



Deloitte.

**Queen's University Economic and Community
Impact Study**

Report Released February 2021

Disclaimer

Deloitte LLP (“Deloitte”) has provided this draft report to Queen’s University (“Queen’s”) (“the University”) (“university”) as part of a project to quantify and characterize dimensions of the economic contributions that Queen’s Universities supports. This report was developed through quantification of economic contributions, secondary literature review, and selected stakeholder consultations between April 2020 – November 2020. This report is in draft format and reflects an initial review from Queen’s University but has not yet gone through final risk assurance and quality assurance processes required to be submitted in final. The report has been divided into modules as follow:

- Local, Provincial and National Economic Contribution
- Community, Health, and Social Contribution
- Research, Innovation, and Development Contribution

Each module is a selection of analysis grouped thematically. Associated appendices have been attached where relevant.

This executive summary provides a broad overview of the contents included in each of the modules. The three modules have been submitted under separate cover.

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We believe that our analysis must be considered as a whole and that selecting portions of the analysis or the factors considered by it, without considering all factors and analyses together, could create a misleading view of the issues related to the analysis. Amendment of any of the assumptions identified throughout this report could have a material impact on our analysis contained herein. Should any of the major assumptions not be accurate or should any of the information provided to us not be factual or correct, our analysis, as expressed in this report, could be significantly different.

Message from Craig Alexander, Chief Economist at Deloitte

One of Canada's greatest economic strengths is its world class post-secondary education sector, and Queen's University is a leading example. When viewed holistically, Canadian universities are anchor institutions in their respective communities that create profound economic and social benefits – nationally, provincial and especially locally. However, economic contribution assessments often focus on quantifying economic output derived from a university. This approach doesn't always capture the full breadth of notable economic activity. Our study intentionally takes a broader look at the economic impact of Queen's University on the community through both traditional and non-traditional lens. In a classical economic sense, an anchor firm creates an economic cluster that is central to economic and social development, as they provide benefits of infrastructure, employment, income, investment attraction, knowledge creation and knowledge sharing. Just as the presence of a tech company giant can create a technology cluster, like Silicon Valley, Canadian universities also have a profound effect on shaping their local economy and local living standards.

Queen's University makes large scale investments, all of which contribute to economic growth. As a significant employer in the region, Queen's University creates jobs in the community. Wages are often reinvested in the local community as the university's employees serve as customers for local businesses. Notably, the less volatile nature of the education sector to negative economic shocks also provides the region with a degree of economic resilience during tough economic times. To demonstrate the magnitude of economic activity supported, let's take Queen's operations as a case in point. In 2018/19, Queen's operations contributed over \$1.6 billion to Canadian GDP, supported over 14,500 full-time equivalent jobs and generated \$394 million in government revenues.

The traditional way of thinking about universities is that they help prepare our youth to succeed in an ever changing and increasingly complex economy. They are also a key exporting sector, but instead of shipping services abroad, they attract students from around the world to Canada – creating international ties. Over time, students who choose to come to Canada for university can choose to live here permanently and contribute to our communities and economy.

A strictly traditional economic impact assessment could understate the full importance and impact that Queen's has as an anchor institution. In our report, we've chosen to spotlight community dimensions of the university's operations often not captured in classical assessments. Importantly, local residents not attached to the university can also access its facilities. Some of the contributing building blocks of a high quality of life and well-being in Kingston are tied to the university. For example, the university's Agnes Etherington Art Centre welcomes 36,000 visitors annually, and the university's Isabel Bader Centre for the Performing Arts welcomed over 41,000 visitors in 2018/19. Queen's presence in the region can help spur important activity. The university helps to attract investment into the region, both by domestic governments and firms as well as enhancing the region's value proposition for foreign direct investment. Queen's innovation ecosystem also supports the development of new technologies and approaches to solve global challenges. For example, companies and entrepreneurs that have been supported by Queen's have created or retained more than 1,000 jobs, trained more than 5,000 people, and attracted more than \$225 million in investments to Eastern Ontario.

Moreover, Queen's provides local residents with access to leading, specialized healthcare in their backyards– a key challenge for many communities in Canada that are the size of Kingston. For example, the university has played an important role increasing access to Cancer Care in Kingston for over 175 years. The university also has an important role as a values leader. Queen's has made choices that can increase representation and opportunities for historically marginalized groups such as our indigenous communities. Additionally, the university has made new commitments to address current and historic anti-black racism on campus, and support women in STEM. These choices not only can support a more equitable workforce, but can also help contribute to broader momentum towards an inclusive Canada. Queen's students, staff, and faculty donate their time, expertise, and resources to local non-profit organizations to help address community challenges in partnership. Through its PhD Initiative for example, the university provides invaluable pro-bono services to tackle challenges identified by the community such as affordable housing, extending learning in the classroom into the community.

The bottom line is that Queen's University makes a large economic impact nationally, provincially and locally. However, its biggest impact is how it helps to make Kingston a thriving economy and community. Through employment, income, local business sales, investment attraction, healthcare services and cultural activities – the university is foundational to Kingston's success.



Craig Alexander
Deloitte Chief Economist & Executive Advisor

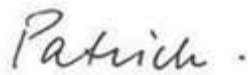
Message from Patrick Deane, Principal and Vice-Chancellor

I am very pleased to be able to introduce the report contained in the following pages, a document important for Queen's University as it provides real data on the current impact of our university in our community. As we chart our path for the future, having a sense of where we are today provides us insight on where we might be tomorrow. This is a report of not just current impact but also capacity and potential.

Our university is located in the heart of Kingston, a situation which encourages collaborations, supports many businesses, and contributes to the City's greenspace and transitways. Being in the middle of it all also means that the institution has a significant effect on our city's infrastructure. Our impact is felt across a range of dimensions—economic, social, and cultural—as well as on local sustainability, health, and wellbeing. We are one of the largest institutions in the community, and one which brings together more than 30,000 staff, faculty, and students.

The university partners with other organizations and agencies to support some of our most vulnerable populations, advance wellbeing, bring innovations to market and help local businesses to grow. As a public institution, Queen's has a responsibility and a duty to be a positive force and an active partner for the Kingston community. The university also has a role to play in addressing pressing community issues such as housing, economic recovery in the wake of COVID-19, and efforts to build a more inclusive, diverse community that is safe and respectful for all who wish to call Kingston home.

Though there is a natural tendency to view most things related to Queen's as happening on our principal thoroughfare of University Avenue, the fact that the main campus is situated at the intersection of Union and Division is more significant. The symbolism of the location has been pointed out before, but is no less striking because of that. We are reminded daily of something essential to any future plan for Queen's and its home, the City of Kingston: it will always be a choice to find union, or division, in how we live, work, and play in this community. We need to embrace the potential to build something remarkable together. At Queen's we have a responsibility to understand our impact and to ensure that the road we choose for our future is one that benefits us all.



Patrick Deane
Queen's University Principal and Vice-Chancellor



Message from Michael Fraser, Vice-Principal (University Relations)

Universities have tremendous potential to be drivers of a community's success, vitality, and wellbeing. When Queen's engaged Deloitte to undertake this *Economic and Community Impact Study*, the university sought to go beyond traditional economic analysis. We wanted to paint a more complete picture of the many ways in which the university and the community work together for the benefit of the people of Kingston and the surrounding region.

Early in the process of working with Deloitte, we realized that there was simply too much information and too many activities to convey in the context of a single report. While we have broken down the report into three snapshots to help make it more readable, there are many more stories about impactful partnerships between Queen's and the local community that we haven't been able to include. We will continue to work with our university partners to tell those stories as we move forward.

As Principal Deane has said, this report represents a snapshot in time, and the tremendous potential for Queen's and the community to work together and make a difference for all.

Michael Fraser
Queen's University Vice-Principal (University Relations)



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Executive Summary



About the report

Exploring the economic and community contributions of Queen's University

Across Canada, there are several 'university towns' - cities in which a post-secondary institution is a key component of the culture, experience of living in the town and a feature of the local economy. It can be tempting to group these cities together – noting that the university or college may be one of the largest employers in the city. When looking at Queen's University ('Queen's') ('the university') and its contributions to the local Kingston economy, the university and the town are intertwined, supporting each other.

Accordingly, Queen's University has retained Deloitte LLP to characterize and estimate the social and economic contributions of the university to the Kingston region, Ontario and Canada, and to explore and articulate selected societal benefits the university is able to deliver to the local community.

This draft report explores these economic and community contributions by highlighting three major themes including Queen's University's:



Ability to support the local, provincial, and national economy through its annual operations, capital investments, out-of-town students spending, and out-of-town visitor spending



Contributions to a healthy and sustainable Kingston and its commitment to an equitable community for all



Advances in research, innovation, and development initiatives that breakdown barriers to innovation in the region

Each theme is profiled in a short snapshot report which can be read separately.¹



1. Three snapshot reports include: 1) Local, Provincial and National Economic Contribution 2) Community, Health, and Social Impact 3) Research, Innovation and Development Impact

Stakeholder consultations underpinning our report

List of stakeholders consulted

UNIVERSITY INTERVIEWS		
Name	Title	Organization
Kandice Baptiste	Director	Four Directions Indigenous Students Centre, Queen's University
Principal Patrick Deane	Principal and Vice-Chancellor	Queen's University
Sam Heimstra	Rector	Queen's University
Gregory Bavington	Executive Director	Dunin-Deshpande Queen's Innovation Centre (DDQIC), Queen's University
Nathan Splinter	Manager, Energy and Sustainability	Sustainability Office
Stephanie Simpson	Associate Vice-Principal	Human Rights, Equity and Inclusion
Jane Philpott	Health Sciences Dean	Queen's University

EXTERNAL INTERVIEWS		
Name	Title	Organization
Bryan Paterson	Mayor	City of Kingston
Craig Desjardins	Director, Strategy, Innovation & Partnerships, City of Kingston	City of Kingston
Donna Gillespie	Chief Executive Officer	Kingston Economic Development Corporation
Dr. David Pichora	Doctor	Kingston Health Sciences Centre
Bhavana Varma	President & CEO	United Way of Kingston, Frontenac, Lennox & Addington
Ted Hsu	Co-Chair	Mayor's Task Force on Housing

CASE STUDY INTERVIEWS
<p>City of Kingston: Joanne Borris and Ruth Noordegraaf</p> <p>PhD students:</p> <ul style="list-style-type: none"> • Joshua Moskowitz (Neuroscience) • Thomas Linder (Sociology) • Hannah Ramsay (Chemistry) • Erika Peter (Psychology) <p>Queen's Law Clinics:</p> <ul style="list-style-type: none"> • Karla McGrath, Executive Director of the QLC, and Founding Director of Queen's Family Law Clinic) • Blair Hicks, Director, Elder Law Clinic • External partner organization/community group (Kaymar) <p>Queen's Faculty:</p> <ul style="list-style-type: none"> • Karma Tomm, Director, Queen's Community Music and Sistema Kingston • Rebecca Luce-Kapler, Dean, Faculty of Education • Principal from partner school, Molly Brant Elementary School, Alison Fraser <ul style="list-style-type: none"> • Paul Webster (IPG Photonics) • Malcom Eade, Co-Founder and CEO, Spectra Plasmonics Inc. <ul style="list-style-type: none"> • Dr. Berry Scott, Queen's University Medical Director, Cancer Program, Kingston Health Sciences Centre • Dr. David Berman, head of the Queen's Cancer Research Institute (QCRI)

Quantifying the university's economic contribution

There are 4 key activities that drive Queen's University's economic contribution to Kingston region, Ontario and Canada

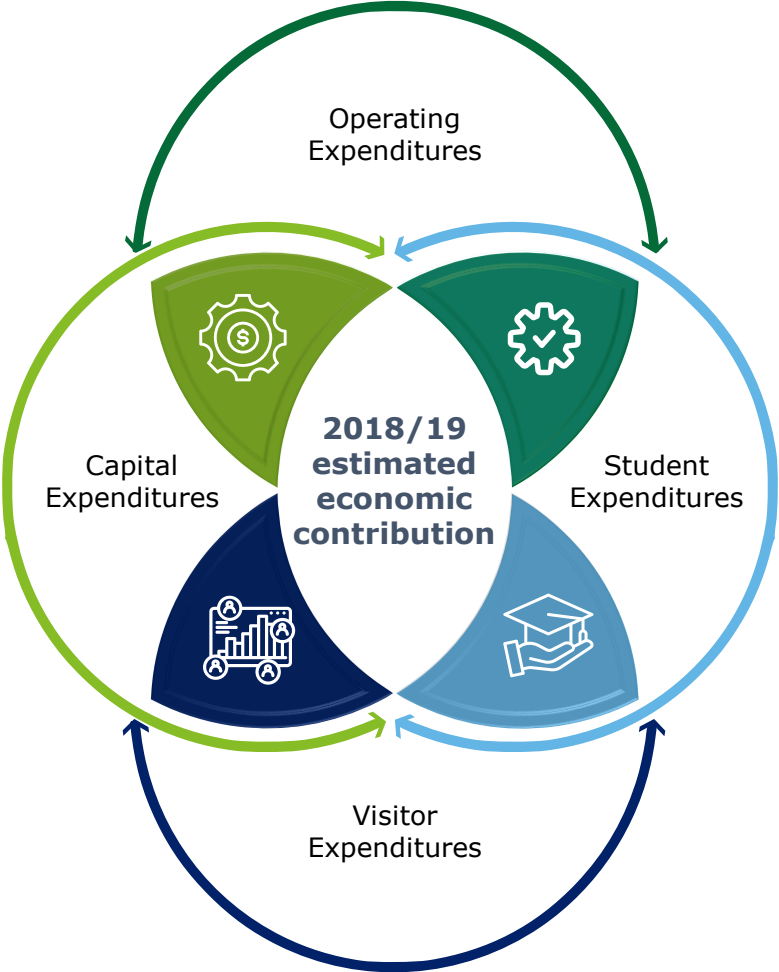
Deloitte utilized a holistic approach to assess the university's economic contribution to Kingston region, Ontario and Canada. Using the latest available 2018/19 data, Deloitte estimated the university's impacts to the economy across 4 key activities as follows:

Capital Investments

Queen's University incurs expenditures toward its campus and buildings, supporting jobs while contributing to Kingston's mix of history and innovation.

Out-of-town Visitor Spending

Queen's University draws friends and families of students, alumni, prospective students, and professionals attending conferences who visit for the day or a weekend. The spending from these groups supports local businesses and Kingston's economy.



Annual Operations

The university is a key employer in the region and incurs expenses through purchases of goods and services to supports its operations contributing to local jobs and businesses.

Out-of-town Student Spending

Queen's University draws students from across Canada and the world, whose spending supports the local business and Kingston's economy.

Summary of Queen's University's economic contribution

The university's activities generate expenditures that ripple through the local, provincial, and national economy and generate significant economic impacts

Summary of Quantified Economic Contribution, 2018/19



Kingston

Queen's University contributed **\$1.67** billion in GDP and **14,946** FTE jobs to Kingston.



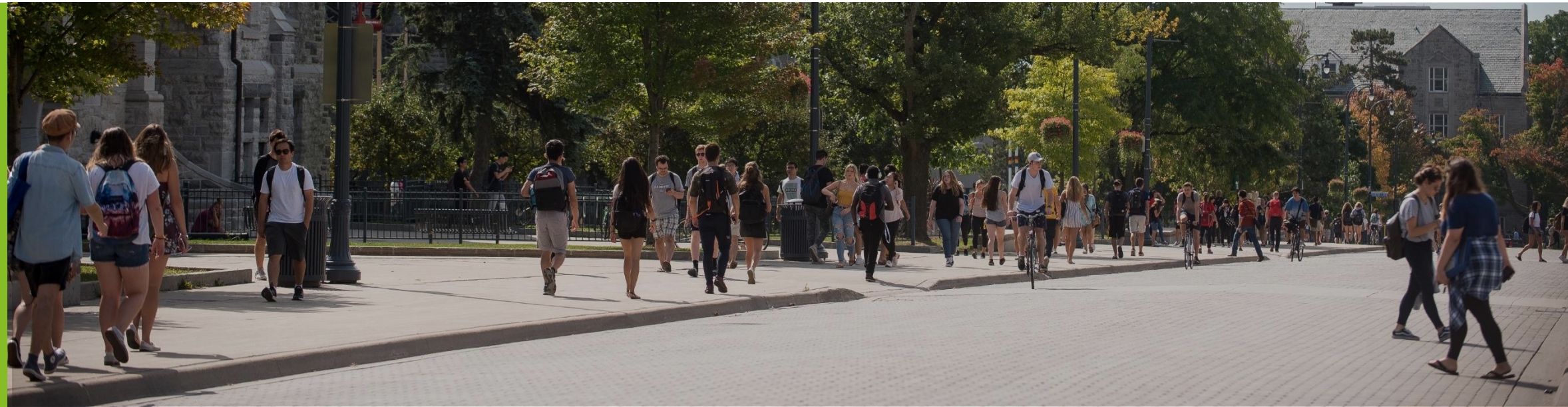
Ontario

Queen's University contributed **\$1.88** billion in GDP and **16,790** FTE jobs to Ontario.



Canada






Queen's University contributed **\$1.93** billion in GDP and **17,487** FTE jobs to Canada.



Breakdown of Queen's University's economic contribution

The university's activities support important economic activity, with spending on its operations driving a majority of GDP and job creation

Segmentation of Quantified Economic Contribution, 2018/19

	GDP	FTE
 <p>Operations University is a direct employer of 7,726 paid FTEs</p>	<p>The university operating expenditures contributed:</p> <ul style="list-style-type: none"> • \$1.57 billion to Canada's GDP • \$1.54 billion to Ontario's GDP • \$1.37 billion to Kingston's GDP 	<p>The university operating expenditures created or sustained:</p> <ul style="list-style-type: none"> • 14,588 FTE jobs in Canada • 14,115 FTE jobs in Ontario • 12,593 FTE jobs in Kingston
 <p>Capital Investments Major revitalizations such as Mitchell Hall</p>	<p>The university capital expenditures contributed:</p> <ul style="list-style-type: none"> • \$73 million to Canada's GDP • \$67 million to Ontario's GDP • \$59 million to Kingston's GDP 	<p>The university capital expenditures contributed:</p> <ul style="list-style-type: none"> • 714 FTE jobs in Canada • 660 FTE jobs in Ontario • 592 FTE jobs in Kingston
 <p>Out-of-town Students Supporting local food scene, and independent retail</p>	<p>Out-of-town students contributed:</p> <ul style="list-style-type: none"> • \$281 million to Canada's GDP • \$262 million to Ontario's GDP • \$237 million to Kingston's GDP 	<p>Out-of-town students contributed:</p> <ul style="list-style-type: none"> • 2,081 FTE jobs in Canada • 1,918 FTE jobs in Ontario • 1,672 FTE jobs in Kingston
 <p>Out-of-town Visitors Supporting tourism (hotels, restaurants, entertainment)</p>	<p>Out-of-town visitors contributed:</p> <ul style="list-style-type: none"> • \$8 million to Canada's GDP • \$7 million to Ontario's GDP • \$6 million to Kingston's GDP 	<p>Out-of-town visitors contributed:</p> <ul style="list-style-type: none"> • 105 FTE jobs in Canada • 97 FTE jobs in Ontario • 89 FTE jobs in Kingston
 <p>R&D Leading research on the world's most pressing challenges</p>	<p>R&D activities undertaken over the 2014/15-2018/19 period resulted in Ontario GDP contribution of \$144.1 million in 2018/19</p>	<p><i>Not applicable</i></p>

The role of the university in shaping the Kingston community

Some of Kingston's most notable features as a community are influenced by the presence of the university

For local residents, there can be drawbacks to having a university as a neighbour. However, research shows that 'university towns', which can be defined as communities with a significant university population, can be positioned to gain unique benefits as compared to other similar communities without a university by creating and retaining a more educated population (Abel and Deitz, 2011). Plainly, universities attract talent into a community. Notably, "the amount of human capital in a region is a key determinant of its economic vitality and long-run economic success", whereby "higher education institutions can play a vital role in local economic development" (Abel and Deitz, 2011). Research also supports the notion that there are higher incomes in university towns compared to non-university towns, holding all else equal. For Kingston, there are several examples of the university contributing to positive socioeconomic characteristics in the community such as:



Post-secondary attainment: Kingston was named as the "smartest workforce in Canada with the most PhD Graduates per capita", which is directly related to the premier graduate school programs and 3,313 graduate students at Queen's University. Notably, Kingston has a highly educated population as a whole - with 58% of people holding a post-secondary degree compared to 55% in Ontario (Census, 2016). These ideas and approaches can contribute their skills and experience in local workplaces, thereby contributing to the generation of new ideas and approaches.



A strong educational services sector: Kingston's largest industries by labour force share are health care and social assistance, educational services, public administration, and retail trade. Notably, in Kingston, educational services, including Queen's and other local post-secondary institutions, represent 12.2% of the workforce compared to only 7.4% in Ontario (Canada Census, 2016).



Job creation: Queen's is a key employer within the region and represents approximately 9.5% of local employment.¹ Mainly supported by a strong knowledge-based and service sector economy, Kingston's employment base consisted of 74,800 jobs in 2016 (City of Kingston, 2019). Employment is estimated to increase to 85,700 jobs in 2046 (City of Kingston, 2019), driven by the continued fast growth from knowledge-based sectors, including Queen's University, and a broader shift from goods to services production in the city.



Strong rental market: Every year, Queen's University attracts thousands of students to Kingston, creating strong demand for local rental housing. Over time, the pull factor of the university has contributed to Kingston having a 16% higher average cost of rentals compared to the national average (Local Labour Market Planning, 2017). While the vacancy rate more than tripled to 1.9% in 2019 compared to 0.6% in 2018 (an all-time low), there are multiple pressures on real estate supply in Kingston and the city has estimated that 3,045 units are still needed by 2022 to reach healthy vacancy levels. Queen's is currently building a new student residence and continues to engage with local partners on the issue of housing in Kingston.

1. Figure based on Queen's direct employment data provided by the university and broader employment data for the Kingston region obtained from Statistics Canada's 2016 Census profile for Kingston CMA

Queen's University at the table with local partners

The university is a strategic partner to local government and civic leaders

Many of the ways in which the university contributes to the experience of living and working in Kingston happen organically. Around the world, the university's ability to contribute to a strong educational sector occurs naturally as the university attracts talented students from around the world. In other instances, however, Queen's University has taken intentional steps to stand shoulder to shoulder with local partners to work together for shared goals.

In 2019, Patrick Deane, Principal and Vice-Chancellor of the university initiated a series of consultations (Conversation Series) with local government, community leaders, university staff, faculty and students to solicit perspectives on how the university could enhance its role as a partner

This initiative built upon previous partnerships the university has struck with the city. For example, in 2017, Kingston City Council voted in favour of an agreement that would see Queen's University and the City of Kingston work together to support innovation, economic development and the retention of more young people in the community. The city and the university had also formally partnered in a Memorandum of Understanding which focused on:

- The attraction and retention of university graduates (knowledge workers) for local employment.
- The development of the City of Kingston as an economic development leader in Eastern Ontario.
- The development of infrastructure and support systems, in partnership with Queen's, to support business incubation and acceleration.

There are also a suite of other initiatives, including the Mayor's Innovation Challenge, where the university partners with the local government to put on a competitive initiative in which students are invited to submit proposals to tackle real world problems in Kingston, such as climate change, food security and improving accessibility.



Queen's University plays an important role in the social and community vibrancy of Kingston

There are 5 key dimensions that drive the university's community, health, and socio-economic impacts to Kingston region, Ontario and Canada

Envisioning a more sustainable future

Climate action is a key priority for Queen's and is governed at senior levels of the administration, including a dedicated working group, that sets targets to reduce climate impacts. Seeking achievement of carbon neutrality by 2040, Queen's has **reduced Greenhouse Gas (GHG) emissions by 24%** from facilities and operations from 2008 to 2019. The university also has **over \$30 million in investments** directed towards energy reduction projects on campus.

Increasing access to facilities and educational services

Queen's provides free or reduced cost access to world-class facilities such as the Queen's Athletic and Recreation Centre, where **members of the community can access Queen's annually**. Queen's Q Camps and the Junior Gaels Program **provides young Kingston athletes** with the opportunity to meet and learn from current Queen's University Gaels athletes and coaches.

Contributing to a more global and diverse community

Attracting students and faculty from over 120 countries, Queen's helps Kingston become a more international city. International students account for 11.9% of undergraduate and 27.4% of graduate full-time student enrollment at Queen's.



Building an inclusive Kingston community

Queen's provides students with forums such as Queen's Native Students Association and Queen's Black Academic Society to create important dialogue on campus related to equity, diversity, inclusion and indigeneity matters. In 2020, the university committed **an additional \$25,000 every year** to the university's existing Inclusive Queen's Community Fund, bringing the annual total of funds to \$75,000.

Committing to an equitable and healthy Kingston community

Queen's students, staff, and faculty serve the most vulnerable populations in Kingston by donating their time and expertise to a range of local non-profit organizations in Kingston. For example, Queen's raises funding and donates other in-kind items such as food, clothing and hygiene products to over **55 local community organizations** in Kingston. Additionally, in 2020, Queen's University faculty, staff, and students raised **\$400,000 towards the United Way's annual campaign**.

Exploring Queen’s economic, community and social contributions through case studies

Highlighting real world examples of Queen’s University’s community, health, and socio-economic impacts

Students solving local business and community challenges



The PhD Community Initiative



Launched in 2016, Queen’s PhD Community Initiative brings Queen’s doctoral students together with local organizations in Kingston. Community organizations identify challenges they are facing, and Queen’s works with the organizations to develop a specific project and deliverables.

Helping North Kingston thrive



Sistema Music Program



Sistema Kingston is an intensive after-school music program that provides free musical education for grades 2-6. The program uses music as a vehicle to teach valuable life skills to students in North Kingston and inspire them to reach their full potential. The annual Sistema curriculum culminates in an end-of-year concert at the Isabel Bader Centre at Queen’s University.

Supporting world-class healthcare in Kingston



Cancer Care for Kingston residents



With one of the oldest medical faculties in Canada, Queen’s University is fully affiliated with Kingston’s Health Science Centre, ranked one of Canada’s top research hospitals. For over 175 years, Queen’s has played a crucial role in the local healthcare ecosystem, including a focus on cancer research and patient care.

Serving vulnerable population



Queen’s Law Clinics



Queen’s Law Clinics (QLC) were created to support vulnerable populations and help them navigate the legal landscape. QLC offers residents in Kingston and Southeastern Ontario access to free or low-cost legal services, while providing students with unique hands-on clinical experience in business law, family law, poverty law, prison law and elder law.

Supporting entrepreneurship in the local community











Queen’s Innovation Ecosystem



Queen’s Dunin-Deshpande Queen’s Innovation Centre (DDQIC), in collaboration with Queen’s Partnership and Innovation (QPI), aims to accelerate the growth of startups in Kingston and Southeastern Ontario. Queen’s contributes to the innovation ecosystem in Kingston by providing early-stage funding and services to entrepreneurs at the undergraduate and graduate levels, as well as to local entrepreneurs with global ambitions.

Queen's University has an innovation ecosystem that benefits both faculty researchers and the community

The university advances important R&D initiatives that help eliminate barriers to innovation in the region

<p>The university's research activities, collaboration and partnerships contribute to Kingston's improved ranking as a top-10 startup ecosystem in Canada by Startup Blink.</p>	
<p>Queen's is home to 22 curiosity-driven institutional and faculty-based research centres and institutes.</p>	
<p>Queen's University is also home to 46 Canada Research Chairs as part of the Canada Research Chairs Program.</p>	
<p>The university has attracted nearly \$620M in R&D investment from public (Tri-agency) and private sector sources since 2013/14.</p>	
	<p>At least 41 patents have been granted to Queen's scholars between 2013-2017.</p>
	<p>Since 2013, the university has supported more than 700 startups, 600 of which were in the Kingston region.</p>
	<p>In 2020, the university and L-SPARK, Canada's largest accelerator for Software as a Service companies, launched the first cohort for Kingston-based Compass North, an accelerator program for women-led technology companies.</p>
	<p>In 2016, the university announced the receipt of \$63.7 million from the Government of Canada's Canada First Research Excellence Fund to support the creation of The Arthur B. McDonald Canadian Astroparticle Physics Research Institute.</p>




Compass North: Supporting Women-Led Innovation

The university brings its partnerships to bare to support women in innovation. In 2020, L-SPARK, Canada's largest accelerator for Software as a Service (SaaS) companies, launched the first cohort for Kingston-based Compass North, an accelerator program focused on growing women-led technology companies.

The accelerator is for women entrepreneurs operating a technology-based business in the surrounding region. The program is delivered as part of the WE-CAN initiative led by the university made possible by the Women Entrepreneurship Strategy (WES) Ecosystem Fund. The five-month program features high-touch mentoring, tactical workshops and a tight-knit community of entrepreneurs.

Additional Key Highlights


Queen’s University economic and community contributions can be seen in many ways



Queen’s has close to 30% percent female enrollment in engineering, approximately 10 percent higher than the average in Canada.




>6000 volunteer hours contributed to local organizations by students through the Smith School of Business Centre for Social Impact.




The Promise Scholars program seeks to reduce financial barriers and increase access to the university for local, first generation students, by providing five students with full education funding and employment.



Total GDP impacts incurred by Queen's in the local region (across the four layers of economic contribution measured) is equivalent to approximately 11% of local GDP.¹




24% decrease in GHG emissions from operations from 2008 to 2019.



1,590 community members have received improved access to justice with the help of 189 Law students through Queen’s Law Clinics.




In 2018/19, the university attracted \$7.4M in out-of-town visitor spending to the Kingston region. The universities Event Services also provided over 39,000 “bed nights” of accommodation for visitors.




36,000 visitors to the Agnes Etherington Art Centre in 2017-18 and 41,193 visitors to the Isabel Bader Centre for the Performing Arts in 18/19 (including Isabel event series, rentals, and Queen's performances).




In 2019, 24,100 out-of-town students brought over \$237M in additional spending to Kingston.



\$400,000 raised by the Queen's community for the United Way annual campaign in 2020.



The university’s direct operations accounts for approximately 9.5% of Kingston employment.



The Faculty of Engineering and Applied Science’s Aboriginal Access to Engineering program engages with students early in their academic careers and provide in-class and online resources for Indigenous youth.

1. Based on the 100km radius applied, the “local” region and/or “Kingston region” in our analysis is defined as Kingston CMA, Belleville CMA, and Brockville CA.

Queen's supports the local and national economy in many forms

As you drive down the main streets of Kingston, what is notable in comparison to the downtowns of cities of similar sizes in Ontario, is how vibrant the streets are with a mix of retail stores, restaurants, and bars.

The significance of these businesses in economic terms reflect the important clustering effects the university drives. Put simply, the university can bring new customers and spending into the community that may otherwise not be there.

Here, we will explore and quantify how the university acts as a key economic driver in Kingston and beyond. In 2018/19, expenditures associated with Queen's University's operations, capital expenditures, out-of-student expenditures, and out-of-town visitor spending contributed over **\$1.9B to Canadian GDP** and supported **17,487 FTEs** in Canada. Accordingly, the total GDP impacts incurred by Queen's in Kingston region (across the four layers of economic contribution measured) is equivalent to approximately **11% of local GDP**.¹

Section highlights are included below:

Economic contribution from the university's annual operations

In 2018/19, Queen's University's operations contributed over \$1.6B to Canadian GDP, supported over 14,588 FTEs, and generated \$394M in government revenues.

Economic contribution from the university's capital investments

In 2018/19, Queen's University's capital expenditures contributed \$73M to Canadian GDP, supported 714 FTEs, and generated \$22M in government revenues.

Economic contribution from out-of-town student spending

In 2018/19, expenditures from out-of-town students contributed \$281M to Canadian GDP, supported 2,081 FTEs, and generated \$106M in government revenues.

Economic contribution from out-of-town visitor spending

In 2018/19, expenditures from out-of-town visitors contributed \$8M to Canadian GDP, supported 105 FTEs per year, and generated \$2M in government revenues

Broader economic footprint of Queen's

Beyond the economic contributions outlined above, Queen's activities provide important structural benefits, including attracting foreign direct investment, contribution from the university to local businesses and community organizations, and wage premiums among students. For example, data reveals that Queen's graduates in undergraduate, master's, and professional degree programs enjoy higher wages two years post-graduation than peers.

Note: for more information on how Queen's contributes to a healthy and sustainable Kingston, please see the module *SNAPSHOT: Community, Health, and Social Contribution*. For more information on the university's innovation ecosystem, please see module *SNAPSHOT: Research, Innovation, and Development Contribution*.

1. Based on the 100km radius applied, the "local" region and/or "Kingston region" in our analysis is defined as Kingston CMA, Belleville CMA, and Brockville CA. Local GDP figures for Kingston and Belleville were derived from Statistics Canada Table 36-10-0468-01. Due to lack of available data, Brockville's local GDP figure was determined by applying Brockville's share of employment (versus Belleville) onto Belleville's GDP figure. These GDP figures were rolled over to 2018 values using Kingston's employment growth rate over the 2017-2018 period obtained from Statistics Canada.

Quantifying the university's contributions to the Kingston economy

The impact that the university has on the economy can be characterized in many ways

Illustrating how the university supports the Kingston economy can be done in many ways. Deloitte has utilized a holistic approach to assess the university's range of contributions to the Kingston region, Ontario and Canada. Using the latest available 2018/19 data, Deloitte quantitatively and qualitatively measured the university's impacts to the economy across seven dimensions:

Annual estimated economic contributions from the university's activities:


- **Annual operations:** Examined the university's role as a significant employer in the region and the associated economic contributions from annual operating expenditures;
- **Capital investments:** Economic contribution associated with the funding invested by the university on its campus infrastructure for students and faculties;
- **Student spending:** Economic contribution of the university's role in supporting a predictable stream of business opportunities for the Kingston region through out-of-town student expenditures; and
- **Out-of-town visitor spending:** Economic contribution associated with the university's role in supporting local businesses via out-of-town visitor spending associated with conferences and events.

Broader structural benefits:

- **Wage premiums:** The university's role in aiding graduates realize higher wages relative to peers;
- **Foreign Direct Investment attraction:** The university's positive impacts on the value proposition of the Kingston region for investments; and
- **Advising local businesses:** The university's role in providing strategic advice and counsel to local businesses to support competitiveness and problem solving.


Each of these elements is complex and drives specific benefits to the economy which should be assessed using different approaches. Selected secondary literature was also examined to demonstrate the broader economic benefits associated with the university's activities.

The study estimates the economic contribution using a tailored "input-output" methodology, which traces how the expenditures associated with the university's capital investments and spending activities ripples through the region's economy by creating demand for goods and services across industries. As such, the university's economic contribution is estimated at three levels:




Direct contribution

Associated with spending arising directly as a result of the university's activities (i.e., capital investments, annual operations, student spending and visitor spending).



Indirect contribution

Associated with suppliers to the university. These represent, for example, economic activity generated in the manufacturing, wholesale trade, transportation and professional service sectors as a result of demand for materials and services created by the university.



Induced contribution

Associated with the spending of wages and salaries earned as a result of the direct and indirect contribution of the university's activities. An example is purchases of goods and services at the household level.

Estimating the economic contribution from the university's annual operations

As a top employer in the labour force, the university's operating expenditures help to sustain employment for businesses in the community and across the province

Queen's University is a key employer within the regional economy, accounting for approximately 9.5% of Kingston employment.¹ It supports quality of employment opportunities that are extended to the local labour force, contributing to local economic development and economic resiliency. Further, the university is a key buyer of goods and services, spending an estimated \$406M annually on operating expenditures, excluding salaries.

In 2018/19, the university employed more than 800 full-time academic staff alone (i.e. tenured, tenure-track, non-renewable appointments) who provide their expertise and skills to the next generation of Canadian leaders.

- Queen's attracts faculty from across the country and around the world. Seen this way, the university helps to attract and retain people in the community.
- Given that these affiliated roles can be long term in nature, the university's capacity to support relatively stable, and sustainable jobs within the region is an important contributor to local economic resiliency and economic development. Thus, the university can be viewed as a stable employer relative to employers in other segments of the economy that can be more prone to cyclical volatility.

Secondly, the university produces significant economic impacts from expenditures it makes related to the day-to-day operations. The university's expansive campus sprawls over 3,500 acres. Queen's' stewardship and operations of the campus create jobs and stimulates investment in the economy.

- This includes spending on teaching and laboratory materials, or the food supply chain required to serve meals at campus dining halls and retail food outlets. The university has the purchasing ability to create stable and lucrative business opportunities for Canadian suppliers.

Over time, serving as a supplier to an institution of the university's size can help businesses gain the credibility and scale to access new opportunities. Seen this way, the university can act as an 'anchor' buyer and key customer to local suppliers.



1. Figure based on Queen's direct employment data provided by the university and broader employment data for the Kingston CMA obtained from Statistics Canada's 2016 Census profile for Kingston CMA


Estimating the economic contribution from the university's annual operations


The university spent \$894M in operating expenditures in 2018/19 - the largest share of which went to salaries and benefits


Based on data provided by the university, annual operating expenditures totaled \$894M in 2018/19 Fiscal Year (FY). This figure includes spending on staff salaries and benefits, materials and equipment, professional services, administrative support and others. A breakdown of these expenditures by type is provided in the table below.

Operating Expenditures (2018/19) ¹	Total (\$)	% Allocation
Salaries and benefits	\$488M	55%
Externally contracted services	\$79M	9%
Supplies & services	\$185M	21%
Student assistance	\$66M	7%
Renovations & alterations	\$31M	3%
Utilities, taxes & insurance	\$24M	3%
Travel & conferences	\$22M	2%
Total	\$894M	100%



 The university's spending on salaries and benefits for its 7,726 FTEs² comprises the largest share of expenditures, representing 55% of the university's operations expenditures in 2018/19.

 As a major local employer, the university contributes to the region's economic prosperity. Queen's also attracts new talent to Kingston, who become active members of the community and support area businesses and real estate markets.

 Local businesses benefit as suppliers to related professional and business services (i.e. externally contracted services) and other expenditures (i.e. supplies, travel etc.), which represent the remaining 45% of the university's operating expenditures in 2018/19.

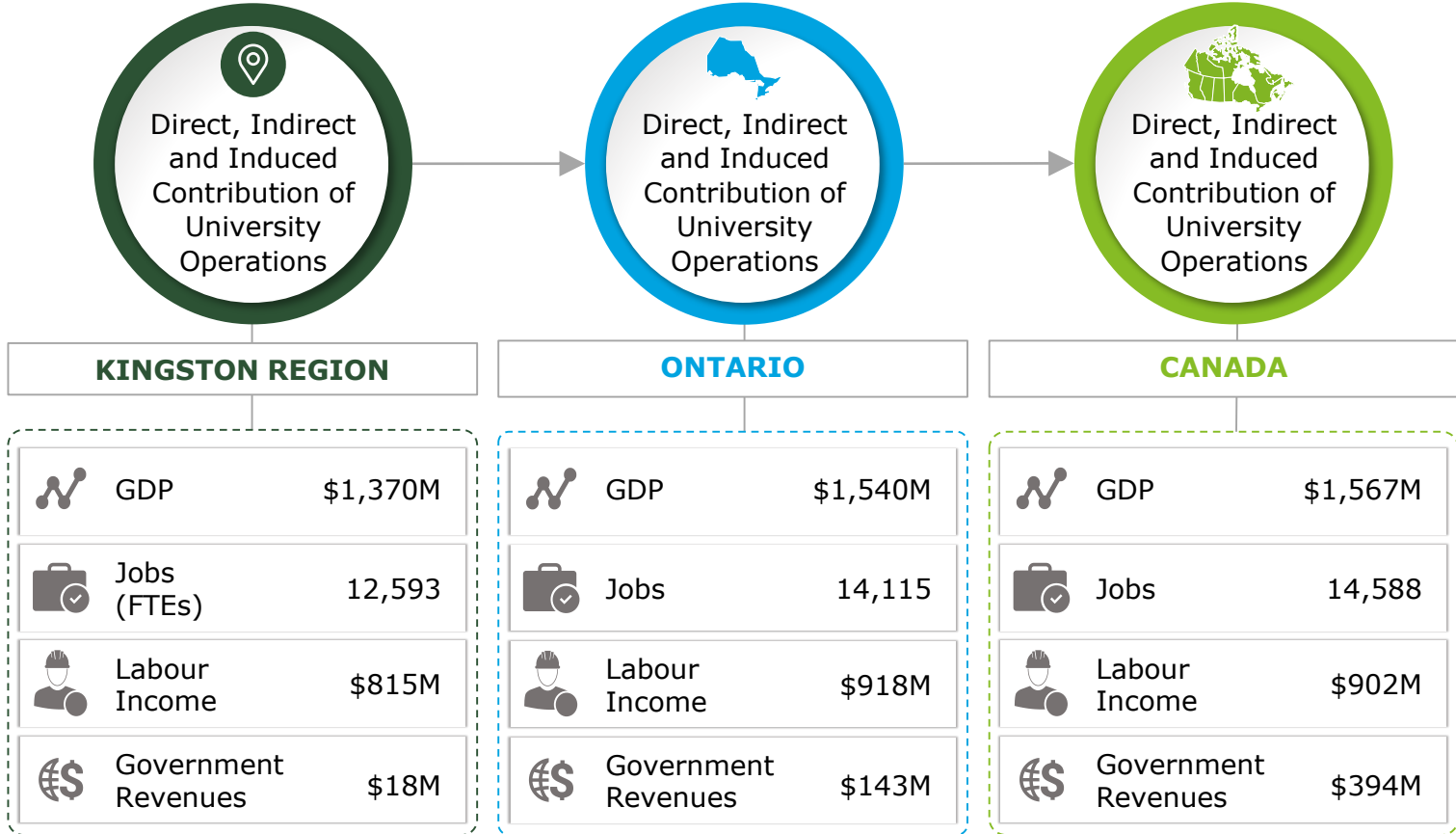
1. Excluded from our analysis are annual expenditures allocated towards interest on long-term debt.

2. "Status only" FTEs (i.e. academic appointments for status purposes, off campus clinical supervisors, external cross appointments, no remuneration) are excluded from FTE figures reported.

Estimating the economic contribution from the university's operating expenditures

In 2018/19, Queen's University's operations contributed over \$1.6B to Canadian GDP, supported over 14,500 FTEs, and generated \$394M in government revenues

Of the four university activities that generate economic activity analyzed in this study, the university's annual operating expenditures drive the most economic contribution – demonstrating the university's anchor position in the economy. For example, the university generates more government revenue than it receives. Importantly, the impact of operating expenditures is particularly significant to the regional economy given that the largest share is payroll for a team of talented professionals that live and spend in the region. The economic contribution from the university's annual operations for the year 2018/19 is summarized below.



For a breakdown of economic contribution at direct, indirect and induced levels please refer to Appendix A.3.

Estimating the economic contribution from the university’s capital investments

The university's capital investments totaled \$75M in 2018/19

Kingston is often referred to as 'The Limestone City' referencing its numerous heritage buildings constructed using local limestone. Kingston's City Hall stands out as an iconic building in the city. Another architectural feature of the city is the suite of buildings that comprise Queen’s campus. Queen's campus sprawls over 3,500 acres and includes several notable buildings such as the School of Medicine Building that was awarded the City of Kingston's Livable City Design Award, and the Isabel Bader Centre for the Performing Arts that was recognized by the Frontenac Heritage Foundation at the 2014 Heritage Conservation Awards (Queen’s Gazette, July 7, 2020). The campus’ beauty is a key facet of life in Kingston, available for the entire community as settings for community events and meet ups with families and friends.

Queen’s stewardship and management of these buildings is a key responsibility for the university. In 2018/19 FY, Queen’s spent \$75M on capital improvements, materials and equipment and other expenses that go into ensuring the quality, safety, accessibility and beauty of its campus. A breakdown of these expenditures by type is provided in the table below.

Capital Expenditures (2018/19)	Total (\$)	% Allocation
Building projects and construction in progress ¹	\$61M	82%
Equipment & furnishings	\$13M	17%
Other capital expenditures (library acquisitions)	\$1M	1%
Total	\$75M	100%

Key Observations

The university invested in important capital projects such as the Innovation and Wellness Centre (Mitchell Hall), Richardson Stadium, Biomedical Research Facility Revitalization (Botterell Hall), and West Campus District Energy Conversion that will have considerable impact on the student experience, research and innovation, and environmental sustainability.

1. Excluded from our analysis are \$1.5M in expenditures allocated towards UK campus capital improvement projects.

Revitalization of Mitchell Hall

The university's capital investments support important projects such as the revitalization of Mitchell Hall which encourages collaboration and community linkages

This project was aimed at providing the necessary physical space to stimulate new ideas and create a space for community linkages. It entailed development of the Innovation and Wellness Centre (IWC) which includes an Innovation Hub that enhances the Queen's innovation ecosystem, supports student entrepreneurship and helps drive innovation at Queen's and throughout Eastern Ontario. The Innovation Hub is co-located with interdisciplinary engineering research laboratories with innovation space, which place leading researchers close to students who are keen to take faculty and graduate student discoveries and turn them into commercial ventures through the programs offered by the Queen's Innovation Connector.

Overall, the project's new undergraduate teaching and design studios, interdisciplinary research clusters, and flexible innovation space bring together professors, undergraduate, and graduate students from a range of disciplines to collaborate in a dynamic and academic social environment. The project also provided additional capacity for local community groups to engage in innovation and recreation, strengthening the linkages between the university and the local community.

Mitchell Hall offers athletic and recreation facilities that are used for youth programming and to host local, provincial and national sport events for the city. The three gyms serve as the home of Kingston Area Secondary School Athletics Association (KASSAA) Indoor Championships.

The building:

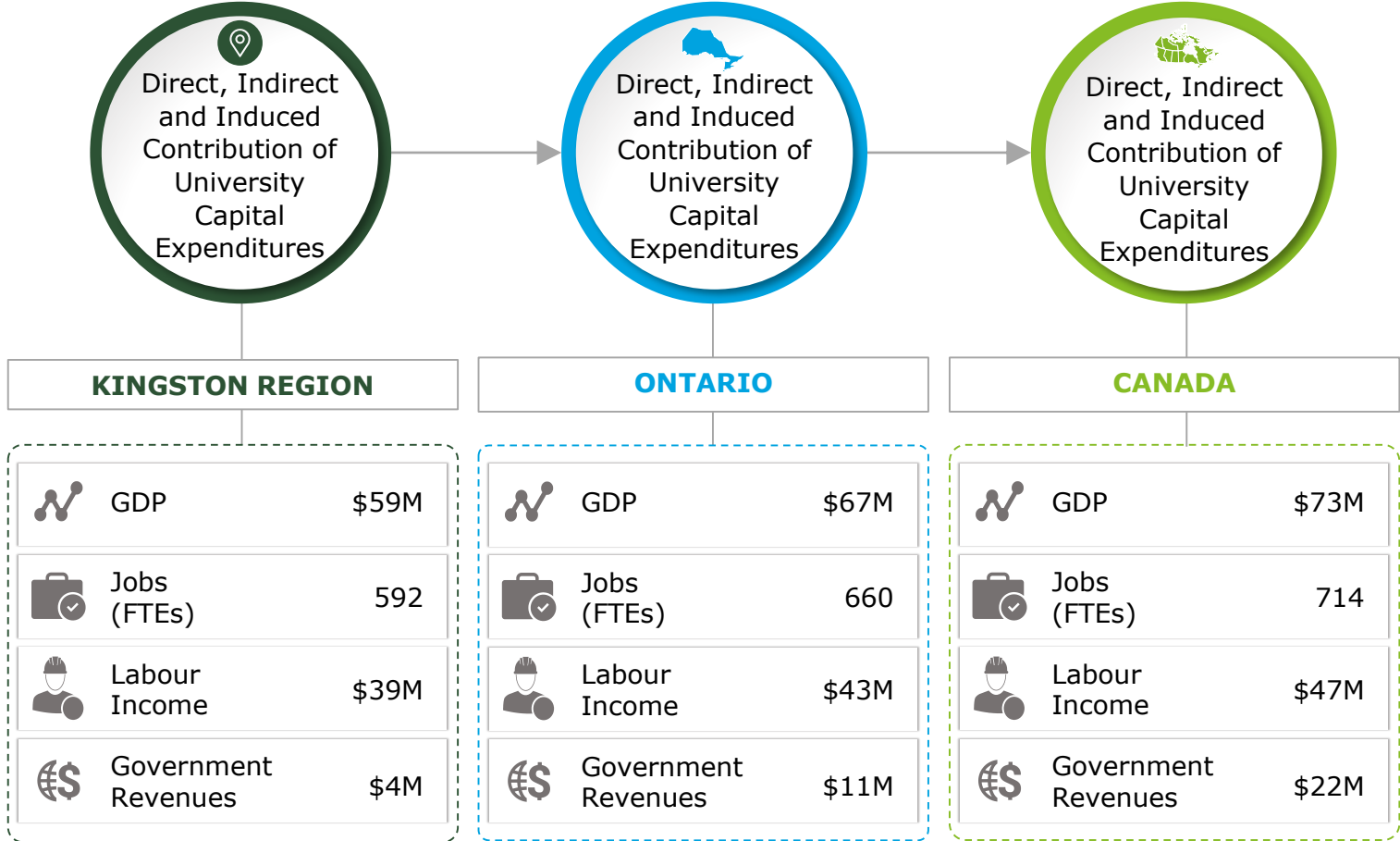
- 190,036 square feet
- Built upon the former footprint of the Physical and Health Education Centre (PEC) and Jock Harty Arena
- Fully compliant with the Accessibility for Ontarians with Disabilities Act (AODA)
- Features innovation, wellness, recreation, academic resources, and a retail food outlet



Estimating the economic contribution from the university's capital investments activities

In 2018/19, Queen's University's capital expenditures contributed \$73M to Canadian GDP, supported 714 FTEs, and generated \$22M in government revenues

In addition to the economic contribution associated with capital investments, the university indirectly supports local and national supplier ecosystems. The economic contribution from the capital expenditures for the year 2018/19 are summarized below.



For a breakdown of economic contribution at direct, indirect and induced levels please refer to Appendix A.4

Estimating the economic contribution from out-of-town student spending

As students move to Kingston to be part of the Queen's community, they spend at local businesses - further driving economic activity in the region

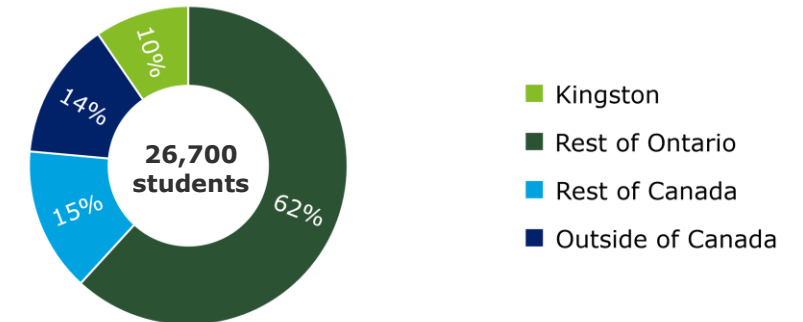
Unlike many universities, Queen's is not a 'commuter campus'. Students learn and live in the community. Notably, a majority of Queen's students and faculty are from out-of-town and choose to relocate to Kingston. This simple act introduces new spending into Kingston that may otherwise not have occurred. These 'out-of-town' expenditures provide an important, predictable stream of business for the region.

- In the 2018/19 academic year, Queen's had nearly 26,700 students¹ enrolled in its undergraduate and graduate programs. Of these, 90% came from out-of-town.²
- The number of out-of-town students accounts for over 20 percent of Kingston's total population - thereby increasing the local population of customers by approximately 24,100.

This steady flow of students into the region can provide stability for local businesses and offset seasonal fluctuations in other sectors of the economy such as tourism. Student spending helps to contribute towards a vibrant and diverse local food scene in local restaurants such as Sima Sushi, Tango Nuevo, Wooden Heads, and Sally's Roti. Downtown independent retailers are also supported by the steady stream of student spending at stores such as Novel Idea bookstore, Minotaur Games, Gifts + Crafts, and Tara Natural Foods. Over time, local suppliers also benefit as the demand for goods and inputs to production rise to meet demand.

Additionally, the attraction of international students to Kingston provides significant long-term economic benefits if these students opt to stay after graduation, introducing new spending to Canada that may not have otherwise occurred but for the university. Over time, local suppliers also benefit as they respond to increased demand from students.

Queen's University Students by Place of Origin, 2018/19



Source: Internal Queen's University data



1. Excludes enrollment at BISC campus located in the UK.

2. For purpose of this report, local students can be defined as students from the City of Kingston; while out-of-town students can be defined as visitors from rest of Ontario, rest of Canada, and international (outside of Canada).

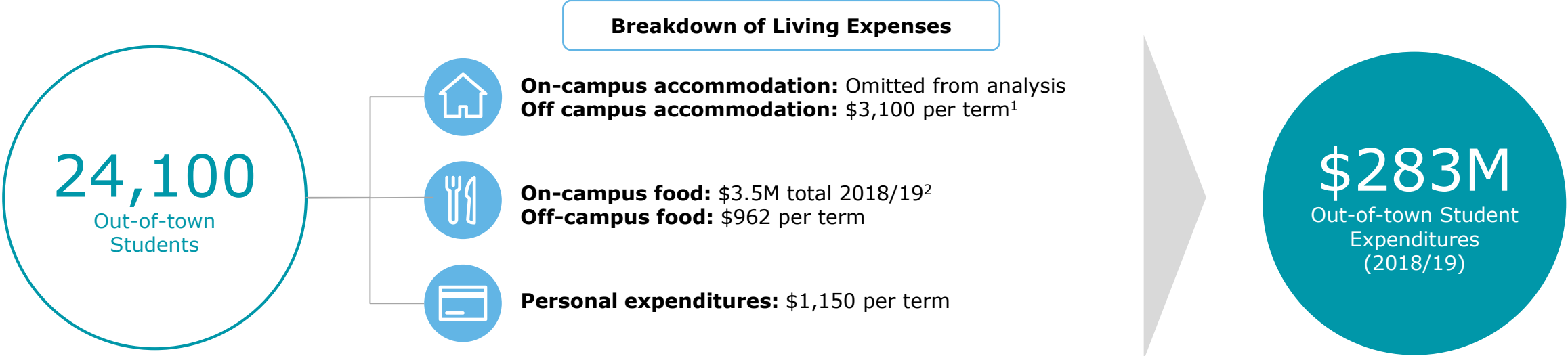
Estimating the economic contribution from out-of-town student spending

Out-of-town students' expenditures totaled approximately \$283M in 2018/19

The impact of out-of-town student expenditures is quantified by analyzing spending associated with accommodation, food, and personal expenditures. Given the differences in income, lifestyle, and time at University, the scale of economic activity from out-of-town students can vary. A summary of the assumptions used to calculate the economic contribution associated with out-of-town student spending is outlined below:

- Without the presence of the university, out-of-town students would not have relocated to the Kingston region
- Undergraduate students are enrolled at the university for two terms while graduate students are enrolled year-round for three terms
- Approximately 90% of first-year undergraduate students live on campus
- To reconcile potential double accounting between out-of-town students' expenditures and university operations the following adjustments have been made:
 - Excluded all expenditures associated with tuition, student fees and required materials (i.e. books, supplies etc.)
 - Excluded 100% of housing and 50% of food expenditures incurred by students living on campus
 - Excluded 50% of part-time student expenditures, considered not attributable to the university

A summary of out-of-town student spending, upon consideration of the aforementioned assumptions is presented below:



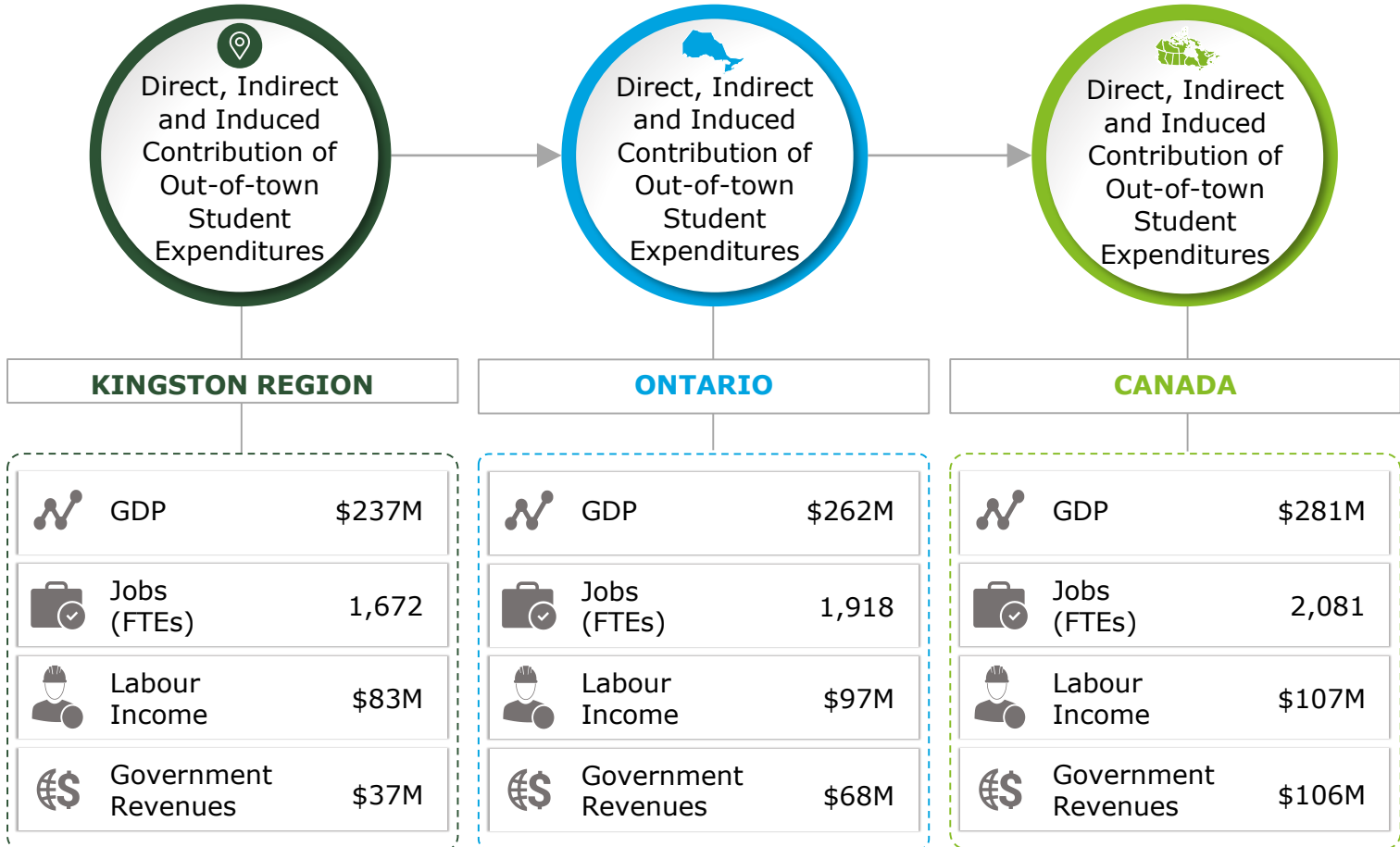
Source(s): Queen's University. Enrolment Report 2018-2019. As of November 1, 2018; Internal Queen's University Data; Queen's University. Office of the university Registrar Student Awards. Estimated Living and Educational Expenses for a Typical Single Student.

1. Due to standard 12-month leases in Kingston region, 12 months of off-campus accommodation expenditures are assumed for both undergraduate and graduate students.
 2. Since per term on-campus meal plan fees are lumped together with residence fees, total on-campus meal plan revenue of \$3.5M in 2018/19 FY was used instead of a per term dollar amount.

Estimating the economic contribution from out-of-town student spending

In 2018/19, expenditures from out-of-town students contributed \$281M to Canadian GDP, supported 2,081 FTEs, and generated \$106M in government revenues

Queen’s University acts as a magnet for students, attracting almost 90% of its students from outside of the Kingston region in 2018/19. These students live and spend within the community and can be a key source of income for local businesses. The economic contribution from these expenditures for the year 2018/19 are summarized below.



For details on limitations of analysis please refer to Appendix A.2 and a breakdown of economic contribution at direct, indirect and induced levels please refer to Appendix A.5

Estimating the economic contribution from out-of-town visitor spending

The university's ability to attract visitors to the region further extends its economic contributions to Kingston

Across the country, cities look to tourism and large-scale events as drivers of economic growth. For Kingston, the university provides a reliable and ongoing source of visitor activity and spending in the region. Every year, friends and families of students choose to visit loved ones for a weekend, prospective students visit the campus to help plan for their first year on campus, and proud families descend on Kingston to attend graduations. Queen's Athletics and Recreation is also a major contributor to sport tourism in Kingston - they bid on provincial and national championships while hosting more than 120 sport events annually. Major sport events hosted include Football Canada Cup, OFSSA Championships, Queen's Cup Men's Hockey Ontario University Athletics Championships and Forsythe Cup Men's Volleyball Championships. A secondary stream of out-of-town visitors comes in the form of professionals attending conferences and events put on by the university, and alumni returning for a visit. These visitors grow the number of customers available for local businesses and bring spending into the city that may not have occurred if not for the university.

Our analysis is restricted to the university's out-of-town visitors, which can be expected to create incremental economic activity. Spending by university visitors from the region (local residents) is not considered as it is expected to occur in the region regardless of the university and therefore considered a reallocation of expenditure rather than new, incremental expenditure.¹ Our analysis assumes that most out-of-town visitors will spend the weekend (two nights) visiting the university and broader Kingston region and therefore attributed average overnight spending amounts to the university (with the exception of 40% of campus tour attendees that are likely same day visitors).

A summary of the out-of-town visitors spending analysis and assumptions for 2018/19 is provided below:



In 2018/19, Queen's Event Services provided 39,323 "bed nights" of accommodation for visitors attending conferences, events and overnight stays. Since the accommodation and meal costs of visitors using campus facilities are likely already captured in our analysis of university operations, our visitor spending analysis only captures incidental spending which occurs in the larger community.



The Smith School of Business hosts multiple "residential sessions" each year for students who do not live in Kingston. In 2018/19, these sessions resulted in total expenditures of \$4.5M, of which 83% was paid to Queen's University and the balance to local businesses (i.e. hotels, restaurants, attractions). As such, to avoid double counting with the analysis of university operations, our analysis is limited to the spending linked to Kingston businesses.



Convocation attendance for both the spring 2018 and fall 2018 ceremonies totaled 4,966 graduates and 9,932 guests (assuming each graduate will bring two guests to the ceremony). Based on student enrollment data, it can also be assumed that 90% of graduates and guests were from outside of the Kingston region.



Homecoming weekend in 2018 was attended by 3,346 returning alumni (of which 2,999 were registered out-of-town attendees). Our analysis uses the modest assumption of one guest per registered alumni.



In 2018/19, Undergraduate Admission and Recruitment hosted campus tours and two big on-campus recruitment events (Fall Preview and March Break Open House) which attracted 25,950 registered attendees to the university. Student enrollment data on the share of out-of-town students (90%) was used as a proxy to determine the number of out-of-town attendees at campus tours and open houses.

1. For purpose of this report, local visitors can be defined as visitors from the City of Kingston; while out-of-town visitors can be defined as visitors from rest of Ontario, rest of Canada, and international (outside of Canada).
2. Ontario Ministry of Tourism, Culture and Sport, 2017, South Eastern Ontario Regional Tourism Profile. Note: 2017 Visitor expenditure figures were adjusted to 2018 dollars using CPI data obtained from Statistics Table 18-10-0005-01.

Estimating the economic contribution from out-of-town visitor spending

The university attracted \$7.4M in out-of-town visitor spending within the Kingston region in 2018/19

Out-of-town visitors to the university are expected to positively impact the economy through their spending on goods and services, given the nature of social activities undertaken by out-of-town visitors. The average out-of-town visitor spending estimates in Kingston region are summarized below.¹

Average Visitor Spending	Average Spending (\$2018)
Average per person per overnight visit ^{2 5}	\$197
Average per person per night ³	\$74
Average per household parties per overnight visit ⁴	\$275
Average per person per same-day visit ⁵	\$59

Spending by out-of-town visitors to the university was calculated by multiplying the estimated number of out-of-town visitors with the associated average spend per visitor.⁶ The spending distribution across different industries was based on Ontario Ministry of Tourism, Culture and Sport expenditure shares for overnight and same-day visitors.¹ A breakdown of total visitor spending by expenditure category is presented in the table below.

Breakdown of Visitor Spending by Major Category	Average Overnight Spending Shares	Average Same-Day Spending Shares
Transport	19%	29%
Accommodation	33%	0%
Food and Beverage	37%	43%
Recreation/Entertainment	6%	6%
Retail/Other	6%	22%

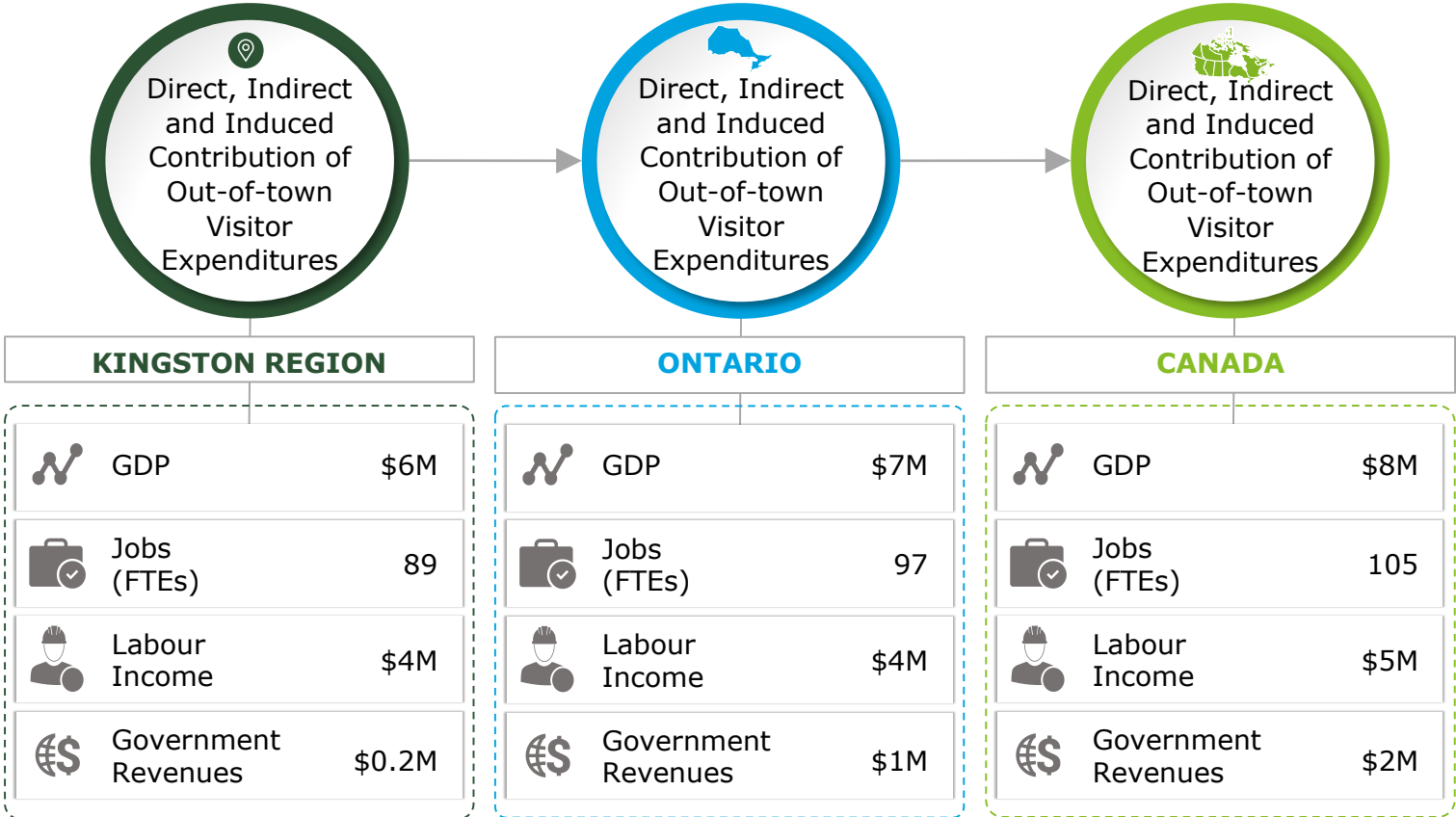
Accordingly, based on University visitation figures and Statistics Canada spending estimates, approximately \$7.4M in out-of-town visitor spending can be attributed to the presence of Queen's University in 2018/19.

1. Ontario Ministry of Tourism, Culture and Sport, 2017, South Eastern Ontario Regional Tourism Profile. Note: 2017 Visitor expenditure figures were adjusted to 2018 dollars using CPI data obtained from Statistics Table 18-10-0005-01.
2. Average per person per overnight visit spending estimates were applied on visitation data for homecoming weekend.
3. Average per person per night spending estimates were applied on "bed nights" data provided by event services. Expenditures allocated for accommodation and food were discounted from the analysis.
4. Average per household parties visit spending estimates were applied on visitation data for convocation.
5. Average per person per overnight visit and average per person per same-day visit spending estimates were applied on visitation data for 60% and 40% of campus tour attendees, respectively.
6. Smith program visitation expenses were provided by the university hence were not estimated using Statistics Canada spending estimates. However, Statistics Canada overnight spending shares were used to distribute Smith program expenses across major spending categories.

Estimating the economic contribution from out-of-town visitor spending

In 2018/19, expenditures from out-of-town visitors contributed \$8M to Canadian GDP, supported 105 FTEs per year, and generated \$2M in government revenues

"The predictable nature of major university events allows Kingston's businesses to plan for the demand created by conferences, sporting, or alumni gatherings. These visitors also contribute to the region's vibrant tourism sector by extending their visits to other regional sites, such as historic Fort Henry and the Thousand Islands. Seen this way, Queen's and its draw to outside visitors help power spending in the local economy that contributes to shared prosperity and business competitiveness in the region. The economic contribution from these expenditures for the year 2018/19 are summarized below.



For details on breakdown of economic contribution at direct, indirect and induced levels please refer to Appendix A.6

Analyzing the broader economic footprint of Queen's

Beyond the economic contribution from capital, operating, out-of-town student and out-of-town visitor expenditures, Queen's activities provide important additional economic benefits to the economy and local communities

The previous analysis document the immediate economic contribution (direct, indirect, and induced) from Queen's operational expenditure, capital investments, out-of-town students and out-of-town visitors. In addition to those contributions, Queen's brings important broader economic benefits to the local and provincial economies. These wider benefits include:



Wage Premiums



**Contributions to local businesses
and community organizations**



**Attracting Foreign Direct
Investment**

While these benefits are challenging to quantify, they are likely to have a lasting impact on the local and provincial economies which magnifies the impact of the activities directly associated with Queen's operations and investments.



Estimating wage premiums commanded by Queen’s graduates

Queen’s University graduates can realize higher wages relative to peers, raising personal incomes that can be invested in the economy

Thus far, the economic contributions centre on operations and capital investments and the associated spending of out-of-town students and visitors to the university. An important economic contribution attributable to the university is its effect on wages which occurs when students enter the workforce.

Students have many motivations to choose to attend Queen’s University. As the university competes for student talent – one of the key benefits to attending Queen’s is the career advantages conferred to its graduates in the labour force. These benefits can take several shapes including:

- Access to a thriving global alumni community of more than 190,000 people that can help graduates navigate the workforce and access jobs;
- ‘On the ground’ training through the internship program and other experiential learning initiatives in which participants develop direct and transferable workplace skills; and
- Higher wages relative to graduates of other universities.

A breakdown of wage premiums¹ two years post-graduation for Queen’s University versus the average for Canadian and Ontario university graduates is provided below:

Degree Type	Wage Premium (Queen’s vs Canadian University Average.)	Wage Premium (Queen’s vs Ontario University Average.)
Undergraduate degree	1.8%	6.6%
Master’s degree	12.7%	13.5%
Professional degree	11.5%	7.1%



Available wage data reveals that Queen’s graduates in undergraduate, master’s, and professional degree programs enjoy higher wages two years post-graduation than peers. This observation is revealing for the following reasons: 1) it indicates that Queen's graduates are often successful in their chosen fields, 2) these premiums have significant impact as they can alter an individual’s career earning potential, and 3) a higher salary in the initial stages of one’s career can compound over time and help to support higher wages through the lifetime of their career thereby supporting future spending and saving decisions.

Source(s): Data for Canadian and Ontario University median earnings obtained from Statistics Canada Table 37-10-0122-01; Data for Queen’s University median earnings obtained from internal SMA3 Metrics.

1. Wage premiums were derived by calculating the percentage difference in median annual earnings 2 years since graduation of the 2015 graduating class.

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Estimating wage premiums commanded by Queen's graduates

When Queen's graduates are able to earn more, it can have important spillover benefits on productivity, financial outcomes and skills development in society

When a graduate of Queen's University is able to command higher wages in their career, important socioeconomic benefits can be realized that extend beyond the wage earner.



Better health outcomes: Higher incomes are correlated to better health as Canadians at higher income levels have less sickness, longer life expectancies and improved health outcomes.¹ As such, a healthier workforce is a more productive workforce.



Greater financial stability: Higher incomes can also enable students to meet financial obligations such as housing, debt repayment and other living costs which can ensure greater financial stability and predictability for households.



Supporting skills development: Higher income can also help support greater levels of disposable incomes that can be invested in education/skills development and/or donated to the community and philanthropic causes.



1. Government of Canada. What Makes Canadians Healthy or Unhealthy?

Serving local businesses and community organizations

Local businesses benefit from having access to expertise and advice of students and faculty

In consultations, stakeholders shared the ease at which local businesses can 'call a friend' at the university to bounce new business ideas and seek advice on technical and strategic challenges. Queen's University's business consulting programs enable Queen's students to apply their technical expertise to help address local business challenges.

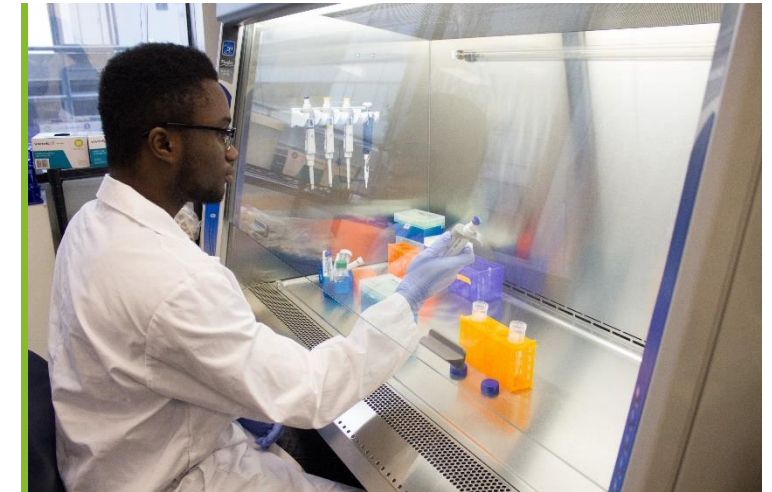
Smith Business Consulting (SBC)

The university supports free student consulting services via the Smith Business Consulting (SBC), an initiative, in partnership with the City of Kingston Economic Development Corporation and Chamber of Commerce, where students partner with local businesses to solve challenges in areas such as strategy, sales, marketing, data analysis and operational planning. Last year, approximately 33 Queen's students participated in the program, dedicating 800 hours of consulting support to 14 local businesses in Kingston.

The university also provides experiential learning programs that provide local businesses with a pipeline of talent and offer students the opportunity to obtain employment experience via internship and/or apprenticeship placements.

Experiential Learning

- The Queen's Undergraduate Internship Program (QUIP) offers over 150 cross-industry employers an opportunity to hire interns for a 12-16-month period. It can be noted that 25 of these employers operate within the local Kingston community. Eligible employers in Ontario who hire QUIP interns can receive the Ontario Cooperative Education Tax Credit.
- Queen's Career Apprenticeship: Kingston program matches soon-to-be graduates in bachelors of arts and humanities with local employers. The program consists of a one-year career apprenticeship in Kingston, including a wage subsidy, along with mentorship and networking opportunities. This initiative leads to high retention rates of graduates in the region as eight out of the ten students admitted to this program in 2018 remained employed with their local employer after the program.
- Faculty of Engineering and Applied Science capstone courses allow students to work directly with clients in industry and the community to help solve practical engineering problems.
- The PhD-Community Initiative brings together PhD students from different programs of study into inter-disciplinary teams of 3 to 5 members to assist local community organizations in addressing a particular issue or challenge of importance to them.



Similarly, during the initial COVID-19 lockdown in early-2020 when the Kingston business community was hit with an unprecedented challenge, the university offered free training and business sessions through its Community Classroom initiative.

Community Classroom Initiative

In this initiative, Queen's faculty shared expert advice and practical tips to help businesses plan for an uncertain market context. Topics included cashflow management in the age of COVID-19, strategies for working with banks and creditors, advice on downsizing, upsizing and analysis on economic recovery.

Attracting Foreign Direct Investment (FDI)

Queen's University enhances Kingston's value proposition and has contributed to new investments and jobs in the community.

An additional dimension to the university's ability to promote economic growth is the role it plays in attracting foreign direct investment into the community. Much like how the university attracts students and faculty from around the world, it is also able to enhance the attractiveness of the region for international companies seeking to establish Canadian facilities.

The university partners with Kingston Economic Development to develop business cases and market the region to investors, an initiative that has paid off. In 2017, Kingston was named top small city in the Americas for its economic development strategy by the Financial Times' "fDi Magazine" and sixth for human capital and lifestyle. The magazine noted that Kingston "is getting it right when it comes to attracting foreign investment" (fDi Magazine, 2017). This achievement can be attributed to many factors including Queen's University's role in creating an attractive environment for foreign investors. The university's focus on research excellence across various sectors is attractive for corporate research and development (R&D) investors, branding the city as a diverse ecosystem for innovation. A key dimension of site selection choices for investors is access to competitive talent, and/or research partnerships. Queen's University supports Kingston in fulfilling these criterion.

Over time, new investment helps to create jobs and spin off investment for suppliers in the community. In addition, when new companies choose Kingston, the families of their staff members do too – which can simultaneously support economic growth and diversity in the community.



FDI Examples (Frulact and Feihe Canada Royal Milk)

In consultations with Kingston Economic Development, business leaders cited that the presence of the university was a significant factor in attracting both Frulact (Portuguese fruit preparation manufacturer) and Feihe Canada Royal Milk (infant formula manufacturer) to set up in Kingston. Courting investment is a competitive endeavor. The university was profiled in discussions and business cases were presented to help sell the community's value proposition. The project led to the establishment of global research centres by Frulact and Feihe Canada Royal Milk that resulted in more than \$300M in new investment and the creation of 350 new jobs in the Kingston region.

CASE STUDY THE PHD COMMUNITY INITIATIVE

When faced with challenges in the community, Kingston can count on Queen's to help develop solutions. Launched in 2016, Queen's PhD Community Initiative brings Queen's doctoral students together with local organizations in Kingston. Community organizations identify challenges they are facing, and Queen's works with the organizations to develop a specific project and deliverables.

Community organizations identify challenges relevant to their mission, and Queen's works with the organizations to define a meaningful project, develop an approach and identify deliverables to be completed within the project timeframe. The Initiative began as a pilot program and has since expanded by offering support to new community organizations in Kingston.

CHALLENGES FACED BY THE COMMUNITY

Kingston's housing shortage and low vacancy rate have a multitude of contributing causes, including strong demand and a historical lack of sufficient new supply. Kingston also faces an affordable housing crisis, with more than 1,300 of its citizens on the centralized social housing waitlist in Kingston (Mayor's Housing Task Force). Individuals on the waitlist can wait up to several years before accessing supportive housing. Contributing to this challenge is Kingston's small size, and the need for universities and colleges including Queen's to meet the increase in student demand for local housing. This challenge may be exacerbated by the COVID-19 crisis.



CASE STUDY THE PHD COMMUNITY INITIATIVE

LINDA'S STRUGGLE

Linda is a 40-year-old woman who lives in Kingston. She is unable to work due to a previous workplace injury and as a result, faces significant mental health challenges. She is paying full market rent, yet sometimes has difficulty covering her monthly expenses. She has concerns about her current living conditions and does not feel safe in her current neighborhood. Seeking a safe environment and affordable housing, Linda has been on Kingston's subsidized housing waitlist for over two years. She recently missed her annual check-in, which she fears may compromise her position on the waitlist.

HOW THE KINGSTON COMMUNITY HOUSING WAITLIST AND TENANT NEEDS STUDY HELPED

A team of six Queen's doctoral students, supported by a supervisor, worked with the City of Kingston to better understand of the demographics, unique needs, and experiences of the individuals on the city's subsidized housing waitlist well as the supports they require while waiting for housing and the barriers they face to leave community housing.

To collect this information, the team developed and launched a voluntary and anonymous survey that was administered to the waitlist population and received responses from over 90 participants. Queen's students presented the results of the survey to the City of Kingston in March 2020.

SPOTLIGHT ON THE CITY OF KINGSTON'S EXPERIENCE WITH QUEEN'S

The Housing Programs Administrator at the City of Kingston highlighted the invaluable efforts by the Queen's team, emphasizing the significant value of having a group of PhD students from unique and diverse academic backgrounds come together to solve a key challenge faced by the city. The mix of expertise and perspectives may otherwise be not available to the city but for the Initiative.

Feedback shared from survey respondents revealed that they felt heard, and appreciated having a channel to share their experiences, their unique needs and the barriers they face. The city intends leverage the recommendations put forward by Queen's students to inform future programming, policies and approaches.

BY THE NUMBERS



5 Number of local organizations supported in 2019/20

“

The support we received from Queen's was invaluable – the team brought incredible diversity and enabled us to gain a better understanding of the needs and barriers individuals in our community face.

— Housing Programs Administrator,
City of Kingston

Queen's contributes to a healthy and sustainable Kingston, and is committed to an equitable community for all

A livable community is one in which the economy, the people, and the environment thrives.

Overall, Kingston residents enjoy a high quality of life. Some residents, however, require additional supports to realize their potential and live out their dreams. Around the world, government, business, and academic leaders are coming together to help share resources to address these challenges – expanding the pool of resources available.

Kingston has a head start on such initiatives, as the city benefits from having a university in town that leverages the talents of its staff and students and can uplift the community directly.

Queen's is an active participant, rather than a passive tenant in the Kingston community, and has made deliberate choices that have helped to shape the Kingston community. When new challenges are presented, Queen's seeks to be part of collaborative and innovative solutions for Kingston.

Here, we characterize how Queen's supports a vibrant, sustainable, healthy, equitable, and diverse community in Kingston. Section highlights are included below:

Enhancing the quality of life in Kingston

The university provides some of the contributing building blocks of a high quality of life and well-being. For example, the university's Agnes Etherington Art Centre welcomes 36,000 visitors annually, and the university's Isabel Bader Centre for the Performing Arts welcomed over 41,000 visitors in 2018/19.

Envisioning a more sustainable future

The university is seeking achievement of carbon neutrality by 2040, as part of its Climate Action Plan. Significant gains have been made including a 24% decrease in verified emissions from facilities and operations from 2008 to 2019 and over \$30 million in investments directed towards energy management and energy reduction projects on campus over the same time period.

Building a diverse and fair Kingston

The university is committed to increase representation and opportunities for Indigenous peoples through programs such as the Aboriginal Teacher Education Program and the Sustainable Engineering in Remote Areas program. Additionally, the university has made commitments to address current and historic anti-black racism on campus, including the establishment of the Council of Anti-Racism and Equity (UCARE).

Supporting world-class healthcare in Kingston

Queen's University has played an important role increasing access to Cancer Care in Kingston for over 175 years, providing care to 14,500 cancer patients annually.

Serving underserved and underrepresented populations

Queen's students, staff, and faculty donate their time, expertise, and resources to local non-profit organizations. In 2019, the university raised \$156,000 for cancer research through Queen's Relay for Life. In 2020, the university also raised \$400,000 for Kingston region's United Way annual campaign.

Note: for more information on how Queen's acts as a key economic driver in Kingston and beyond, please see the module *SNAPSHOT: Local, Provincial and National Economic Contribution*. For more information on the university's innovation ecosystem, please see module *SNAPSHOT: Research, Innovation, and Development Contribution*.

Enhancing the quality of life in Kingston

Queen's University is committed to increasing the quality of life in Kingston, and makes intentional choices to strengthen the local community

Given the scale of the university in the community, when Queen's makes a choice to enhance wellness on campus – it can drive benefits across the local community. For example, Queen's supports cycling through continually enhancing biking infrastructure on campus and in the community. One of these initiatives is the university's Bike and Boards repair shop which focuses on basic repairs for various types of bikes and skateboards – providing repairs at a low cost.

In addition, **Queen's Athletics and Recreation Centre (ARC)** is accessible to members of the Kingston community and offers fitness facilities and programming, Kingston's largest pool, racquet courts, gymnasiums, and sports fields, among other amenities. Many local amateur community sport groups make use of athletic and recreation facilities to support their youth programming (soccer, football, ultimate Frisbee, etc.)

Participating in athletics can develop lifelong skills, interests and friendships for children (impact is broader for children). Queen's Athletics & Recreation (A&R) programs are available to a wide range of ages and skill levels. For example, **Queen's Q Camps** provide a range of theme and sports day camps for all ages (up to age 18) and skill levels. A&R offered over 1,200 group and private aquatics lessons in 2019.

Through its **Junior Gaels Program**, Queen's also provides over 3,000 young Kingston athletes with the opportunity to meet and learn from current Queen's University Gaels athletes and coaches, and provides them with access to the university's facilities, inspiring them to potentially attend Queen's, or even play for the Gaels (Queen's University). Further, Queen's School of Kinesiology provides fitness testing for youth hockey teams and "transformational coaching" to help youth sport coaches develop their skills for positive youth development. The Queen's Gaels - RMC annual "Carr-Harris" Cup hockey game is the kick-off event to the City's Winter Festival activity - drawing over 3,000 fans bringing together a blend of community members and Queen's and RMC students.



Enhancing the quality of life in Kingston

Queen's facilities and programs support lifelong learning for youth that bring people together



The university provides access to its facilities and programs to support lifelong learning: Taking education out of the classroom can enhance a young person's perspective on the world and can help to foster lifelong friendships. The university offers a suite of accessible low-cost camps and collaborative efforts with local organizations. Key examples include:

- Science Quest, a non-profit organization, operates on Queen's campus to engage over 5,000 Kingston region youth in the fields of science, technology, engineering, and mathematics (STEM).
- Connections - Queen's Engineering Experience Program - is a non-profit providing year-round STEM education opportunities for youth and teachers in the Kingston community. Examples include collaborations with local schools to provide in-school STEM workshops for students in Grades 1 to 10, reaching approximately 8,000 students per year, and after-school and weekend programming for girls in STEM. The Connections team also collaborate with local organizations to support their programs by delivering STEM outreach workshops to students within those organizations. In the summer, about 400 youths per year are hosted on-campus to participate in the Queen's Summer Engineering Academy (QSEA) - an engineering-focused summer camp for students in Grades 5 to 11 to participate in hands-on learning experiences in various innovative research facilities.
- Queen's French Camp, an initiative of the Department of French Studies, provides an opportunity for children aged 4 to 9 to learn and experience the French language in an interactive and recreational setting. Other camps include the Faculty of Arts and Science's geography focused Explore Summer Camp, the Eco-Adventure Camp housed at Queen's Biology Station at the Elbow Lake Environmental Education Centre, and Math Quest, a program for high school girls led by female mathematicians, statisticians, and physicists on Queen's campus.
- Over the past ten years, Science Rendezvous Kingston (SRK) has grown to be Canada's largest one-day pop-up science discovery centre, attracting over 5,000 visitors annually. SRK is a celebration of science, technology, engineering, and mathematics (STEM) and is free to all members of the community. This annual event honours scientific research and stimulates public interest in science, encouraging children and youth to pursue STEM courses. In 2019, around 75% of the sixty exhibitors at SRK were from Queen's University.
- Enrichment Studies Unit (ESU) at Queen's connects students in grades 5 to 12 with challenging and inspiring academics alongside the dynamic learning and living environment of university life. As a result, 1,600 students, grades 5 to 12, attended residential and day programs introducing them to PSE academics, including STEM, and university living.
- Overall, these initiatives not only create memories for participants but can also enable early learning in key STEM fields that can be expected to drive economic growth in the future.



Contributing educational resources and tools through archives and libraries: Queen's University Library and Archives welcomes members of the public to consult any campus library and make use of their staff, research collections, and facilities. Notably, Queen's is host to the official City of Kingston Archive, a valuable historical service. The library also offers self-guided and group tours, contributing to the lifelong learning of Queen's students and Kingston residents alike.



Providing space for people and community groups to collaborate: Queen's Event Services classrooms, theatres and other event spaces bring together individuals and organizations from the Kingston community to learn, work, and play with one another.

Enhancing the quality of life in Kingston

Queen's investments in arts and culture enhance the experience of living in the community

In offering everything from fine art exhibitions to drama productions and live concerts, Queen's contributes to Kingston's rich and active cultural fabric.



Queen's offers moments of inspiration and awe for residents and students alike through music, drama, and fine art. Kingston residents benefit from the talents of Queen's students and faculty. Every year, residents can appreciate the artistic capabilities housed at Queen's in music, drama, and fine art through a variety of channels and venues. For example, Kingston residents can attend live drama productions and concerts at the Isabel Bader Centre for the Performing Arts, visit a range of contemporary and historical exhibitions at the Agnes Etherington Art Centre, and attend graduating student exhibitions in fine arts. Unique collections, such as the Bader Collection, strong Canadian and Indigenous collections, and enjoyment of the Rembrandt tour featured at The Agnes, offer learning opportunities for both Queen's students and Kingston residents to examine original works of art.



Queen's sparks creativity in Kingston's young people. The university offers a range of arts programs and camps for youth and children in Kingston. Examples include: The Agnes Art Academy and Art Camp, supported by the City of Kingston Arts Fund that provides participants the opportunity for guided art making, gallery discovery, and creative play. The Barefoot Players Summer Theatre Camp, which provides local Kingston youth the opportunity to learn about theatre, acting, dance, and puppetry. Operating for more than ten years, the Dan School of Drama and Music Barefoot Players is a theatre group that provides summer employment to Queen's students who gain experience creating, touring, and performing for young audiences in Kingston each summer.



Agnes Etherington Art Centre

Agnes Etherington Art Centre at Queen's University is a research-driven art museum, featuring innovative exhibitions and programs year-round, and holding superb collections of historical and contemporary art. The museum welcomes 36,000 visitors annually.¹

Isabel Bader Centre for the Performing Arts

As the "home of the creative arts at Queen's and hub of exhibition" in Kingston, the Isabel Bader Centre for the Performing Arts provides local Kingston residents the opportunity to appreciate the arts with a variety of performances offered annually featuring Queen's students, faculty, and external performers. The Centre welcomed over 41,000 visitors in 2018/19.

1. Annual visitation figure based on 2017/18 attendance figures at the Agnes Etherington Art Centre.

CASE STUDY THE SISTEMA MUSIC PROGRAM

Launched in 2015 as an outreach initiative of Queen's Community Music in collaboration with the Limestone District School Board and the Joe Chithalen Memorial Musical Instrument Lending Library, Sistema Kingston contributes to the social well-being in North Kingston by providing students with free musical education.

CHALLENGES FACED BY THE COMMUNITY

Like many communities, the quality of life for residents in Kingston is divided along socio-economic lines. This is particularly true for children and their access to educational programming.

- For some children, including many living north of Princess Street in North Kingston, access to programs is not easy. Families may not be able to afford private music lessons, manage the time commitment or travel time associated with accessing lessons outside of their community.

How Sistema Kingston helps

Sistema Kingston is an intensive after-school music program that provides free musical education to participating students in grades 2-6. The program is offered by paid musical teachers with support from Queen's Bachelor of Education students who either have a background in music or an interest in working with under-served children as part of their practicum or as a volunteer position. Graduate students at Queen's from across faculties also can contribute to Sistema Kingston through teaching internships and research studies.

In addition to free music instruction, participating students are provided with access to an instrument, made possible through the Joe Chithalen Memorial Musical Instrument Lending Library. The annual Sistema curriculum culminates in the production of an end of year concert, where students are provided the opportunity to perform hosted by the university at the Isabel Bader Centre at Queen's University.



CASE STUDY THE SISTEMA MUSIC PROGRAM

EXAMPLES OF SISTEMA'S CONTRIBUTIONS TO THE KINGSTON COMMUNITY

- Increasing access to free music education for students in North Kingston
- Fostering social and emotional development, self-confidence, and belonging
- Providing Queen's University students with the opportunity to gain valuable teaching and professional development experience in partnership with the Faculty of Education.
- Providing access to free musical instruments for students in grades 2-6 in North Kingston

BY THE NUMBERS



Approximately **35** students (grades 2-6) in North Kingston have benefited from free musical education annually since 2015



Approximately **10** Queen's students involved in volunteer and practicum placements annually since 2015

SPOTLIGHT ON: MOLLY BRANT ELEMENTARY SCHOOL



Molly Brant Elementary School is in the north end of Kingston for students in Kindergarten to Grade 8. A key challenge faced by Molly Brant Elementary is access to funding to expand their music programming. Sistema Kingston helps to fill this gap, by providing the school's students with access to free music education.

In addition to building student engagement through music, a key highlight noted by Molly Brant's Principal is that many parents could have never dreamed that they would be able to provide a musical instrument for their child.

The school praised Queen's faculty, teachers, and students for their approach and commitment to the program, including their responsiveness to tailor the program to best meet the needs of students at the school.

“

[My experience with Sistema Kingston] had a huge impact on me. It completely shaped my education philosophy. [I learnt that] being a teacher goes beyond educating – that is about serving students and understanding what we can do for them.

— Dennis Liao
Queen's Bachelor of Education Student

Envisioning a more sustainable future

Queen's University contributes to climate action in Kingston and globally, through its work on and off campus

Now, more than ever, the ability of people and organizations to recognize and reduce their impacts on our planet is critical.

In 2019, Kingston became the first Ontario municipality to declare a climate change emergency.

Queen's University is becoming a positive contributor to the City's call for change on climate action by reducing emissions, and making investments.

“

Climate change requires us to work with our community and academic partners to find creative solutions.

– **21st Queen's Principal, Patrick Deane**

”

Queen's contributes directly to climate action through on-campus initiatives

Climate action is a key priority for Queen's, led by senior administration through its Sustainability Working Group. In 2019, Queen's University became the newest member of the University Climate Change Coalition (UC3), a group of 19 leading North American research institutions united in a collaborative effort to accelerate local action against climate change."

Since 2016, Queen's has pursued improved sustainability of its operations through its Climate Action Plan. Seeking achievement of carbon neutrality by 2040, the university has made progress against this goal:

- 24% decrease in **verified emissions** from facilities and operations from 2008 to 2019 – all while growing the size of its campus and student headcount.
- Over **\$30 million in investments** directed towards energy reduction projects on campus, which also support local employment and skills development.
 - For example, Queen's is continuously pursuing lighting retrofit projects, which typically provide 40%-60% of a reduction in electricity use.

Queen's contributes indirectly to climate action through its partnership and investment choices

Beyond the direct efforts of Queen's to improve the efficiency of its operations, recognition of its broader responsibilities on climate change are notable. Partnering with local organizations, including student groups and the City of Kingston, Queen's has targeted additional GHG emissions reductions, including:

- Queen's students, staff, and faculty help reduce CO2 emissions through ridership on Kingston Transit. Whereby 480 faculty and staff participated in the City of Kingston's Transpass program, and postsecondary students, including Queen's students, represent up to **40% of Kingston's transit users**.
 - Without the participation of Queen's, it is possible that the viability of this critical urban infrastructure and service would not be as strong– limiting the ability of Kingston to achieve additional ridership and emissions reductions by non-Queen's Kingston resident participation.
- Commitments to incorporate sustainability factors in investments, applying to over **\$4 billion**. Recognizing a push from students and faculty to do more on a national and global scale, Queen's recently became a founding signatory to the Pan-Canadian University Charter for investing to address climate change, which pledges adherence to **principles of responsible investing**, including consideration of climate impacts.

Envisioning a more sustainable future

Queen's offers sustainable choices, in living and in learning, that empower the community to do more for the environment

Climate change and environmental degradation are complex challenges. Queen's approach to sustainability extends beyond its emission reduction efforts.

In providing access to dedicated sustainability work and educational opportunities, Queen's University is fostering the growth of the next generation of sustainability champions. Taken together, these initiatives can enable Kingston to envision and realize a more sustainable future.

Queen's promotes sustainable resource use and living

- Given the size of the university, the university community can consume substantial resources. Waste at Queen's, if not appropriately managed, contributes to growing landfills in the community and adds to pressures on the environment.
- To help mitigate this, Queen's conducts **regular waste audits** to understand where its reduction and diversion initiatives may be falling short. The diversion rate (a measure of total waste diverted or avoided) for 2018-2019 was 33%, resulting in 1,195 tonnes of recyclables diverted from landfill.
- Since 2008, the **Queen's Sustainability Office** has advanced the university's green initiatives, including fostering collaboration opportunities across campus and enhancing awareness of issues in the community. A critical aspect of the Office's role is encouraging sustainable living choices in the Queen's community.
- In addition, student-led grassroots initiatives, such as **Soul Food**, **The Tea Room**, and **the Earth Centre**, are providing the Kingston community new ways of buying and using resources, helping Kingston to live more sustainably.

A new generation of sustainability leaders is learning at Queen's

Sustainability is not a singular field of study or activity. Queen's offers unique academic opportunities for its students and faculty to learn about key climate change topics that equip them with the technical skills and knowledge to contribute to change in the future. Key examples include:

- The School of Environmental Studies, offering interdisciplinary undergraduate and graduate training
- Masters in Applied Sustainability, focused on the implementation of engineering solutions for sustainability
- Integrated Learning Center, an innovative laboratory focused on green building design

Contributing to a global and diverse community

Queen’s makes Kingston a more diverse place to study, work, and live

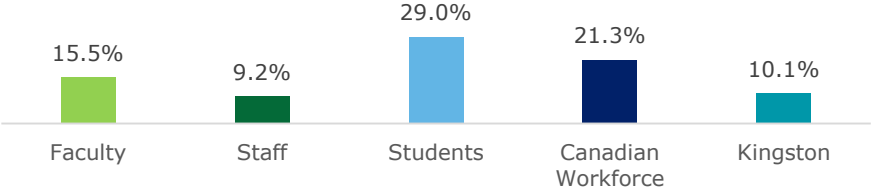
Attracting students and faculty from over 120 countries, Queen’s helps Kingston become a more international city. International students account for 11.9% of undergraduate and 27.4% of graduate full-time student enrollment at Queen’s. The university recognizes its responsibility to foster and ensure equity across its diverse campus and community. Today, the Queen’s community is diverse, with women strongly represented in faculty. However, there is more work to be done to ensure that the university is a desirable space for people from all walks of life to learn and work. In 2020, the university’s senior leadership and deans, led by Principal and Vice-Chancellor Patrick Deane, pledged immediate actions to confront discrimination and to ensure that students and faculty from all backgrounds and from around the world feel at home at Queen’s.

*A snapshot of the Queen’s community**

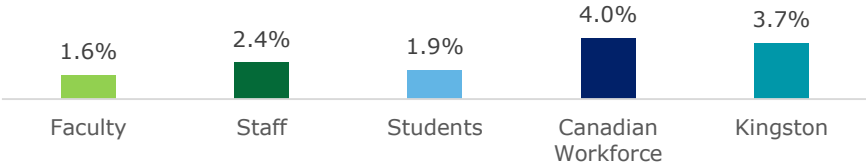
“Queen’s is an economic anchor in the city. Queen’s helps Kingston become an international city - this is key as it’s a part of the smart and leading city vision I have for Kingston.”

**Mayor Paterson,
City of Kingston**

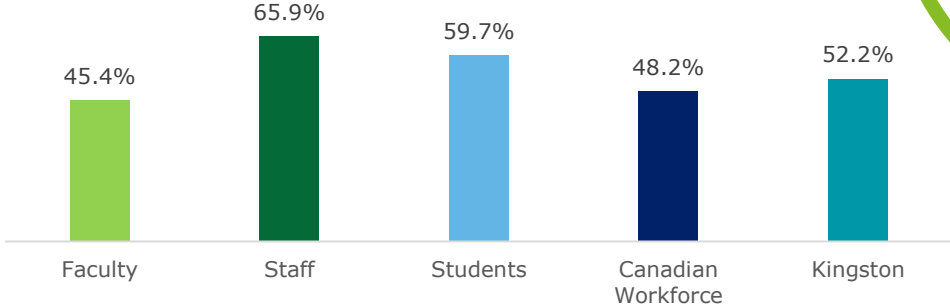
Racialized and visible minorities



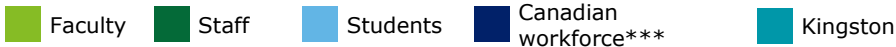
Indigenous Peoples



Women



Persons with disabilities**



* Information presented herein provided by Queen’s University
 ** Statistics Canada does not break down Persons with Disabilities by City -- data unavailable
 ***Canadian workforce refers to Canadians aged 15 and over.

Building a diverse and inclusive Kingston

Queen's University is committed to facilitating representation and opportunities for Indigenous populations

While important conversations are now underway and actions have recently been taken, the university remains committed to meaningful and continued efforts to increase representation and inclusion.

There are many supports, spaces and people across campus, where Indigenous students can find community, including the Four Directions Indigenous Student Centre, dedicated staff in faculties and schools, and Student organizations, including the Queen's Native Student Association and Supporting Aboriginal Graduate Engagement.

Increasing outreach to enhance participation

Increasing the representation of Indigenous students at Queen's is an institutional priority. Over the past decade, Queen's has worked to develop a suite of programs and initiatives to engage children and youth in STEM education – such as the Faculty of Engineering and Applied Science's Aboriginal Access to Engineering - introducing them to the opportunities of post-secondary education early in their academic careers and provide in-class and online resources to encourage Indigenous youth to stay in school and pursue post-secondary studies in the pure and applied sciences. Dedicated recruitment coordinators, advisors, Admission Pathways, entry/admission scholarships, awards, and on-campus resources aim to welcome Indigenous students to Queen's, support them, and promote their success, starting before they arrive on campus through to their convocation, when they are presented with a gift on stage to celebrate their achievements.

As of November 1, 2020, 507 students self-identified as Indigenous, representing 1.9% of enrolment.

Creating Opportunity and Community-based Impact

All students aim to see their postsecondary education as a path to a career with impact. Program offerings at Queen's position Indigenous students to graduate into high-demand and high impact careers in their communities. These program offerings include:

- Aboriginal Teacher Education Program
- Sustainable Engineering in Remote Areas program
- Dedicated entry pathways to first and second entry degree programs
- Indigenous Studies Minor
- Certificate in Indigenous Languages and Cultures (Arts and Science)
- Indigenous Law course (that is part of the undergraduate Certificate in Law)

Addressing the past, building a better future

Published in March 2017, the Yakwanastahentéha Aankenjigemi Extending the Rafters report by the Queen's Truth and Reconciliation Commission (TRC) Task Force outlined 25 recommendations for sustained institutional progress in repairing the relationship between Queen's and Indigenous communities. Since that time, Queen's has been active in advancing these recommendations, as part of a commitment to decolonization, reconciliation, and inclusion. These include the creation of the Office of Indigenous Initiatives and appointment of the inaugural Associate Vice-Principal (Indigenous Initiatives and Reconciliation), Kanonhsyonne (Janice Hill), creation of dedicated admission policies in all undergraduate, graduate, and professional programs, and doubling the size of the Four Directions Indigenous Student Centre. Queen's remains committed to promoting a deeper understanding of Indigenous histories, knowledge systems, and experiences, and creating a campus that values and reflects Indigenous histories and perspectives.

Building a diverse and inclusive Kingston

Queen's faculty, staff, and students contribute to advancing human rights and equity matters in the community



It takes coordinated action within a community to enhance diversity and inclusion. Queen's contributes to making Kingston a more welcoming environment for people of different backgrounds, thereby helping to support diversity. The Queen's Human Rights and Equity Office provides the university community with a broad range of services, including **Human Rights Advisory Services, Equity Services, Sexual Violence Prevention & Response, The Accessibility Hub, and Queer-Positive resources and training.**

But for many off-campus groups and individuals in Kingston and region, the same range of services and resources aren't so easy to come by. In recent years, members of the Human Rights and Equity Office have volunteered and partnered with a number of local groups to enhance the understanding of equity, diversity and inclusion in the community. This has included: bespoke training sessions (e.g. Kingston Immigration Partnership and the Rotary Club of Kingston); focussed consultations (e.g. for Tourism Kingston's LGBTQ+ destination audit); and serving on local committees and groups (such as the Municipal Accessibility Advisory Committee and Kingston Frontenac Anti-Violence Coordinating Committee).

Examples of support for the refugee community:

Refugee communities in particular can face daunting challenges after coming to Canada. There are several examples of the university community supporting refugees that exemplify how Queen's is able to leverage its resources to support newcomers:

- In the fall of 2015, students Rosa Stall, Lauren Wilson, Jess Spindler, and Kaisha Thompson founded the Queen's Law Refugee Support Program (QLRSP). At the time, the student group focused on fundraising and assisting private sponsors with the legal work required to bring Syrian refugees to Canada.
- The university is also home to clubs that support the local refugee community: the Queen's Law Refugee Support Program is dedicated to serving the needs of the local refugee community. Adam Grotsky and other student volunteers formed We for Refugee, which conducted a months-long fundraising campaign that enabled several Syrian refugee families to send their children to day camps in summer 2016.
- In 2020, the university partnered with the Institute for Canadian Citizenship to host an enhanced citizenship ceremony at Queen's Isabel Bader Centre for the Performing Arts. The ceremony saw 66 local citizenship candidates become Canadian citizens.

Building a diverse and inclusive Kingston

Queen's University has made commitments to address current and historic anti-black racism on campus

Globally, society continues to address systemic racism. The university campus has traditionally been a setting for both activism and research; however, university campuses can also be the location of discrimination or barriers for students and faculty.

Accordingly, the Queen's University community is challenged with combating inequalities. For example, while progress is still needed, in recent years, Queen's University has made intentional efforts to address anti-black racism in Kingston.

Discourse on anti-racism at Queen's is leading commitments to change:

- Established in 2017, the **University Council on Anti-Racism and Equity (UCARE)** under Queen's Vice-Provost serves as a forum to discuss Queen's progress towards the promotion of equity, diversity, and inclusion on campus and on addressing racism on campus. Importantly, UCARE serves as an important accountability function for the Principal's Implementation Committee on Racism, Diversity and Inclusion recommendations.
- While new initiatives are critical, so too is recognizing and addressing the past. In 2018, Queen's also formally apologized for historical institutional racism which prohibited black students from attending Queen's Medical School from 1918 to 1965. The public apology was viewed as a necessary step to address historic injustices (Queen's Gazette, 2019).
 - In 2019, a degree was granted posthumously to a former Queen's medical student Dr. Ethelbert Bartholomew who had been unable to graduate due to the ban.
- More recently, considering the Black Lives Matter movement, the **Queen's Black Academic Society** launched a call to action for the university to stand up against racism. The university responded by announcing anti-racism initiatives to make Queen's a more equitable environment for Black students. Commitments included increased funding to Black student-led events and initiatives at Queen's and the hiring of additional faculty to support the Bachelor Arts Minor/General in Black Studies, set to launch September 2021.
- In the summer of 2020, the university's senior leadership and deans, led by Principal and Vice-Chancellor Patrick Deane, pledged immediate actions to confront discrimination, including actively supporting students, staff, faculty, and alumni who are engaged in anti-racism and anti-oppression work on campus through a Declaration called "**Queen's University Administration's Declaration of Commitment to Address Systemic Racism**".
- Queen's has established **Yellow House**, a safe, comfortable and accountable space for queer, racialized, marginalized students to create community, to feel empowered, to empower others, to celebrate and to honour their histories.
- **Black Youth in STEM** is a new virtual club, designed for children in the community in grades 1-8 to explore STEM through fun, hands-on activities in a Black-positive space.

“

Now is the time to prioritize the voices (of underrepresented groups)... We need to shift from being reactive to situations of discrimination and equity, towards being innovative in our creation of tools and resources that Queen's community members can access to transform our culture.

Stephanie Simpson, Associate Vice-Principal, Human Rights, Equity and Inclusion

”



Supporting world-class healthcare in Kingston

Queen's enables residents to access quality health care that may otherwise be unavailable to a community Kingston's size

Smaller geographical urban areas often have limited access to quality care. The presence of Queen's medical facilities provides the Kingston community with leading medical and health care services in their own backyard.

Kingston is unique in having a city of this size with one of the premier universities in the country. You don't get access to the same quality health services in cities of this size.

-David Pichora, CEO, Kingston Health Sciences Centre

Providing residents access to quality care, including highly specialized services in their backyard

A distinguishing feature of Queen's is that it is among a small group of Canadian universities with a medical school. Queen's Faculty of Health Sciences comprises the School of Medicine, the School of Rehabilitation Therapy, and the School of Nursing, offering over 64 programs. The Faculty is recognized for its capabilities in areas such as cancer care treatment and research, as well as epidemiology.

University medical schools have important characteristics – in analysis conducted by US researchers that evaluated the quality of care in teaching and non-teaching hospitals, it was found that for common conditions, particularly in elderly patients, university hospitals generally offer better care in comparison to nonteaching hospitals.

Queen's Faculty of Health Sciences, including its School of Medicine, contributes to the health and well-being of Kingston and southeastern Ontario residents by providing access to care, driving research and innovation, and by attracting and developing world-class practitioners. In consultations with Dr. Jane Philpott, Dean of the Faculty of Health Sciences, it was noted that Kingston area hospitals can integrate into broader healthcare networks, such as the South Eastern Academic Medical Organization and Ontario Health Teams. This expands the range of medical services available to local residents and enables access to areas of niche specialization, such as cardiology or treatment for rare illnesses. Integration into these networks allows doctors from outside of the region to be able to treat patients from the community. A regional referral centre also helps Kingston residents access specialized care outside the region, if necessary. The breadth of care made available to the community can be seen as "outsized" relative to the region's size due to the presence of the university and its people power.

Additionally, Queen's can attract and retain top medical talent into the community. Often, medical students graduate and choose to stay and practice or research within the community. Over time, this helps to court leading medical practitioners to the community that work together to provide a strong standard of care. When viewed nationally, the ability for the university to attract specialists is a key contributor to the standard of care that can be attributed to the presence of the university.

Finally, Queen's medical professionals work closely with public health authorities to deliver consistent guidance and support – most recently supporting the community's response to the COVID-19 pandemic. Dean Philpott noted that the goal of the Faculty of Health Sciences is to ensure local residents can leverage the best of the university's medical talent and innovative research.

NB: A notable limitation of our analysis is that it does not include a comparative analysis between Queen's healthcare impact on Kingston and other university's impacts on their home jurisdictions.

CASE STUDY | CANCER CARE

As one of the most historically renowned medical faculties in Canada, Queen's University has played an important role increasing access to cancer care in Kingston for over 175 years (Queen's University, 2019).

CHALLENGES FACED BY THE COMMUNITY

Kingston, and more broadly Southeastern Ontario, faces a significant burden of cancer as a result of the prevalence of several external risk factors in the region such as high smoking and obesity rates, and an aging population, with a large majority of individuals over the age of 55 (South East Regional Cancer Program).

For individuals and families living with a cancer diagnosis, timely access to quality care, that is close to home, particularly if they live outside of Kingston, is crucial. To prevent future diagnoses and improve the overall health outcomes in the region, there is a continued need to increase public awareness of cancer-related risks and the importance of screening and early detection.

HOW QUEEN'S UNIVERSITY'S CANCER CARE PROGRAM HELPS

Queen's Department of Oncology is an academic cancer centre with residency programs in Medical and Radiation Oncology, and a graduate program in Medical Physics. As an academic health sciences centre, the Kingston Health Sciences Centre is able to offer patients with access to more specialized care than other non-academic health sciences centres in the region. By attracting top talent and leadership in academic oncology, cancer patients in Kingston benefit from Queen's internationally-recognized expertise in cancer care from cancer prevention and screening, diagnosis and treatment to palliative care.

The Queen's Cancer Institute brings together researchers, clinical trial experts and population-based researchers located in the same building to help tackle cancer in the community.

BY THE NUMBERS



Providing care to 14,500 annually



“

The [Cancer Care] program at Queen's is a fundamental part of the Kingston community. In the clinical care of cancer patients, we are responding to the increasing numbers and complex needs of cancer patients with state-of-the-art care.

— Dr. Scott Berry
Oncology Department Head

EXAMPLES OF QUEEN'S CONTRIBUTIONS TO CANCER CARE IN THE COMMUNITY

Given its size, Kingston is unique relative to other towns of comparable size in its ability to provide access to tertiary care. As a regional cancer care program, the program serves a population in the region of close to 450,000 from Smith Falls to Belleville and provides cancer care to approximately 14,500 individuals annually.

With the aim of ensuring patient care is timely and delivered close to home, patients living outside of Kingston are able to access treatment through satellite chemotherapy centres in Southeast Ontario. Key examples of the benefits to the community include:

- Last year, Queen's organized an inaugural **Colorectal Cancer Education Day**, a free event hosted at the university's Isabel Bader Centre focused on increasing awareness of colorectal cancer. The inaugural event was attended by over 140 patients, family members and healthcare providers.
- Queen's medical students host annual "Pap Parties", **free pap test clinics** to screen for cervical cancer. Over the past 5 years, an annual amount of 20 to 50 Kingston residents were screened.
- On the global stage, Queen's researchers are contributing to **global oncology by enhancing access to cervical cancer screening** for vulnerable populations, training over 100 health workers and providing over 5,000 women with access to cervical cancer screening in Sub-Saharan Africa.



IMPROVING CANCER PATIENT OUTCOMES THROUGH RESEARCH AND INNOVATION

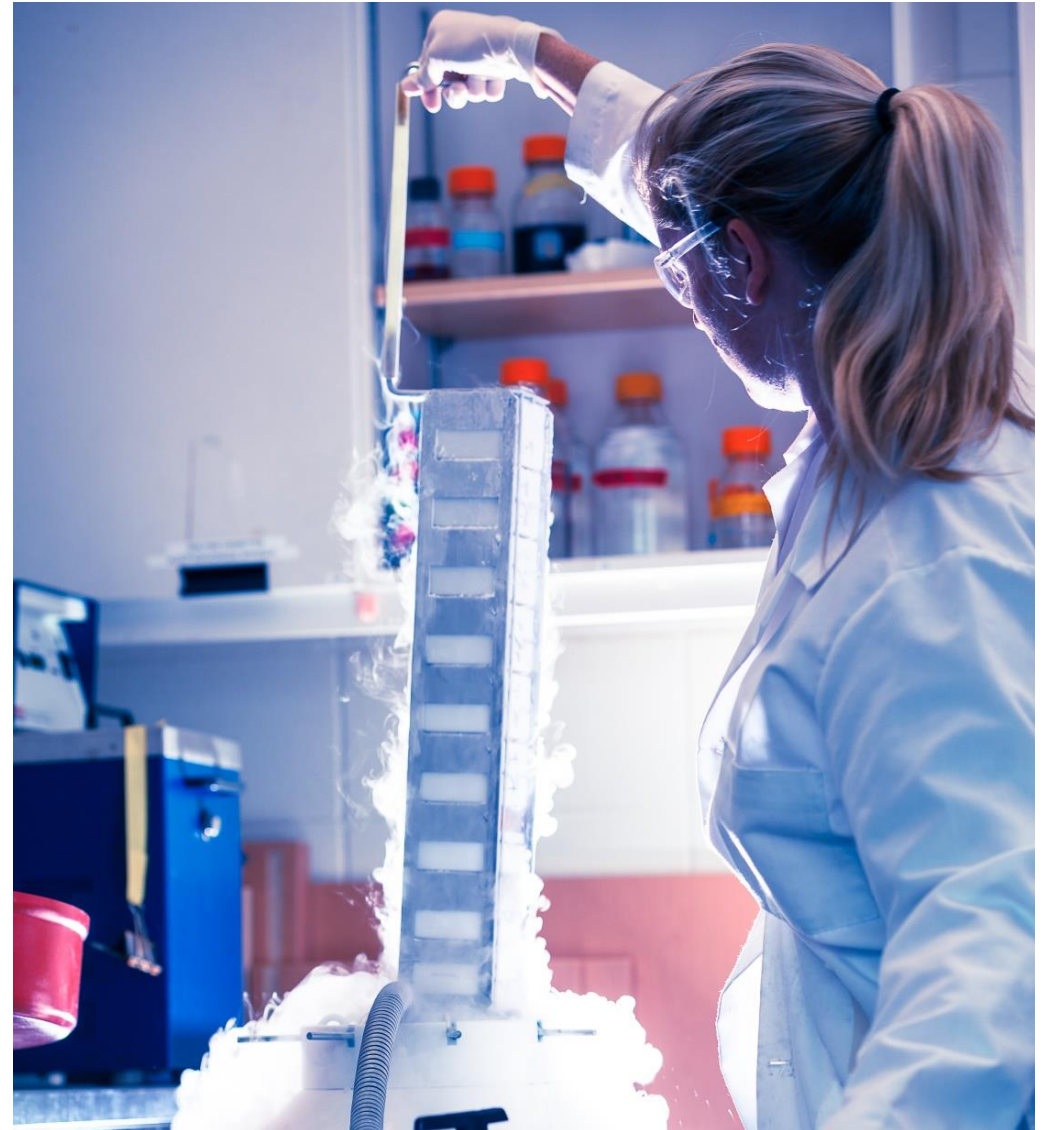
According to Department head Dr. Berry Scott, Queen's is recognized for high quality cancer care, particularly in the areas of stem cell transplant, and is working to develop capabilities in new areas such as brachytherapy.

Through its Cancer Research Institute and specifically the, Canadian Cancer Trials Group (CCTG), Queen's researchers and clinicians are actively working to advance cancer research, care, and prevention in Kingston across Canada by translating research into clinical practice, with the overall aim of improving patient outcomes.

According to Dr. Berman, Kingston-based CCTG clinicians are elevating the quality of care in Kingston and across the globe, as patients who have their care active in clinical trials experience better outcomes than those that do not.

Other examples of how Queen's Cancer Research Institute is contributing to improved patient outcomes include:

- Dr. Amber Simpson's research is focused on the use of **mining imaging data** to inform how to provide **more tailored treatment** to the unique needs of patients, such as forecasting what oncology treatment a patient needed, and when.
- Dr. Berman's research laboratory aims to identify and evaluate biomarkers that can **improve the diagnosis and standards of care** for patients with prostate and bladder cancer.
- Through the **Southeastern Ontario Oncology Living Lab**, Queen's is developing a platform to improve the delivery of cancer care locally and assess the impacts on outcomes for specific populations in the region, including rural populations, the elderly and indigenous peoples.



Serving underserved and underrepresented populations

Specialized services and opportunities emerging from the Queen's community fill essential education gaps for underserved and underrepresented populations in Kingston

In recent years, the university has made deliberate choices to be an active community partner.

Most notably, Queen's has moved beyond volunteering time for traditional philanthropic initiatives. With the immense skills and capabilities of its students and faculty, Queen's has recognized the role it can play as an agent for change to address local challenges, undereducation, and serve underrepresented and underserved populations in Kingston and beyond.



Queen's provides direct support to underserved and underrepresented populations through access to specialized services: Through the skills and expertise of faculty and students, Queen's has directly developed programs and services that support underserved and underrepresented populations. For example, the Alma Matter Society (AMS) Food Bank, a non-profit organization housed at Queen's University, provides food to Queen's community members experiencing food insecurity including students, faculty, staff, and members of the broader Kingston community in a confidential and reliable manner.



Reducing barriers to academia through investments by Queen's into local students: Being unable to access the opportunities presented by the local academic institution is a common challenge faced by non-student residents in university towns. When community members are unable to access parts of their local university, it can diminish opportunities for skills development and shared experiences. Through direct funds and the support of alumni, students, and partners in Kingston, the university contributes to improved awareness of the cycle of poverty in Kingston and the role education attainment can play in overcoming it.



Queen's **Pathways to Education Program**, an initiative of Queen's retirees, leverages a community-based approach to increase high school graduation rates for youth in Kingston's north end. It supports students on their path to post-secondary education and training, with the overall aim of breaking the cycle of poverty. Of the program's 182 alumni members, approximately 57% are enrolled in or have completed postsecondary education (Queen's University, 2020).



Queen's is also a part of a specialized network of the **Crown Ward Championship Team of Southeastern Ontario**, which aims to break down barriers to higher education. Queen's works with other colleges and community partners such as St. Lawrence College, Family and Children's Services of Frontenac, Lennox and Addington, to organize special events that aim to introduce students to the university experience at Queen's during a 3-day course.



With recognition of the need to encourage representation of first-generation Kingston residents at Queen's, the **Promise Scholars** program launched in Fall 2020. The pilot seeks to reduce financial barriers and increase access to Queen's university for local, first generation students. It will provide five students with full education funding including tuition and living expenses, mentorship support, and paid summer employment opportunities.



Queen's University partners with Oasis Senior Supportive Living Inc., a program designed to strengthen and sustain a healthy community of older adults. Professors Catherine Donnelly and Vince DePaul from the School of Rehabilitation Therapy at Queen's are leading a research project to expand and evaluate the Oasis Model into seven new communities in four cities in Ontario. In this project, they have partnered with the seniors at the original Oasis program at Bowling Green II apartment in Kingston, the Oasis Board of Directors, and researchers at Western University in London, and McMaster University in Hamilton.



During the COVID-19 pandemic, Queen's School of Rehabilitation Therapy has partnered with Kingston Immigration Working Group and Education to research the **effects of COVID-19 on refugee youth in Kingston**.



Student-athletes in the **Varsity Leadership Council (VLC)** advance causes in the Kingston community, such as diversity and inclusion, mental health awareness, food security, and opportunities for at-risk youth. They give their time to numerous community initiatives, including engaging with local youth through Pathways to Education, and raising more than \$61,000 for local charities and 643 pounds of food for Partners in Mission Foodbank in 2018-19.

Serving underserved and underrepresented populations

Queen's University funds – both directly and indirectly provide access to essential services



Queen's gives back to local organizations, improving their ability to grow and expand to serve more Kingston residents. Queen's raises funding and donates other in-kind items such as food, clothing and hygiene products to over 55 local community organizations in Kingston. One notable example is Queen's support to the **Canadian Cancer Trials Group and Canadian Cancer Society**, where over \$156,000 was raised through **Queen's Relay for Life** in 2019. Queen's varsity student-athletes raised over \$25,000 for the **Canadian Cancer Society** through virtual and physically distanced events in 2020. Gaels varsity student-athletes won the post-secondary award honouring their achievement for raising the most amount of donations. The funds raised will be invested into breast cancer research, prevention, diagnosis and treatment and care through the Canadian Cancer Society.

Queen's has a longstanding commitment to **the United Way of Kingston, Frontenac, Lennox and Addington (KFL&A)**. As the largest workplace campaign for the agency, in 2020, Queen's University faculty, staff, and students raised \$400,000 towards the United Way's annual campaign. This figure represents approximately 10 percent of the United Way's overall campaign dollars raised, with a large portion of funds raised coming from retirees and leaders, which are some of the largest donor bases in Kingston. Long-term partnerships of this nature can increase capacity and coordination between academia and the non-profit sector to tackle key societal challenges.

- Queen's community members contribute to the United Way in various ways beyond its annual campaign. As a true community partner, Queen's faculty and students work with the United Way to conduct research on societal challenges facing the Kingston community such as domestic violence, sexual assault, and the impacts of the COVID-19 pandemic on society, with opportunities for further collaboration in areas such as food security in Kingston.
- Queen's students also indirectly support the United Way by volunteering with United Way funded agencies in Kingston, such as the Boys and Girls Club of Kingston, and Big Brothers and Big Sisters of Kingston.

CA\$650,000+ Additional funding provided by Queen's to Kingston not-for-profits, enabling enhanced support for underserved and underrepresented populations in the community in 2019. These organizations include Parkinson Canada (Kingston Chapter), multiple Kingston homeless shelters, Kingston Youth Shelter, and Breast Cancer Action Kingston.

CA\$320,000+ Additional philanthropic dollars and 2,261 volunteer hours to community organizations supported by the efforts of Alma Mater Society (AMS). These organizations include Women in Science and Engineering, Queen's Lime Disease Coalition, Autism Speaks Canada, and Queen's Habitat for Humanity.

Serving underserved and underrepresented populations

Queen's University students, staff, and faculty provide skills and support to enhance access to services for underserved Kingston residents

The benefits of serving underserved and underrepresented populations extend beyond the individual. Taking time to give back to the community isn't just about short-term and immediate benefits to individuals receiving services. Students also can form new connections, gain clarity on their professional interests, feel a stronger connection to the community and may even experience other long-term benefits such as improved mental well-being.

Queen's student and faculty investments of time and skills contribute to the improved effectiveness of local community organizations and new social supports in the community: Not-for-profit organizations perform many functions simultaneously, often in addition to their core missions on tight budgets. Attracting skilled talent and volunteers can be a challenge, particularly in small communities, reducing their ability to operate effectively and efficiently. Queen's staff, students, and faculty are partnering with and supporting not-for-profits, working alongside them to provide support to beneficiaries and enabling them to work at their best.

- *Pro-bono consulting.* With strong relationships between Queen's faculty, staff, and local organizations, Queen's provides pro-bono consulting and advice. For example, Queen's Executive Decision Centre offers pro-bono facilitation services to the non-profit sector in Kingston, supporting organizations in areas such as strategic planning, revenue generation, and research.
 - Recent projects include strategic planning support to Habitat for Humanity, and an environmental scan and roadmap development for the Food Sharing Project, a program that supports K-12 schools in Kingston.
- *Volunteerism.* Measuring the full scope of volunteerism by Queen's students is a substantial and exceedingly difficult task, owing to the broad breadth and depth of student community initiatives, many of which are student-led and grassroots. However, what is clear is that contributions by students through volunteerism in the community are present across Kingston and are an important aspect of the student experience.
 - Volunteerism as part of academic requirements is an aspect of the Queen's pedagogy. For example, the Smith School of Business' Certificate in Social Impact is an optional program offered through the School's Centre for Social Impact. Students contribute a significant number of hours to the community as part of the program's volunteer outreach component.
 - In 2019, 151 graduate students contributed over 4,200 hours and 70 undergraduate commerce students contributed more than 1,820 hours to local organizations such as Martha's Table, Focus Forward, the Boys and Girls Club of Kingston and the Heart and Stroke Foundation of Kingston. Another example is Queen's School of Kinesiology and Health Studies Revved Up Mobility Exercise Program. The program is an adapted exercise program designed to provide weekly community-based physical activity opportunities to adults with a mobility impairment.



Serving underserved and underrepresented populations

Queen's University students, staff, and faculty provide skills and support to enhance access to services for underserved Kingston residents

Queen's students play an essential leadership role in providing support and promoting inclusivity on campus and in the Kingston community

The Brian Yealland Community Leadership Award is presented to students who work with and encourage youth who are experiencing social, behavioral, economic or other challenges by helping them realize their worth as individuals and their potential to achieve. The 2018-19 award recipients are:

- **Adrienne Fanjoy** (JD'19) is involved in many student groups that advocate for and support marginalized youth and families. As co-president of Queen's Law Litigation Society, she developed a culturally-based workshop to teach social justice and self-advocacy skills to racialized girls in Kingston and empower them to speak up in their social groups, school and community. Since 2013, as a member of Queen's Students for Literacy, she has worked in local shelters helping children there with their literacy and numeracy skills. She also spent a year as a case worker at Queen's Family Law Clinic, promoting the best interests of children.
- **Lindey Felske** (MSc'20) is a regular volunteer with Loving Spoonful, helping low-income families with budgeting and healthy eating, and teaching elementary school-aged children cooking skills. She also volunteers at the Kingston Health Sciences Centre's Hotel Dieu site in the Children's Outpatient Clinic, aiming to reduce stress among patients and their families waiting for appointments. She also assists in the recovery unit, working with patients and relatives. Lindey's volunteerism includes tutoring new immigrants in English language skills, and community outreach programs that engage youth in learning about science and engineering.

Queen's Business Consulting Transit Feasibility Study to improve access to Kingston

In 2019, Queen's students involved in the Business Consulting initiative conducted a transportation feasibility study for the Town of Gananoque and Township of Leeds with the aim of increase mobility and access to Kingston for low-income individuals that reside in these communities, many of whom work in Kingston or rely on Kingston to access essential social services and supports.

The feasibility study included assessing demand for increased connectivity by surveying more than 1,200 residents, culminating in the presentation of options to the Town.

- The engagement demonstrated the role public transit plays in driving other social benefits including access to public services and improved quality of life.
- Mayor Ted Lojko was noted to be pleased with the outcome during the final presentation of analysis in 2020, recognizing the credibility of Queen's students work and noting it was a critical component for the organization to move forward.



CASE STUDY | QUEEN'S LAW CLINICS

As one of 16 Common Law Schools in Canada, Queen's University has leveraged its capabilities in legal education to serve underserved and underrepresented populations in Kingston and Southeastern Ontario for over 50 years, with Queen's Legal Aid established in 1971 (*Queen's University 2018-19 Grant Final Report*).

CHALLENGES FACED BY THE COMMUNITY

Picture yourself as a low-income single parent needing to represent yourself in Family Court. You need help navigating the process, but you do not qualify for assistance from Legal Aid Ontario and you are not aware of other legal resources or social supports available to you. What do you do?

Low-income individuals often cannot afford to pay for legal counsel which can lead to the inability to access the full protection of the law and less optimal life and/or business outcomes. While organizations such as Legal Aid Ontario aim to fill this gap – there can still be a need for legal assistance among these populations.



HOW QUEEN'S LAW CLINICS HELP

The Queen's Law Clinics (QLC) were created to support these vulnerable populations and help them navigate the legal landscape by targeting gaps in access to justice and connect individuals to the relevant services. The QLC provides local Kingston and Southeastern Ontario residents with access to free and low-cost legal services while providing students with unique hands-on clinical experience in business law, family law, poverty law, prison law and elder law. With five individual pro-bono clinics, services are provided to clients by approximately 200 students each year through mentorship, volunteer, paid positions, and students who work for credit under the supervision of clinic lawyers and volunteer review counsel. The QLC operates with funding from Legal Aid Ontario, the Law Foundation of Ontario, the class of Law '81, and private donations including alumni and industry sponsors. Queen's works with community agencies to accept referrals and conduct public outreach events to deliver legal information to the community and raise awareness of their services.

QUEEN'S ELDER LAW CLINIC

Seniors face unique legal challenges and according to the Ontario Human Rights Commission, may be more economically and socially vulnerable than other demographics. Understanding their rights with respect to aging-related issues such as estate planning, elder discrimination or neglect, and their assisted living and long-term care plans can be difficult to navigate.

Through the Elder Law Clinic (QELC), Queen's University is supporting seniors in Kingston and Southeastern Ontario in taking ownership of their protection and rights, while treating them with dignity and respect. The QELC provides free legal education and services to underserved low-income seniors, who would otherwise have difficulty affording legal counsel. While all of Queen's Law Clinics, including the QELC, offer services to seniors. The Elder Law Clinic provides elder law services pro bono.

To ensure that seniors are aware of the resources available to them, Queen's Law Clinics partners with local community organizations to increase awareness of the support available for the elderly. Some of the services available to seniors include drafting or amending of wills and powers of attorney, legal education, estate inquiries, probate applications and general legal advice. The QELC has increased senior clients understanding of their legal rights, provided them with access to their funds and estate assets, and protected them against hardship.



BY THE NUMBERS



182 Senior clients provided better access to legal advice and education from QELC



98 students enrolled for academic credit across all five Queen's Law Clinics



79 students engaged in volunteer roles across all five clinics



21 summer students engaged in paid roles per year across all five clinics



1200+ individuals with improved access to justice across all five clinics

“

[A highlight for me] has been receiving feedback from clients on the positive impact we have had on their lives, through providing them with legal services they may not have otherwise received.

— Tearney Johnston-Jones,
Student, Law Class of 2020

CASE STUDY | QUEEN'S LAW CLINICS

KAYMAR REHABILITATION'S EXPERIENCE WITH QUEEN'S LAW CLINICS



Kaymar Rehabilitation is a therapy service provider organization that supports individuals and families affected by disabling conditions and health concerns in the South East Local Health Integration Network (Kaymar, 2020).

- By partnering with community agencies, Queen's Law Clinics may contribute to enhancing the efficacy of other organizations by working through referrals. For example, while Kaymar provides therapy services, the continuum of support does not stop there.
- If during the client's initial assessment, Kaymar identifies that they require legal assistance, Kaymar's relationship with Queen's University enables them to refer clients directly to the Law Clinics. According to Queen's Law Clinics Executive Director, the Law Clinics are seen by external organizations as a credible source of support in Kingston. This is particularly true for Kaymar, where some employees refer close to half of their clients to Queen's annually.

PROVIDING LEGAL HELP TO LOCAL BUSINESSES

Established in 2009, the Queen's Business Law Clinic (QBLC) operates year-round to provide free legal services to a wide variety of individuals, businesses and not-for-profit organizations in southeastern Ontario who would otherwise have difficulty affording legal counsel, while providing students with experience in community service in the pro bono tradition. The QBLC provides support in the areas of Intellectual Property, including trademark and copyright; Drafting and Review of Legal Documents, such as licenses, terms of use and sales/distribution agreements; and general Business Organization advice, including incorporation, governance, and partnership agreements, among others.



Queen's University advances research, innovation, and development initiatives that can break down barriers to innovation in the region

The strength of the university's research activities, collaborations and partnerships have been identified as notable in several ways:

- In 2020, Startup Blink, "the world's most comprehensive startup ecosystem map and research center" documents Kingston's movement up six spots globally to the 144th-ranked startup ecosystem in the world. The research center also documents Kingston's movement to the ninth-ranked startup ecosystem in Canada (Queen's University Partnerships and Innovation, 2020).
- The university's researchers have been the recipients of national and global research and innovation awards. For example, the discoveries by Queen's research teams resulted in the 2015 Nobel Prize in Physics and the 2016 Breakthrough Prize awarded to Dr. Arthur McDonald. Dr. McDonald made history as the fourth Canadian, and first faculty member of Queen's University, to receive the Nobel Prize in Physics.

Notably, the university's R&D capabilities and success support equitable innovation growth and spur entrepreneurship opportunities, strengthening the local community and supporting more equitable Canadian growth.

Here we characterize examples from the Queen's innovation ecosystem and outline how it drives important local benefits. Key highlights are included below:

Supporting new company creation and innovation investment

The university has supported more than 700 startups and small to medium sized enterprises (SMEs) and attracted nearly \$620M in R&D investment from public and private sources since 2013.

Creating conditions for startups in Kingston and supporting entrepreneurship in the local community

Queen's University was awarded \$1.4M in funding from the Canada Accelerator and Incubator Program (CAIP) to strengthen the innovation ecosystem in Eastern Ontario. During the 2014 to 2019 period, Queen's and its partners engaged with more than 550 entrepreneurs and companies through CAIP. The Ontario Centres of Excellence Campus-Linked Accelerator grant program from 2014-2019 also provided \$1.5M funding for entrepreneurship programming via the Dunin-Deshpande Queen's Innovation Centre (DDQIC). Additionally, the university has collected data that indicates companies and entrepreneurs that have been supported by Queen's via CAIP and other programs delivered by Queen's Partnerships & Innovation, the DDQIC and the Smith School of Business Masters of Management in Innovation and Entrepreneurship program have created or retained more than 1,000 jobs, trained more than 5,000 people, and attracted more than \$225 million in investments to Eastern Ontario.

Quantifying the university's R&D impact and capabilities

The economic contribution associated with the research activities the university has chosen to invest in from 2014/15-2018/19 has resulted in a GDP contribution of \$144.1 million to Ontario's economy.

Promoting inclusive growth and an equitable innovation ecosystem

Queen's University has received \$3.2 million in federal funding from the Women Entrepreneurship Strategy (WES) Ecosystem Fund, which supports WE-CAN (Women Entrepreneurs Can), led by Queen's University's Partnerships and Innovation (QPI) team. WE-CAN inspires and empowers existing and aspiring women entrepreneurs by providing them with tools and resources necessary for success.

Leading research on some of the world's most pressing challenges

Based at Queen's University, the Canadian Cancer Trials Group (CCTG) is made up of more than 2,100 Canadian investigators, from 80 member institutions, who have facilitated over 500 trials in more than 40 countries. Over its 40-year history, CCTG has made many important contributions to cancer research.

Note: For more information on how Queen's acts as a key economic driver in Kingston and beyond, please see the module *SNAPSHOT: Local, Provincial and National Economic Contribution*. For more information on how Queen's contributes to a healthy and sustainable Kingston, please see the module *SNAPSHOT: Community, Health, and Social Contribution*.

Overview of Queens' innovation ecosystem

The university can be viewed as its own innovation ecosystem that helps to centralize research and knowledge mobilization in the region

The university is a member of the U15 group of Canadian Research-Intensive Universities and is known as an excellent academic institution with a strong capacity for R&D across its various academic streams. To execute on its research goals, the university has its own innovation ecosystem:



Dedicated R&D talent: Queen's University is home to 46 Canada Research Chairs as part of the Canada Research Chairs Program (CRCP). The CRCP is an initiative created by the Government of Canada to establish 2,000 research professorships with the goal of making Canada one of the world's top countries in research and development. The University's R&D excellence can also be seen in Maclean Magazine's Rankings rating of Queen's University as second in Canada for awards per faculty in 2018/19. The University was also ranked first in terms of medical research income growth in Canada (Queen's University, n.d.) by the magazine.



Funding investments: Queen's University leverages external funding and also invests in research on its own, leveraging the talents of students and faculty and others in partnerships toward a common goal that benefits Canada today and tomorrow.



Facilities: Queen's is home to 22 curiosity-driven institutional and faculty-based research centres and institutes. These research facilities bring together scholars across various disciplines to address some of society's critical questions and most pressing challenges.

- For example, the university's Centre for Advanced Computing (CAC) delivers world-class, high performance, and highly secure computing, supporting hundreds of Canadian research groups, comprising thousands of researchers working in a variety of fields. Notable research groups that CAC has collaborated with include the Ontario Brain Institute, and the Canadian Primary Care Sentinel Surveillance Network.



Partnerships: A key condition to innovation is ensuring an interdisciplinary approach to teaching and experimentation. Students are taught integrated learning from different fields and via different approaches that mold together academic training, teaching and practical skills. Queen's University has also partnered with local colleges to deliver collaborative degree experiences where students are able to benefit from technical training, facilities and expertise.

- An example of this is the joint program with Queen's University and St. Lawrence College that offers a combined degree and diploma in Biotechnology. The program has a strong emphasis on laboratory-based learning during both the diploma and the degree portions of the program.

Supporting new company creation and innovation investment

The university's research and entrepreneurship activities have built momentum for economic development

A notable feature of Queen's University's R&D profile is its ability to support new company creation and innovation investment in Canada. The university estimates that research and development initiatives have resulted in the following key outputs since 2013 (Queen's University, n.d.).



Development of new companies

The university offers numerous services, resources, and programs to support entrepreneurs from Queen's and outside of the university in the Kingston area and surrounding region. Queen's analysis states that **since 2013, the university has supported more than 700 startups and SMEs. Of these companies, 600 have been located within the Kingston region.** The university supports Kingston businesses through providing talent, infrastructure, and innovation capacity. This significant and accessible contribution to local businesses promotes job creation and economic stability at the regional level, providing Queen's students with additional incentive and opportunity to stay in the region after graduation.

Additionally, new firm creation helps grow the Canadian economy and create jobs for Ontarians. The university's focus on small and medium sized businesses (SMEs) is particularly important as SMEs contribute to 53% of private sector GDP and account for 90% of Canadian private sector employment (Government of Canada, 2019).



Attracting new innovation dollars into the city

The university attracts a significant amount of public and private investment dollars into the region which may not have been, if not for the university's operation and advocacy. Queen's states that it has **attracted nearly \$620M in R&D investment from public (Tri-agency) and private sector sources since 2013/14.**

This is of significant benefit to the Kingston community at large, as this funding increases the competitiveness of the city and benefit researchers inside and outside of the university.

The university's ability to attract additional R&D investment also help propel innovation throughout the region. R&D investment flows throughout the economy in many ways and trigger multiplying effects.



Developing patents

Queen's states that **41 patents have been granted to Queen's scholars between 2013-2017.** Patents are the property right through which an innovation idea, development, or breakthrough can be commercialized. Therefore, these patents can be seen as indicators of future revenue generation potential and activity in the economy, with the goal of seeing university-based research innovations translated into products or services for public benefit.

Patents are also an important part of scaling for small businesses. Small companies often use patents to attract financial backing, and profits generated by patents can be invested in further research and development, multiplying the economic benefits (ALRC, 2010).

Creating conditions for startups at home

The university creates the conditions necessary for startups in the local community through its entrepreneurship programming



Entrepreneurship programming: For the average entrepreneur, there are several business, strategy and financing challenges that can present themselves on the road to innovation. The university is able to support community entrepreneurs by providing supports along the journey of product development and commercialization.

In 2014, Queen's University was awarded \$1.4M in funding from the **Canada Accelerator and Incubator Program (CAIP)** to strengthen the innovation ecosystem in Eastern Ontario. This award was part of a larger award that is also funding co-applicants Invest Ottawa and Wesley Clover International. The university's share of the fund enabled Innovation Park and the Queen's technology transfer office, to deliver a variety of virtual and physical incubation services and acceleration programs to high potential startups and emerging SMEs in Kingston and the surrounding areas.

- During the 2014 to 2019 period, Queen's and its partners engaged with more than 550 entrepreneurs and companies through CAIP. More than 100 companies incubated in Queen's premises at Innovation Park, and more than 400 companies received support via CAIP-enabled programs and services delivered by Queen's and its partners.
- In 2020, the university will launch its Research Commercialization Certificate, a micro-credential program covering technology/market assessment, design thinking, communication, intellectual property (IP), and commercialization strategies to support research, research partnerships, and startup formation.
 - The program will be offered to graduate students, post-doctoral fellows, and faculty members to better support the innovation ecosystem at Queen's. It will also provide the basis for future programming offered to community members and entrepreneurs.



Creating conditions for startups at home

The university's DDQIC programming and initiatives supports early-stage entrepreneurs to launch ventures



The Dunin-Deshpande Queen's Innovation Centre (DDQIC): Between 2014-2019, Queen's received \$1.5M from the Campus Linked Accelerator program of OCE to support innovation and entrepreneurship capacity development and support for Queen's and the Kingston region provided by **the DDQIC**. The DDQIC began as the Queen's Innovation Connector in 2012, founded as a joint initiative between the Faculty of Engineering and Applied Science and the Smith School of Business. It is now a proudly pan-university centre that champions inter-disciplinary teams and operates from within the Provost and VP Academic's portfolio. The DDQIC runs eight programs and initiatives that help aspiring and early-stage entrepreneurs develop their entrepreneurial mindset and launch ventures at Queen's, in the Kingston region, and globally.

- In 2019, DDQIC reached more than 11,000 people through its programs and supported initiatives.
- Since inception, 458 entrepreneurs have been trained in QICSI, and 230 ventures have been created in DDQIC programs since inception, with **56% still operating**
- Approximately 50% of DDQIC ventures have a community impact in the region, defined as having a large proportion of operations in Kingston, customer base in Kingston, retention of grads to Kingston, and/or an intentional social impact in Kingston.
- The Rose Innovation Hub, a new facility in Mitchell Hall, is the home of DDQIC, where approximately 13,000 guests were hosted at 196 events in 2019, many of whom were community members, for entrepreneurship and innovation related events.

DDQIC's flagship program, the **Queen's Innovation Centre Summer Initiative (QICSI)** exemplifies this dynamic. QICSI is a 16-week, fixed cohort incubator program where founders receive no-cost training, mentorship, and office space to launch a venture. QICSI offers the opportunity to work on a venture full-time while receiving ongoing support from **DDQIC** advisors, mentors, and staff.



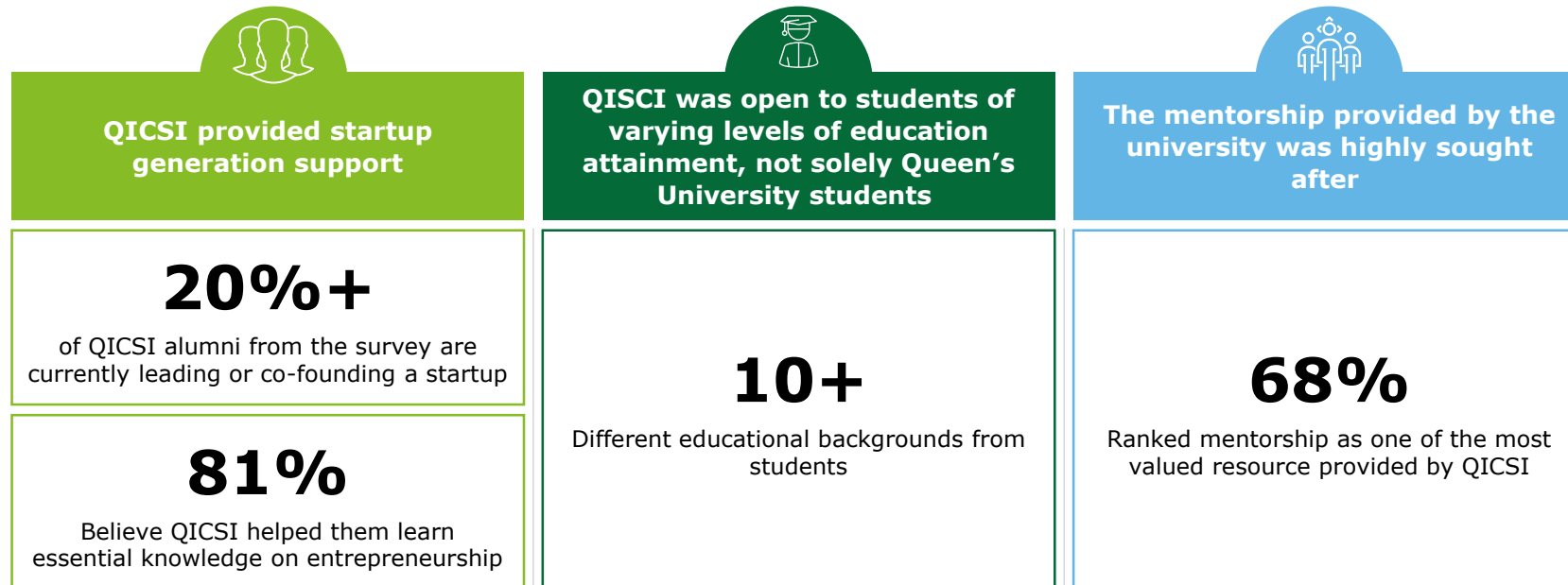
Example successes at QICSI

The QICSI helps to foster an environment in Kingston that enables startup generation and scale-up of firms

The impact of the DDQIC's Queen's Innovation Centre Summer Initiative (QICSI) program has been reviewed as part of a doctoral research program in the Smith School of Business, funded by the Social Sciences and Humanities Research Council (SSHRC). The Study applauded QICSI's active engagement with entrepreneurs and the local community, and the Initiative's ability to offer seed funding to participating startups in the region. Some of the key strengths of the QICSI program outlined in the study include:

- Facilitating the development of early-stage startups
- Building a cohesive and collaborative innovation ecosystem
- Sharing general knowledge and niche expertise to startups at QICSI

Key observations from the study highlighted how the Initiative can make innovation support available for the community as follows:



1. Survey results from a sample of 136 usable responses.

Examples of perspectives of QICSI identified in the review:

Encouraging the Exploration of Entrepreneurial Career Paths:

- "I would say the idea of being an entrepreneur within a company is an important thing I learned (from QICSI)... I ended up getting hired by the company sponsored by QICSI group - and I still work for them."
- "Before I thought I wanted to work at one of the Big 5, I now work at a startup."

Overall Enjoyment and Experiential Learning Opportunities:

- "QICSI is a top-tier business incubator that consistently produces great experiences and strong businesses!"
- "I cannot be this successful with my job without QICSI!"

Quantifying the economic impact of the university's R&D expenditures

Another lens to understand the importance of the university's innovation capacity is analyzing the stimulated GDP impacts of its research expenditures

On the following pages, we quantify various economic contributions that are attributed to the university. To complement our analysis, we have conducted separate analysis to estimate the economic contributions associated with the university's research activities from 2014/15-2018/19 evaluating research expenditure and its impact on Ontario's GDP. We have designed our methodology by conducting a literature review of approaches to estimating research related economic contributions in Canada used by other universities.

Our literature review revealed that several Canadian universities have leveraged methodologies developed by Fernand Martin in 1998 and Walter Sudmant in 2009 which estimates the impact of university research expenditures by calculating the share of total factor productivity (TFP) or multifactor productivity (MFP). TFP or MFP is the portion of output not explained by the amount of inputs used in production that could be attributed to a university's research expenditure.

Unlike an economic model based on input-output multipliers which measures static contributions, Martin and Sudmant's approach is dynamic and allows us to take into account spillover impacts of knowledge created by a university on labour and capital productivity. In our analysis, TFP or MFP was deemed an appropriate metric to analyze research contributions because it measures the change in GDP associated with labour productivity growth that cannot be explained by changes in capital intensity or labour composition.

Our methodology intentionally analyzes the economic contributions of historical expenditures conducted in a reference period of 2014/15-2018/19 to Ontario's GDP in 2018/19 due to the dynamic nature of the impact of research expenditures to the economy. The economic benefits of research activities can often be realized by the economy years later. For example, the knowledge and discovery created by university research expenditures can spill over to the economy through various mechanisms, such as the creation of new companies, or the adoption of patented technologies by private companies. Thus, research expenditures can impact the economy on a long term basis in a recurrent manner, exceeding the year of the activity.

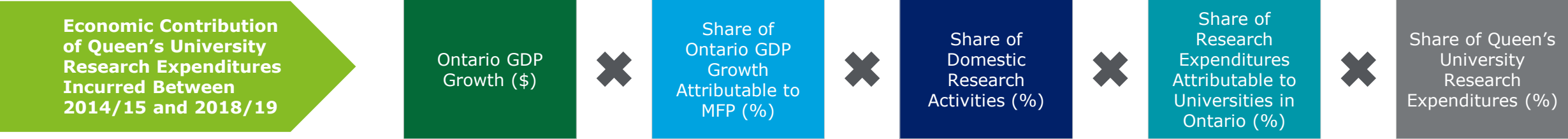
Research projects can also have long term horizons and can be phased over many years. In some cases, it can take years for research that is available in the public domain or via intellectual patent to be adopted and/or commercialized. Accordingly, our methodology estimates impacts on Ontario's GDP in 2018/19 for research activities undertaken in 2014/15-2018/19.



Quantifying the economic impact of the university's R&D expenditures

Our methodology and estimations include several dimensions

The methodology undertaken to estimate the contributions associated with the university's research and development expenditures is summarized below:



Estimating Ontario GDP Growth: Using GDP yearly data obtained from Statistics Canada, and the computation of GDP growth as presented by Martin (1998), we found the increase in GDP dollar value over the 2014 and 2018 time period.

Estimating the GDP growth attributable to MFP gains: Using data obtained from Statistics Canada, 12.9% of GDP growth was attributable to MFP gains over the 2014 to 2018 time period.

Calculating the share of domestic research activities: MFP in the Canadian economy can grow due to a combination of global and Canadian research activity. For example, innovation in another country could be adopted within Canada and drive increases in labour productivity. For the purposes of this study, we want to focus on gains in MFP attributed to domestic research activities only. This approach ensures that the analysis presented herein could be attributed in some way to Queen's University. We estimate the domestic share of MFP to be 69% as determined by Martin (1998).

Estimating the share of research expenditures attributable to universities in Ontario: Research activities are performed across the economy, including by private businesses and government. In order to determine the share of total research expenditures attributable to universities only, we reviewed Statistics Canada data from 2013 to 2017 (the most recent publicly available data) to identify that approximately 36% of research expenditures are attributable to Ontario universities relative to other parts of the provincial economy.

Estimating the share of Queen's University research expenditures in Ontario: Based on a review of Tri-Agency Funding Institution data for Ontario and Queen's University from 2014/15 to 2018/2019, we estimated that Queen's University is responsible for 6.2% of the total sponsored research expenditures undertaken by universities in Ontario.

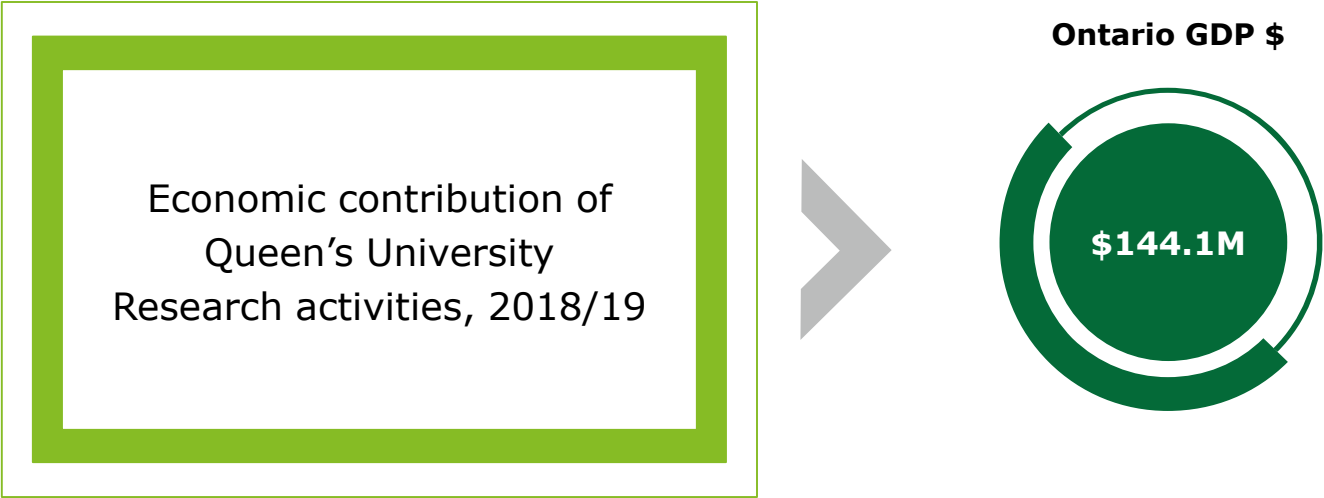
For further information on our methodology and limitations of quantifying the economic contributions of research and development expenditures, please see Appendix A.2.

Quantifying the economic impact of the university's R&D expenditures

The university's research expenditures result in \$144.1 million in GDP contributions in 2018/19

Summary of Economic Contributions from Queen's University's Research Expenditures

The university's choice to invest in research activities has resulted in economic contributions and benefits to Ontario. We estimate that the university's research activities from 2014/15 to 2018/19 generated \$144.1 million in GDP to Ontario's economy in 2018/19. This methodology accounts for the fact that research undertaken in previous years can have economic benefits that are realized in the economy years later.



In addition to contributing to Ontario's GDP, Queen's University's research and development activities support entrepreneurship in the local community through the university's various centres, initiatives, or organizations including Queen's Dunin-Deshpande Queen's Innovation Centre (DDQIC), and Queen's Partnerships and Innovation (QPI) profiled on the next page of this report.

Supporting entrepreneurship in the local community

Students can innovate and explore in the Kingston region through university entrepreneurship initiatives

Economies grow not only when existing companies generate business and grow but when new companies are created. The decision for an entrepreneur to start up a new company can be daunting and require the right combination of market opportunity, innovation and customer demand. The linkage between universities and entrepreneurship is strong – universities produce skilled graduates with the skills to innovate and become entrepreneurs, and also invest in initiatives designed to support new company creation. A summary of the key programs and policy supports undertaken by the university to encourage entrepreneurial activity is summarized below:



Investing in incubators and accelerators to accelerate the growth of startups and SMEs

- The QyourVenture accelerator program offered by DDQIC helps students and community members turn their idea, technology, or inspiration into a venture. This is a tiered program that unlocks opportunities and resources as participants progress in building their venture. Eligible ventures can access up to \$500 in grants and \$3,000 in credits.
- Queen's Startup Runway supported by QPI is a physical incubation program, for entrepreneurs, startups, and small companies developing new technologies that provides numerous participants with access to shared workspaces, meeting rooms, event spaces, and significant resources.
- Queen's researchers, innovators, and graduate students address important issues, engineer creative solutions to global challenges, and contribute to Canada's rapidly changing economy.
 - To bring discoveries to market, Queen's offers supports for innovation, incubation, and technology-transfer—from ideation to commercialization. The university's 2020-2025 Strategic Mandate Agreement states that companies and entrepreneurs that have been supported by Queen's have created or retained more than 1,000 jobs, trained more than 5,000 people (including more than 3,500 students), and attracted more than \$225 million in investments to Eastern Ontario.¹



Incorporating entrepreneurship and innovation in the classroom

- DDQIC has supported the development of many entrepreneurial courses and programs, including the Master of Entrepreneurship and Innovation, the undergraduate Electrical and Computer Engineering Innovation Stream, the Certificate in Entrepreneurship, Innovation & Creativity, the Dean's Changemaker Challenge and the Queen's University Internship Program (QUIP) Entrepreneurial Stream option.
- Entrepreneurship and innovation is not only taught but rewarded at Queen's. For example, the DDQIC's summer pitch competition program, which offers a total of \$100,000 in prizes, resulted in an annual \$30,000 prize for the first place venture and \$5,000-\$15,000 for six other ventures.

1. Note that Deloitte did not conduct an independent review of these figures and cannot verify them.

Promoting equity in the entrepreneurship ecosystem

The university champions women in entrepreneurship and women in technology, recreating the business landscape to be more equitable.

Women are underrepresented in entrepreneurship and small and medium enterprise (SME) ownership in Canada. Statistics Canada's most recent report on women-owned businesses in Canada highlight this underrepresentation, as women-owned businesses only accounted for 15.6% of Canadian SMEs in 2017 (Statistics Canada, 2019).

The report also highlights that women are less likely to become entrepreneurs, and women-owned businesses are smaller than their men-owned counterparts.

Championing women in entrepreneurship and women-led companies can be an important economic driver.

Studies show that advancing gender equality and women's participation in the Canadian economy, could add up to \$150 billion in GDP (Government of Canada, 2020).

Queen's University recognizes the importance of achieving gender equity across the business landscape and innovation ecosystem. This recognition has materialized into targeted initiatives for the Queen's community and the Kingston community at large.

Queen's University has received \$3.2 million in federal funding from the Women Entrepreneurship Strategy (WES) Ecosystem Fund, which helps to address gaps and build capacity in the entrepreneurship ecosystem for women. This fund supports a Queen's project, called WE-CAN (Women Entrepreneurs Can), which is led by Queen's University's Partnerships and Innovation (QPI) team and includes several internal and external partners. The mission for WE-CAN is to inspire and empower existing and aspiring women entrepreneurs by providing them with tools, resources, expert mentors, networks and community building to expand existing businesses and to launch new ventures. At the end of the project, WE-CAN aims to support 100 women in starting a new business, 45 women in growing their business in markets abroad, 100 women in growing an existing business, 200 women in strengthening their entrepreneurial skills, 20 women in supplier diversity initiatives, 90 women in traditionally under-represented sectors, 250 women in networking and mentorship opportunities, and 250 women from under-represented groups.

WE-CAN recognizes the importance of intersectionality in championing women in entrepreneurship, as the initiative has created additional streams including Indigenous women entrepreneurs and underrepresented women entrepreneurs. The goal of the Indigenous women entrepreneurs stream is to increase the number of and provide support to Indigenous women entrepreneurs in Kingston and the Tyendinaga Mohawk Territory and associated communities.

- Okwaho Equal Source, an Indigenous/Alumna-led organization leads the Tyendinaga Mohawk Territory satellite programming for WE-CAN. Okwaho Equal Source is an Indigenous social purpose enterprise that fuels social impact through human-centered design, innovation, and Indigenous-led research (Okwaho Equal Source, 2020).
- Similarly, the goal of the Underrepresented women entrepreneurs stream is to increase the number of women entrepreneurs from diverse and underrepresented groups, including visible minorities, newcomers to Canada, persons with disability and women entrepreneurs from rural areas, who are looking to start and/or grow their businesses in the surrounding community.
- For example, in 2020 QPI partnered with ShopBoss Secrets to deliver a workshop on setting up an Etsy Shop. Etsy is a global online marketplace that connects buyers and sellers around the world.

Collaborating with L-SPARK to accelerate women-led technology companies via Compass North

The university brings its partnerships to bare to support women in innovation. In 2020, Queen's University and L-SPARK, Canada's largest accelerator for software-as-a-service companies, launched the first cohort for Kingston-based Compass North, an accelerator program focused on growing women-led technology companies. The accelerator is for women entrepreneurs operating a technology-based business in the surrounding region. The program is delivered as part of the WE-CAN initiative led by the university. The five-month program features high-touch mentoring, tactical workshops and a tight-knit community of entrepreneurs.

Examples of research success: leading research on some of the world's most pressing challenges

The University's research efforts work to build a better future for Canada

The university leverages the talents of its students, faculty, and partners to lead research that benefits the local, national, and global community. Significant examples of Queen's research initiatives that support the common good include:



Increasing Canada's physics research capacity and intellectual capital

Located 2km below the surface, in the Vale Creighton Mine near Sudbury, SNOLAB is one of only a handful of underground laboratories worldwide capable of supporting the current and future generations of subatomic and astroparticle physics experiments. Bolstered by its partnership with the McDonald Institute, SNOLAB is poised to lead the way in the search for Galactic dark matter and the study of neutrino properties and sources. Initially constructed to house the Queen's-led Sudbury Neutrino Observatory – for which Arthur McDonald was named co-recipient of the 2015 Nobel Prize in Physics – SNOLAB has led to groundbreaking results cementing Canada's, and Queen's, reputation as world leaders in the field. SNOLAB is one of 17 National Research Facilities supported by the CFI Major Science Initiatives Fund, and recently announced \$40.9 million in combined federal/provincial funding over the next three years. Queen's reputation as a leader in astrophysics has led to many investments. In 2016, the university was awarded \$63.7 million from the Government of Canada's Canada First Research Excellence Fund (CFREF) to support the creation of the Canadian Particle Astrophysics Research Centre (CPARC) to be headquartered at Queen's.



Addressing Canada's deadliest disease

Cancer is the leading cause of death in Canada, being responsible for 30% of all deaths. There will be an estimated 226,000 new cancer cases and 83,000 cancer deaths in Canada in 2020 (Canadian Cancer Society, n.d.). Queen's University strategically directs its research and development initiatives to help battle this deadly disease through institutes such as the Canadian Cancer Trials Group (CCTG).

Based at Queen's University, CCTG is made up of more than 2,100 Canadian investigators, from 80 member institutions, who have facilitated over 500 trials in more than 40 countries. Over its 40-year history, CCTG has made many important contributions to cancer research – including CCTG IC.8, a world-first clinical trial testing a novel immune-boosting strategy. CCTG studies have improved the survival and quality of life of patients with cancer both in Canada and around the world by identifying multiple new treatments that have improved patient care. Queen's is the proud home of the Group's Operations and Statistical Centre (OSC) – which provides operational and administrative support to conduct cancer trials and associated biological specimen research.



Supporting the next generation of manufacturing in Canada

Canada's manufacturing industries generate 42% of all private-sector research and development activity, employing around 10% of the Canadian workforce (Government of Canada, 2018). Queen's University contributes to Canada's manufacturing sector through its affiliated research facilities, including Canada's National Design Network (CNDN).

Managed by CMC Microsystems and Queen's University, CNDN provides researchers with access to products and services for designing, prototyping, and testing their ideas. This state-of-the-art network supports researchers across the network by providing leading edge commercial design tools, expertise, and industrial connections for research and development in advanced smart technologies– aiding them in addressing some of the most important issues facing society. The network recently received more than \$18 million from CFI to support its continued operations through 2022-23.

Examples of research success: Supporting companies driving inclusive growth

Queen's investments in entrepreneurship have helped startup businesses to achieve positive social outcomes in society

Notably, some of the entrepreneurs supported by the university are driving inclusive economic growth - in which traditional business drivers are met with broader, socioeconomic benefits. Examples of student founded startup companies include:

Global empowerment:

Three Queen's students who met through the Queen's Innovation Centre Summer Initiative (QICSI) won one of the Dunin-Deshpande Summer Pitch Competition's grand prizes, securing \$10,000 in seed funding. This funding helped propel their startup, Red Gold of Afghanistan, to empower women in Afghanistan through cultivating and selling saffron in international markets.

Using art and scholarships to create an inclusive online community:

Queen's alumni Carleigh Milburn founded Modern Métis Woman, a non-profit organization offering post-secondary scholarship opportunities to Métis-identifying women. The online organization functions as a safe space for Indigenous women and members of the LGBTQ+ community to express their heritage and culture through expressive means such as visual art, poems, and music.

Making research accessible:

Queen's entrepreneurs started a web platform Research Stream to connect researchers and people who are interested in participating in research studies. The platform simplifies the communication between researchers and participants by allowing users to create an online account, browse through a list of studies, and contact researchers directly if they're interested in being participants. Through streamlining this process, the platform alleviates the strain of finding interested participants and hitting study recruitment goals, allowing everyone involved to direct their focus on advancing science and improving lives.



CASE STUDY | QUEEN'S INNOVATION ECOSYSTEM

Queen's Dunin-Deshpande Queen's Innovation Centre (DDQIC), in collaboration with **Queen's Partnerships and Innovation (QPI)**, aims to accelerate the growth of startups in Kingston and Southeastern Ontario.

Through these groups and others, Queen's contributes to the innovation ecosystem in Kingston by filling a gap in early-stage funding and support available for entrepreneurs with bright ideas at the undergraduate and graduate levels, as well as among professors and entrepreneurs, and regional and Canadian companies.

The university provides programs, services, and resources to support innovative ventures at various stages of the entrepreneurial lifecycle. Incubation and acceleration initiatives include, but are not limited to, Queen's Startup Runway incubation program, Queen's Innovation Centre Summer Initiative, QyourVenture Accelerator Program, the Foundry Program, and the Smith School of Business Centre for Business Venturing.

Innovation groups at Queen's connect entrepreneurs to other partners in the ecosystem to receive tailored additional support in areas such as legal services (leveraging Queen's own Business Law Clinic), intellectual property (QPI), business mentorship (through organizations such as the Launch Lab and Kingston Economic Development Corporation).

Queen's offers access to facilities in the Rose Innovation Hub on campus and Seaway Coworking building in downtown Kingston, that provides space to student entrepreneurs participating in select programs, as well as space for other organizations providing entrepreneurial support to students.

CHALLENGES FACED IN THE COMMUNITY

There are limited financial and technical resources available for entrepreneurs in Kingston, particularly those at the seed stage. This may include seed funding, access to shared prototyping resources and innovation space. Many students who are just starting their entrepreneurial journey are unaware of the resources and supports available to them at Queen's University and within the community, and may even lack the confidence to pursue an entrepreneurial venture.

BY THE NUMBERS



152 female entrepreneurs supported to strengthen their entrepreneurial skills in FY19-20 through the WE-CAN Project



13,000 number of attendees at events managed and hosted in the Rose Innovation Hub space in 2019



2,000 number of student and community member attendees at 22 student-led conferences, events and initiatives sponsored by DDQIC last year

CASE STUDY | QUEEN'S INNOVATION ECOSYSTEM

IPG PHOTONICS



IPG Photonics (formerly Laser Depth Dynamics) uses Inline Coherent Imaging technology that increases the level of detail and accuracy for laser weld monitoring.

Founded by Dr. Paul Webster, Queen's University PhD graduate in Physics (PhD '13) and Roger Bowes, with support from Dr. Webster's thesis supervisor James Framer, and from Queen's University's Partnership and Innovation (formerly PARTEQ Innovations). Laser Depth Dynamics' is a true success story, having patented and commercialized high-performance fibre lasers and amplifiers.

Notably, the team was able to access critical early stage funding – a gap entrepreneurs can often struggle to overcome. This early-stage funding and support from Queen's University served as a catalyst for other sources of funding, including OCE, early-stage Shred funding

Originally from Mississauga himself, Dr. Webster has remained in Kingston and stays connected with Queen's innovation ecosystem. With the Laser Depth Dynamics team based in Kingston, the company looks to hire high-potential graduate students and alumni of Queen's University, working closely with individuals such as Dr. Fraser and by attending Queen's Career Fair. More than half of the company's employees have a connection to Queen's.



“

The most influential thing that Queen's and PARTEQ did for me was put me in touch with my co-founder and help me see that I could be an entrepreneur.

*— Dr. Paul Webster
Founder, Laser Depth Dynamics*

SPECTRA PLASMONICS



Spectra's portable technology helps cities to measure, monitor and manage drug consumption in their communities, and prevent users from accidental overdoses.

In the summer of 2017, Malcom Eade and his co-founders Christian Baldwin and Tyler Whitney were looking for opportunities in biotechnology and took a risk by participating in the QICSI Foundry Program – their first taste of entrepreneurship. They became surrounded by a team of students from across faculties including engineering and business, all guided with the same curiosity and expertise.

To help and tackle the opioid crisis confronting Canadian communities Malcolm leveraged chemical sensing technology already invented and at his team's disposal to use as a foundation – the team went on to win funding in the final pitch competition of QICSI, receiving an initial \$15,000 in seed funding. This experience gave them the confidence and connections to apply to another pitch competition in Singapore, where they received an additional \$115,000 in seed funding.

Mr. Eade feels fortunate to have been awarded enough grant money to focus his efforts full-time on Spectra Plasmonics – noting that not all participants of the QICSI initiative have this type of success.

Spectra's connections to QICSI via the Foundry program has helped the company connect with alumni and mentors across the globe. In 2019, Spectra went on to receive further funding from Health Canada under the Drug Checking Technology Program, as one of three finalists selected to continue developing their technology and adapt it to drug measures. Currently based out of Queen's Startup Runway (Seaway), Spectra hopes to place first in Health Canada's Drug Checking Technology program, and to expand their solution in other markets.



“

We [Spectra Plasmonics] wouldn't be here without Queen's. The Foundry Program gives you the license to try something out of the ordinary and provides you supports from people who have done it before.

*— Malcom Eade
Co-Founder, Spectra Plasmonics*

Appendix A

Economic contribution model assumptions, limitations, methodology details, and breakdown of economic contribution



Appendix A.1: Economic contribution model and assumptions

Economic contribution definitions

Direct Contribution: Direct economic contribution represents the economic value added directly associated with the activities of Queen’s University. These include the university’s operating expenditures, capital investments, out-of-town student expenditures and out-of-town visitor expenditures.

Indirect Contribution: Indirect economic contribution represents the economic value added resulting from the demand for materials and services that the university’s activities generate in supplier industries. They represent, for example, economic activity generated in the manufacturing, wholesale trade, transportation and professional service sector as a result of demand for materials and services generated by Queen’s University’s activities.

Induced Contribution: Induced contribution represents general income effects associated with the expenditure of wages earned as a result of the direct and indirect contribution. Example of this contribution are purchases of goods and services at the household level.

Gross Domestic Product (GDP): GDP is the total unduplicated value of goods and services produced in the economic territory of a country or region during a given period. GDP includes household income from current productive activities (wages, salaries and unincorporated business income) as well as profits and other income earned by corporations. In the context of our study, GDP serves as a measure of the total economic value-added resulting from the spending associated with the categories of expenditure identified.

Employment: In this study employment contribution is estimated in terms of full-year equivalent positions for ongoing employment (i.e. employment contribution associated with annual expenditures). Full-year equivalent positions are counted according to their duration and not according to whether they were employed on a full-time or part-time basis. That is, two part-time employees would be counted as one full-year equivalent if the total time they spent on the job adds up to one year. This approach is consistent with standard statistical terminology.

Labour Income: Labour income represents the total earnings of employees (including employees of suppliers to the projects), consisting of wages and salaries as well as supplementary labour income (such as employer’s contribution to pension funds, employee welfare funds, the Unemployment Insurance Fund and Workers Compensation Fund).

Government Revenues: In this study, government revenue includes federal, provincial, and municipal products and production taxes such as sales tax (GST), payroll taxes, property tax, and excise duty. This report also includes corporate income taxes and personal income taxes.

City of Kingston (or ‘Kingston area’): The local area or Kingston area is defined to encompass Kingston Census Metropolitan Area, Belleville Census Metropolitan Area, and Brockville Census Agglomeration.

Appendix A.1: Economic contribution model and assumptions

Economic contribution model and assumptions

Introduction to Input-Output Modelling

Input-Output models (I-O models) are used to simulate the economic contribution of an expenditure on a given basket of goods and services or the output of one of several industries. Input-Output analysis uses data on the flow of goods and services among various sectors of the economy, and attempts to model how an expenditure, increase in demand, or investment ripples through a region's economy. This is done by mapping the production of products and service by each industries, and identifying the intermediate inputs used in the production of each final product or service used by consumers, sold as an export, or purchased by government. The model can then aggregate all of the employment and value added contributions generated in the supply chain as commodities are produced. I-O models also consider the role of imports, which tie the supply chain to the global economy. This data is combined into a single model of the economy which can be solved to determine how much additional production is generated by a change in the demand for one or more commodities or by a change in the output of an industry. Deloitte used the Statistics Canada Interprovincial Input-Output model to generate the results in this report.

Assumptions and Limitations of the Model

The Statistics Canada Interprovincial Input-Output model is subject to a number of general assumptions and limitations. The model reflects a simplified macroeconomic structure, and does not include some variables of interest for macroeconomic analysis such as interest rates, unemployment rates, or income tax rates. The model assumes that the Canadian economy has the capacity to produce the goods and services stimulated by the economic shock. The model is not able to forecast situations in which demand may outpace the capacity to produce the required goods and services, however it does estimate the portion of goods and services sourced from other provinces in Canada and internationally. The model makes a basic underlying assumption that the number of jobs created maintains a linear relationship with short-term gross output. "This approach can be considered sound if the value and quantity measures are for the same year and the analysis is focusing on the structure of the economy for that same year. When used for projecting beyond the IO model year, the relationship between values and quantities may be [impacted] by price variations." For more information on the assumptions and limitations of the model, please refer to "*The guide to using the input-output simulation model*", which is available free of charge upon request from Statistics Canada.

Jobs to FTEs conversion details

- Direct, indirect and induced FTEs are estimated using the following approach:
- 1) Input-Output model generates impacts in terms of jobs which may include part-time, full-time or seasonal jobs.
 - 2) Source information on annual average number of hours worked per job, by industry, from Statistics Canada CANSIM table 36-10-0480-01.
 - 3) Convert jobs impacts into hours applying 1) to 2).
 - 4) Estimate FTEs by dividing the result in 3) by the assumed annual FTE hours worked: our study assumes 39 hours per week multiplied by 48 weeks per year. The 39 hours per week assumption is based on Statistics Canada data in table 14-10-0320-02 (Full-time employees, average usual weekly hours, Canada).

Appendix A.2: Methodology details and supplementary information

Methodology details for Kingston regional analysis

While Queen's has a unique role in shaping Kingston, the estimations of the university's economic contributions are multidimensional, and extend from the local Kingston community to the national level. To capture this nuance, the analysis segments the economic contribution estimates of the university's operations and associated activities at three geographic levels:

- Kingston region (local area) defined by the 100km radius surrounding the University which includes Kingston CMA, Belleville CMA, and Brockville CA
- Ontario
- Canada

The economic contribution at the Canada level is inclusive of the economic contribution at the Ontario and Kingston levels. Similarly, the economic contribution at the Ontario level is inclusive of the Kingston region level.

It can be noted that given the geographic scope of our analysis, the economic contribution reported throughout exclude activity associated with Queen's Bader International Study Centre (BISC) campus in the UK.

The methodology to estimate the Canada and Ontario level contributions is estimated directly from the model based on input-output multipliers published by Statistics Canada. The Kingston region contributions are estimated as a proportion of the Ontario contributions, based on the concentration of industries impacted by the university's expenditures.

Provided below is an overview of the methodology and assumptions used to calculate local economic contribution at the direct, indirect, and induced levels:

- 100% of Ontario direct economic contribution is allocated to Kingston since it is assumed all direct spending will occur within the local region defined. It can be noted that operating estimates for labour income, and jobs are based on actual staffing, and salaries and benefits in the Kingston area provided by the university.
- Estimates for indirect and induced economic contribution are based on employment shares, used to determine the share of industries in the Kingston area compared to the economy of Ontario as a whole. The share of industry concentration in the Kingston area is applied to the Ontario level economic contribution to determine the share attributable to the Kingston area. The calculation of employment shares utilizes regional employment data from the Statistics Canada 2016 Census of Population.

Appendix A.2: Methodology details and supplementary information

Limitations of out-of-town student spending analysis

Limitations of quantifying the economic contribution of out-of-town student expenditures

The analysis assumes that in absence of the university, out-of-town students would otherwise not be in Kingston region. However, it is likely that students from other parts of Ontario, Canada and other countries may be attracted to the region to study at other local post-secondary institutions as well as to pursue employment opportunities.

It can also be noted that this analysis only captures the economic contribution of out-of-town student expenditures over the 2018/19 period. These figures do not capture the significant contributions that can accrue over the life span of international students who opt to stay within Canada or Ontario after graduation

Appendix A.2: Methodology details and supplementary information

Overview of R&D analysis methodology

To complement the economic contribution analysis, a separate analysis was conducted to estimate the economic contribution associated with the university's research activities from 2014/15 to 2018/19. The study evaluates Queen's research expenditures and the corresponding impact on Ontario's GDP. The methodology for this analysis was informed through a literature review of approaches to estimating research related economic contribution in Canadian universities.

The literature review revealed that several Canadian universities have leveraged methodologies developed by Fernand Martin in 1998 and Walter Sudmant in 2009 which estimates the impact of university research expenditures by calculating the share of total factor productivity (TFP) or multifactor productivity (MFP). TFP or MFP is the portion of output not explained by the amount of inputs used in production that could be attributed to a university's research expenditure. Unlike an economic model based on input-output multipliers which measures static contributions, Martin and Sudmant's approach is dynamic and takes into account spillover impacts of knowledge created by a university on labour and capital productivity. TFP or MFP was deemed an appropriate metric to analyze research contributions because it measures the change in GDP associated with labour productivity growth that cannot be explained by changes in capital intensity or labour composition.

While both approaches estimate the economic contribution of university research expenditure to the economy they differ in the scope of application. Martin estimated the impacts of research expenditure of all Canadian universities to Canadian GDP, while Sudmant estimated the economic contribution of only one university to the provincial GDP. The analysis presented in this study leverages both approaches to estimate the contributions from Queen's University research expenditures on Ontario GDP only.

In order to capture more current economic conditions, Deloitte modified and tailored Martin and Sudmant's methodologies in the following ways:

- Martin (1998)'s assumptions were based on research expenditures incurred between 1971 and 1993. In the analysis of Queen's University's economic contribution to Ontario's GDP in 2018/19, research expenditures incurred between 2014/15 and 2018/19 are used to reflect a more recent timeframe.
- In alignment with the change in the analysis timeframe, the model inputs were adjusted to reflect the composition and performance of the Ontario economy between 2014 and 2018 (i.e., updates of average MFP, estimates of GDP growth in Ontario).
- Research projects can also have long term horizons and can be phased over many years. In some cases, it can take years for research that is available in the public domain or via intellectual patent to be adopted and/or commercialized. Accordingly, our methodology estimates impacts on Ontario's GDP in 2018/19 for research activities undertaken in 2014/15-2018/19.

Appendix A.2: Methodology details and supplementary information

Limitations of R&D analysis

Limitations of quantifying the economic contribution of research and development expenditures

The estimation of the economic contribution of research and development expenditures provided in the analysis is conservative. This is because research findings could become publicly available and leveraged for other activities that could drive further economic benefits not captured herein (e.g., additional discovery, the patenting of products and services).

As the domestic share of MFP attributable to domestic research activities was estimated in 1993, it is possible that the share in today's economy may be different. For example, the economy has changed significantly since the publication of Martin's analysis with transformative forces such as globalization and disruptive technologies changing productivity in the economy.

While the economic contribution to Ontario will have an impact on the Canadian GDP, the impacts to Canadian GDP have not been estimated thereby underestimating the potential economic contribution. This has been excluded so as to remain consistent with the approach undertaken by other peer universities that have leveraged Martin and Sudmant.

The analysis assumes a standard return profile for the research expenditures undertaken by the university. The data used to calculate the share of Queen's University research expenditures in Ontario was solely based on Tri-Agency funding data as detailed information on private sector research funding activities at the provincial level was not available. Additionally, international research partnerships or initiatives are not captured in the analysis as detailed information was also not available.

It is likely that research undertaken by the university could have been leveraged by companies that have spun out of the university. However, there is a lack of available and/or complete data that provides insights on the extent to which the research activities referenced in this report could be attributable to spin-off company creation.

Finally, the analysis is point-in-time only and looks at contribution to Ontario's GDP in 2018/19 only. It is possible that the activities related to research expenditures evaluated herein may have a different profile of impacts in other years not analyzed. The five year time period chosen can also not fully capture the economic contribution of research activities given the length of time that it takes for research outputs to be published, used and incorporated. Similarly, the estimation of economic contribution in 2018/19 may reflect the effects of research activities undertaken prior to the study time period (e.g., 2009).

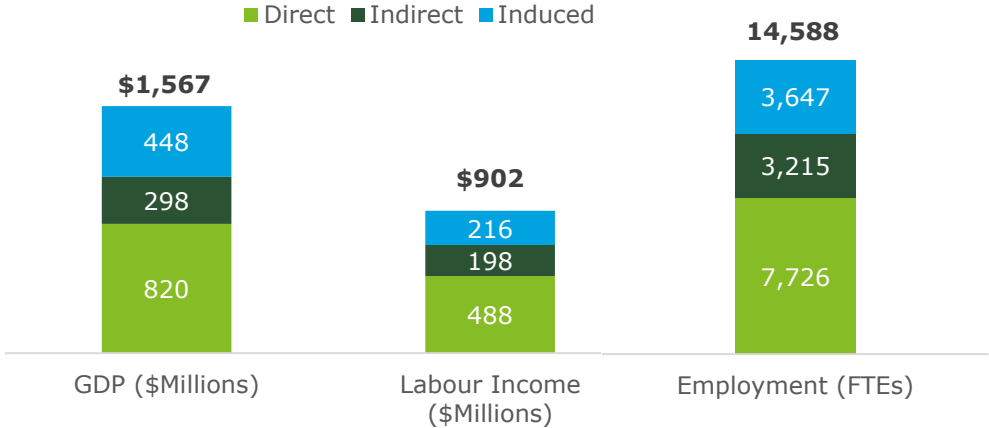
Appendix A.3: Economic contribution from the university's annual operations

Breakdown of direct, indirect, and induced economic contribution

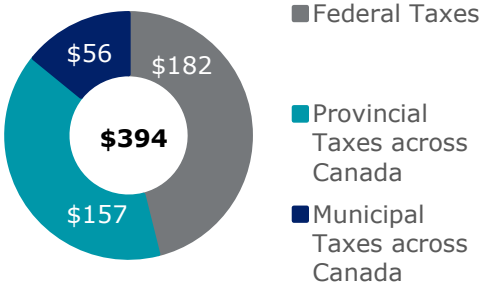
Economic Contribution to Canada

Accounting for the direct, indirect and induced economic contribution, it is estimated that the university's annual operating expenditures in 2018/19 contributed **\$1,567M** to Canada's GDP, of which **\$902M** in labour income and created or sustained **14,588** full-time equivalent (FTE) jobs across Canada and added an estimated **\$394M** to Canada's government revenues.

Economic Contribution to Canada, Operating Expenditures



Economic Contribution to Canada, Operating Expenditures: Taxes (\$M)



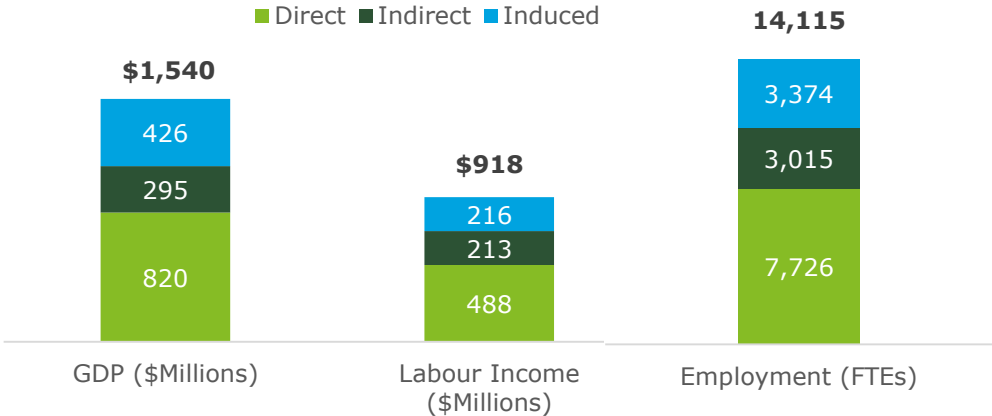
Appendix A.3: Economic contribution from the university's operating expenditures

Breakdown of direct, indirect, and induced economic contribution

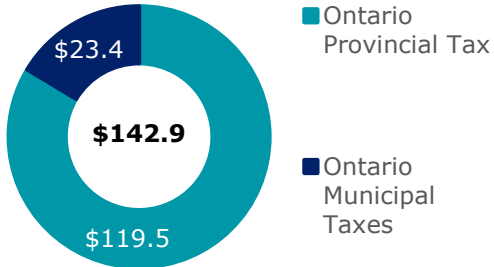
Economic Contribution to Ontario

Accounting for the direct, indirect and induced economic contribution, it is estimated that the university's operations in 2018/19 contributed **\$1,540M** to Ontario's GDP, of which **\$918M** in labour income and created or sustained **14,115** full-time equivalent (FTE) jobs across Ontario and added an estimated **\$143** to Ontario's government revenues.

Economic Contribution to Ontario, Operating Expenditures



Economic Contribution to Ontario, Operating Expenditures: Taxes (\$M)



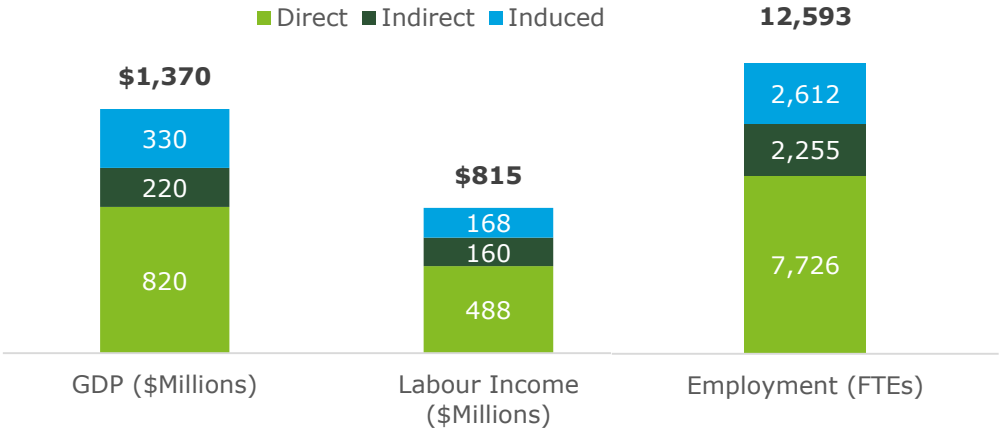
Appendix A.3: Economic contribution from the university's annual operations

Breakdown of direct, indirect, and induced economic contribution

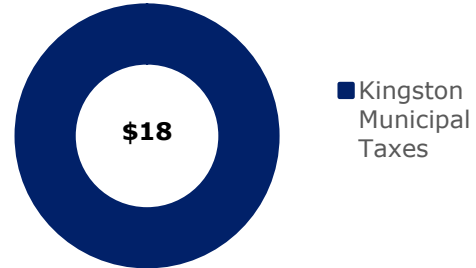
Economic Contribution to Kingston

Accounting for the direct, indirect and induced economic contribution, it is estimated that the university's operations in 2018/19 contributed **\$1,370M** to the local GDP, of which **\$815M** in labour income and created or sustained **12,593** full-time equivalent (FTE) jobs across the Kingston region and added an estimated **\$18M** to the region's government revenues

Economic Contribution to Kingston, Operating Expenditures



Economic Contribution to Kingston, Operating Expenditures: Taxes (\$M)



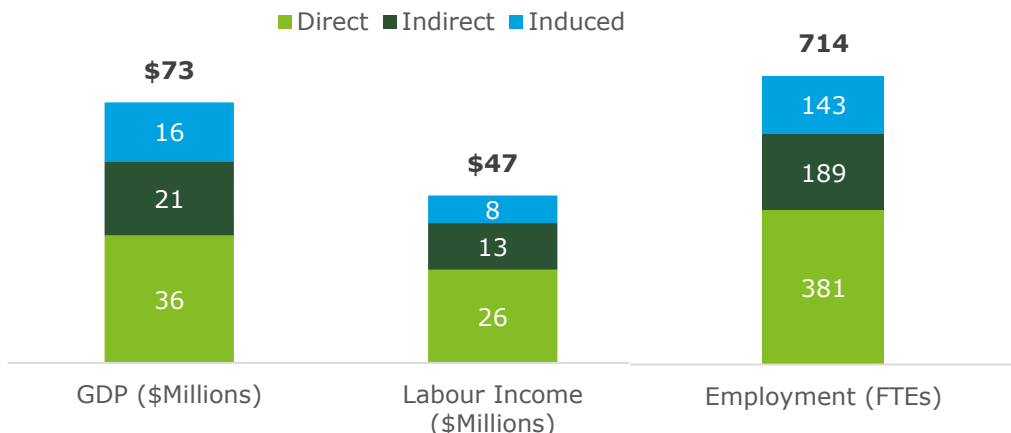
Appendix A.4: Economic contribution from the university's capital investments

Breakdown of direct, indirect, and induced economic contribution

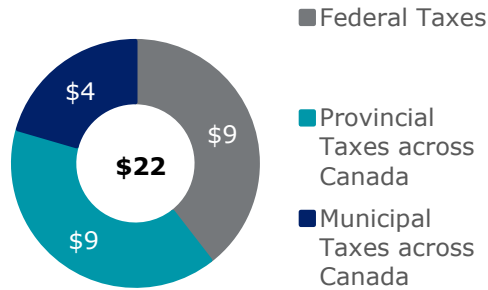
Economic Contribution to Canada

Accounting for the direct, indirect and induced economic contribution, it is estimated that the university's expenditures toward capital investments in 2018/19 contributed **\$73M** to Canada's GDP, of which **\$47M** in labour income and created or sustained **714** full-time equivalent (FTE) jobs across Canada and added an estimated **\$22M** to Canada's government revenues.

Economic Contribution to Canada, Capital Expenditures



Economic Contribution to Canada, Capital Expenditures: Taxes (\$M)



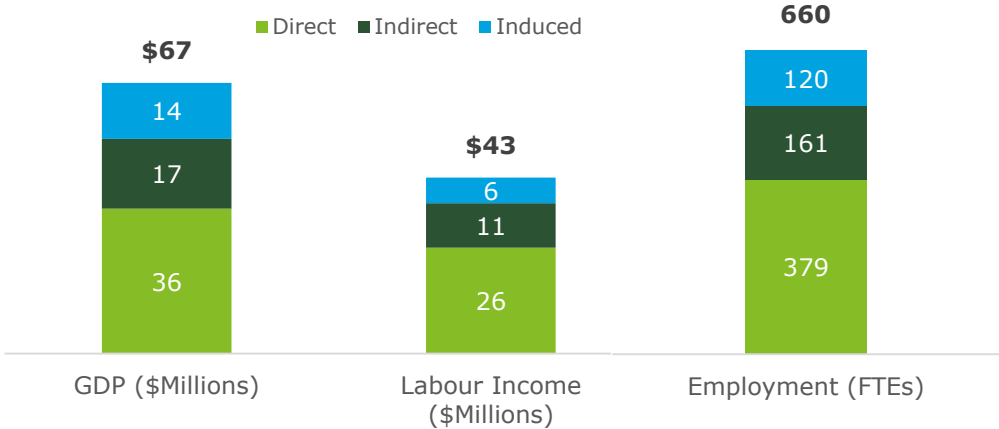
Appendix A.4: Economic contribution from the university's capital expenditures

Breakdown of direct, indirect, and induced economic contribution

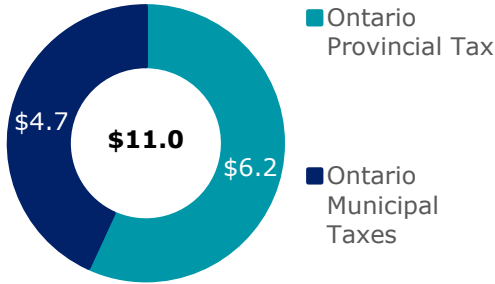
Economic Contribution to Ontario

Accounting for the direct, indirect and induced contributions, it is estimated that the university's capital expenditures in 2018/19 contributed **\$67M** to Ontario's GDP, of which **\$43M** in labour income and created or sustained **660** full-time equivalent (FTE) jobs across Ontario and added an estimated **\$11M** to Ontario's government revenues.

Economic Contribution to Ontario, Capital Expenditures



Economic Contribution to Ontario, Capital Expenditures: Taxes (\$M)



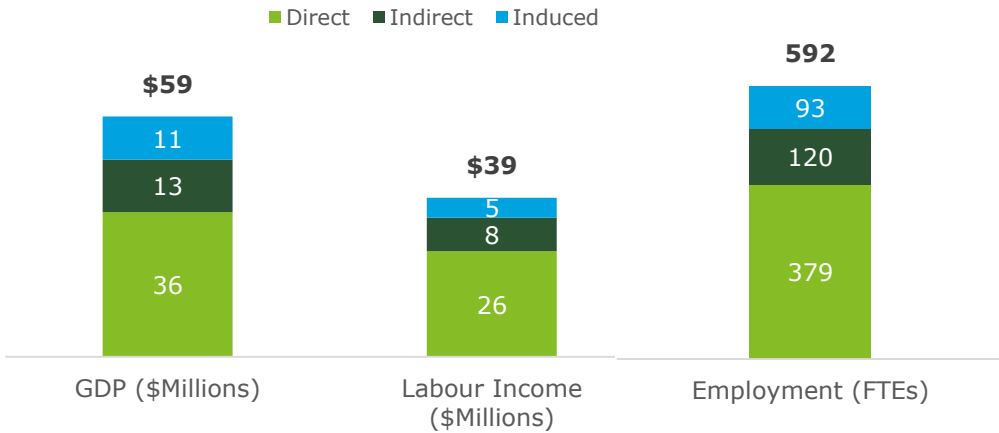
Appendix A.4: Economic contribution from the university's capital investments

Breakdown of direct, indirect, and induced economic contribution

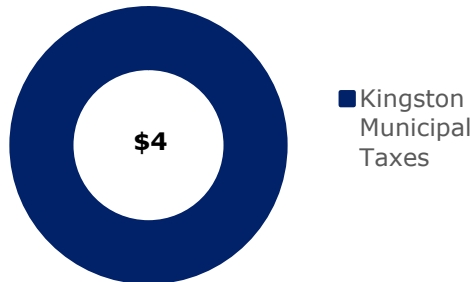
Economic Contribution to Kingston

Accounting for the direct, indirect and induced economic contribution, it is estimated that the university's expenditures toward capital investments in 2018/19 contributed **\$59M** to the local GDP, of which **\$39M** in labour income and created or sustained **592** full-time equivalent (FTE) jobs across the Kingston region and added an estimated **\$4M** to the region's government revenues.

Economic Contribution to Kingston, Capital Expenditures



Economic Contribution to Kingston, Capital Expenditures: Taxes (\$M)



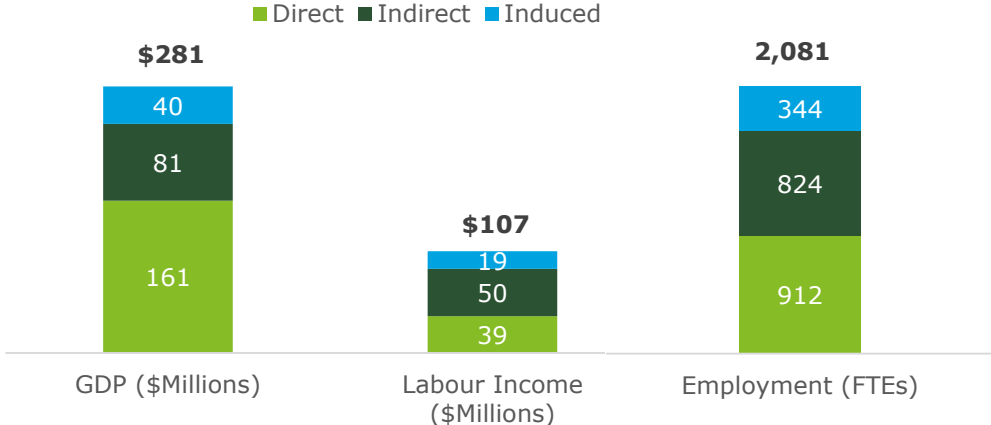
Appendix A.5: Economic contribution from out-of-town student spending

Breakdown of direct, indirect, and induced economic contribution

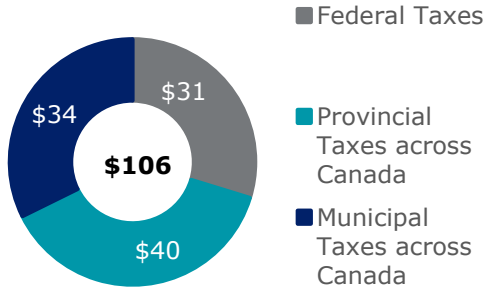
Economic Contribution to Canada

Accounting for the direct, indirect and induced economic contribution, it is estimated that out-of-town student expenditures in 2018/19 contributed **\$281M** to Canada’s GDP, of which **\$107M** in labour income and created or sustained **2,081** full-time equivalent (FTE) jobs across Canada and added an estimated **\$106M** to Canada’s government revenues.

Economic Contribution to Canada, Out-of-town Student Expenditures



Economic Contribution to Canada, Out-of-town Student Expenditures: Taxes (\$M)



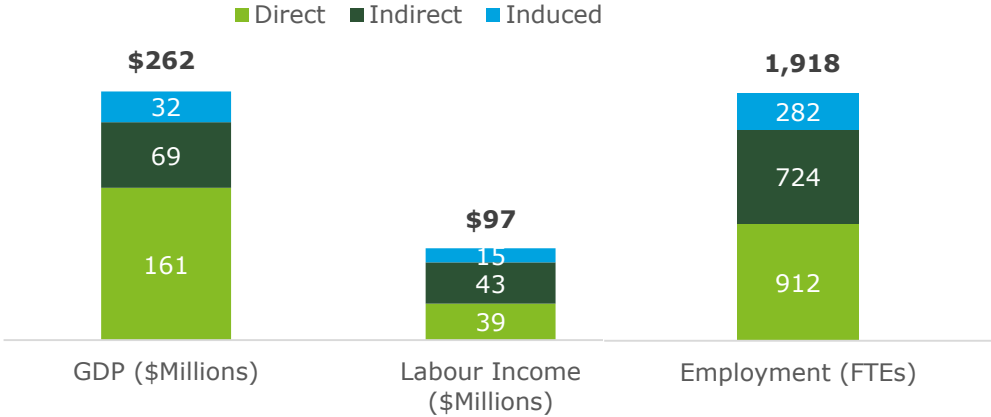
Appendix A.5: Economic contribution from out-of-town student spending

Breakdown of direct, indirect, and induced economic contribution

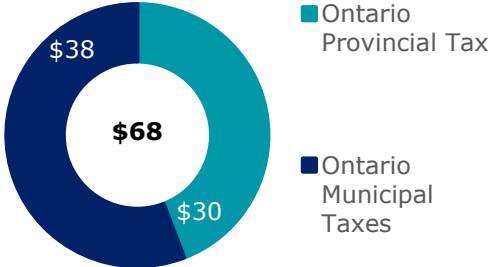
Economic Contribution to Ontario

Accounting for the direct, indirect and induced economic contribution, it is estimated that out-of-town student expenditures in 2018/19 contributed **\$262M** to Ontario’s GDP, of which **\$97M** in labour income and created or sustained **1,918** full-time equivalent (FTE) jobs across Ontario and added an estimated **\$68M** to Ontario’s government revenues.

Economic Contribution to Ontario, Out-of-town Student Expenditures



Economic Contribution to Ontario, Out-of-town Student Expenditures: Taxes (\$M)



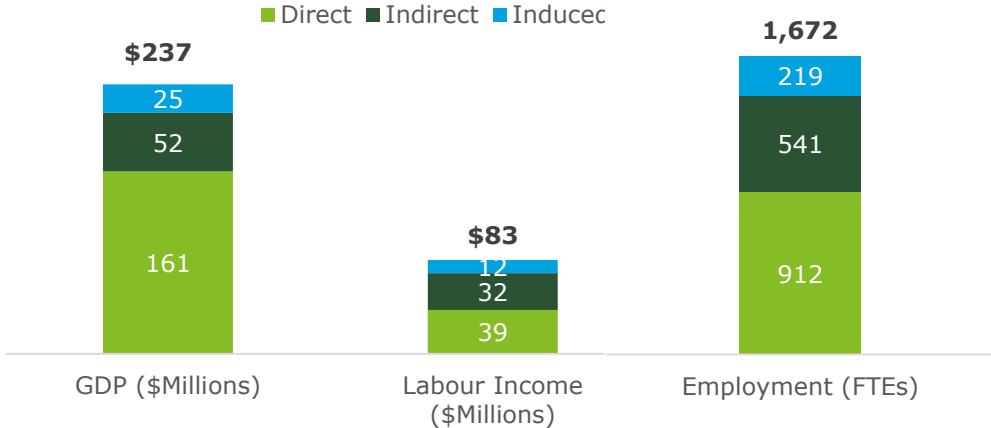
Appendix A.5: Economic contribution from out-of-town student spending

Breakdown of direct, indirect, and induced economic contribution

Economic Contribution to Kingston

Accounting for the direct, indirect and induced economic contribution, it is estimated that out-of-town student expenditures in 2018/19 contributed **\$237M** to the local GDP, of which **\$83M** in labour income and created or sustained **1,672** full-time equivalent (FTE) jobs across the Kingston region and added an estimated **\$37M** to the region’s government revenues.

Economic Contribution to Kingston, Out-of-town Student Expenditures



Economic Contribution to Kingston, Out-of-town Student Expenditures: Taxes (\$M)



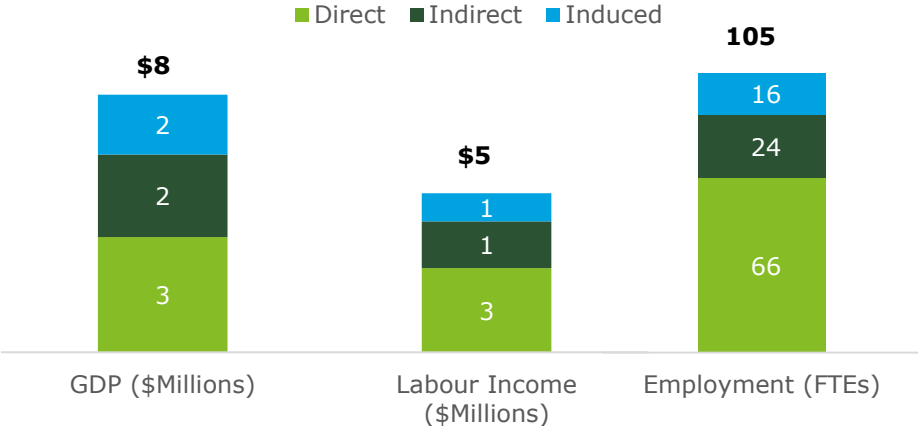
Appendix A.6: Economic contribution from out-of-town visitor spending

Breakdown of direct, indirect, and induced economic contribution

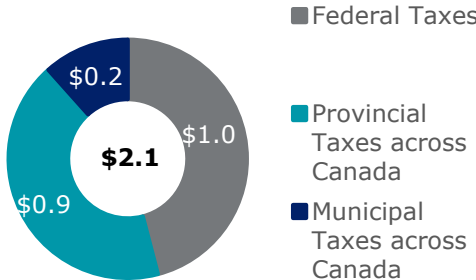
Economic Contribution to Canada

Accounting for the direct, indirect and induced economic contribution, it is estimated that out-of-town visitor expenditures in 2018/19 contributed **\$8M** to Canada's GDP, of which **\$5M** in labour income and created or sustained **105** full-time equivalent (FTE) jobs across Canada and added an estimated **\$2M** to Canada's government revenues.

Economic Contribution to Canada, Out-of-town Visitor Expenditures



Economic Contribution to Canada, Out-of-town Visitor Expenditures: Taxes (\$M)



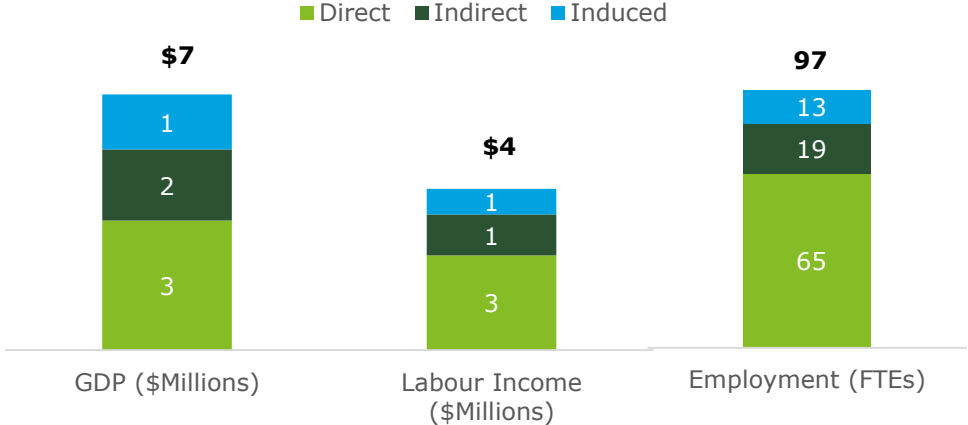
Appendix A.6: Economic contribution from out-of-town visitor spending

Breakdown of direct, indirect, and induced economic contribution

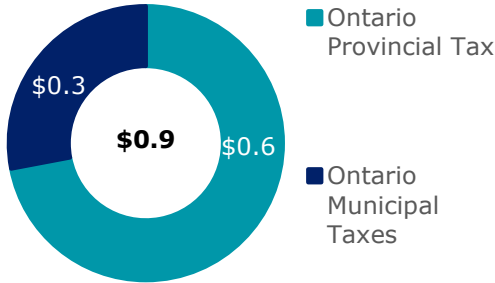
Economic Contribution to Ontario

Accounting for the direct, indirect and induced economic contribution, it is estimated that out-of-town visitor expenditures in 2018/19 contributed **\$7M** to Ontario’s GDP, of which **\$4M** in labour income and created or sustained **97** full-time equivalent (FTE) jobs across Ontario and added an estimated **\$1M** to Ontario’s government revenues.

Economic Contribution to Ontario, Out-of-town Visitor Expenditures



Economic Contribution to Ontario, Out-of-town Visitor Expenditures: Taxes (\$M)



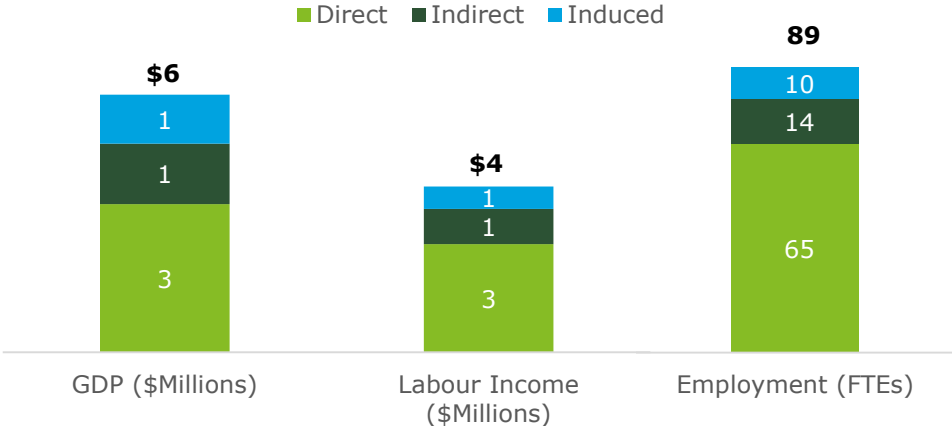
Appendix A.6: Economic contribution from out-of-town visitor spending

Breakdown of direct, indirect, and induced economic contribution

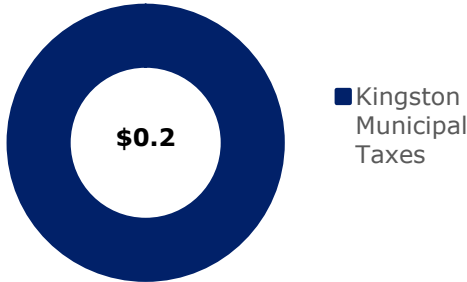
Economic Contribution to Kingston

Accounting for the direct, indirect and induced contributions, it is estimated that out-of-town visitor expenditures in 2018/19 contributed **\$6M** to the local GDP, of which **\$4M** in labour income and created or sustained **89** full-time equivalent (FTE) jobs across the Kingston region and added an estimated **\$0.2M** to the region's government revenues.

Economic Contribution to Kingston, Out-of-town Visitor Expenditures



Economic Contribution to Kingston, Out-of-town Visitor Expenditures: Taxes (\$M)



Appendix B

List of sources used in Community, Health, and Social Impact section



Appendix B

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List of sources used in Research, Innovation, and Development Impact section



Appendix C

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