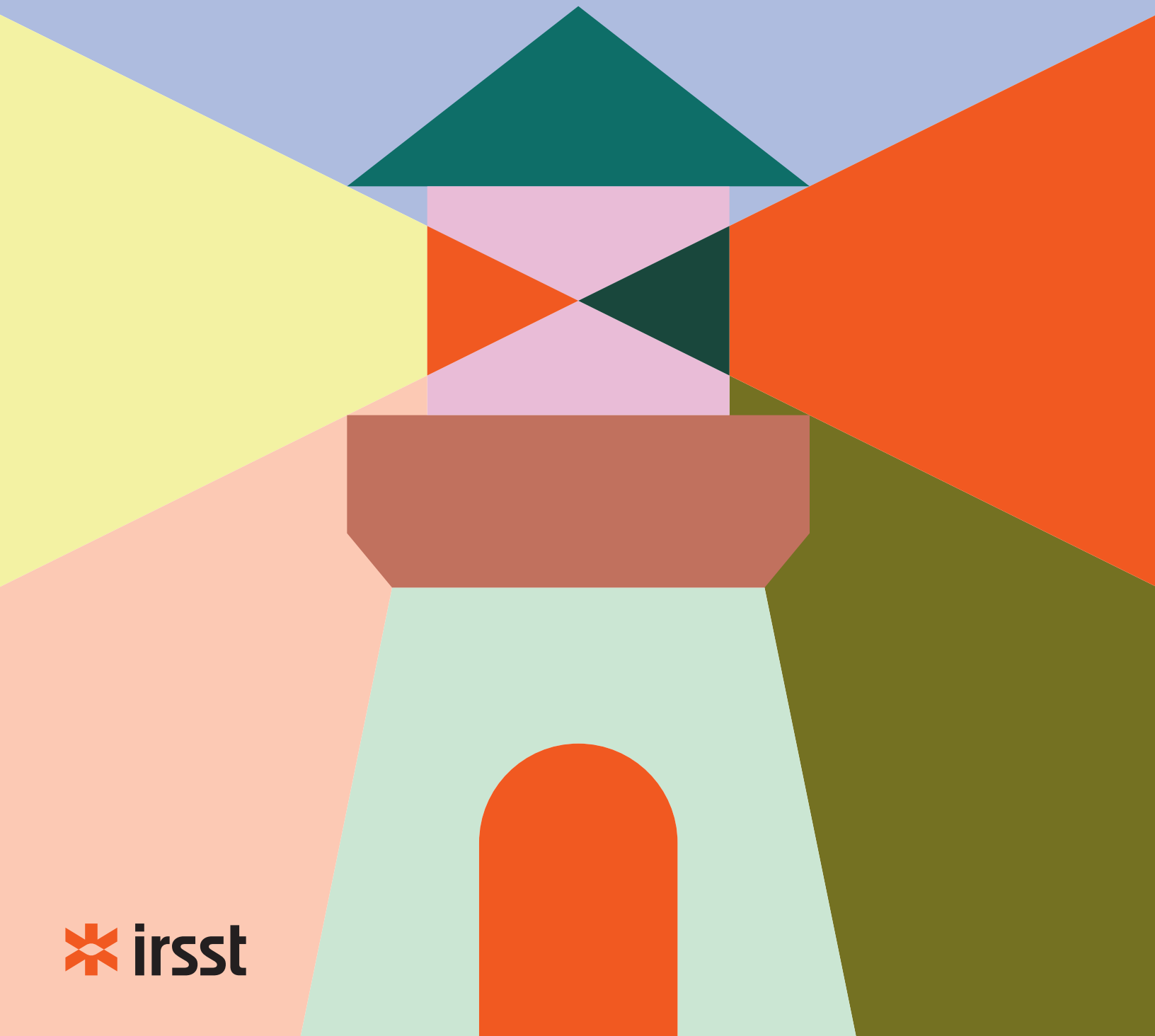
In Synergy with Workplaces

2022 Activity Report



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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, 2022. 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 2022 Activity Report faithfully describes the Institute's mission, vision and principal achievements.

Lyne Sauvageau

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Mission

In keeping with the spirt 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 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 President and CEO

Credit : IRSST

Lyne Sauvageau

The year 2022 marked the launch of our new strategic plan, which will remain in effect until 2025. Running under the theme *The IRSST, proud creator and communicator of knowledge,* this plan is the result of a long process of reflection and provides an updated version of our mission, vision and values. It also spells out the Institute's main areas for development over the next few years. To support this repositioning, the Institute also adopted a new visual identity, revealed for the first time in this activity report. It conveys a modern image consistent with the values and development areas mapped out in the new strategic plan. This redesign will position the IRSST more clearly in relation to its different stakeholders and help achieve the desired outreach and impact. It uses a powerful and highly significant symbol. First, the choice of colour is intentional: orange is the colour of prevention. Next, the graphic design highlights the Institute's perspective on occupational health and safety (OHS) issues, while underscoring the ways in which it pools knowledge and rallies OHS professionals in a collaborative effort to inform OHS action.

In addition to the changes made to the Institute's visual identity, 2022 was a year of many and varied achievements in terms of the Institute's four scientific levers: research; funding programs; laboratory services; and communications, strategic watch and knowledge mobilization. Allow me to mention a few. Early in the year, the arrival of a new colleague in the capacity of Research Director and Chief Scientific Officer allowed us to commence two major projects: laying the groundwork for a future OHS Observatory and redefining our research priorities. With regard to the Observatory, we hope to make it the reference centre for occupational health and safety statistics in Québec, and thereby to increase the prospects and potential for OHS studies and interventions. While obviously a long-term undertaking that will require the involvement of numerous partners, important strides were nonetheless taken during the year. These led to the development of a first prototype that should be ready in 2023. With regard to the redefinition of its research priorities, the Institute sought to inject greater agility into its practices. A participatory process in the form of workshops led by researchers, professionals and members of the Scientific Advisory Board thus resulted in the definition of new areas and themes for development that will guide the next grant competitions.

Speaking of grant competitions, after the temporary suspension and in-depth review of our methods of funding research, the IRSST adopted new rules and mechanisms for supporting projects or longer-term programs involving several interrelated projects. Fifteen new projects were retained and two new thematic programs headed by our internal teams were announced at year-end: *Bruit impulsionnel en milieu de travail* [impulse noise in the workplace] and *Promouvoir la protection respiratoire au travail par l'évaluation et l'amélioration des appareils de protection respiratoires* [promoting respiratory protection in the workplace by evaluating and improving respiratory protective devices].

Regarding our laboratories, the recent regulatory and legislative OHS amendments provided much food for thought, triggering in-depth reflection on the pertinence of maintaining the current modus operandi. The conclusion reached was that it would be prudent to redeploy a business model with greater emphasis on activities offering high added value for both our OHS partners and the research community. While the new business model has not yet been finalized, it will focus mainly on more sustained support for OHS practitioners and workplaces to help them adjust to the regulatory changes. New methods or services will also be developed in response to emerging needs, and our laboratory staff will be more systematically involved in applied research.

Lastly, many initiatives were taken to enhance our communications, strategic watch and knowledge mobilization efforts, beginning with the adoption of the new visual identity mentioned above. Initiatives were also taken to optimize our impact on various groups. Regular meetings held with each of the eight thematic committees gave us a better sense of our OHS partners' needs. This in turn enabled us to define better strategies for addressing these needs and to share relevant knowledge. Moreover, given the resounding success of the first season of the *Facteurs de risque* program, produced by Savoir média in collaboration with the IRSST, the Institute decided to continue this initiative by broadcasting a second season in 2022. This program constitutes an ideal way to reach the general public and shows the importance and relevance of the IRSST's research.

These are but a few examples of our many achievements. I therefore invite you to read this activity report, which describes the main highlights of 2022. I am proud of the work accomplished by all our teams, which clearly reflects the increased mobilization of the IRSST's personnel. I also wish to underscore the steadfast support and valuable contribution of our governing bodies, specifically, the members of our Board of Directors and Scientific Advisory Board, and to offer them a heartfelt thanks for their commitment to the Institute. The collaboration of each and every person is one of the essential conditions for achieving our mission.

Lyne Sauvageau

2022 in Numbers

Research

82 active and 15 completed research projects

2 research programs in progress

244 external researchers

from 28 universities, 17 research centres and 3 college centres for the transfer of technologies (CCTTs)

52 IRSST researchers and scientists

participated in research projects.

Scholarships and fellowships

33 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.

3 career scholarships

(Junior 1 level) in occupational health and safety were awarded jointly with the Fonds de recherche du Québec (FRQ).

Our laboratories

33,447

environmental, toxicological and microbiological analyses were performed in response to requests from our entire clientele.

Nearly 8,331 hours

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

Communications, strategic watch and knowledge mobilization

75 IRSST-produced materials

33 research and expertise reports, including **29** in French and **4** in English

8 guides and technical and awareness-raising tools in French

2 statistical profiles in French

8 laboratory methods, including **7** in French and **1** in English

10 videos (lectures and news reports)

14 segments in the *Facteurs de risque* series, including **6** *Facteurs de risque* episodes, **6** *Facteurs de changement capsules* and **2** *Extra* capsules

359 media activities

68 mentions in the traditional media

196 mentions on the social networks

32 mentions on Web sites and in external, non-IRSST newsletters

54 interview or information requests received by our specialists

9 news releases issued on the IRSST's Web site

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

39 peer-reviewed journal articles

6 articles published in conference proceedings

2 scientific posters presented at conferences

1 book chapter

28 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

21 simplified articles

+ 23 news briefs published in the "*Actualités*" column of the magazine

Web and social networks

627,523 sessions on the IRSST's Web sites

1,668,303 unique downloads of IRSST publications

77,764 views of IRSST-produced videos on our various platforms

7,033 subscribers to *InfoIRSST,* the Institute's electronic newsletter

29,584 subscribers to the IRSST's various social networks

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 2022, **97 research projects** were under way, with **15** of them reaching completion. Examples of studies whose results were published in 2022 are provided in this section.

Exposure to contaminants

Electronic waste recycling

Workers in electronic waste recycling companies perform dismantling and compacting activities that expose them, through airway, cutaneous and even oral routes, to sometimes-high concentrations of a mixture of potentially toxic chemical substances. A study by the IRSST's **Sabrina Gravel** and her team helped fill the gaps in data on the Canadian and Québec contexts. The scientists visited seven recycling companies located in six Québec regions to collect air, urine and blood samples from 100 workers. The results are presented in Report R-1155-fr, titled *Recyclage primaire des matières résiduelles électroniques au Québec : portrait de la santé et de la sécurité du travail et appréciation du risque sanitaire* [primary electronic waste recycling in Québec: portrait of occupational health and safety and health risk assessment].

Sabrina Gravel

Effectiveness of protective gloves

Polymer gloves are used for personal protection in many industries where chemical risks exist. In their IRSST-funded study, researcher **Marc-André Fortin** from the Centre de Recherche du CHU de Québec-Université Laval and his team sought to measure the passage of nanoparticles (NPs) through different types of polymer gloves, composed of nitrile or latex. The results documented in Report R-1162-fr, titled *Mesures à haute sensibilité du passage de contaminants nanométriques à travers les gants de protection par imagerie médicale* [highly sensitive measurements of the passage of nanometric contaminants through protective gloves, using medical imaging] demonstrate for the first time the application of nuclear imaging to the measurement of NP permeation through polymer membranes.

Guide sur la protection respiratoire

For workplaces that work with air contaminants or have an oxygen-deficient atmosphere, the quality of the air breathed by their workers is a major issue. The implementation of a respiratory protection program (RPP) is therefore essential, but developing such a program requires sustained efforts. Produced jointly by the IRSST's **Capucine Ouellet** and the CNESST's **Charles Labrecque**, the *Guide sur la protection respiratoire* (RG-1123-fr) supports workplaces in implementing a RPP.

Capucine Ouellet

Temperature variations

Adapting to climate change

Workplaces must necessarily be adapted to reduce workers' vulnerability to the dangers associated with climate change. This study sought to design adaptation measures that would protect their health and wellness despite the anticipated consequences of climate change. The results of this IRSST-funded study, led by a team at the Université de Montréal School of Public Health (ESPUM) under the direction of **Joseph Zayed**, are presented in two volumes, one focussing on individuals at greatest risk from the priority dangers arising from climate change (R-1169-fr), and the second, on the risks associated with the increased number of extreme-heat episodes caused by climate change (R-1170-fr).

Intelligent thermoregulation

Despite the standards governing working conditions and the advances made in developing more effective protective equipment, heat stress remains a major occupational health issue. In Report R-1172-fr, titled *État de l'art sur les technologies actuelles facilitant une gestion thermique intelligente dans les équipements de protection individuelle* [state of the art on current technologies facilitating intelligent thermoregulation in personal protective equipment], IRSST researchers **Alireza Saidi** and **Chantal Gauvin** documented all the current knowledge on these technologies. They provided a state of the art on today's commercially available systems and on developments achieved in earlier research work.

Alireza Saidi

Chantal Gauvin

On the road

What about pedestrian workers?

Pedestrian workers perform their tasks on foot on the road network, making them more vulnerable to work-related traffic accidents (WRTAs). Yet the scientific literature contains little information on their exposure to these risks. Report R-1143-fr, titled *Accident de la route au travail : qu'en est-il des travailleurs piétons ?* [work-related traffic accidents: what about pedestrian workers?], provides a better understanding of the determinants and circumstances of such accidents. Under the direction of **Marie-Soleil Cloutier** from the Centre Urbanisation Culture Société at the Institut national de la recherche scientifique (INRS), the research team produced a number of findings. One was that the main causative factors of WRTAs involving a pedestrian were inattention and distraction, as well as reckless driving or speed.

Noise and vibrations

Backup alarms

Workers in noisy work environments risk hearing loss. A research team composed of **Véronique Vaillancourt, Chantal Laroche** and **Christian Giguère** from University of Ottawa, and of **Hugues Nélisse** from the IRSST, evaluated the consequences of hearing loss on the perception and localization of backup alarms when combined with the wearing of hearing protectors. Their study results are presented in Report R-1171-fr, titled *Effet de la perte auditive et du port de protecteurs auditifs sur la perception et la localisation auditive des alarmes de recul* [effect of hearing loss and wearing hearing protectors on the auditory perception and localization of backup alarms].

Hugues Nélisse

Bertrand Galy

Performance of antivibration gloves

ISO 10819:2013 describes a method for evaluating the effectiveness of antivibration gloves. This method evaluates the transmission of vibrations to the palm of the hand, but does not take into account vibration transmission to the fingers, or how wearing these gloves affects manual dexterity and grip effort. Under the direction of IRSST researcher **Pierre Marcotte,** a scientific team developed a method for better evaluating the transmission of vibrations by antivibration gloves to the palm and fingers, taking into account the effect of wearing such protective gloves on both grip force and manual dexterity. We learn, in Report R-1147-fr, titled *Développement d'une méthodologie pour évaluer la performance des gants à isoler des vibrations en tenant compte de la dextérité ainsi que de la force de préhension* [development of a methodology to evaluate the vibration-absorbing performance of gloves, factoring in dexterity and grip strength], that the thicker the glove, the better the attenuation of vibration, but that the use of stiff materials for the glove shell leads to increased grip efforts and a longer time to perform manual dexterity tests.

Pierre Marcotte

Damien Burlet-Vienney

Laurent Giraud

Construction sector

Trench work

Trench work exposes workers to many risks. The most serious and frequent of these are cave-ins, which, unfortunately, are often underestimated. Scientists at Japan's National Institute of Occupational Safety and Health (JNIOSH) designed the Mini Pipe Strain Meter (MPSM) to monitor trench stability and wall failure. Although successfully tested in typical Japanese soils, it was not tested for other types of soils. IRSST researchers **Bertrand Galy** and **André Lan** therefore conducted tests on Québec soils to determine the MPSM's effectiveness in sensitive clay, which is present in over 80% of the inhabited territory in the province of Québec. The results, described in Report R-1124-en, titled *Field Test of the JNIOSH Mini Pipe Strain Meter as a Safety Alert System during Trench Work,* suggest that the MPSM could be used on Québec clay sites, but that this system must first be tested with other types of Québec soils.

The carrying out of a broader, related study, titled *Classification des sols et sélection des systèmes d'étançonnement pour l'excavation des tranchées* (R-1144-fr) [soil classification and selection of shoring systems for trench excavation], which was published in 2021, made R-1124 possible.

Lockout

A study on the control of hazardous energy and lockout, specifically in the construction sector, sought to improve understanding of current practices among four trade groups: electricians, refrigerationists, mechanics and pipefitters. The IRSST's **Damien Burlet-Vienney,** with **Yuvin Chinniah** and **Ayoub Nokra** from Polytechnique Montréal, produced Report R-1159-fr, titled *Contrôle des énergies dangereuses par cadenassage et par d'autres méthodes chez les électriciens, les tuyauteurs, les frigoristes et les mécaniciens du secteur de la construction* [control of hazardous energy through lockout and other methods among electricians, pipefitters, refrigerationists and mechanics in the construction sector]. They concluded that the application of regulatory requirements for controlling hazardous energy on construction sites in Québec varied mainly according to the type of work site.

Hazardous work spaces

Modernizing mine conveyances

A CNESST sub-committee mandated the IRSST to evaluate the emergency arrest systems of mine conveyances in use worldwide (safety catches and other systems). The ultimate aim was to modernize the safety catches required on mine conveyances in Québec. The three parts of the study titled *Modernisation des parachutes de transporteurs de mines* [modernization of safety catches for mine conveyances] – *1) État de l'art* [state of the art](QR-1156-fr); *2) Cas de la rupture du cable [hoist rope failure] (QR-1157-fr); and 3) Perte de contrôle du développement de la cage* [loss of control of the cage] (QR-1158-fr) – were carried out by the IRSST's **Laurent Giraud** and **Bertrand Galy** and were complementary. The reports provide all the information that is essential for individuals and companies using mine conveyances.

Confined spaces

Confined spaces pose various health and safety risks for workers, whether atmospheric, chemical, biological, mechanical or physical, or related to a fall or failure to respect ergonomic principles. Report R-1167-fr, titled *Réduction des risques lors des interventions en espace clos : Développement d'une base de connaissances sur la prévention intrinsèque et la protection collective* [confined space risk management: developing an inherently safer design and a collective protection (Isd-Cp) knowledge base], was produced with the expertise of the IRSST's **Damien Burlet-Vienney, Ali Bahloul** and **Capucine Ouellet,** and of **Yuvin Chinniah, Andrés Felipe González Cortés** and **Abdallah Ben Mosbah** from Polytechnique Montréal. It looks at the top-of-the-hierarchy risk control measures, i.e., measures to eliminate or reduce risks at the source, as well as collective protection measures. The content of this report offers workplaces and legislators alike a number of clear proposals specific to the confined space context.

Emergency services

Fatigue management

Night work and rotating shift work significantly disrupt sleeping and waking patterns. This in turn increases the risk of a drop in performance, as well as errors, work incidents and accidents, while also reducing worker productivity and damaging their health. A study conducted by **Diane B. Boivin** from McGill University laid the foundation for a tool for assessing fatigue-related risks that would help reduce the risk of work-related incidents and accidents among police officers. The relevant information is documented in Report R-1131-fr, titled *Système de gestion des risques liés à la fatigue pour les policiers en autopatrouille* [fatigue risk management system for patrol car officers].

The work of first responders during the pandemic

During the COVID-19 pandemic, front-line workers found themselves facing this public health crisis head-on and in increasingly vulnerable situations due to the nature of their tasks. Report QR-1154-fr, titled *Analyse du travail des premiers répondants en gestion de crise pandémique : maximiser la performance et la résilience* [analysis of the work of first responders in pandemic crisis management: maximizing performance and resilience], analyzes the work of police officers, paramedics and correctional officers in this context. Produced under the direction of **Sébastien Tremblay** from Université Laval, the report makes recommendations for maximizing the health, safety and resilience of these workers in any subsequent public health crisis. The document was the result of a study funded further to a spring 2020 call for proposals related to COVID-19.

The body at work

Margin of manoeuvre

In the work context, the concept of margin of manoeuvre is defined as the freedom workers have to adapt their ways of working to meet production targets. This margin must not have adverse effects on their health. In Report R-1149-fr, titled *Analyse du concept de marge de manœuvre en ergonomie du point de vue du contrôle de la motricité humaine* [analysis of the concept of margin of manoeuvre in ergonomics from the standpoint of human motor skill control], a research team composed of **Philippe Corbeil** from Université Laval, **André Plamondon** from the IRSST and **Denys Denis** from UQAM, enriched knowledge on this topic by documenting variations in the particular movements made by different material handlers, and further illustrated the relationship between the different ways of working and back loading.

A decision-making support tool for cases involving low back pain

Physical exercises help reduce pain and disabilities in people with non-acute low back pain, but the effects obtained are limited. To increase the efficacy of this type of intervention, it is important to identify which patients respond most favourably to each exercise method and for which reasons. Report R-1151-fr, titled *Dérivation de règles de prédiction clinique pour dépister les patients ayant une lombalgie non aiguë manifestant un succès thérapeutique lors d'un programme d'exercice de stabilisation lombaire* [deriving clinical prediction rules for identifying patients with non-acute low back pain who are most likely to achieve a successful outcome in a lumbar stabilization exercise program], produced under the direction of IRSST researcher **Christian Larivière,** reflects the broader interest in a lumbar stabilization exercise program (LSEP), an active exercise method that is gaining in both credibility and popularity.

Christian Larivière

Statistics

Statistical profile of employment injuries

The IRSST has been conducting statistical surveillance activities for over 35 years, using administrative data from the CNESST and Statistics Canada. The aim of this work is to identify the groups of workers and industry-occupational categories facing major OHS problems, as it provides invaluable information for planning research and prevention. Through the work of a team of IRSST scientists composed of **Marc-Antoine Busque, Martin Lebeau, Marilyn-Anne Tremblay, Alexandre Boucher** and **Patrice Duguay,** the Institute published Report S-1150-fr, titled *Portrait statistique des lésions professionnelles indemnisées au Québec en 2015-2016* [statistical profile of compensated workplace injuries in Québec in 2015-2016]. Its appendix, SA-1150-fr, titled *Portrait statistique des lésions professionnelles indemnisées au Québec en 2015-2016 : tableaux de classement par industrie-catégorie professionnelle* [statistical profile of compensated workplace injuries in Québec in 2015-2016: classification tables by industry-occupational category], was also posted online.

Marc-Antoine Busque

Martin Lebeau

New developments

Renewed prioritization process

With the naming of **Alain Marchand** to the post of Chief Scientific Officer of the Research Division, a process was launched to identify the areas and themes to be given priority. The members of the IRSST's Scientific Advisory Board and research staff were invited to participate in this process, aimed at pinpointing the priority study niches to which the IRSST hopes to make substantial contributions in the years ahead.

Alain Marchand

OHS Observatory under development

Signalling another new initiative, **Alain Marchand** and his Statistical Knowledge and Surveillance Group laid the groundwork for an eventual OHS Data and Statistics Observatory. While there is still much to be done, the preliminary steps of identifying the main sources of pertinent data, defining the categorization keys for matching the data from different sources, and making initial contact with potential collaborators (Ministère du Travail, CNESST, Institut de la statistique du Québec) are looking highly promising.

Our Laboratories

Every year the team of the IRSST's Laboratory Division responds to requests for environmental, microbiological and toxicological analyses, as well as requests for calibrating and maintaining various types of sampling and measurement equipment. These requests come from all its partners, including the CNESST and its network. 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.

Innovation and know-how

Over and above their analyses and daily calibration activities, the members of the Laboratory Division's team participated in projects that showcase their ability to innovate and develop, as evidenced in the following:

> the commissioning of an innovative test bench for flowmeter calibration, designed by Dany Nadeau-Dupuis and yielding major productivity gains in terms of calibration;
>
> the roll-out of a new service for testing the slip resistance of protective footwear, involving Mohamed Nejib Saidi, in collaboration with Chantal Gauvin from the Research Division;
>
> a research proposal filed with and accepted by WorkSafe BC for the development and validation of a method for analyzing toluene diisocyanate (TDI), involving Simon Aubin, Sébastien Gagné and Pierre-Luc Cloutier, in collaboration with Loïc Wingert from the Research Division; and
>
> an external evaluation under the CLAS program for renewal of the Standards Council of Canada (SCC) accreditation for calibration activities and testing of respiratory protective devices (RPDs).

The Laboratory Division team is constantly striving to develop and optimize analytical and testing methods, and to implement innovative ways of doing things to keep up with regulatory changes and emerging occupational health and safety issues in Québec. In 2022, it began or completed 37 development initiatives.

Also noteworthy was the activity headed by Mélanie Huard to update information on substances targeted by regulatory changes. This means that the different workplaces and professionals in the OHS network can obtain timely and accurate information about these changes and any evolving methods and tests that may affect laboratories.

Moreover, the CQ Fibres Fiber Counting Quality Control program marked its 30th anniversary in 2022. Thanks to the efforts of the Laboratory Division's fibre and dust team, CQ Fibres continues to be a recognized and reliable program for controlling the quality of fibre counting. It thus supports Québec society as a whole with regard to the important issue of asbestos fibre exposure.

Dany Nadeau-Dupuis

Mohamed Nejib Saidi

Chantal Gauvin

Simon Aubin

Sébastien Gagné

Pierre-Luc Cloutier

Loïc Wingert

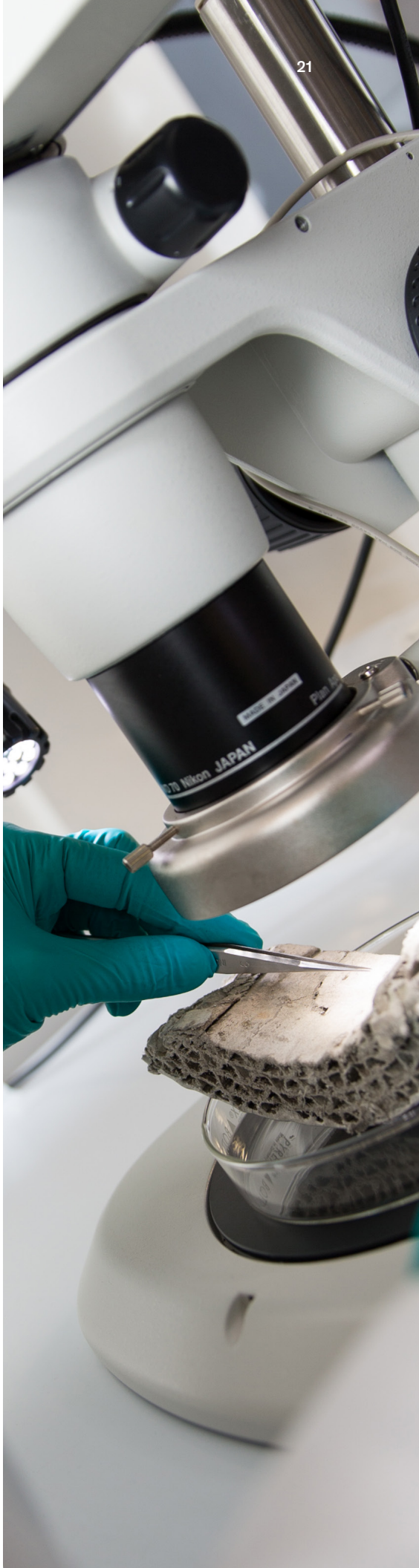
Mélanie Huard

Cultivating a collaborative approach

As stated in the 2022-2025 Strategic Plan, the laboratories stepped up their internal and external collaborative undertakings, in terms of both scientific activities and analytical support. Thus, in 2022, several new collaborative approaches were promoted or evaluated to maximize the use of resources and the impacts of these ways of working. One such example was the work done in close synergy with the Research Division to make more dynamic use of the transmission electron microscopy (TEM) platform. Another was the formation of a handful of research and development discussion groups, which gave specialists from the Laboratory and Research divisions the opportunity to exchange ideas and knowledge on important OHS issues on a regular basis. Also noteworthy was the start-up of a working group on issues involved in and strategies for sampling and analyzing asbestos in soils. Both the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs and the Centre d'expertise en analyse environnementale du Québec (CEAEQ) participated in this initiative.

Reflection on the Laboratory Division's role, positioning and business model

Also in 2022, the IRSST's Laboratory Division undertook a wide-ranging reflection process to come up with a new vision of its role, positioning and business model, one that is adapted to current and future contexts. This work involved discussions with a number of internal and external partners. It gave rise to the main guidelines for equipping our laboratories (which are recognized for their skills and expertise in Québec and elsewhere) to play a leading role in the occupational health and safety ecosystem, to realign their actions and to strengthen their added value.



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 continues to attract OHS researchers and orient 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 to:

- maximize the practical benefits for workplaces and the OHS network;
- encourage the training of highly qualified OHS research personnel;
- facilitate knowledge dissemination and transfer; and
- support the training of students during research projects.

The IRSST's Research Project Grants program funded 15 new projects

The IRSST's received and evaluated **33 proposals** submitted in response to the September 2021 launch of its first Research Project Grants competition. Upon completion of the scientific evaluation process by a committee of experts, the Institute's Scientific Advisory Board recommended funding **15** of these research projects, representing an investment of **$4,371,364.** They are as follows:

Reducing Worker Exposure to Bioaerosols at Wastewater Treatment Plants, principal investigator: Émilie Bédard, Assistant Professor, Polytechnique Montréal; research grant of **$246,694**;

Promoting the Use of Human Neutrophils to Improve Current Experimental Procedures Intended to Ensure Safer Nanoparticle Use in the Workplace, principal investigator: Denis Girard, Full Professor, INRS-Centre Armand-Frappier Santé Biotechnologique; research grant of **$455,580**;

Radon in the Workplace: Assessment of Exposure and Estimation of the Radiation Dose, principal investigator: Sabrina Gravel, IRSST researcher; research grant of **$107,500**;

Applicability Study in Real-World Conditions of the Use of Microbial Volatile Organic Compounds as Biomarkers of Exposure to Mould in the Workplace, principal investigator: Sami Haddad, Full Professor, Université de Montréal; research grant of **$258,873**;

Social Inequalities in Personal Care Workers' Exposure to Endocrine Disruptors, principal investigator: Isabelle Plante, Associate Professor, INRS-Centre Armand-Frappier Santé Biotechnologie; research grant of **$418,645**;

Development of a New Technique for Evaluating the Spatiotemporal Dispersion and Scrubbing Kinetics of Aerosols in the Workplace, principal investigator: Loïc Wingert, research grant of **$279,761**;

Respiratory Protective Equipment – Development of an Easy Method to Detect and Locate Leaks and Assess the Fit of the Faceseal Using Infrared Imaging, principal investigator: Jean Brousseau, Full Professor, Université du Québec à Rimouski; research grant of **$256,428**;

Minimum Rest Time and Maximum Workload: Physical Aspects That Must Be Investigated to Enhance the IRSST's Apps for Heat Stress in the Workplace, principal investigator: Daniel Gagnon, Assistant Professor, Institut de cardiologie de Montréal; research grant of **$447,414**;

How Can a Sustainable Work Environment to Foster Nurses' Health Be Created?, principal investigator: Marianne Beaulieu, Associate Professor, Université Laval; research grant of $359,050;

Acting before Problems Arise: Development, Validation and Implementation of the BaromÊtre Tool for Occupational Mental Health, principal investigator: Caroline Biron, Full Professor, Université Laval; research grant of $404,618;

Development of a Prototype Stair Chair Adapted to Emergency Medical Technicians' Needs, principal investigator: Philippe Corbeil, Full Professor, Université Laval; research grant of $357,906;

Acceptability, Acceptance and Assessment of Exoskeletons in the Agri-Food Sector: An Interdisciplinary Approach, principal investigator: Denys Denis, Professor, Université du Québec à Montréal; research grant of $265,155;

Exploratory Study of Workers' Occupational Health and Safety in Intermediate Housing Resources Designed for Adults with an Intellectual Disability or Autism Spectrum Disorder, principal investigator: Valérie Martin, Professor, Université du Québec à Montréal; research grant of $137,623;

Evaluation of the Process for Implementing an Ergonomic Intervention Aimed at Preventing Musculoskeletal Disorders: the Integrated Prevention Strategy for Manual Handling, principal investigator: Hélène Sultan-Taïeb; Full Professor, Université du Québec à Montréal; research grant of $61,597;

Supporting the Integrity of Nursing Staff Returning to Work after Long-Term Sick Leave Related to a Violent Episode in the Workplace, principal investigator: Diane Guay, Associate Professor, Université de Sherbrooke; research grant of $188,520.

Two new research programs

The IRSST's new grants program for multi-project research programs are designed to support a scientific team in conducting an ongoing, structuring program on a research subject pursuing medium- or long-term objectives. The funding offered covers a five-year period.

The IRSST's Research Fund and Partnerships Division thus announced that it would be funding its first two research programs, representing a total 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.

Ali Bahloul

Hugues Nélisse

Franck Sgard

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 2022 it awarded **33 scholarships and fellowships** to students through its graduate studies scholarship and postdoctoral fellowship program.

This program is not the only avenue of support offered for training future OHS researchers. The Institute also awards a handful of scholarships in partnership with other organizations that share the mandate of ensuring a high-calibre new scientific generation. Examples include the partnership with the Fonds de recherche du Québec (FRQ), which has supported three career scholarships (Junior 1 level) in occupational health and safety since 2019, each over a four-year period, for a total of $530,000.

Research partnerships

Partnerships allow the IRSST to increase its research capacity through the sharing of expertise, and human, physical and financial resources.

In 2022, no fewer than **42 partnership agreements** continued, including a dozen that were renewed during the year. Others included the partnership with Polytechnique Montréal, which itself establishes bilateral collaborations regarding research, expertise, and OHS knowledge leveraging, transfer, dissemination and mobilization activities. The framework agreement with the Université de Montréal School of Public Health (ESPUM) was renewed to the same end.

Two new collaborative agreements involving the co-funding of OHS research projects were signed to develop scientific knowledge and create potential benefits for workplaces. First, the signing of an agreement in principle on funding with Université de Montréal will support the Swine and Poultry Infectious Diseases Centre (CRIPA) in conducting studies on the interface between infectious diseases in swine and poultry production and agricultural workers' health and safety. Second, the IRSST joined with Transport Canada, Mitacs, the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ), the Réseau Québec maritime and the CNESST as a funding partner for the study titled *Crevettiers : enjeux de santé et sécurité au travail* [shrimp trawlers: occupational health and safety issues], headed by the Comité permanent sur la sécurité des bateaux de pêche du Québec (CPSBPQ).

On the international stage, the Institute signed a partnership framework agreement with Firjan (the Industry Federation of the State of Rio de Janeiro, Brazil) and Firjan SESI (its social service to industry branch) promoting bilateral collaborative arrangements regarding research and the transfer and mobilization of knowledge on different OHS topics. Specific agreements are also envisaged regarding the development of methods and strategies for assessing occupational exposure to psychosocial risks and those related to humidity and radiation, whether ionizing or not.

Communications, strategic watch and knowledge mobilization

The Communications, Strategic Watch and Knowledge Mobilization Division is responsible for meeting workplace needs by constantly watching out for, producing, implementing and disseminating knowledge mobilization and transfer strategies.

Supporting Workplaces

Knowledge transfer is an integral part of the IRSST's organizational priorities. This means that apart from 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 workplaces. It also reaches out to the general public through multiple channels, including radio, television and newspapers, and by maintaining a presence on digital platforms.

Sharing knowledge, in various forms and with diverse audiences, is essential to fueling and informing reflection and action on prevention and sustainable return to work. The Institute's constant monitoring activities also enable it to anticipate and respond to needs for new OHS knowledge.

12 knowledge mobilization activities;

120 requests for expert reports, including **13** requests from expert committees, **3** from follow-up committees and **12** from national and international committees;

12 committees of the CNESST and its network that include at least one representative of the IRSST;

16 national or international standardization committees that include at least one representative of the IRSST; and

8 thematic committees

Knowledge mobilization

Knowledge mobilization at the IRSST is a dynamic and interactive process driven by the parity principle and designed to meet the needs for OHS knowledge as determined by the Institute or expressed by its partners. In 2022, this team produced several guides and other knowledge mobilization documents that were published or updated on the Institute's Web site.

Strategic watch activities regarding OHS

The IRSST's Documentation Centre, in collaboration with a number of scientists, keeps a systematic lookout for information on different topics related to occupational health and safety. The information collected is compiled in lists documenting the relevant publications. The results of strategic watch activities are disseminated to support stakeholders and other OHS actors in their work and decision making, while providing the OHS community with access to new knowledge.

In 2022, the IRSST began disseminating the results of two strategic watch activities on:

- COVID-19 and OHS
- rehabilitation and sustainable return to work.

The following strategic watch activities began and the results will be disseminated beginning in 2023:

- OHS research
- occupational psychological health.

Greater visibility

Risk factors

The *Facteurs de risque* series, co-produced by Savoir média and the IRSST, has been a resounding success since it was launched in 2020, with over one million views on multiple platforms. A second season began on April 28, 2022, featuring six new *Facteurs de risque* episodes, two *Extra* capsules and six *Facteurs de changement* capsules. The series offers an original and much-appreciated way of promoting occupational health and safety research and knowledge.

From its April 28 launch until December 31, 2022, the second season tallied:

> **503,144 unique television viewers,**
>
> **15,231 views on the Web platform,**
>
> **538 views on YouTube,**
>
> **138,639 people reached on the social networks.**

In addition to *Facteurs de risque*, the IRSST's scientists gave numerous interviews in the media, including Radio-Canada and *La Presse*. These generated **305 mentions** in the traditional media, on social networks and Web sites, and in various organizational newsletters, as well as **54 requests** for interviews or information. The Institute also signed agreements with specialized media, notably with *Soleil Affaires*, a new magazine aimed at the economic community, regarding a public information kit on robotics. It also collaborated with the magazine *Constructo* spécial SST, with information kits featuring two of its studies, specifically, one on lockout and one on trench work.

The Communications, Strategic Watch and Knowledge Mobilization Division carried out **57** knowledge dissemination activities in the Headlines section of the IRSST's Web site activities, which also featured on the Institute's social networks.

The IRSST also organizes and participates in events likely to disseminate OHS knowledge. In 2022, the program of the Rendez-vous de la science (RVS) event included **9** sessions (some offered in hybrid mode) that attracted from **70** to **370** attendees. The program covered various topics such as solvent substitution, slip resistance of protective footwear, the *Guide sur la protection respiratoire* and safety catches on mine conveyances. A luncheon conference titled *La formation en manutention du futur* [training on manual handling of the future] drew more than **100** participants.

The IRSST hosted its information stand at **3** events: the 4th Québec Congress in Adaptation-Rehabilitation, the AQHSST Congress and the CNESST's Grand Rendez-vous in Montréal.

RVS IRSST Rendez-vous de la science

Filming of the episode *Dans la mine*

Human Resources Division

The IRSST's personnel – its most important asset – have expertise in disciplines as wide-ranging as ergonomics, anthropokinetics (kinanthropology), biomechanics, industrial hygiene, physics, chemistry, biology, microbiology, toxicology, epidemiology, engineering, anthropology, demography, psychology, management and economics. As at December 31, 2022, there were 142 people on staff, two-thirds of whom were scientific personnel, including 20 researchers, 48 professionals and 26 technicians.

During the year, the Institute filled 12 permanent positions and hired 10 other people to meet one-off needs. It also welcomed 17 trainees (master's, doctoral or postdoctoral students) and 1 collaborator in its offices and laboratories.

Regarding internal succession, Caroline Jolly was offered a research position in the Research Department after earning her doctorate in health and society.

For his part, Simon Aubin continued his doctoral studies in analytical chemistry.

Caroline Jolly

Simon Aubin

Goal: "Healthy Enterprise" status

The IRSST is intent on offering its employees a stimulating, healthy and safe work environment. It therefore mandated the Healthy Enterprise Group, an organization that supports leaders in building workplaces conducive to health and wellness, to conduct a survey of its personnel in February 2022. The survey collected health and wellness information which, once analyzed, will set parameters for an action plan aimed at promoting and implementing organizational practices that contribute to the health of our employees and the organization.

Ultimately, the IRSST hopes to earn "Healthy Enterprise" certification from the Bureau de normalisation du Québec.

Information Technologies Division

The Institute finished upgrading its IT systems in 2022 by improving its infrastructures and continuing its work on cybersecurity. Everything is now in place to incorporate a cloud-based office automation solution. This will facilitate work and inter-user collaboration, as well as data storage and protection. Both of the latter are subject to certain legal requirements, notably amendments to the *Act to modernize legislative provisions as regards the protection of personal information.*

Finance and Procurement Division

The accounting system and budget management tools were optimized in the Finance and Procurement Division (FPD), whose team works diligently to ensure operational compliance.

In these times when procurement is an issue, the FPD obtains the products and services needed for the Institute's operations. Moreover, a team dedicated to maintaining and upgrading our electromechanical equipment helped stabilize operating conditions in our laboratories. It also implemented a predictive and preventive maintenance process for space ventilation.

Appointments

- **Caroline Jolly,** an IRSST researcher, was appointed adjunct professor in the School of Industrial Relations, Université de Montréal.
- **Geneviève Marchand,** an IRSST researcher, was reappointed to the Board of Directors of the Association des microbiologistes du Québec (AMQ).
- **Sabrina Gravel,** an IRSST researcher, was appointed adjunct professor in the Faculty of Dental Medicine and Oral Health Sciences, McGill University.
- **Bénédicte Calvet,** an IRSST researcher, was appointed adjunct professor in the Physical Activity Sciences Department, UQAM.
- **Sabrina Jocelyn,** an IRSST researcher, was appointed a member of the Canadian Robotics Council at the organization's first symposium, held at the National Arts Centre in Ottawa in September 2022.

Moreover, **Alain Marchand,** a full professor in the School of Industrial Relations at Université de Montréal, joined the IRSST's ranks at the start of the year, taking up duties as Chief Scientific Officer and Director of the Research Division. **Geneviève Pinard** was appointed Director of the Research Department, while **Michel Asselin** became the Director of the IRSST's Research Fund and Partnerships Division.

Awards

- **Sabrina Gravel** was awarded the Prix Jules Brodeur, underscoring the quality of her academic record and her social engagement. With a PhD in Public Health (Toxicology and Risk Assessment specialty) from Université de Montréal, she chose toxicodynamics as her area of expertise. Her research work concerns endocrine disruptors, the association between pesticides and neurological disorders, and carcinogens. The title of her thesis was *Exposition des travailleurs du recyclage électronique à des ignifuges et association à effets endocriniens* [exposure of electronics waste recycling workers to flame retardants and association with endocrine effects].
- **Samantha Vila Masse,** a scientific professional at the IRSST, was the winner of the Prix de la Relève – Lumières sur les inégalités given by the Observatoire québécois des inégalités 2021-2022. She was handed the award during the closing activity of the big annual *Lumières sur les inégalités* day, held on May 6, 2022.

Caroline Jolly

Geneviève Marchand

Sabrina Gravel

Bénédicte Calvet

Sabrina Jocelyn

Geneviève Pinard

Michel Asselin

Samantha Vila Masse

Events

Ten colleagues from the IRSST's Laboratory Division participated in the 42nd Congress of the Association québécoise pour l'hygiène, la santé et la sécurité du travail (AQHSST), where they gave lectures and hosted the IRSST stand, a first since March 2020. Other scientists from the Institute also prepared or gave lectures at this event, held from May 11 to 13, 2022 in Sherbrooke.

Simon Aubin, Assistant to the Director, Research, Laboratory Division, gave the workshop titled *Modifications de certaines valeurs d'exposition admissibles (VEA); impacts pour les hygiénistes du travail* [changes in certain permissible exposure values (PEVs): impacts for industrial hygienists]. This activity was part of a series organized by the IRSST in collaboration with the AQHSST.

Capucine Ouellet, registered occupational hygienist (ROH), delivered a lecture titled *Choisir un appareil de protection respiratoire (APR)* [choosing a respiratory protective device (RPD)].

Daniel Côté, anthropologist and researcher, gave the lecture titled *Les enjeux de la SST dans l'industrie du recyclage des résidus électriques et électroniques : une perspective sociologique et systémique* [OHS issues in the electrical and electronic waste recycling industry: a sociological and systemic perspective].

Pierre-Luc Cloutier, a scientific professional and chemist, presented *L'Évaluation des poussières inhalables – Mise en application d'un dispositif de prélèvement à usage unique* [evaluation of inhalable dusts – implementation of a single-use sampling device].

Chantal Gauvin, scientific professional, collaborated in the study that formed the basis for the lecture titled *Évaluation de l'efficacité et du confort de nouvelles technologies de membranes barrières et de coques extérieures pour les vêtements individuels de protection des pompiers* [evaluation of the efficacy and comfort of new technologies used in the barrier membranes and outer shells of firefighters' personal protective clothing]. **Marie-Anne Landry-Duval,** a master's student at Université du Québec à Montréal (UQAM), gave the lecture.

Bertrand Galy was part of the research team that worked on safety harnesses. **Guillaume Montpetit,** a master's student in ergonomics and teaching assistant at UQAM, gave the lecture titled *Impact d'une suspension avec différents types de harnais de sécurité sur les fonctions physiologiques et psychophysiques* [impact of suspension involving different types of safety harnesses on physiological and psychophysical functions].

On June 3 and 4, 2022, **Christian Larivière,** researcher, and **Geneviève Brisebois,** knowledge mobilization advisor, attended the 4th Québec Congress on Adaptation-Rehabilitation. They also hosted the IRSST's information stand designed to promote the *L'incapacité et le retour au travail* [disability and return to work] Web site launched in November 2021. The IRSST was one of the sponsors of this congress, which ran under the theme of rehabilitation with a vision of sustainable health.

At the 36th Congrès National de Médecine & Santé au Travail, held in Strasbourg, France, from June 14 to 17, 2022, the Institut National de Recherche et de Sécurité pour la prévention des accidents du travail et des maladies professionnelle (INRS France) invited IRSST researcher **Philippe Sarazin** to give a training session on multi-exposure and the computer-based tool MiXie (created at the IRSST). Approximately 200 preventionists active in France, holding positions as occupational health physicians, occupational health nurses, occupational risk prevention engineers and industrial hygienists, attended this training.

Philippe Sarazin

The Grand Rendez-vous of the CNESST returned in full force on November 2, 2022, with in-person attendance at the Palais des congrès de Montréal. The IRSST was actively present, particularly in the exhibitors' hall, but also in the lecture portion. **Alain Marchand,** the IRSST's Chief Scientific Officer, delivered a speech titled *Identifier et intervenir en santé mentale en milieu de travail* [identifying and acting on mental health issues in the workplace]. **Damien Burlet-Vienney,** one of our researchers, accompanied by **François R. Granger,** expert advisor on prevention-inspection at the CNESST, delivered the lecture titled *Travail en espace clos – Projet de modification réglementaire et réduction des risques à la conception* [work in confined spaces – regulatory amendments project and risk reduction at the design stage].

Visit by Manuelle Oudar, president and CEO of the CNESST to the IRSST information stand.

Scientific articles

Asma Daoud published an article in the context of her master's program, under the supervision of **Pierre-Luc Cloutier,** chemist, and in collaboration with **Sébastien Gagné,** chemist/toxicologist, and **Jacques Lesage,** Professor, UQAM. Titled *Development of a new SPE UPLC–MS/MS method for extraction and quantification of toluene diamine on gloves following toluene diisocyanate exposure*, this article appeared in the journal Rapid Communications in Mass Spectrometry.

Daniel Côté and **Jessica Dubé** from the IRSST, together with **Sylvie Gravel** from UQAM, co-authored the article titled *Intercultural Competence in a Complex Organizational Structure: A Case Study Within Quebec's Workers' Compensation Board,* published in the *Journal of Applied Rehabilitation Counseling* (Volume 53, Issue 3). This article described the research conducted by the team to address the need expressed by the CNESST's rehabilitation advisors for support in helping them develop intercultural competencies.

Contributing expertise at the international level

GESTIS Substance Database, a substance database containing the occupational threshold limit values (TLVs) from more than 26 countries, is accessible online free of charge. Managed by the Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (Institute for Occupational Safety and Health (IFA) of the German Social Accident Insurance (DGUV)), it provides data on approximately 9,400 substances. The organizations representing the participating countries update their information in the database when new official regulations are published in their respective countries. Given the major changes currently being made to Québec's threshold limit values, an IRSST team embarked on this task last spring. With support from IFA professionals, Simon Aubin coordinated the work with his Institute colleagues (specifically, **Luc Rousseau, Andrée-Anne Banville** and **Isabelle Madore**), who verified the information on 700 substances and made the necessary changes in GESTIS via a secure portal.

Pierre-Luc Cloutier

Sébastien Gagné

Luc Rousseau

Isabelle Madore

2022-2025 Strategic Plan

Running 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 the next four years.

The following pages present an overview of the progress made in 2022 in terms of the strategic objectives.

SHARE knowledge

STRATEGIC ORIENTATION 1

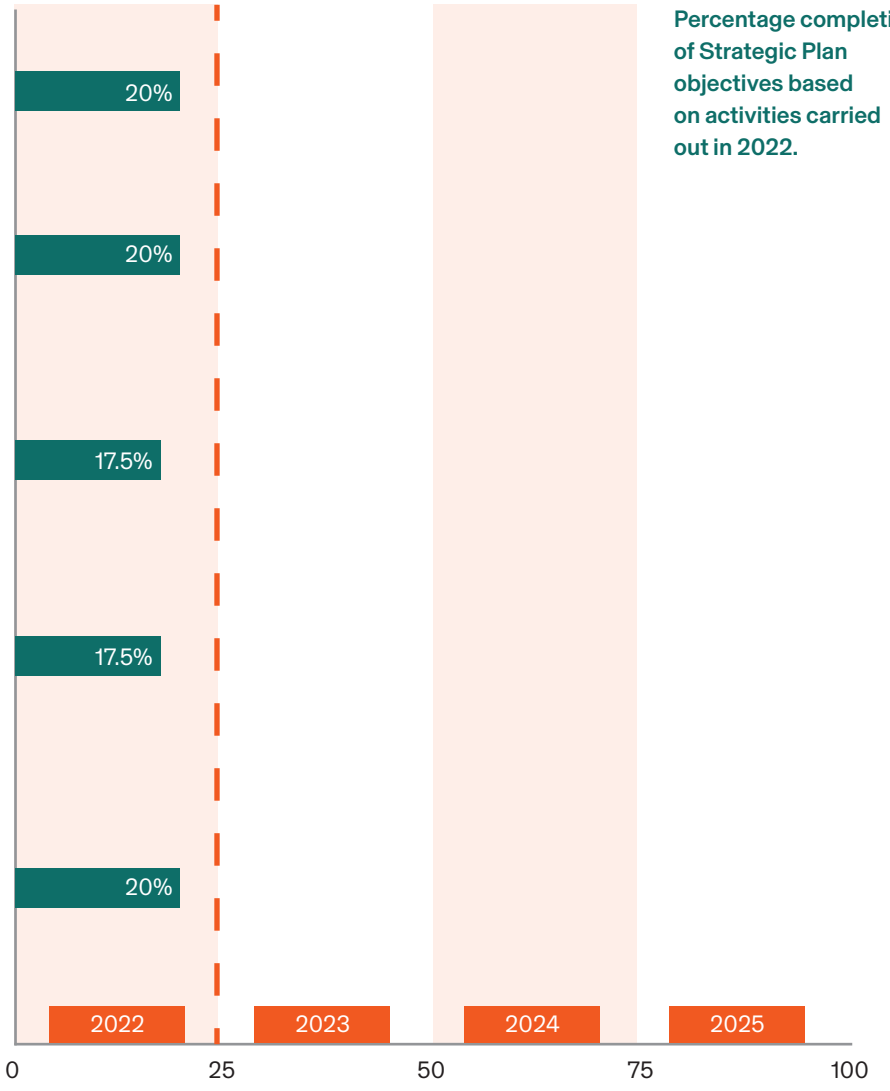
STRATEGIC ORIENTATION 1
SHARE knowledge

Objective 1.1
Optimize the use and dissemination of monitoring and biomonitoring data

Objective 1.2
Continually disseminate the results of strategic watch and knowledge mobilization activities

Objective 1.3
Strengthen our role as scientific advisor to the CNESST and its network, and to government ministries and agencies

Objective 1.4
Increase target audiences' awareness of the knowledge resulting from IRSST work



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

Percentage completion of 2022-2025 Strategic Plan: 20%

ASSIST our partners in improving OHS conditions for workers

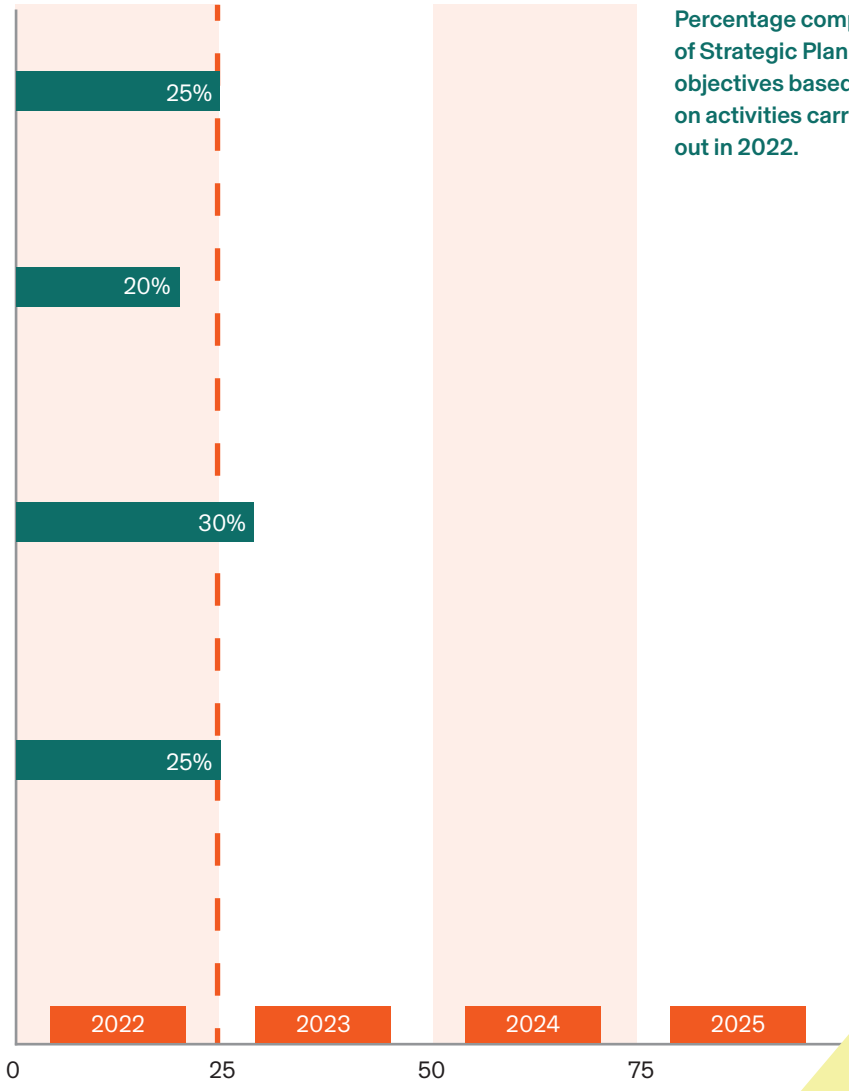
STRATEGIC ORIENTATION 2

STRATEGIC ORIENTATION 2
ASSIST our partners in improving OHS conditions for workers

Objective 2.1
Strengthen collaboration with our social partners to optimize our analysis of their needs and their use of knowledge

Objective 2.2
Redefine the role of our laboratories in line with the needs expressed and anticipated and within our capabilities

Objective 2.3
Respond to the needs expressed or anticipated in an appropriate and timely manner



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

Percentage completion of 2022-2025 Strategic Plan: 20%

WORK TOGETHER to create a lever effect

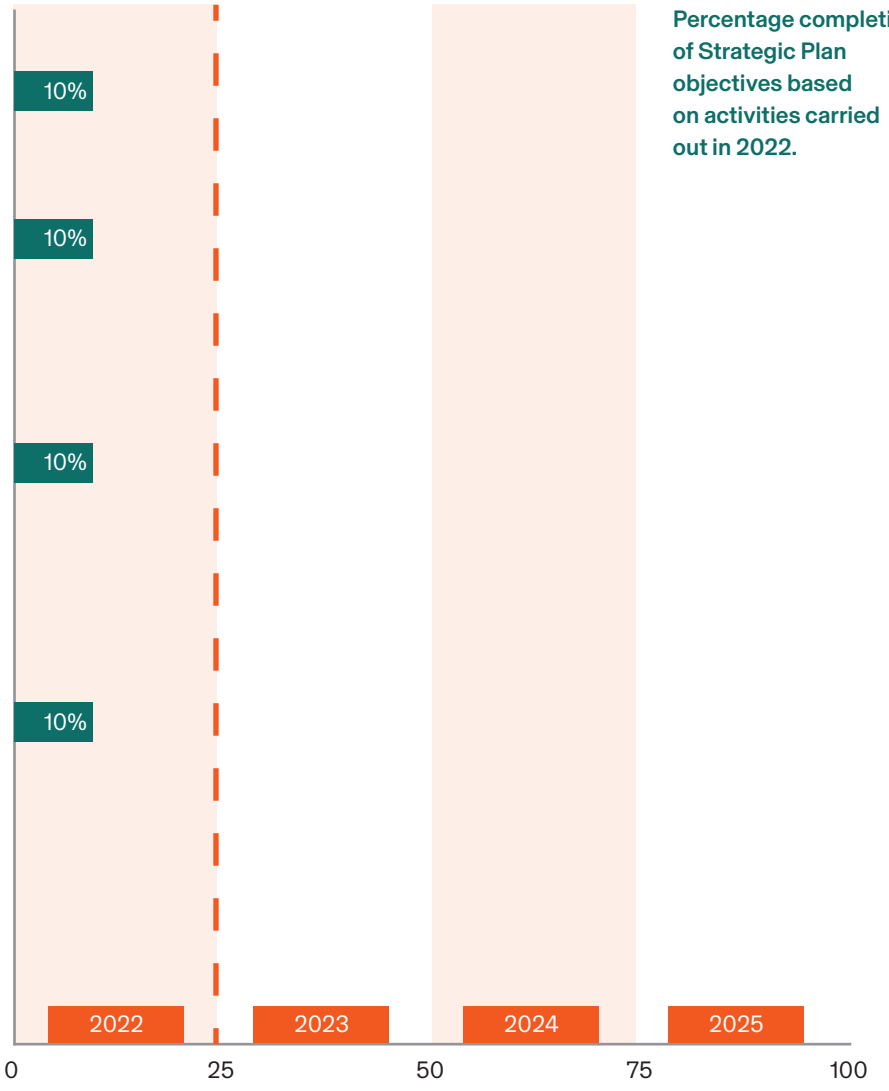
STRATEGIC ORIENTATION 3

STRATEGIC ORIENTATION 3
WORK TOGETHER
to create a lever effect

Objective 3.1
Develop collaborations to launch joint research or OHS development initiatives

Objective 3.2
Establish alliances with national and international organizations to pool complementary expertise

Objective 3.3
Forge closer ties with higher education institutions to help train a new scientific and technical generation involved in OHS



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

Percentage completion of 2022-2025 Strategic Plan: 20%

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

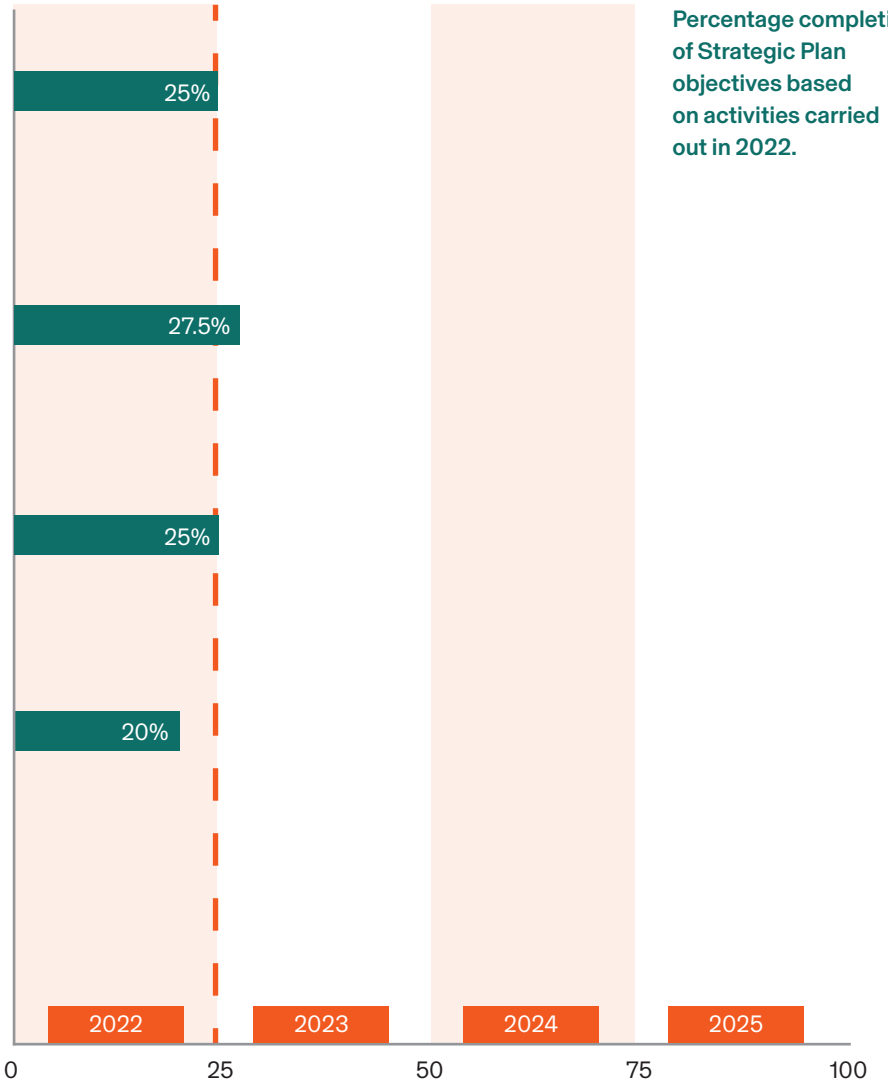
STRATEGIC ORIENTATION 4

STRATEGIC ORIENTATION 4
COMMIT collectively and individually to realizing the full potential of our organization

Objective 4.1
Work together to build a more stimulating, healthier and safer work environment

Objective 4.2
Modernize our management and work tools

Objective 4.3
Upgrade our facilities to support short-, medium- and long-term developments

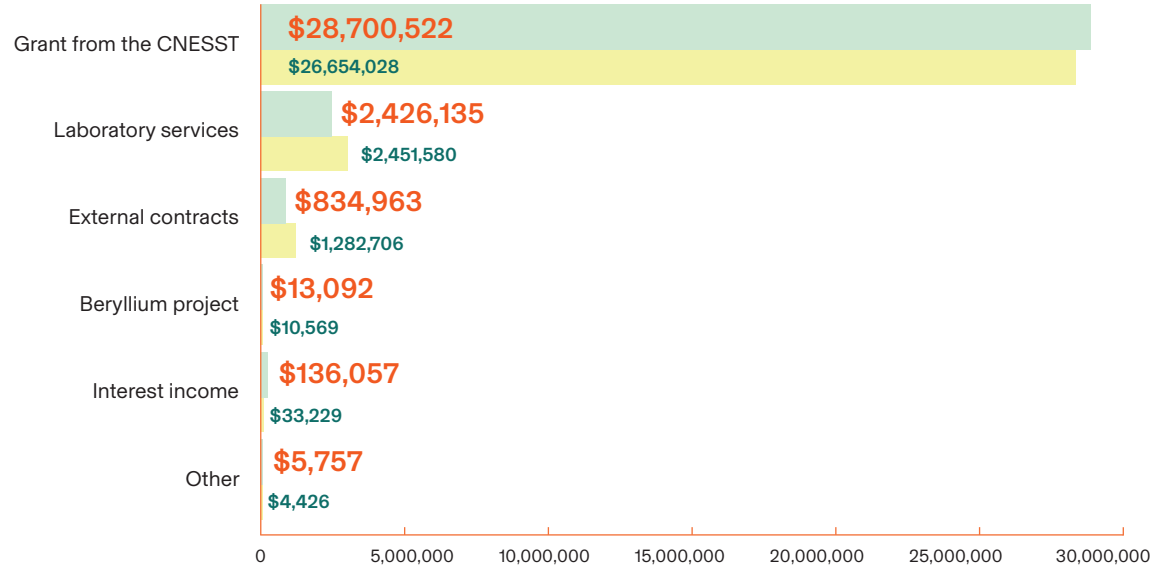


Percentage completion of Strategic Plan objectives based on activities carried out in 2022.

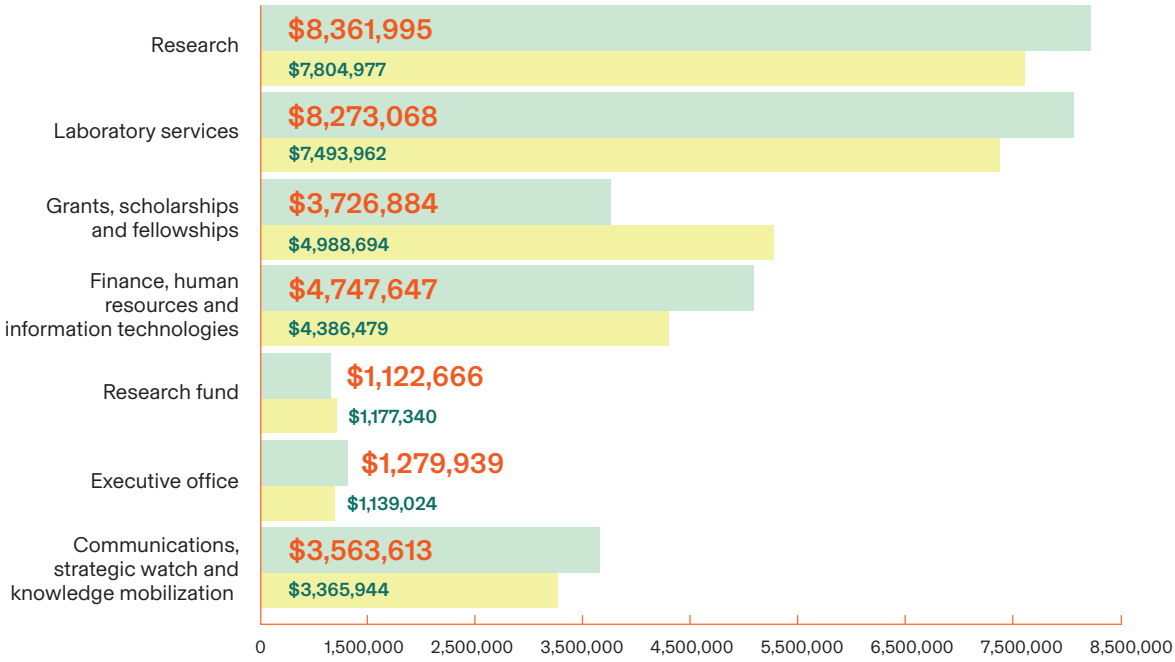
Percentage completion of 2022-2025 Strategic Plan: 20%

Financial results

Total revenues of $32,116,526 distributed as follows:



Total expenditures of $31,075,813 distributed as follows:



Excess of revenues over expenses	2022 results	2021 results
	1,040,713	80,117

Governance

Board of Directors

The Board of Directors is composed of **seven** individuals representing employers, **seven** others representing workers, and a chair, and operates on the parity principle. Appointed by the Québec government, its members manage the Institute's affairs, including its strategic orientations, development framework and funding.

The members of the Board of Directors and those of the Executive Committee met **four** and **seven** times respectively in 2022.

Chair

Manuelle Oudar*

Employer representatives

Yves-Thomas Dorval*

Anny Bienvenue**

Josée Méthot

Isabelle Leclerc

Marie-Claude Perreault**

Charles Milliard*

François Vincent

Worker representatives

Kaven Bissonnette

David Bergeron-Cyr

Daniel Boyer*

Dominic Lemieux

Simon Lévesque

Caroline Senneville*

Carole Neill

IRSST representative

Lyne Sauvageau

Observer

Caroline De Pokomandy-Morin

Appointments**

Marie-Claude Perreault

Anny Bienvenue

Departures

Karolyne Gagnon

* M Members of the Executive Committee

** Appointments

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 opinions on the organization's general and budgetary orientations; the determination of its research priorities, programs and projects; the awarding of scholarships and fellowships; and policies related to how the IRSST's scientific activities are carried out.

The SAB met **nine** times in 2022.

Chair

Lyne Sauvageau

Employer representatives

Lionel Bernier

Josée Saint-Laurent**

Gilles Rousseau

Marie-France Turcotte

Worker representatives

Annie Landry

Denis Mailloux

François Ouellet

Benoît Laberge

Scientific and technical members

André-Pierre Contandriopoulos

Denis Harrisson

Benoit Lévesque

Alain Rondeau

Joseph Hubert

Louise Millette**

Observer

Luc Castonguay

Appointments**

Josée Saint-Laurent

Louise Millette

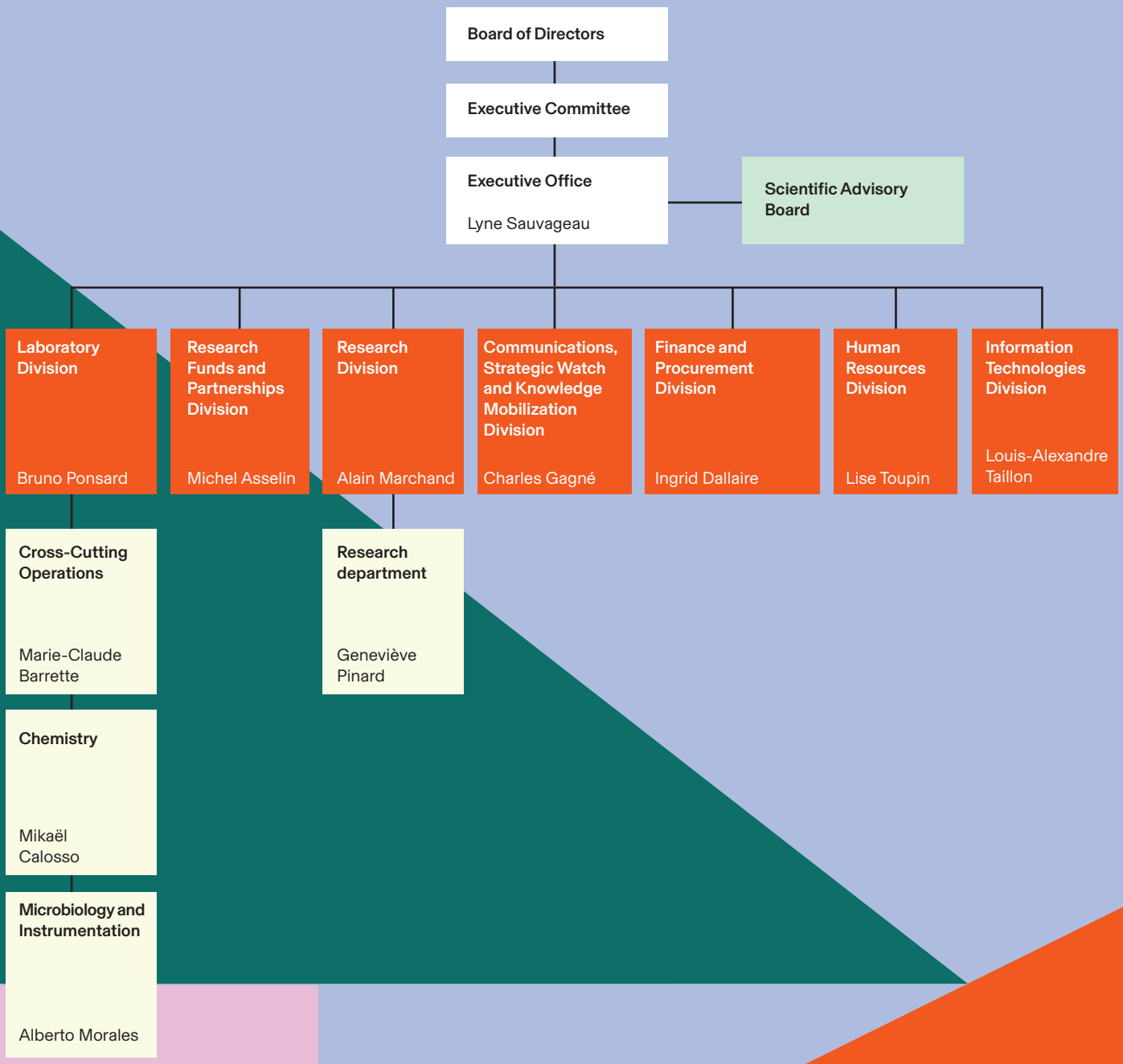
Departures

Annick Delisle

** Appointments

Organization Chart

As at December 31, 2022



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