

Preparing for the Future

2023 Activity Report



Declaration of data reliability

I declare that I have every reason to believe that the observable facts and measurable data presented in this activity report accurately reflect the situation at December 31, 2023. This information falls under my responsibility as president and CEO of the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST). I hereby attest to its accuracy and the reliability of the controls relating thereto. The indicators retained are developed using reliable and accurate data, and allow us to assess the IRSST's production over the course of the year. Recommended by the members of the Institute's Scientific Advisory Board and approved by the Board of Directors, the 2023 Activity Report faithfully describes the Institute's mission, vision and principal achievements.

Lyne Sauvageau

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Mission

In keeping with the spirit of the *Act respecting Occupational Health and Safety (AOHS)* and the *Act respecting industrial accidents and occupational diseases (AIAOD)*, the IRSST's mission is:

- ▶ to contribute to workers' health and safety through research, its laboratories' expertise, and knowledge dissemination and transfer, with a view to promoting prevention and sustainable return to work.

Vision

- ▶ **A leader** in the advancement and mobilization of scientific and technical knowledge in occupational health and safety (OHS), we are recognized at the national and international levels for the quality and relevance of our achievements.
- ▶ **Present for and influential** on our OHS partners and in the public sphere, our expertise informs our actions aimed at improving the health and safety of Québec workers.
- ▶ **A forum for collaboration, creativity and innovation**, we offer a healthy and exemplary work environment that supports initiative and the recognition of individual and collective achievements.

Values

Proud of our mission and committed to achieving our vision, we embody the following values:

- ▶ **Excellence**, as the foundation of the IRSST's credibility and leadership;
- ▶ **Agility**, to anticipate and respond to needs and emerging problems;
- ▶ **Openness**, to capitalize on the diversity of people, ideas and disciplines;
- ▶ **Integrity and transparency**, as the heart of our work, exchanges and actions.

Message from the Chair of the Board of Directors



Louise Otis

Chair of the Board
of Directors

For 43 years now, the IRSST has been a decisive and influential presence in Québec's OHS ecosystem. This scientific research organization is recognized, not only for its personnel's expertise and its quality work and results, but also for its close ties with workplaces. Indeed, that is what best characterizes the Institute: it conducts applied research for and with workplaces, always in a spirit of equal employer/worker representation.

Since my December 14, 2023 appointment as President of the IRSST's Board of Directors, I have been discovering the wide range of activities, originality of the work, and wealth of expertise and knowledge developed at the Institute. I am honoured to be part of this amazing organization, which deploys countless efforts and strategies to ensure that this knowledge benefits all workplaces and individuals working in OHS.

I am impressed by the high calibre and volume of work accomplished by the IRSST in 2023, a year replete with various activities at both the institutional and scientific levels. By way of example, the Institute adopted a new reference framework for OHS research and implemented a new business model for its laboratory services. These initiatives follow logically from the legislative changes introduced in the *Act to modernize the health and safety regime*. They reflect the Institute's determination to strengthen synergies with workplace representatives and its partners in Québec's vast OHS network.

As you well know, occupational health and safety is a key concern in workplaces. The challenges faced are many, whether in terms of prevention, rehabilitation or sustainable return to work. The work done by the IRSST and its partners is crucial, particularly given the transformations taking place in workplaces and the new realities faced, such as robotization, automation and artificial intelligence. Scientific, technological and social innovation is vital to our ability to anticipate and respond to these needs, if we are to promote healthy and safe workplaces.

Whether through direct application in the field or the dissemination of IRSST-produced knowledge, prevention is essential to preserving workers' physical and psychological integrity. Searching for and developing healthy OHS practices are winning strategies — both for workers and employers — for ensuring the well-being of all.

The initiatives taken and progress made in 2023 were only possible due to the mobilization of the IRSST's personnel and active support of its administrators. Among other achievements, changes were made to the Institute's internal regulations, charters were implemented for the strategic

committees reporting to the Board of Directors, and new policies were adopted, including one on prevention and intervention in intimate-partner violence. The year 2023 also saw the updating of other policies, notably those on integrity and the ethical conduct of research involving human subjects. Some of the Board of Directors' other decisions included mandating the Scientific Advisory Board to produce an overview of research achievements and their impact on OHS practices, and renewing the contract of the IRSST's current president and CEO, Ms. Lyne Sauvageau, for another five years.

The activities of the Institute's Board of Directors were conducted and managed with care and diligence by my predecessor, Ms. Manuelle Oudar, from January 2016 to December 2023. On behalf of all members of the Board, I salute her exceptional contribution to and unwavering confidence in the Institute throughout her tenure.

The place occupied by the IRSST and its reputation for excellence are all the more important in a context where the development of scientific and technical knowledge must meet the many and varied needs of a rapidly changing world of work. Thanks to the contribution of the Institute's personnel and the support of its entire Board of Directors, I am confident that the appropriateness and benefits of our research and laboratory activities will confirm the IRSST's relevance in Québec's OHS ecosystem and its influence around the world.

Message from the President and CEO



Lyne Sauvageau

President and CEO

The IRSST was created to meet the scientific and technical knowledge needs of Québec workplaces. Yet it takes time to produce new knowledge that is both relevant and robust. To conduct research that responds to these needs in real time, it is therefore essential to see them coming, to foresee them, and to ask questions about what the workplaces of the future will look like: in short, to **prepare for the future**.

This is the theme of the 2023 Activity Report and is exactly what the IRSST's research team, in collaboration with the members of the Scientific Advisory Board, have done by thoroughly revising the orientations and themes of the research we conduct. The result of this reflection process – our new reference framework for OHS research – was adopted in 2023. Moreover, efforts to create the OHS Data and Statistics Observatory continued throughout the year and unequivocally confirmed the technological feasibility and enormous potential of such a tool. With time, the Observatory will provide a unique place for accessing a statistical portrait of the status and progress of OHS in Québec. Presentations were given and discussions held with collaborators as the sensitive and personal data that will be collected raises both ethical and legal issues. Processes are now under way to reach an agreement on a secure infrastructure and mode of Web hosting. Further developments are expected in 2024.

Regarding research funding, only nine of the 38 applications received in 2023 could be funded with the available budget. Given this recurring situation, the Board of Directors mandated the Scientific Advisory Board to document the changes in our research projects and funding costs, to compare them with those of other Québec and Canadian granting agencies, to assess the IRSST's relative share of all research projects and funding, and to propose scenarios for increasing funding in relation to the benefits sought. The conclusions reached in this exercise will be submitted to the Board of Directors in 2024. Meanwhile, the Research Fund and Partnerships Division has already begun efforts to diversify our revenue streams.

With regard to our laboratories, the opportunities presented by the *Act to modernize the occupational health and safety regime* led to a readjustment of their business model. The future growth and development of our laboratories is based on five guidelines that were presented to and subsequently adopted by the IRSST's governing bodies. These guidelines focus on supporting occupational health, in addition to providing analysis and calibration services, the more systematic development of methods and services and a more structured positioning in applied research. Our laboratories hope to eventually disseminate their expertise to other Canadian provinces and assess

the feasibility of creating a nation-wide network of partner laboratories.

The year 2023 was one of transition for the Strategic Watch and Knowledge Mobilization Division, with the hiring of a new director, shifting of professional personnel and ongoing reflection on how to implement the Division's mandate. The year was also highly productive for the Communications Department, which disseminated the Institute's new brand image in May, in addition to carrying out two major projects: the third season of the *Facteurs de risque* series and a new podcast. Additionally, the Communications team contributed to the success of the first global forum on the theme "Immigration, Diversity of the Workforce, Precariousness and Vulnerabilities in OSH." Held in Montreal in June, it was initiated and hosted by Daniel Côté, Jessica Dubé and Ai-Thuy Huynh.

These are but a few examples of the many achievements made possible by the commitment and support of our teams and governing bodies. The year ended with the new Chair of the Board of Directors taking up position, namely, Louise Otis, who brings with her with an impressive track record. In addition to serving as President of both the OECD (Organization for Economic Co-operation and Development) Administrative Tribunal and the NATO Administrative Tribunal, she sits on the Panel of Independent Reviewers for the Administrative Review of the Asian Infrastructure Investment Bank (AIIB) and is Deputy Judge of the Administrative Tribunal of the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), as well as a member of the United Nations (UN) Internal Justice Council. Ms. Otis participates regularly in international missions concerning governance and justice reform. We welcome her most warmly to our midst and are honoured to be able to benefit from her vast experience.

Last but not least, I wish to offer special thanks to our administrative support and IT teams, who piloted major initiatives this year that were of benefit to us all: the shift to Office 365 and the rollout of Healthy Enterprise activities.

2023 in Numbers

Research

80 active and **10** completed research projects

2 research programs in progress

169 external researchers

- from **29** universities, **14** research centres, **3** college centres for the transfer of technologies (CSTTs) and **2** government agencies

48 IRSST researchers and scientific professionals participated in research projects.

Scholarships and Fellowships

37 graduate scholarships and postdoctoral fellowships

- were awarded to master's, doctoral and postdoctoral candidates whose research programs related specifically to the prevention of industrial accidents and occupational diseases or the rehabilitation of affected workers.

Our Laboratories

43,040 environmental, toxicological and microbiological analyses

- were performed in response to requests from our clientele as a whole.

8,377 hours

- were devoted to calibrating, maintaining and repairing direct-reading and sampling instruments.

79 people

- benefitted from a training session titled *Les risques biologiques : comment les reconnaître et les évaluer en milieu de travail* [how to recognize and evaluate biological risks in the workplace], offered during **6** one-day or half-day workshops.

24 activities

- were carried out to develop and optimize analytical and testing methods, thereby increasing our laboratories' service offerings.

Dissemination, Strategic Watch and Knowledge Mobilization

27 IRSST-produced materials

- ▶ 9 research and expert reports
- ▶ 5 guides and technical and awareness-raising tools, in French
- ▶ 2 laboratory methods
- ▶ 11 videos (lectures and news reports)

159 media activities

- ▶ 35 mentions in the traditional media
- ▶ 68 mentions on the social networks
- ▶ 20 mentions on Web sites and in external, non-IRSST newsletters
- ▶ 22 interview or information requests received by our specialists
- ▶ 14 news releases disseminated on the IRSST's Web site

100 scientific publications related to projects carried out or funded by the IRSST

- ▶ 41 peer-reviewed journal articles
- ▶ 15 peer-reviewed articles published in conference proceedings

44 lectures

- ▶ given by IRSST personnel or IRSST-funded researchers at congresses, scientific conferences or events organized by partners

4 issues of *Prévention au travail*

- ▶ the magazine published jointly by the Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST) and the IRSST
- ▶ 20 simplified articles
- ▶ + 15 news briefs published in the *Actualités* column of the magazine
- ▶ + 4 cartoon strips, each accompanied by a simplified article in the "BD de l'IRSST" section of the magazine

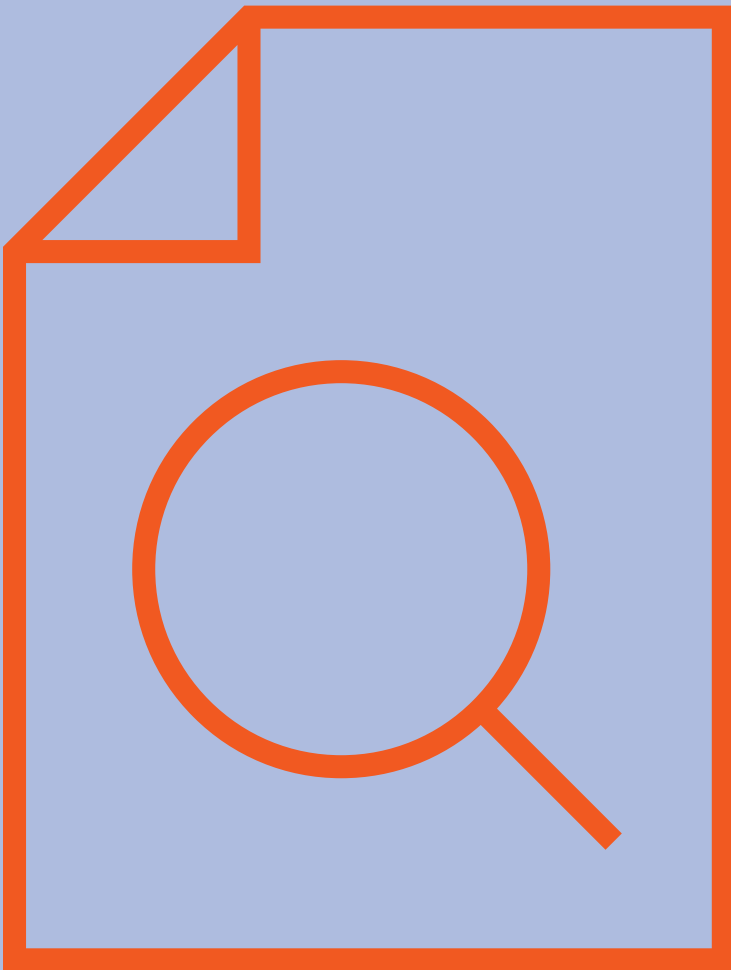
Web and social networks

- ▶ Sessions: 218,655
- ▶ Unique downloads of our reports, guides or tools: 1,285,267
- ▶ Video viewings: 43,363
- ▶ Subscribers to the IRSST's various social networks: 31,591
- ▶ Subscribers to *InfoIRSST*, the Institute's electronic newsletter: 7,146

Research

Every year, the IRSST's scientists and researchers, as well as the external researchers whose work it funds, conduct research and publish results that help advance occupational health and safety knowledge, with a view to promoting prevention and sustainable return to work.

In 2023, **80 research projects** were under way, with **10** reaching completion. Examples of studies whose results were published in 2023 are provided in this section.



The case of pig farming

The agricultural sector faces a number of occupational health and safety challenges. While the number of deaths has declined significantly in recent years, this sector remains at risk. With her research team, **Nancy Beauregard** from Université de Montréal produced Report R-1176-fr, titled *Portrait de la santé et de la sécurité agricole au Québec : le cas des éleveurs de porcs* [overview of occupational health and safety in Québec's agricultural sector: the case of pork producers], which documents the current reality faced by pork producers in Québec. Among its benefits, the study highlights a number of avenues that need to be explored to advance knowledge of activities in this sector.



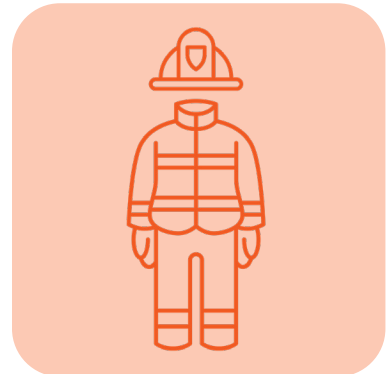
Coexposure to pesticides

Little data has been published on the effects of combined exposure to multiple pesticides (coexposure) on pesticide toxicokinetics in farm workers. Yet such data is needed to properly interpret the results of biomonitoring exposure. Report R-1184-fr, titled *Évaluation de l'impact de la coexposition sur les biomarqueurs d'exposition aux pesticides pyréthrinoïdes chez les travailleurs agricoles* [assessing the impact of coexposure on biomarkers of exposure to pyrethroid pesticides in farm workers], was produced by **Michèle Bouchard**, **Marc Bossou** and **Jonathan Côté** from Université de Montréal's Department of Environmental and Occupational Health. It highlights that this coexposure had no impact on concentrations of biomarkers of exposure at the exposure levels observed in the strawberry field workers studied.



Reducing thermophysiological stress

On hot days, personal protective clothing (PPC) contributes to the thermal and physiological stress experienced by workers. This stress can create a major health and safety concern, particularly for firefighters, as it is associated with an increased risk of cardiovascular events. In Report R-1183-fr, titled *Contraintes thermophysiologicaliques associées aux vêtements individuels de protection des pompiers : impact et efficacité des membranes barrières et des designs du vêtement* [thermophysiological stress associated with firefighters' personal protective clothing: impact and effectiveness of barrier membranes and garment designs], **Denis Marchand** and **Marie-Anne Landry-Duval** from Université du Québec à Montréal (UQAM), along with **Chantal Gauvin** from the IRSST, evaluated the physiological response of firefighters wearing five different configurations of PPC. The results of this study showed that none of the conditions evaluated led to stabilization of the thermoregulation process. Further efforts to improve the materials used in PPC are therefore needed.



Safety harnesses

Research report R-1181-fr, titled *Amélioration du confort des harnais de sécurité pour le secteur de la construction par l'évaluation des contraintes physiques et physiologiques* [improving the comfort of construction industry safety harnesses by assessing physical and physiological constraints] and published by the IRSST, details the laboratory assessment of the comfort of various safety harness configurations.

The research team, composed of the IRSST's **Bertrand Galy** and **Chantal Gauvin** among others, established the harness characteristics that optimize wearer comfort and validated them under controlled movement and suspension conditions. It highlighted the qualities and shortcomings of different harness types by analyzing biomechanical (strap pressure), physiological (heart rate, muscular and brain oxygenation) and psychophysical (comfort experienced) measurements.



Bertrand Galy



Chantal Gauvin



Iuliana Nastasia



Romain Rives

SMEs: sustainable return to work

The sustainable return to work of workers following an occupational injury or disease poses particular challenges in small and medium-sized enterprises (SMEs). This aim of this study, led by researcher **Iuliana Nastasia** and scientific professional **Romain Rives**, both of the IRSST, was to identify, in the literature, strategies and aspects of implementation that could be applied in various SME contexts in Québec. Research report R-1177-fr, titled *Stratégies de gestion de la santé et de la sécurité du travail en contexte de petites et moyennes entreprises favorisant le retour et le maintien durable en emploi des travailleurs après une blessure reliée au travail : une revue de littérature* [occupational health and safety management strategies promoting a sustainable return to work after an employment injury in small and medium-sized enterprises: a scoping review], is available on the IRSST's Web site.



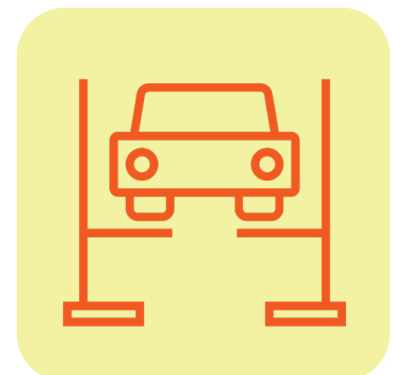
Damien Burlet-Vienney



Maud Gonella

Automotive sector: automotive lifts

Automotive technicians use two-post aboveground (2PAG) automotive lifts to perform maintenance and repair work on vehicles. The death of a young technician in 2014 caused by a vehicle falling from this type of lift prompted a collaborative effort by the automotive repair industry and the IRSST. Report R-1179-fr, titled *Utilisation des ponts élévateurs de véhicules hors terre à deux colonnes – Identification de déterminants techniques de stabilité et des déterminants du travail des techniciens automobiles* [use of two-post aboveground automotive lifts – identification of technical determinants for stability and work determinants for automotive technicians], presents the main findings obtained from tests, interviews and observations. It also proposes possible courses of action for ensuring the safe use of 2PAG lifts. The research team, composed of the IRSST's **Damien Burlet-Vienney**, **Sylvie Beaugrand**, **Bertrand Galy** and **Maud Gonella** opted for a multidisciplinary engineering and ergonomics approach.

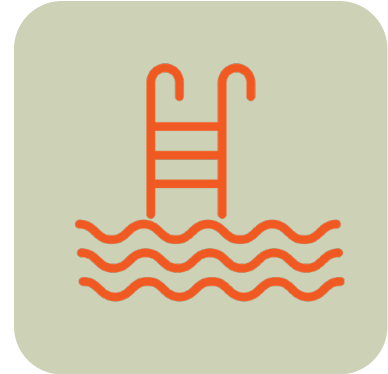


Management strategies for reducing contamination levels in swimming pools

The presence of disinfection byproducts in the water and air of indoor swimming pools is a public health and occupational health concern. Exposure to these byproducts can be associated with a number of harmful effects, including respiratory tract infection, eye irritation and bronchial hyperreactivity. Report RS-1185-fr, titled *Développement de stratégies visant à contrôler le niveau de contamination des piscines par les sous-produits de désinfection* [development of strategies to control contamination caused by disinfection byproducts in swimming pools], was submitted by the research team headed by **Maximilien Debia** from Université de Montréal. This synthesis report improves knowledge of practices for managing and monitoring disinfection byproducts in indoor aquatic environments, and helps to evaluate the impact of various management strategies on contamination levels.

Updating of the *Guide sur la protection respiratoire*

In 2023, document RG-1123-fr, titled *Guide sur la protection respiratoire* [respiratory protection guide], was updated by **Capucine Ouellet** from the IRSST and **Charles Labrecque** from the CNESST to reflect the regulatory changes associated primarily with confined spaces. This guide helps field workers evaluate the need for use of respiratory protective devices (RPDs).



Maximilien Debia



Capucine Ouellet



OHS Data and Statistics Observatory

The year 2023 saw significant headway made in the groundwork project for the future OHS Data and Statistics Observatory, thanks to the work done by the Statistical Knowledge and Surveillance Group under the leadership of **Alain Marchand**, the IRSST's Chief Scientific Officer. A prototype was created for validating a method of visualizing the IRSST's surveillance data (CNESST-Statistics Canada), as was a key-word search tool for establishing possible matches between 29 sources of pertinent data. Categorization keys were established for individuals, occupations and economic sectors. The prototype was presented to several potential collaborators (Québec's Ministère du Travail, CNESST, Institut de la statistique du Québec, IWH-Ontario), and steps are now under way with the CNESST and the ISQ to examine the Commission's data that could eventually be included and to reach an agreement on a functional structure for accessing and matching data sources.



Alain Marchand

New reference framework for OHS research

Since 2022, the IRSST's Scientific Division has been re-examining the organization's OHS research orientations. This exercise, conducted by an internal committee, enlisted the Institute's entire research personnel along with the members of the Scientific Advisory Board in a co-construction process.

The Reference Framework for OHS Research was launched in June 2023 and presents the results of the consultations and discussions held during this process. Firmly rooted in the IRSST's mission, it is designed to meet the needs of all workplaces, from the largest to the smallest. The reference framework helps ensure that science continues to further understanding and to solve existing and emerging problems. It includes three main orientations and six themes encompassing the research conducted or funded by the IRSST.



Our Laboratories

The team at the IRSST's Laboratory Division responds to requests from all its partners for environmental, microbiological and toxicological analyses, and for the calibration and maintenance of various types of sampling and measurement equipment. The team also carries out a variety of activities showcasing the vitality and know-how of its human resources, who work tirelessly to advance the cause of occupational health and safety.





Strengthening the positioning of our laboratories

Numerous actions were taken in 2023 as part of the roadmap aimed at evolving and growing the Laboratory Division. Targeted efforts -- toward business development among other things -- increased the visibility of our laboratories' activities and expanded their services to reach a broader clientele. The number and variety of services offered to clients other than those in Québec's public occupational health network (RSPSAT) thus grew significantly compared to the previous year.

In addition, our laboratory team's expertise and know-how contribute more than analytical and calibration activities by offering training sessions and occupational health and safety support. The high demand for the training session offered by **Audrey Bernèche-D'Amours** and **Delphine Lanoie**, titled *Les risques biologiques : comment les reconnaître et les évaluer en milieu de travail* [how to recognize and evaluate biological risks in the workplace] clearly illustrates the need for occupational health and safety professionals and how the IRSST's unique positioning equips them to respond to this need.



Audrey Bernèche-D'Amours



Delphine Lanoie

Supporting workplaces

Driven by ongoing regulatory and technological developments, the IRSST's laboratories are constantly having to incorporate new methods and offer services adapted to the needs of diverse workplaces. These developments provide ideal opportunities for deploying innovative practices, thereby confirming the laboratories' strategic role in Québec's OHS ecosystem. Here are a few of the noteworthy activities carried out in 2023:

- ▶ The toxicology sector developed several new methods during the year. **Sébastien Gagné** and **Éric Langlois** applied all their know-how to develop methods for measuring biological exposure indicators. Their innovative approaches also offer great potential for developing other analytical methods. For example, the method for quantifying ortho-cresol in hydrolyzed urine is based on liquid chromatography analysis combined with mass spectrometry (UPLC-MS/MS), which has a very low potential for interference. It demonstrates a sensitivity that permits the detection of the levels present in the non-exposed population.
- ▶ The Laboratory Division's acoustic sector also experienced substantial growth. Regulatory changes regarding noise in the workplace came into force on June 16, 2023, pointing to increasingly apparent needs in workplaces. **Thomas Padois**, **Pierre Beaudoin** and **Mourad El Haidaoui** thus began major work to enhance services and support. Already anticipating an increase in calibration capacity, they also planned for strategic investments in equipment and adapted their work methods.
- ▶ **Tony Wong** and **Vicente Fernandez** designed a portable battery tester to support professionals who use some of their equipment for sampling purposes in various workplaces. Now in the production phase, this tester is the result of a process of reflection aimed at offering a better adapted and more efficient response to the needs of these specialists.
- ▶ Since January 2023, the IRSST's laboratories have offered a slip-resistance testing service for protective footwear. The service is available to all, including manufacturers of protection footwear, OHS prevention and intervention managers and purchasing managers. These tests are conducted in accordance with proven standards or methods such as ISO 13287, SATRA TM144 and ASTM F2913.



Sébastien Gagné



Éric Langlois



Thomas Padois



Pierre Beaudoin



Mourad El Haidaoui



Tony Wong



Vicente Fernandez

Ever-present scientific and technical quality

The quality of the daily work performed in the IRSST's laboratories underlies the confidence their clients place in them. This quality is the result of the constant efforts made by every member of the team, with support from **Chérifa Lahkal Ayata**, a laboratory professional dedicated to quality assurance. In 2023, representatives from two organizations (**American Industrial Hygiene Association**, Laboratory Accreditation Program, and **New York State Department of Health**, Environmental Laboratory Approval Program) came to audit some of the laboratories' activities and renew their accreditations, thereby underscoring their mastery of the quality process.

Over and above the recognition that these accreditations represent, this concern for quality is even present when the laboratory team faces challenges. In fact, the team responsible for silica analysis, with support from IRSST researcher **Joannie Martin**, demonstrated its innovative ability during the process of validating silica analysis methods with the newly purchased equipment. These efforts are noteworthy as they make it possible to offer a quality analytical service, under any circumstances, for a contaminant found in a number of work environments.



**Chérifa
Lahkal Ayat**



Joannie Martin

A taste for research and technology transfer

In 2023, the Laboratory Division's team continued to offer its expertise in studies conducted at the IRSST and to share its know-how. This was mainly evident in field activities, co-construction research activities conducted in partnership with groups of researchers, and proposals for technology-transfer activities arising from research results.

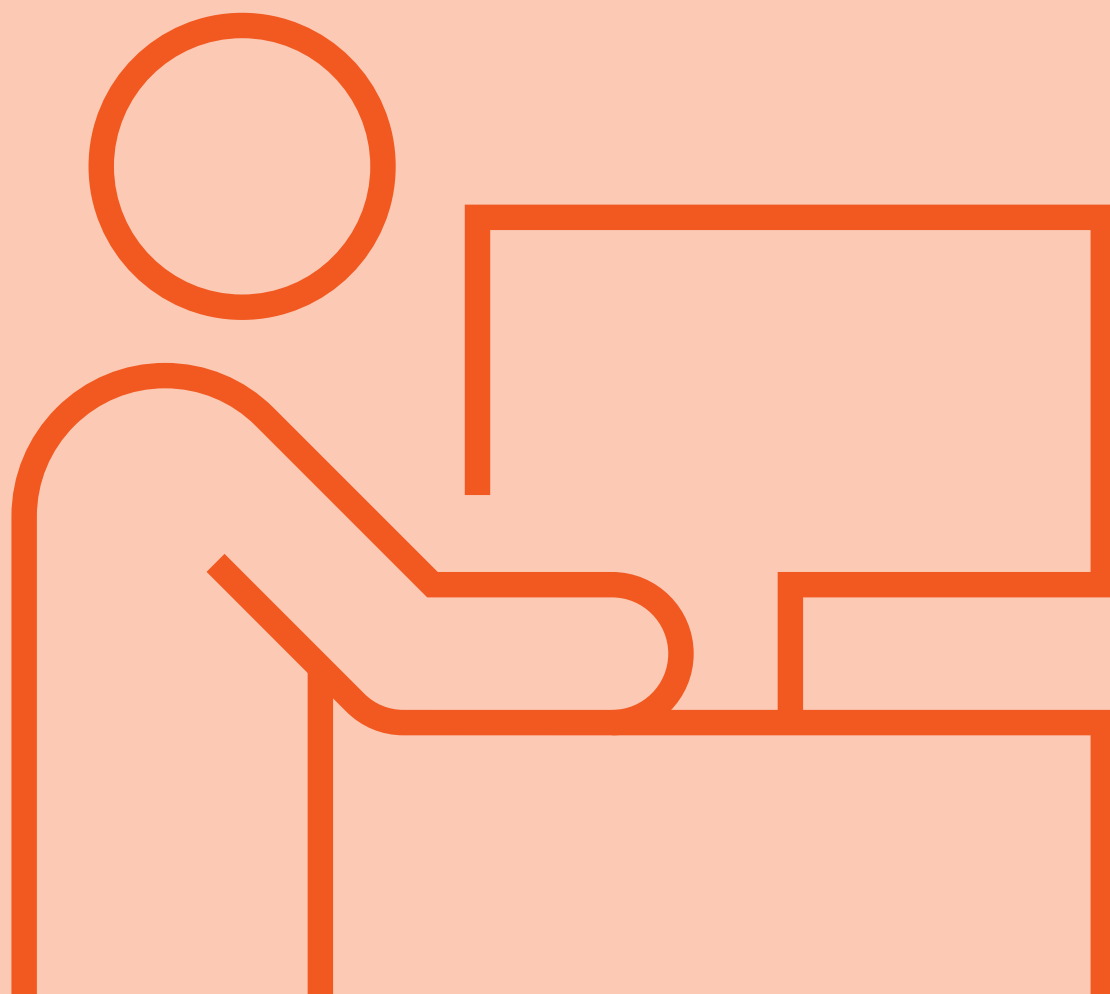
More concretely, the laboratories' team was involved in studies on radon in the workplace, in the study aimed at creating an innovative method for evaluating exposure to crystalline (quartz) silica dust, and in two studies involving isocyanate sampling and measurement methods. One of these isocyanate studies received external funding and included the integration of a master's-level student, with support from Mitacs.





Our Research Fund and Partnerships

The IRSST has played an essential role in building and maintaining an occupational health and safety research community in Québec for four decades. The Institute attracts OHS researchers and orients their work toward priority areas by offering a variety of programs to the scientific community.



Grant Programs

The Research Fund and Partnerships Division revamped its grant programs. Its research funding is now divided into four programs:

- ▶ Research Project Grant Program
- ▶ Research Program Grant Program
- ▶ Graduate Studies and Postdoctoral Fellowship Program
- ▶ Research Partnerships

Nearly \$3.2 million of funding

The IRSST received and evaluated **38** proposals during the 2022-2023 Research Project Grant competition. Upon completion of the evaluation process, the Institute's Scientific Advisory Board recommended funding **nine** of these research proposals, representing an investment of **\$3,192,693**. They are as follows:

- ▶ *Exposure to glyphosate-based herbicides (HBG) in agricultural workers: biomonitoring and toxicokinetic modelling*, principal investigator: Michèle Bouchard, Full Professor, Université de Montréal, research grant of **\$341,865**;
- ▶ *Implementation of proximity sensors to manage the risk of collisions between mobile machinery and pedestrian workers: issues and avenues for action in the construction industry*, principal investigator: Damien Burlet-Vienney, IRSST researcher, research grant of **\$251,071**;
- ▶ *Reference tool on maximum safe handling loads for workers with chronic low back pain*, principal investigator: Philippe Corbeil, Full Professor, Université Laval, research grant of **\$399,869**;
- ▶ *Dynamic portrait of the life courses of immigrant workers with employment injuries and OHS professionals' strategies to optimize the return to work*, principal investigator: Daniel Côté, IRSST researcher, research grant of **\$359,973**;
- ▶ *Promoting mindful engaged leadership: development and assessment of an online self-management program to foster managers' mental health and a positive work atmosphere*, principal investigator: Simon Coulombe, Associate Professor, Université Laval, research grant of **\$347,000**;
- ▶ *Occupational exposure to crystalline (quartz) silica: new exposure indicators and a new analytical method*, principal investigator: Maximilien Debia, Associate Professor, Université de Montréal, research grant of **\$406,590**;
- ▶ *Inherently safer design: diverse views on design criteria for orchard sprayers*, principal investigator: Caroline Jolly, IRSST researcher, research grant of **\$369,588**;
- ▶ *Development of a methodology for characterizing and simulating multi-axis human/seat vibration behaviour in order to predict suspension seat performance and dampen vibrations in real exposure conditions*, principal investigator: Pierre Marcotte, IRSST researcher, research grant of **\$358,012**;
- ▶ *Wet processing of granite, marble and cast stone: process control, study of dispersion of fine and ultrafine particles, and source reduction of aerosols and hazardous dusts*, principal investigator: Victor Songmene, Full Professor, École de technologie supérieure, research grant of **\$358,725**.

Research Program Grants

The IRSST's program for funding research programs is designed to support a scientific team in carrying out an ongoing and structured program on a subject involving medium- and long-term objectives. The funding offered covers a five-year period.

In 2023, the Research Fund and Partnerships Division continued to fund its first two research programs, representing an investment of **\$1,218,418**:

Impulse Noise in the Workplace, principal investigators: **Hugues Nélisse** and **Franck Sgard**, IRSST researchers, research grant of **\$590,168**;

Promoting Respiratory Protection in the Workplace by Evaluating and Improving Respiratory Protective Devices, principal investigators: **Ali Bahloul**, IRSST researcher, and **Sylvain G. Cloutier**, Full Professor, École de technologie supérieure, research grant of **\$628,250**.

The teams are encouraged to use this funding as leverage for obtaining other sources of funding or the contributions needed to carry out the projects associated with their program.



Hugues Nélisse



Franck Sgard



Ali Bahloul

The new OHS generation



The IRSST uses all means at its disposal to steer a competent and creative new generation toward OHS careers. Thus, in addition to hosting students, trainees and collaborators, in 2023 it awarded **37 scholarships and fellowships** to students through its graduate studies scholarship and postdoctoral fellowship program. To remain competitive, it also increased the annual value of its scholarships, fellowships and supplements for the master's and doctoral grant programs:

- ▶ The annual value of the master's scholarship increased to **\$19,000**.
- ▶ The supplement for the master's scholarship will be **\$5,000** per year.
- ▶ The annual value of the doctoral scholarship increased to **\$23,750**.
- ▶ The supplement for the doctoral scholarship will be **\$6,250** per year.



Research partnerships

Research partnerships are an effective way to leverage growth in collective OHS research capacity.

Pursuing its ambition of serving as a catalyst for OHS research, development and innovation, the IRSST maintains collaborative relationships and negotiates with partners in public sectors (ministries, granting organizations, government corporations, local administrations, universities, colleges), and with private non-profit (foundations, community organizations, research agencies) and private for-profit (small, medium-sized and large enterprises) organizations in Québec, the rest of Canada and around the world.

The IRSST maintained nearly **fifty partnership agreements** in 2023, while clinching **a dozen or so new agreements**. It also initiated a reflection process on its positioning in collaborative R&D for the purpose of exploring other possible partnership and research funding opportunities.

In concrete terms, the Institute maintained and established research partnerships in four different ways, i.e. by issuing joint calls for proposals, co-funding specific research projects, sharing research infrastructures and establishing interinstitutional framework agreements.

In this spirit, the Trauma Studies Center of the Institut universitaire en santé mentale de Montréal carried out a project titled *Revue systématique de l'efficacité des premiers soins psychologiques* [systematic review of the literature on the effectiveness of psychological first aid]. In addition, the IRSST concluded negotiations with Hydro-Québec concerning a research project titled *Implantations d'exosquelettes : évaluation de l'acceptation située pour deux cas et transfert de compétences* [implementations of exoskeletons: evaluation of situated acceptance for two cases and transfer of skills].

The ongoing efforts of the Research Fund and Partnerships Division (RFPD) already augur well for the obtention of at least two other partnership-based grants concerning the development of advanced materials and the risks of slips/falls on ice. Discussions were also initiated with Université du Québec à Montréal (UQAM) with a view to sharing

a collaborative research infrastructure in aerovirology. This confirms the success of the joint and supervised use of such infrastructures, as is already the case with the *Laboratoire d'environnement contrôlé*. In addition, the creation of a public health/population health hub, under the governance of Université de Montréal's School of Public Health, gives the IRSST an opportunity to strengthen its collaborations with numerous partners, including the Ministère de la Santé et des Services sociaux, Institut national de santé publique du Québec, Direction de la santé publique de Montréal and Institut national d'excellence en santé et en services sociaux.

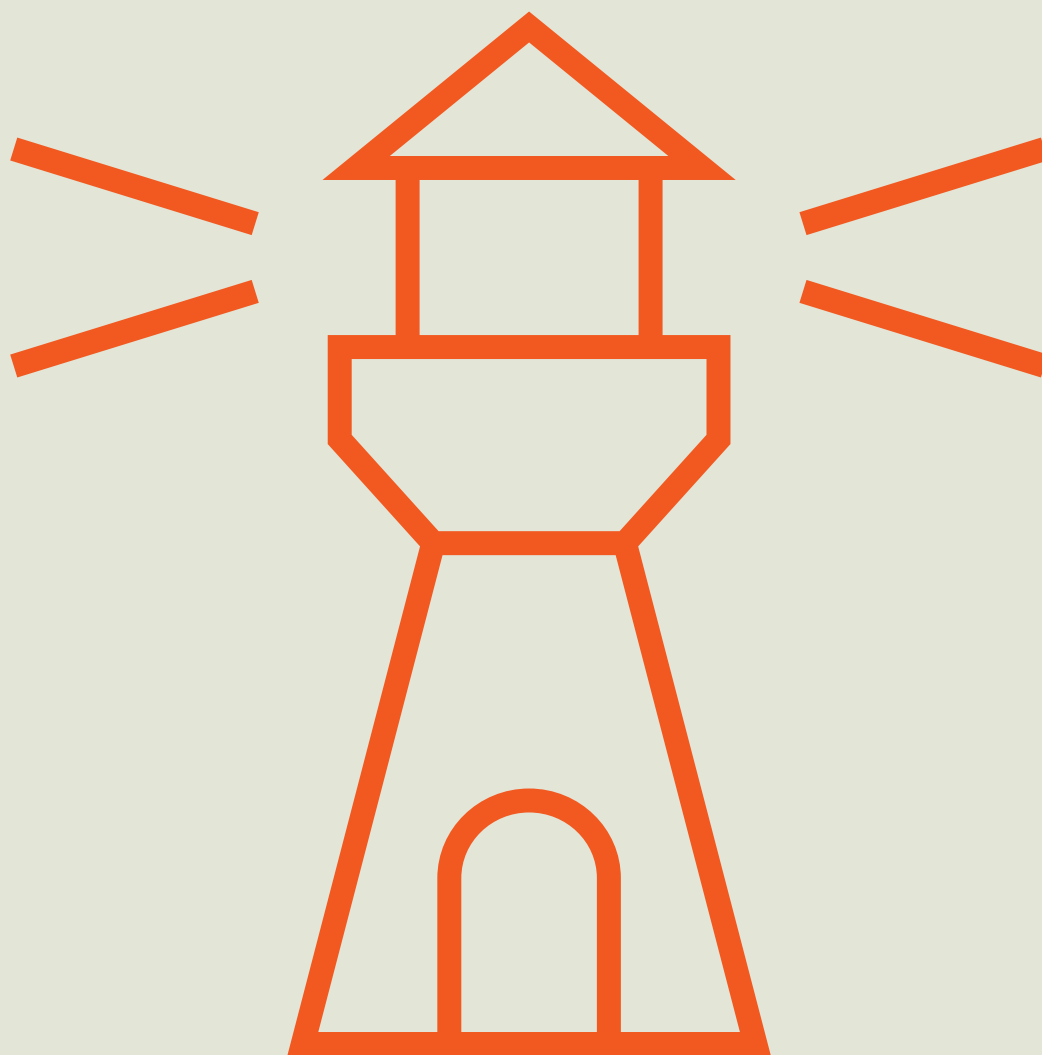
Lastly, the RFPD ensures, in all current and future collaborations, that the work of our researchers is duly recognized during the negotiation and follow-up of various agreements with numerous partners (universities, companies, government agencies). This concerns mainly confidentiality agreements prior to the exchange of information, as well as assignments of the intellectual property rights needed for various publications, and a framework for financial procedures pertaining to our inventive contribution to innovative projects.



Dissemination, Strategic Watch and Knowledge Mobilization

The Strategic Watch and Knowledge Mobilization Division is responsible for responding to requests from, and meeting the needs of, the Institute and workplaces by constantly being on the lookout for, producing and implementing knowledge mobilization and transfer strategies.

At the same time, the Communications Department ensures the dissemination of knowledge via several platforms, both digital and traditional.





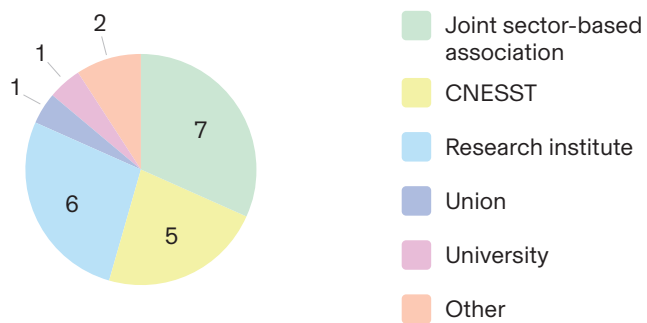
As stated in the 2022-2025 Strategic Plan, the IRSST expanded the knowledge transfer mandate to include knowledge mobilization. This is a dynamic interactive process supported by equal employer/worker representation and designed to meet OHS knowledge needs identified by the Institute or expressed by its partners. It falls under the responsibility of knowledge mobilization advisors, and involves stakeholder engagement and participation to allow for the exchange, pooling and adaptation of scientific and practical knowledge.

The 2023 year was one of transition, marked by a change in management, movement among the Institute's professional personnel and ongoing reflection on the implementation of the Strategic Watch and Knowledge Mobilization Division's mandate. In collaboration with partners, the advisors held **22 knowledge mobilization activities** and **12 meetings of thematic committees**, gave **7 presentations** and produced **21 expert reports**.

22 knowledge mobilization activities, including 10 completed in 2023

- ▶ Workshops on intercultural situations in the construction industry: pilot project
- ▶ Guide d'analyse du risque machine [guide to analyzing machine risk]
- ▶ Mise à jour et production du sécurimètre [updating and production of the safety distance calculator]
- ▶ Evaluation of work-related functional limitations or functional capacities
- ▶ The risks of hand-arm vibrations in the mining industry
- ▶ Literature review – Three-point (type 2) seatbelts on buses
- ▶ Information guide on suicide prevention in police officers
- ▶ Pilot training project on prevention in load handling (SIPM, integrated prevention strategy for load handling)
- ▶ Mobile app for interpreting standards and production of a new Securimetre
- ▶ Review of the literature on long COVID

Annual numbers of KnowMob activities by type of requestor 2023

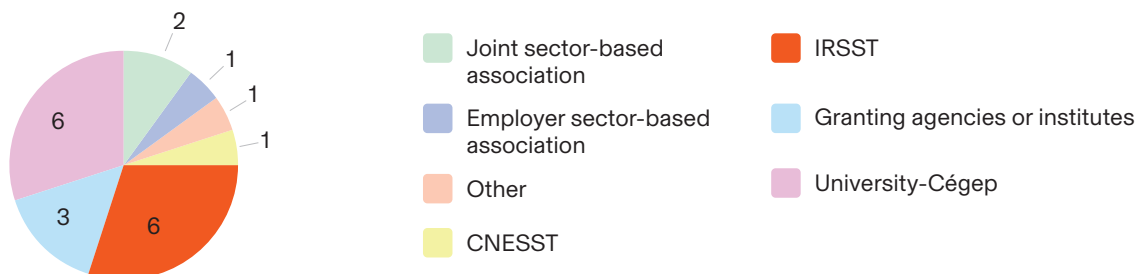


8 thematic committees, 12 meetings, 111 representatives and 31 joint organizations

- ▶ Diversity
- ▶ Personal protective equipment
- ▶ Prevention management in OHS
- ▶ Collective measures
- ▶ Prevention of chemical and biological risks
- ▶ Work-related psychosocial factors
- ▶ Prevention of MSDs
- ▶ Sustainable return-to-work process

20 expert reports under way (8 completed)

Annual numbers of KnowMob activities by type of requestor 2023



Documentation Centre

Strategic OHS watch activities

The IRSST’s Documentation Centre, in collaboration with scientists, performs a systematic lookout for information on various OHS-related topics. The results are disseminated to support work and decision making, while providing people active in the OHS community with access to new knowledge.

Two new strategic watch activities were carried out and the results disseminated in 2023:

- ▶ OHS research
- ▶ Psychological health in the workplace



Bibliographic searches

The Documentation Centre responds to IRSST staff members’ requests for background information. In 2023, the Centre’s team handled over 30 such requests, including 18 for bibliographic searches in the context of literature reviews.

Training

Training sessions are given on the use of the bibliographic reference management software EndNote, and on the Institute’s bibliographic style:

- ▶ 11 training sessions were given in 2023;
- ▶ 25 employees were trained on the Centre’s service offerings.

Greater visibility

Knowledge transfer is an integral part of the IRSST's organizational priorities. This means that, in addition to disseminating knowledge to the scientific community, the Institute goes a step further to ensure that the results of its work can be accessed, understood and used by its partners and by workplaces. It also reaches out to the general public through multiple channels, including radio, television, newspapers and digital platforms.

Facteurs de risque

The *Facteurs de risque* series, produced by Savoir média in collaboration with the IRSST, has been a resounding success since its 2020 launch, tallying nearly **3 million views** on the various platforms. Two complete seasons are available for viewing on both the Web and television. A third season was under production in 2023.

Here are the statistics for the second season of the series (for 2023 only):

- ▶ The episodes of seasons 1 and 2 were broadcast **347** times on television, attracting **436,099** viewers.
- ▶ Segments (excerpts, complete episodes) posted on YouTube in 2023 were viewed by **8,576** people.
- ▶ The savoir.média platform recorded **19,551** views.

In addition to *Facteurs de risque*, the IRSST's scientists gave numerous interviews in the media, including Radio-Canada, *La Presse* and *Le Devoir*. This resulted in **123** mentions in the traditional media, on social networks and Web sites and in the newsletters of various organizations, as well as in **22** requests for interviews or information. The Institute also entered into agreements with specialized media, notably with the magazine *Constructo spécial SST* in Québec, and with *SST Mag* and the magazine *PréventionBTP* in France.



François-Étienne Paré and Bertrand Galy during filming of the *Sur le chantier* episode



A new podcast project, titled *La SST expliquée* and hosted by François-Étienne Paré, the host of the three seasons of *Facteurs de risque*, was under production in 2023, with an anticipated launch in 2024.

Outreach and impact

In addition, **68** dissemination activities in the "Headlines" section of the IRSST's Web site were also featured on the Institute's social media networks. These activities included various announcements of such things as appointments, as well as notices of publication of new studies, mobilization documents and the outreach initiatives of our scientists on various platforms.

The IRSST also organizes and participates in events that lend themselves to disseminating OHS knowledge. In 2023, the *Rendez-vous de la science* (RVS) program included **11** sessions (some offered in hybrid mode), each attracting an average of over 100 people.

A special webinar on the scientific principles behind the calculation of the sum of the fractions in a mixture (Rm) drew over **131** participants on November 28, 2023.

The IRSST hosted its information stand at **seven** events in 2023: the Congress of the Association québécoise pour l'hygiène, la santé et la sécurité du travail (AQHSST), the CNESST's *Grand Rendez-vous* in Québec City and Montréal, two regional CNESST colloquia, *the Acoustics Week in Canada conference* and the *Grand Rendez-vous des chimistes et biochimistes*.



OHS explained



Prévention au travail

The magazine *Prévention au travail*, a joint CNESST/IRSST publication, is issued four times a year. The year 2023 marked an important turning point, with the final edition of the paper version. As of 2024, the content will be available on the Web only. New features included in 2023 were the "BD de l'IRSST" section, which disseminates information in a fun and simplified way. **Four** cartoon strips were produced during the year, each accompanied by a simplified article, a welcome initiative taken by the Communications and Knowledge Mobilization Department.



Illustration: Chloloula

ADMINISTRATIVE SUPPORT SERVICES

Human resources division

The IRSST's personnel are its main asset, with their expertise in a wide range of disciplines, including ergonomics, anthropokinetics (kinanthropology), biomechanics, industrial hygiene, physics, chemistry, biology, microbiology, toxicology, epidemiology, engineering, anthropology, demography, psychology, management and economics. As at December 31, 2023, there were **144** people on staff, two-thirds of whom were scientific personnel, including **20** researchers, **54** professionals and **25** technicians.

In 2023, the Institute filled **8** permanent positions and hired 15 other people to meet one-off needs. It also welcomed **32** trainees (master's, doctoral and postdoctoral students) to its offices and laboratories, as well as collaborators and a guest professor.

In terms of internal succession, **Loïc Wingert** was appointed a researcher in the Research Department, and **Simon Aubin** was offered a research position after obtaining his PhD in chemistry.



Loïc Wingert



Simon Aubin

"Healthy Enterprise"

In its efforts to offer a stimulating, healthy and safe work environment, the IRSST created the Healthy Enterprise Committee, whose mission is to promote organizational practices conducive to the health of the Institute's personnel and of the organization.

The committee conducts a bi-annual survey of all IRSST employees to collect information on their needs and concerns and thereby determine its intervention priorities. Once analyzed, this information guides the development of the annual action plans.

The 2023 action plan was therefore based on the results of the 2022 survey. It proposed a number of interventions, notably the need to anticipate mechanisms for ensuring the more effective intergenerational transfer of competencies.

In the same spirit, all staff members were invited to a "Continuous Improvement Day" on September 28. It provided an opportunity for discussion and sharing in the context of workshops on challenges, actions and our collective and individual responsibilities for building a more stimulating, healthier and safer work environment.



**2022-2025
STRATEGIC
PLAN**

Finance and Procurement Division

The 2023 year was highlighted by completion of the migration to Virtuo, the physical and financial resources management software, in hosted mode. This step enables the IRSST to improve and modernize its management and work tools, particularly by integrating the Documentation Centre into the procurement process.

The Physical Resources team worked on improving several existing procedures and on implementing new ones. Examples include the retrofitting of the stockroom, procurement of a leased car for field outings and membership in the carsharing company Communauto.

Lastly, the computer-aided maintenance management system was brought into service. The maintenance team for electromechanical equipment continued its work of maintaining optimal operating conditions for our various infrastructures.



Information Technologies Division

In terms of IT, 2023 was marked by the introduction of a Cloud-based automated-office solution aimed at facilitating work and inter-user collaboration, as well as data storage and protection. In addition, one of the new strategic IT orientations was designed to strengthen each of the IRSST's administrative divisions, taking concrete form with the creation of the OHS Data and Statistics Observatory.



HIGHLIGHTS

Outreach and Impact

A new visual identity

On May 2, 2023, the IRSST adopted a new visual identity conveying a modern image consistent with its values and orientations as set forth in its strategic plan. The Institute chose orange as the main colour due to its association with prevention and safety. The main component of this new visual identity is a new logo, graphically depicted in a strong and meaningful symbol. The IRSST deployed its new colours on all its digital and traditional platforms.



Lyne Sauvageau, CEO of the IRSST,
and Emmanuelle Legault, CEO of the Palais
des congrès

Agreement between The Palais des congrès de Montréal and the IRSST

The Palais des congrès de Montréal and the IRSST renewed their partnership agreement for the next three years. The aim of this agreement is to provide a framework for and coordinate the actions and resources of the two partners, ultimately to further the outreach and impact of occupational health and safety research by holding major gatherings and conferences in Montreal.

Lectures and Events

In Québec

CNESST events

The IRSST participated in the two *Grands Rendez-vous de la CNESST*, one in Québec City and the other in Montreal. On May 3, 2023, the Québec City event gave the Institute the opportunity to unveil its new organizational colours in the exhibitors' hall. The Minister of Labour, **Jean Boulet**, also promoted the IRSST's achievements in his opening remarks. He stated that he was making it his mission to introduce the organization to a large number of people, and described the extent to which research and knowledge deriving from the work of the Institute's scientists contributed to OHS innovation in Québec.

Then, on November 2, 2023, the IRSST was present at the second *Grands Rendez-vous*, this time in Montreal in the exhibitors' hall, where **Bertrand Galy**, an advisor



Visite de M^{mes} Louise Otis et Manuelle Oudar
au stand de l'IRSST

in the Institute's Research Department, gave a lecture. It was titled *Harnais de sécurité : confort en suspension et lors de mouvements contrôlés* [safety harnesses: comfort during suspension and controlled movements].

On October 19, 2023, IRSST researcher **Damien Burlet-Vienney** gave a lecture at the *Colloque régional en santé et sécurité du travail du Saguenay-Lac-Saint-Jean – Chibougamau Chapais 2023*. Titled *Interventions en espaces clos : Modifications réglementaires (RSST) et réduction des risques à la conception* [confined space interventions: regulatory amendments (ROHS) and risk reduction at the design phase], his lecture was delivered in collaboration with **François Granger** from the CNESST in the context of amendments made to the *Regulation respecting occupational health and safety* (ROHS) with regard to confined spaces. These amendments came into force on July 25, 2023.

Acfas

The IRSST's Research Division and Chief Scientific Officer, **Alain Marchand**, organized two scientific colloquiums, accessible both online and in person, and underscoring the importance of the 90th *Congrès de l'Acfas*. The first colloquium concerned *occupational health and safety and the issues it poses for research*, while the second concerned *quality of life, health and well-being at work and how to identify and prevent psychosocial risks in the workplace*. Many IRSST experts gave talks, notably **Daniel Côté**, **Sabrina Gravel**, **Hugues Nélisse**, **Sabrina Jocelyn**, **Alessia Negrini** and **Samantha Vila Masse**, as well as the IRSST's CEO, **Lyne Sauvageau**.

During two other colloquiums at the Acfas Congress, IRSST researchers gave the following presentations:

- At the colloquium concerning sustainable return to work in a fast-changing world, its issues, and possible solutions, **Bénédictte Calvet** gave a presentation on managing prevention in a changing world and the points to consider in transitioning toward to new forms of work organization.
- At the colloquium concerning interdisciplinary and intersectoral reflections on social and gender inequalities in occupational and environmental health, **Caroline Jolly** gave a presentation on the impact of the external environment in farming on owner-operators' exposure to pesticides. For his part, **Daniel Côté** took part in the round table focussed on blind spots in the research conducted with and for populations in vulnerable occupational health and environmental health situations.



Alain Marchand



Daniel Côté



Sabrina Gravel



Hugues Nélisse



Sabrina Jocelyn



Alessia Negrini



Samantha Vila Masse



Lyne Sauvageau



Bénédictte Calvet



Caroline Jolly

AQHSST 2023

IR SST scientists took part in the *Congrès annuel de l'AQHSST*, where they talked about our new laboratory services, research results, strategic watch and knowledge mobilization activities, and practices based on research conducted with OHS professionals. **Delphine Lanoie**, **Pierre-Luc Cloutier**, **Sébastien Gagné** and **Maude Pomerleau** were thus present at the conference in Trois-Rivières on May 11 and 12, 2023, where they gave lectures and hosted the IR SST's stand.



Delphine Lanoie



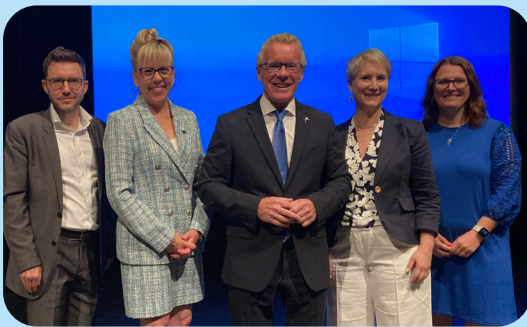
Pierre-Luc Cloutier



Sébastien Gagné



Maude Pomerleau



Daniel Côté, Isabelle Poulet, Jean Boulet, Lyne Sauvageau, Jessica Dubé

IDIVOSH 2023

IR SST researchers **Jessica Dubé** and **Daniel Côté** were the initiators and co-chairs of a global forum on immigration, workforce diversity, precariousness and vulnerabilities in OSH (IDIVOSH). At the event, which was also made possible thanks to the work done by IR SST staff members **Ai-Thuy Huynh** and **Maura Tomi**, the opening remarks were delivered by Minister of Labour **Jean Boulet**, CNESST President and CEO **Manuelle Oudar**, and IR SST President and CEO **Lyne Sauvageau**. The IDIVOSH forum was a resounding success, with 130 participants in attendance. It led to the drafting of the *Montreal Declaration on Precarious Work, Workforce Diversity, International Migration, and Occupational Health and Safety*, which ended with a series of recommendations.

CIGI Qualita MOSIM

The *Congrès CIGI Qualita MOSIM*, a special forum for exchange among members of the francophone industrial engineering community, was held at Université du Québec à Trois-Rivières in June 2023. **Damien Burlet-Vienney** and **Sabrina Jocelyn** sat on the scientific committee of this international conference.

Acoustics Week in Canada

The *Acoustics Week in Canada* conference was held in Montréal from October 3 to 6, 2023. The Institute was represented by a team of researchers specialized in the fields of acoustics and vibrations. It was made up of **Franck Sgard**, **Hugues Nélisse** and **Pierre Marcotte**, accompanied by scientific professionals **Fabien Bonnet** and **Luiz Melo**. The IR SST's laboratory services were also showcased at this annual event, where **Mourad El Haidaoui** and **Pierre Beaudoin** hosted a stand devoted to instrument calibration.

In his capacity as Scientific Director of the conference, **Thomas Padois** played a major role in organizing the event and in its success.



Pierre Beaudoin, Thomas Padois, Hugues Nélisse, Franck Sgard

In Canada

Occupational Cancer Research Centre (OCRC)

The OCRC invited IRSST researcher **Philippe Sarazin** to participate in a workshop held in Toronto on March 6 and 7, 2023 on the theme "Advancing Workplace Exposure Surveillance in Canada". His presentation was titled *The IRSST's Exposure Surveillance Efforts and Potential Uses of the OSHA's IMIS and IRSST's LIMS Databases*. The event brought together a number of occupational health and safety professionals from across Canada.



Philippe Sarazin

Internationally

Organizational Design and Management Conference (ODAM)

Bénédicte Calvet and **Caroline Jolly**, both IRSST ergonomics researchers, took part in the ODA M 2023 conference held in Bordeaux, France, from June 11 to 13, 2023. This international conference on the work of management personnel – a topic too often neglected in research – examined the contribution of ergonomics to an understanding of their working conditions and to the development of possible courses of action for offering better support to these actors in organizations.



Bénédicte Calvet



Caroline Jolly

International Commission on Occupational Health (ICOH)

IRSST researcher **Sabrina Gravel** and research professional **Maude Pomerleau** participated in the 12th International Symposium on Biomonitoring in Environmental and Occupational Health. The symposium was organized by the Scientific Committee of Occupational Toxicology (SCOT) of the International Commission on Occupational Health (Commission internationale de la santé au travail – ICOH-CIST), and held in Porto, Portugal, from June 21 to 23, 2023. **Sabrina Gravel** gave a presentation titled "Association between air and biological concentrations of flame retardants from e-waste recycling facilities," while **Maude Pomerleau** presented a scientific poster titled *How to determine Biological Limit Values? Development of a decision diagram for occupational health purposes*.



Sabrina Gravel



Maude Pomerleau

Congrès de l'AIPTLF (Association internationale de psychologie du travail de langue française)

IRSST researcher **Alessia Negrini** and scientific professional **Samantha Vila Masse** participated in the 22nd Congrès de l'AIPTLF, held in July 2023. This major international event gave them an opportunity to present the results of IRSST-funded studies; to share knowledge and ideas on priority themes such as the evaluation psychosocial risks, work organization, demographic changes and the use of new technologies in occupational injury prevention; and to strengthen their international collaborations.



Alessia Negrini



Samantha Vila Masse

Appointments

A new Chair of the Board of Directors

On December 14, 2023, the IRSST's Board of Directors welcomed a new Chair: **Louise Otis**. Also Chair of the CNESST's Board of Directors, Madame Otis brings vast experience with her, notably as a mediator and judge in civil and commercial matters. Manuelle Oudar, President and CEO of the CNESST, was named Vice-chair of the IRSST's Board of Directors.



Louise Otis



Noémie Boucher

IRSST Directors

- **Noémie Boucher** was named Director of the Communications Department on March 13, 2023.
- **Marie-France Duranceau** was appointed Director of the Strategic Watch and Knowledge Mobilization Division on June 19, 2023.



Marie-France Duranceau



Alireza Saidi

Teaching faculty

- **Alireza Saidi**, IRSST researcher, had his status as adjunct professor renewed at Université du Québec à Trois-Rivières.
- **Philippe Sarazin**, IRSST researcher, saw his status as adjunct professor renewed in the Department of Environmental and Occupational Health at Université de Montréal's School of Public Health.
- **Pierre Marcotte**, IRSST researcher, was named adjunct professor in the Department of Mechanical Engineering at École de technologie supérieure (ÉTS).
- **Sabrina Gravel**, IRSST researcher, was appointed adjunct professor in the Department of Environmental and Occupational Health at Université de Montréal's School of Public Health.
- **Alessia Negrini**, IRSST researcher, had her mandate as adjunct professor renewed in the School of Rehabilitation at Université de Sherbrooke.
- **Bénédicte Calvet**, IRSST researcher, was named adjunct professor in the Department of Physical Activity Sciences at Université du Québec à Montréal.
- **Loïc Wingert**, IRSST researcher, was appointed adjunct professor in the Department of Environmental and Occupational Health at Université de Montréal's School of Public Health.



Philippe Sarazin



Pierre Marcotte



Sabrina Gravel



Alessia Negrini



Bénédicte Calvet



Loïc Wingert

Official Recognition

Congratulations from the editor

The editor of the *American Journal of Industrial Medicine* sent a letter congratulating the authors of the article titled "A rapid scoping review of COVID-19 and vulnerable workers: Intersecting occupational and public health issues." He underscored that it was one of the most cited articles, "having generated an immediate impact in your community." The article was written by IRSST researcher **Daniel Côté** with the collaboration of the following: **Steve Durant, Ellen MacEachen, Shannon Majowicz, Samantha Meyer**, scientific professional **Ai-Thuy Huynh**, and researchers **Marie Laberge** and **Jessica Dubé**.

Prix Louise-Dandurand

Bénédicte Calvet, IRSST researcher, received the Prix Louise-Dandurand in September 2023. She earned this recognition, together with a \$2,000 scholarship, for her article titled "Étude de la prévention intégrée visant la coordination des actions de prévention primaire, secondaire et tertiaire dans un établissement québécois de grande taille" [study of integrated prevention aimed at coordinating primary, secondary and tertiary prevention activities in a large Quebec establishment]. This prize is awarded by the Fonds de recherche en santé publique du Québec – Société et culture for a scientific publication in French.

An article in JASA

In spring 2023, the article "Acoustic imaging with spherical microphone array and Kriging" by **Thomas Padois, Hugues Nélisse** and **Franck Sgard**, made the cover of the *Journal of Acoustical Society of America (JASA)*.



Research grants

IRSST researchers **Geneviève Marchand** and **Loïc Wingert**, in collaboration with their university partners **Benoît Barbeau** from UQAM and **Benoît Barbeau** from Polytechnique Montréal, as well as the company ADSOL, shared a grant of one million dollars in the context of the *COVID-19: Reducing Airborne Transmission of Respiratory Viruses in Buildings Lacking a Mechanical Ventilation System* challenge. The National Research Council (NRC) sponsored this challenge as part of its Innovative Solutions Canada program, dedicated to COVID-19.

IRSST researcher **Ali Bahloul** and **Romain Guichard**, head of the Laboratoire d'ingénierie aéronautique in the Department of Process Engineering at the INRS (France), obtained a grant in the European ERIES competition. This assistance provides both researchers and their teams with access to the Atmospheric Boundary Layer Wind Tunnel at the Eindhoven University of Technology in the Netherlands. Funded by the European Union, the ERIES (Engineering Research Infrastructures for European Synergies) competition is designed to offer transnational access to research infrastructures in various European countries.

WorkSafeBC awarded funding of \$140,000 to an IRSST team headed by **Simon Aubin**, researcher, and composed of chemists **Pierre-Luc Cloutier** and **Sébastien Gagné**, as well as **Loïc Wingert**, researcher and expert in aerosol metrology. This funding will allow the project titled *Method development and validation for the evaluation of airborne TDI according to IFV notation*, to be carried out. Its aim is to develop and validate a method for evaluating toluene diisocyanate (TDI) vapors according to IFV notation (inhalable fraction and vapor), as defined by the American Conference of Governmental Industrial Hygienists (ACGIH®). This IFV notation has been included in Québec's *Regulation respecting occupational health and safety* (ROHS) since 2020.



Geneviève Marchand



Loïc Wingert



Ali Bahloul



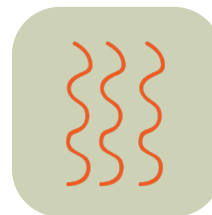
Simon Aubin



Pierre-Luc Cloutier



Sébastien Gagné



Student delegation

In early May 2023, the IRSST welcomed a delegation of 16 students from the Institut de Management de Champagne-Ardenne – IMCA, part of Université de Reims. This visit took place during a study week in Québec, giving the group a short-term opportunity to discover another culture of care and support for vulnerable populations, as well as another prevention and occupational safety culture. The second objective of this mission was to ensure the continuation of exchanges, which could take the form of institutional partnerships involving training programs and research on quality of life in the workplace.

Expertise sought

Two CNESST guides were published in 2023 with the active participation of IRSST researchers: the guide titled *Protecteurs fixes et distances de sécurité – Prévention des risques mécaniques* [fixed guards and safety distances – preventing mechanical risks], was prepared with the help of **Laurent Giraud**, while the guide titled *Prise en charge du bruit en milieu de travail – Guide sur la sélection et l'utilisation des protecteurs auditifs* [noise management in the workplace – guide for selecting and using hearing protectors], was prepared with **Hugues Nélisse** participating.



Hugues Nélisse



Laurent Giraud

2022-2025 Strategic Plan

Written under the theme *The IRSST, proud creator and communicator of knowledge*, the Institute's 2022-2025 Strategic Plan provides an updated version of its mission, vision and values. It also defines the Institute's main areas for development over this four-year period.

The following pages present an overview of the progress made in 2023 in terms of the strategic orientations.



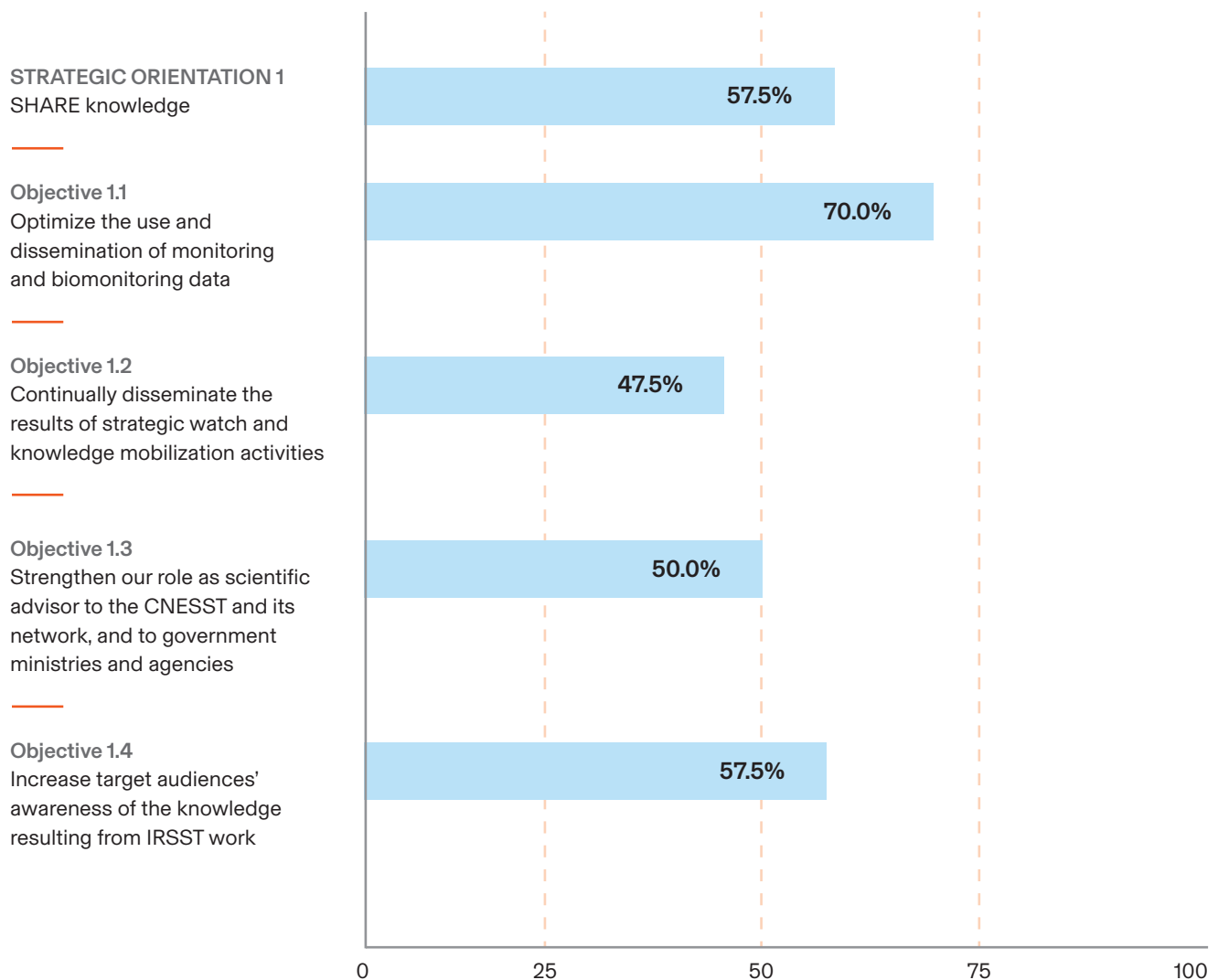




SHARE knowledge

STRATEGIC ORIENTATION 1

Percentage completion of Strategic Plan objectives based on activities carried out in 2022 and 2023



**Percentage completion of
2022-2025 Strategic Plan: 50%**

SHARE knowledge

STRATEGIC ORIENTATION 1

Objective 1.1

Optimize the use and dissemination of monitoring and biomonitoring data

- A prototype for the OHS Data and Statistics Observatory was completed thanks to the collaborative efforts of the Research Division and the Information Technologies Division.

Objective 1.2

Continually disseminate the results of strategic watch and knowledge mobilization activities

- The new director of the Strategic Watch and Knowledge Mobilization Division took up office and conducted a review of the division's practices and service offerings. Two new strategic watch newsletters were disseminated in 2023, adding to the two produced in 2022.

Objective 1.3

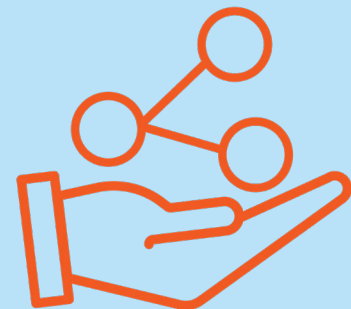
Strengthen our role as scientific advisor to the CNESST and its network, and to government ministries and agencies

- The IRSST's expertise was sought during the year on topics as varied as chromium exposure, the psychosocial risk factors index (CNESST), asbestos fibres in bitumen (Québec's Ministry of Transport and Sustainable Mobility), forest fire smoke (CNESST, Prévibois, Réseau de santé publique en santé au travail, Unifor and Métallos), asbestos-containing waste rock piles (Observatoire national sur l'amiante), and OHS issues associated with electric batteries (Hydro-Québec).

Objective 1.4

Increase target audiences' awareness of the knowledge resulting from IRSST work

- Efforts to reach various publics bore fruit, as evidenced in the broadcast of Season 2 and the production of Season 3 of the *Facteurs de risque* series, produced by Savoir média in collaboration with the IRSST. In the same vein, the Institute began work on a pilot podcast project.

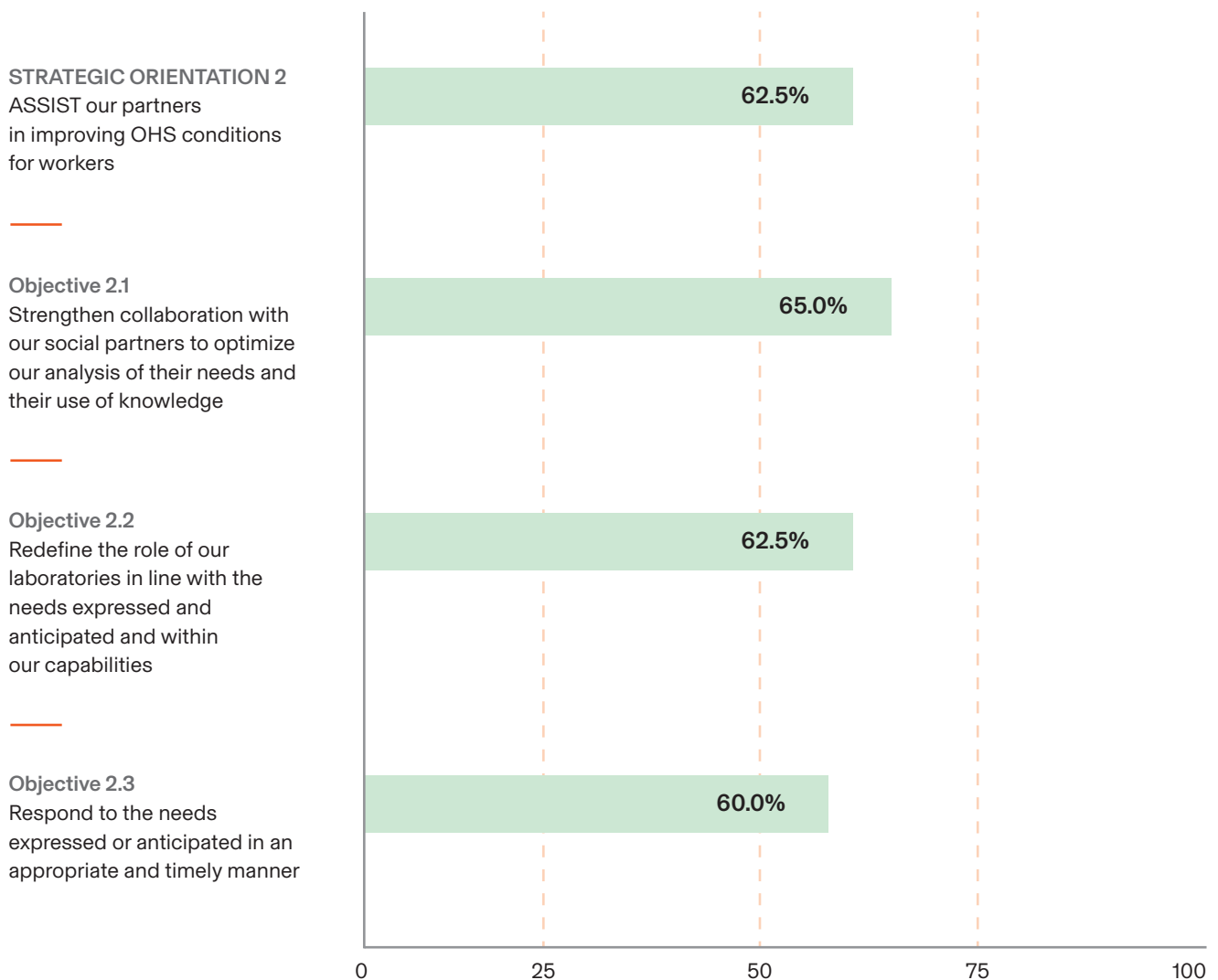




ASSIST our partners in improving OHS conditions for workers

STRATEGIC ORIENTATION 2

Percentage completion of Strategic Plan objectives based on activities carried out in 2022 and 2023



Percentage completion of
2022-2025 Strategic Plan: 50%

ASSIST our partners in improving OHS conditions for workers

STRATEGIC ORIENTATION 2

Objective 2.1

Strengthen collaboration with our social partners to optimize our analysis of their needs and their use of knowledge

- ▶ A review of the thematic committees' objectives and mandates was initiated in light of a consultation held with directors and executive directors of joint sector-based associations. This consultation was led by the new director of our Strategic Watch and Knowledge Mobilization Division.

Objective 2.2

Redefine the role of our laboratories in line with the needs expressed and anticipated and within our capabilities

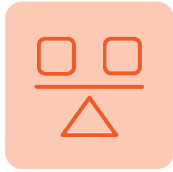
- ▶ The redefinition of the role of our laboratory services was mentioned in the "Our Laboratories" section (p. 20) of this activity report. The move to increase the scope of their service offerings stems from a high demand for training and support adapted to OHS professionals' needs. In addition, our laboratory personnel are becoming increasingly involved in applied research and innovation projects.

Objective 2.3

Respond to the needs expressed or anticipated in an appropriate and timely manner

- ▶ Responding to the expressed or anticipated needs required the development of new approaches, whether in terms of prioritizing themes or creating a mechanism for handling occasional requests from partners and workplaces. From the research standpoint, the reference framework was expanded to include updated research themes.

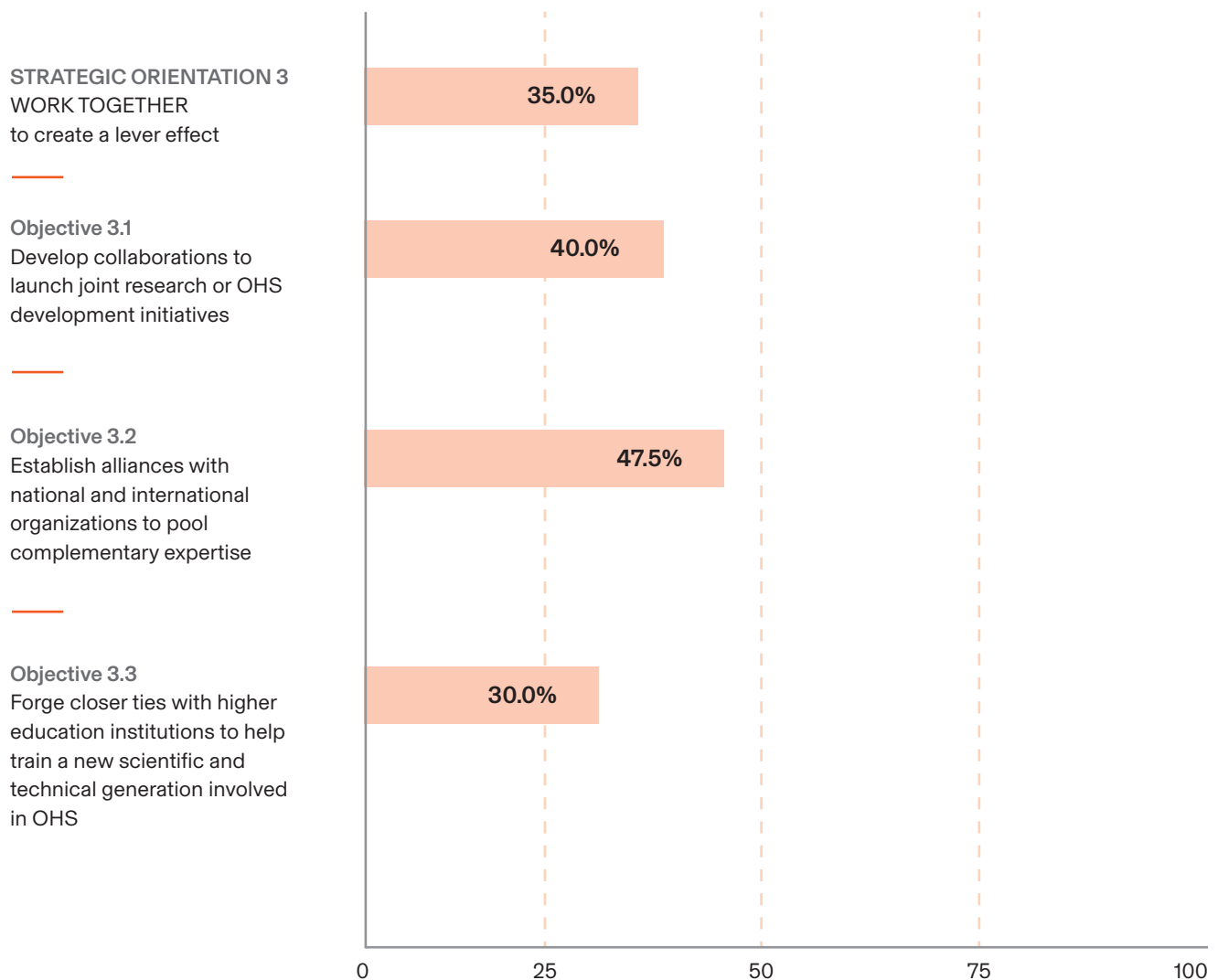




WORK TOGETHER to create a lever effect

STRATEGIC ORIENTATION 3

Percentage completion of Strategic Plan objectives based on activities carried out in 2022 and 2023



Percentage completion of
2022-2025 Strategic Plan: 50%

WORK TOGETHER

to create a lever effect

STRATEGIC ORIENTATION 3

Objective 3.1

Develop collaborations to launch joint research or OHS development initiatives

- Several initiatives were taken to further this objective. To improve our capacity to collaborate with public partners, the IRSST began the process of seeking recognition as a public research centre eligible for funding from Québec's Ministry of Economy, Innovation and Energy (MEIE). Two concrete achievements involving such collaborations warrant mention: Hydro-Québec (implementation of exoskeletons) and UQAM (sharing of a collaborative research infrastructure in aerovirology). With the creation of the public health/population health hub, a number of other possible collaborations now lie on the short- and medium-term horizons.

Objective 3.2

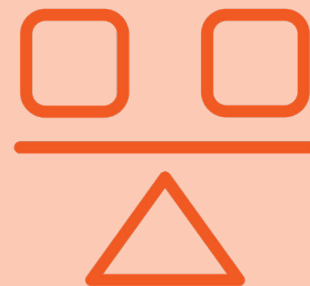
Establish alliances with national and international organizations to pool complementary expertise

- And with the end of the pandemic, collaborations resumed with various organizations: the Institute for Work and Health (Ontario), International Commission on Occupational Health (ICOH/CIST), International Labour Office of the International Labour Organization (ILO), and Université de Reims (France). The IRSST became involved in the brand-new global network Evidence for Work, which seeks to develop a methodological framework for conducting OHS knowledge syntheses for, and disseminating them to, the world of work.

Objective 3.3

Forge closer ties with higher education institutions to help train a new scientific and technical generation involved in OHS

- Exchanges continued with higher education institutions to offer conditions facilitating recognition of the teaching and supervision tasks carried out by IRSST scientists.

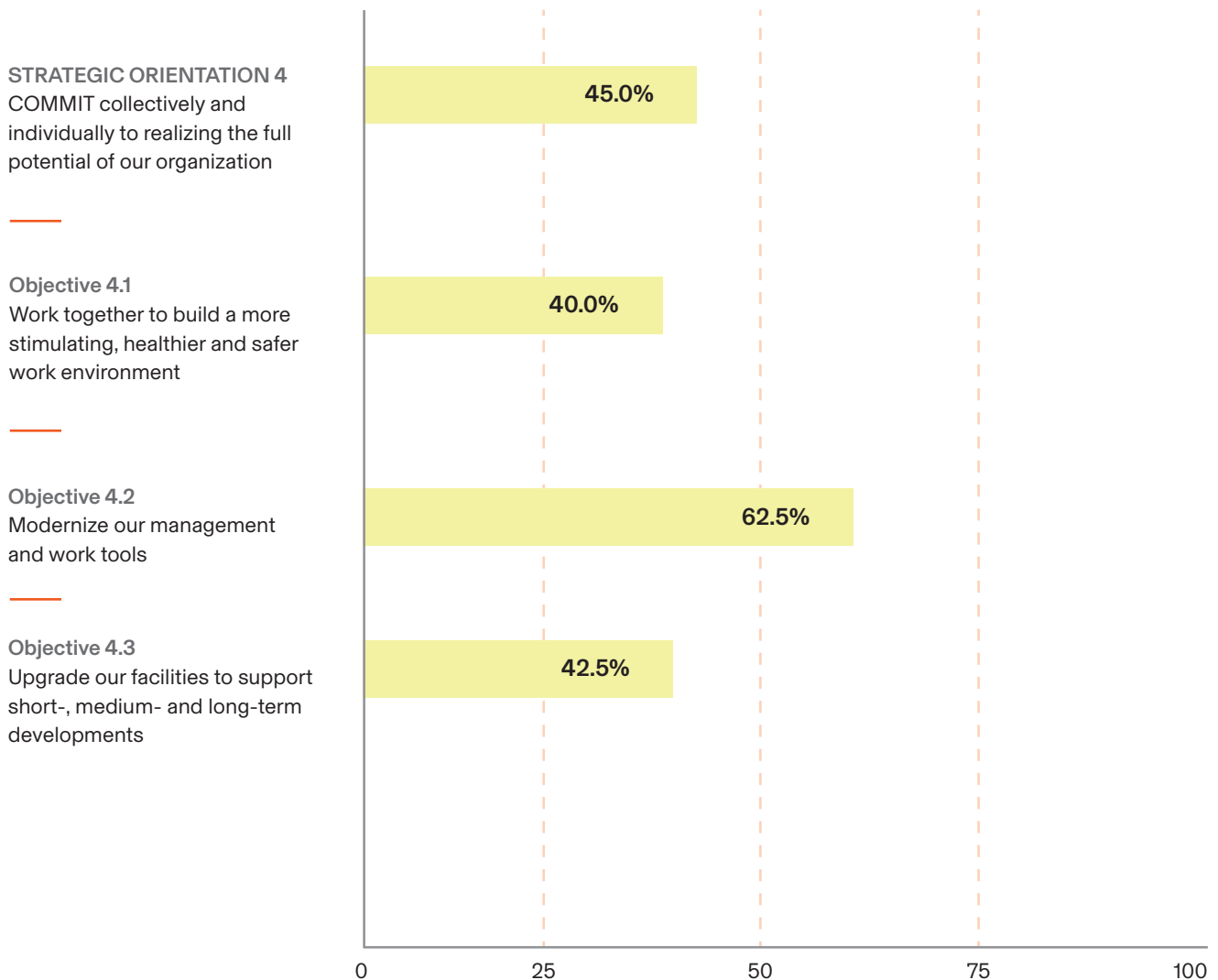




COMMIT collectively and individually to realizing the full potential of our organization

STRATEGIC ORIENTATION 4

Percentage completion of Strategic Plan objectives based on activities carried out in 2022 and 2023



Percentage completion of
2022-2025 Strategic Plan: 50%

COMMIT collectively and individually to realizing the full potential of our organization

STRATEGIC ORIENTATION 4

Objective 4.1

Work together to build a more stimulating, healthier and safer work environment

- Many of our employee mobilization efforts fall within our "Healthy Enterprise" process. Thus, the first annual action plan of the Healthy Enterprise Committee was launched, carried out, and evaluated in 2023. And a first "Continuous Improvement Day" was held in September to develop a culture of consulting all employees and of investing in a continuous improvement process. The resulting actions and suggestions were then incorporated into the 2024 action plan.

Objective 4.2

Modernize our management and work tools

- The year 2023 was marked by other new developments, including the introduction of a Cloud-based automated office solution (Microsoft 365) and the Synto™ platform. The migration and external hosting of software and applications (e.g. Virtuo) also continued, and was completed by year-end.

Objective 4.3

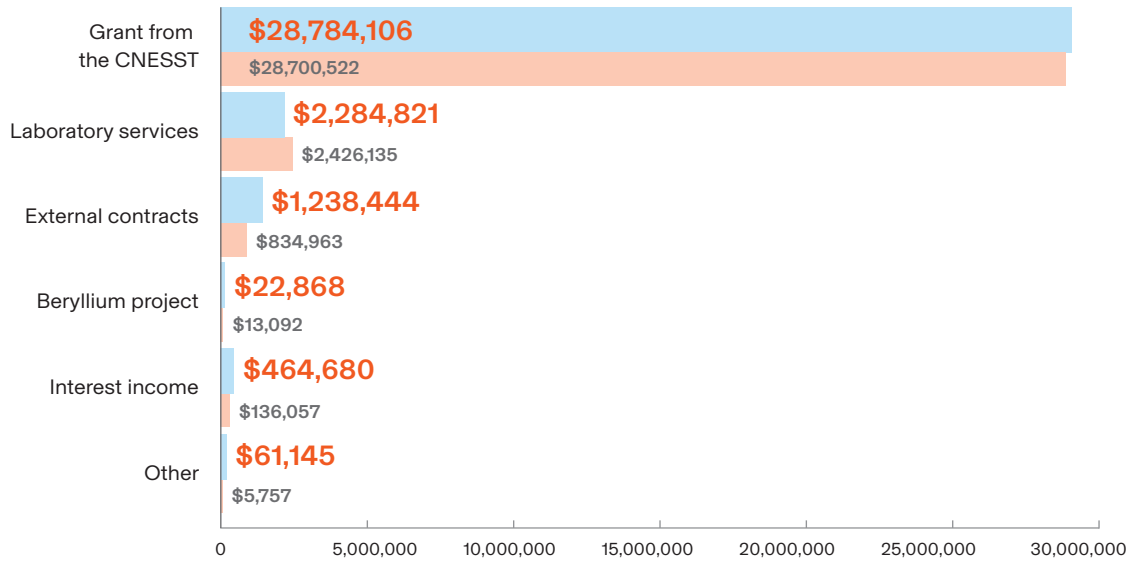
Upgrade our facilities to support short-, medium- and long-term developments

- We finished examining our need for new work premises and professional work spaces, using the recognized Activity-Based Workplace (ABW) approach for analyzing work activities. The IRSST also spared no effort to identify the real estate solution best suited to its needs and the achievement of its mission.

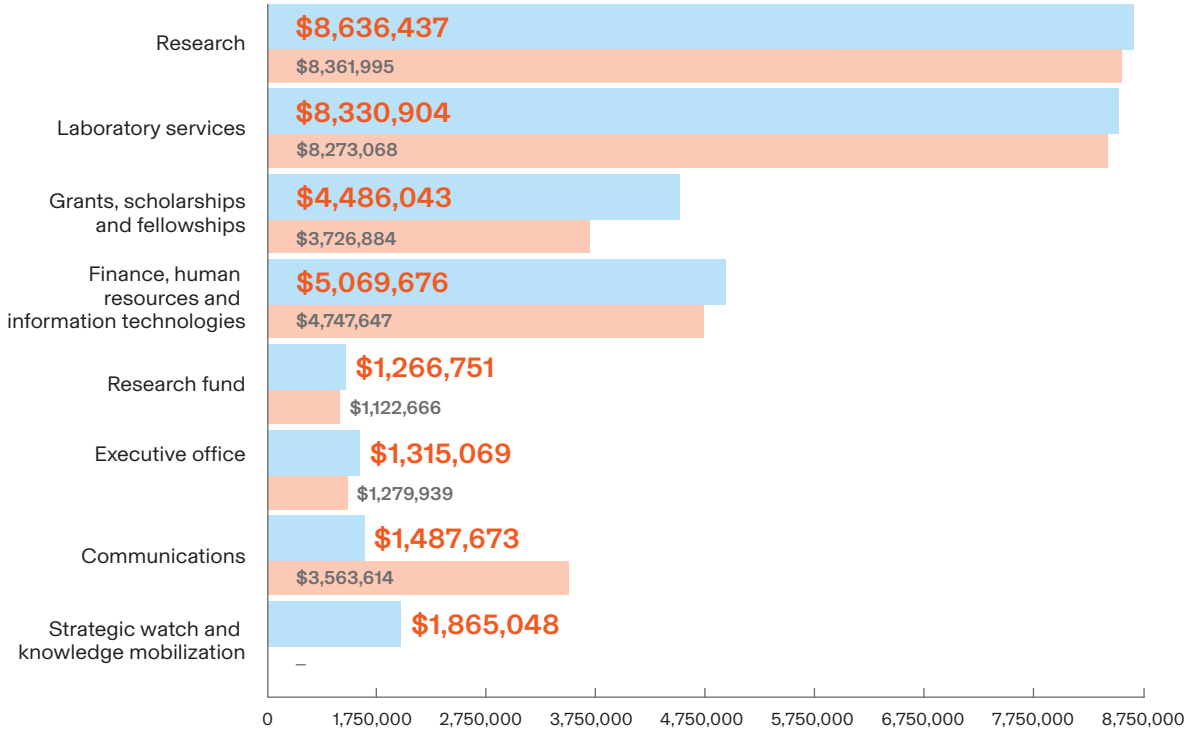


Financial Results

Total revenues of \$32,856,064 distributed as follows:



Total expenditures of \$32,457,601 distributed as follows:



Excess of revenues over expenses

2023 results
\$398,463

2022 results
\$1,040,713

GOVERNANCE

Board of Directors

A non-profit organization and registered charity, the Institute is a parity organization whose function is research in occupational health and safety. The Board of Directors determines the Institute's orientation, development framework, and funding. It is composed of the Chair, Vice-Chair, and **seven** representatives each of employers and workers, who also make up the Board of Directors of the CNESST.

The members of the Board of Directors met **three** times in 2023, while those of the Executive Committee met **nine** times.

* Members of the Administrative Committee
 ** Appointments

Chair

Louise Otis

Vice-Chair

Manuelle Oudar

Note that Ms. Oudar assumed the role of president from the Board of Directors until the appointment of Ms. Louise Otis, on December 14, 2023.

Employer representatives

Yves-Thomas Dorval*
 Anny Bienvenue
 Josée Méthot
 Alexandre Gagnon**
 Marie-Claude Perreault
 Charles Milliard*
 François Vincent

Worker representatives

Kaven Bissonnette
 David Bergeron-Cyr
 Magali Picard */**
 Dominic Lemieux
 Simon Lévesque
 Caroline Senneville*
 Carole Neill

Members of the Executive Committee

Executive Office
 Lyne Sauvageau

Observer

Caroline Clark**

Appointments

Magali Picard and Alexandre Gagnon

Departures

Daniel Boyer and Isabelle Leclerc

Scientific Advisory Board

A three-part advisory body, the Scientific Advisory Board (SAB) is composed of **four individuals** representing employers, **four** others representing workers and **six** members from the scientific and technical community. Chaired by the Institute's president and CEO, the SAB's role is to issue its opinion on the organization's general and budgetary orientations; the determination of its research priorities, programs and study projects; the awarding of its scholarships and fellowships; and its policies pertaining to how its scientific activities are conducted.

The SAB met **eight** times in 2023.

** Appointments

Chair

Lyne Sauvageau

Employer representatives

Lionel Bernier
 Josée Saint-Laurent
 Gilles Rousseau
 Marie-France Turcotte

Worker representatives

Hugo Desgagné**
 Denis Mailloux
 François Ouellet
 Benoît Laberge

Scientific and technical members

André-Pierre Contandriopoulos
 Denis Harrisson
 Joseph Hubert

Louise Millette**
 Sylvie Montreuil**

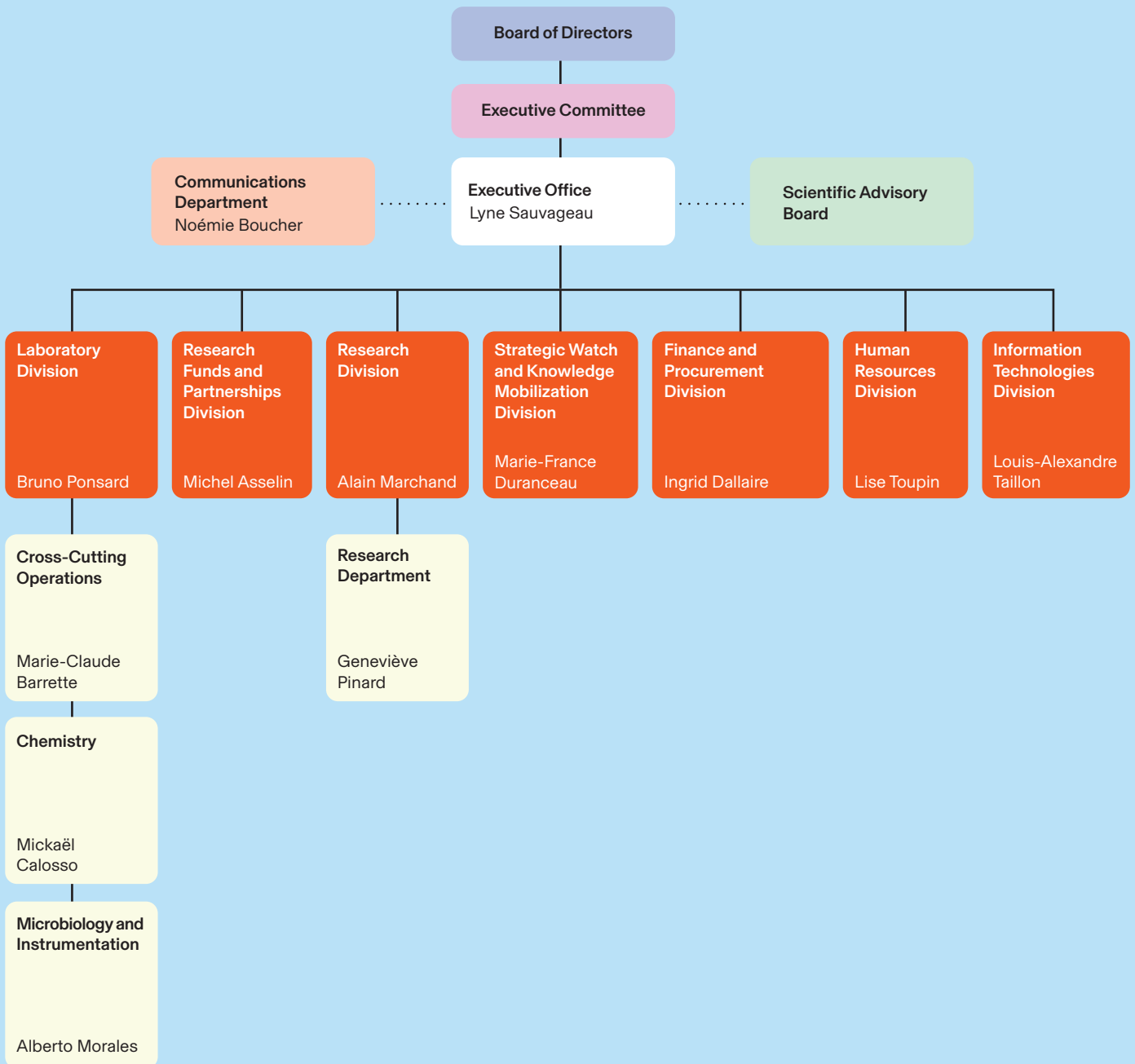
Observateur
 Mohamed Aiyar

Nominations
 Louise Millette
 Hugo Desgagné
 Sylvie Montreuil

Departures
 Alain Rondeau
 Benoit Lévesque

Organization Chart

As at December 31, 2023



IRSST

505 De Maisonneuve Boulevard West
Montréal, Québec H3A 3C2
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IRSST.QC.CA

Production

IRSST, Communications Department
Noémie Boucher, Director

Collaboration

Carole Bellazzi, François Hébert

English Translation

Leslie Macdonald

Revision

Maura Tomi

Graphic Design

Tabasko Communications

Photos

Hind Bouharra
Marc-Antoine Sicotte

