Risk Factors Comparison 2024-02-21 to 2023-02-27 Form: 10-K

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

~~The COVID- 19 pandemic, including private and public sector responses, could materially adversely affect our business, financial condition, results of operations and / or~~ **our** ~~cash flows. The ongoing COVID- 19 pandemic~~ **products, increase exposure to losses from bad debts, increase the cost** and ~~related countermeasures have caused~~ **decrease the availability of financing, increase the risk of loss on investments, or increase costs associated with manufacturing and distributing products. An** economic ~~and financial disruptions in most of the regions in which we sell our products and services and conduct our business operations. Governmental authorities have implemented numerous and evolving measures to address the virus as it continues to mutate. There is no certainty that measures implemented by governmental authorities or by us in our operations will be sufficient to mitigate the risks posed by the COVID- 19 virus. Changes in customer demand, supply chain constraints experienced by us, our suppliers and our customers, pandemic fears and market downturns~~ - **downturn** ~~, and restrictions on business and individual activities has created significant economic and demand uncertainty. COVID- 19 may impact different markets at different times with disparate severity. We have experienced and expect to continue to experience unpredictable volatility in demand in several of our end- markets. The degree to which the COVID- 19 pandemic impacts our financial condition, cash flows and results of operations depends upon future developments, which are highly uncertain and cannot be predicted, including but not limited to the duration, location and spread of outbreak, the emergence, contagiousness, and threat of new and different strains of virus, the availability, acceptance, and effectiveness of vaccines, governmental and business measures to contain the virus and address its impact, and how quickly and to what extent normal economic and operating conditions can resume. These factors, and others that are currently unknown or considered immaterial,~~ could have a material adverse effect on our business, ~~prospects,~~ financial condition **and results of operations. Downturns in the markets we serve** , **particularly materials processing,could have a material adverse effect on our sales and profitability.Our business depends substantially upon capital expenditures by manufacturers in the materials processing market,which includes general manufacturing,automotive,aerospace,other transportation,heavy industry,electronics and photovoltaic industries.Approximately 90 % of our revenues in 2023 were from customers in the materials processing market.Although applications in this market are broad,sales for these applications are cyclical and have historically experienced sudden and severe downturns and periods of oversupply,resulting in significantly reduced demand for capital equipment,including the products that we manufacture and market.For example,our** sales decreased by 25 % in the materials processing market in 2009 as a result of the global economic recession,our material processing sales declined 10 % in the second half of 2018 and 11 % in the 2019 fiscal year,in part due to decreased capital equipment demand stemming from adverse changes to U.S.- China relations,including rounds of tariff increases and retaliations and declined 12 % in the 2020 fiscal year,in part due to decreased capital equipment demand attributed to the COVID- 19 pandemic.For the foreseeable future,our operations will continue to depend upon capital expenditures by customers in these industries or markets,which,in turn,depend upon the demand,as well as forecasted demand,for their products or services.A softening of demand for our customers' products and services,whether caused by a weakening of the U.S.or global economies or other factors,may result in decreased revenue or growth for our customers and may lead to decreased demand for our products,which would reduce our sales and margins.We may not be able to respond by decreasing our expenses quickly enough or sufficiently,due in part,to our fixed overhead structure related to our vertically integrated operations and our commitments to continuing investment in research and development and infrastructure for long term growth.Risks Relating to Industry Dynamics and Competition The markets for our products are highly competitive and currently subject to significant price and technological competition,and if we are unable to compete successfully,it could result in reduced sales,reduced gross margins or the loss of market share.The industries in which we operate are characterized by significant price and technological competition.We compete with makers of fiber lasers,solid- state lasers,direct diode lasers,high power CO2,YAG and disc lasers.These include public and private companies such as Coherent,Inc.,Laserline GmbH,Lumentum Holdings Inc.,Maxphotonics Co.,Ltd.,MKS Instruments,Inc.,nLight,Inc.,Trumpf GmbH Co.KG,and Wuhan Raycus Fiber Laser Technologies Co.Ltd.,as well as other smaller competitors.Several of these are larger and have substantially greater financial,managerial and technical resources,more extensive distribution and service networks,greater sales and marketing capacity,and larger installed customer bases than we do.Many of our fiber laser competitors are increasing the output powers,improving the quality of their fiber lasers and decreasing prices to compete with our products.Our current or potential customers may determine to develop and produce products for their own use which are competitive to our products.Such vertical integration could reduce the market opportunity for our products.We also compete in the materials processing,advanced and medical applications markets with end users that produce their own solid- state and gas lasers as well as with manufacturers of non- laser methods and tools,such as traditional non- laser welding,cutting dies mechanical cutters and plasma cutters in the materials processing market and other energy- based devices in the medical market.We may not be able to successfully differentiate our current and proposed products from our competitors' products and current or prospective customers may not consider our products to be superior to competitors' products.To maintain our competitive position,we believe that we will be required to continue a high level of investment in research and development,application development,manufacturing facilities and customer service and support,and to react to market pricing conditions.As a result of the foregoing factors,competitive pressures have resulted in price reductions,reduced margins,loss of sales and loss of market share.The laser ~~and amplifier industries~~ **industry** ~~are~~ **is** experiencing declining average selling prices,which could cause our gross margins to decline and harm our operating results.Our products are experiencing and may in the future continue to experience a significant decline in average selling prices (" ASPs") as a result of increased competition,pressure to reduce prices from significant customers and new product and technology introductions.Market participants,particularly in China,have reduced and may continue to reduce,prices of competing products to gain market share.If the ASPs of our products decline further and we are unable to increase our unit volumes,introduce new or enhanced products with higher margins or reduce manufacturing costs to offset anticipated decreases in the prices of our existing products,our operating results may be adversely affected.In addition,because of our significant fixed costs,we are limited in our ability to reduce total costs quickly in response to any revenue shortfalls.Because of these factors,we have experienced and we may experience in the future material adverse fluctuations in our operating results on a quarterly or annual basis if the ASPs of our products continue to decline.Our ability to maintain or increase sales depends upon our ability to develop new products,penetrate new applications and end markets for fiber lasers and maintain or increase our market share in existing applications.Our level of sales will depend on our ability to generate sales of fiber lasers in new and developing markets including applications for lasers where they have not been used previously and in applications in which other lasers,such as CO2 and YAG lasers,have been used.To date,a significant portion of our revenue growth has been derived from sales of fiber lasers primarily for applications where CO2 and YAG lasers historically have been used.We have made significant sales into the cutting,welding and marking and engraving applications,large applications where the use of other laser technologies was well established.As fiber lasers increase penetration in core materials processing applications and there is more competition in these core material processing applications,the development of new applications,end markets and products outside our core applications becomes more important to our ability to generate sales.In order to maintain or increase market demand for our products,we will need to devote substantial resources to:• demonstrate the effectiveness of fiber lasers in new applications for materials processing,medical,communications and advanced applications;• successfully develop new product lines,such as the handheld welder,UV,visible and ultrafast fiber lasers with competitive features that extend our product line;• increase our direct and indirect sales efforts;• effectively meet growing competition and pricing pressures;and • continue to reduce our manufacturing costs and enhance our competitive position.Potential customers may have substantial investments and know- how related to their existing laser and non- laser technologies.They may perceive risks relating to the reliability,quality,usefulness and profitability of integrating fiber lasers in their systems when compared to other laser or non- laser technologies available in the market or that they manufacture themselves.Despite fiber lasers having better performance and prices compared to other lasers or tools,OEM customers may be reluctant to switch incumbent suppliers or we may miss the design cycles of our customers.Many of our target markets,such as the automotive,machine tool and other manufacturing,communications and medical industries,have historically adopted new technologies slowly.These markets often require long test and qualification periods or lengthy government approval processes before adopting new technologies.If we are unable to successfully implement our strategy to develop new applications and end markets for our products or develop new products,our revenues,operating results and financial condition could be adversely affected.In addition,any newly developed or enhanced products may not achieve market acceptance or may be rendered obsolete or less competitive by the introduction of new products by other companies.We depend on our OEM customers and system integrators to incorporate our products into their systems.Our sales depend in part on our ability to maintain existing and secure new OEM customers.Our revenues also depend in part upon the ability of our current and potential OEM customers and system integrators to incorporate our laser and amplifier products.The commercial success of these systems depends to a substantial degree on the efforts of these OEM customers and system integrators to develop and market products that incorporate our technologies.Relationships and experience with traditional laser makers,limited marketing resources,reluctance to invest in research and development and other factors affecting these OEM customers and third- party system integrators could have a substantial impact upon our financial results.If OEM customers or integrators are not able to adapt existing tools or develop new systems to take advantage of the features and benefits of fiber lasers or if they perceive us to be an actual or potential competitor,then the opportunities to increase our revenues and profitability may be severely limited or delayed.In addition,some of our OEM customers are developing their own fiber laser sources.If they are successful,this may reduce our sales to these customers.Furthermore,if our OEM customers or third- party system integrators experience financial or other difficulties that adversely affect their operations,our financial condition or results of operations may also be adversely affected.Risks Relating to Our Operations Our vertically integrated business results in high levels of fixed costs and inventory levels that may adversely impact our gross profits and our operating results in the event that demand for our products declines or we maintain excess inventory levels.We have a high fixed cost base due to our vertically integrated business model.Approximately ~~79~~ **76** % of our approximately 6, ~~230~~ **180** employees as of December 31, ~~2022~~ **2023** were employed in our manufacturing operations.We may not adjust these fixed costs quickly enough or sufficiently to adapt to rapidly changing market conditions.Our gross profit,in absolute dollars and as a percentage of net sales,is impacted by our sales volume,the corresponding absorption of fixed manufacturing overhead expenses and manufacturing yields.In addition,because we are a vertically integrated manufacturer and design and manufacture our key specialty components,insufficient demand for our products may subject us to the risks of high inventory carrying costs and increased inventory obsolescence.If our capacity and production levels are not properly sized in relation to expected demand,we may need to record write- downs for excess or obsolete inventory.Because we are vertically integrated,the rate at which we turn inventory has historically been low when compared to our cost of sales.We do not expect this to change significantly in the future and believe that we will have to maintain a relatively high level of inventory compared to our cost of sales.As a result,we expect to have a significant amount of working capital invested in inventory.Changes in our level of inventory lead to an increase in ~~cash generated from our operations when inventory is sold or a decrease in cash generated from our operations at times when the amount of inventory increases.Decreases in inventory may decrease our overhead absorption and decrease our gross margins and profitability.Our manufacturing capacity and operations may not be appropriate for future levels of demand and may adversely affect our gross margins.We have added and are continuing to add substantial manufacturing capacity at our facilities in the United~~

~~States,Germany,Italy and Poland.We are adding manufacturing capabilities and capacity outside of Russia in response to trade sanctions imposed on Russia,where we have large production facilities~~ cash ~~flows~~ **generated from our operations when inventory is sold or a decrease in cash generated from our operations at times when the amount of inventory increases. Decreases in inventory may decrease our overhead absorption** and **decrease our** gross margins and profitability.Our manufacturing capacity and operations may not be appropriate for future levels of demand and may adversely affect our gross margins.We have added and are continuing to add substantial manufacturing capacity at our facilities in the United States,Germany,Italy and Poland.We are adding manufacturing capabilities and capacity outside of Russia in response to trade sanctions imposed on Russia,where we have large production facilities.The trade restrictions impose limits ~~our~~ **on** our ability to purchase components and other items from our subsidiary in Russia.A significant portion of our manufacturing facilities and production equipment,such as our semiconductor production and processing equipment,diode packaging equipment and diode burn- in stations,are special- purpose in nature and cannot be adapted easily to make other products.If the demand for fiber lasers or amplifiers does not increase or if our revenue decreases from current levels,we may have significant excess manufacturing capacity and under- absorption of our fixed costs,which could in turn adversely affect our gross margins and profitability.To maintain our competitive position and to meet anticipated demand for our products,we invest significantly in the expansion of our manufacturing and operations throughout the world and may do so in the future.We had capital expenditures of $ 110 million ~~and $ 123 million~~ in **both 2023 and** 2022 ~~and 2021,respectively~~ ,and we expect to incur approximately $ ~~140~~ **120** million to $ ~~160~~ **130** million in capital expenditures ~~,excluding acquisitions,~~ in ~~2023~~ **2024 ,net of asset divestitures** .In connection with these projects,we may incur cost overruns,construction delays,project cancellations,labor difficulties or regulatory issues which could cause our capital expenditures to be higher than what we currently anticipate,possibly by a material amount,which would in turn adversely impact **our operating** results **. Moreover, we may experience higher costs due to yield loss, production inefficiencies, equipment problems and lower margins until any operational issues associated with the opening of new manufacturing facilities are resolved. A few customers account for a significant portion of our sales, and if we lose any of these customers or they significantly curtail their purchases of our products, our results** of operations ~~,we may experience higher costs due to yield loss,production inefficiencies,equipment problems and lower margins until any operational issues associated with the opening of new manufacturing facilities are resolved.A few customers account for a significant portion of our sales,and if we lose any of these customers or they significantly curtail their purchases of our products,our results of operations~~ could be adversely affected.We rely on a few customers for a significant portion of our sales.In the aggregate,our top five customers accounted for **13 %,** 15 % ~~,~~ **and** 19 ~~% and 24~~ % of our consolidated net sales in **2023,** 2022 ~~,~~ **and** 2021 ~~and 2020~~ ,respectively.A few of our larger customers,including our largest customer,are making fiber lasers or announced plans to develop fiber lasers.We generally do not enter into agreements with our customers obligating them to purchase our fiber lasers or amplifiers.Our business is characterized by short- term purchase orders and shipment schedules.If any of our principal customers discontinues its relationship with us,replaces us as a vendor for certain products or suffers downturns in its business,our business and results of operations could be adversely affected.Because we lack long- term purchase commitments from our customers,our sales can be difficult to predict,which could lead to excess or obsolete inventory and adversely affect our operating results.We generally do not enter into long- term agreements with our customers obligating them to purchase our fiber lasers or amplifiers.Our business is characterized by short- term purchase orders and shipment schedules and,in some cases,orders may be canceled or delayed without significant penalty or any penalty.As a result,it is difficult to forecast our revenues and to determine the appropriate levels of inventory required to meet future demand.In addition,due to the absence of long- term volume purchase agreements,we forecast our revenues and plan our production and inventory levels based upon the demand forecasts of our OEM customers,end users and distributors,which are highly unpredictable and can fluctuate substantially.This could lead to increased inventory levels and increased carrying costs and risk of excess or obsolete inventory due to unanticipated reductions in purchases by our customers.In addition,provisions have been recorded as a result of changes in market prices of certain components,the value of those inventories that was realizable through finished product sales due to declines in certain end market demand and uncertainties related to the recoverability of the value of inventories due to technological and product changes,and excess quantities.In 2022,approximately $ 74 ~~.1~~ million was related to inventory provision and related charges at our Russian operations.If our OEM customers,end users or distributors fail to accurately forecast the demand for our products,fail to accurately forecast the timing of such demand,or are unable to consistently negotiate acceptable purchase order terms with customers,our results of operations may be adversely affected.We depend upon internal production and on outside single or limited- source suppliers for many of our key components and raw materials,including cutting- edge optics and materials.Any interruption in the supply or availability of these key components and raw materials could adversely affect our results of operations.We rely exclusively on our own production capabilities to manufacture certain of our key components,such as semiconductor diodes,specialty optical fibers and optical components.We do not have redundant production lines for some of our components,such as our diodes and some other components,which are made at a single manufacturing facility.These are not readily available from other sources at our current costs and may not be available at all.If our manufacturing activities were obstructed or hampered significantly,it could take a considerable length of time,or it could increase our costs,to resume manufacturing or find alternative sources of supply.Many of the tools and equipment we use are custom- designed,and it could take a significant period of time to repair or replace them.Our primary manufacturing facilities are located in ~~Massachusetts,~~ **the United States and** Germany, ~~Russia~~ and ~~Belarus~~ **we have added production in Italy and Poland** .Despite our efforts to mitigate the impact of any flood,fire,natural disaster,political unrest,act of terrorism,war,trade sanctions,outbreak of disease or other similar event,our business could be adversely affected to the extent that we do not have redundant production capabilities if any of our major manufacturing facilities or equipment should become inoperable,inaccessible,damaged or destroyed.Also,we purchase certain raw materials used to manufacture our products and other components,such as semiconductor wafer substrates,diode packages,modulators,micro- optics,bulk optics and high power beam delivery products,from single or limited- source suppliers.We typically purchase our components and materials through purchase orders or agreed- upon terms and conditions and we do not have guaranteed supply arrangements with many of these suppliers.These suppliers are relatively small private companies that may discontinue their operations at any time and may be particularly susceptible to prevailing economic conditions.Some of our suppliers are also our competitors.Some of our suppliers may not be able to meet demand from our growing business or because of global demand for their components.As a result,we experienced and may in the future experience longer lead times or delays in fulfillment of our orders.Furthermore,other than our current suppliers,there are a limited number of entities from whom we could obtain these supplies.We do not anticipate that we would be able to purchase these components or raw materials that we require in a short period of time or at the same cost from other sources in commercial quantities or that have our required performance specifications.Any interruption or delay in the supply of any of these components or materials,or the inability to obtain these components and materials from alternate sources at acceptable prices and within a reasonable amount of time,could adversely **affect our business.If our suppliers face financial or other difficulties,if our suppliers do not maintain sufficient inventory on hand or if there are significant changes in demand for the components and materials we obtain from them,they could limit the availability of these components and materials to us,which in turn could adversely affect our business** . The ongoing conflict between Russia and Ukraine may adversely affect our business and results of operations. In the first quarter of 2022, Russian military forces invaded Ukraine. This military action had significant and immediate adverse economic impacts globally. Given the nature of our business and our global operations, particularly those in Russia and Belarus, the current conflict between Russia and Ukraine has affected and may adversely affect our business and results of operations. Historically we have manufactured a variety of components, including proprietary fiber- based components, and sub- assemblies at our facility in Russia and mechanical components at our facility in Belarus. Our operations **worldwide** ~~in Russia and Belarus~~ are subject to additional regulatory and political constraints and additional compliance costs in connection with sanctions, other trade controls and higher tariffs imposed by the United States, the European Union and other governments in response to Russia' s military operations in Ukraine. The **United States and the** European Union **have** enacted **numerous sanctions packages and may enact** additional sanctions ~~effective in January 2023 that~~ **until the conflict has been resolved. These sanctions** restrict our ability to import components in Europe from Russia **, and provide or receive services from our Russian subsidiary** . While certain components can be exported from Russia to the United States, the United States imposed significant import tariffs that make it commercially undesirable. **Further, transfer of funds to and from Russia and Belarus are difficult or slow because of bank compliance with sanctions. In addition, we are not able to access cash held by or receive dividends from our Russian and Belarus subsidiaries because of various sanctions.** We continue to implement steps to mitigate the impacts of the Russia- Ukraine conflict on our business and reduce reliance on our facilities in Russia and Belarus, such as migrating the production of a number of our components that had been manufactured in Russia and Belarus into other countries. The current conflict between Russia and Ukraine and our continued operations in Russia and Belarus may also have the effect of heightening many other risks disclosed in our public filings, any of which could adversely affect our business and results of operations. Such risks include, but are not limited to, increases in tariffs; adverse effects on global macroeconomic conditions; increased exposure to cyberattacks; impact of export controls and economic sanctions; limitations in our ability to implement and execute our business strategy; risks to employees, assets and operations we have in Russia and Belarus; disruptions in global supply chains; asset write- downs; exposure to foreign currency fluctuations and potential nationalizations and asset seizures in Russia; constraints or disruption in the capital markets and our sources of liquidity; and potential contractual breaches and litigation. **Additionally, many of our scientists and managers were born in Russia and now reside in Europe and the United States. Such persons have had, and may continue to have, difficulties or delays in obtaining or renewing the necessary visas to enter the United States and other countries in which we operate. Such difficulties or delays have and may further adversely impact our ability to effectively manage operations, oversee existing projects, develop new business relationships, and conduct product research and development.** We must comply with and could be impacted by various export controls and trade and economic sanctions laws and regulations that could negatively affect our business and may change due to diplomatic and political considerations outside of our control. A significant part of our business involves the export and import of components and products among many countries, including the U. S., Germany ~~,~~ **and China. We also export and import a limited number of components and products in** Russia ~~,~~ **and** Belarus ~~and China~~ . The U. S. government and governments of other countries in which we do business have Trade Controls that impact our ability to export, re- export or transfer products, software and technology originating in those countries. Trade Controls may require that we obtain a license before we can export, re- export or transfer certain products, software or technology. The requirement to obtain a license could put us at a competitive disadvantage by restricting our ability to sell products to customers in certain countries or by giving rise to delays or expenses related to obtaining a license. We have experienced and, in the future, may experience delays in obtaining export licenses based on issues solely within the control of the applicable government agency. Licenses may also include conditions that limit the use, resale, transfer, re- export, modification, disassembly, or transfer of a product, software or technology after it is exported without first obtaining permission from the relevant government agency. Delays in obtaining or failure to obtain required export licenses may require us to defer shipments for substantial periods or cancel orders. Any of these circumstances could adversely affect our operations and, as a result, our financial results could suffer. Although we have implemented compliance measures designed to prevent transactions prohibited by current or future Trade Controls, we have previously identified, and may continue to identify, instances in which we exported products without obtaining the required export authorizations and / or submitting the required requests. As a result, we have submitted a limited number of voluntary self- disclosures regarding compliance with export control laws and regulations with the U. S. Department of Commerce' s Bureau of Industry and Security (" BIS "). ~~In October 2021~~ **BIS issued warning letters to the Company in response to the self- disclosures. Following the submission of the self- disclosures** , **the Company received subpoenas from** the U. S.

Department of Justice (" DOJ ") ~~advised us it was conducting an~~ **and** ~~investigation into certain shipments of equipment~~ **BIS in October 2021 and October 2022, respectively, with respect to exports by the Company** . ~~We believe~~ **The Company has been informed by** the DOJ ~~' s investigation~~ **and BIS that the Company** has **satisfied its obligations under the subpoenas. The Company believes that those investigations are** concluded ~~however BIS continues its investigation and we received an administrative subpoena from BIS regarding our export practices. While we are cooperating fully with BIS' s review, we are unable to estimate its ultimate impact on the Company~~ . Our failure to comply with these laws and regulations could result in costly government investigations, government sanctions, including substantial monetary penalties, civil or criminal penalties, denial of export privileges, debarment from government contracts, and a loss of revenues and reputational harm. Our manufacturing facilities in the U. S., Germany and Russia provide finished products to China, our largest market. Should the United States, the European Union or Russia implement new or broad- based Trade Controls directed at each other or China, our production and / or deliveries as well as results of operations and / or financial condition could be affected. In connection with the Russia- Ukraine conflict, broad- based sanctions (including asset- freeze / blocking sanctions) have been imposed by the U. S., UK, EU, and numerous other governments targeting Russia, including but not limited to major Russian banks. In the U. S., these sanctions are administered by the Office of Foreign Assets Control (" OFAC ") and are typically known as the OFAC regulations. These regulations are extensive and complex, and they differ from one sanctions regime to another. Failure to comply with these regulations could subject us to legal and reputational consequences, including civil and criminal penalties. In addition, Trade Controls and their implementation are fluid and may change due to diplomatic and political considerations outside of our control. The United States, the European Union and Russia have imposed numerous additional trade restrictions and sanctions in response to the Russia- Ukraine conflict. Such changes, including the potential expansion of sanctions and sanctions designations, as well as public statements by government officials, could be significant. While the Company has a trade compliance program, there is a risk that IPG may not be able to comply due to the number, complexity and fast- changing nature of sanctions being added in response to the Russia- Ukraine conflict. Trade Controls and governmental responses to the conflict may require us to take certain actions, including increasing costs and abandoning operations or writing- down asset values, or respond to nationalization or expropriation of assets abroad, adversely affect prevailing market prices of our common stock, have a reputational impact, or otherwise have a material adverse impact on us, our business and financial results. Uncertainty and adverse changes in the general...... turn could adversely affect our business. We may experience lower than expected manufacturing yields, which would adversely affect our gross margins. The manufacture of semiconductor diodes and the packaging of them is a highly complex process. Manufacturers often encounter difficulties in achieving acceptable product yields from diode and packaging operations. We have from time to time experienced lower than anticipated manufacturing yields for our diodes and packaged diodes. This occurs during the production of new designs and the installation and start- up of new process technologies and new equipment. If we do not achieve planned yields, our product costs could increase resulting in lower gross margins, and key component availability would decrease. We are highly dependent on the significant experience and specialized expertise of our ~~CEO and other~~ senior management and scientific staff. The unavailability or loss of one or more of these key employees or our failure to attract other highly skilled personnel necessary to compete successfully could harm our business and results of operations. Our future success is substantially dependent on the continued service and performance of our executive officers. Although the board engages in executive succession planning, our inability to effectively and immediately transition knowledge or responsibilities to successors in the event of an unexpected absence or departure could harm our business and disrupt our operations. We also rely on our highly trained team of scientists, many of whom have numerous years of experience and specialized expertise in optical fibers, semiconductors and optical component technology, and other key engineering, sales, marketing, manufacturing and support personnel, any of whom may depart for a variety of reasons, which could harm our business. Competition for qualified personnel in our industry is intense, particularly for physicists, software engineers and other technical staff. If we fail to attract, integrate and retain the necessary personnel, it could delay the development or introduction of new products, negatively impact our ability to market, sell or support our products, and significantly harm our business. Risks Relating to Intellectual Property, Litigation, Information Systems and Regulations In the past, we were subject to litigation alleging that we infringed third- party intellectual property rights. Intellectual property claims could result in costly litigation and harm our business. There has been significant litigation involving intellectual property rights in many technology- based industries, including our own. We face risks and uncertainties in connection with such litigation, including the risk that patents issued to others may harm our ability to do business; that there could be existing patents of which we are unaware that could be pertinent to our business; and that it is not possible for us to know whether there are patent applications pending that our products might infringe upon. Moreover, the frequency with which new patents are granted and the diversity of jurisdictions in which they are granted make it impractical and expensive for us to monitor all patents that may be relevant to our business. From time to time, we have been notified of allegations and claims that we may be infringing patents or intellectual property rights owned by third parties. We have defended against several patent infringement claims in the past and we engage in patent office opposition proceedings internationally for patents owned by others. There can be no assurance that **, in the future,** we will be able to dispose **of** ~~without a material effect~~ any claims or other allegations made or asserted ~~in~~ **against us without** ~~the~~ **them** ~~future~~ **having a material impact on our results of operations** . Even if we ultimately are successful on the merits of any such litigation or re- examination, legal and administrative proceedings related to intellectual property are typically expensive and time- consuming, generate negative publicity and divert financial and managerial resources. Some litigants may have greater financial resources than we have and may be able to sustain the costs of complex intellectual property litigation more easily than we can. If we do not prevail in any intellectual property litigation brought against us, it could affect our ability to sell our products and materially harm our business, financial condition and results of operations. These developments could adversely affect our ability to compete for customers and increase our revenues. Plaintiffs in intellectual property cases often seek, and sometimes obtain, injunctive relief. Intellectual property litigation commenced against us could force us to take actions that could be harmful to our business, including the following: • stop selling our products or using the technology that contains the allegedly infringing intellectual property; • pay actual monetary damages, royalties, lost profits or increased damages and the plaintiff' s attorneys' fees; and • attempt to license the relevant intellectual property which may not be available on reasonable terms. In addition, intellectual property lawsuits can be brought by third parties against OEMs and end users that incorporate our products into their systems or processes. In some cases, we indemnify OEMs against third- party infringement claims relating to our products and we often make representations affirming, among other things, that our products do not infringe the intellectual property rights of others. As a result, we may incur liabilities in connection with lawsuits against our customers. Any such lawsuits, whether or not they have merit, could be time- consuming to defend, damage our reputation or result in substantial and unanticipated costs. Our inability to protect our intellectual property and proprietary technologies could result in the unauthorized use of our technologies by third parties, hurt our competitive position and adversely affect our operating results. We rely on patents, trade secret laws, contractual agreements, technical know- how and other unpatented proprietary information to protect our products, product development and manufacturing activities from unauthorized copying by third parties. Our patents do not cover all of our technologies, systems, products and product components and may not prevent third parties from unauthorized copying of our technologies, products and product components. We have significant international operations and are subject to foreign laws which differ in many respects from U. S. laws. Policing unauthorized use of our trade secret technologies throughout the world and proving misappropriation of our technologies are particularly difficult, especially due to the number of our employees and operations in numerous foreign countries. The steps that we take to acquire ownership of our employees' inventions and trade secrets in foreign countries may not have been effective under all such local laws, which could expose us to potential claims or the inability to protect intellectual property developed by our employees. Furthermore, any changes in, or unexpected interpretations of, the trade secret and other intellectual property laws in any country in which we operate may adversely affect our ability to enforce our trade secret and intellectual property positions. Costly and time- consuming litigation could be necessary to determine the scope of our confidential information and trade secret protection. However, there can be no assurance that confidentiality agreements we enter into with consultants, suppliers, employees and others will not be breached, that we will be able to effectively enforce them or that we will have adequate remedies for any breach. Given our reliance on trade secret laws, others may independently develop similar or alternative technologies or duplicate our technologies and commercialize discoveries that we have made. Therefore, our intellectual property efforts may be insufficient to maintain our competitive advantage or to stop other parties from commercializing similar products or technologies. Many countries outside of the United States afford little or no protection to trade secrets and other intellectual property rights. Intellectual property litigation can be time- consuming and expensive, and there is no guarantee that we will have the resources to fully enforce our rights. If we are unable to prevent misappropriation or infringement of our intellectual property rights, or the independent development or design of similar technologies, our competitive position and operating results could suffer. Our information systems are subject to cyber- attacks, interruptions and failures. If unauthorized access is obtained to our information systems, we may incur significant legal and financial exposure and liabilities. Like many multinational corporations, we maintain several information technology systems, including software products licensed from third parties. These systems vary from country to country. Any system, network or internet failures, misuse by system users, the hacking into or disruption caused by the unauthorized access by third parties or loss of license rights could disrupt our ability to timely and accurately manufacture and ship products or to report our financial information in compliance with the timelines mandated by the SEC. Any such failure, misuse, hacking, disruptions or loss would likely cause a diversion of management' s attention from the underlying business and could harm our operations. In addition, a significant failure of our various information technology systems could adversely affect our ability to complete an evaluation of our internal controls and attestation activities pursuant to Section 404 of the Sarbanes- Oxley Act of 2002 under the updated framework issued in 2013. As part of our day- to- day business, we store our data and certain data about our customers, employees and service providers in our information technology system. While our system is designed with access security, if a third party gains unauthorized access to our data or technology, including information regarding our customers, employees and service providers, such security breach could expose us to a risk of loss of this information, loss of business, litigation and possible liability. Our security measures may be breached as a result of third- party action, including intentional misconduct by computer hackers, employee error, malfeasance or otherwise. Additionally, third parties may attempt to fraudulently induce employees or customers into disclosing sensitive information such as user names, passwords or other information in order to gain access to our customers' data or our data, including our intellectual property and other confidential business information, employee information or our information technology systems. Because the techniques used to obtain unauthorized access, or to sabotage systems, change frequently and generally are not recognized until launched against a target, we may be unable to anticipate or detect these techniques or to implement adequate preventative measures. Any unauthorized access could negatively impact our customers' products, result in a loss of confidence by our customers, damage our reputation, disrupt our business, result in a misappropriation of our assets (including cash), lead to legal liability and negatively impact our future sales. Additionally, such actions could result in significant costs associated with loss of our intellectual property, impairment of our ability to conduct our operations, rebuilding our network and systems, prosecuting and defending litigation, responding to regulatory inquiries or actions, paying damages or taking other remedial steps. In addition, we may incur significant costs designed to prevent or mitigate the damage related to cybersecurity incidents. For instance, we may retain additional employees or consultants, implement new policies and procedures, and install information technology to detect and prevent identity theft, data breaches, or system disruptions. We would incur any such costs with the intent that proactively preventing a cybersecurity incident ultimately helps to mitigate potential cybersecurity liability. As previously disclosed, on September 14, 2020, the Company detected a ransomware attack impacting certain of our operational and information technology systems that ~~did~~ **we do** not ~~have~~ **believe had** a material impact on the Company' s business, operations or financial condition. The costs to address the foregoing security problems and security vulnerabilities before or after a cyber- incident could be significant. Our remediation efforts may not be successful and could result in interruptions, delays, a cessation of service, and a loss of existing or potential customers, impeding our sales, manufacturing, distribution, and other critical functions. We may face particular privacy, data security and data protection risks due to laws and regulations regulating the protection or security of personal and other sensitive data. We may face particular privacy, data security and data protection risks due to laws and regulations regulating the protection or security of personal and other sensitive data, including in particular several laws and regulations that have recently been enacted or adopted or are likely to be enacted or adopted in the future. For instance, in 2018, the European General Data Protection Regulation (" GDPR ") imposed additional obligations and risk upon our business and substantially increased the penalties to which we could be subject in the event of any non- compliance. GDPR requires companies to satisfy requirements regarding the handling of personal data (generally, of EU residents), including its use, protection and the rights of affected persons regarding their data. Failure to comply with GDPR requirements could result in penalties of up to 4 % of worldwide revenue. In addition, several other jurisdictions around the world have recently enacted privacy laws or regulations similar to GDPR. For instance, in 2020, California enacted the California Consumer Privacy Act (" CCPA "), giving consumers many of the same rights as those available under GDPR. Several laws similar to the CCPA have been approved in the United States at the state level and more are being proposed at the federal and state levels. GDPR and other similar laws and regulations, as well as any associated inquiries or investigations or any other government actions, may be costly to comply with, result in negative publicity, increase our operating costs, require significant management time and attention, and subject us to remedies that may harm our business. We are evaluating these requirements and taking measures to ensure compliance with all applicable privacy and data protection- related laws and regulations. Due to the lack of experience with the interpretation and enforcement of many of these laws and regulations, some measures initially might not satisfy standard or best practices that will be established in the coming years. Changes in tax rates, tax liabilities or tax accounting rules could affect future results. As a global company, we are subject to taxation in the United States and various other countries and jurisdictions. Significant judgment is required to determine worldwide tax liabilities. Our future tax rates could be affected by changes in the composition of earnings in countries or states with differing tax rates, transfer pricing rules, changes in the valuation of our deferred tax assets and liabilities, or changes in the tax laws. In addition, we are subject to regular examination of our income tax returns by the Internal Revenue Service (" IRS") and other tax authorities. From time to time the United States, foreign and state governments make substantive changes to tax rules and the application of rules to companies, including various announcements from the United States government potentially impacting our ability to defer taxes on international earnings. We regularly assess the likelihood of favorable or unfavorable outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. Although we believe our tax estimates are reasonable, there can be no assurance that any final determination will not be materially different than the treatment reflected in our historical income tax provisions and accruals, which could materially and adversely affect our operating results and financial condition. If we or our third- party vendors fail to comply with FDA regulations or similar legal requirements in foreign jurisdictions relating to the manufacturing of our products or any component part, we may be subject to fines, injunctions and penalties, and our ability to commercially distribute and sell our products may be negatively impacted. We now make fiber laser systems and accessories targeted at specific medical applications. In addition, we sell our commercial fiber and diode laser modules, subassemblies and systems to OEMs that incorporate them into their medical products. With respect to such products, some of our manufacturing facilities, and the manufacturing facilities of any of our third- party component manufacturers or critical suppliers, are required to comply with the FDA' s Quality System Regulation and those of other countries (" QSR "), which sets forth minimum standards for the procedures, execution and documentation of the design, testing, production, control, quality assurance, labeling, packaging, sterilization, storage, and shipping of the products we sell in the medical industry, and related regulations, including Medical Device Reporting (" MDR ") regulations regarding reporting of certain malfunctions and adverse events potentially associated with our products. The FDA and other regulatory agencies may evaluate our compliance with the QSR, MDR and other regulations, among other ways, through periodic announced or unannounced inspections which could disrupt our operations and interrupt our manufacturing. If in conducting an inspection of our manufacturing facilities, or the manufacturing facilities of any of our third- party component manufacturers or critical suppliers, an investigator from the FDA observes conditions or practices believed to violate the QSR, the investigator may document their observations on a Form FDA 483 that is issued at the conclusion of the inspection. A manufacturer that receives an FDA 483 may respond in writing and explain any corrective actions taken in response to the inspectional observations. The FDA will typically review the facility' s written response and may re- inspect to determine the facility' s compliance with the QSR and other applicable regulatory requirements. Failure to take adequate and timely corrective actions to remedy objectionable conditions listed on an FDA 483 could result in the FDA taking administrative or enforcement actions. Among these may be the FDA' s issuance of a Warning Letter to a manufacturer, which informs it that the FDA considers the observed violations to be of " regulatory significance " that, if not corrected, could result in further enforcement action. FDA enforcement actions, which include seizure, injunction, criminal prosecution, and civil penalties, could result in total or partial suspension of a facility' s production and / or distribution, product recalls, fines, suspension of the FDA' s review of product applications, and / or the FDA' s issuance of adverse publicity. Thus, an adverse inspection could force a shutdown of our manufacturing operations for products servicing the medical industry or a recall of such products. Adverse inspections could also delay FDA approval of our products for the medical industry. Failure to maintain effective internal controls may cause a loss of investor confidence in the reliability of our financial statements or to cause us to delay filing our periodic reports with the SEC and adversely affect our stock price. The SEC, as directed by Section 404 of the Sarbanes- Oxley Act of 2002, adopted rules requiring public companies to include a report of management on internal control over financial reporting in their annual reports on Form 10- K that contain an assessment by management of the effectiveness of our internal control over financial reporting. In addition, our independent registered public accounting firm must attest to and report on the effectiveness of our internal control over financial reporting. We have ~~experienced rapid growth and have~~ extensive and complex international manufacturing and sales and service locations which may make us more vulnerable to weaknesses in our internal controls. Although we test our internal control over financial reporting in order to ensure compliance with the Section 404 requirements, our failure to maintain adequate internal controls over financial reporting could result in an adverse reaction in the financial marketplace due to a loss of investor confidence in the reliability of our financial statements or a delay in our ability to timely file our periodic reports with the SEC, which ultimately could negatively impact our stock price. Our products could contain defects, which may reduce sales of those products, harm market acceptance of our fiber laser and other products or result in claims against us. The manufacture of our products involves highly complex and precise processes. Despite testing by us and our customers, errors have been found, and may be found in the future, in our products. These defects may cause us to incur significant warranty, support and repair costs, incur additional costs related to a recall, divert the attention of our engineering personnel from our product development efforts and harm our relationships with our customers. These problems could result in, among other things, loss of revenues or a delay in revenue recognition, loss of market share, harm to our reputation or a delay or loss of market acceptance of our fiber laser products. Additionally, a recall, particularly in our products used or incorporated in medical devices, could result in significant costs and lost sales and customers, enforcement actions and / or investigations by state and federal governments or other enforcement bodies, as well as negative publicity and damage to our reputation that could reduce future demand for our products. The development and sale of medical devices and component products involves an inherent risk of product liability claims. Defects, integration issues or other performance problems in our fiber laser and other products could also result in personal injury or financial or other damages to our customers, which in turn could damage market acceptance of our products and result in significant product liability claims being brought against us. A product liability claim brought against us, even if unsuccessful, could be time- consuming and costly to defend. If a product liability action were determined against us, it could result in significant damages, including punitive damages, and our consolidated financial position, results of operations or cash flows could be materially adversely affected. We are subject to government regulations, including tariffs and duties that could restrict our international sales and negatively affect our business. The United States, Germany, the European Union, China, Japan, South Korea and many other foreign governments impose tariffs and duties on the import of products, including some of those which we sell. In recent years, the U. S. instituted changes in trade policies that included the negotiation or termination of trade agreements, the imposition of higher tariffs on imports into the United States, including, in particular, on Russian and Chinese- made goods, economic sanctions on individuals, corporations or countries and other government regulations affecting trade between the United States and other countries where we conduct our business. Policy changes and proposals could require time- consuming and expensive alterations to our business operations and may result in greater restrictions and economic uncertainty and disincentives on international trade, which could negatively impact our competitiveness in jurisdictions around the world as well as lead to an increase in costs in our supply chain. We are a multinational corporation, with manufacturing located both in the United States and internationally and with approximately ~~77~~ **76** % of our net sales arising from foreign customers. As such, we may be more susceptible to negative impacts from these tariffs or change in trade policies than other less internationally focused enterprises. In addition, new tariffs and other changes in U. S. trade policy could trigger retaliatory actions by affected countries, and certain foreign governments, including the Chinese government (which has imposed retaliatory tariffs on a range of U. S. goods including certain optical and electronic products and components), may impose trade sanctions on certain U. S. manufactured goods. Such changes by the United States and other countries have the potential to adversely impact U. S. and worldwide economic conditions, our industry and the global demand for our products, and as a result, could negatively affect our business, financial condition and results of operations. We are subject to various environmental laws and regulations that could impose substantial costs upon us and may adversely affect our business, operating results and financial condition. Some of our operations use substances regulated under various federal, state, local and international laws governing the environment, including those relating to the storage, use, discharge, disposal, product composition and labeling of, and human exposure to, hazardous and toxic materials. We could incur costs, fines and civil or criminal sanctions, third- party property damage or personal injury claims, or could be required to incur substantial investigation or remediation costs, if we were to violate or become liable under environmental laws. Compliance with current or future environmental laws and regulations could restrict our ability to expand our facilities or require us to acquire additional expensive equipment, modify our manufacturing processes, or incur other significant expenses in order to remain in compliance with such laws and regulations. There can be no assurance that violations of environmental laws or regulations will not occur in the future as a result of the lack of, or failure to obtain, permits, human error, accident, equipment failure or other causes. Risks Relating to Our Common Stock Certain trusts and a company created by the late founder of the Company collectively control over 30 % of our voting power and have a significant influence on the outcome of director elections and other matters requiring stockholder approval, including a change in corporate control. IP Fibre Devices (UK) Ltd. (" IPFD"), together with trusts created by the late founder of the Company, Dr. Valentin P. Gapontsev, beneficially own approximately ~~33~~ **34** % of our common stock. Dr. Scherbakov, our CEO, is the sole managing director of IPFD. Trustees of the trusts are officers ~~or employees~~ of the Company **and a third- party corporate trustee** . These trustees and Dr. Scherbakov, as managing director of IPFD, have significant influence on the outcome of matters requiring stockholder approval, including election of our directors, stockholder proposals and approval of significant corporate transactions. IPFD and the trusts may vote their shares of our common stock in ways that other stockholders may consider would be adverse to the interests of the other stockholders. These significant ownership interests could delay, prevent or cause a change in control of the Company and might affect the market price of our common stock. Provisions in our charter documents and Delaware law, and our severance arrangements, could prevent or delay a change in control of our company, even if a change in control would be beneficial to our stockholders. Provisions of our certificate of incorporation and by- laws, including certain provisions that will take effect when founder of the Company, the late Dr. Valentin P. Gapontsev, together with his affiliates and associates, ceases to beneficially own an aggregate of 25 % or more of our outstanding voting securities, may discourage, delay or prevent a merger, acquisition or change of control, even if it would be beneficial to our stockholders. The existence of these provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock. These provisions include: • authorizing the issuance of" blank check" preferred stock; • establishing a classified board and providing that directors thereon may only be removed for cause; • providing that directors fill board vacancies; • prohibiting stockholder action by written consent; • limiting the ability of stockholders to call a special meeting of stockholders; • establishing advance notice requirements for nominations for election to the board of directors and for proposing matters to be submitted to a stockholder vote; • supermajority stockholder approval to change certificate of incorporation and by- laws and • lack of cumulative voting for director elections. Section 203 of the Delaware General Corporation Law, which will apply to the Company following such time as the late Dr. Gapontsev, together with his affiliates and associates, ceases to beneficially own 25 % or more of the total voting power of our outstanding shares, may prohibit business combinations with stockholders owning 15 % or more of our outstanding voting stock. The terms of our employment agreements and severance plan with executives include change- of- control severance provisions which provide for the payment of cash following a termination of employment following a change of control. These provisions may discourage, delay or prevent a merger or acquisition, make a merger or acquisition costlier for a potential acquirer, or make removal of incumbent directors or officers more difficult. General Risk Factors We have experienced, and expect to experience in the future, fluctuations in our quarterly operating results. These fluctuations may increase the volatility of our stock price and may be difficult to predict. We have experienced, and expect to continue to experience, fluctuations in our quarterly operating results. We believe that fluctuations in quarterly results may cause the market price of our common stock to fluctuate, perhaps substantially. Factors which may have an influence on our operating results in a particular quarter include those below and others included in the Risk Factors: • the increase, decrease, cancellation or rescheduling of significant customer orders; • the timing of revenue recognition based on the installation or acceptance of certain products shipped to our customers; • the timing of customer qualification of our products and commencement of volume sales of systems that include our products; • the gain or loss of a key customer; • product or customer mix; • competitive pricing pressures and new market entrants; • our ability to design, manufacture and introduce new products on a cost- effective and timely basis; • our ability to manage our inventory levels and any provisions for excess or obsolete inventory; • our ability to collect outstanding accounts receivable balances; • incurring expenses to develop and improve application and support capabilities, the benefits of which may not be realized until future periods, if at all; • incurring expenses related to impairment of values for goodwill, intangibles and other long- lived assets; • different capital expenditure and budget cycles for our customers, which affect the timing of their spending; • expenses associated with acquisition- related activities; • ~~health~~ **regional epidemics or a global** pandemic **, such as COVID- 19** ; and • our ability to control expenses. These factors make it difficult for us to accurately predict our operating results. In addition, our ability to accurately predict our operating results is complicated by the fact that many of our products have long sales cycles, some lasting as long as twelve months or more. Once a sale is made, our delivery schedule typically ranges from four weeks to four months, and therefore our sales will often reflect orders shipped in the same quarter that they are received and will not enhance our ability to predict our results for future quarters. In addition, long sales cycles may cause us to incur significant expenses without offsetting revenues since customers typically expend significant effort in evaluating, testing and qualifying our products before making a decision to purchase them. Moreover, customers may cancel or reschedule shipments, and production difficulties could delay shipments. Accordingly, our results of operations are subject to significant fluctuations from quarter to quarter, and we may not be able to accurately predict when these fluctuations will occur. Our inability to manage risks associated with our international customers and operations could adversely affect our business. We have significant facilities in and our products are sold in numerous countries ~~. Our principal markets include China, the United States, the European Union, Japan, Korea, Turkey and Russia~~ . A substantial majority of our revenues are derived from customers outside the United States. In addition, we have substantial tangible assets outside of the United States. We anticipate that foreign sales will continue to account for a significant portion of our revenues in the foreseeable future. Our operations and sales in these markets are subject to risks inherent in international business activities, including the following and others mentioned in the Risk Factors: • fluctuations in the values of foreign currencies; • changes, including recession, and other general economic uncertainties affecting the macroeconomic and local economic communities in which we and our customers operate or serve; • longer accounts receivable collection periods and less developed credit assessment and collection procedures; • compliance with domestic and foreign laws and regulations, unexpected changes in those laws and regulatory requirements, including uncertainties regarding taxes, tariffs, quotas, export controls, export licenses, trade sanctions and other trade barriers, and any corresponding retaliatory actions by affected countries, including China and Russia; • certification requirements; • less effective protection of intellectual property rights in some countries; • potentially adverse tax consequences; • political, legal and economic instability, foreign conflicts, labor unrest and the impact of regional and global infectious illnesses in the countries in which we and our customers, suppliers, manufacturers and subcontractors are located; • preference for locally produced products; • difficulties and costs of staffing and managing international operations across different geographic areas and cultures; • seasonal reductions in business activities; • fluctuations in freight rates and transportation disruptions; • investment restrictions or requirements; • repatriation restrictions or requirements; • export and import restrictions; and • limitations on the ability of our employees to travel without restriction to certain countries in which we operate. Political, economic and monetary instability and changes in governmental regulations or policies, including trade tariffs and protectionism, could adversely affect both our ability to effectively operate our foreign sales offices and the ability of our foreign suppliers to supply us with required materials or services. Any interruption or delay in the supply of our required components, products, materials or services, or our inability to obtain these components, materials, products or services from alternate sources at acceptable prices and within a reasonable amount of time, could impair our ability to meet scheduled product deliveries to our customers and could cause customers to cancel orders. We are subject to risks of doing business in Russia through our subsidiary, NTO- IRE Polus, which sells finished lasers to customers in Russia and supplies our Chinese subsidiary with a portion of the finished lasers they sell to customers in China. We are also subject to risks of doing business in Belarus, which provides mechanical parts to our German and Russian operations. We are also subject to risks of doing business in China, as approximately ~~34~~ **28** % of our sales in ~~2022~~ **2023** were to Chinese customers. The results of our operations, business prospects and facilities in Russia, China and Belarus are subject to the economic and political environment there and global geopolitical conditions. The future economic direction of these emerging market countries remains largely dependent upon the effectiveness of economic, financial and monetary measures undertaken by the government, together with tax, legal, regulatory and political developments. As a result of the conflict involving Russia and Ukraine, the U. S. and certain allies in Europe imposed severe economic and trade sanctions on Russia and could impose further sanctions against it. Russia has responded in kind. Sanctions imposed by any of these countries has and could disrupt our supply of critical components among our manufacturing facilities in the U. S., Germany, **Italy, Poland,** Russia or Belarus, and cause us to shift all or portions of work occurring in Russia or Belarus to other countries. In addition, sanctions targeting the banking sector have impacted the transfer of cash to and from Russia to fund operations or repatriate surplus liquidity **. At December 31, 2023, we had $ 76. 4 million of cash and cash equivalents in Russia and $ 5. 5 million cash in Belarus** . Such disruptions could negatively affect our ability to provide critical components to affiliates or produce finished goods for customers, which could increase our costs, require capital expenditures and harm our results of operations and financial condition. Further, Russia and Belarus adopted rules that impose conditions on sale of assets by U. S. and western companies and decreasing the values of assets realized, as well as payments to owners of entities there. Our failure to manage the risks associated with our operations in Russia, China and Belarus and our other existing and potential future international business operations could have a material adverse effect upon our results of operations. Foreign currency risk may negatively affect our net sales, cost of sales and operating margins and could result in exchange losses. We conduct our business and incur costs in the local currency of most countries in which we operate. In ~~2022~~ **2023** our net sales outside the United States represented a substantial majority of our total sales. We incur currency transaction risk whenever one of our operating subsidiaries enters into either a purchase or a sales transaction using a different currency from the currency in which it operates or holds assets or liabilities in currencies different than their functional currency. Changes in exchange rates can also affect our results of operations when the value of sales and expenses of foreign subsidiaries are translated to U. S. dollars. We cannot accurately predict the impact of future exchange rate fluctuations on our results of operations. Further, given the volatility of exchange rates, we may not be able to effectively manage our currency risks, and any volatility in currency exchange rates may increase the price of our products in local currency to our foreign customers or increase the manufacturing cost of our products, which may have an adverse effect on our financial condition, cash flows and profitability. We **incurred a foreign exchange gain of $ 1. 4 million in 2023 and a loss of $ 4. 1 million in 2022. We** pursue acquisitions and investments in new businesses, products, patents or technologies. These involve risks which could disrupt our business and may harm our financial results and condition. We **may** make acquisitions of and investments in new businesses, products, patents and technologies and expand into new geographic areas, or we may acquire operations, products or technologies that expand our current capabilities. Although we have pursued relatively small acquisitions in the past, we may pursue larger transactions in the future. Acquisitions present a number of potential risks and challenges that could, if not met, disrupt our business operations, increase our operating costs, reduce consolidated margins, cause us to incur impairment charges and reduce the value of the acquired company, asset or technology to us. We may not be able to effectively integrate acquired businesses, business cultures, products, patents or technologies into our existing business and products, or retain key employees. As a result of the rapid pace of technological change in our industry, we may misjudge the long- term potential of an acquired business, product, patent or technology, or the acquisition may not be complementary to our existing business. Furthermore, potential acquisitions and investments, whether or not consummated, may divert our management' s attention, require considerable cash outlays at the expense of our existing operations, incur unanticipated costs or liabilities, including the costs associated with improving the internal controls of the acquired company. In addition, to complete future acquisitions, we may issue equity securities, incur debt, assume contingent liabilities or have amortization expenses and write- downs of acquired assets, which could adversely affect our profitability and result in dilution to our existing and future stockholders. We may incur impairments to goodwill or long- lived assets, which would negatively affect our results of operations. We review our goodwill for impairment annually and other long- lived assets, including intangible assets identified in business combinations whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. Negative industry or economic trends, including reduced estimates of future cash flows, disruptions to our business including those from government regulations, sanctions or tariffs, slower growth rates, lack of growth in our relevant business units or differences in the estimated product acceptance rates could lead to impairment charges against our long- lived assets, including goodwill and other intangible assets. Our valuation methodology for assessing impairment requires management to make significant judgments and assumptions based on historical experience and to rely heavily on projections of future operating performance at many points during the analysis. Also, the process of evaluating the potential impairment of long- lived assets is subjective. We operate in a highly competitive environment and projections of future operating results and cash flows may vary significantly from actual results. Additionally, if our analysis indicates potential impairment to long- lived assets in one or more of our reporting units, we may be required to record additional charges to earnings in our financial statements, which could negatively affect our results of operations. In 2022, long- lived asset impairments related to our Russian operations were $ 79. 0 million. **At December 31, 2023, the net asset value of our Russian subsidiary was $ 103. 9 million. The net value of assets in Russia was reduced by $ 138. 5 million due to the cumulative translation effect of the Russian ruble compared to the U. S. dollar. Depending upon the outcome of our review of our Russian operations, we may incur additional asset impairment charges and the cumulative translation effect of foreign exchange fluctuations that is currently included in accumulated other comprehensive loss on our consolidated balance sheets may be charged to our consolidated statements of income.** We are exposed to credit risk and fluctuations in the market values of our cash, cash equivalents and marketable securities. Given the global nature of our business, we have both domestic and international investments. At December 31, ~~2022~~ **2023** , 76 % of our cash, cash equivalents and marketable securities were in the United States and 24 % were outside the United States. Credit ratings and pricing of our investments can be negatively affected by liquidity, credit deterioration, prevailing interest rates, financial results, economic risk, political risk, sovereign risk or other factors. Also, our investments may be negatively affected by events that impact the banks or depositories that hold our investments. As a result, the value and liquidity of our cash, cash equivalents and marketable securities may fluctuate substantially. Therefore, although we have not realized any significant losses on our cash, cash equivalents and marketable securities, future fluctuations in their value could result in a significant realized loss. Our ability to access financial markets to raise capital or finance a portion of our working capital requirements and support our liquidity needs may be adversely affected by factors beyond our control and could negatively impact our ability to finance our operations, meet certain obligations, implement our operating strategy or complete acquisitions. We occasionally borrow under our existing credit facilities to fund operations, including working capital investments. Our major credit ~~lines~~ **line** in the United States ~~and Germany expire~~ **expires** in April 2025 ~~and July 2023, respectively~~ . Uncertainty or disruptions in financial markets may negatively impact our ability to access additional financing or to refinance our existing credit facilities or existing debt arrangements on favorable terms or at all, which could negatively affect our ability to fund current and future expansion as well as future acquisitions and development. These disruptions may include turmoil in the financial services industry, unprecedented volatility in the markets where our outstanding securities trade, changes in reference rates for interest such as the discontinuation of LIBOR in 2023 and general economic downturns in the areas where we do business. If we are unable to access funds at competitive rates, or if our short- term or long- term borrowing costs increase, our ability to finance our operations, meet our short- term obligations and implement our operating strategy could be adversely affected. We also may in the future be required to raise capital through public or private financing or other arrangements. Such financing may not be available on acceptable terms, or at all, and our failure to raise capital when needed could harm our business. ~~28~~ **Our short- term investment portfolio and certain cash balances could experience a decline in market value or otherwise become illiquid, which could materially and adversely affect our financial results. As of December 31, 2023, we had approximately $ 515 million of cash and cash equivalents and $ 663 million in short- term investments. See Note 3," Fair Value Measurements" in the Notes to Consolidated Financial Statements in Part IV, Annual Report for further information about our cash equivalents and short- term investments. We currently do not use derivative financial instruments to adjust our investment portfolio risk or income profile. These investments, as well as any cash deposited in bank accounts, are subject to general credit, liquidity, market and interest rate risks, which may be exacerbated by unusual events, such as the COVID- 19 pandemic, the Eurozone crisis and the U. S. debt ceiling crisis, which affected various sectors of the financial markets and led to global credit and liquidity issues. For example, in March 2023, certain US banks were closed and the Federal Deposit Insurance Corporation (FDIC) was appointed as receiver. While we were not directly impacted by these closures and did not have any deposits with these banks, there can be no assurance that our current or future banks will not face similar risks, and that we would be able to recover in full our deposits in the event of similar closures. We regularly maintain cash balances that are not insured or are in excess of the FDIC' s insurance limit. If the global financial markets continue to experience volatility or deteriorate, our investment portfolio and cash balances may be impacted and some or all of our investments may become illiquid or otherwise experience loss which could adversely impact our financial results and position. 27**