Actua's 2021 Annual Report

Inclusive Innovation in
a Post-Pandemic World

actüa

Youth · STEM · Innovation
Jeunesse · STIM · Innovation

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Network Members

Actua is incredibly proud to support and represent a network of more than 40 members located at universities and colleges across Canada. All network members share the mandate of developing skills and confidence in youth in STEM while relentlessly removing barriers for all youth to participate fully. Actua network members deliver on and off-campus programming in over 500 communities covering every province and territory in Canada.

British Columbia

Coast Mountain College, Prince Rupert – DigiCamps

Simon Fraser University, Burnaby – Science AL!VE

Thompson Rivers University, Kamloops – EUReKA! Science Program

University of British Columbia, Vancouver – Geering Up

University of Northern British Columbia, Prince George – UNBC Active Minds

University of Victoria, Victoria – Science Venture

Yukon

Yukon University, Whitehorse – Youth Moving Mountains

Alberta

Norquest College, Edmonton – Indigenous Relations & Supports

Red Deer Polytechnic, Red Deer – Red Hot Science at Red Deer Polytechnic

University of Calgary, Calgary – Minds in Motion

University of Lethbridge, Lethbridge – Destination Exploration

Northwest Territories

Aurora College, Fort Smith – Aurora Research Institute

Saskatchewan

First Nations University of Canada, Regina – FNUniv Science Outreach Program

University of Regina, Regina – EYES

University of Saskatchewan, Saskatoon – SCI-FI Science Camps

Manitoba

Brandon University, Brandon – Mini University

University of Manitoba, Winnipeg – WISE Kid-Netic Energy

University of Winnipeg, Winnipeg – Wii Chiiwaakanak Learning Centre

Nunavut

Nunavut Research Institute, Iqaluit – Simply Science

Québec

Institut Armand-Frappier, Laval– Musée Armand Frappier

École Polytechnique de Montréal, Montréal – Folie Technique

Université du Québec à Trois-Rivières, Trois-Rivières – Génitrucs

New Brunswick

University of New Brunswick, Fredericton – Worlds UNBound

Ontario

Canadore College, North Bay - First Peoples' Centre

Carleton University, Ottawa – Virtual Ventures

Lakehead University, Thunder Bay – Superior Science

McMaster University, Hamilton – Venture Academy

Nipissing University, North Bay - NUScience Explorations

Ontario Tech University, Oshawa – Ontario Tech University Engineering Outreach

Queen's University, Kingston – ASUS Summer Camps

Queen's University, Kingston – Queen's Engineering Outreach

Sheridan, Oakville – Youth Amplified

Six Nations Polytechnic, Ohsweken - Six Nations Polytechnic STEAM Academy

Trent University, Peterborough – TRACKS Youth Program

University of Guelph, Guelph – Creative Encounters

University of Ottawa, Ottawa – uOttawa Engineering Outreach

University of Toronto, Toronto – Engineering Outreach

University of Waterloo, Waterloo – Waterloo Engineering Outreach

Western University, London – Western Engineering Outreach Programs

York University, Toronto – Science Engagement Programs

Nova Scotia

Dalhousie University, Halifax – SuperNOVA

St. Francis Xavier University, Antigonish – X-Chem Outreach

Newfoundland and Labrador

Memorial University of Newfoundland and Labrador, St John's – Memorial Engineering Outreach

Who We Are

Actua is a leading Canadian organization unlocking the infinite potential of youth through science, technology, engineering and mathematics (STEM).

Together with a national network of more than 40 universities and colleges, Actua annually engages 350,000 youth in 500 communities nationwide in transformational STEM learning programs that build critical employability skills and confidence. Actua focuses on engaging underrepresented youth through specialized programs for Indigenous youth, girls and young women, new Canadians, economically disadvantaged youth, and those living in remote communities.

For over 25 years, these programs have widened pathways to STEM education and careers and have contributed to a highly skilled and diverse workforce that continues to advance Canada's innovation economy.

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Dr. F. Gigi Osler BScMed, FRCSC

Message from the CEO and Board Chair

Jennifer Flanagan
Actua President and CEO

Susan Holt
Chair, Actua Board of Directors

The past two years have been the most challenging years many of us have ever faced. From school closures to hybrid working arrangements and social distancing, the COVID-19 pandemic has profoundly impacted all of us.

> Not surprisingly, youth have been among the most vulnerable to these unpredictable societal shifts.

Numerous studies now highlight the severe and adverse effects of the pandemic on youths' academic and social development - something parents and educators have feared all along as they bear witness to the erosion of youth's confidence, motivation and general love of learning. Most concerning is that those who were already facing deep-rooted inequalities have been disproportionately affected.

At the same time, the pandemic has fueled the rapid acceleration of digitalization. This increased digitalization, in addition to rising concerns around climate change, economic downturn and future pandemics, has dramatically underscored the critical importance of STEM. It has also made Actua's leadership in this space more critical than ever, which is why we spent the last year deepening and further intensifying our commitment to engaging more youth in STEM - especially those hit hardest by the pandemic.

In 2021, thanks to our dedicated and tenacious network of universities and colleges across Canada, we not only sustained our reach but grew, reaching more communities than ever before.

We did this by identifying new and innovative ways to sustain the delivery of our programs without compromising their impact. For instance, we leveraged video conferencing to connect with youth in their homes.

> **We delivered STEM kits to communities across the country that engage kids in at-home STEM activities.**

We continued to publish new resources and activities so parents, teachers and youth could participate in STEM skill-building activities at home. And, we built even more partnerships with local community groups to expand our reach and engage youth from diverse groups such as LGBTQ2S+ youth, Black and racialized youth and youth with disabilities. We also welcomed two new network members, Youth Amplified at Sheridan College and Indigenous Relations & Supports at NorQuest College, and several new supporters, including Protein Industries Canada, Government of Ontario, Enbridge, Best Buy, Lego Re:play and Geotab.

This incredible network of supporters has helped us address and highlight new challenges brought about by the pandemic, such as cyber security and digital inequity. Recognizing that youth are now online more than ever, and parents and teachers are struggling to stay on top of privacy and

security concerns, Actua developed the Engage. Empower. Connect. (E2C) project - a cyber empowerment initiative to build strong digital literacy skills among youth and empower them with the skills, awareness and confidence needed to become good digital citizens. We've also created at-home and unplugged STEM kits, which we delivered directly to remote communities that have been held back during the pandemic due to a deepening digital divide. And, above all else, we've remained committed to instilling a love of learning among youth and building the confidence they so desperately need right now, so they feel inspired to achieve their full potential.

Our 2021 annual report looks back at what we've accomplished in the past year while highlighting how we continue to position our network members and partners for future success.

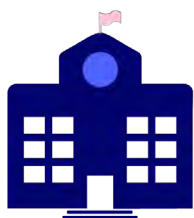**Jennifer Flanagan,
Actua President and CEO**
🐦 @ActuaCEO

**Susan Holt,
Chair, Actua Board of Directors**

Actua's Program Delivery

We mobilize the dynamic skills and enthusiasm of our network members and young leaders across Canada who share their passion for STEM with Canada's youth.
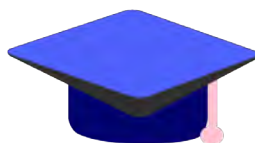
How We Deliver

NETWORK MEMBERS

>40 network members located at universities and colleges across Canada.

UNDERGRADUATE STUDENTS

1,000 undergraduate students in science and engineering fields as instructors for youth.

VOLUNTEERS

>1,000 high school students as volunteers who serve as incredible role models

OUTREACH TEAM

A team of highly trained instructors from across Canada to deliver programming in rural and remote areas.

National Reach and Impact

2M face-to-face hours of programming delivered each year

350,000 inspired youth each year

500 communities across Canada reached each year

6M youth reached since our inception

Network Members and Award Recognition

Actua's 43 network members at universities and colleges across Canada are at the forefront of innovative delivery of STEM programming. Each year, Actua recognizes outstanding performance by network members overall and in specific areas of program delivery.

This year, **The Actua Award for Excellence**, which recognizes network members who exemplify a commitment to quality and innovation in all aspects of their program, was awarded to Youth Moving Mountains at Yukon University.

The Actua Experience Award, which this year recognized excellence in the engagement of girls in all-girls programs, was awarded to Venture Academy at McMaster University.

The Actua Mentorship Award, which recognizes excellence in helping youth learn from professionals in a variety of STEM fields, was awarded to TRACKS Youth Program, Trent University.

The Actua Make Friends with Science Award, which recognizes outstanding achievement in showcasing the transformational experiences that network members provide, through photos and other media, was awarded to Destination Exploration at the University of Lethbridge.

Diversity, Equity and Inclusion in STEM

National Girls Program

15,000
girls reached through our high impact, all-girl initiatives

150,000
girls reached through co-ed programming

Actua inspires girls, including gender-diverse youth, to explore their important and unique roles in STEM. Through inquiry-based, girl-led content, Actua encourages girls to take risks, invent, and communicate their learning with others in an all-girl environment, inspired by women role models and mentors.

> We also support gender equity and LGBTQ awareness training for all instructors, intentional gender equity policies in co-ed programs, and general principles around inclusivity and creating a safe space for learning.

Actua's National Girls Program plays an important role in building girls' self-efficacy, resilience, and future economic independence.

Participant Experience

Actua's National Girls program is Actua's longest-running program which consistently results in positive and measurable outcomes. Over the past year, we saw continued evidence of the importance of these all-girl programs and evidence that they continue to resonate with participants and provide value beyond our co-ed programming. Our program participant survey revealed that these programs still play a critical role in supporting girls and gender-diverse participants' enjoyment, confidence and engagement with STEM. Participants in all-girls programs reported higher satisfaction overall and higher confidence levels and future intentions than the youth attending co-ed programs.

All Girl Programs

82% of participants in All Girls Programs said their STEM program was very good or amazing.

68% of All Girls Program participants said that because of the STEM program, they are more/much more interested in taking optional science, technology or math classes in high school.

64% of All Girls program participants said that, because of the program, they are more/much more interested in going to university or college.

Co-Ed Programs

73% of participants (71% boys, 78% girls) in co-ed programs said their STEM program was very good or amazing.

56% of girls and 50% of boys indicated more/much more interest in high school STEM classes.

Interest was about the same for boys and girls with **53%** saying they were more/much more interested in going to university or college.

Indigenous Youth in STEM (InSTEM)

35,000
First Nations, Métis and Inuit youth engaged in culturally relevant STEM education experiences

200
Indigenous communities reached

Actua's national Indigenous Youth in STEM program (InSTEM) is a customized community-based approach to engage First Nations, Métis, and Inuit youth in locally and culturally relevant STEM education experiences.

We work closely with Indigenous communities, leaders, resource centres at our network member institutions and Indigenous organizations. These organizations include Indigenous Works, and hundreds of First Nations, Inuit and Métis communications across Canada to ensure Actua's model is reflective of successful practices in Indigenous youth engagement.

Actua's InSTEM program starts with the premise that STEM concepts are intrinsic to Indigenous ways of knowing and the day-to-day life of Indigenous peoples.

Our role is to facilitate the connections between aspects of culture, Traditional Knowledge, and modern science, thereby opening the pathway for youth to explore their potential as future innovators in STEM. The program has recently grown to include land-based for-credit programming for Indigenous high school students as a means to improve high school graduation rates among Indigenous youth.

Actua's Cultural Kits

Recognizing that not all youth have access to computers or the internet at home, we asked our community partners how we could continue to serve their youth. Overwhelmingly communities suggested we deliver STEM activities directly to youth. This direct delivery was particularly important to those who, under normal circumstances, participate in Actua's national InSTEM program, which engages Indigenous students in land-based STEM education. Since these participants haven't been able to gather together on land to learn about STEM the same way, we decided to take land-based STEM education to them! Enter Actua Cultural Kits. In early 2021, Actua partnered with Indigenous cultural practitioner Rod St. Denis to design a series of Cultural Kits that could be packaged and delivered to youth.

> Each kit challenged participants to create a scaled model of an Indigenous cultural unit and learn about the Indigenous Knowledge that contributes to its innovative design and function.

Within every kit, there was also an activity that builds from the Traditional Indigenous Knowledge associated with the unit to help participants make the connection between Indigenous Knowledge and mainstream STEM.

> Thanks to Actua's Outreach team, and network members, we delivered over **2200 cultural kits** in 2021.

Actua in the North

8,500

youth reached in 50 northern communities across Canada

Actua has been working in and with Northern Canada for over twenty years, reaching communities in the Yukon Territory, Nunavut, and the Northwest Territories.

Actua has built sustainable, meaningful relationships with Northern communities to ensure that the STEM content reflects local cultural and economic development. Through direct connections with local industry, researchers, and education institutions, Actua facilitates exposure to northern career opportunities. Through experiential learning, youth gain essential skills, such as critical thinking, collaboration and problem-solving skills, and become motivated to pursue further studies and realize their potential as informed community leaders and drivers of local economic development.

Actua's STEM Kits

Throughout 2021, Actua's Outreach team sent STEM Kits to northern communities and schools across the country in place of in-person programming. The kits included STEM learning activity books, materials and swag and focused on subjects like Astronomy, Health & Biology, Oceanography, Engineering and Design Thinking. Kits were primarily sent home to youth ages 7-12 for completion independently, and a select number of communities were able to incorporate the kits into in-person programming.

At the end of 2021, these kits reached over **20,000 youth** in over **85 communities**.

Go Where Kids Are

50,000

underrepresented youth reached

250

communities across Canada

The Go Where Kids Are program recognizes that many youth do not have the opportunity to attend a STEM program, even if the program is offered at no cost.

To engage these hard to reach youth, Actua and its network members partner with youth serving organizations such as Family Resource Centres, immigrant community organizations, Boys and Girls Clubs, YM/YWCAs, and others who already have these youth engaged. Our commitment is to provide sustained programming in these locations, returning each year to strengthen the impact of the programming among the underrepresented and underprivileged youth we reach.

Engaging Black Youth in STEM

Actua and its network have long recognized that Black youth in Canada are often discouraged from pursuing STEM disciplines due to long-standing stereotypes and a lack of role models and support from key influencers, such as parents and educators. To break down barriers to Black youth engagement in STEM and build pathways for them to pursue STEM education and careers, Actua began increasing its focus on designing programs that specifically engage Black youth.

Queen's Engineering Outreach team at Queens University and Engineering Outreach at the University of Toronto are two network members who, in 2021, led us in these efforts.

> Both teams designed and delivered programs that created Black-positive spaces where Black youth could meet inspirational role models and learn about Black excellence and achievements in STEM while gaining skills and confidence through hands-on STEM activities.

Emerging Technology and Digital Literacy Skills

In today's digitally-driven world, it's vital that youth not only know how to use emerging technologies, such as robotics, quantum computing, artificial intelligence, and biometrics but understand how they work.

Actua's digital-skill building programs equip youth with the skills and confidence to safely participate in and creatively contribute to the design of our digital world while becoming good digital citizens. Our network members across Canada offer year-round digital skill-building camps, clubs and workshops for youth in K-12. Programs help youth develop digital literacy skills while learning to code and explore app creation, artificial intelligence and big data.
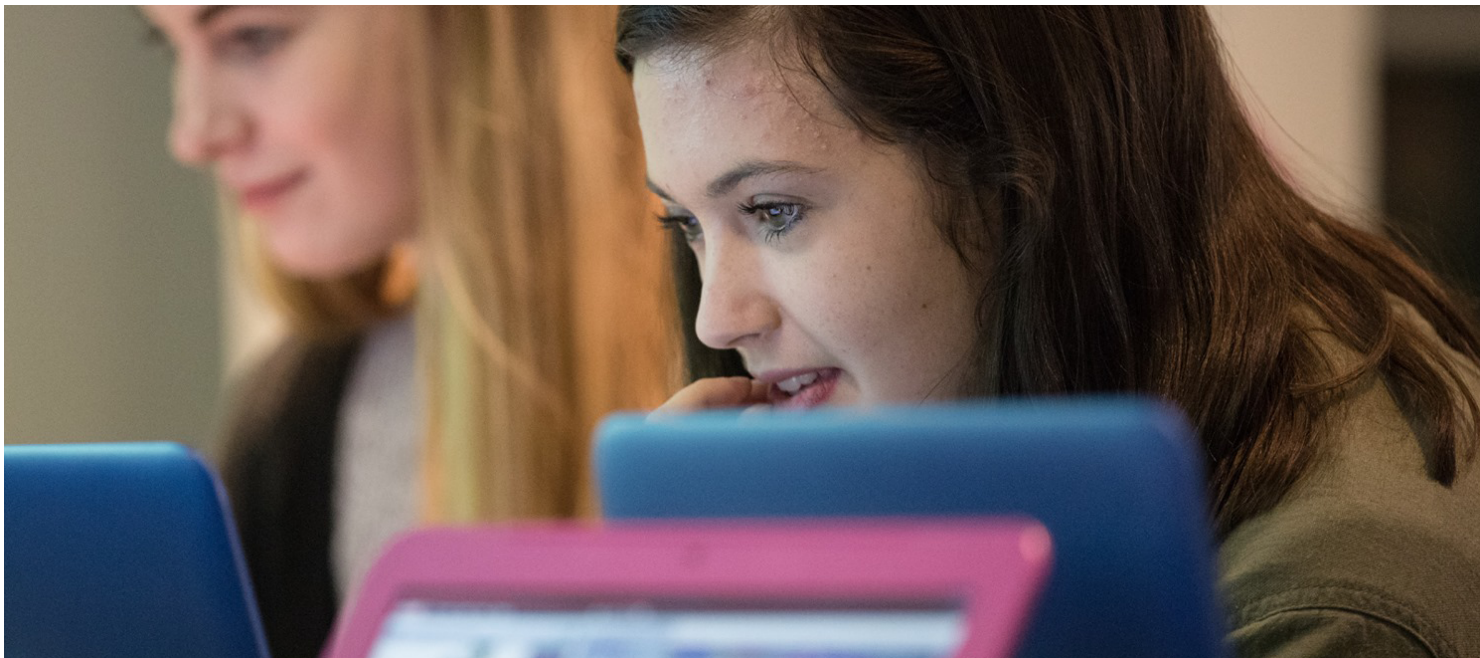
Cyber Safety

A critical part of engaging youth in technology is ensuring they have the knowledge and skills to keep themselves safe online. This has been especially critical through the pandemic as youth have spent so much time online. At the same time, technology is changing so rapidly that parents and teachers are struggling to stay on top of IT issues and privacy has often become an afterthought rather than a pillar in both how we design and use online technology. To address these growing concerns, Actua created its Engage. Empower. Connect. (E2C) project. The E2C project, which builds on the foundation of Actua's national coding and digital skills program, seeks to foster a cyber smart generation ready to embrace the challenges of the digital age by building positive digital engagement and skill-building experiences for youth to feel empowered online.

Throughout 2021, the project consisted of two six-week-long pilot programs for youth in two different age groups - youth in grades 5-7 and 8-10. Delivered by a small group of Actua's network members, participants learned how to critically assess online interactions, be proactive about online threats and use technology in innovative and safe ways through lessons, activities, games and discussion.

> Youth participating in the E2C pilot two programs reported a very high level of satisfaction and regarded the program as a fun and valuable learning experience.

At the end of the program, 91 per cent of participants who responded to the post-program survey said the program was "amazing" or "good." They also reported feeling better prepared to identify information that shouldn't be shared on the internet, identify and use reliable sources of information, help create safe and inclusive spaces online and deal with online risks and threats like cyber scams and phishing.

Actua also published an E2C Cyber Smart Educator Handbook designed to support educators in bringing cyber smart education to their classroom.

Parents and Educator Support

Actua's Teacher Training Program

Actua's teacher training program, launched in 2017, is designed to connect K-12 educators from coast to coast with innovative and inspiring professional development opportunities.

Our network members and education team travel the country to deliver educator conferences, professional development days, after-school and weekend training sessions, in-classroom mentorship and support resources. The mission of this program is to equip teachers, like students, with the toolsets, skill sets and mindsets to integrate coding and digital skills into classroom instruction.

IDEAS Summit and Actua at Home

IDEAS SUMMIT

On April 29 and 30, 2021, Actua hosted its first-ever IDEAS Summit on Inclusion, Diversity, Equity (EDI) and Access in STEM. The IDEAS Summit welcomed educators from across Canada interested in equity and allyship, anti-racism in STEM, Indigenous STEM education and inclusive activities in maker and coding education.

> Over **400 attendees registered**, covering every province and territory, and included pre-service and K-12 teachers, education faculty and instructors, STEM coaches and specialists, Tribal Council members, Actua's national network members and more.

The two-day virtual event was designed to move the dial on diversity in STEM education and careers by exploring ways to strengthen this work, knowing significant gaps still exist. Presenters and participants discussed the critical learning approaches shaping inclusive classrooms, and they left with numerous takeaways to help them on their EDI journey. Seventy-six per cent of surveyed participants said the IDEAS Summit increased their knowledge and understanding of EDI in STEM "a lot" or "very much," and 94% said they were "very satisfied" or "extremely satisfied" with the IDEAS Summit.

ACTUA AT HOME

During a time when STEM knowledge and skills are more critical than ever, the Actua Network delivered on its commitment to provide youth in Canada with positive learning experiences in STEM, especially those youth from underrepresented groups. Despite ongoing setbacks, many network members quickly pivoted so they could continue to provide STEM experiences that maintain the quality content we are known for - interactive, dynamic, accessible and highly relevant content delivered in a safe space for learning.

To highlight this tremendous pivot, Actua launched a national campaign, Actua at Home, to support and feature the work of the network. The campaign includes live events with STEM leaders, a large curated library of resources on our website, and a weekly publication promoting the innovation initiatives and content from the network.

Career Readiness

Through alternative learning and professional development opportunities, such as micro-credentialing, micro-internships and work-integrated learning, Actua helps educators, youth and our program instructors build the skills needed to future-proof their career, drive innovation and succeed in the fast-changing and competitive job market.

Work Intergrated Learning

Actua and its network hire over 1,000 postsecondary students as instructors for its STEM outreach programs every year. Knowing that students gain essential employability skills through on-the-job learning, Actua created the [Future Ready Work Integrated Learning (FR WIL)](#) initiative in early 2021 to support instructors in developing their employability skills.

> While COVID-19 has forced us to rethink and redesign WIL experiences for virtual and remote participation, we engaged over **400 students** in over **600 experiential workplace learning opportunities** that allowed participants to put their formal academic learning to practical use.

Our FR WIL experiences were hosted virtually by industry partners such as RBC, Randstad Canada and Rogers Communications Inc.

Industry Innovation

Actua plays a pivotal role in helping Canada become a global leader in innovation by building a strong culture of innovation and entrepreneurship among youth.

We deliver STEM learning experiences that prepare youth for careers in Canada's most promising industries. Over the past year, we've identified pockets of innovations within Canada's innovation ecosystem and established partnerships to support these industries build and grow a diverse and skilled workforce.

The Exploring Digital Agriculture Project

This past year, Actua, Enterprise Machine Intelligence & Learning Initiative (EMILI) and Agriculture in the Classroom Canada (AITC-C) announced their partnership to support Protein Industries Canada (PIC) in addressing the agriculture industry's growing need for a diverse and skilled workforce. Together, we're focused on strengthening the digital agriculture ecosystem in Canada by building skills, awareness for and interest in plant protein, agrifood and digital agriculture sectors among youth.

The program is designed to build critical, in-demand skills in the plant-protein, agrifood and digital agriculture sectors and connect participants to relevant career paths and opportunities to help support Canada's growing and strengthening digital agriculture ecosystem. The educational content delivered focuses on promoting equity, diversity, and inclusion in the industry by incorporating diverse perspectives, values, and worldviews, especially those of Indigenous peoples who have a deep connection and understanding of the land and its ecology.

In the first few months of the **Explore Digital Agriculture** initiative, Actua and its network engaged **6,500 students** in the prairies, including **850 Indigenous youth**.

Advancing Equity, Diversity, Inclusion & Accessibility

Since its incorporation almost 30 years ago, equity, diversity, inclusion and accessibility (EDIA) in STEM have been at the core of Actua's mission. Our commitment to advancing EDIA extends to every part of the organization, from our programs to our workplace to our governance.

Across the organization, we believe an equitable, diverse, inclusive and accessible workplace is where all employees feel valued, respected and successful regardless of gender, race, ethnicity, age, disability, sexual orientation, gender identity, cultural background or religious beliefs.

Over the past year, Actua undertook the following actions to further promote equity, diversity, inclusion and accessibility (EDIA) in our workplace:
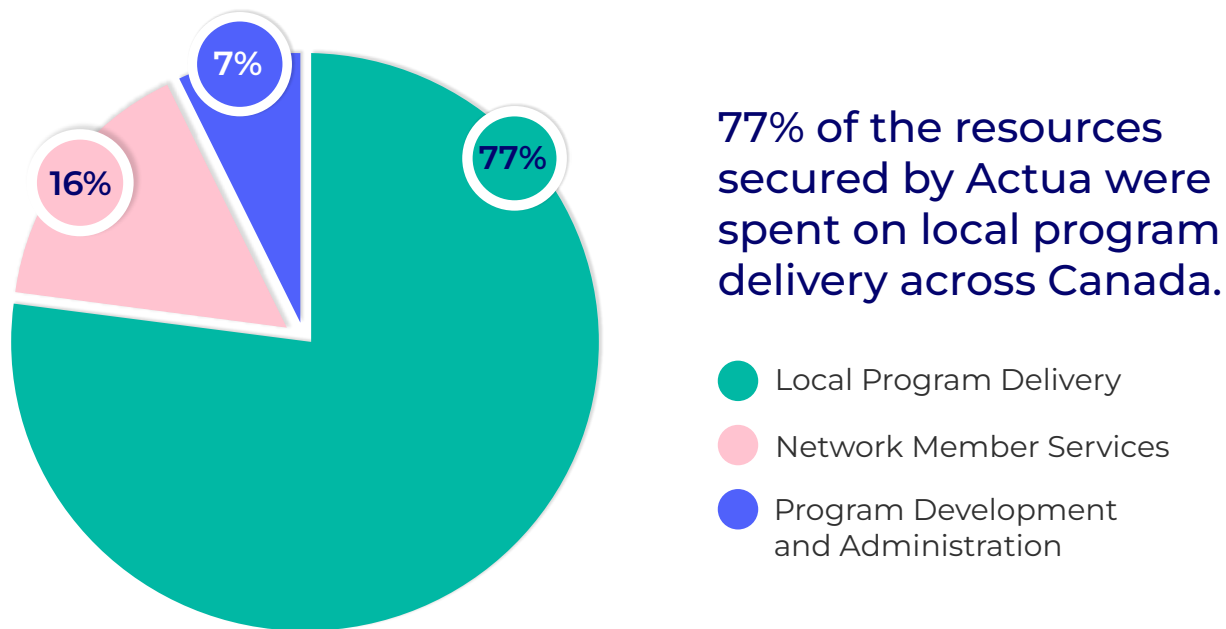
- Critically examined our current policies and practices to determine how to continue to infuse EDIA policies and practices into Actua's annual strategic plan.

- Initiated the development of an internal EDIA Committee to support EDIA practices, activities and policies at Actua.

- Documented and continued to ensure we live up to our statement on solidarity as treaty people.

- Developed and delivered staff and network member training focused on anti-racism, gender inclusion, accessibility and disability inclusion, among others.

- Participated in the 50-30 Challenge from the Government of Canada by achieving:

  - 50% women and/or non-binary people on Actua's Board and senior management team; and

  - 30% representation on Actua's board and senior management team of other equity-deserving groups: Racialized, Black, and/or People of Colour ("Visible Minorities"), People with disabilities (including invisible and episodic disabilities), 2SLGBTQ+ and/or gender and sexually diverse individuals, and Aboriginal and/or Indigenous Peoples.
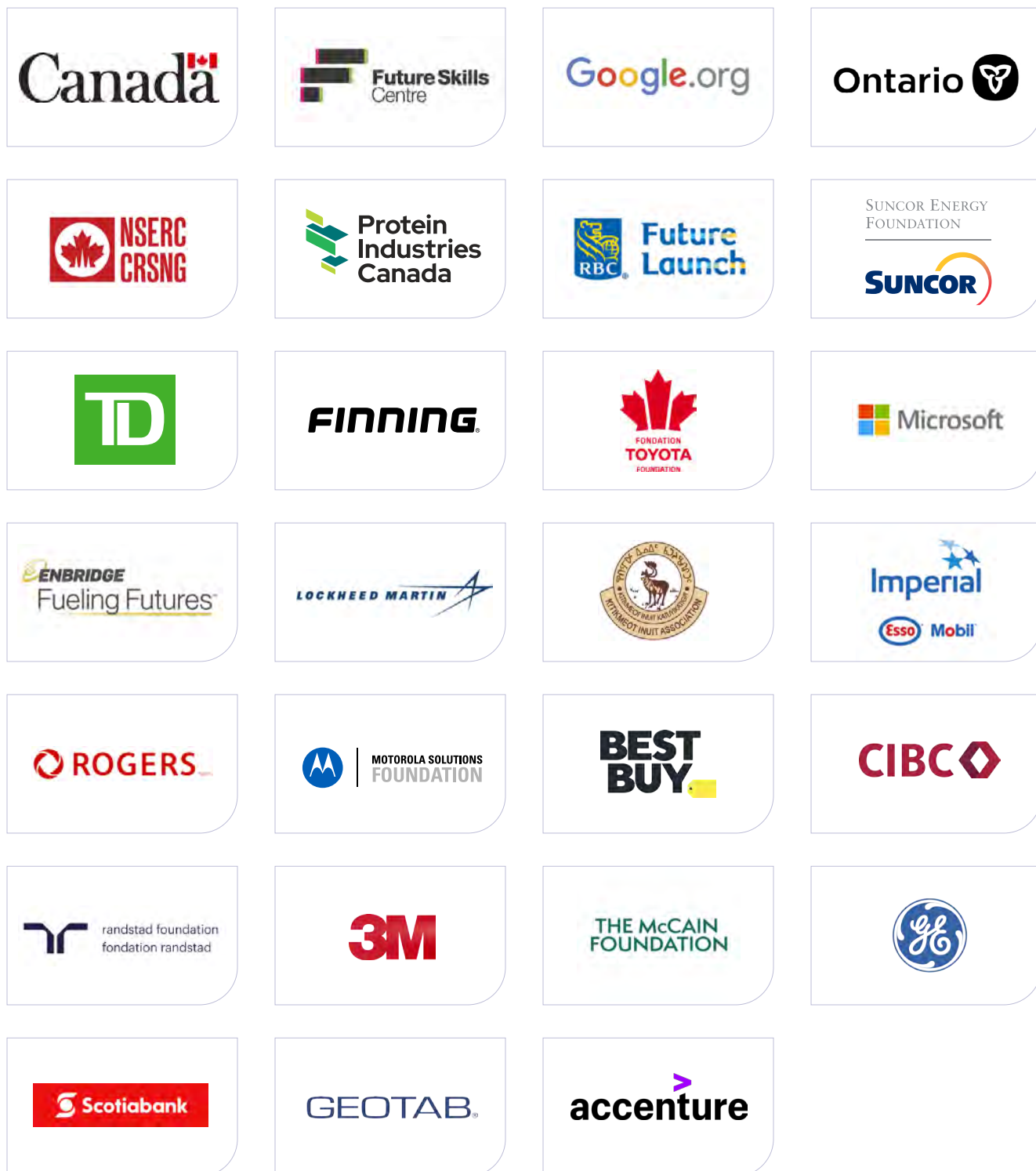
Financial Summary

Actua directs the majority of resources to the development and implementation of local programs.

In 2021, Actua's budget was $13 million. This does not include the local operating budgets of our 43 network members.

In 2021, funding from government sources was 65% due to a large federal grant. Corporate sector partners contributed 26%, while the remaining 9% came from other small sources.

7%

16%

77%

77% of the resources secured by Actua were spent on local program delivery across Canada.

- Local Program Delivery
- Network Member Services
- Program Development and Administration

Actua Supporters

Canada

Future Skills Centre

Google.org

Ontario

NSERC CRSNG

Protein Industries Canada

RBC Future Launch

SUNCOR ENERGY FOUNDATION
SUNCOR

TD

FINNING

FONDATION TOYOTA FOUNDATION

Microsoft

ENBRIDGE Fueling Futures

LOCKHEED MARTIN

KITIKMEOT INUIT ASSOCIATION

Imperial
Esso Mobil

ROGERS

MOTOROLA SOLUTIONS FOUNDATION

BEST BUY

CIBC

randstad foundation fondation randstad

3M

THE McCAIN FOUNDATION

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