



35 YEARS
INO
OF SHEDDING LIGHT

2023 · 2024
Annual Report

OUR MISSION

Bring to life innovations that enable the industry from all over the country to be more productive and competitive.

OUR VISION

Establish ourselves, through light, as a world-class reference in translational innovation.

OUR VALUES

Listen, understand, and commit.

INO's activities are made possible thanks to the sustained collaboration of its partners:



Développement
économique Canada
pour les régions du Québec

Canada Economic
Development
for Québec Regions

Québec



capitale
affaires

Service du développement
économique de la Ville de Québec



VILLE DE
QUÉBEC

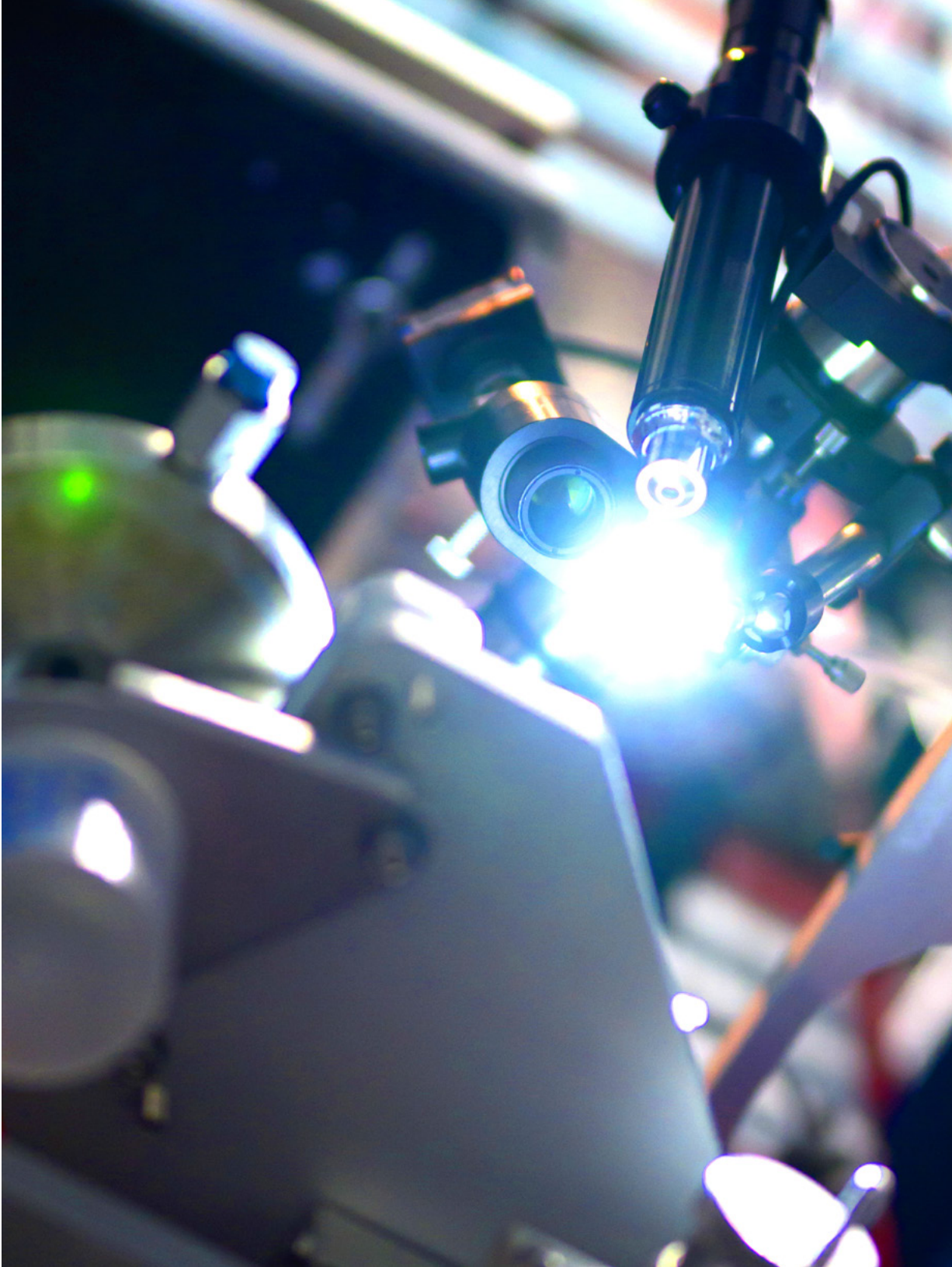


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IN MEMORY OF **GARY VAIL**

This annual report is dedicated to the memory of Mr. Gary Vail, a board member at INO from 1998 to 2013, who passed away in February 2024. A true pioneer of optics in the Québec region, he notably co-founded the company Bomem, which specialized in the manufacture of infrared spectrometers until its acquisition by ABB. In recent years, Mr. Vail was particularly involved with the next generation as a mentor at Entrepreneuriat UQAM.

INO

Messages from
the Executive

MESSAGE FROM THE CHAIRMAN OF THE BOARD

35 years of shedding light

On November 25, 1988, an earthquake shook Québec. Although the memory of the tremor is still very fresh in people's minds, it was already 35 years ago, just a few weeks after the official start of INO's activities. In its own way, INO also created a shockwave in the innovation ecosystem, and its impacts, obviously very positive, are felt more than ever today.

Because if there is something that makes the pride of the most important center of innovation in optics-photonics in Canada, it is indeed its contribution to the creation of socio-economic benefits. In 35 years, INO has greatly contributed to changing the economic profile of Québec by giving life to 36 new companies offering thousands of high-quality jobs which, thanks to their innovative products exported on the international stage, contribute to enhancing the competitiveness of Québec and Canada. From local pride to a true international benchmark, the organization has also made a significant contribution to the establishment in the Québec region of what resembles a Silicon Valley of optics-photonics. And this record continues to improve despite the economic slowdown that has hit the country over the past year. In this period of uncertainties, the challenges are even greater, and innovating - particularly by accelerating the digitization of companies, better exploiting massive data, and taking advantage of the potential of trusted artificial intelligence - is the key to accelerating the recovery.

Artificial intelligence, a fertile ground for innovation or an existential threat?

For this purpose, artificial intelligence (AI) content generation, especially conversational robots, has made headlines and developed at an unprecedented pace in 2023-2024. This form of AI offers great potential to increase efficiency and stimulate creativity, but it also brings significant ethical and legal issues, particularly regarding privacy and counterfeiting. Therefore, through pilot projects, INO has assessed the opportunities and risks it may bring. These projects have enabled the integration of certain tools for use with information that does not compromise the intellectual property and commercial activities of INO and its clients, two absolute priorities.

ESG

A true pioneer, INO has been deeply committed for several years to incorporating environmental, social, and governance (ESG) considerations into its activities. Its use of technology to minimize its environmental impact and that of its clients, its community engagement, safety initiatives, and the adoption of recognized best practices in sound governance reflect the importance INO places on economic, environmental, and societal considerations for its long-term success. This deep commitment to sustainable development continued this year, among other things, with the awarding of a mandate to a firm to assess the ESG maturity level in the organization's processes.

A new vice-president on the board of directors

In the spring of 2023, the board of directors proceeded with the appointment of Ms. H el ene Chartier as vice-president of the board. Ms. Chartier, an engineer by training who has worked within innovative companies and also serves as a director for several players in the Qu ebec entrepreneurial and innovation ecosystems, has been on the INO board since September 2020.

Thank you to the team, the partners and the funders

From a strictly financial perspective, the 2023-2024 fiscal year will not go down in history, but the significance of INO's role remains as great and recognized as ever. As proof, the Canadian and Qu ebec governments have granted new funding to INO, among other things for the incubation of quantum companies. Internal technological development has also been in full swing, and the team's creativity will be the driving force behind tomorrow's innovations. Finally, the organization is closer than ever to the sectors it serves, with a growing number of members and an increase in collaborations with other industrial innovation centers.

Thank you to the staff members for amazing us with your rigor paired with boundless inventiveness. Thank you to the partners for your collaboration and your contribution to our technological choices. And finally, thank you to the Canadian and Qu ebec governments for having initially believed, 35 years ago, in optics to propel the economy and for showing unwavering support for INO again this year.

"The impacts of INO are being felt more than ever today."



Jacques Topping, FCPA, FCA, MBA, ASC
Chairman of the board



MESSAGE FROM THE PRESIDENT AND CEO

An economic context that impacts the innovation ecosystem

When innovation thrives, so does the economy... but sometimes the opposite happens. In 2023, the Canadian gross domestic product experienced its weakest growth since 2016, with the exception of the contraction caused by the COVID-19 pandemic in 2020. At the time of writing, in addition to alternating between quarters showing very slight increases or a slight decline in its GDP, Canada was also dealing with inflation that struggled to stabilize within the targets of its central bank and interest rates at their highest level since April 2001¹. After two years of exceptional growth and shattered order records, the economic context has thus caught up with the organization and, more broadly, the entire innovation ecosystem.

The situation is not unique to INO and Québec. As evidence, investments in research and development have slowed by 4.1% in the country between 2021 and 2023². Internationally, major players in the technology sector, such as Alphabet, Google's parent company, Tesla, Apple, or Amazon have all made massive job cuts. In a difficult economic context, the reflex of companies to postpone their investments in innovation and to focus on current operations has therefore operated again. Consequently, the volume of INO's external mandates has significantly decreased and, for the first time since 2016, the organization presents financial results written in red ink.

However, in order to accelerate the recovery, INO has multiplied its actions, particularly by getting even closer to industrial sectors. As a result, the number of members has increased to 28 this year, compared to 11 before the implementation of the new membership formula at the end of the 2021-2022 fiscal year. And the role of the industrialists who join is growing, mainly thanks to the possibility of participating in sectoral advisory committees that allow for even better guidance of INO's technological choices and work according to market needs.

Artificial intelligence, electronic chips, and partnerships

Always with the aim of stimulating the adoption of disruptive technologies, INO has concluded forward-looking agreements with two other industrial innovation centers to develop trustworthy artificial intelligence, and to improve the local offering in design and manufacturing of semiconductors, commonly known as 'chips'. This pooling of services and expertise with the Montréal Computer Research Center and the MiQro Innovation Collaboration Center is another manifestation of INO's commitment to carry out R&D in the most cost-effective way possible, by avoiding duplication in investments and promoting new synergies. It is a prelude to the even more important role that innovation centers like INO will be called to play in this period which heralds a true industrial revolution.

¹ <https://www.banqueducanada.ca/taux/taux-dinteret/outil-de-consultation-des-taux-directeurs/>

² Institut de la statistique du Québec, Statistique Canada, Analyse Aviséo Conseil, 2024

Business incubation is doing very well

The Quantino incubator, launched by INO in 2020, has continued to grow by welcoming nine new technological startups from increasingly diverse backgrounds. Consequently, the facilities are operating at full capacity. Moreover, thanks to a collaboration with the CHU de Québec–Université Laval, the support offering has been notably expanded to companies developing technologies to prevent, diagnose, and treat cancer and immune diseases, as well as to promote regenerative medicine and women's health. Furthermore, Quantino is one of only two incubators recognized for supporting companies developing quantum technologies. Funding for this purpose was granted during the year by Canada Economic Development for Québec Regions and by the Ministry of Economy, Innovation, and Energy.

Modernization of infrastructures

In 2021, INO received \$20 million in funding from the Ministry of Economy and Innovation to initiate a major infrastructure upgrade project. At the time, a very thorough needs analysis was conducted, and it quickly revealed that the project would require a larger budget, particularly due to the inflationary context, the need to comply with new construction standards, and the actual needs to promote collaborative projects. The project was therefore partially put on hold, except to focus on technical corrections to the building envelope and mechanical rooms. However, efforts continued to secure financial arrangements that should soon allow the actual modernization work to begin.

Acknowledgements

While the financial results are disappointing due to the economic context, the effort and commitment of the team members have been remarkable again this year. It is well known that great ideas often arise from adversity, and as Einstein said, "In the middle of difficulty lies opportunity". Thank you to everyone for contributing to our clients being well-positioned for the recovery. The quality of INO's products and services is recognized, as evidenced by the overall customer satisfaction rating of 88% this year, and the benefits that the organization generates in industrial environments are very real. A return to a more favorable economy, partly thanks to a gradual decrease in interest rates creating a more conducive context for R&D investments by companies, is on the horizon. Once again, INO will fully play its role by transforming local knowledge into novel, beneficial solutions adopted by the markets, which will allow its clients to create even more economic and societal value.

"The quality of INO's products and services is recognized, and the benefits that the organization generates in industrial sectors are very real."



Alain Chandonnet, Ph.D.
President and CEO





INO

Statistics

INO

23 • 24 in short

As Canada’s most important center of expertise in industrial optics-photonics, INO has been creating and developing custom solutions for over 35 years to meet the needs of Canadian companies from various sectors.

An independent study conducted this year revealed that INO’s cumulative direct economic impact for the 10-year period from 2014-2015 through 2023-2024 is estimated to be at least \$4.6 billion.



24

PATENTS
OBTAINED
IN 2023-2024



205

EMPLOYEES



190

CLIENTS
IN 2023-2024



77

TECHNOLOGY
TRANSFERS
TO DATE



35

SPIN-OFFS
COMPANIES
TO DATE

4 BUSINESS UNITES



Biomedtech



Defense,
Security, and
Aerospace

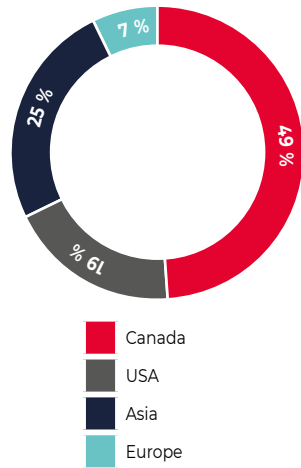


Sustainable Resources,
Agriculture, and
Manufacturing

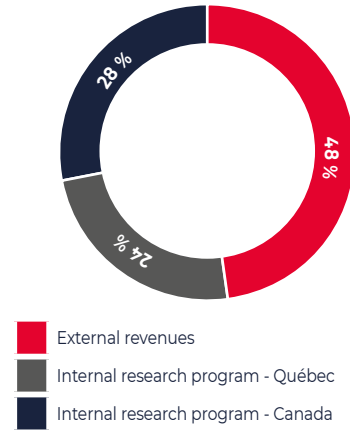


Industrialized
Solutions

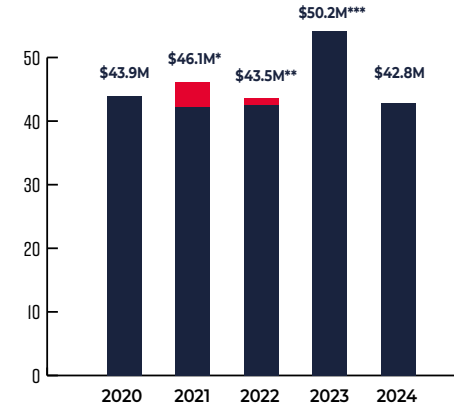
CLIENT BREAKDOWN BY COUNTRY-CONTINENT (IN \$)



DISTRIBUTION OF OPERATING REVENUES

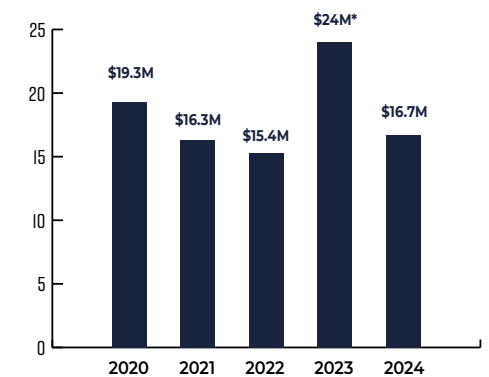


CHANGES IN TOTAL EARNINGS



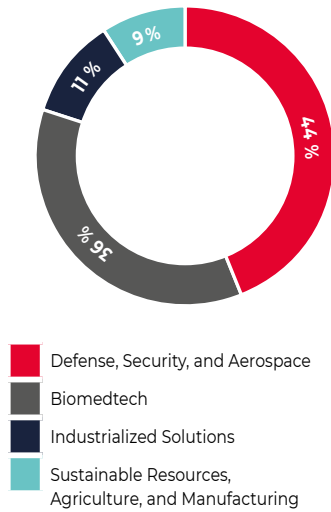
* Includes \$3.8M of CEWS in 2020-2021
 ** Includes \$1M of CEWS in 2021-2022
 *** Excludes a gain on the disposal of investments of \$10.7M

CHANGES IN EXTERNAL REVENUES

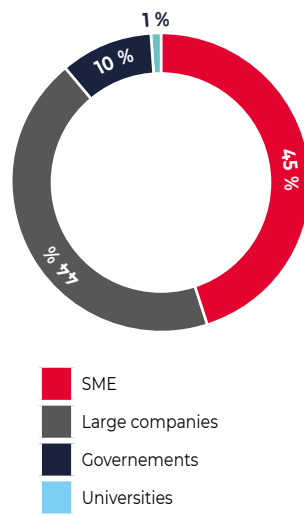


* Excludes a gain on the disposal of investments of \$10.7M

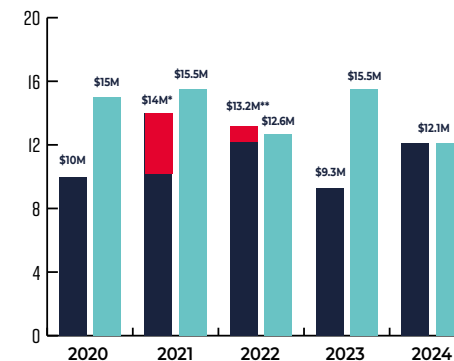
DISTRIBUTION OF REVENUES BY BUSINESS UNIT



DISTRIBUTION OF REVENUES BY CLIENT CATEGORY



CHANGES IN GOVERNMENT FUNDING



* Includes \$3.8M of CEWS in 2020-2021
 ** Includes \$1M of CEWS in 2021-2022

Harnessing the potential of artificial intelligence

The Computer Research Institute of Montréal has commissioned INO to promote the collaborative approach Confiance IA among technological companies in metropolitan Québec. Thus, INO will contribute to the establishment of collaborative R&D projects based on trustworthy artificial intelligence by bringing together several experts who will develop solutions adopted by various Québec industrial sectors.

During this three-year project, INO will therefore have several roles, including:

- Inviting companies to join the Confiance IA consortium;
- Gathering industries from different fields around common R&D projects involving trustworthy artificial intelligence;
- Contributing to the creation in Québec of an ecosystem of experts capable of developing precompetitive tools and methods for evaluating the quality of the developed artificial intelligence, particularly in terms of robustness and explainability;
- Generating, through various projects, shared intellectual property to create synergies and accelerate the adoption of the solutions developed by the industrial sectors.

Artificial intelligence in industrial environments: enormous potential

According to UNESCO, artificial intelligence can be a catalyst for change and a force for social and economic development. Yet, the industrialization and large-scale deployment of products and solutions that use artificial intelligence is still limited, especially in regulated sectors such as the medical, energy, aerospace, and finance fields.

The close ties developed by INO with technological companies in the region will allow rallying a large number of them around the importance of developing artificial intelligence-based solutions that will meet the real needs of the industrial sectors present in Québec. This fits perfectly with the importance of innovating, particularly through the digitization of companies, to create even more economic benefits and compete on an international scale.



Developing the integrated photonics industry in Québec

In September 2023, INO and the MiQro Innovation Collaboration Centre (C2MI), the largest R&D center in electronic systems in Canada, concluded a collaboration agreement aimed at improving the Québec and Canadian offerings in the development and manufacturing of semiconductors.

Since then, the two teams have been working on pooling expertise, infrastructure, and cutting-edge equipment to enhance the offerings to companies in terms of specialized semiconductors – commonly called ‘chips’ – and integrated optical and photonic devices required by several disruptive technologies, notably:

- for the development of artificial intelligence and quantum technologies;
- for telecommunications and data storage infrastructures; and
- for the development of next-generation sensors, particularly to minimize the effects of climate change or to ensure the safety of people and infrastructures.

A booming market

The global semiconductor market is booming. It is expected to grow from 452 to over 800 billion US dollars by 2028¹. Positioning innovative organizations at the heart of the North American semiconductor chain is therefore a promising initiative for the future.

¹Source: Invest in Canada



INO

Achievements



REVIEW OF TECHNOLOGICAL ACTIVITIES

Innovation in times of great changes

Worldwide, the COVID-19 pandemic has highlighted several issues of food safety, security, and health, thus shaking the global economy and significantly disrupting supply chains, leading to rising prices for commodities and raw materials. Semiconductors, essential to high technology, are particularly affected. Moreover, ongoing armed conflicts in Eastern Europe and the Middle East, as well as certain geopolitical rivalries, only exacerbate the challenges that companies must face. Navigating between markets and ethical values, they attempt to balance their desire for innovation with their financial stability as fake news, technological sovereignty, cybersecurity, and climate risks become central to discussions. The situation is fragile. R&D investments across all sectors are impacted by economic uncertainty.

Revisiting the world one photon at a time

From these uncertain times emerges an opportunity for photonics to redefine the world. Beyond remote work, for which companies have massively invested in digital infrastructures driven by photonics, the race for artificial intelligence and quantum computing has become central to cybersecurity, health, manufacturing, logistics, and finance. Technological companies are collecting, analyzing, and monetizing billions of gigabytes of information. Data has become the new currency. The increased demand for digital solutions, connected health, and automation creates opportunities but also pressure: the demand for energy for artificial intelligence (AI) is skyrocketing. Photonics is globally recognized as a major asset to solve current challenges and shape, together with AI, a more resilient future. The majority of countries, particularly members of the European community, the United States, and China, feature photonics on their shortlist of technological priorities. It helps mitigate risks related to climate, food, pollution, health, personal and state security, and cybersecurity.

*Some references

<https://www.lightourfuture.org/home/about-npi/npi-for-government> ;

<https://www.photonics21.org/download/ppp-services/photonics-downloads/Europes-age-of-light-Photonics-Roadmap-C1.pdf>

<https://pubs.acs.org/doi/10.1021/acsp Photonics.3c00895>

INO's internal research, at the heart of tomorrow's innovations

Examples achieved by INO in 2023-2024

RISK – CLIMATE CHANGE

Earth observation by satellites, particularly for early detection of forest fires, and monitoring and production of soil temperature records for agriculture

For example, INO delivered 17 high-resolution spatial-grade microbolometer infrared camera cores. These cameras are intended for a constellation of 20 satellites by the Canadian company EarthDaily.

RISK – AIR POLLUTION

Monitoring of fugitive dust emissions

INO has completed the industrialization of its robust, reliable, and deployable solution for measuring concentrations of fugitive dust at port sites. Information on this innovation and its transfer to the company Technologies OraVentis can be found on page 19.

RISK – PUBLIC HEALTH

Monitoring of cell density and viability for the biofabrication of viral vectors

Biofabrication refers to a type of manufacturing that uses living systems as a base to create vaccines and other pharmaceutical products. It requires online and continuous monitoring of the well-being of cell cultures.

INO is developing a pair of probes for measuring the concentration and viability of producing cells, adapted to the imaging or spectroscopy ports of industrial bioreactors.

RISK – FOOD SECURITY

Generation of useful information during robotic harvesting

In addition to helping counter labor shortages, robotization also allows for the extraction of useful information for producers.

A sensor developed at INO has been adapted to a shallot harvester for a vegetable producer located in Montérégie. The intelligent detection module determines the size and number of shallots and simultaneously establishes a yield map of the fields. This yield measurement will allow for the assessment of soil health and fertilizer needs.

RISK – SUPPLY OF ELECTRONIC COMPONENTS

Inspection of silicon wafers in the semiconductor industry

Improving the yield of electronic chip manufacturing involves detecting debris, such as dust or silicon particles, and etching defects on the surface of silicon wafers.

During inspection, similar to CD players, a focused ultraviolet laser moves radially over the surface of a rotating wafer. The presence and position of defects are immediately determined by detecting the light scattered by them.

INO has continued the industrialization of its gain modules for the production of high-quality beam fiber lasers intended for wafer inspection systems in the semiconductor industry.

RISK – CYBERSECURITY

Quantum cryptography

It has been proven that quantum key distribution makes communications secure even in the presence of future quantum computers that will challenge the most powerful current encryption algorithms.

Among several modalities of quantum distribution is one based on the polarization of light. This requires a multiplexer and a demultiplexer of quantum signals with a high extinction ratio of polarization modes. INO has developed such a device adapted for quantum key distribution via satellites.

RISK – ENERGY SUPPLY

Finally, integrated and quantum photonics will play an important role in reducing the energy consumption of artificial intelligence-based systems through neuromorphic photonic chips, that is, inspired by the functioning of neurons, advantageously replacing power-hungry electronic devices in certain computing cores.

INO began in 2023-2024 the development of a prototyping capability for active photonic chips based on thin-film lithium niobate.

GHGSat

Artificial intelligence to fight against global warming

The democratization of access to space has led to the emergence of companies specializing in the acquisition of terrestrial data over the past few decades. One such company, Montréal-based GHGSat, offers remote sensing solutions for greenhouse gases – notably methane, a potent gas responsible for about 30% of global warming since the pre-industrial era – from satellites. Having recently quadrupled its number of devices in Earth orbit, the company called on INO to automate the analysis of its images using artificial intelligence.

Due to the staggering increase in data that GHGSat now collects, analyses could no longer be exclusively performed by humans. Artificial intelligence was therefore the designated option to be at the heart of an automated solution whose function is to select images of interest that will then need to be analyzed by an operator.

The advantage of artificial intelligence is that it can analyze much more data than a professional could do on their own. It can therefore help them to make a diagnosis much more quickly than with traditional means.

A brilliant and trustworthy model

As part of the mandate entrusted to it by GHGSat, INO developed an algorithm that combines images and data from several sources, including the emission history of specific industrial sites. Ultimately, the intelligent model determines the size and extent of methane leaks and accurately predicts their origin around the globe so that corrective actions can be taken.

Polytechnique Montréal played a role in the mandate to quantify the trust, in a way the reliability and robustness, of the artificial intelligence model developed by INO. In addition, the Consortium for Research and Innovation in Aerospace in Québec financially contributed to the project.

Several industrial sectors affected

Monitoring methane emissions has great potential for application in several major economic sectors: energy, mining, agriculture, waste materials, insurance, public administration, etc. Thanks to artificial intelligence, more companies, public decision-makers, and regulatory bodies can now benefit from a powerful tool to comply with environmental standards and thus fight even more effectively against climate change.



“Thanks to INO’s expertise in artificial intelligence, we have significantly reduced the time it takes to analyze our data. This translates into faster actions by our clients to reduce their impact on the environment.”

– Emilie Hamel

Senior Vice President, Products and Operations

GHGSat

OraVentis Technologies

Reducing dust emissions with LiDAR technology

Air quality is a significant issue. According to a study by the Institute of Health Metrics and Evaluation conducted in 2019, air pollution is the third leading cause of premature death worldwide, killing nearly 7 million people per year. In Canada, according to the University of British Columbia, there are more than 15,000 deaths annually. Therefore, controlling the emissions of atmospheric pollutants is an imperative need to minimize the environmental repercussions of activities from various industrial sectors. Unfortunately, the techniques currently used for this purpose have their limits and can only detect emissions adequately if a cloud of particles passes next to stationary sensors.

Leveraging its expertise of over 25 years in LiDAR technology, INO has developed an advanced prototype of robust atmospheric mapping that can be installed in places where conditions are challenging. This prototype detects dust clouds over hundreds of meters away with unparalleled representativeness to date. The information collected by the technology, combined with related data such as wind direction, ambient humidity, and industrial site activities, can then be used to generate alerts when emissions exceed a certain threshold so that site operators can prevent pollution risks at the source.

A technology adapted to several industries

The technology developed by INO currently targets port areas, where it has been tested under real conditions in Québec and Saguenay. However, it can also monitor emissions from a mining site, foundry, aluminum smelter, steel mill, cement plant, or major construction

site. For research purposes, it could even be used in studies on air quality in a community.

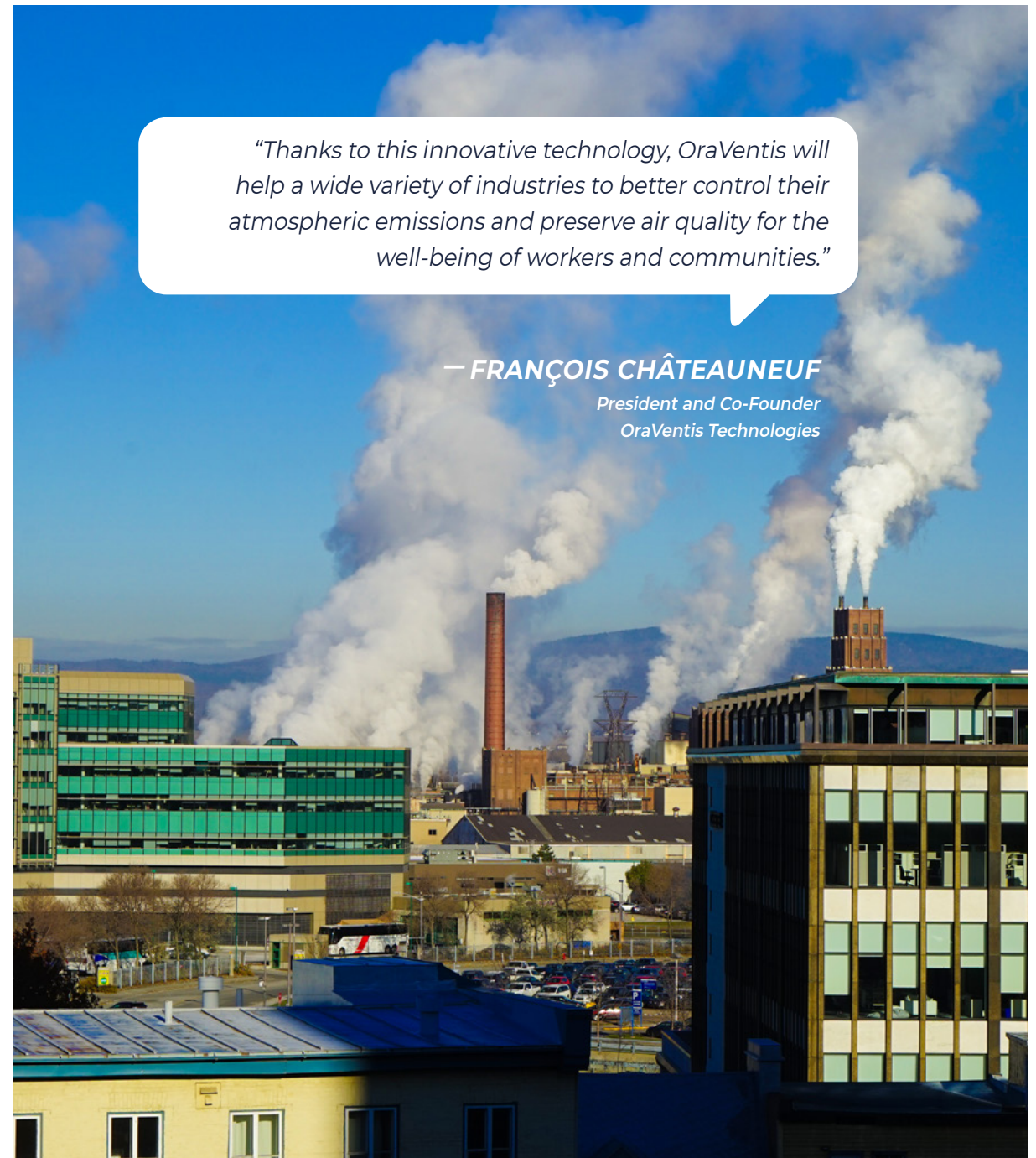
A technology that leads to the creation of a new company

Since its foundation, INO has contributed to the creation of 35 companies, thus transforming the results of its technological development work into economic wealth creation. And now the count is 36, thanks to the creation of Technologies OraVentis, a company led by former INO employees. This company aims to commercialize the solution within the next year. OraVentis has already entered the Quantino incubator to access infrastructure and experts to accelerate its growth. A promising future is unfolding for cleaner air.

“Thanks to this innovative technology, OraVentis will help a wide variety of industries to better control their atmospheric emissions and preserve air quality for the well-being of workers and communities.”

— FRANÇOIS CHÂTEAUNEUF

President and Co-Founder
OraVentis Technologies



Canadian Coast Guard

For enlightened navigation

Navigation buoys are essential for ensuring safety on the Saint Lawrence River, known to be one of the most difficult to navigate in the world. Until 2019, nearly 200 seasonal navigation buoys were installed between Québec and Montréal by the Canadian Coast Guard each spring to be replaced by winter buoys in the fall. Since then, four-season buoys have been used, but the lanterns and their power supply did not offer the expected performance. In 2021, INO was mandated to remedy the situation.

Initially, INO evaluated the commercial lanterns used by the Canadian Coast Guard. Not only did these marginally meet the organization's optical requirements, but their excessive energy consumption, coupled with a single-use battery supply, required very frequent maintenance and the monopolization of resources.

Having officially been tasked with developing a more efficient Canadian solution that is also less energy-intensive and more eco-friendly, INO designed a smart ice lantern capable of performing in extreme conditions (winds, tides, ice, sea salt, etc.). This lantern is easier to maintain, less prone to breakdowns and failures, which reduces its operating cost. The new LED system, which is less energy-intensive, will more easily allow the eventual use of lithium batteries powered by solar panels.

Easier to maintain thanks to connected technology

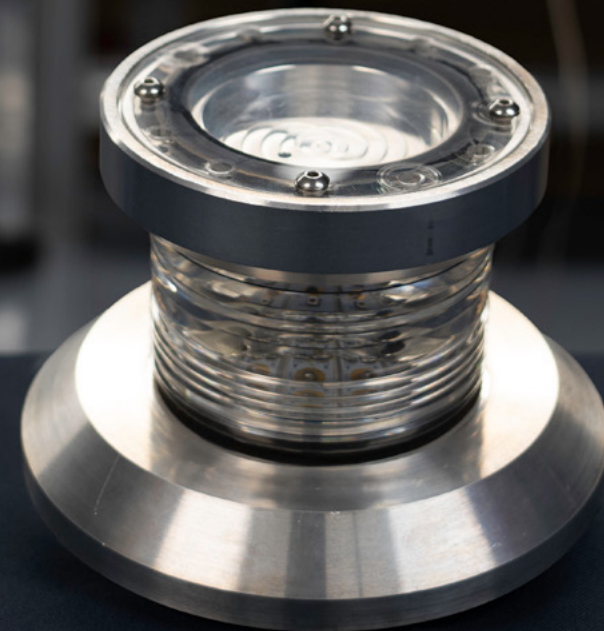
In addition to improving the quality and duration of lighting before having to replace the battery, INO added a connectivity feature to remotely check the state of charge and the number of operating hours via Wi-Fi.

The first prototype is progressing well, and preliminary tests should take place at the end of 2024. If the results are satisfactory, the deployment of the new lanterns on the Saint Lawrence River could extend to the Great Lakes. The lighting and power supply technology could even have a future internationally!

"The smart lantern for the four-season buoys, which is more ecological and better suited to the winter conditions that prevail in the country, will be a game-changer for the Canadian Coast Guard."

— PIERRE-LUC DELAGE

*Interim Engineering Manager
Maritime and Civil Infrastructure
Canadian Coast Guard*



Internal R&D

More powerful lasers in an infinitely small world

In the current competitive environment, manufacturing companies must improve their productivity and the reliability of their products. Using lasers for machining and material processing is one of the solutions to achieve this. With 25 years of experience in developing specialized optical fibers and lasers, INO has anticipated the needs of various industrial sectors by offering them an innovative solution. The challenge has been met!

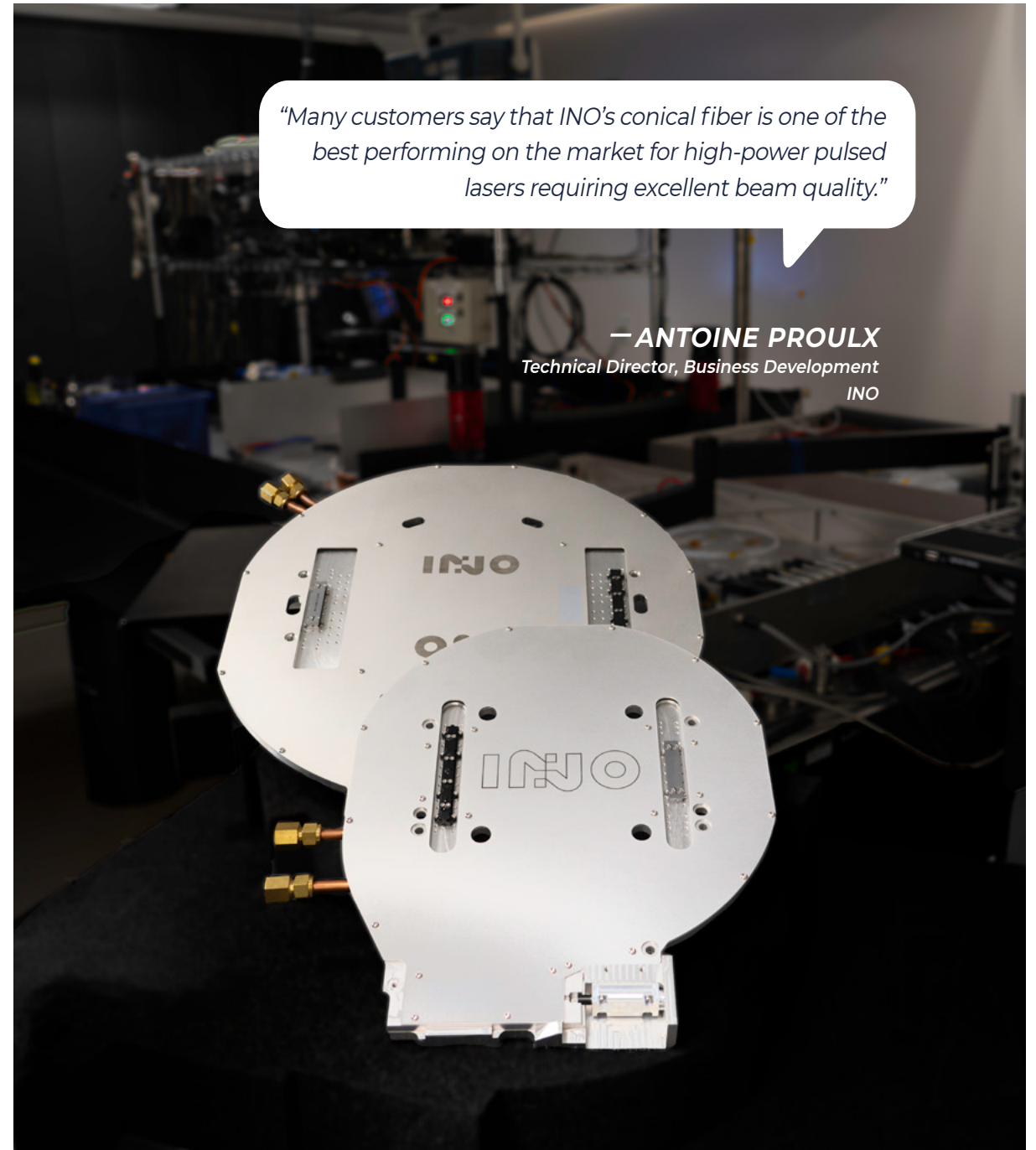
Due to their versatility and the results they offer, the industrial sector is constantly looking for solutions based on lasers that are increasingly powerful and precise. Consequently, this increase in power requires the manufacture of amplifying optical fibers with increasingly larger cores. A few years ago, INO successfully developed a new ytterbium-doped conical-shaped fiber, a metal from the rare earth group, with a smaller core diameter at its entrance than at its exit. This fiber is perfectly suited for high-power laser amplifiers requiring excellent beam quality. Always eager to offer products that can be industrialized, INO has also developed a high-power gain module, the LaserNGN, where the conical fiber is meticulously wound and encapsulated to minimize any degradation of the output beam. A true turnkey solution, the LaserNGN has demonstrated the performance of the new fiber without requiring new research and development efforts from customers.

A miniaturized version soon on the market

At the request of clients, INO began work in 2023 on a more compact version of the LaserNGN to facilitate its compatibility with a greater number of systems. This version is still in the prototyping stage but is very promising. It will also contribute to the adoption of the conical fiber by laser manufacturers and integrators and can also serve as a basis for the enhancement of new, even more efficient fibers. Both these upcoming fibers and the new version of the LaserNGN have a bright future, particularly in the microelectronics industry, where the demand for machining and inspection equipment at increasingly smaller scales is on the rise.

"Many customers say that INO's conical fiber is one of the best performing on the market for high-power pulsed lasers requiring excellent beam quality."

— ANTOINE PROULX
Technical Director, Business Development
INO





 **quantino**

BUSINESS INCUBATION IS THRIVING

Quantino has just completed a year full of action. As proof of its expertise in supporting innovative start-up companies, the incubator powered by INO has supported a total of 27 companies during the 2023-2024 fiscal year.

The incubatees of Quantino come from sectors where technological progress is advancing rapidly and where the support of coaches is necessary for their success. The diversity of activity sectors among the incubatees is impressive: medical technologies, aerospace, agriculture, mining, semiconductors, quantum technologies, etc.

The funding obtained in 2023 from Economic Development Canada for regions of Québec, the Ministry of Economy, Innovation and Energy, and the City of Québec proves that governments definitely have faith in Quantino's mission, which is to support tomorrow's innovators towards commercial success. These supports already allow for an enhancement of the service offer.

Incubatees in good hands

Quantino has set up an impressive network of experts in residence - including lawyers, scientists, tax specialists, and business people - which allows the incubatees to receive services related to the personalized coaching offered by Quantino. Negotiations conducted during the year have also allowed for the expansion of this network thanks to agreements with Go RH, a human resources firm, and a major partner which has become the largest private financial partner of the incubator to date. An official announcement will take place during the next fiscal year.

Events crowned with success

The Demo Day by Quantino 2023, which took place last October, was a success. More than 140 participants - investors, incubatees, and partners of the Québec innovation ecosystem - gathered for the occasion at the Musée de la civilisation. On the program: lightning presentations of the projects and funding objectives of the incubatees, an exhibitors' hall, and a panel on trends and opportunities in optics-photonics featuring Odile Liboiron-Ladouceur, Associate Professor at McGill University, and Duncan Stewart, Associate at the Bank of Canada.

The fourth edition of the Inspiration by Quantino series, which aims to demystify science for the general public, and especially for the next generation, welcomed its largest crowd to date. About 375 spectators were on hand to hear the magical journey of illusionists Stéphane Bourgoin and Luc Langevin. The latter even made an appearance earlier in the day during a visit to the Sacré-Cœur elementary school in Québec City.

A vibrant exchange hub

More than ever, Quantino is a place conducive to the sharing of ideas. In total, nearly 1,700 people contributed to the success of Quantino by participating in various networking events, funding sessions, dignitary visits, training, international missions, and mornings with resident experts.

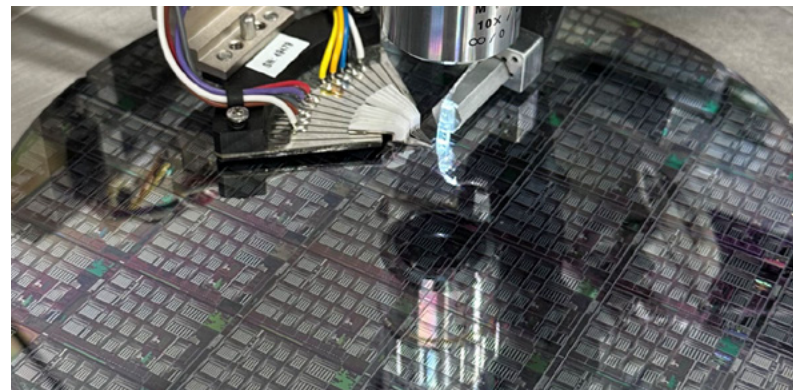


2023-2024 NEW INCUBATEES



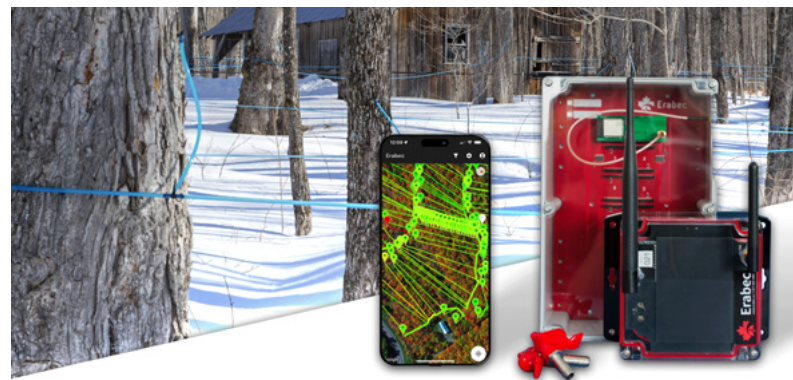
Zilia

Zilia is developing technology bound to redefine the way we prevent, diagnose, and treat various ocular, neurological, and systemic conditions.



WhalePiX

WhalePiX designs integrated systems on photonic chips used in large-scale communication infrastructures, such as data centers, capable of achieving very high transmission capacity while reducing energy consumption.



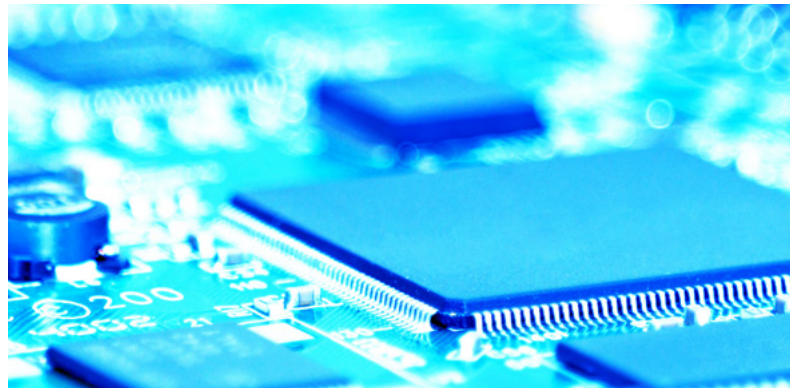
Erabec

Erabec offers a vacuum monitoring system for maple sap lines to limit contamination and leaks, and thus increase productivity.



Visioimage

Visioimage offers an infrared thermography product for material testing, trusted by SMEs, governments, universities, research centers, and aerospace contractors based on a unique approach and many years of expertise.



Syphos

Syphos is a design firm specializing in integrated photonics that offers turnkey photonic chip development services to companies wishing to market photonic systems that are faster, stronger, more compact, more efficient, and less expensive.



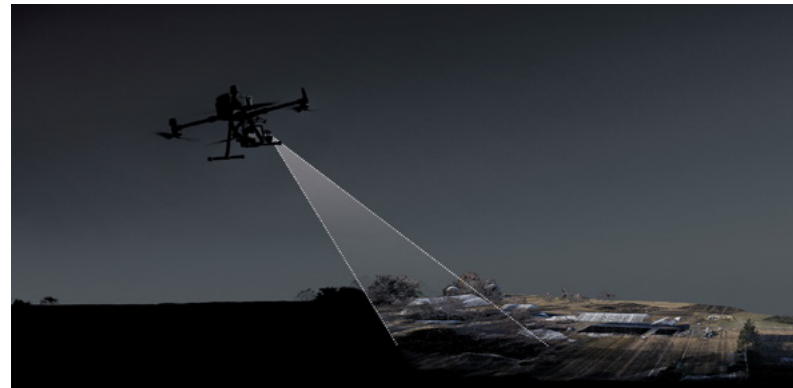
Ideo Concepts

Ideo Concepts develops and markets METERYX, an ecosystem of interconnected sensors that makes it possible to obtain data on a chosen environment to monitor your assets and improve your profitability.



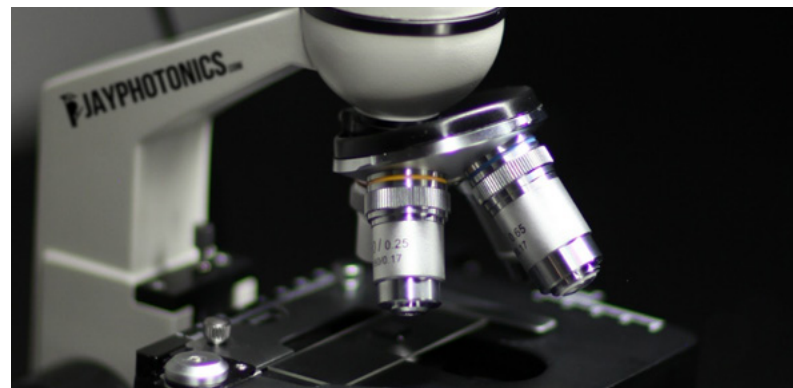
PULR Technologies

PULR Technologies develops and produces real-time digital twin data capturing solutions using wireless passive sensors, allowing industrial companies to save energy and achieve a previously unprecedented level of operational performance optimization.



Balko Technologies

Balko develops and markets integrated modular lidar solutions for drones aimed at capturing geospatial data.



Jay Photonics

Jay Photonics offers a microscope that can see through multiple layers of silicon while providing exceptional image quality in real time.

INO

Organization





WELCOMING, DIVERSE, AND INCLUSIVE

At INO, the team is proud to promote an equitable and inclusive environment that encourages diversity, which contributes to the excellence of the innovations that are developed there, in addition to fostering an openness to change, creativity, and collaboration.

Culturally rich colleagues

The staff is made up of colleagues from 20 different countries, which makes INO one of the most cosmopolitan working environments in the greater Quebec City region!

An organization that recognizes the contribution of its team

Equity and appreciation for the contribution of our staff members are reflected, among other ways, in a transparent compensation program, which includes a rigorous annual increase process and an accessible salary structure, as well as in numerous initiatives to highlight excellence, including a recognition gala.

An environment to flourish professionally and personally

At INO, an integration program is in place so that new recruits can quickly realize their full potential. They have access to all the essential tools for their job, a training program, great career development opportunities, as well as a range of benefits to reconcile their work and personal life.



Dynamic, representative governance

Influential positions are also accessible to women as well as members of all under-represented communities. Furthermore, the board of directors is made up of as many women as men from backgrounds representative of the sectors that INO serves, and the organization's most senior vice-presidency is led by a mechanical engineer trained in artificial intelligence and robotics and specializing in product development.

Managers who listen to staff

Thanks to anonymous weekly surveys, INO makes sure to maintain a work environment conducive to innovation that also promotes the well-being of its staff. Furthermore, the results confirm that individuals feel respected in their differences, that everyone's ideas are respected, and that the salary treatment is equitable.

A team that gives back

INO actively supports the community in order to contribute to its social dynamism and economic vitality. In addition to developing solutions for major companies that play a crucial role in communities, INO is also involved in causes that aim to develop the next generation of scientists, help young businesses grow, or promote entrepreneurship. At INO, we believe in it: innovating also means helping your community grow.

SOCIAL INVOLVEMENT

Creating value means contributing to the prosperity of businesses through technological development, but it also means playing a fundamental role in the social development of communities by indirectly contributing to access to goods and services, improving working conditions, developing a local economy, or by directly getting involved in community causes. At INO, we develop solutions that capture the imagination, propel businesses, and stimulate the economy, but we also change lives! Here are some examples.

INO awards a \$50,000 scholarship to a student for a forestry project

On September 21, 2023, INO awarded the Jean-Guy Paquet Scholarship, valued at \$50,000, to Maxime Vaidis, a doctoral student in computer science, to carry out a project based on digital intelligence and opto-photonics to increase the efficiency of forest cutting and limit the waste of resources.



Science brings us together

Among the social causes that INO is involved in is the next generation in science, technology, engineering, and mathematics. This year, more than ever, the team has traveled across Québec for public scientific gatherings. The first stop was the Eurêka! Festival, the largest science festival in Québec, where over 65,000 people wandered through Jean-Drapeau Park in Montréal to attend a hundred free scientific activities for the whole family. In June, INO participated in the first edition of the Lévisium Science Festival, in Lévis. Getting involved in the start-up of an event that has the potential to reach many young people eager for technology in the future is important for the organization. And the year 2023 ended with the large gathering “Les filles et les sciences” at Laval University, where about 150 scientists of tomorrow also benefited from workshops offered by INO experts on “the mysteries of the invisible”.



PHOTO: Mélanie Dussault

A 35th anniversary with a quantum flair

The 2023-2024 fiscal year also coincided with the 35th anniversary of the official start of INO's activities. To mark the occasion, INO had the honor of hosting Mr. Gilles Brassard, one of the fathers of quantum teleportation, who is predicted by the Thompson Reuters news agency to win a Nobel Prize. More than 300 members of the public thus gathered at the Dina-Bélanger hall to attend conferences on classical and quantum cryptography. Thanks to Mr. Brassard and to François Bergeron, who offered a historical overview of cryptography from antiquity as the opening act.



PHOTO: Michel Pézolet, 2023

Centraide - A discreet presence, a concrete impact

The INO team was once again very active during the 2023 fundraising campaign for Centraide Québec and Chaudière-Appalaches, an organization that supports more than 225 community organizations and projects in the greater metropolitan Québec region. In total, INO raised \$65,000 to contribute to a strong and united community.



A new endeavour for the cause of cardiovascular, respiratory diseases, and related to obesity

In September 2023, the team once again participated in the Cyclo-Défi of the Québec Heart and Lung Institute. The sporting achievement allowed INO to achieve its donation record of \$9,057, a sum that was given to the IUCPQ Foundation for the purchase of specialized equipment as well as for the funding of research and teaching.



BOARD OF DIRECTORS

AS OF MARCH 31ST 2024



JACQUES TOPPING

Corporate Director
Chairman



KATHY BAIG³

Vice President, Business Development
and Operations Leader – Transportation,
Stantec



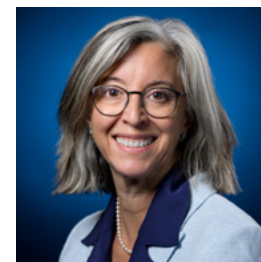
CAROLINE BOUDOUX³

Professor, Department of
Engineering Physics at
Polytechnique Montréal



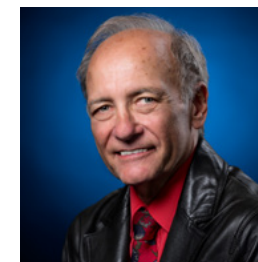
ALAIN CHANDONNET

President and CEO, INO



HÉLÈNE CHARTIER^{2,3*}

Corporate Director
Vice President of the Board



DENIS FAUBERT³

Research, Development and Innovation
Consultant



FRANÇOIS GIROUX^{1*}

President, Gentec



VANESSA GRONDIN¹

Corporate Director



SÉBASTIEN PROULX²

Lawyer and Strategic Advisor in
Public Law and Relations with the
State, GBV Avocats



VÉRONIQUE PROULX^{2*}

President and CEO, Manufacturiers et
exportateurs du Québec
Senior Vice President, *Canadian
Manufacturers & Exporters*



HUGUES ST-PIERRE¹

Corporate Director
President, MAXXAB

^{1*} Chair, Audit Committee

¹ Member, Audit Committee

^{2*} Chair, Governance and Human Capital Committee

² Member, Governance and Human Capital Committee

^{3*} Chair, Innovation Committee

³ Member, Innovation Committee

MANAGEMENT TEAM



ALAIN CHANDONNET
President and CEO



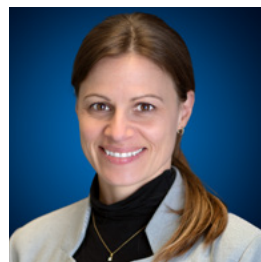
PHILIPPE BOIVIN
Vice President, Corporate Affairs



MARIE-CLAUDE CÔTÉ
Vice President,
Development and Engineering



ANDRÉ FOUGÈRES
Vice President,
Chief Technology Officer



SHIRLEY MOORE
Vice President, Finance



LOUIS MARTEL
Vice President, Business Development
and Partnership



KARINE ROMAIN
Vice President,
Human Experience and Culture

MEMBERS

AS OF MARCH 31ST 2024

Strategic members

- ABB
- Ciena Canada, ULC
- Coractive High-Tech
- Desjardins Entreprises – Québec-Capitale
- Macdonald, Dettwiler and Associates Corporation (o/a MDA)
- Rio Tinto Alcan

Industrial members

- ABCDust Technologies
- Doric Lenses
- EarthDaily Analytics
- EXFO
- Gentec Electro-Optique
- Laserax
- LR Tech inc.
- Meta Vision Sensors
- MPI Morheat

- NGC Aerospace
- Previa Technologies Inc. (Eddify)
- RaySécur
- RinnoVision
- Telops
- Teraxion
- Univerco
- Wyvern

Institutional members

- Corem
- ÉTS Montréal
- IRDA
- Medtech Canada

SECTORIAL ADVISORY COMMITTEES

AS OF MARCH 31ST 2024

In 2022-2023, INO created sectorial advisory committees composed of members from the sectors it serves. These allow for even better guidance of development activities to ensure they are directly aligned with the needs of the industry. Here is their composition as of March 31, 2024:



Biomedtech COMMITTEE

OLIVIER BOURBEAU
Medtech Canada

YVES DE KONINCK
Université Laval

SUZIE DUFOUR
INO

JEAN-LUC NÉRON
Doric Lenses

ÉRIC TRUDEL
INO



Defence, security and aerospace COMMITTEE

ANDREW ALLEN
MDA

JEAN GIROUX
Telops

JEAN-FRANÇOIS HAMEL
NGC Aerospace

PHILIPPE LAGUEUX
INO

SYLVIO LAPLANTE
ABB

LUC ROCHETTE
LR Tech

VINCENT SAUER
Wyvern

PATRICE TOPART
INO

GEORGE TYC
Earthdaily Analytics Corp.



Sustainable resources, agriculture and infrastructure COMMITTEE

FÉLIX BAILLARGEON-LADOUCEUR
RinnoVision Inc.

JEAN-FRANÇOIS GORMIER
INO

CHRISTOPHE DEUTSCH
Previan

CLAUDE GAGNON
Corem

BENOIT LAMONTAGNE
INO

ÉRIC LAPLANTE
Rio Tinto Alcan

SAMUEL TOLEDO
ABCDust



Advanced manufacturing COMMITTEE

FRANÇOIS BLANCHARD
École de technologie supérieure

CAROLINE CÔTÉ
Institut de recherche
et développement en
agroenvironnement

STEPHEN THACKER
Meta Vision Sensors

ASHWANI ANGRA
MPI Morheat

ALAIN GRÉGOIRE
Univerco (1978) Inc.

DONALD PRÉVOST
INO

MICHEL CYR
Ciena Canada



Industrial solutions COMMITTEE

ANTOINE PROULX
INO

YVES TAILLON
INO

ANDRÉ FOUGÈRES
INO

GUILLAUME BROCHU
Teraxion Inc.

JEAN-NOËL MARAN
Coractive High-Tech Inc.

MICHEL LEBLANC
EXFO

MICHEL GIROUX
Gentec Électro-Optique Inc.

XAVIER GODMAIRE
Laserax Inc.

ASSOCIATE RESEARCHERS

VIACHESLAV ADAMCHUK

Université McGill

ALI BAHLOUL

Institut de recherche
Robert-Sauvé en santé
et sécurité au travail

FRANÇOIS BLANCHARD

École de technologie supérieure

CHLOÉ BOIS

Printability and Graphic
Communications Institute

MARTIN BOLDUC

Université du Québec
à Trois-Rivières

CLOTHILDE BROCHOT

Institut de recherche
Robert-Sauvé en santé
et sécurité au travail

PASCAL DELADURANTAYE

Teraxion

COSTEL FLUERARU

National Research Council
Canada

FYRIAL GHOZAYEL

Printability and Graphic
Communications Institute

MARIO LECLERC

Université Laval

OFER LEVI

Université de Toronto

MARIT E. MEYER

NASA

JEAN-FRANÇOIS MORIN

Université Laval

CHRISTOPHE PY

National Research Council
Canada

JULIEN ROBITAILLE

National Research Council
Canada

MARTIN-HUGUES ST-LAURENT

Université du Québec à Rimouski

BENJAMIN SUMLIN

NASA

MIRKO TORRES

Institut des communications
graphiques et de l'imprimabilité

ALEX WALKER

National Research Council
Canada

WITHAWAT WITHAYACHUMNANKUL

Université d'Adelaide

MARIA ZHULDYBINA

École de technologie supérieure

SPIN-OFF COMPANIES

UMANX, 2019

Optical sensor for security robots

LYNX INSPECTION, 2018

Digital imaging system for industrial inspection

DXBIOTECH, 2017

Compact cytometer

SWIFTSURE, 2017

Optronics processor for synthetic aperture radar

FLYSCAN, 2016

Lidar for benzene detection

RAYSECUR, 2015

Terahertz technology for letter bomb detection

TECHNOLOGIES ET SERVICES INOOXX, 2013

Lidar measurement and laser triangulation technology to measure truck load volume

HANDYEM, 2011

Compact Cytometer

OPTIRYTHMIX, 2011

Virtuo library

ENTREPRISE in the environmental field (confidential), 2010

SYSTÈMES PAVEMETRICS, 2009

Machine vision systems for the inspection of transportation infrastructures

TECHNOLOGIES REALTRAFFIC, 2008

Image analysis

HEDZOPT, 2007

Thermal weapon sight

LEDDARTECH, 2007

LEDs for distance detection and measurement

QUANTUM BIOMEDICAL (QBM), 2006

Endoscopic probe for intravascular diagnosis

IRPHOTONICS, 2004

Fluoride fibers and glasses

NEOPTIX, 2004

Temperature sensors

OPSENS, 2004

Fiber-optics sensors

OPTOSÉCURITÉ, 2004

Optical correlator

PYROPHOTONICS LASERS, 2004

PEFL laser technology

CYBIOGARE, 2003

Hypoglycemia monitor and glucose

TECHNOLOGIES OBZERV, 2002

Vision systems

NEKS TECHNOLOGIES, 2001

Colour-based gingival tartar detection

TERAXION, 2000

Optical network components

CORACTIVE HIGH-TECH, 1998

Specialty optical fibers

PIERRE LANGLOIS CONSULTANT, 1997

Diffraction optics consulting

P&P OPTICA, 1995

Optics engineering shop

FISO TECHNOLOGIES, 1994

Fiber-optic sensor

DORIC LENSES, 1994

Micro lenses

OPTIWAVE CORPORATION, 1994

Integrated optics software

AEREX AVIONIQUE, 1993

Optoelectronics consulting

I/FO TECHNOLOGIES, 1993

Fiber optic technology consulting

OPTEL VISION, 1992

Optical instrumentation

INSTRUMENTS RÉGENT, 1990

Optical instrumentation

NORTECH FIBRONIC, 1989

Optical instrumentation

TECHNOLOGY TRANSFERS

ABB

Pyramid wavefront sensor

AMERICAN COMPANY

Diamond marking

AMERICAN COMPANY

Auto-centering technology

AMERICAN UNIVERSITY

Bolometer electronic circuit

ARCANE TECHNOLOGIES

Computing library – Amazon

ASIAN COMPANY

Bolometers (2X)

ASIAN COMPANY

CO2 laser cleaving

ASIAN COMPANY

Fiber components

ASIAN COMPANY

Reading circuit

ASIAN COMPANY

Terahertz imaging

ASIAN INTEGRATOR

MOPAW laser

ASIAN RESEARCH INSTITUTE

Bolometers

AUTOLOG

3D imaging calibration software, source code, Planovision

AVENSYS/BRAGG PHOTONICS

All-fiber photo-induced filters

BRIO CONSEILS

Managerial innovation in the development process

BRISTOL AEROSPACE

Infrared detector

CANADIAN COMPANY

Infrared imaging

COMMUNICATIONS RESEARCH CENTRE CANADA

Integrated processes system (IPS)

CORACTIVE

Triple-clad specialty optical fibers

CTEX

Bolometers

CYBIOCARE

Hypoglycemia sensor and glucose meter

DELLUX TECHNOLOGIES

LED lights

DORIC LENSES

Graded refractive index microlenses

DXBIOTECH

Compact cytometer

EUROPEAN COMPANY

Lens auto-centering technology

EUROPEAN COMPANY

Bolometers

FISO TECHNOLOGIES

Fiber optic sensors for temperature, stress, and pressure

End-of-service indicator for breathing apparatus

FLYSCAN

Lidar for benzene detection

GENTEC ELECTRO-OPTICS

Holographic beam sampler

HANDYEM

Flow cytometry

HEDZOPT

Thermal weapon sight

IOMNISCIENT

Classification module

IRPHOTONICS

Fluoride fibers

KRISPY KERNELS

Hyperspectral vision system for quality control

LASIRIS

Diffraction optical elements

LEDDARTECH

LEDs for distance detection and measurement

LYNX INSPECTION

3D imaging system

MAIBEC

Feature detection of cedarwood singles

MICROSPHERE

Optical correlator for inspection of plastic components

MPB

Infrared spectrometer

NEKS TECHNOLOGIES

Colour-based gingival tartar detection

NETCORP

Optical switch

NORMAND PROJEX

Inspection system for 3D verification of hardwood floor mortise and tenon dimensions

NORTECH FIBRONIC

Fiber optics temperature sensors
Tunable fiber laser

OBZERV TECHNOLOGIES

DALISTM laser illuminator

OIL SECTOR COMPANY

Fiber optic sensor technology

OPTIRYTHMIX

Virtuo library

OPTIWAVE CORPORATION

Integrated optics software

OPTOSECURITY

INOsegmenter - Image segmentation software
Numerical optical correlator technology
Optical correlator

OXFORD UNIVERSITY

Bolometer electronic circuit

PAVEMETRICS

Machine vision systems for the inspection of transportation infrastructures
Machine vision systems for a new scope of application

PYROPHOTONICS LASERS

PyFI laser fiber unfolded cavity configuration
PEFI laser technology

QUANTUM BIOMEDICAL (QBM)

Endoscope for intravascular diagnosis

RAYSECUR

Terahertz technology

REALTRAFFIC TECHNOLOGIES

Image analysis

RÉGENT INSTRUMENTS

Optical instrumentation

SEARIDGE TECHNOLOGIES

Video monitoring technology
Video surveillance and detection technology and source codes

SEASTAR OPTICS

Erbium fibre laser

SOLVISION

Structured light projector

STAS

Hydrogen fluoride detector

SWIFTSURE

Optronic processor for synthetic aperture radar

SYGIF INTERNATIONAL

Intergrated processes system (IPS)

SYMBIOTECH MEDICAL

Intra-arterial analysis and detection

TELEDYNE DALSA

Bolometers

TELOPS

Intergrated processes system (IPS)

WESTERN CANADIAN OIL SECTOR COMPANY

Fiber optic sensor technology



INO

Financial Statements

SUMMARY FINANCIAL STATEMENTS

INDEPENDENT AUDITOR'S REPORT

To the members of National Optics Institute

OPINION

The summary financial statements of the National Optics Institute (the «Entity»), which comprise:

- the summary statement of financial position as at March 31, 2024
- the summary statement of operations for the year then ended
- the summary statement of changes in net assets for the year then ended
- the summary statement of cash flows for the year then ended
- and related notes

(hereinafter, the «summary financial statements»),

are derived from the audited financial statements of the Entity as at and for the year ended March 31, 2024 (the «audited financial statements»).

In our opinion, the accompanying summary financial statements are consistent, in all material respects, with the audited financial statements, in accordance with the criteria disclosed in Note 1 in the summary financial statements.

SUMMARY FINANCIAL STATEMENTS

The summary financial statements do not contain all the disclosures required by Canadian accounting standards for not-for-profit organizations. Reading the summary financial statements and the auditor's report thereon, therefore, is not a substitute for reading the Entity's audited financial statements and the auditor's report thereon.

The summary financial statements and the audited financial statements do not reflect the effects of events that occurred after the date of our report on the audited financial statements.

THE AUDITED FINANCIAL STATEMENTS AND OUR REPORT THEREON

In our report dated June 10, 2024, we have issued an unmodified opinion on the audited financial statements for the year ended March 31, 2024.

MANAGEMENT'S RESPONSIBILITY FOR THE SUMMARY FINANCIAL STATEMENTS

Management is responsible for the preparation of the summary financial statements in accordance with the criteria disclosed in Note 1 in the summary financial statements.

AUDITOR'S RESPONSIBILITY

Our responsibility is to express an opinion on whether the summary financial statements are consistent, in all material respects, with the audited financial statements based on our procedures, which were conducted in accordance with Canadian Auditing Standard 810, Engagements to Report on Summary Financial Statements.

KPMG A.R.L. / S.E.N. C.R.L.

Québec, Canada

June 10, 2024

*CPA auditor, public accountancy permit No. A125181

SUMMARY STATEMENT OF FINANCIAL POSITION

March 31, 2024, with comparative information for 2023

	2024	2023
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	\$ 7 611 425	\$ 6 803 074
Accounts receivable	4 688 100	6 494 119
Financial support receivable related to tangible capital assets and intangible assets (note 2 (b))	78 773	-
Financial support receivable related to the entrepreneurship assistance program (notes 2 c) and d))	693 511	360 000
Inventories	2 854 352	2 616 570
Research contracts in progress	1 262 500	1 587 074
Prepaid expenses	1 527 132	1 086 323
Current portion of investments	29 075 165	29 801 680
	47 790 958	48 748 840
Investments	21 293 078	35 909 526
Investments in private companies	1	492 213
Tangible capital assets	26 200 980	26 643 858
Intangible assets	338 502	493 554
	\$ 95 623 519	\$ 112 287 991

	2024	2023
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES		
Bank loans	\$ -	\$ 250 975
Accounts payable and accrued liabilities	7 077 017	9 396 859
Deferred financial support (notes 2 b) et c))	1 035 754	660 367
Deferred revenues and deposits on contracts	2 525 773	1 776 817
Callable debt	1 055 509	1 576 642
Deferred financial support related to internal research program (note 2 a) ii))	12 000 000	11 600 000
	23 694 053	25 261 660
Employee future benefits obligations (note 3)	5 081 585	9 683 085
Deferred financial support related to tangible capital assets and intangible assets (note 2 b))	36 985 349	36 860 259
Deferred financial support related to internal research program (note 2 a) ii))	13 959 245	23 900 000
	79 720 232	95 705 004
NET ASSETS	15 903 287	16 582 987
Commitments (note 4)		
	\$ 95 623 519	\$ 112 287 991

See accompanying notes to summary financial statements.

On behalf of the Board.

 , Director

 , Director

SUMMARY STATEMENT OF OPERATIONS

March 31, 2024, with comparative information for 2023

	2024	2023
REVENUES		
Financial support related to internal research program (note 2 a))	\$ 20 700 000	\$ 21 700 000
Financial support related to tangible capital assets and intangible assets (note 2 b))	2 619 280	2 131 477
Financial support related to the entrepreneurship assistance program (notes 2 c) et d))	829 787	892 589
Sales and contracts	16 304 585	22 713 175
Investment income	1 440 595	964 737
Technology transfer agreements	-	901 320
Rent and other revenues	462 028	471 320
Royalties	400 538	350 135
Member's contributions	91 000	69 000
	42 847 813	50 193 753

	2024	2023
EXPENSES		
Salaries and fringe benefits	\$ 28 084 565	\$ 29 446 144
Cost of goods and services pertaining to project completion	5 881 946	6 845 465
Other operating expenses	10 471 889	9 411 853
Foreign exchange loss (gain)	127 283	(220 922)
Interest on callable debt	84 380	87 870
Interest and bank charges	63 516	66 235
Depreciation of tangible capital assets	3 266 670	3 119 398
Amortization of intangible assets	155 052	142 705
	48 135 301	48 898 748
OTHER REVENUES AND EXPENSES		
Gain on disposal of investment in a private corporation	-	10 675 118
Other than temporary decline in value on investments in private companies	(492 212)	-
(INSUFFICIENCY) EXCESS OF REVENUES OVER EXPENSES FOR THE YEAR	\$ (5 779 700)	\$ 11 970 123

See accompanying notes to summary financial statements.

SUMMARY STATEMENT OF CHANGES IN NET ASSETS

March 31, 2024, with comparative information for 2023

	2024	2023
NET ASSETS, BEGINNING OF YEAR	\$ 16 582 987	\$ 12 357 064
Adjustment following the adoption of a new accounting standard related to future social benefits obligations	-	(6 208 200)
	16 582 987	6 148 864
(Insufficiency) Excess of revenues over expenses for the year	(5 779 700)	11 970 123
	10 803 287	18 118 987
Remeasurements and other items (note 3)	5 100 000	(1 536 000)
NET ASSETS, END OF YEAR	\$ 15 903 287	\$ 16 582 987

See accompanying notes to financial statements.

SUMMARY STATEMENT OF CASH FLOWS

March 31, 2024, with comparative information for 2023

	2024	2023
CASH PROVIDED BY (USED IN)		
OPERATING		
(Insufficiency) Excess of revenues over expenses for the year	(5 779 700) \$	11 970 123 \$
Elements not involving cash:		
Depreciation of tangible capital assets	3 266 670	3 119 398
Amortization of intangible assets	155 052	142 705
Amortization of premiums and discounts on coupons and bonds	(77 587)	47 257
Adjustment related to employee future benefits	498 500	269 371
Financial support related to tangible capital assets and intangible assets (note 2 b))	(2 619 280)	(2 131 477)
Deferred financial support recognized in revenues (note 2 a))	(9 540 755)	(12 800 000)
Gain on disposal of investment in a private corporation	-	(10 675 118)
Other than temporary decline in value on investments in private companies	492 212	-
Changes in non-cash working capital items	(155 781)	(3 359 843)
	(13 760 669) \$	(13 417 584) \$

	2024	2023
FINANCING		
Net change in bank loans	(250 975)	250 975
Repayment on callable debt	(521 133)	(717 648)
Financial support used (note 2 b))	2 744 370	690 973
	1 972 262	224 300
INVESTING		
Acquisitions of tangible capital assets	(2 823 792)	(1 903 430)
Acquisitions of intangible assets	-	(334 425)
Disposal of investment in a private corporation	-	10 904 348
Acquisition of investments	(14 373 905)	(26 663 716)
Disposal of investments	29 794 455	26 329 523
	12 596 758	8 332 300
Increase in cash and cash equivalents during the year	808 351	(4 860 984)
Cash and cash equivalents, beginning of year	6 803 074	11 664 058
CASH AND CASH EQUIVALENTS, END OF YEAR	7 611 425 \$	6 803 074 \$

See accompanying notes to financial statements.

NOTES TO SUMMARY FINANCIAL STATEMENTS

For the fiscal year ending on March 31, 2024

The National Optics Institute («INO») was incorporated on December 31, 1985 under Part II of the Canada Business Corporations Act and continued on September 11, 2013 under the Canada Not-for-profit Corporations Act. Its mandate is to bring to life innovations that enable the Canadian industry to be more productive and competitive.

As a non-profit organization, INO is exempt from income tax.

1. BASIS FOR REPRESENTATION

INO elected to prepare the summary financial statements based on the following criteria:

- Presentation of a set of financial statements which includes a summary financial position, a summary statement of operations, a summary statement of changes in net assets, and a summary statement of cash flows;
- Use of the same presentation for the summary financial statements as for the audited financial statements, except for cross-references to notes disclosures;
- Exclusion of notes to financial statements, unless their omission would prevent the financial statements users from having a clear understanding of economic resources and obligations at a period-end or their evolution during the period then ended.

INO's complete set of financial statements are available upon request from management.

2. FINANCIAL SUPPORT

- Financial support - internal research program:

The financial support that INO receives as part of the internal research program is as follows:

	2024		
	Total support	Remaining support balance available as of March 31, 2024	Revenues
Government of Canada			
Canada Economic Development	\$ 50 000 000	\$ 17 940 755	\$ 11 159 245
Government of Québec	55 000 000	25 959 245	9 540 755
Financial support			
Internal research program	\$ 105 000 000	\$ 43 900 000	\$ 20 700 000

2. FINANCIAL SUPPORT (cont'd)

- Financial support - internal research program (cont'd)

	2023		
	Total support	Remaining support balance available as of March 31, 2023	Revenues
Government of Canada			
Canada Economic Development	\$ 50 000 000	\$ 29 100 000	\$ 8 900 000
Government of Québec	55 000 000	35 500 000	12 800 000
Financial support			
Internal research program	\$ 105 000 000	\$ 64 600 000	\$ 21 700 000

- Government of Canada

In July 2021, the Government of Canada, as part of the Business and Regional Growth program (DEC-Growth) of Canada Economic Development, granted INO a maximum financial assistance of \$50,000,000 over 5 years, ending on March 31, 2026, to carry out its internal research program. As of March 31, 2023, and 2024, no amount is to be received.

- Government of Québec

In March 2021, the Government of Québec granted INO financial assistance of \$55,000,000, for the period starting April 1, 2021, and ending on March 31, 2026, to carry out its internal research program. This financial assistance was fully cashed on March 31, 2021, and an amount of \$9,540,755 was used during the fiscal year 2024 (\$12,800,000 during the fiscal year 2023).

2. FINANCIAL SUPPORT (cont'd)

a) Financial support - internal research program (cont'd)

Deferred financial support under the internal research program is as follows:

	2024	2023
Balance, beginning of year	\$ 35 500 000	\$ 48 300 000
Amount recognized in revenues during the year	(9 540 755)	(12 800 000)
	25 959 245	35 500 000
Less: current portion	12 000 000	11 600 000
BALANCE, END OF YEAR	\$ 13 959 245	\$ 23 900 000

b) Financial assistance related to tangible capital assets and intangible assets

- i) i) In March 2021, the Government of Québec granted a maximum financial assistance of \$20,000,000 covering the period from April 1, 2021, to March 31, 2026, aimed at reimbursing, directly to INO, 80% of the costs to carry out major work on the building. This financial assistance was fully cashed on March 31, 2021, and an amount of \$105,286 was used during the fiscal year 2024 (\$330,398 during the fiscal year 2023).
- ii) ii) In April 2022, the Government of Canada granted INO a maximum financial assistance of \$4,500,000 aimed at reimbursing, directly to INO, 40% of the costs of acquiring certain scientific equipment and 80% of the costs of acquiring computer equipment and certain scientific equipment. Reimbursements are made as the equipment is committed and invoiced. As of March 31, 2024, an amount of \$78,773 is to be received (advance received of \$266,347 during the fiscal year 2023).
- iii) In February 2023, the Government of Québec granted INO a maximum financial assistance of \$985,061 aimed at reimbursing 40% of the costs of acquiring scientific equipment. The financial assistance is paid directly to INO as the disbursements are made by INO. As of March 31, 2024, an amount of \$275,192 is received in advance (\$394,032 as of March 31, 2023).

The deferred financial support to tangible capital assets and intangible assets is as follows:

	2024	2023
Balance, beginning of year	\$ 36 860 259	\$ 38 300 763
Financial support related to the purchase of tangible capital assets and intangible assets for the year	2 744 370	690 973
Transfer to revenues to offset the corresponding depreciation and amortization	(2 619 280)	(2 131 477)
BALANCE, END OF YEAR	\$ 36 985 349	\$ 36 860 259

2. FINANCIAL SUPPORT (cont'd)

c) Financial assistance related to the entrepreneurship support program

- i) i) In January 2020, the Government of Québec granted INO financial assistance of \$375,000, spread over 3 years and ending on March 31, 2023, to support startup companies' activities. As of March 31, 2024, and 2023, an amount of \$122,144 is recorded as payable.
- ii) In March 2020, the City of Québec granted INO financial assistance of \$1,400,000 covering the period from October 19, 2019, to March 31, 2023, to establish an incubator dedicated to optic-photonics technology. As of March 31, 2024, no amount is to be received (\$100,000 as of March 31, 2023).
- iii) In March 2023, the Government of Québec granted INO financial assistance of \$500,000, covering the period from April 1, 2023, to March 31, 2026, to support startup companies' activities. An amount of \$248,544 is received in advance as of March 31, 2024.
- iv) In March 2023, the Government of Québec granted INO financial assistance of \$1,500,000, covering the period from April 1, 2023, to March 31, 2026, to support startup companies' activities. An amount of \$468,059 is received in advance as of March 31, 2024.
- v) In September 2023, the Government of Canada granted INO financial assistance of \$1,235,000, covering the period from November 1, 2023, to March 31, 2026, to support startup companies' activities. An amount of \$43,971 is received in advance as of March 31, 2024..
- vi) In September 2023, the City of Québec granted INO financial assistance of up to \$3,000,000, covering the period from April 1, 2023, to December 31, 2026, to continue the deployment of an incubator. As of March 31, 2024, an amount of \$493,511 is to be received.

d) Financial assistance related to the research-innovation project support program

i) i) In March 2020, the Government of Québec granted INO financial assistance of \$600,000 spread over three years to support the implementation of an industrial research program in quantum photonics. As of March 31, 2024, no amount is to be received (\$60,000 as of March 31, 2023).

ii) In March 2023, the Government of Québec granted INO financial assistance of \$400,000 covering the period from April 1, 2022, to March 31, 2024, to support the implementation of an industrial research program in quantum photonics. As of March 31, 2024, and 2023, an amount of \$200,000 is to be received.

3. FUTURE SOCIAL BENEFITS

INO offers future social benefit plans, including a defined benefit plan that guarantees certain employees the payment of retirement benefits. The benefits are determined based on years of service and average salary at the end of the career.

a) Defined benefit pension plan

The most recent complete actuarial valuation of the pension plan was performed as of December 31, 2022, and extrapolated to March 31, 2024. The capitalization situation of the defined benefit plans is as follows:

	2024	2023
Defined benefit obligations	\$ (57 921 000)	\$ (59 710 300)
Fair value of plan assets	52 946 400	50 135 600
Defined benefit liability	\$ (4 974 600)	\$ (9 574 700)

b) Other future social benefits

The reduction in obligations under other future social benefits had no impact on the salary and social benefits expense for the current and previous fiscal year.

As of March 31, 2024, the obligations for future social benefits are as follows:

	2024	2023
Defined benefit pension plan	\$ 4 974 600	\$ 9 574 700
Other employee future benefits	106 985	108 385
	\$ 5 081 585	\$ 9 683 085

The increase in revaluations and other elements of \$5,100,000 (a decrease of \$1,536,000 in 2023) was directly affected to the net assets.

4. CONTRACTUAL COMMITMENTS

INO has committed, under lease contracts expiring in June 2024 and 2027, to rent office spaces. INO has also committed under a service contract expiring in January 2025, to receive cybersecurity services. Furthermore, INO has committed to using the services of three service companies to integrate a new integrated management software, a product lifecycle management software, and a project management software. The payments to be made over the next four fiscal years are as follows:

2025	483 975
2026	76 545
2027	52 455
2028	13 114