

Editorial: Cybersecurity

Chris McPhee, Editor-in-Chief

Tony Bailetti, Guest Editor

From the Editor-in-Chief

Welcome to the July 2013 issue of the *Technology Innovation Management Review*. This is the first of two issues covering the editorial theme of Cybersecurity, and I am pleased to introduce our guest editor, **Tony Bailetti**, Director of Carleton University's Technology Innovation Management program (TIM; carleton.ca/tim) in Ottawa, Canada.

In addition to six articles and a Q&A on cybersecurity, the July issue also includes a report on a recent TIM Lecture by **Mika Westerlund**, Assistant Professor of Carleton University's Sprott School of Business. In his lecture titled "Green Business Models to Change the World", he presented an array of emerging business models as well as recent research and trends relating to sustainability and green innovation.

In September and October, we will present two issues on Managing Innovation for Tangible Performance, for which the guest editor is **Sorin Cohn**, President of BD Cohnsulting Inc. Dr. Cohn also presented the April TIM Lecture on "Enhancing Competitive Position Through Innovation Beyond R&D" (timreview.ca/article/686).

We hope you enjoy this issue of the TIM Review and will share your comments online. Please contact us (timreview.ca/contact) with article topics and submissions, suggestions for future themes, and any other feedback.

Chris McPhee
Editor-in-Chief

From the Guest Editor

It is my pleasure to be the guest editor for the July and August issues of the *TIM Review*. These two issues mark the first milestone of a nationwide effort to make Canada a leader in cybersecurity. This effort sets a new direction for addressing cybersecurity and will be described in the next issue of the journal.

Cyberspace has contributed positively to the world's economic, political, and social development. However, the integrity of cyberspace is being threatened worldwide. Cyberattacks have become common occurrences and often disrupt existing economic, legal, political, and social agreements. These attacks use well-researched software designed to defeat or bypass security systems, are criminally or politically motivated, and are executed by highly determined, skilled, and well-funded individuals and organizations. Cyberattacks include stealing intellectual property, disrupting national infrastructure, confiscating online bank accounts, creating and distributing viruses, posting confidential information, and encrypting systems to demand ransom.

The July and August issues of the *TIM Review* provide articles that contribute practical experience and academic knowledge that can help Canadians and their allies around the world to benefit from a secure cyberspace. These articles examine the challenges we all face as well as the research, development, entrepreneurial, commercial, and social opportunities that these challenges open up.

Given the interdisciplinary nature of the challenges, these two issues of the journal are the result of close industry, university, and government collaboration. Twelve professionals contributed six articles and a Q&A to the July issue. Five of these authors work in industry, four in universities, and three in government.

Editorial: Cybersecurity

Chris McPhee and Tony Bailetti

Benoit Dupont is the Canada Research Chair in Security and Technology at the Université de Montréal. In this article, he reviews nine socio-technical trends that are likely to shape the cybersecurity environment over the next decade. He examines six cybersecurity implications of these trends and identifies changes in regulations that could help address future cybersecurity issues.

Dan Craigen and **D'Arcy Walsh** are Science Advisors at the Communications Security Establishment Canada, and **David Whyte** is Technical Director for the Cyber Defence Branch at the Communications Security Establishment Canada. These authors outline the elements and conditions required to establish a secure, stable, and resilient information technology infrastructure and formulate a set of principles for the cybersecurity research program to support Canada's Cybersecurity Strategy.

David Archer is a Research Program Lead at Galois, Inc. and **Adam Wick** directs the Systems and Networking Group at Galois, Inc. Their article discusses an approach that would allow critical information about potential threats to be shared rapidly enough to facilitate a recipient's timely and effective response. Such relevant sharing of information seldom occurs using existing approaches.

Arthur Low is the founder and Chief Executive Officer of Crack Semiconductor, and **Steven Muegge** is an Assistant Professor at Carleton University's Sprott School of Business. These authors suggest that small, innovative suppliers of network security processors and high-performance security applications should launch and grow a business ecosystem. Organizations that are part of the ecosystem can innovate using a platform of reconfigurable and extensible network security processor technology.

Dan Craigen and **D'Arcy Walsh** are Science Advisors at the Communications Security Establishment Canada, and **Drew Vandeth** is a Senior Researcher at IBM Systems Research and Senior Research Strategist for the National Security Community. Their article describes an approach and operational issues around managing a research and experimental development program that is both adaptive to continuously evolving cybersecurity issues, as well as compatible with international standards published by the Organization for Economic Cooperation and Development and the Treasury Board of Canada Secretariat.

Xinxin Fan and **Guang Gong** are from the Department of Electrical and Computer Engineering at the University of Waterloo. They examine the communication security aspects of a smart-grid metering and control system from the perspective of cryptographic techniques, and they discuss different mechanisms to enhance the cybersecurity of the next-generation power systems.

Sherif Koussa is the founder and Principal of Software Secured. He answers the question "Should startups care about application security?". He argues that executives of successful startups recognize the value of security as a market differentiator and incorporate security in their software from the start to reduce costs.

The integrity of cyberspace is in jeopardy, and we face challenges that require interdisciplinary solutions. We believe that the July and August issues of the *TIM Review* will accelerate industry, government, universities, not-for-profits, and individuals to work together in ensuring that Canadians and their allies benefit from a secure cyberspace. We encourage you, your colleagues, and your organizations to act decisively to make Canada a leader in cybersecurity worldwide and improve the security of cyberspace.

Tony Bailetti
Guest Editor

Editorial: Cybersecurity

Chris McPhee and Tony Bailetti

About the Editors

Chris McPhee is Editor-in-Chief of the *Technology Innovation Management Review*. Chris holds an MASC degree in Technology Innovation Management from Carleton University in Ottawa and BScH and MSc degrees in Biology from Queen's University in Kingston. He has over 15 years of management, design, and content-development experience in Canada and Scotland, primarily in the science, health, and education sectors. As an advisor and editor, he helps entrepreneurs, executives, and researchers develop and express their ideas.

Tony Bailetti is an Associate Professor in the Spratt School of Business and the Department of Systems and Computer Engineering at Carleton University, Ottawa, Canada. Professor Bailetti is the Director of Carleton University's Technology Innovation Management (TIM) program. His research, teaching, and community contributions support technology entrepreneurship, regional economic development, and international co-innovation.

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