Editorial: Cybersecurity

Chris McPhee, Editor-in-Chief
Dan Craigen, Guest Editor

From the Editor-in-Chief

Welcome to the February 2016 issue of the *Technology Innovation Management Review*. This month's editorial theme is **Cybersecurity**, and I am pleased to welcome guest editor **Dan Craige**n, Science Advisor at the Communications Security Establishment and Visiting Scholar at Carleton's Technology Innovation Management Program in Ottawa, Canada.

In addition to four articles on cybersecurity, this issue also includes a summary of the first TIM Lecture of 2016, which was held in celebration of the TIM Review's 100th issue (timreview.ca/issue/2015/november). **Peter Carbone** and **Sean Silcoff** shared lessons from studying key factors that have led to success and failure in technology businesses. This event also marked the launch of a new book comprising of the journal's 15 most popular articles as the latest installment in the Best of TIM Review book series (timbooks.ca).

We hope you enjoy this issue of the TIM Review and will share your comments online. For upcoming issues, we welcome your submissions of articles on technology entrepreneurship, innovation management, and other topics relevant to launching and growing technology companies and solving practical problems in emerging domains. Please contact us (timreview.ca/contact) with potential article topics and submissions.

Chris McPhee
Editor-in-Chief

From the Guest Editor

It is my pleasure to be the guest editor for the February 2016 issue of the TIM Review. This is the seventh issue on the theme of **Cybersecurity** published in the TIM Review since July 2013.

On reviewing the seven issues (timreview.ca/issue-archive), one finds a breadth of cybersecurity research drawing, at times, from atypical sources. Examples include: i) the application of design science, ii) the utilization of club theory, iii) a description of crimeware marketplaces and their facilitating technologies, and iv) an investigation of effective digital channel marketing for cybersecurity solutions. It is through these kinds of multidisciplinary thinking that novel insights potentially arise. This issue continues the trend of multidisciplinary thinking through, for example, the proposal to use crowdsourcing for (cybersecurity) literature reviews and the use of a general model to understand the modes suppliers use to deliver of goods and services, which is applied to the context of malware.

In the first article, **Michael Weiss** discusses the application of crowdsourcing to literature reviews in new domains. Informed by recent literature reviews in cybersecurity and a discussion on the goals and types of literature reviews, Weiss develops design principles and a conceptual model for a platform for crowdsourcing literature reviews. A prototype of the platform is currently being implemented.

Next, **Tony Bailetti**, **Mahmoud Gad**, and **Ahmed Shah** introduce and define the concept of "intrusion learning". Intrusion learning is an emergent discipline that draws from machine learning, intrusion detection, and streaming network data. The expectation is that intrusion learning will significantly improve enterprise perimeter protection.

In the third article, **Tony Bailetti** and **Mahmoud Gad** apply a formal model to analyze the modes by which malware suppliers provide goods and services to their clients. A formal approach to characterizing the modes in which malware suppliers function will enhance capacity to mitigate cyberattacks.

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Finally, **Ahmed Shah**, **Selman Selman**, and **Ibrahim Abualhaol** examine open source cybersecurity packages to determine whether there are license compliance issues that could potentially result in expensive remediation costs, damage to a company's reputation, and costly legal fees. Of the 343 open source cybersecurity tools that they examined, four were found to include restrictive licenses.

The authors of the four articles in this issue are all associated with Carleton University's Technology Innovation Management program or the VENUS Cybersecurity Corporation:

- **Ibrahim Abualhaol** is a graduate of the Technology Innovation Management program.
- **Tony Bailetti** is an Associate Professor in the Sprott School of Business and the Department of Systems and Computer Engineering at Carleton University, and he is the Director of the Technology Innovation Management program.
- **Mahmoud Gad** is a research associate with the VENUS Cybersecurity Corporation.
- **Selman Selman** is a software engineer with the Software Integrity Group at Synopsys and a graduate student in the Technology Innovation Management Program.
- **Ahmed Shah** is a graduate student in the Technology Innovation Management Program.
- **Michael Weiss** is an Associate Professor in the Department of Systems and Computer Engineering at Carleton University, and a faculty member in the Technology Innovation Management Program.

I hope that you enjoy this seventh issue on the theme of Cybersecurity.

Dan Craigen
Guest Editor

About the Editors

Chris McPhee is Editor-in-Chief of the *Technology Innovation Management Review*. He holds an MASc degree in Technology Innovation Management from Carleton University in Ottawa, Canada, and BScH and MSc degrees in Biology from Queen's University in Kingston, Canada. Chris 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.

Dan Craigen is a Science Advisor at the Communications Security Establishment in Canada and a Visiting Scholar in the Technology Innovation Management Program at Carleton University in Ottawa, Canada. Previously, he was President of ORA Canada, a company that focused on High Assurance/Formal Methods and distributed its technology to over 60 countries. His research interests include formal methods, the science of cybersecurity, and technology transfer. He was the chair of two NATO research task groups pertaining to validation, verification, and certification of embedded systems and high-assurance technologies. He received his BScH and MSc degrees in Mathematics from Carleton University.

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