



## Investing in STEM Skills Development for Canada's Future

Written Submission for the Pre-Budget  
Consultations in Advance of the 2020 Budget

August 2019

**actüa**<sup>™</sup>

Youth · STEM · Innovation  
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## **Recommendation:**

That the Government of Canada provide funding in the amount of \$45 million over five years to support and scale Actua's programs equipping youth with employable skills that will prepare them for the future of work.

## Overview

Canada faces a serious labour force and skills shortage as a result of an aging population, increasing competition for global talent, and a growing pace of technological disruption. Without significant investment today in organizations like Actua, that provide youth with the necessary skills for the jobs of tomorrow, Canada will struggle to compete in the global economy.

Actua is therefore requesting a one-time \$45 million investment over five years to scale up our capacity to deliver science, technology, engineering and math (STEM) skills programming to millions of Canadian youth. Actua works to develop critical STEM skills in Canadian youth, particularly in underrepresented groups (e.g. Indigenous, girls, Northern Canadians, new Canadians), to prepare them for employment when facing rapidly shifting labour force demands. With this funding Actua could leverage up to a further \$115 million in commitments from partners such as private sector corporations in the natural resources, technology and finance sectors, together generating as much as \$560 million in new GDP growth<sup>1</sup>.

The core objective of this funding is providing the resources to scale-up Actua's capacity to expand the range of communities where they can offer programming. This federal investment would help to create programs that build essential and foundational skills in 3.4 million youth. Estimates suggest that this funding could help as many as 90,000 Canadian youth take up careers in STEM fields and become things like mining engineers, environmental scientists and economists<sup>2</sup>.

Further, climate change and the need to transition to a low carbon economy are increasingly pressing concerns to Canadians, and Actua's programs have an important role to play. Meeting our Paris targets will require harnessing creative solutions and leveraging the immense talent and skills of our young Canadians. Developing tomorrow's cutting-edge clean technology starts with investing in Canadian youth today.

## The Challenge We Face

Developing a globally competitive future workforce means investing in a strong STEM ecosystem. However, many gaps remain, especially the underrepresentation of women, new Canadians, and Indigenous peoples in Canada's high skilled workforce. For 25 years, Actua has worked to address these challenges, providing underrepresented and underserved youth populations (from Kindergarten to age 26) with access to the workforce development skills and confidence-building experiences necessary to encourage careers and education in STEM.

Scaling up Actua's skill development programs is critical and supporting STEM programming beyond coding skills is key. Actua's largest corporate partners (Suncor, Finning, Google, Microsoft, GE Canada, RBC, Lockheed Martin and more) also want to see investment in the development of broader STEM skill sets. Corporate partners have continuously expressed the need for the federal government to take leadership at the table for them to continue with their investments.

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<sup>1</sup> C G. Hermus and R. Zhuang, "Economic Footprint of Actua's Program Activities". Ottawa: Conference Board of Canada, 2018.

<sup>2</sup> Ibid.

To prepare young Canadians with future relevant work skills, Canada must support well-established, complementary organizations like Actua. Sparking an interest in youth for the innovative and creative jobs of tomorrow while building essential employability skills that will prepare them to excel in the highly adaptive, technology-driven workplaces of the future.

Actua is therefore seeking a one-time \$45 million federal investment over five years to increase the program delivery capacity of its 38 local STEM outreach member organizations to engage more youth in deep impact STEM programs. This one-time investment by the federal government would leverage over \$115 million in corporate and other funding to scale youth workforce skills development programs across Canada, particularly among underrepresented workforce demographics. This investment would build Actua's network capacity across Canada and would be self-sustaining upon the investment's end after five years.

### **Actua's Role Filling Future Skills Gaps**

Canada's future prosperity and well-being depends on the extent to which we can improve our competitive performance and drive economic opportunities for Canadians traditionally underrepresented in the workforce.

A key component to this challenge is filling workforce development and skills gaps between traditional institutions (e.g. schools, universities, and colleges) and on-the-job training. This can be done by investing in community-based, culturally relevant STEM programs for young Canadians.



Actua's network is uniquely positioned to deliver the federal government's commitment to equip youth with skills and competencies for the future workforce and to ensure diversity and inclusive growth throughout the process. This includes extensive engagement with Indigenous youth in Canada.

Over the last two decades, Actua has engaged over 5,000,000 Canadian youth – a number it seeks to expand through federal support. Actua now works in over 500 communities in every province and territory. We are a trusted STEM delivery partner in over 200 First Nations, Métis, and Inuit communities, engaging over 35,000 Indigenous youth annually – more than any other organization in Canada. Actua has also completed research, including studies with Status of Women Canada, on the most effective ways to engage and inspire girls and young women in STEM education and careers. The findings, including the effectiveness of longer, repeat engagements through camps and clubs, rather than one-off exposure workshops, were actioned through Actua's National Girls Program, engaging 150,000 girls each year across 500 Canadian communities.

Actua's success in attracting and retaining global companies as funding partners will strengthen with a federal funding commitment. **Federal investments would represent under 30% of the total expenditures of the network in any one year.** The remaining funds would come from the corporate sector, user fees, local funders, universities, and foundations.

This investment will build Actua's capacity by establishing new programs in new communities and ensuring those programs have the capacity to become self-sustaining. Specifically focusing on engaging populations of youth that have traditionally been underemployed or unemployed, thus having a significant long-term impact on the economy. A federal government investment of \$45 million over five years will have the following results:

- A 23% increase in Indigenous youth engagement through community-based programming that connects Traditional Knowledge with STEM resulting in a total projected engagement of 219,000 Indigenous youth in 200-250 communities.
- Northern Youth engagement will increase by over 50%, with a total projected engagement of 61,000 youth across Yukon, Northwest Territories, and Nunavut.
- Girls engaged in high-impact, all-girls programs will increase by over 20%, with a total projected engagement of 72,500 girls.
- Engagement of New Canadians and youth facing socio-economic challenges will increase by 25%, with a total projected engagement of 236,000 at-risk youth.

Actua and its network will also generate new content and programs based on cutting-edge research and will support additional capacity for local partnerships through capital expenditures (e.g. space, computers, supporting equipment, and property). As part of this capacity expansion, Actua will enhance its network from 38 to 50 local partners across Canada.

Importantly, annual face-to-face hours of youth engagement will increase by 35%, with a total accumulation of over 13 million face-to-face hours of youth programming delivered over the duration of the grant. This scale-up initiative will put Actua on a sustainable footing for future operations at this enhanced capacity by attracting increased national and local corporate and foundation support.

The following table details projected youth engagement over five years:

	Current 2019	2020	2021	2022	2023	2024	Total
Total Youth Engagement	500,000	600,000	647,500	682,500	717,500	752,500	3,400,000
Face-to-Face Hours	2,000,000	2,500,000	2,600,000	2,650,000	2,675,000	2,700,000	13,125,000
Engagement of Underserved Youth							
Indigenous Youth	38,000	40,000	42,000	44,000	46,000	47,000	219,000
Northern Youth	9,500	10,000	11,000	12,000	13,000	15,000	61,000
Girls (in all-girls programs)	12,500	13,500	14,000	14,500	15,000	15,500	72,500
Other At-Risk	40,000	45,000	45,000	47,000	49,000	50,000	236,000
Training of Teachers	3,000	4,000	5,000	5,500	6,000	6,500	27,000
Network Members (number of institutions delivering programs)	38	40	43	45	47	50	50

## Impact of Actua’s Federal Funding on the Economy

The impact of this federal investment can be measured not only in Actua’s ability to scale-up its programming, but also by long-term economic impacts from wider STEM capacity within the Canadian economy as a result of youth participation in Actua’s programs. It is important to note that youth leadership and employment are at the centre of Actua’s work. The organization employs over 1,000 undergraduate and college students and plans to double that with this federal investment.



Pre-and post-program surveys conducted by Actua over the past three years found the majority of the 10,303 surveyed participants reported positive changes in their enjoyment of STEM-related fields (81-84%) and their intent to pursue STEM-related higher education (70-74%) and employment (64-69%).

According to research conducted by the Conference Board of Canada, increased confidence is significant. Over five years, the Conference Board estimates that an increased level of confidence from Actua’s programs will lead as many as 90,000 Canadian youth – including girls and Indigenous youth – to pursue STEM education and/or careers.<sup>3</sup>

For individuals, a STEM career provides strong middle-class jobs, with careers in STEM fields elevating their

<sup>3</sup> Ibid.

lifetime earnings by 20%.<sup>4</sup> This equates to as much as \$341 million in increased lifetime earnings for Actua participants.

A total investment of \$160 million (\$45 million federal contribution) will generate \$560 million in GDP growth and \$169 million in increased tax revenue.<sup>5</sup>

By supporting Actua's programs, the federal government would be positioning thousands of Canadian youth for long-term economic success, securing a greater financial return for the Government and a higher economic and innovative impact for the Canadian economy.

## About Actua

Actua represents a network of 38 local organizations that share the mandate of developing essential employability skills in youth within STEM. Actua programs catalyze and foster an early career interest among youth in the STEM fields. Each year, Actua's network engages more than 250,000 young Canadians in 500 communities reaching every province and territory.

Actua's for-youth-by-youth learning model has been key to Actua's success. This is particularly evident in reaching youth populations traditionally underrepresented in STEM fields (e.g. girls, Indigenous and Northern Canadians, and new Canadians). Its evidence-based model integrates intensive, personalized instructor time with programming that incorporates cultural experience, community context, and specialized learning techniques to engage all learners.

Another key success factor is Actua's multi-sector approach to providing youth with relevant experiential learning opportunities in STEM. Through partnerships with leading corporations including Google Canada, GE Canada, Shopify, TD, Toyota, Microsoft, Lockheed Martin, Suncor and others, Actua provides youth with direct exposure to real-time applications of STEM and emerging technologies.

Finally, Actua works collaboratively with local, regional, and national organizations along with corporate sector partners to extend impact and build systemic change.

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<sup>4</sup> Ibid.

<sup>5</sup> Ibid.