Peter MacKinnon – A Brief Biography

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Peter MacKinnon is a management consultant and academic. His consultancy practice is global in scope and focusses on strategic management issues associated with government policies and programs, business formation, corporate development and change management, often with an underlying current related to advanced information and communications technologies. One of his current academic areas of interest is the interface between engineering and business; in particular the roles played by disruptive technologies and disruptive business models within organisations and political economy more generally. He also is involved in the workforce supply chain development for emerging strategic technologies such as artificial intelligence, quantum and post quantum computing, and SMRs - small modular reactors.

He has a professional background built on a wide range of experiences derived from holding positions as a scientist, business manager, entrepreneur, bureaucrat, executive, diplomat, management advisor and academic. His experience spans the globe and includes working for a wide range of public and private organisations in many countries (e.g., Australia, Belgium, Brazil, China, France, 'Hong Kong', Germany, India, Italy, Japan, Senegal, Spain, Switzerland, The Bahamas, The Netherlands, United Kingdom, South Africa and the United States, among others). He represented Canada at the *Organisation for Economic Cooperation and Development* (OECD) in Paris for five years, were he served on the *Information, Computer, and Communications Policy (ICCP) Committee* (https://www.oecd.org/digital/ieconomy/37328586.pdf). He also has served in an advisory capacity on numerous occasions to a diverse range of organisations in various countries, such as Los Alamos National Laboratory, the Nuclear Regulatory Commission, the Aspen Institute, and Cray Laboratories in the United States; the Ministry of Finance and National Bank of Brazil; The National Formulary of China; a technical committee of the International Organization for Standardization, Geneva; and the Australian Department of Communications, for example. He has had considerable experience in China having lived in Shanghai for 6 years at the turn of the century and worked with many different state and private organisations, primarily around technical issues and applications concerning emerging technologies (e.g., e-commerce, knowledge management).

He has written many technical papers, invited opinion pieces, business plans, product strategies, and business and academic proposals, the latter resulting in the raising of hundreds of millions of dollars. He works with diverse groups of stakeholders in a number of economic sectors (e.g., healthcare, supply chain management, natural resources, education, security and defence, and manufacturing and services) and across many cultural environments. In addition, he works with and serves on Boards, including currently serving on the Board of Directors of *National Capital FreeNet*, one of the oldest not-for-profit internet service providers in North America (www.ncf.ca).

For many years Peter has been involved in creating and nurturing technology-based start-ups and in assisting a variety of small to medium size enterprises (SMEs) across several industry sectors in areas such as corporate development. This assistance covers many aspects of starting new companies and in addressing many business issues such as crafting and updating business plans, product plans, creating and managing strategic and tactical alliances, fund raising, executive mentoring and recruitment of key staff, among other activities.

Peter also has been involved in public policy development, delivery and evaluation for a number of years. For example, Peter has been seconded to the Government of Canada on two occasions through the *Executive Interchange Program*. The first secondment was to the *Ministry of State for Science and Technology*, a central agency, as the *Special Advisor for Advanced Information Technologies* and the second secondment was through *Foreign Affairs and International Trade* as *Counsellor and Special Advisor Investment* at the *Canadian High Commission* in London, United Kingdom. Both these two year appointments afforded a wide range of high-level government and government/industry experience. He also has been a long-time member of the *Bacon and Eggheads Breakfast Club* within the Parliament of Canada (https://pagse.org/bacon-eggheads/) and the *Foresight Synergy Network,* a joint academic and public policy discussion group hosted by the University of Ottawa (https://fsncanada.com/). Both these social networks deal with strategic issues facing society.

Peter is a confident speaker and a well-honed writer. He lectures widely and publishes in several fields in addition to carrying on scholarly reviews of academic papers for journal publication and proposal reviews for organisations such as *Mitacs* and the *Natural Sciences and Engineering Research Council*, for instance.

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[1] Peter also is a Senior Research Associate, NEXTCON Smart Cities Lab, Faculty of Engineering, University of Ottawa
Member IEEE-USA Artificial Intelligence Systems Policy Committee
Chair, Foresight Synergy Network, hosted by Telfer School of Management, University of Ottawa
Blog contributor on Artificial Intelligence, to the Institute for science, society and Policy, University of Ottawa
Senior Associate, Global Advantage Consulting, Ottawa

As an example of an academic project, Peter started a large University of Ottawa investigation, including raising private funding, to investigate the demise of Nortel. This led to a multi-faculty team that worked for six years seeking lessons to be learned from Nortel's business failure. See (sites.telfer.uottawa.ca/nortelstudy/) for reports and media coverage of the study.

Some Accomplishments

- Pioneer in the commercialisation of Artificial Intelligence (AI) in the mid-1980s and a continuing advisor today regarding AI business, policy and ethics
- One of the principals who created the Internet in Canada while on secondment to the Government of Canada in the mid-80's
- Both inside and outside government championed the establishment of Advanced Computer Networking in Canada (e.g., promoted the concept and developed the Business Plan for Canarie, Canada's national research and education network)
- Created a $100 million Business Plan (for a TED Prize) to establish 15 centres of excellence in mathematical sciences in Africa known as the African Institute for Mathematical Sciences (there are six centres to date)
- Pioneer in the development of telehealth/telemedicine in Canada (e.g., establishing the Office of Health & the Information Highway at Health Canada and a $70 million telehealth fund) and abroad (e.g., international survey report on Interoperability in Telehealth & Telemedicine Networks for G7 Ministers)
- Key participant in the transformation of health systems in a number of countries (e.g., Bahamas, Canada, and China)
- Early contributor to the development of the literature and practice of establishing Strategic Alliances and Public Private Partnerships
- Engaged in various Smart City initiatives domestically and internationally since the mid-90's
- Contributor to the development of the nuclear weapons induced catastrophic climate change scenario known as *'Nuclear Winter'*
- Represented Canada as an Arctic explorer (e.g., Polar Continental Shelf Project); as a Diplomat (e.g., London, UK); and as a Senior Policy Advisor (e.g., Canadian Ministry of State for Science & Technology and a Canadian representative to the OECD in Paris)
- Played a central role in Canadian policy and program development to employ High Performance Computing to business, government and academic activities in Canada (e.g., Compute Canada, Southern Ontario Smart Computing Innovation Platform)
- Co-authored with four Chinese academics an ISBN-labelled book published in Mandarin, on the role of the Chief Information Officer in modern organisations
- Advisor to the architects of the Canadian Space Program's contributions to the International Space Station (e.g., robotics and machine vision)
- Developed a primer on the use of Big Data for both developing and delivering public policy (e.g., ICE Committee – tri-level of government – city, province, national)
- Routinely provide by request ethical perspectives on artificial intelligence, autonomous weapons, nuclear weapons, and engineering education (e.g., Ethical Standards for AI – Future of Life Institute; banning of autonomous weapons – Prime Minister of Canada; banning of nuclear weapons – UN Secretary General, ethics in engineering – University of Ottawa)
- Academic appointments have included: Senior Research Associate, Institute for Arctic and Alpine Research, University of Colorado, Boulder; Adjunct Research Professor, Carleton University, Faculty of Engineering and Design; Research Associate and Senior Research Associate, University of Ottawa, School of Electrical Engineering and Computer Science; and Sessional Lecturer in the Telfer School of Management, University of Ottawa
- Made several astronomical discoveries as an amateur astronomer that have been noted in Bulletins issued by the International Astronomical Union
- Placed, by invitation, photographs in coffee table books (e.g., *Kanada* – Germany), magazines (e.g., *Life* – USA), and national collections (e.g., *Government of Canada*)