WHAT’S NEXT FOR CANADA?
As the country prepares for its 150th birthday, U of T scholars map out the future.
Stein on Canada’s future in the global landscape:

“Canada matters to the world not so much for what it does but for what it is.”

Q. This issue of Edge is about Canada’s future. From an international relations perspective, does Canada matter to the rest of the world?

A. Canada matters to the world not so much for what it does but for what it is. It is among the very best in the world in its capacity to welcome newcomers to frame around the world, to build and sustain diverse societies, to create multicultural cities, to provide basic health care and a range of educational platforms and opportunities. We mirror the world inside our borders. We matter primarily through example, through how we live and how we enable multiple voices, rather than for what we do in the world.

Q. There are any number of big issues that affect global society right now – climate change, terrorism, the global economy, the gap between rich and poor, to name a few. Two questions: first, is it really possible for the nations of the world to work together to solve these problems? Second, what can Canada do to help other nations deal with these problems?

A. It is getting more and more difficult for global society to come together to solve complex problems. There are four times as many states as there were after World War II and at least 10 times as many non-governmental organizations involved in global affairs. Organizing and managing this complexity to arrive at solutions is challenging. To use a baseball analogy, that is why we’re seeing “small ball strategies” on many issues rather than big swings for the fences on the world’s toughest problems. At the climate conference in Paris, states were able to come together only by agreeing to voluntary targets. That’s a small-ball strategy that the organizers hope will produce runs.

Q. What advice do you have for Prime Minister Trudeau?

A. I wouldn’t presume to give the Prime Minister any advice. He knows well that the 21st century has brought many new players to the table and empowered many that previously had no voice. That is a positive development, even though it makes it more difficult for Canada’s voice to be heard in this crowded, complex environment. Canada has to choose where it will focus and where it can bring meaningful expertise to bear in a way that genuinely adds value.

Q. You’ve taught international relations at U of T since 1982 and have interacted with thousands of students. Are students today more interested in international affairs than at other times?

A. I am enormously encouraged by today’s students. This is the most globally minded group of students that I have had the privilege of working with. They travel, connect, and come back to Canada, building bridges as they travel, study, and work abroad. They understand that there are few purely local problems, that their generation will have to find global solutions even to problems that appear local, and that risk as well as opportunity is now shared globally. What is so heartening is that this generation is so much more willing to take risk and no longer looks only to government as the solution to all these problems. They are willing and capable of taking ownership, risk, and responsibility for creating solutions to tomorrow’s problems.
Averting climate change

For Canada to lead, action must start now, say Jutta Brunnée and Stephen Scharper by Patchen Bass

At the United Nations Climate Change Conference in Paris this past November, Canada strove to redefine itself as a global leader in the race to avert calamitous climate change. But if Canada really wants to lead, its efforts must extend beyond meetings of nations.

Professor Jutta Brunnée, who holds the Metcalf Chair in Environmental Law in the Faculty of Law and studies multi-lateral environmental agreements, says that international treaties still matter, but that national governments no longer work alone to spur action, shape policy, verify outcomes and get results.

“There is a bit happening outside of treaties,” she says. “For instance, certification programs by devolving international standards that are not international in the conventional sense at all. It’s not that nobody makes environmental treaty law any more, but you now have a greater diversity of ways to implement and complement treaties. The buzzword is in-state action.”

A treaty might point the way, but along with states, provinces and cities, it’s international organizations, business and industry associations, think tanks, NGOs, and even individuals and social media channels that execute much of the work, including even verification and enforcement.

“At the international level, you very rarely have something that would compare to domestic law enforcement,” says Brunnée. “There are other compliance mechanisms, and publicity is one of them. When governments fail to live up to their commitments, they are often more concerned about public reputation than legal penalties.”

The idea of enforcement itself is also ceding ground to conversations about opportunity. Many countries now treat climate change as an economic opportunity rather than an uneasy responsibility. With the right investments, Brunnée says, Canada could come out a winner.

“Decarbonization means creating conditions in which Canadians are innovative,” says Brunnée. “Even if you don’t care about the climate, you should care about the economic and social opportunities.”

Like Brunnée, Stephen Scharper embraces Canada’s renewed enthusiasm to lead internationally, but he says our success around climate change will depend on internal shifts as well.

“I’m the eternal optimist; I think we can do it,” Brunnée says. “People are beginning to understand that climate change isn’t a future problem, it’s a current problem. Dealing with it takes all of us – not just governments – working at all different levels.”

“It helps that people now see climate change more as a current problem, than something that might be pushed off for the future.”

“We’re reaching a point where we can no longer ignore this,” says Scharper. “Climate deniers are increasingly a fatuous minority. People are realizing this has to be addressed now.”

We founded Edge to tell the story of how University of Toronto researchers and scholars help us all to understand the challenges facing the world. U of T was one of the first universities in Canada to devote an entire magazine to research. And it made perfect sense in 2000 to create a print magazine.

That would change quickly. Faster than most of us could imagine.

We found the Edge cover story in 2000 was about what was then an out-of-the-box idea in how to conduct research: the Centre for Cellular and Biomolecular Research (CCBR). Today the Donnelly CCBR is one of the world’s great hubs for life sciences research. We pay tribute to its founders – Professor James Friesen and the late Professor Cecil Yip – in this final issue.

Finally, I must thank Paul Fraumeni for his ongoing commitment to telling the story of research at U of T. Paul founded Edge and put together every issue with tremendous care as it charted new territory in university communications. I know he will do the same in his new role in University of Toronto Communications.

I hope you enjoy this issue – and the new ways we tell the U of T research story long into the future.
Odds are you will live past 100

Alex Mihailidis wants to make sure longer lifespans are about quality by Althea Blackburn-Evans

Canadians have never been older. We live in a country replete with Baby Boomers who, with the help of advances in medical science, are set to live longer than ever before. By 2063 more than 62,000 of us will be over 100, a population nine times higher than in 2013. But do we – should we – really want to reach triple digits?

Associate professor Alex Mihailidis answers this question with caution and optimism. “It depends on whether those additional years we’re living are actually quality years. It’s not about increasing the number of years we live for, it’s about increasing the number of years in which we can have good quality of life.”

That’s what Mihailidis and colleagues across the country aim to do with AGE-WELL, a cross-Canada network of academics, industry, non-profits and government focused on developing new tools and technologies to make aging more manageable for seniors and those who help care for them.

The multidisciplinary network is the first of its kind to focus on technology and aging. With $36 million from the federal government, AGE-WELL has 25 projects on the go – from creating new ways for seniors to increase their mobility and monitor their own health, to exploring ethical issues that come with using robotics or artificial intelligence to support a vulnerable population.

One project in Mihailidis’s own research area uses motion sensors in the home to predict dementia. The algorithms developed by his PhD student, Ahmad Akl, track activity levels and living patterns to detect cognitive impairment with 92 per cent accuracy, he says. “That’s quite exciting, leading edge stuff.”

Mihailidis, the Barbara G. Stymiest Research Chair in Rehabilitation Technology at U of T and Toronto Rehab Institute, was tapped to co-lead the network thanks to the multidisciplinary nature of his own work. A mechanical engineer by trade, he now has appointments in the Department of Occupational Science and Occupational Therapy, the Institute of Biomaterials and Biomedical Engineering, and the Department of Computer Science. “Because I’m an engineer, a professor in occupational therapy, and a research chair at Toronto Rehab, my team is a mixture of every discipline you can possibly think of in this area.”

Among the network’s early milestones is its first startup company, Braze Mobility. Created by post-doc Pooja Viswanathan, the company offers an intelligent add-on to powered wheelchairs to help users avoid collisions. It opens a new door for people who would otherwise be unable to use a motorized chair. “They may have visual-perceptual challenges, or they may not be able to see obstacles or react in time,” Viswanathan told CTV News recently. Viswanathan is working with the Ontario Brain Institute to further develop and market the product.

AGE-WELL’s work has a significant training component, too. A recently-launched certificate program is already nurturing over 150 trainees – including researchers, entrepreneurs and healthcare providers – to play leading roles in this relatively young field. Mihailidis says the key is fostering a culture of collaboration. “We want to make sure our trainees – whether they’re engineers, gerontologists or psychologists – gain that transdisciplinary knowledge and approach in the area of technology and aging.”
If you’re an Indigenous person in Canada, you’re six to 10 times more likely to commit suicide than a member of the general Canadian population. You’re four times more likely to suffer from type 2 diabetes and eight to 10 times more likely to contract tuberculosis.

The list goes on: HIV, dental disease, cardiovascular disease, substance use disorders – nearly every condition out there affects Indigenous Canadians disproportionately.

U of T is trying to close this gap with the establishment of the Waakebiness-Bryce Institute for Indigenous Health (WBIIH), located in the Dalla Lana School of Public Health. Established with a $10 million gift from Michael and Amira Dan, the WBIIH is the only privately funded institute of its kind in the world.

Under the guidance of a community advisory council, the WBIIH will conduct research, support faculty and trainees and address areas of concern identified by Indigenous communities with which it partners.

“Our mission,” says Howard Hu, Dean of the Dalla Lana School of Public Health, “is to look for knowledge gaps and to produce the information that policymakers, public health officials and clinicians need in order to make the right decisions.”

Hu is overseeing one of the WBIIH’s first studies, an investigation into cancer and the environment in First Nations communities in Northern Ontario.

“It will address a huge question that remains unanswered – whether environmental contamination is a risk factor in what has been perceived as an increase in cancer rates in First Nations communities up north,” he says.

The context in which Indigenous health disparities have developed is key, says Earl Nowgesic, an assistant professor at the Dalla Lana School of Public Health and the Interim Associate Director of the WBIIH.

“For over 100 years and up until the 1990s, tens of thousands of Indigenous, or Aboriginal, children attended Aboriginal Residential Schools. These schools separated Aboriginal children from their families, weakening family and cultural relations, thus indoctrinating children into Canada’s Euro-Christian society,” he says, paraphrasing the 2015 summary of the final report of the Truth and Reconciliation Commission. The Commission was established in 2008 to acknowledge Residential School experiences and to contribute to reconciliation.

The legacy of the residential school system is a gap not only in health but in social conditions.

“Indigenous health isn’t just about curing diseases,” says Jeff Reading, a cardiovascular researcher from the University of Victoria who came to U of T to help establish the WBIIH as its Interim Director. “Until people get access to education, clean water, food security, and jobs, we are just going to be patching up the health concerns of a very vulnerable population.”

The WBIIH’s leaders are optimistic that the Canada of the future will be a healthier place for Indigenous people, pointing to the work of the Truth and Reconciliation Commission and the recent election of a federal government that appears to be committed to Indigenous issues as hopeful signs.

“I am Ojibwe from Gull Bay First Nation,” says Nowgesic. “Both my parents attended Aboriginal Residential Schools. Despite that legacy, my parents persevered and remained true to their cultural traditions. They passed those values down to me and my sister. I very much believe that we can make a difference.”

New hope for improved Indigenous health
Waakebiness-Bryce Institute for Indigenous Health looking to fill knowledge gaps by Jenny Hall

Earl Nowgesic (l) and Howard Hu
Where is Canadian culture going?

Two great imperatives, both of which are of such long-standing currency that they are not so much of the future as they are a heritage that will continue to be fertile – not fossilized, will shape Canadian culture far into the century and beyond. These two essential determinants of who we are and how we live will be au courant so long as Canada remains a unique nation in the world.

The two forces that organize our identity (i.e. artistic expression and recollection of history) are 1) communications technology (as Marshall McLuhan saw 60 years ago) and 2) our mosaic of cultures (as John Ralston Saul and Adrienne Clarkson have written). Importantly, both are central to the nation’s articulation of its own (independent) existence.

Communications technology – from railways to Internet, canals to broadcast media – remains relevant in the world’s second-largest nation, with 5.5 time zones. The ability to see and speak with each other despite blizzards or solar-flare interference must remain a sacrosanct infrastructure in our still-Arctic civilization (despite global warming).

Canada will become the most “wired” nation on the planet, but perhaps also the most savvy about preventing state and commercial surveillance from so undermining privacy and so compromising free, individual decision-making that democracy becomes farcical. One prays that the children and grandchildren of those who fought for the Charter of Rights and Freedoms will want to safeguard jealously those virtues from erosion by snoops and fraudsters.

Multiculturalism and bilingualism have always been with us. Thus, Canada remains, I believe, the only nation on earth to recognize mixed-race people – the Métis – in its constitution. The Francophone majority in Quebec and significant populations in the Maritimes, Ontario, Manitoba, and Saskatchewan will ensure the vitality of the Official Languages. In addition, the example of French survivance is an inducement to other “Third Languages” to persist and even to flourish. I’m thinking of Chinese and Italian in this regard, but there are powerful political reasons for the efflorescence of Indigenous and Inuit languages as well.

Finally, given our urbanization, and the concentration of multi-cultures in what are, in essence, city-states (Vancouver, Toronto, Montreal) – with regional satellites, and all centered on local communications, we will see the rise of ever more hybridized citizens – Francophone, Japanese Brazilian Nova Scotians and Anglophone, Mohawk Nigerian British Columbians – all of whose art will be triumphantly humanitarian...

Canadian culture will be a polyphonic kaleidoscope. Beautiful.
Where is Canadian culture going?

Two recent events have put the question of Canadian culture at centre stage: Canadians preparing to welcome thousands of Syrian refugees fleeing their homes and the release of the Final Report of the Truth and Reconciliation Commission of Canada. The process of welcoming plane-loads of refugees to cities and towns across the country has prompted many Canadians to come together as sponsor groups, fundraising and organizing to help resettled refugee families in their communities. Along the way, these groups have newly articulated their ideas of Canada and what it means to be Canadian: providing safe havens for people fleeing war and violence, welcoming people from any and all cultural backgrounds, considering it an obligation to respond to people in desperate need, and not taking for granted the privileges of living in a society free from war. For example, the 1000 Schools Challenge, a group started in downtown Toronto, calls for schools – through parent groups – to join a longer tradition of Canadian refugee sponsorship. “If we believe 1980 saw across Canada could commit to sponsoring refugee families, much like church (and synagogue) communities did in the 1970s and 1980s, and are doing today,” the group notes on its website.

That schools are now taking on the task of refugee sponsorship based not on shared religious commitments, but on a shared commitment to a multicultural and welcoming Canada, suggests a new direction that Canadian culture may be heading. Schools and universities, especially when they are public and widely financially accessible, are some of the most vibrant sites of multicultural community today. They are sites of a new kind of lived multiculturalism, in which both common purpose and critical perspectives regarding “Canadianness” can coincide.

As Canada nears 150, what’s on the horizon for Canadian music?

By Robin Elliott, Jean A. Chalmers Chair in Canadian Music

Those of us who are of a certain age remember the air of excitement surrounding the Centennial celebrations. The musical activities were staggering: a parade of outstanding performances at Expo 67 in Montreal, a host of commissioned works from Canadian composers (including the opera Louis Riel by Harry Somers, with words by Mavor Moore), festivals, recordings, new concert halls, and even a few catchy theme songs for the occasion, such as Bobby Gimby’s “Ca-na-da” and Dolores Claman’s “A Place to Stand” (and a place to grow … Ontari-ari-ario!). As we prepare to celebrate the Sesquicentennial of Confederation in 2017, it is an opportune moment to consider where Canadian music is going.

In the plus ça change category, the opera Louis Riel will be remounted by the Canadian Opera Company in 2017 as its contribution to the Sesquicentennial celebrations. The composer Murray Schafer once remarked that the historical figure of Louis Riel “personifies the dissonance at the root of the Canadian temperament.” The restaging of this opera about him will provide occasion to consider how the themes that this work addresses – the tensions between east and west, centre and margins, French and English, church and state, Indigenous and settler – continue to resonate with Canadians in the 21st century.

In many respects, the musical world has changed beyond recognition since 1967. Technology has reshaped all aspects of music making in previously unknown ways. Each listener now has easy access online to the music of all times and places; a musician can be totally unknown one year, and internationally celebrated the next, thanks to this hyper-mediated environment.

As I write these words, six of the top 10 songs on the Billboard “Hot 100” are by Canadians – three by Justin Bieber, with each one by Drake, Shawn Mendes, and Alessia Cara. Bieber, Mendes, and Cara came to attention by posting self-made music videos online, which has inspired countless young Canadians (including my daughters) to follow their example. The next big name in Canadian music is no doubt uploading his or her first video to YouTube as you read these words. But perhaps the most promising development for the future of Canadian music is the rise to prominence of a number of outstanding Indigenous musicians, who are transforming the way we think of contemporary indigeneity, and indeed the way we think of Canada.

The TRC Final Report, however, also calls for schools and universities to be sites where new, historically-informed understandings of colonialism in Canada can flourish. In response, universities have called for mandatory Indigenous studies to be included in curricula. Learning and acknowledging how acts of violence and acts of welcome have both been done in the name of Canadian culture requires careful scholarship, teaching, and storytelling. Universities are spaces in which people can encounter each other across multiple lines of difference, whether religious, class, gender, sexuality, or ethnicity. Are they also places where Indigenous peoples and Canadians can enter into “nation to nation” relationships?

As the welcoming refugees movement and the TRC both remind us, schools and universities are places of power, of learning and of community building. Keeping schools and universities public, accessible, and diverse is crucial to their roles as multicultural learning environments. Learning and acknowledging how acts of violence and acts of welcome have both been done in the name of Canadian culture requires careful scholarship, teaching, and storytelling. Universities are spaces in which people can enter into “nation to nation” relationships.

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By Pamela Klassen, Professor, Department for the Study of Religion

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As Canada nears 150, what’s on the horizon for Canadian music?
Subway, SmartTrack, LRT: Bus lanes, toll booths, HOV.

In Canada, talk about transit infrastructure can feel like listening to a children’s rhyme: politicians and planners make pleasing noises, but their words might as well be a string of nonsense syllables for all their actual impact on painful commutes, packed transit and pervasive gridlock.

Change, though – big, disruptive, non-incremental change – could transform Canada’s cities sooner than most people think. “There is a gradual rejection of the idea that taxes are bad, public investment is bad, and transit and other infrastructure should just materialize without us having to pay for them,” says Eric Miller, a professor in the Department of Civil Engineering who specializes in urban modeling. “I think that is hopeful.”

He also identifies a trend toward active transportation – walking and biking – that city planners should pay heed to. But, he says, change driven by transit investments and smarter planning might well be overtaken by a different kind of disruption: the adoption of self-driving cars.

“Most professionals agree that autonomous vehicles are coming, it’s going to be soon, and it’s going to have a tremendous impact,” he says. “But we don’t know what that impact is going to be.”

Self-driving cars could turn some of today’s hottest debates – subways vs. surface rail; Uber vs. taxis; public transit vs. private vehicles – into historical artifacts.

“Whether you own or don’t own the car might matter much less. There could be a blurring of the public and the private,” says Miller. “In terms of transit, maybe the public agency stops running buses, and instead either runs their own fleet of self-driving cars or partners with private-sector deliverers. We don’t know.”

In urban centres, shared self-driving cars could take the place of taxis, ride-sharing services, buses, and privately owned vehicles. In an ideal scenario, this would both reduce the number of cars on the road, and also free up space currently allocated for parking.

But even as autonomous vehicles have the potential to resolve some current issues, they’ll inevitably also create new ones. “With self-driving cars, you could foresee scenarios where people live further away from urban centres because they no longer care how long the commute is,” he says. “But if those are still gas and diesel-burning cars, that could be a worse situation.”

Meanwhile, Miller says, some cities are already investigating the potential for self-driving snowplows and garbage trucks. And he is also aware that transportation policy should fit into a larger city-building agenda that serves its residents equitably.

“Self-driving vehicles could affect not just transportation infrastructure, but also city services, labour relations, gaps between the rich and poor, and a whole range of other municipal issues. I think we’ve probably still got a while before totally autonomous driving takes over on city streets,” he says. “But we’ll have semi-autonomous very quickly. And in less complex environments, we’ve already started to see long-haul trucks and vehicles in mines that are completely autonomous.”

While nobody can predict precisely how quickly technology and policy will allow self-driving cars to proliferate, Miller believes Canada’s cities should be preparing now to ensure that change happens beneficially. “Historically, transit in cities like Toronto has often served the poorest people the worst,” he says. “Regardless of the specific changes we encounter, the big challenge is to build cities that provide equitable opportunity to all residents.”
During the 2015 federal election, racist undertones swirled to the surface, churned up by Stephen Harper’s government’s attempt to ban women from wearing niqabs during citizenship ceremonies, and by their proposal for a “barbaric practices” tip line.

“This is not Canada,” then-candidate Justin Trudeau said after two Muslim women were assaulted on Canadian streets. But while Prime Minister Trudeau might be heartfelt in not wanting to promote racism as a Canadian value, the evidence isn’t on his side.

Izumi Sakamoto studies the idea of Canadian experience. The associate professor in the Factor-Inwentash Faculty of Social Work says that Canadians like to think of themselves as inclusive folks who would never tolerate the brash style of racism typified by US presidential candidate Donald Trump.

But over the past 30 years, she says, “Canadian experience” has more often than not been deployed to exclude immigrants, particularly from employment.

“Canada’s brand of racism is more nebulous, more underground,” she says. “Canadian experience fits into a motivation to be nice, but also in wanting to keep a distinct Canadian-ness – or I should say whiteness – and to exclude people who are different.”

Thanks to Canadian-experience requirements, even highly qualified newcomers have trouble finding employment here. Sakamoto says the hard skills that qualify someone for a job can get lost when employers evaluate soft skills – the interpersonal skills that are often required to gain permission to integrate into a Canadian business.

“How firm is your handshake? Can you make eye contact when you’re talking to people? Can you do small talk at the water cooler? These are the kinds of things that are considered part of Canadian workplace culture,” she says.

Many articles, seminars and workshops try to educate and inform immigrants on how to integrate into the Canadian experience. Immigrants themselves are desperate to ‘get it.’ But when you step back, it’s really odd that you have to behave in a certain way before you can be hired.”

With the flow of refugees and immigrants expected to increase in the years to come, Sakamoto believes Canada has work to do to face the discrimination that accompanies an employer’s demand for Canadian experience, and to work to change that reality.

“I’m interested in how to construct a Canadian identity that is compassionate and inclusive, that can embrace many different kinds of people,” she says.

While she says the concept of Canadian experience can and should become less elusive and discriminatory over time, she believes for now the best approach is to leave out such requirements altogether.

Currently in Ontario, employers and professional accreditation organizations that use Canadian experience as a hiring or accreditation criterion can be brought before a human rights tribunal. But unsuccessful candidates rarely have the resources to lodge a complaint, and officials have little power to sanction transgressors.

As a result, 13 professional accreditation organizations, including engineers, accountants, doctors and architects still use Canadian work experience as part of their certification requirements. While such requirements sometimes speak to genuine need to learn about Canadian laws and regulations, they often end up creating needless barriers.

Meanwhile, governments and NGOs have been working to recognize and reward employers who take a more inclusive approach. But change comes slowly.

“This is not an easy issue,” Sakamoto says. She cites social psychology research indicating that the coherence of a group identity often relies on excluding those who are different.

“Even so, I’m interested in how to establish a Canadian national identity without creating ‘the other.’ In the long run, that is the big mandate in front of us.”

Let’s offer a sincere welcome to Canada

Izumi Sakamoto says we should be embracing, not excluding, new Canadians

by Patchen Barss
When Canadian soldier Corporal Nathan Cirillo (pictured above) was shot to death while on sentry duty at the Canadian War Memorial in Ottawa in October 2014, the Conservative government of the time responded swiftly by introducing the Anti-Terrorism Act of 2014, commonly known as Bill C-51. The bill passed and became law in June, and in September 2015 Irwin Law published their analyses – over 200 pages in February 2015, alone – as they went. The bill set out what some of the possible applications of the new law would be.

We are speaking about the causes of terrorism. That is a positive thing. We’re talking about that partly because we didn’t do after 9-11. We are doing something that we didn’t do after 9-11. We are speaking about the anti-terror law is not limited to its potential infringement of rights. He doesn’t think it actually does what it sets out to, which is to make us safer.

For example, he says, penalizing speech will make it difficult to talk constructively with would-be terrorists. He gives the example of the RCMP’s counter-violent extremism strategy, which is designed to find people and steer them away from extremism before they commit crimes but which may place the police force in an awkward position if they encounter hotheads who advocate terrorism offences in general. He also worries that CSIS’s new powers may have the unintended effect of making terrorism prosecution more difficult and less likely.

Roach’s anti-terrorism prescription is twofold. First, “Canada has to be better at prosecuting people who are intent on committing political or religiously inspired violence either in Canada or abroad.” This is in contradiction to more commonly used tactics such as deporting offenders or seeking peace bonds, which require offenders to adhere to the law. Second, we need to “reach out to people who may be attracted to this violent ideology and do our best to persuade them that there are other ways to act upon grievances.” And, he says, “The people who actually are going to be the first to spot the signs of radicalization are going to be teachers, health care workers, social workers, and people within the Muslim community. We need to work with those people.”

He is cautiously optimistic about Canada – and the world’s – future. “We are doing something that we didn’t do after 9-11. We are speaking about the causes of terrorism. That is a positive thing. We’re talking about that partly because 15 years is so fixed on recruiting people and inspiring people in a way that Al Qaeda, frankly, wasn’t. ISIS is in some ways a graver threat than Al Qaeda.”

Even if we do a better job with the “high wire act” of prosecuting terrorism while protecting rights, though, Roach doesn’t see a future free from terror. “Corporal Cirillo was murdered steps away from where D’Arcy McGee was assassinated in 1866. Terrorism is unfortunately always going to be with us, but the question is how we as a society respond to it.”
Predicting what Canada’s economy is going to look like five years from now, let alone decades in the future, is not what you would call an exact science. World events like war, climate change or pandemics can test even the best analysts and forecasters. However, there is one certainty that economists can count on: Canada will have more people by mid-century, and that will have an impact on our economy.

Angelo Melino of the Department of Economics says population trends show that by 2050, Canada will be home to about 47 million people, with most of the increase coming from immigration. And, as our population grows, so too will the economy. Melino predicts that economic output will grow at about two per cent annually overall, so by 2050, our economy will probably be about twice as big as it is now.

“That means that the average Canadian will be about 50 per cent better off in terms of their income levels,” says Melino, the Royal Bank Chair in Economics and Public Policy at the University of Toronto.

In what types of jobs will future Canadians be working?

Peter Dungan, adjunct associate professor of business economics, says that to some extent, what Canada’s future economy looks like depends upon the big “if” in the future: world growth and global supply and demand for commodities. Developing nations in Africa and Latin America, and even India and China, still have a long way to go to achieve fully developed economies, says Dungan, director of the Rotman School of Management’s Policy and Economic Analysis Program. If that development happens quickly, there will be a strong demand for commodities.

“That would tend to push Canada, given its physical endowments, back to where we were maybe a couple of years ago – that is, with a relatively high dollar, and one that is in a sense rewards us for digging things out of the ground, or pumping them out of the ground, but less for manufacturing or doing the service adjustments.”

However, if world growth is slower and there are plentiful supplies of commodities elsewhere, Canada may be forced to turn to high-end manufacturing and providing services where we have a competitive advantage, Dungan says.

Melino believes such a shift may already be happening. He predicts there will be fewer jobs in manufacturing and primary production – such as farming and mining, which Canada has always excelled at – and that supply of services will continue to grow as a fraction of the economy in the coming years.

In particular, he expects that health care will be an area of growth.

“It is just one of those things that people like to have more of as they get wealthier,” he says. “We spend more of our resources on taking care of ourselves, or at least fixing ourselves up after we haven’t been taking care of ourselves.”

Education will also be a growth industry as Canada will produce a more educated workforce that spends more time in school, Melino says.

Both economists agree that how we educate our future workforce is vital to ensuring Canada’s future prosperity.

“Getting the right mix of specific skills and general education is important so that people are able to get jobs and contribute constructively when they come out, but they still have enough generality that in 20 years’ time, when their jobs are finally gone, that they can re-orient themselves elsewhere,” says Dungan.

Long-term planning is also required so that universities aren’t just responding to short-term corporate needs and churning out graduates with skills that in 10 years are no longer needed, he adds.

Another key to future prosperity, says Melino, is getting “the rules of the game right.”

High corporate tax rates dampen investment and innovation, he says, so Canadian governments must provide incentives to innovate and then let people figure out how to make money.

Effective and balanced government regulations are also important, says Dungan, pointing out that Canada still has barriers to inter-provincial trade.

“This is a very specific thing, but some of them are worse than the barriers to inter-country trade in the European Union,” he says. “So little things like that make it easier for business to find its right place in Canada and do things.”

Future governments also have to be well-run and must spend our money wisely on things that we need and want, like education, health, infrastructure and maintaining a civil society, says Melino.

“These are the things that government can do,” he says. “After that, we have to let things play out.”

“People will try to figure out how to take advantage of this – a well-educated population in a well-run, low-taxed environment – to innovate.”

Canada in 2050:
A bigger and better economy?

But it might be a very different economy, say Angelo Melino and Peter Dungan by Laurie Stephens

PHOTO: MASTERFILE
When the concept for Edge Magazine got the green light in April 1999, everyone agreed the first cover story could only be the Centre for Cellular and Biomolecular Research (CCBR) – even though it too was still at the idea stage.

But what an idea: get to the roots of the diseases that confound us – cancer and diabetes, for example – by rethinking the science of life itself.

And that called for a research facility that was decidedly different from the norm. The visionaries behind the CCBR were U of T research leaders Professor James Friesen, a geneticist and then-Chair of the Banting and Best Department of Medical Research, and Professor Cecil Yip, a biochemist and Vice-Dean, Research in the Faculty of Medicine.

“We designed an environment with no walls, literally and figuratively,” says Friesen. “We wanted the scientists to have every opportunity to interact.”

Scientists would come from many disciplines: biology, computer science, pharmacy, chemistry, physics, botany, zoology, and engineering, as well as from U of T’s partner hospitals. “The greater the diversity of people and organizations involved, the greater the chances for us to develop research that can truly break new ground,” Yip said in that inaugural issue of Edge.

The vision became reality on Nov. 5, 2005. The gleaming structure on the St. George campus was named for Canadian philanthropist Terrence Donnelly, whose generous donation was supported by funding from the Government of Canada and the Province of Ontario.

Today, under the direction of Professor Brenda Andrews, the DCCBR houses 35 faculty members and more than 500 research staff and trainees. Cecil Yip died in 2007, but his son Chris carries on his vision as a U of T professor in chemical engineering and applied chemistry, director of the Institute of Biomaterials and Bioengineering and a DCCBR principal investigator.

“The DCCBR has created opportunities for collaboration that have enabled our scientists and students to thrive,” says Chris Yip. Indeed, the barrier-free DCCBR has contributed to important progress in areas such as stem cell research, genetics and the regeneration of human tissue in the lab.

Friesen adds that the DCCBR “was meant to be the agent that keeps U of T at the forefront of the biomedical research sphere and a hub for collaboration with partner hospitals. It has done that in spades.” As an example, he cites the Medicine By Design project, led by Professor Peter Zandstra, which won a $114 million Government of Canada grant in 2015.

“No question about it,” says Friesen, with obvious pride, “there are projects and teams in this building that are absolutely world-beating.”