, the closing price of our common stock was \$5.50. On the date of grant, the closing price of the common stock was \$6.30.

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. We 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 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. The RSUs granted in January 2018 and March 2017 had a grant date fair value of \$209,000 and \$323,000, respectively.

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. Based on the variables affecting the valuation of our common stock and the method used for allocating compensation costs, we recognized \$297,000 in stock compensation expense during the six months ended June 30, 2018.

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 June 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 June 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.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

For the six months ended June 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 June 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

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: August 9, 2018	By: <u>/s/ Timothy E. Brog</u> Timothy E. Brog President and Chief Executive Officer
Date: August 9, 2018	By: <u>/s/ Inga A. Slavutsky</u> Inga A. Slavutsky Chief Financial Officer

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	Executive Employment Agreement by and between Rubicon Technology, Inc. and Inga A. Slavutsky, dated as of June 4, 2018.	Filed as Exhibit 10.1 to the registrant's Current Report on Form 8-K, filed on June 4, 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	
31.2*	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	

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

EX-31.1.2 f10q0618ex31-1_rubicontech.htm CERTIFICATION

Exhibit 31.1

Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Timothy E. Brog, certify that:

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

Date: August 9, 2018

By: /s/ Timothy E. Brog
 Timothy E. Brog
 President and Chief Executive Officer

EX-31.2.3 f10q0618ex31-2_rubicontech.htm CERTIFICATION

Exhibit 31.2

Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Inga A. Slavutsky, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Rubicon Technology, Inc. (the “registrant”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
- a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 9, 2018

By: /s/ Inga A. Slavutsky
Inga A. Slavutsky
Chief Financial Officer

EX-32.1 4 fl0q0618ex32-1_rubicontech.htm CERTIFICATION

Exhibit 32.1

Certification Pursuant To Section 906 of the Sarbanes-Oxley Act of 2002,
18 U.S.C. Section 1350

In connection with the Quarterly Report of Rubicon Technology, Inc. (the "Company") on Form 10-Q for the quarter ended June 30, 2018 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned officers of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to his or her knowledge:

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

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

Date: August 9, 2018

By: /s/ Timothy E. Brog
Timothy E. Brog
President and Chief Executive Officer

Date: August 9, 2018

By: /s/ Inga A. Slavutsky
Inga A. Slavutsky
Chief Financial Officer