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THE FUTURE OF WORK AND THE ROLE OF UNIVERSITIES

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AUTOMATION AND THE LABOUR MARKET WITH MOYA GREENE (LLB '78),
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Good afternoon. I am very pleased to have this opportunity to share a few comments with you on automation, innovation and the changing nature of work and the role of universities, from the perspective of someone who has been involved in the academic enterprise my entire career, and as I prepare to step down after a decade as president of Canada's third largest university.

Factors Shaping the Future of Work and the Future of Learning

First, it is clear that the nature of work is changing. We live in a dynamic, technology-driven knowledge economy, where the growth in artificial intelligence capabilities is enabling the automation of tasks that previously required human labor. Automation and digital disruption represent both an opportunity and a challenge for 21st-century organizations and, more broadly, for society.

This is a fact acknowledged recently by the former President of the United States, Barack Obama, who, in his last interview as President spoke about the 'relentless' nature of automation and its acceleration. Bill Gates, co-founder of Microsoft, also received some attention last month when he suggested that manufacturing and other jobs will be lost to automation and that companies that produce robots who take human jobs should be taxed.

Whether you agree with these views or not, it is clear that over the next 10 to 15 years, the employment reality will change rapidly as the digital economy grows and transforms work and its role in society.

Given the central role of higher education in preparing students for future careers, I see universities as having a responsibility to respond to the changing landscape of work in three key ways: first, in the content and delivery of professionally relevant academic programs; secondly, in the way universities generate and disseminate knowledge through research and innovation; and thirdly, in universities' engagement with communities and industry.

With the expectation that universities will fulfill this need, enrolment and the demand for high-quality academic programs are growing dramatically. The profile of students and their expectations are changing, as well. Students today are looking for more flexibility in their learning options and they expect an up-to-date, technology-rich environment to support their learning.

As universities begin to make changes to better meet the needs of students looking for learning experiences that support both their immediate and long-term career aspirations, the nature of learning itself is changing drastically.

Technology is enabling new approaches to teaching and learning (i.e. the use of artificial intelligence and augmented reality in the classroom), as well as innovation in the delivery of programs and courses (i.e. online, flexible, and open learning or MOOCs—massive open online courses).

More than any generation before them, our students spend their days interfacing with devices that generate and transmit information—smartphones, iPads, laptops. While the 'smartness' of these devices may be appealing, it is the role of education to help us interpret and give meaning to all of the information they generate.

An interesting duality is emerging in terms of the skills graduates need in the 21st-century workplace. While changes in the job market require universities to prepare students to deal with the complex knowledge being created at a fast rate, including the demand for higher-level technical skills, a university education also must equip students with skills that cannot be replaced by technology.

According to a 2016 survey conducted by the Business Council of Canada, when it comes to evaluating entry-level hires, employers value soft skills such as communication, applying knowledge to decision making, and relationship-building—in other words, skills that will continue to be performed by humans.

In the current environment and with the growing pressure on universities—by governments, parents and the business sector—to prepare students for “jobs,” the question one must ask is: for which jobs? Are these the jobs that are needed today or jobs that will be needed in the next few decades? If the nearly fifty years since I obtained my first university degree is any indication, it is impossible to project the nature of work over the next couple of decades.

That being said, universities can respond with academic programs that offer:

- a depth of knowledge enabling students to deal with the continuing advancement of science and technology and with the need to analyze the growing amount of data in all fields of knowledge;
- a broad-based, interdisciplinary education that exposes students to the humanities, social sciences and arts, so that they are able to manage knowledge, understand contexts, and relate to human needs and aspirations;
- the capacity for critical thinking, communication, collaboration, team work, creativity and cultural awareness;
- and exposure to entrepreneurship and the capacity to turn knowledge into social and economic activities so that future graduates can create jobs, not only seek them.

Generally speaking, universities today continue to ensure that their programs maintain the elements necessary to provide their graduates with the knowledge, flexibility and skills on which graduates can build for their long-term careers.

Recognizing the need for both broad and relevant education, we have seen significant growth in interdisciplinary programs in Canadian universities and around the world. I can use my own university as an example.

Since its founding, York University has been a leader in interdisciplinary education, a reflection of its progressive nature. Recently, our new Lassonde School of Engineering has adopted a vision for the ‘Renaissance Engineer’—an engineering student who complements her engineering subjects with studies in business, law and the arts.

Experiential Learning, Partnerships, Entrepreneurship and Innovation

In terms of highly skilled workforce strategies, the focus has been on expanding experiential learning opportunities for students. Experiential learning includes providing students, in all programs, with opportunities for co-op and internship placements during their years of study.

However, experiential learning goes far beyond these traditional models to include connecting classroom and laboratory activities to real-world applications so that students may appreciate the relation between their knowledge and the world around them.

By integrating the needed skills of effective use of technology, team work and problem solving, students develop the capacity to apply their acquired knowledge to address real issues of interest to their communities and, accordingly, better prepare them for careers.

Universities cannot expand experiential learning opportunities without partnerships with employers and with their local communities. Such partnerships can help academics in mapping of curricula to skills needed in the workplace; create enhanced opportunities for students to develop their interpersonal and entrepreneurial skills and apply their knowledge on addressing real problems; help graduates transition to their first good job; and improve the capacity of employers to identify talent and enhance their competitiveness.

This is also relevant in terms of the research landscape, where we are seeing a shift from the traditional curiosity-driven research to mission-driven research. Universities are increasingly expected to be part of the innovation ecosystem by creating the environment and infrastructure needed to facilitate the transformation of their research results into products and services in support of social and economic development.

However, it is well established that an important element in the innovation ecosystem is the human element. As such, at York, we are introducing elements of experiential learning, innovation and entrepreneurship in all our academic programs.

We have established growing programs to introduce our students to entrepreneurship and innovation and created innovation spaces (incubators) for our undergraduate and graduate students across campus so that they may test their ideas and interact among themselves and with internal and external mentors.

Based on a strong culture of community-based research and academic excellence in diverse areas of knowledge, we identified research intensification, innovation and community engagement as areas of strategic priorities.

Building on our traditional strengths in the humanities and social sciences, law and business, York today is also a leader in helping to define the social innovation agenda and in conducting socially engaged research (i.e. bullying, the healthcare experience, civil justice, corporate social responsibility, and income inequality). This research is being used by policymakers, not-for-profit organizations and in the private sector.

One example of the innovative initiatives at York is the Bergeron Entrepreneurs in Science and Technology (or BEST) program, based at the Lassonde School of Engineering and collaborating with our Schulich School of Business and Osgoode Hall Law School. BEST offers students experiential entrepreneurial learning opportunities, unique courses in business and law, entrepreneurial engineering, and an interdisciplinary certificate in entrepreneurship.

We have also developed Innovation York, an office that supports the entrepreneurial activities of our graduate students and faculty by providing services and space to facilitate start-ups. Last year, Innovation York engaged with more than 1,300 students – all potential entrepreneurs – created relationships with more than 100 companies, approved 500 agreements worth nearly \$30 million, supported 20 commercialization projects, and launched five startup companies.

With the growing world connectedness and global interdependence, driven by information and communications technologies (ICT) and talent mobility, cultural awareness has become an important asset for the future work force.

As one of the most ethnically diverse institutions in the world, York University has identified internationalization as a strategic priority. Through the development of curricula, growth in student exchanges and by promoting cultural diversity on campus, I believe that our students are prepared for the global environment they will experience in their careers.

I was an international student myself and can attest to the attractiveness of the Canadian postsecondary education system. Indeed, Canada is increasingly being seen as a promising new home for international students and researchers.

Conclusion: Looking to the Future of Skills

Recently, Canada's federal finance minister's Advisory Council on Economic Growth recommended the creation of a national organization, the Future Skills Lab, to serve as a laboratory for the development and measurement of skills in Canada.

This proposed laboratory will be a partnership involving government, private sector organizations, labor unions, not-for-profits, and universities, among others, to gather data, identify labor needs, test and examine labor market models and initiatives, identify future employers' expectations and provide advice.

I see this initiative as a progressive step towards developing an evidence-based approach to address future labour market needs and to enhance Canada's competitiveness. Needless to say, one would expect Canadian universities to be an integral part of this initiative through active participation in the necessary research and analysis and in implementing the outcomes and recommendations made by this proposed laboratory.

In closing, let me return to the opportunity before us as we respond to increasing automation, technological innovation and digital disruption. It is clear that our future prosperity will depend on our ability to prepare the next generation of skilled labour force in order to maximize the benefit of the great scientific and technological knowledge we are acquiring at an increasing rate.

Today, more than ever, I believe that we, as academic institutions, have a historic responsibility to create the environment to build the necessary partnerships, advance knowledge and be more responsive and nimble to act. We need to be open to bold ideas and new ways of doing things.

I believe the proposed Future Skills Lab by the Canadian government is an important call for action identifying automation and the future of work as both a major challenge and a major opportunity, and offering an evidence-based, collaborative approach to respond, and is therefore worthy of support. Thank you.