Risk Factors Comparison 2024-03-15 to 2023-03-16 Form: 10-K

Legend: **New Text** ~~Removed Text~~ Unchanged Text Moved Text Section

For ease of reference, we have divided these risks and uncertainties into the following general categories: I. Summary Risk Factors; II. Risks Related to Our Business and Operations; III. Risks Related to International Aspects of Our Business; IV. Risks Related to Our Financial Results and Capital Structure; V. Risks Related to Our Intellectual Property; and VI. Risks Related to Compliance, Environmental Regulations and Other Legal Matters. **I. Summary Risk Factors** ● We are subject to a number of unique legal and operational risks associated with our corporate structure. ● The PRC central government may intervene in or influence our PRC operations at any time and the rules and regulations in China can change quickly with little advance notice. ● Although the audit report included in this Annual Report is prepared by an independent registered public accounting firm who is currently inspected fully by the Public Company Accounting Oversight Board (the " PCAOB "), there is no guarantee that future audit reports will be prepared by an independent registered public accounting firm that is completely inspected by the PCAOB. ● Our NASDAQ stock price is volatile and our stock price could decline. Unpredictable fluctuations in our operating results, changes and events in our end markets and global trends cause volatility in our stock price. ● COVID- 19 or other contagious diseases may affect our business operations and financial performance. Lack of supply of **current** vaccines and resistance by some to be vaccinated could prolong COVID- 19. ● Global economic and political conditions, including trade tariffs ~~and~~ **, import- export** restrictions ~~from China~~ **, and other restrictions** , may have a negative impact on our business and financial results. ● Changes in China' s political, social, regulatory or economic environments may affect our financial performance. ● The Chinese central government is increasingly aware of air pollution and other forms of environmental pollution and their reform efforts can impact our manufacturing, including intermittent mandatory shutdowns. Shutdowns or underutilizing our manufacturing facilities may result in declines in our gross margins. ● Enhanced trade tariffs, import restrictions, export restrictions, Chinese regulations or other trade barriers may materially harm our business. ● If China places restrictions on freight and transportation routes and on ports of entry and departure this could result in shipping delays or increased costs for shipping. ● Our international operations are exposed to potential adverse tax consequence in China. ● Our gross margin has fluctuated historically and may decline or increase due to several factors. Factors such as product mix, unit volume, yields and other manufacturing efficiencies can cause our gross margin to decrease or increase from quarter to quarter. ● The proposed Tongmei IPO on the STAR Market in China could fail to be completed. This could result in investor disappointment and in failure to secure sufficient capital needed to take advantage of market opportunities for our products. Our stock price could decline. ● The terms of the private equity raised by Tongmei in China grant each investor a right of redemption if the IPO fails to pass the audit of the Shanghai Stock Exchange, is not approved by the CSRC or Tongmei cancels the IPO application. This could result in disgorging the cash that we raised from the Investors. ● Defects in our products could diminish demand for our products. Our ability to receive orders from tier one customers is contingent on producing wafer substrates of very high quality and deploying best practices in manufacturing. We may not always be able to meet these requirements and we could then lose revenue. ● Difficulties in accurately estimating market demand could result in over- investing in **inventory,** equipment and capacity expansion or losing market share if we do not invest sufficiently. ● Attracting and retaining tier one customers requires that we succeed in our research and development programs. Customers establish difficult to meet product specifications regarding defect densities, surface flatness **,** diameter size and other specifications pushing the boundaries of material science. We may not achieve these specifications. ● We are subject to foreign exchange gains and losses that materially impact our consolidated statements of operations. Because we are a global company we are exposed to changes and swings in foreign exchange, particularly when currencies experience periods of volatility. ● Joint venture raw material companies in China bring certain risks. ● ~~Risks exist in utilizing our new gallium arsenide manufacturing sites efficiently. ●~~ We derive a significant portion of our revenue from international sales, and our ability to sustain and increase our international sales involves significant risks. ~~20II~~ **19II** . Risks Related to Our Business and OperationsSilicon substrates (wafers) are significantly lower in cost compared to substrates made from specialty materials, such as those that we produce, and new silicon- based technologies could enable silicon- based substrates to replace specialty material- based substrates for certain applications. Historically silicon wafers or substrates are less expensive than specialty material substrates, such as those that we produce. Electronic circuit designers will generally consider silicon first and only turn to alternative materials if silicon cannot provide the required functionality in terms of power consumption, speed, wave lengths or other specifications. Beginning in 2011, certain applications that had previously used GaAs substrates, specifically the RF chip in mobile phones, adopted a new silicon- based technology called silicon on insulator, or SOI. SOI technology uses a silicon- insulator- silicon layered substrate in place of conventional silicon substrates in semiconductor manufacturing. SOI substrates cost less than GaAs substrates and, although their performance is not as robust as GaAs substrates in terms of power consumption, heat generation and speed, they became acceptable in mobile phones and other applications that were previously dominated by GaAs substrates. The adoption of SOI resulted in decreased GaAs wafer demand, and decreased revenue. If SOI or new silicon- based technologies gain more widespread market acceptance, or are used in more applications, our sales of specialty material- based substrates could be reduced and our business and operating results could be significantly and adversely affected. COVID- 19 or other contagious diseases...... would negatively impact our financial performance. Our gross margin has fluctuated historically and may decline due to several factors. Our gross margin has fluctuated from period to period as a result of increases or decreases in total revenue, unit volume, shifts in product mix, shifts in the cost of raw materials, costs related to the relocation of our gallium arsenide and germanium production lines, including costs related to hiring additional manufacturing employees at our new locations, tariffs imposed by the U. S. government, the introduction of new products, decreases in average selling prices for products, utilization of our manufacturing capacity, fluctuations in manufacturing yields and our ability to reduce ~~21product~~ -- **product** costs. These factors and other variables change from period to period and these fluctuations are expected to continue in the future. For example, in the ~~second~~ **third** quarter of ~~2019~~ **2022** our gross margin was ~~34~~ **42** . ~~3~~ **0** % but it dropped to ~~21~~ **10** . ~~0~~ **7** % in the ~~fourth~~ **third** quarter of ~~2019~~ **2023** as a result of several of these factors. Our raw material companies experience selling price volatility and purchase price volatility in acquiring base materials. We consolidate the results of two of these raw material companies **, and** any reduction in their gross margins could have a significant, adverse impact on our overall gross margins. One or more of our companies has in the past sold, and may in the future sell, raw materials at significantly reduced prices in order to gain volume sales or sales to new customers. In addition ~~, at some points in the last three years~~ , the market price of gallium dropped below our per unit inventory cost and we incurred an inventory write down under the lower of cost or net realizable value accounting rules. Shutdowns or underutilizing our manufacturing facilities may result in declines in our gross margins. An important factor in our success is the extent to which we are able to utilize the available capacity in our manufacturing facilities. A number of factors and circumstances may reduce utilization rates, including periods of industry overcapacity, low levels of customer orders, operating inefficiencies, mechanical failures and disruption of operations due to expansion, power interruptions, fire, flood, other natural disasters or calamities or government- ordered mandatory factory shutdowns, including as a result of the COVID- 19 pandemic. Severe air pollution in Beijing can trigger mandatory factory shutdowns. For example, in the first quarter of 2018, over 300 manufacturing companies, including ~~AXT~~ **Tongmei** , were intermittently shut down by the local government for a total of ten days from February 27 to March 31, due to severe air pollution ~~. In late March 2022, as a result of an outbreak of COVID- 19, Shanghai was locked down and certain manufacturing facilities were required to close. In the second quarter of 2022, rising COVID- 19 infections in Beijing resulted in concerns of a city- wide lockdown, which could have required our manufacturing facilities in Beijing to close temporarily. Although some apartment complexes were locked down there was no city- wide lockdown. In December 2022, the PRC government ended its zero- COVID policy~~ . Further, we have increased capacity by adding two new sites and this could reduce our utilization rate and increase our depreciation charges. Because many portions of our manufacturing costs are relatively fixed, high utilization rates are critical to our gross margins and operating results. If we fail to achieve acceptable manufacturing volumes or experience product shipment delays, our results of operations will be negatively affected. During periods of decreased demand, we have underutilized our manufacturing lines. If we are unable to improve utilization levels at our facilities during periods of decreased demand and correctly manage capacity, the fixed ~~expense~~ **20expense** levels will have an adverse effect on our business, financial condition and results of operations. For example, in the three months ended ~~December 31~~ **September 30** , ~~2019~~ **2023** , our revenue dropped to $ ~~18~~ **17** . 4 million and our gross margin was only ~~21~~ **10** . ~~0~~ **7** %. If we are unable to utilize the available capacity in our manufacturing facilities, we may need to implement a restructuring plan, which could have a material adverse effect on our revenue, our results of operations and our financial condition. For example, in 2013, we concluded that incoming orders were insufficient and that we were significantly underutilizing our factory capacity. As a result, in February 2014, we announced a restructuring plan with respect to our China company, Tongmei, in order to better align manufacturing capacity with demand. Under the restructuring plan, we recorded a charge of approximately $ 907, 000 in the first quarter of 2014. If we receive fewer customer orders than forecasted or if our customers delay or cancel orders, we may not be able to reduce our manufacturing costs in the short- term and our gross margins would be negatively affected. In addition, lead times required by our customers are shrinking, which reduces our ability to forecast orders and properly balance our capacity utilization. **Enhanced** ~~Global economic and political conditions,including~~ trade tariffs,import ~~,~~ **restrictions,** export restrictions, ~~and~~ **Chinese regulations or** other ~~restrictions,~~ **trade barriers** may **materially harm** ~~have a negative impact on~~ our business **.All of our wafer substrates are manufactured in China** and ~~financial results~~ **in the year 2022 approximately 14 % and in the years 2021 and 2020,approximately 10 % of our revenue was generated by sales to customers in North America,primarily in the U.S** .In September 2018,the Trump Administration announced a list of thousands of categories of goods that became subject to tariffs when imported into the United States from China.This pronouncement imposed tariffs on wafer substrates we imported into the United States.The initial tariff rate was 10 % and subsequently was increased to 25 %. ~~Approximately 10 % of our revenue derives from importing our wafers into the United States.~~ In the years **2022** ~~ended December 31~~ , ~~2023~~ **2021 and 2020** , ~~2022 and 2021~~ we paid approximately $ ~~1~~ **3** . ~~0~~ **3** million,$ ~~3~~ **1** .3 million and $ 1.3 million,respectively,in tariffs.The future impact of tariffs and trade wars is uncertain. ~~The economic and political conditions between China and the United States,in our view,create an unstable business~~ If we have low product yields, the shipment of our products may be delayed and our product cost and operating results may be adversely impacted. A critical factor in our product cost is yield. Our products are manufactured using complex crystal growth and wafer processing technologies, and the number of usable wafer substrates we produce can fluctuate as a result of many factors, including: ● poor control of furnace temperature and pressure; ~~22~~ ● impurities in the materials used; ● contamination of the manufacturing environment; ● quality control and inconsistency in quality levels; ● lack of automation and inconsistent processing requiring manual manufacturing steps; ● substrate breakage during the manufacturing process; and ● equipment failure, power outages or variations in the manufacturing process. An example where yield is of special concern is for our six- inch semi- conducting gallium arsenide substrates, which can be used for manufacturing industrial lasers and LED lighting. These applications require very low defect densities, also called EPD, and our yields will be lower than the yields achieved for the same substrate when it will be used in other applications. If we are unable to achieve the targeted quantity of low defect density substrates, then our manufacturing costs would increase and our gross margins would be negatively impacted. In addition, we may modify our process to meet a customer specification, but this can impact our yields. If our yields decrease, our revenue could decline if we are unable to produce products to our customers’ requirements. At the same time, our manufacturing costs could remain fixed, or could increase. Lower yields negatively impact our gross margin. We have experienced product shipment delays and difficulties in achieving acceptable yields on both new and older products, and such delays and poor yields have adversely affected our operating results. We may experience similar problems in the future and we cannot predict when they may occur, their duration or severity. ~~If~~ **22If** our manufacturing processes result in defects in our products making them unfit for use by our customers, our products would be rejected, resulting in compensation costs paid to our customers, and possible disqualification. This could lead to revenue loss and market share loss . Risks exist in utilizing our gallium...... revenue, gross margins and net profit . Problems incurred in our raw material companies or our investment partners could result in a material adverse impact on our financial condition or results of operations. We have invested in raw material companies in China that produce materials, including 99. 99 % pure gallium (4N Ga), high purity gallium (6N and 7N Ga), arsenic, germanium, germanium dioxide, pyrolytic boron nitride (pBN) crucibles and boron oxide (B2O3). We purchase a portion of the materials produced by these companies for our use and they sell the remainder of their production to third parties. We consolidate the companies in which we have a majority or controlling financial interest and employ equity accounting for the companies in which we have a smaller ownership interest. Several of these companies occupy space within larger facilities owned and / or operated by one of the other investment partners. Several of these partners are engaged in other manufacturing activities at or near the same facility. In some facilities, we share access to certain functions, including water, hazardous waste treatment or air quality treatment. If a partner in any of these ventures experiences problems with its operations, or deliberately withholds or disrupts services, disruptions in the operations of our companies could occur, having a material adverse effect on the financial condition and results of operation in these companies, and correspondingly on our financial condition or results of operations. For example, since gallium is a by-product of aluminum, our raw gallium company in China, which is housed in and receives services from an affiliated aluminum plant, could generate lower production and shipments of gallium as a result of reduced services provided by the aluminum plant. Accordingly, in order to meet customer supply obligations, our supply chain may have to source materials from another independent third- party supplier, resulting in higher costs and reduced gross margin. The China central government has **tightened** ~~become increasingly concerned about environmental hazards. Air pollution has been a problem in Beijing and other parts of China. In days of severe air pollution, the government has ordered manufacturing companies to stop all production. The central government is also tightening~~ control over hazardous ~~26chemicals~~ -- **chemicals** and other hazardous ~~elements such as arsenic, which is produced by two of our raw material~~ **materials** ~~companies~~ . Further, the central government encourages employees to report to the appropriate regulatory agencies possible safety or environmental violations, but there may not be actual violations. Regular use in the normal course of business of hazardous chemicals or hazardous ~~elements~~ **materials** or a company' s failure to meet the ever- tightening standards for control of hazardous chemicals or hazardous ~~elements~~ **materials** could result in orders to shut down permanently, fines or other severe measures. Any such orders directed at one of our raw material companies could result in impairment charges if the company is forced to close its business, cease operations or incurs fines or operating losses, which would have a material adverse effect on our financial results ~~. In the first quarter of 2019, we incurred an impairment charge of $ 1. 1 million for a germanium materials company in China in which we have a 25 % ownership interest, writing down our investment to zero value~~ . Further, some of our raw material companies share facilities with our raw material investment partners. If either company is deemed to have violated applicable laws, rules or regulations governing the use, storage, discharge or disposal of hazardous chemicals, their operations could be adversely affected and we could be subject to substantial liability for clean- up efforts, personal injury, fines or suspension or termination of operations. Employees working for these companies could bring litigation against us even though we are not directly controlling those operations. While we would expect to defend ourselves vigorously in any litigation that is brought against us, litigation is inherently uncertain and it is possible that our business, financial condition, results of operations or cash flows could be affected. Even if we are not deemed responsible for the actions of the raw material companies or investment partners, litigation could be costly, time consuming to defend and divert management attention; in addition, if we are deemed to be the most financially viable of the partners, plaintiffs may decide to pursue us for damages. **Unforeseen manufacturing issues and restrictions at the new manufacturing sites could occur. In 2015, the Beijing city government announced its decision to move most of its offices to the Tongzhou district where our original manufacturing facility is currently located. The Beijing city government has moved thousands of government employees into this district. To create room and upgrade the district, the government instructed virtually all existing manufacturing companies, including Tongmei, to relocate all or some of their manufacturing lines. We were instructed to move our gallium arsenide manufacturing lines out of the area. Although the relocation is completed and we are in volume production at the new sites, unforeseen manufacturing issues and restrictions at the new sites could occur. Problems could occur as we add capacity or comply 23with strict guidelines as customers perform their qualifications. All of this will require us to continue to diligently address the many details that arise at each of our new sites. A failure to properly accomplish this could result in disruption to our production and have a material adverse impact on our revenue, our results of operations and our financial condition. If we fail to meet the product qualification and volume requirements of a customer, we may lose sales to that customer. Our reputation may also be damaged. Any loss of sales could have a material adverse effect on our revenue, our results of operations and our financial condition. The Chinese government has in the past imposed temporary restrictions on manufacturing facilities, such as the restrictions imposed on polluting factories for the 2008 Olympics and the 2014 Asian Pacific Economic Cooperation event. These restrictions included a shutdown of the transportation of materials and power plants to reduce air pollution. To reduce air pollution in Beijing, the Chinese government has sometimes limited the construction of new, or expansion of existing, facilities by manufacturing companies in the Beijing area or required mandatory factory shutdowns. For example, in the first quarter of 2018, over 300 manufacturing companies, including Tongmei, were intermittently shut down by the local government for a total of ten days from February 27 to March 31 due to severe air pollution. If the government applies restrictions to us or requires mandatory factory shutdowns in the future, then such restrictions or shutdowns could have an adverse impact on our results of operations and our financial**

condition. Our ability to supply current or new orders could be significantly impacted. Customers could then be required to purchase products from our competitors, causing our competitors to take market share from us. In addition, from time to time, the Chinese government issues new regulations, which may require additional actions on our part to comply. On February 27, 2015, the China State Administration of Work Safety updated its list of hazardous substances. The previous list, which was published in 2002, did not restrict the materials that we use in our wafers. The new list added gallium arsenide. As a result of the newly published list, we were required to seek additional permits. Demand for our products may decrease if demand for the end- user applications decrease or if manufacturers downstream in our supply chain experience difficulty manufacturing, marketing or selling their products. Our products are used to produce components for electronic and opto- electronic products. Accordingly, demand for our products is subject to the demand for end- user applications, including certain consumer applications, which utilize our products. For example, we have developed an 8- inch gallium arsenide wafer targeting an application in a consumer product. Our customer recently informed us that its end- user customer has cancelled its project. Production of the intended product was scheduled to begin in 2025. While there may be other end users, this particular cancellation is the loss of a potentially high- volume sales opportunity. Other factors affecting the ability of the manufacturers downstream in our supply chain to introduce and market their products successfully, include: ● worldwide economic and political conditions and their impact on levels of business spending; ● the competition such manufacturers face in their particular industries; ● end of life obsolescence of products containing devices built on our wafers; ● the technical, manufacturing, sales, marketing and management capabilities of such manufacturers; ● the financial and other resources of such manufacturers; and ● the inability of such manufacturers to sell their products if they infringe third- party intellectual property rights. If demand for the end- user applications for which our products are used decreases, or if manufacturers downstream in our supply chain are unable to develop, market and sell their products, demand for our products will decrease. For example, during 2019 widespread political and economic instability and trade war concerns resulted in a general slowdown and our revenue decreased significantly. Additionally, in the second half of 2016, manufacturers producing and selling passive optical network devices known as EPONs and GPONs experienced a slowdown in 24demand resulting in surplus inventory on hand. The slowdown persisted until late in 2017. This resulted in a slowdown of sales of our InP substrates used in the PON market. More recently, global business conditions deteriorated, beginning in the second half of 2022. In general, many companies purchased more inventory than needed, in part due to fears of shortages resulting from COVID. In the second quarter of 2022, our revenue totaled $ 39. 5 million. In the fourth quarter of 2022 our revenue declined to $ 26. 8 million, in the second quarter of 2023, our revenue declined to $ 18. 6 million and in the third quarter of 2023, our revenue further declined to $ 17. 4 million. We expect similar cycles of strong demand followed by lower demand will occur for various InP, GaAs or Ge substrates in the future. Our financial performance can be hurt if there are unfavorable financial results in any of our raw material companies. The raw material companies in our vertically integrated supply chain have historically made a positive contribution to our financial performance. However, if there are unfavorable changes in revenue, average selling prices, gross margins or operating expenses in one or more of the consolidated companies, then this can result in a negative impact on our consolidated revenue, gross margin and profitability. If the companies are accounted for under the equity method, then these changes can result in a reduction in Equity in Income of Unconsolidated Joint Venture Companies. In 2023 and 2022, the companies accounted for under the equity method of accounting contributed a gain of $ 1. 9 million and $ 6. 0 million, respectively, to our consolidated financial statements. In 2023, the total includes impairment charges of $ 1. 9 million. The last time the companies accounted for under the equity method of accounting contributed a loss was 2019 with a loss of $ 1. 9 million. Intense competition in the markets for our products could prevent us from increasing revenue and achieving profitability. The markets for our products are intensely competitive. We face competition for our wafer substrate products from other manufacturers of substrates, such as Sumitomo, JX, Freiberger, Umicore, **Vital** and CCTC, and from companies, such as Qorvo and Skyworks, that are actively considering alternative materials to GaAs and marketing semiconductor devices using these alternative materials ~~. We believe that at least two of our major competitors are shipping high volumes of GaAs substrates manufactured using a process similar to our VGF process technology. Other competitors may develop and begin using similar technology~~ . Sumitomo and JX also compete with us in the InP market. If we are unable to compete effectively, our revenue may decrease and we may not maintain profitability. We face many competitors that have a number of significant advantages over us, including: ● greater name recognition and market share in the business; ● more manufacturing experience; ● extensive intellectual property; and ● significantly greater financial, technical and marketing resources. Our competitors could develop new or enhanced products that are more effective than our products. The level and intensity of competition has increased over the past years and we expect competition to continue to increase in the future. Competitive pressures have resulted in reductions in the prices of our products, and continued or increased competition could reduce our market share, require us to further reduce the prices of our products, affect our ability to recover costs and result in reduced gross margins and profitability. In addition, new competitors have and may continue to emerge, such as a ~~crystal growing~~ company established by a former employee in China that is supplying semi- conducting GaAs wafers to the LED market. Competition from sources such as this could increase, particularly if these competitors are able to obtain large capital investments. Further, recent trade tensions between China and the United States have resulted in a greater determination within China to be ~~27self~~ -- **self** - sufficient and produce more goods domestically. This could result in the formation of new competitors that would compete against ~~our~~ **the** ~~company~~ **Company** and adversely affect our financial results. ~~Cyber~~ **25Cyber** - attacks, system security risks and data protection issues could disrupt our internal operations and cause a reduction in revenue, increase in expenses, negatively impact our results of operation or result in other adverse consequences. Like most technology companies, we could be targeted in cyber- attacks. We face a risk that experienced computer programmers and hackers may be able to penetrate our network security and misappropriate or compromise our confidential and proprietary information, potentially without being detected. Computer programmers and hackers also may be able to develop and deploy viruses, worms, and other malicious software programs that attack our information technology infrastructure and demand a ransom payment. The costs to us to eliminate or alleviate cyber or other security problems, bugs, viruses, worms, malicious software programs and security vulnerabilities could be significant, and our efforts to address these problems may not be successful and could result in interruptions and delays that may impede our sales, manufacturing, distribution, accounting or other critical functions. Breaches of our security measures could create system disruptions or cause shutdowns or result in the accidental loss, inadvertent disclosure or unapproved dissemination of proprietary information or sensitive or confidential data about us. Cyber- attacks could use fraud, trickery or other forms of deception. A cyber- attack could expose us to a risk of loss or misuse of information, result in litigation and potential liability, damage our reputation or otherwise harm our business. In addition, the cost and operational consequences of implementing further data protection measures could be significant. Portions of our information technology infrastructure might also experience interruptions, delays or cessations of service or produce errors in connection with systems integration or migration work that takes place from time to time, which may have a material impact on our business. We may not be successful in implementing new systems and transitioning data, which could cause business disruptions and be more expensive, time consuming, disruptive and resource- intensive than originally anticipated. Such disruptions could adversely impact our ability to fulfill orders and interrupt other processes. Delayed sales, lower margins or lost customers could adversely affect our financial results and reputation. The average selling prices of our substrates may decline over relatively short periods, which may reduce our revenue and gross margins. Since the market for our products is characterized by declining average selling prices resulting from various factors, such as increased competition, overcapacity, the introduction of new products and decreased sales of products incorporating our products, the average selling prices for our products may decline over relatively short time periods. We have in the past experienced, and in the future may experience, substantial period- to- period fluctuations in operating results due to declining average selling prices. In certain years, we have experienced an average selling price decline of our substrate selling prices of approximately 5 % to 10 %, depending on the substrate product. It is possible that the pace of the decline of average selling prices could accelerate beyond these levels for certain products in a commoditizing market. We anticipate that average selling prices may decrease in the future in response to the unstable demand environment, price reductions by competitors, or by other factors, including pricing pressures from significant customers. When our average selling prices decline, our revenue and gross profit decline, unless we are able to sell more products or reduce the cost to manufacture our products. We generally attempt to combat an average selling price decline by improving yields and manufacturing efficiencies and working to reduce the costs of our raw materials and of manufacturing our products. We also need to sell our current products in increasing volumes to offset any decline in their average selling prices, and introduce new products, which we may not be able to do, or do on a timely basis. In order to remain competitive, we must continually improve our processes, work to reduce the cost of manufacturing our products and improve our yields and manufacturing efficiencies. Our efforts may not allow us to keep pace with competitive pricing pressures which could adversely affect our margins. There is no assurance that any changes effected by us will result in sufficient cost reductions to allow us to reduce the price of our products to remain competitive or improve our gross margins. **have made and may** continue to make strategic investments in raw materials suppliers,which may not be successful and may result in the loss of all or part of our investment.We have made direct investments or investments through our subsidiaries in raw material suppliers in China,which provide us with opportunities to gain supplies of key raw materials that are important to our substrate business.These affiliates each have a market beyond that provided by us.We ~~may~~ **do** not have significant influence over every one of these companies and in some we have made only a strategic,minority investment.We may not be successful in achieving the financial,technological or commercial advantage upon which any given investment is premised,and we could end up losing all or part of our investment which would have a negative impact on our results of operations.In the first quarter of ~~2019~~ **2017** ,we incurred an impairment charge of $ **313,000 against one of our partially owned suppliers,writing down our investment to zero value.In the first quarter of 2019,we incurred an impairment charge of $** 1.1 million for a germanium materials company in China in which we ~~had~~ **have** a 25 % ownership interest,writing down our investment to ~~zero~~ **30zero** value ~~.During the second quarter of 2023,one of our equity investments assessed one of its equity investments was fully impaired,leading to a $ 754,000 impairment charge in our financial results for the second quarter of 2023.In the fourth quarter of 2023,we divested another equity investment,incurring a net impairment charge of $ 1.1 million~~ .A significant decline in the selling prices of raw materials began in 2015 and weakened some of these companies and their losses negatively impacted our financial results for several years.Further,the increasing concern and restrictions in China of hazardous chemicals and other hazardous ~~materials~~ **elements** could result in orders to shut down permanently,fines or other severe measures.Any such orders directed at one of our joint venture companies could result in impairment charges if the company **is forced to close its business,cease operations or incurs fines,or operating losses,which would have a material adverse effect on our financial results.We** ~~28Defects~~ **27Defects** in our products could diminish demand for our products. Our wafer products are complex and may contain defects, including defects resulting from impurities inherent in our raw materials or inconsistencies in our manufacturing processes. We have experienced quality control problems with some of our products, which caused customers to return products to us, reduce orders for our products, or both. If we experience quality control problems, or experience other manufacturing problems, customers may return product for credit, cancel or reduce orders or purchase products from our competitors. We may be unable to maintain or increase sales to our customers and sales of our products could decline. Defects in our products could cause us to incur higher manufacturing costs and suffer product returns and additional service expenses, all of which could adversely impact our operating results. If new products developed by us contain defects when released, our customers may be dissatisfied and we may suffer negative publicity or customer claims against us, lose sales or experience delays in market acceptance of our new products. Our substrate products have a long qualification cycle that makes it difficult to forecast revenue from new customers or for new products sold to existing customers. New customers typically place orders with us for our substrate products three months to a year or more after our initial contact with them. The sale of our products is subject to our customers' lengthy internal evaluation and ~~approval~~ **qualification** processes. During this time, we may incur substantial expenses and expend selling, marketing and management efforts while the customers evaluate our products. These expenditures may not result in sales of our products. If we do not achieve anticipated sales in a period as expected, we may experience an unplanned shortfall in our revenue. As a result, our operating results would be adversely affected. In addition, if we fail to meet the product qualification requirements of the customer, we may not have another opportunity to sell that product to that customer for many months or even years. In the current competitive climate, the average qualification and sales cycle for our products has lengthened even further and is expected to continue to make it difficult for us to forecast our future sales accurately. We anticipate that sales of any future substrate products will also have lengthy qualification periods and will, therefore, be subject to risks substantially similar to those inherent in the lengthy sales cycles of our current substrate products. The loss of one or more of our...... our stock price to decline. The cyclical nature of the semiconductor industry may limit our ability to maintain or increase net sales and operating results during industry downturns. The semiconductor industry is highly cyclical and periodically experiences significant economic downturns characterized by diminished product demand, resulting in production overcapacity and excess inventory in the markets we serve. A downturn can result in lower unit volumes and rapid erosion of average selling prices. The semiconductor industry has experienced significant downturns, often in connection with, or in anticipation of, maturing product cycles of both semiconductor companies' and their customers' products or a decline in general economic conditions. This may adversely affect our results of operations and the value of our business. **A recent example of a cyclical downcycle took shape in the second half of 2022 and has continued into 2024. Early in its history, COVID began to impact supply chains resulting in shortages. As a result, in 2021 and into 2022 almost all companies purchased more inventory than they needed as a safety precaution. In the second half of 2022 companies began to realize they were holding too much inventory and entered into the " inventory correction " period. Our consolidated revenue had reached $ 39. 7 million in the first quarter of 2022. In the third quarter of 2023, our revenue had declined to $ 17. 4 million.** Our continuing business depends in significant part upon manufacturers of electronic and opto- electronic compound semiconductor devices, as well as the current and anticipated market demand for these devices and products using these devices. As a supplier to the semiconductor industry, we are subject to the business cycles that characterize the industry. The timing, length and volatility of these cycles are difficult to predict. The compound semiconductor ~~29industry~~ -- **industry** has historically been cyclical due to sudden changes in demand, the amount of manufacturing capacity and changes in the technology employed in compound semiconductors. The rate of changes in demand, including end demand, is high, and the effect of these changes upon us occurs quickly, exacerbating the volatility of these cycles. These changes have affected the timing and amounts of customers' purchases and investments in new technology. These industry cycles create pressure on our revenue, gross margin and net income. ~~Our~~ **28Our** industry has in the past experienced periods of oversupply and that has resulted in significantly reduced prices for compound semiconductor devices and components, including our products, both as a result of general economic changes and overcapacity. Oversupply causes greater price competition and can cause our revenue, gross margins and net income to decline. During periods of weak demand, customers typically reduce purchases, delay delivery of products and / or cancel orders for our products. Order cancellations, reductions in order size or delays in orders could occur and would materially adversely affect our business and results of operations. Actions to reduce our costs may be insufficient to align our structure with prevailing business conditions. We may be required to undertake additional cost- cutting measures, and may be unable to invest in marketing, research and development and engineering at the levels we believe are necessary to maintain our competitive position. Our failure to make these investments could seriously harm our business. A significant portion of our operating expense and manufacturing costs are relatively fixed. If revenue for a particular quarter is lower than we expect, we likely will be unable to proportionately reduce our operating expenses or fixed manufacturing costs for that quarter, which would harm our operating results. If we do not successfully develop new product features and improvements and new products that respond to customer requirements, our ability to generate revenue, obtain new customers, and retain existing customers may suffer. Our success depends on our ability to offer new product features, improved performance characteristics and new products, such as larger diameter substrates, low defect density substrates, thicker or thinner substrates, substrates with extreme surface flatness specifications, substrates that are manufactured with a doped crystal growth process or substrates that incorporate leading technology and other technological advances. This is an ongoing iterative research and development process performed by our China team in collaboration with our manufacturing managers. New products must meet customer needs and compete effectively on quality, price and performance. The markets for our products are characterized by rapid technological change, changing customer needs and evolving industry standards. If our competitors introduce products employing new technologies or performance characteristics, our existing products could become obsolete and unmarketable. Over time, we have seen our competitors selling more substrates manufactured using a crystal growth technology similar to ours, which has eroded our technological differentiation. The development of new product features, improved performance characteristics and new products can be a highly complex process, and we may experience delays in developing and introducing them. Any significant delay could cause us to fail to timely introduce and gain market acceptance of new products. Further, the costs involved in researching, developing and engineering new products could be greater than anticipated. If we fail to offer new products or product enhancements or fail to achieve higher quality products, we may not generate sufficient revenue to offset our development costs and other expenses or meet our customers' requirements. We have made and may continue to make...... effect on our financial results. We purchase critical raw materials and parts for our equipment from single or limited sources, and could lose sales if these sources fail to fill our needs. We depend on a limited number of suppliers for certain raw materials, components and equipment used in manufacturing our products, including key materials such as quartz tubing, and polishing solutions. We generally purchase these materials through standard purchase orders and not pursuant to long- term supply contracts, and no supplier guarantees supply of raw materials or equipment to us. If we lose any of our key suppliers, our manufacturing efforts could be significantly hampered and we could be prevented from timely producing and delivering products to our customers. **We have** ~~Prior to investing in our subsidiaries and joint ventures, we sometimes~~ experienced delays obtaining critical raw materials and spare parts, including gallium, and we could experience such delays again in the future due to shortages of materials or for other reasons. Delays in receiving equipment or materials could result in higher costs and cause us to delay or reduce production of our products. If we have to delay or reduce production, we could fail to meet customer delivery schedules and our revenue and operating results could suffer. We may not be able to identify or form additional complementary raw material joint ventures. We might invest in additional joint venture companies in order to remain competitive in our marketplace and ensure a supply of critical raw materials. However, we may not be able to identify additional complementary joint ~~venture~~ **29venture** opportunities or, even once opportunities are identified, we may not be able to reach agreement on the terms of the business venture with the other investment partners. Further, geopolitical tensions and trade wars could result in government agencies blocking such new joint ventures. New joint ventures could require cash investments or cause us to incur additional liabilities or other expenses, any of which could adversely affect our financial condition and operating results. The financial condition of our customers may affect their ability to pay amounts owed to us. Some of our customers may be undercapitalized and cope with cash flow issues ~~. The recent U. S. bank failures may affect our customers~~ . Because of competitive market conditions, we may grant our customers extended payment terms when selling products to them. Subsequent to our fulfilling an order, some customers have been unable to make payments when due, reducing our cash balances and causing us to incur charges to allow for a possibility that some accounts might not be paid. We observed an increase in our accounts receivable in the first quarter of 2020 and believe this has resulted from work stoppages, shelter- in-place orders and general cautiousness due to the COVID- 19 pandemic. In the past **,** we ~~,~~ have had some customers file for bankruptcy. If our customers do not pay amounts owed to us then we will incur charges that would reduce our earnings. We depend on the continuing efforts of our senior management team and other key personnel. If we lose members of our senior management team or other key personnel, or are unable to successfully recruit and train qualified personnel, our ability to manufacture and sell our products could be harmed. Our future success depends on the continuing services of members of our senior management team and other key personnel. Our industry is characterized by high demand and intense competition for talent, and the turnover rate can be high. We compete for qualified management and other personnel with other specialty material companies and semiconductor companies. Our employees could leave ~~our~~ **the** ~~company~~ **Company** with little or no prior notice and would be free to work for a competitor. If one or more of our senior executives or other key personnel were unable or unwilling to continue in their present positions, we may not be able to replace them easily or at all, and other senior management may be required to divert attention from other aspects of the business. The loss of any of these individuals or our ability to attract or retain qualified personnel could adversely affect our business. ~~31Our~~ -- **Our** results of operations may suffer if we do not effectively manage our inventory. We must manage our inventory of raw materials, work in process and finished goods effectively to meet changing customer requirements, while keeping inventory costs down and improving gross margins. Although we seek to maintain sufficient inventory levels of certain materials to guard against interruptions in supply and to meet our near term needs, we may experience shortages of certain key materials. Alternatively, a sudden decline in demand could result in holding too much inventory **which** ~~. This~~ occurred in the second half of 2022. Some of our products and supplies have in the past **,** and may in the future **,** become obsolete while in inventory due to changing customer specifications, or become excess inventory due to decreased demand for our products and an inability to sell the inventory within a foreseeable period. This would result in charges that reduce our gross profit and gross margin. Furthermore, if market prices drop below the prices at which we value inventory, we would need to take a charge for a reduction in inventory values in accordance with the lower of cost or net realizable value valuation rule. We have in the past had to take inventory valuation and impairment charges. Any future unexpected changes in demand or increases in costs of production that cause us to take additional charges for un-saleable, obsolete or excess inventory, or to reduce inventory values, would adversely affect our results of operations. The effect of terrorist threats and actions on the general economy could decrease our revenue. Countries such as the United States and China continue to be on alert for terrorist activity. The potential near and long- term impact terrorist activities may have in regards to our suppliers, customers and markets for our products and the economy is uncertain. There may be embargos of ports or products, or destruction of shipments or our facilities, or attacks that affect our personnel. There may be other potentially adverse effects on our operating results due to significant events that we cannot foresee. Since we perform all of our manufacturing operations in China, terrorist activity or threats against U. S. ~~-~~ owned enterprises are a particular concern to us. ~~III~~ **30III** . Risks Related to International Aspects of Our BusinessThe Chinese central government is increasingly aware of air pollution and other forms of environmental pollution and their reform efforts can impact our manufacturing, including intermittent mandatory shutdowns. The Chinese central government is demonstrating strong leadership to improve air quality and reduce environmental pollution. These efforts have impacted manufacturing companies through mandatory shutdowns, increased inspections and regulatory reforms. In the fourth quarter of 2017, many manufacturing companies in the greater Beijing area, including ~~AXT~~ **Tongmei** , were instructed by the local government to cease most manufacturing for several days until the air quality improved. In the first quarter of 2018, from February 27 to March 31 over 300 manufacturing companies, including ~~AXT~~ **Tongmei** , were again intermittently shut down by the local government for a total of ten days, or 30 percent of the remaining calendar days, due to severe air pollution. Our shipments were delayed and our revenue for the quarter was negatively impacted. We expect that mandatory factory shutdowns ~~will~~ **may** occur in the future. If the frequency of such shutdowns increases, especially at the end of a quarter, or if the total number of days of shutdowns prevents us from producing enough wafers to ship, then these shutdowns will have a material adverse effect on our manufacturing output, revenue and factory utilization. Each of our raw material supply chain companies could also be impacted by environmental related orders from the central government. Although we are a Delaware corporation and are neither a PRC operating company nor do we conduct our operations in China through the use of VIEs, in the event we inadvertently concluded that we do not require any permissions or approvals from the CSRC or other PRC central government authorities to complete a public offering of securities in the U. S. or applicable laws, regulations, or interpretations change, we may be required to obtain such permissions or approvals to complete such a public offering of securities. We are a Delaware corporation and are neither a PRC operating company nor do we conduct our operations in China through the use of VIEs. All of our products are manufactured in the PRC by our PRC subsidiaries and PRC joint ventures. We believe that we do not require any permissions or approvals from the CSRC or other PRC central government authorities to complete a public offering of securities in the U. S. because we are a Delaware corporation with our principal corporate office in Fremont, California and the PRC laws and regulations that govern the listing of ~~32securities~~ -- **securities** on a U. S. securities exchange apply to PRC companies. However, in the event that we inadvertently concluded that such permission or approvals are not required or applicable laws, regulations, or interpretations change and we are required to obtain such permissions or approvals in the future and we fail to obtain such permissions or approvals, then we may not be able to complete a public offering of securities in the U. S. We may also be pressured to delist our securities, which would force the holders to sell these securities and could result in a material adverse effect on the value of these securities. We may face sanctions by the CSRC or other PRC central government authorities or pressure from the PRC government in various business matters for failure to obtain such permissions or approvals. These sanctions or pressure may include fines and penalties on our operations in China, limitations on our operating privileges in China, delays in or restrictions on the repatriation of the proceeds from a public offering of securities in the U. S. into the PRC, restrictions on or prohibition of the payments or remittance of dividends by our subsidiaries in China, or other actions that could have a material and adverse effect on our business, financial condition, results of operations, reputation and prospects, as well as the trading price of our common stock. The PRC central government may intervene in or influence our PRC operations at any time and the rules and regulations in China can change quickly with little advance notice. The businesses of our PRC subsidiaries and PRC joint ventures are subject to complex and rapidly evolving laws and regulations in the PRC, which can change quickly with little advance notice. The PRC central government is a single party form of government with virtually unlimited authority and power to intervene in or influence commercial operations in China. In the past, we have experienced such intervention or influence by the PRC central government and a change in the rules and regulations in China when we were instructed by the Beijing municipal government to relocate our gallium arsenide manufacturing facility in Beijing and expect that such intervention or influence or change in the rules and regulations in China could occur in the future. ~~In~~ **31In** the ordinary course of business, our PRC subsidiaries and PRC joint ventures require permits and licenses to operate in the PRC. Such permits and licenses include permits to use hazardous materials in manufacturing operations. From time to time, the PRC government issues new regulations, which may require additional actions on the part of our PRC subsidiaries and PRC joint ventures to comply. For example, on February 27, 2015, the China State Administration of Work Safety updated its list of hazardous substances. The previous list, which was published in 2002, did not restrict the materials that we use in our wafers. The new list added gallium arsenide. As a result of the newly published list, we were required to seek additional permits. Any such intervention or influence or change in the rules and regulations in China could result in a material change in our PRC operations and / or the value of our common stock ~~.If one of our key customers is required to close for an extended period,this may delay the placement of new orders.As a result,our revenue would decline~~ .Changes in China' s political,social,regulatory or economic environments may affect our financial performance.Our financial performance may be affected by changes in China' s political,social,regulatory or economic environments.The role of the Chinese central and local governments in the Chinese economy is significant.The Beijing municipal government' s decision to move to the Tongzhou district,the original location of our China company,resulted in the city instructing virtually all existing manufacturing companies,including AXT,to relocate all or some of their manufacturing lines.We were instructed to move our gallium arsenide manufacturing line out of the area.Chinese policies toward hazardous materials,including arsenic,environmental controls,air pollution,economic liberalization,laws and policies affecting technology companies,foreign investment,currency exchange rates,taxation structure and other matters could change,resulting in greater restrictions on our ability to do business and operate our manufacturing facilities in China.We have observed a growing fluidity and tightening of regulations concerning hazardous materials,other environmental controls and air pollution.The Chinese government could revoke,terminate or suspend our operating licenses for reasons related to environmental control over the use of hazardous materials,air pollution,labor complaints,national security and similar reasons without compensation to us.Further,the central government encourages employees to report to the appropriate regulatory agencies possible safety or environmental violations,but there may not be actual violations.In days of severe air pollution the government has ordered manufacturing companies to stop all production.For example,in the first quarter of 2018,from February 27 to March 31,over 300 manufacturing companies,including us,were again intermittently shut down by the local government for a total of ten days due to severe air pollution.Our shipments were delayed and our revenue for the quarter was negatively impacted.We expect that mandatory factory shutdowns ~~may~~ **will** occur in the future.Any failure on our part to comply with governmental regulations could result in the loss of our ability to manufacture our products.Further,any imposition of surcharges or any increase in Chinese tax rates or reduction or elimination of Chinese tax benefits could hurt our financial results. ~~Financial market volatility and~~ **Our international operations are exposed to potential** adverse ~~changes~~ **tax consequence** in **China.Our international operations create** ~~the domestic,global,political and economic environment could have~~ a ~~significant~~ **risk of potential** adverse ~~impact~~ **tax consequences.Taxes** on **income in** our ~~business,financial condition and~~ **China- based companies are dependent upon acceptance of our** ~~operating~~ **operational** ~~results~~ **practices and intercompany transfer pricing by local tax authorities as being on an arm' s length basis.Due to inconsistencies among taxing authorities in application of the arm' s length standard,transfer pricing challenges by tax authorities could,if successful,materially increase our consolidated income tax expense** .We are subject to **tax audits in China and an audit could result in** the ~~risks arising from~~ **assessment of 38additional income tax against us.This could have a material** adverse **effect on** ~~changes and uncertainty in domestic and~~

~~global economies.Uncertain global economic and political conditions or~~ **our operating results** ~~low or negative growth in China,Europe or the United States,along with volatility in the financial markets and U.S.financial system,increasing national debt and fiscal concerns in various regions and the adoption and availability of fiscal and monetary stimulus measures to counteract the impact of the COVID- 19 pandemic,pose challenges to our~~ - **or** ~~industry.Currently China' s economy~~ **cash flows in the period or periods for which that determination** is ~~slowing~~ **made** and ~~this~~ could ~~impact~~ **result in increases to** our ~~financial performance~~ **overall tax expense in subsequent periods.Various taxing agencies in China are increasingly focused on tax reform and other legislative action to increase tax revenue** .In addition **to risks regarding income tax we have in** ~~,tariffs,trade restrictions,trade wars,high levels of inflation,high interest rates,~~ the ~~Russian invasion of Ukraine,the Middle East~~ **past** ~~conflict,~~ **been retroactively assessed value added taxes (" VAT " or sales tax) and such VAT assessments could occur again in** the **future** ~~Red Sea shipping disruptions,Brexit,heightened tensions between the~~ . The PRC central government may also exert more control over offerings conducted overseas and / or foreign investment in China- based issuers, which could result in a material change in our operations and / or the value of our common stock. The PRC central government may also exert more control over offerings conducted overseas and / or foreign investment in China- based issuers, which could result in a material change in our operations and / or the value of our common stock. The PRC central government may also seek to significantly limit or completely hinder our ability to offer or continue to offer our securities to investors and cause the value of such securities to significantly decline or be worthless. ~~government has ordered manufacturing companies to stop all production.For example,in the first quarter of 2018,from February 27 to March 31,over 300 manufacturing companies,including us,were again intermittently shut down by the local government for a total of ten days due to severe air pollution.Our shipments were delayed and our revenue for the quarter was negatively impacted.We expect that mandatory factory shutdowns will occur in the future.Any failure on our part to comply with governmental regulations could result in the loss of our ability to manufacture our products.Further,any imposition of surcharges or any increase in Chinese tax rates or reduction or elimination of Chinese tax benefits could hurt our financial results.~~ Our international operations are exposed to potential adverse tax consequence in China.Our international operations create a risk of potential adverse tax consequences.Taxes on income in our China- based companies are dependent upon acceptance of our operational practices and intercompany transfer pricing by local tax authorities as being on an arm' s length basis.Due to inconsistencies among taxing authorities in application of the arm' s length standard,transfer pricing challenges by tax authorities could,if successful,materially increase our consolidated income tax expense.We are subject to tax audits in China and an audit could result in the assessment of ~~38additional~~ -- **additional** income tax against us.This could have a material adverse effect on our operating results or cash flows in the period or periods for which that determination is made and could result in increases to our overall tax expense in subsequent periods.Various taxing agencies in China are increasingly focused on tax reform and other legislative action to increase tax revenue.In addition to risks regarding income tax we have in the past been retroactively assessed value added taxes (" VAT " or **"** sales tax **"**) and such VAT assessments could occur again in the future **.34Uncertainty regarding the United States' foreign policy,particularly with regards to China,could disrupt our business.We manufacture our substrates in China and,in the twelve months ended December 31,2023,approximately 90 % of our sales were to customers located outside the United States.Further,we have partial ownership of raw material companies in China as part of our supply chain.The United States' current foreign policy has created uncertainty and caution in the international business community,resulting in disruptions in manufacturing,import / export,trade tariffs,sales,investments and other business activity.Such disruptions have had an adverse impact on our financial performance and could continue in the future.** Dividends from within our corporate structure are subject to PRC withholding tax and SAFE approval. Occasionally, one of our PRC subsidiaries or PRC raw material joint ventures declares and pays a dividend. These dividends generally occur when the PRC joint venture declares a dividend for all of its shareholders. We have no current intentions to distribute to our investors earnings under our corporate structure. Dividends paid to the Company are subject to a 10 % PRC withholding tax. The Company is required to obtain approval from ~~the State Administration of Foreign Exchange ("~~ SAFE ~~")~~ to transfer funds in or out of the PRC. SAFE requires a valid agreement to approve the transfers, which are processed through a bank. Other than PRC foreign exchange restrictions, the Company is not subject to any PRC restrictions and limitations on its ability to distribute earnings from its businesses. If SAFE approval is denied the dividend payable to the Company would be owed but would not be paid. ~~33Our~~ -- **Our** PRC subsidiaries and PRC joint ventures are subject to data security oversight. Our PRC subsidiaries and PRC joint ventures are subject to oversight by the Cyberspace Administration of China (the " CAC ") regarding data security. Except for routine personal information necessary to process payroll and other benefits and emergency contact information, our PRC subsidiaries and PRC joint ventures do not collect or maintain personal information. All of our products are manufactured in the PRC by our PRC subsidiaries and PRC joint ventures. Although we are neither a PRC operating company nor do we conduct our operations in China through the use of VIEs, cybersecurity is increasingly a focus of the central government and the CAC could require AXT to comply with PRC cybersecurity regulations, which could cause us to make changes to our operations that could materially harm our business, financial condition and results of operations. Enhanced trade tariffs, import restrictions,...... tariffs and trade wars is uncertain. We may be required to raise prices,...... the second half of 2022. 35We derive a significant portion of our revenue from international sales, and our ability to sustain and increase our international sales involves significant risks. Approximately ~~86~~ **90** % of our revenue is from international sales. We expect that sales to customers outside the United States, particularly sales to customers in Japan, Taiwan, Europe and China, will continue to represent a significant portion of our revenue. Therefore, our revenue growth depends significantly on the expansion of our international sales and operations. All of our manufacturing facilities and most of our suppliers are also located outside the United States. Managing our overseas operations presents challenges, including periodic regional economic downturns, trade balance issues, threats of trade wars, varying business conditions and demands, political instability, variations in enforcement of intellectual property and contract rights in different jurisdictions, differences in the ability to develop relationships with suppliers and other local businesses, changes in U. S. and international laws and regulations, including ~~U. S.~~ import and export restrictions, fluctuations in interest and currency exchange rates, the ability to provide sufficient levels of technical support in different locations, cultural differences and perceptions of U. S. companies, shipping delays and terrorist acts or acts of war, natural disasters and epidemics or pandemics, such as COVID- 19, among other risks. Many of these challenges are present in China, which represents a large potential market for semiconductor devices. Global uncertainties with respect to: (i) economic growth rates in various countries; (ii) sustainability of demand for electronic products; (iii) capital spending by semiconductor manufacturers; (iv) price weakness for certain semiconductor devices; (v) changing and tightening environmental regulations; (vi) political instability in regions where we have operations and (vii) trade wars may also affect our business, financial condition and results of operations. ~~Our~~ **35Our** dependence on international sales involves a number of risks, including: ● changes in tariffs, import restrictions, export restrictions, or other trade barriers; ● unexpected changes in regulatory requirements; ● longer periods to collect accounts receivable; ● foreign exchange rate fluctuations; ● changes in export license requirements; ● political and economic instability; and ● unexpected changes in diplomatic and trade relationships. Most of our sales are denominated in U. S. dollars, except for sales to our Chinese customers which are denominated in renminbi and our Japanese customers which are denominated in Japanese yen. We also have some small sales denominated in Euro. Increases in the value of the U. S. dollar could increase the price of our products in non- U. S. markets and make our products more expensive than competitors' products in these markets. We are subject to foreign exchange gains and losses that may materially impact our consolidated statements of operations. We are subject to foreign exchange gains and losses that may materially impact our **consolidated** statements of operations. For example, in **2023 and** 2022 **,** ~~we incurred a foreign exchange gain of $ 1. 6 million and in 2021 and 2020~~ we incurred foreign exchange **gains of $ 169, 000 and $ 1. 6 million, respectively and in 2021, we incurred a foreign exchange** ~~losses~~ -- **loss** of $ 434, 000 ~~and $ 411, 000, respectively~~ . The functional currency of our companies in China is the Chinese renminbi, the local currency. We can incur foreign exchange gains or losses when we pay dollars to one of our China- based companies or a third-party supplier in China. Similarly, if a company in China pays renminbi into one of our bank accounts transacting in dollars the renminbi ~~36will~~ -- **will** be converted to dollars and we can incur a foreign exchange gain or loss. Hedging renminbi will be considered in the future but it is complicated by the number of companies involved, the diversity of transactions and restrictions imposed by the banking system in China. Sales to Japanese customers are denominated in Japanese yen. This subjects us to fluctuations in the exchange rates between the U. S. dollar and the Japanese yen and can result in foreign exchange gains and losses. This has been problematic in the past and, therefore, we instituted a foreign currency hedging program dealing with yen which has **historically** mitigated the ~~problem~~ **gains and losses caused by fluctuations in the exchange rates** . Joint venture raw material companies in China bring certain risks. Since our consolidated subsidiaries and all of our joint venture raw material companies ~~reside~~ **operate** in China, their activities could subject us to a number of risks associated with conducting operations internationally, including: ● **import and export restrictions; ●** unexpected changes in regulatory requirements that may limit our ability to manufacture, export the products of these companies, sell into particular jurisdictions or impose multiple conflicting tax laws and regulations; ● the imposition of tariffs, trade barriers and duties; **36** ● difficulties in managing geographically disparate operations; ● difficulties in enforcing agreements through non- U. S. legal systems; ● political and economic instability, civil unrest or war; ● terrorist activities that impact international commerce; ● difficulties in protecting our intellectual property rights, particularly in countries where the laws and practices do not protect proprietary rights to as great an extent as do the laws and practices of the United States; ● new or changing laws and policies affecting economic liberalization, foreign investment, currency convertibility or exchange rates, taxation or employment; ● new or changing PRC regulations and policies regarding data security and oversight by the **CAC** ~~Cyberspace Administration of China~~ of our consolidated subsidiaries and all of our joint venture raw material companies; and ● nationalization of foreign- owned assets, including intellectual property. **If** Uncertainty regarding the United States' foreign...... could continue in the future. 37If China places restrictions on freight and transportation routes and on ports of entry and departure this could result in shipping delays or increased costs for shipping. In August 2015, there was an explosion at the Port of Tianjin, China. As a result of this incident the government placed restrictions on importing certain materials and on freight routes used to transport these materials. We experienced some modest disruption from these restrictions. If the government were to place additional restrictions on the transportation of materials, then our ability to transport our raw materials or products could be limited and result in manufacturing delays or bottlenecks at shipping ports, affecting our ability to deliver products to our customers. During periods of such restrictions, we may increase our stock of critical materials (such as arsenic, gallium and other items) for use during the period that these restrictions are likely to last, which will increase our use of cash and increase our inventory level. Any of these restrictions could materially and adversely impact our results of operations and our financial condition. Our operating results depend in large part on continued customer acceptance of our substrate products manufactured in China and continued improvements in product quality. We manufacture all of our products in China, and source most of our raw materials in China. We have in the past experienced quality problems with our China manufactured products. Our previous quality problems caused us to lose market share to our competitors ~~,~~ as some of our customers reduced their orders until our wafer surface quality was as good and as consistent as that offered by our competitors ~~and instead allocated their requirements for compound semiconductor substrates to our competitors~~ . If we are unable to continue to achieve customer qualifications for our products, or if we are unable to control product quality, customers may not increase purchases of our products, our China facilities will become underutilized, and we will be unable to achieve revenue growth . Changes in China' s political...... assessments could occur again in the future . If there are power shortages in China, we may have to temporarily close our China operations, which would adversely impact our ability to manufacture our products and meet customer orders, and would result in reduced revenue. In the past, China has faced power shortages resulting in power demand outstripping supply in peak periods. Instability in electrical supply has caused sporadic outages among residential and commercial consumers causing the Chinese government to implement tough measures to ease the energy shortage. If further problems with power shortages occur in the future, we may be required to make temporary closures of our operations or of our subsidiary and joint venture raw material companies. We may be unable to manufacture our products and would then be unable to meet customer orders except from finished goods inventory on hand. As a result, our revenue could be adversely impacted, ~~and~~ **37and** our relationships with our customers could suffer, impacting our ability to generate future revenue. In addition, if power is shut off at any of our facilities at any time, either voluntarily or as a result of unplanned brownouts, during certain phases of our manufacturing process including our crystal growth phase, the work in process may be ruined and rendered unusable, causing us to incur costs that will not be covered by revenue, and negatively impacting our cost of revenue and gross margins. Although the audit report is prepared by an independent registered public accounting firm who is currently inspected fully by the PCAOB, there is no guarantee that future audit reports will be prepared by an independent registered public accounting firm that is completely inspected by the PCAOB. Our independent registered public accounting firm, BPM, is registered with the PCAOB and is subject to regular inspections by the PCAOB to assess its compliance with the applicable professional standards. Although we have operations in China, a jurisdiction where the PCAOB was, until recently, unable to conduct inspections without the approval of the Chinese government authorities, our independent registered public accounting firm is currently inspected fully by the PCAOB. Inspections of other independent registered public accounting firms conducted by the PCAOB outside China have at times identified deficiencies in those independent registered public accounting firms' audit procedures and quality control procedures, which may be addressed as part of the inspection process to improve future audit quality. The lack of PCAOB inspections of audit work undertaken in China prevented the PCAOB from regularly evaluating independent registered public accounting firms' audits and their quality control procedures. As a result, to the extent that any component of our independent registered public accounting firm' s work papers is or becomes located in China, such work papers may not be subject to inspection by the PCAOB. As a result, investors would be deprived of such PCAOB inspections, which could result in limitations or restrictions to our access of the U. S. capital markets. As part of a continued regulatory focus in the United States on access to audit and other information currently protected by national law, in particular PRC laws, in June 2019, a bipartisan group of lawmakers introduced bills in both houses of the U. S. Congress which, if passed, would require the SEC to maintain a list of issuers for which PCAOB is not able to inspect or investigate the audit work performed by a non- U. S. independent registered public accounting firm completely. The proposed Ensuring Quality Information and Transparency for Abroad- Based Listings on our Exchanges Act prescribes increased disclosure requirements for these issuers and, beginning in 2025, the delisting from U. S. national securities exchanges such as the Nasdaq Global Select Market of issuers included on the SEC' s list for three consecutive years. It is unclear if this proposed legislation will be enacted. Furthermore, there have been recent deliberations within the U. S. government regarding potentially limiting or restricting companies based in China from accessing U. S. capital markets. On May 20, 2020, the U. S. Senate passed the HFCA Act, which includes requirements for the SEC to identify issuers whose audit work is performed by independent registered public accounting firms that the PCAOB is unable to inspect or investigate completely because of a restriction imposed by a non- U. S. authority in the independent registered public accounting firms' local jurisdiction. The U. S. House of Representatives passed the HFCA ~~39Act~~ -- **Act** on December 2, 2020, and the HFCA Act was signed into law on December 18, 2020. Additionally, in July 2020, the U. S. President' s Working Group on Financial Markets issued recommendations for actions that can be taken by the executive branch, the SEC, the PCAOB or other federal agencies and department with respect to Chinese companies listed on U. S. stock exchanges and their independent registered public accounting firms, in an effort to protect investors in the United States. In response, on November 23, 2020, the SEC issued guidance highlighting certain risks (and their implications to U. S. investors) associated with investments in issuers based in China and summarizing enhanced disclosures the SEC recommends issuers based in China make regarding such risks. On March 18, 2021, the SEC adopted interim final rules to implement the HFCA Act, which requires the SEC to identify certain issuers that filed annual reports with audit reports issued by registered public accounting firms located in foreign jurisdictions and that the PCAOB is unable to inspect or investigate completely because of a position taken by an authority in those jurisdictions (the " Commission- Identified Issuers "). Specifically, the SEC implemented the submission and disclosure requirements of the HFCA Act. On December 2, 2021, the SEC issued amendments to finalize the interim final rules. Further, the SEC established procedures to identify Commission- Identified Issuers and prohibit the trading of the securities of Commission- Identified Issuers as required by the HFCA Act. We will be required to comply with these rules if the SEC identifies us as a Commission- Identified Issuer. Under the HFCA Act, our securities may be prohibited from trading on the Nasdaq Global Select Market or other U. S. stock exchanges if we are determined to be a Commission- Identified ~~Issuer~~ **38Issuer** for three consecutive years, and this ultimately could result in our common stock being delisted. Furthermore, on June 22, 2021, the U. S. Senate passed the Accelerating Holding Foreign Companies Accountable Act, which, if enacted, would amend the HFCA Act and require the SEC to prohibit an issuer' s securities from trading on any U. S. stock exchanges if the issuer is determined to be a Commission- Identified Issuer for two consecutive years instead of three. On December 15, 2021, the Accelerating Holding Foreign Companies Accountable Act was introduced to the U. S. House of Representatives. On September 22, 2021, the PCAOB adopted a final rule implementing the HFCA Act, which provides a framework for the PCAOB to use when determining, as contemplated under the HFCA Act, whether the PCAOB is unable to inspect or investigate completely independent registered public accounting firms located in a non- U. S. jurisdiction because of a position taken by one or more authorities in that jurisdiction and was approved by the SEC on November 5, 2021. On December 16, 2021, the PCAOB issued a report on its determinations that the PCAOB is unable to inspect or investigate completely registered public accounting firms headquartered in the PRC and Hong Kong because of positions taken by PRC authorities in those jurisdictions. Beginning in March 2022, the SEC listed companies on either its conclusive list of issuers identified under the HFCA Act or its provisional list of issuers identified under the HFCA Act. Companies listed on the SEC' s conclusive list of issuers identified under the HFCA Act are determined to be Commission- Identified Issuers. The SEC did not list AXT, Inc. on either its conclusive list of issuers identified under the HFCA Act or its provisional list of issuers identified under the HFCA Act. On December 15, 2022, the PCAOB vacated its 2021 determinations that the positions taken by authorities in the PRC and Hong Kong prevented it from inspecting and investigating completely registered public accounting firms headquartered in those jurisdictions. As a result, the SEC will not provisionally or conclusively identify an issuer as a Commission- Identified Issuer if it files an annual report with an audit report issued by a registered public accounting firm headquartered in either jurisdiction on or after December 15, 2022, until such time as the PCAOB issues a new determination. The SEC will continue to include any Commission- Identified Issuer on the provisional or conclusive list if they filed an annual report with an audit report issued by a registered public accounting firm headquartered in mainland China and Hong Kong prior to the PCAOB' s decision to vacate its 2021 determinations. While an agreement has been reached among the CSRC, the SEC and the PCAOB regarding the inspection of PCAOB- independent registered public accounting firms in China, there can be no assurance that we will be able to comply with requirements imposed by U. S. regulators. If the PRC authorities do not fully perform their obligations under the agreement with the PCAOB in the future, or if authorities in the PRC otherwise take positions that render the PCAOB unable to inspect or investigate completely registered public accounting firms headquartered in the PRC and Hong Kong, the PCAOB will make determinations under the HFCA Act. Delisting of our common stock would force holders of our common stock to sell their shares. The market price of our common stock could be adversely affected as a result of anticipated negative impacts of these executive or legislative actions upon, as well as negative investor sentiment towards, companies with operations in China that are listed in the United States, regardless of whether these executive or legislative actions are implemented and regardless of our actual operating performance. ~~40VI~~ **IV** . Risks Related to Our Financial Results and Capital StructureWe may utilize our cash balances for relocating manufacturing lines, adding capacity, acquiring state- of- the- art equipment or offsetting a business downturn resulting in the decline of our existing cash and if we need additional capital, funds may not be available on acceptable terms, or at all. Our liquidity is affected by many factors, including among others, the relocation of our gallium arsenide manufacturing lines, the expansion of our capacity to meet market demand, the acquisition of state- of- the- art equipment, other capital expenditures, operating activities, the effect of exchange rate changes and other factors related to the uncertainties of the industry and global economies. Such matters could draw down our cash reserves, which could adversely affect our financial condition, require us to incur debt, reduce our value and possibly impinge our ability to raise debt and equity funding in the future, at a time when we might need to raise additional cash or elect to raise additional cash. Accordingly, there can be no assurance that events will not require us to seek additional capital or, if required, that such capital would be available on terms acceptable to us, if at all. ~~The~~ **39The** terms of the private equity raised in China as a first step toward an IPO on the STAR Market grant each Investor a right of redemption if Tongmei fails to achieve its IPO. Pursuant to the Capital Investment Agreements with the Investors, each Investor has the right to require AXT to redeem any or all Tongmei shares held by such Investor at the original purchase price paid by such Investor, without interest, in the event the IPO fails to pass the audit of the Shanghai Stock Exchange, is not approved by the ~~Chinese Securities Regulatory Commission ("~~ CSRC ~~")~~ or Tongmei cancels the IPO application. The aggregate redemption amount is approximately $ 49 million. Tongmei submitted its IPO application to the Shanghai Stock Exchange and it was formally accepted for review on January 10, 2022. The Shanghai Stock Exchange approved the IPO application on July 12, 2022. On August 1, 2022, the CSRC accepted for review Tongmei' s IPO application. The STAR Market IPO remains subject to review and approval by the CSRC and other authorities. The process of going public on the STAR Market includes several periods of review and, therefore, is a lengthy process. Subject to review and approval by the CSRC and other authorities, Tongmei expects to accomplish this goal in the coming months. The listing of Tongmei on the STAR Market will not change the status of AXT as a U. S. public company. There can be no assurances that Tongmei will complete its IPO in ~~2023~~ **2024** or at all. In the event that investors exercise their redemption rights, we may be required to seek additional capital in order to redeem their Tongmei shares and there would be no assurances that such capital would be available on terms acceptable to us, if at all. Any redemptions could have a material adverse effect on our business, financial condition and results of operations. Unpredictable fluctuations in our operating results could disappoint analysts or our investors, which could cause our stock price to decline. We have experienced, and may continue to experience, significant fluctuations in our revenue, gross margins and earnings. Our quarterly and annual revenue and operating results have varied significantly in the past and may vary significantly in the future due to a number of factors, including: ● **inventory corrections within the technology sector; ●** our ability to develop, manufacture and deliver high quality products in a timely and cost- effective manner; ● unforeseen disruptions at our new sites; ● disruptions in manufacturing if air pollution, or other environmental hazards, or outbreaks of contagious diseases causes the Chinese government to order work stoppages; ● fluctuation of our manufacturing yields; ~~41~~ ● decreases in the prices of our or our competitors' products; ● fluctuations in demand for our products; ● the volume and timing of orders from our customers, and cancellations, push- outs and delays of customer orders once booked; ● decline in general economic conditions or downturns in the industry in which we compete; ● expansion of our manufacturing capacity; ● expansion of our operations in China; ● limited availability and increased cost of raw materials; **40** ● costs incurred in connection with any future acquisitions of businesses or technologies; and ● increases in our expenses, including expenses for research and development. Due to these factors, we believe that period- to- period comparisons of our operating results may not be meaningful indicators of our future performance. A substantial percentage of our operating expenses are fixed, and we may be unable to adjust spending to compensate for an unexpected shortfall in revenue. As a result, any delay in generating revenue could cause our operating results to fall below the expectations of market analysts or investors, which could also cause our stock price to decline. If our operating results and financial performance do not meet the guidance that we have provided to the public, our stock price may decline. We provide public guidance on our expected operating and financial results. Although we believe that this guidance provides our stockholders, investors and analysts with a better understanding of our expectations for the future, such guidance is comprised of forward- looking statements subject to the risks and uncertainties described in this ~~report~~ **Report** and in our other public filings and public statements. Our actual results may not meet the guidance we have provided. If our operating or financial results do not meet our guidance or the expectations of investment analysts, our stock price may decline. We have adopted certain anti- takeover measures that may make it more difficult for a third party to acquire us. Our ~~board~~ **Board** of ~~directors~~ **Directors** has the authority to issue up to 800, 000 shares of preferred stock in addition to the outstanding shares of Series A preferred stock and to determine the price, rights, preferences and privileges of those shares without any further vote or action by the stockholders. The rights of the holders of common stock will be subject to, and may be adversely affected by, the rights of the holders of any preferred stock that may be issued in the future. The issuance of shares of preferred stock could have the effect of making it more difficult for a third party to acquire a majority of our outstanding voting stock. We have no present intention to issue additional shares of preferred stock. Provisions in our restated certificate of incorporation and amended and restated bylaws may have the effect of delaying or preventing a merger, acquisition or change of control, or changes in our management, which could adversely affect the market price of our common stock. The following are some examples of these provisions: ● the division of our ~~board~~ **Board** of ~~directors~~ **Directors** into three separate classes, each with three- year terms; ~~42~~ ● the right of our ~~board~~ **Board of Directors** to elect a director to fill a space created by a board vacancy or the expansion of the board; ● the ability of our ~~board~~ **Board of Directors** to alter our amended and restated bylaws; and ● the requirement that only our ~~board~~ **Board of Directors** or the holders of at least 10 % of our outstanding shares may call a special meeting of our stockholders. Furthermore, because we are incorporated in Delaware, we are subject to the provisions of Section 203 of the Delaware General Corporation Law. These provisions prohibit us from engaging in any business combination with any interested stockholder (a stockholder who owns 15 % or more of our outstanding voting stock) for a period of three years following the time that such stockholder became an interested stockholder, unless: ● 662 / 3 % of the shares of voting stock not owned by the interested stockholder approve the merger or combination, ~~or~~ **or41** ● the ~~board~~ **Board** of ~~directors~~ **Directors** approves the merger or combination or the transaction which resulted in the stockholder becoming an interested stockholder. Our common stock may be delisted from The Nasdaq Global Select Market, which could negatively impact the price of our common stock and our ability to access the capital markets. Our common stock is listed on The Nasdaq Global Select Market. The bid price of our common stock has in the past closed below the $ 1. 00 minimum per share bid price required for continued inclusion on The Nasdaq Global Select Market under Marketplace Rule 5450 (a). If the bid price of our common stock remains below $ 1. 00 per share for thirty consecutive business days, we could be subject to delisting from the Nasdaq Global Select Market. Any delisting from The Nasdaq Global Select Market could have an adverse effect on our business and on the trading of our common stock. If a delisting of our common stock were to occur, our common stock would trade in the over- the- counter market and be quoted on a service such as those provided by OTC Markets Group, Inc. Such alternatives are generally considered to be less efficient markets, and our stock price, as well as the liquidity of our common stock, may be adversely impacted as a result. Delisting from The Nasdaq Global Select Market could also have other negative results, including the potential loss of confidence by customers, suppliers and employees, the loss of institutional investor interest and fewer business development opportunities, as well as the loss of liquidity for our stockholders. Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited. As of December 31, ~~2022~~ **2023** , we had U. S. federal net operating loss carryforwards of approximately $ ~~31~~ **40** . ~~9~~ **2** million. We have net operating loss carryforwards of approximately $ ~~21~~ **115** , 000, primarily in the state of California, as of December 31, ~~2022~~ **2023** . **We do** ~~AXT, Inc. does~~ not expect to utilize the loss carryforwards in the next several years unless Tongmei pays a dividend. Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an " ownership change, " the corporation' s ability to use its pre- change net operating loss carryforwards and other pre- change tax attributes, such as research tax credits, to offset its post- change income and taxes may be limited. In general, an " ownership change " occurs if there is a cumulative change in our ownership by " 5 % shareholders " that exceeds 50 percentage points over a rolling three- year period. Similar rules may apply under state tax laws. We might have undergone prior ownership changes, and we may undergo ownership changes in the future, which may result in limitations on our net operating loss carryforwards and other tax attributes. Any such limitations on our ability to use our net operating loss carryforwards and other tax attributes could adversely impact our business, financial condition and results of operations. ~~43V~~ **V** . Risks Related to Our Intellectual PropertyIntellectual property infringement claims may be costly to resolve and could divert management attention. Other companies may hold or obtain patents on inventions or may otherwise claim proprietary rights to technology necessary to our business. The markets in which we compete are comprised of competitors that in some cases hold substantial patent portfolios covering aspects of products that could be similar to ours. We could become subject to claims that we are infringing patent, trademark, copyright or other proprietary rights of others. We may incur expenses to defend ourselves against such claims or enter into cross license agreements that require us to pay royalty payments to resolve such claims. For example, in 2020, we and a competitor entered into a cross license and covenant agreement (the " Cross License Agreement "), which has a term that began on January 1, 2020 and expires on December 31, 2029. We have in the past been involved in lawsuits alleging patent infringement, and could in the future be involved in similar litigation. If we are unable to protect our intellectual property, including our non- patented proprietary process technology, we may lose valuable assets or incur costly litigation. We rely on a combination of patents, copyrights, trademarks, trade secrets and trade secret laws, non- disclosure agreements and other intellectual property protection methods to protect our proprietary technology. We believe that our ~~internal~~ **42internal** , non- patented proprietary process technology methods, systems and processes are a valuable and critical element of our intellectual property. We must establish and maintain safeguards to avoid the theft of these processes. Our ability to establish and maintain a position of technology leadership also depends on the skills of our development personnel. Despite our efforts to protect our intellectual property, third parties can develop products or processes similar to ours. Our means of protecting our proprietary rights may not be adequate, and our competitors may independently develop similar technology, duplicate our products or design around our patents. We believe that at least two of our competitors ship GaAs substrates produced using a process similar to our VGF process. Our competitors may also develop and patent improvements to the VGF technology upon which we rely, and thus may limit any exclusivity we enjoy by virtue of our patents or trade secrets. It is possible that pending or future United States or foreign patent applications made by us will not be approved, that our issued patents will not protect our intellectual property, or that third parties will challenge our ownership rights or the validity of our patents. In addition, the laws of some foreign countries may not protect our proprietary rights to as great an extent as do the laws of the United States and it may be more difficult to monitor the use of our intellectual property. Our competitors may be able to legitimately ascertain non- patented proprietary technology embedded in our systems. If this occurs, we may not be able to prevent the development of technology substantially similar to ours. We may have to resort to costly litigation to enforce our intellectual property rights, to protect our trade secrets or know- how or to determine their scope, validity or enforceability. Enforcing or defending our proprietary technology is expensive, could cause us to divert resources and may not prove successful. Our protective measures may prove inadequate to protect our proprietary rights, and if we fail to enforce or protect our rights, we could lose valuable assets. VI. Risks Related to Compliance, Environmental Regulations and Other Legal MattersIf we, or any of our partially owned supply chain companies, fail to comply with environmental and safety regulations, we may be subject to significant fines or forced to cease our operations. We are subject to federal, state and local environmental and safety laws and regulations in all of our operating locations, including laws and regulations of China, such as laws and regulations related to the development, manufacture and use of our products, the use of hazardous materials, the operation of our facilities, and the use of our real property. These laws and regulations govern the use, storage, discharge and disposal of hazardous materials during manufacturing, research and development, and sales demonstrations. If we, or any of our partially owned supply chain companies, fail to comply with applicable regulations, we could be subject to substantial liability for clean- up efforts, personal injury, fines or suspension or be forced to close or temporarily cease our operations, and / or suspend or terminate the development, ~~44manufacture~~ -- **manufacture** or use of certain of our products, the use of our facilities, or the use of our real property, each of which could have a material adverse effect on our business, financial condition and results of operations. The Chinese central government is demonstrating strong leadership to improve air quality and reduce environmental pollution. The central government encourages employees to report to the appropriate regulatory agencies possible safety or environmental violations but there may not be actual violations. These efforts have impacted manufacturing companies through mandatory shutdowns, increased inspections and regulatory reforms. In the first quarter of 2018, from February 27 to March 31 over 300 manufacturing companies were again intermittently shut down by the local government for a total of ten days, or 30 percent of the remaining calendar days, due to severe air pollution. Our shipments were delayed and our revenue for the quarter was negatively impacted. We expect that mandatory factory shutdowns ~~will~~ **may** occur in the future. If the frequency of such shutdowns increases, especially at the end of a quarter, or if the total number of days of shutdowns prevents us from producing enough wafers to ship, then the shutdowns will have a material adverse effect on our manufacturing output, revenue and factory utilization. We believe the relocation of our gallium arsenide and germanium manufacturing lines mitigates our exposure to factory shutdowns. Each of our raw material supply chain companies could also be impacted by environmental related orders from the central government. In addition, from time to time, the Chinese government issues new regulations, which may require additional actions on our part to comply. For example, on February 27, 2015, the China State Administration of Work Safety updated its list of hazardous substances. The previous list, which was published in 2002, did not restrict the materials **43** ~~that we use in our wafers. The new list added gallium arsenide. As a result of the newly published list, we were required to seek additional permits. We could be subject to suits for personal injuries caused by hazardous materials. In 2005, a complaint was filed against us alleging personal injury, general negligence, intentional tort, wage loss and other damages, including punitive damages, as a result of exposure of plaintiffs to high levels of gallium arsenide in gallium arsenide wafers, and methanol. Other current and / or former employees could bring litigation against us in the future. Although we have in place engineering, administrative and personnel protective equipment programs to address these issues, our ability to expand or continue to operate our present locations could be restricted or we could be required to acquire costly remediation equipment or incur other significant expenses if we were found liable for failure to comply with environmental and safety regulations. Existing or future changes in laws or regulations in the United States and China may require us to incur significant expenditures or liabilities, or may restrict our operations. In addition, our employees could be exposed to chemicals or other hazardous materials at our facilities and we may be subject to lawsuits seeking damages for wrongful death or personal injuries allegedly caused by exposure to chemicals or hazardous materials at our facilities. Litigation is inherently uncertain and while we would expect to defend ourselves vigorously, it is possible that our business, financial condition, results of operations or cash flows could be affected in any particular period by litigation pending and any additional litigation brought against us. In addition, future litigation could divert management' s attention from our business and operations, causing our business and financial results to suffer. We could incur defense or settlement costs in excess of the insurance covering these litigation matters, or that could result in significant judgments against us or cause us to incur costly settlements, in excess of our insurance limits. We are subject to internal control evaluations and attestation requirements of Section 404 of the Sarbanes- Oxley Act. Pursuant to Section 404 of the Sarbanes- Oxley Act of 2002, we must include in our Annual Report on Form 10- K a report of management on the effectiveness of our internal control over financial reporting. Ongoing compliance with this requirement is complex, costly and time- consuming and it extends to our companies in China. If: (1) we fail to maintain effective internal control over financial reporting; or (2) our management does not timely assess the adequacy of such internal control, we could be subject to regulatory sanctions and the public' s perception of us may be adversely impacted. 45~~