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## **Seizing Canada's Moment: Actua's Contribution to Innovation in Canada**

**Transformational Experiences in Science Technology, Engineering and Mathematics (STEM) for Youth**

## Executive Summary

This document establishes a case for Government of Canada support to match corporate investment in Actua's evidence-based model of success in the delivery of transformational STEM outreach programming that prepares youth with the skills necessary to thrive in an ever-changing digital economy. The young people we reach today will become the change makers who transform Canada into a global force in science literacy and innovation. Actua's work is making a significant contribution to building a strong science culture in Canada through broad engagement of youth, parents, teachers and the community at large. As you will read, Actua is also strongly positioned to deliver in all key areas of the new Government of Canada Innovation Framework.

While it is well established that youth engagement in STEM is a proven strategy to increasing science and innovation culture and ensuring a strong future workforce, there has been no significant federal investment in this area in the past decade. In order for Canada to compete the global innovation economy these investments must be made. For almost twenty five years Actua has demonstrated success in the engagement of millions of youth in building skills and competencies in STEM. **We are requesting that the Government of Canada, in recognition of Actua's critical role in supporting innovation and science culture in Canada match the investment of corporate sector funding with \$3 million per year for five years (2016-2022).** The funding will be used to significantly scale-up Actua's models and programs to engage girls and young women, Indigenous youth, new Canadians and youth in remote and Northern communities across Canada. Over 1.25 million Canadian youth will benefit from this funding.

## Introduction and About Actua

The recent Council of Canadian Academies report on STEM skills, *Some Assembly Required: STEM Skills and Canada's Economic Productivity* outlined Canada's preparedness in meeting the future skill requirements for science, technology, engineering and mathematics (STEM). Actua is featured in the report as an example of a "Promising STEM Education Initiative". Fundamentally, the report underscores clearly what Actua has experienced over its 20 year history - that engaging youth early and often with transformational STEM experiences will position them with the resilience and flexibility they will need to succeed in a quickly evolving and hard-to-predict future labour market. The panel concluded that early educational interventions are one of the best ways to ensure youth acquire fundamental STEM skills which are essential for their active participation as citizens and for them to pursue future study or careers in these fields. A scientifically literate population is critical to Canada's ability to reach its innovation capacity. This provides strong evidence of the need to invest in national strategies, both within the formal school system and in informal learning environments that engage youth in transformational STEM experiences.

**Actua delivers transformational science, technology, engineering, and math (STEM) programming for youth ages 6-26. We are a national network of 34 member organizations located at universities and colleges across Canada. Actua annually delivers over 1 million face-to-face hours of high impact STEM programming to 250,000 youth in the form of weeklong camps, year-round clubs, school workshops and other community outreach initiatives. We reach every province and territory in Canada and deliver programming in 500 communities each year.**

By providing youth with experiences that expose them to current innovations in STEM while connecting them with inspiring role models and giving them the opportunity to learn how to fail smart and adapt, they are learning how to solve real-world problems and transforming into the innovators of tomorrow.

The Council of Canadian Academies report also highlights the ever-mounting challenge that we still face **in building the fundamental STEM skills of all Canadian youth**, specifically those who remain underrepresented in STEM fields. The report provides a clear call for investing in evidence-based models, like Actua's, that engage underserved youth in building these fundamental STEM skills. With women still making up less than 25% of the STEM workforce in Canada and graduation rates of Aboriginal people still significantly below national average, this investment needs to be significant and timely.

## Matching Corporate Investment in Actua

### Budget Ask:

Actua has secured over \$3 million per year in confirmed funding from corporate sector partners including Google Canada, GE Canada, Suncor, GlaxoSmithKline and others. **We are requesting that the Government of Canada, in recognition of Actua's critical role in supporting innovation and science culture in Canada and our proven 20-year track record, match the investment of corporate sector funding with an additional \$3 million per year for five years (2016-2022).** This funding will be used to:

- Grow Actua's network of members at universities and colleges across Canada from 33 institutions to 45 - thus significantly growing our national reach and impact in preparing Canadian youth with necessary foundational skills in STEM;
- Leverage the success of Actua's established evidence-based model for **engaging Indigenous youth in STEM** studies and careers, growing our reach to engage 10-15% of Indigenous youth in our target age range (30,000-35,000 Indigenous youth per year);
- Ensure that **youth in over 400 rural communities, including in Canada's Far North** are afforded the same transformational STEM experiences as those in urban centres by expanding rural outreach efforts;
- Enhance Actua's National Girls Program and **inspire more young women (10,000 per year)** to enter STEM studies/careers by breaking down stereotypes and building skills and confidence;
- Expand computer science and digital skills content to **build digital literacy** and computer science skills among 100,000 more youth in every province and territory across Canada; and
- Create new programs to support thousands of **teachers, parents**, and other influencers of youth with resources and training to increase youth engagement in STEM.

**Funding from the federal government would then be further leveraged to secure additional corporate support.**

### Actua Corporate Partners





## Impact of increased federal funding to Actua

- Inequality amongst youth in Canada is a chronic problem desperately in need of a solution. Equal access to workforce skills is paramount for vulnerable youth, if they ever hope to escape poverty in search of a successful and meaningful life.
- Programs provided by Actua can make this youthful hope a reality for many communities facing such adversity. With a federal contribution of \$3 million a year per year for 5 years, Actua will be able to provide more youth with access to role models and STEM programming, contributing to the development of a skilled and innovative workforce for the future.
- Connectivity is especially important and proven very effective in remote communities. Following the Attawapiskat Crisis this past April, a community group of young people met in the local gymnasium to brainstorm ideas as to how they could help improve their education experience. Suggestions such as more afterschool programs and camps were things that could readily be accommodated by Actua's program.

## Evidence-Based Models of Success

Our STEM education program models are grounded in **evidence-based research** on successful practices in breaking down barriers to youth engagement in STEM and building critical 21st century skills. Specifically, Actua's model:

- Annually employs **850 undergraduate** STEM students who serve as effective role models to promote post-secondary study. These youth ages (18-26) gain essential employability skills and increase their capacity to lead in STEM fields.
- Attracts long-term investment from **leading corporations** like GE, Suncor, GlaxoSmithKline and Google. Our corporate partners showcase current innovations and provide inspiring role models.
- Provides programs and resources to **equip influencers - parents, teachers**, and other community leaders to encourage youth to succeed in STEM.

**We are a leader in the development of a skilled and diverse future workforce, contributing directly to Canada's future social and economic prosperity.**

Over our twenty year history we have developed STEM education models that target youth populations that are significantly underrepresented in STEM fields. The following **National Programs** reflect how we do this.

**InSTEM (Indigenous Youth in STEM)** - A community-based model that annually engages 35,000 Indigenous youth in experiences that bridge traditional culture with STEM opportunities. Actua programs serve a critical role in meeting the Truth and Reconciliation Commission's call to eliminate educational and employment gaps between Aboriginal and non-Aboriginal Canadians.

**National Girls Program** - A customized approach that annually engages 100,000 girls in high-impact, girl-led STEM experiences that break down stereotypes of women in STEM.

**Codemakers** - A national program delivered by Actua, in partnership with Google Canada to transform the way youth engage with computer science. From 2015-2017, 100,000 youth across Canada will be engaged in digital skill building experiences that move them from being consumers of technology to producers of technology.

**Actua in the North** - Through Actua's Outreach Team, network members, and over 40 partnering northern communities, Actua engages approximately 5,000 northern youth a year. This includes hundreds of school workshops throughout the year and more than 30 weeks of summer camp. The programming includes customized content that showcases Northern science, traditional knowledge and Northern economic development opportunities.

**Go Where Kids Are Program** - A unique community-partnership approach to bring STEM experiences to more than 30,000 underserved youth including New Canadians, at-risk youth, and youth experiencing significant socio-economic challenges.

## Actua's Contribution to Innovation and Skill Building in Canada

Building an inclusive and innovation Canada requires investment in youth engagement in STEM and ensuring that no youth are left behind when it comes to the opportunity to achieve their potential. A bold strategy requires new investment and this proposed funding would deliver significant impact and results that will foster an innovation culture and ensure that all Canadians can benefit from innovation.

Actua is poised to deliver on the new innovation agenda in the following ways:

Fueling Canada's pipeline of diverse youth who have the necessary 21st century skills to be the innovators and entrepreneurs of tomorrow, providing them with direct exposure to high-demand fields is necessary to promote **an entrepreneurial and creative society**.

Through its Codemakers program and partnership with Google Canada, providing over 100,000 youth with the critical computer science and digital skills that are a prerequisite for success in all careers as Canada transitions from a resource based economy to a digital economy. We must make these investments early to prepare youth to **compete in a digital world**.

## Conclusion

The Government of Canada has a unique opportunity to invest a modest amount of funding in Actua's fully scalable model to achieve significant national impact. Actua has a demonstrated track record in delivering results with confirmed corporate sector investment to match the funds being requested from the federal government. This investment will also enable Actua to leverage additional corporate sector support. Over a million youth, including the hardest to reach youth in Canada, will benefit from Actua's programs and will build the skills necessary to thrive in our knowledge based economy while contributing to Canada's innovation success at the global level.