Canadian Cybersecurity Awareness Stakeholders Teleconference Report

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The human factor is being increasingly recognised as a critical aspect of cybersecurity. The concern of developing the capability of Canadians to contribute to securing cyberspace is as complex as it is important.

This teleconference hopes to provide an opportunity for all involved to extend and enmesh networks across federal, provincial, academic and private sectors. It brings together a wealth of experience and knowledge in cybersecurity, awareness, education and training.

This report provides an overview of the main themes of the cybersecurity education training and awareness teleconference held on the 22nd of November 2019. These are provided along with information on the initiatives and resources available from the participants and details on the participants themselves.

The development in this space over the past year appears to be significant. While discussions in the previous meeting had been around the establishment of centres this discussion centred more around behavior, collaborations and measurable impacts. These elements are in the context of pushing towards finally mastering advice about existing best practices in terms of consistency and real-world outcomes.

New in this discussion are the raising of concerns around novel technologies and services such as, new implementations of IoT, and consumer DNA data services. Returning was the ever-present element of talent, and the question of how to present the field of cybersecurity as something attractive and relevant to prospective students and employees. Development on messaging appears to indicate a segmentation of audiences. In particular, youth, seniors, and SMEs have been identified and targeted with different approaches.

Efforts to collaborate between departments and sectors are encouraging to see with academia and private industry combining to provide tools for schools, and government departments working together to share and enhance awareness tools for phishing.

This meeting does not intend to provide an exhaustive analysis of the current situation nor provide clear resolutions or solutions. However, it can provide some indication of how the community across Canada perceives the environment and the needs for the immediate future in cybersecurity education training and awareness.

Research

Current or planned research around Cybersecurity awareness and prevention includes a focus on measuring effectiveness, assisting behaviour change, and future technologies. At a federal level, the implementation of the 2018 cyber security strategy has required data gathering to understand where Canada is investing in cybersecurity and where there may be potential gaps. The national get cybersafe effort has been is also looking to understand how it is working and public opinions on the effort.

Within universities, there is planned research into a variety of topics. This includes cybersecurity awareness policy and regulation effectiveness. Education materials being developed and tested include digital games, film, comics, learning modules and tabletop games. There is also research into user behaviour and assisting in its modification. Future issues include the awareness of the security and privacy implications of new technologies such as IoT devices and DNA data. Research is being conducted particularly to assist at risk groups, in particular school age children and older adults.

In Schools

Efforts to assist in the development of cybersecurity education in schools has involved various methods. A collaboration between Carleton University and Media Smarts has developed a game designed to teach kids from 10 to 13 years old about digital literacy and privacy. This game is currently being deployed in schools by MediaSmarts.

The Knowledge Flow Cyber-Safety Foundation has a K12 cyber safety curriculum. The aim of this program is to reach students by going into schools and school boards and plugging any awareness or content gaps that they have. They have developed a program called 'unhackable' intended for schools. Regionally the government of British Columbia has been continuing their program of visits to local schools.

Talent

Public Safety Canada is currently looking at being able to have all the personnel in place to deliver on the programs in which the government invested. Ontario public service working on the issue of the cyber workforce closely with Ryerson University.

At the University of Waterloo a system of mentors from the community are working to broaden the knowledge of women and provide them with information on the range of cybersecurity education and jobs available. The Canadian Centre for Cybersecurity hopes to release a revised "workforce development and curriculum guide" in the next few months.

Collaboration

Within provincial government there are some excellent examples of collaboration. It can be seen in the expansion of educational phishing campaigns in Ontario beyond their original organisation to related organisations and partners along with advice and guidance. Another example is working with other groups such as the Behavioural Insights group in B.C for the creation of phishing campaigns.
 A number of research centres for cybersecurity have arisen creating the opportunity to build a research ecosystem. There is the potential for collaboration in hosting hackathons between organisations developing them and universities.
it's the consistency of when we say, update your password, do it in this kind of way.

Campaigns

Current efforts for awareness have necessarily included electoral security, such as in the form of creating a campaign guide for election teams. Small and Medium business also are a focus such as through the creation of baseline controls.   In terms of content there is a drive on getting back to doing the basics, such as awareness of phishing, passwords, multi factor authentication and updating the system.
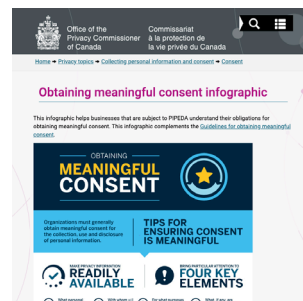
Resources

Advice

Tips for using privacy settings offers information related to privacy settings when using social media sites or other online services, mobile devices and mobile apps, home digital assistants, wearables and online games.
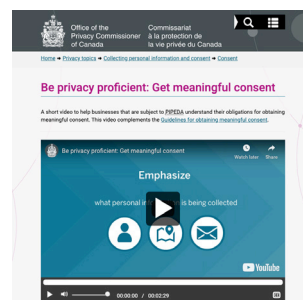
Infographic

Obtaining meaningful consent is intended for organizations subject to the Personal Information Protection and Electronic Documents Act (PIPEDA) to help them understand their obligations.
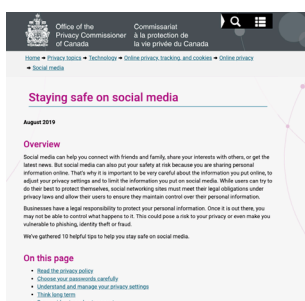
Video
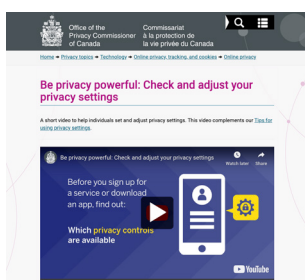
Improve your understanding of how to protect your personal information when using digital devices, online services and apps

Video

An overview of the importance of obtaining meaningful consent from your customers to collect, use and disclose their personal information.
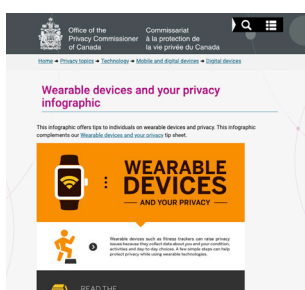
Advice

Tips to help Canadians stay safe on social media

Infographic

Tips for choosing, using and protecting passwords helps individuals keep their personal information safer on their electronic devices and the internet by telling them how to choose and use strong passwords.

Infographic

Wearable devices and your privacy gives Canadians a few simple steps to protect their privacy while using wearable technologies, such as fitness trackers that collect data about their condition, activities and day-to-day choices.
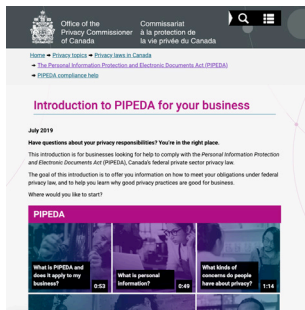
Infographic
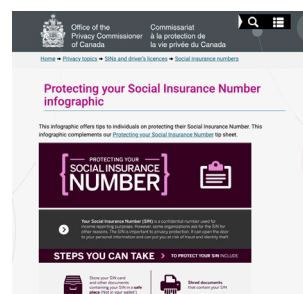
Protecting your Social Insurance Number suggests steps for protecting a Social Insurance Number because, in the wrong hands, it could put an individual at risk of fraud and identity theft.
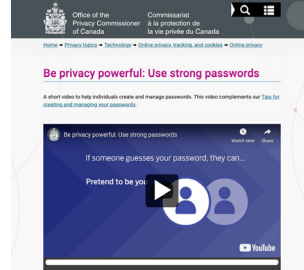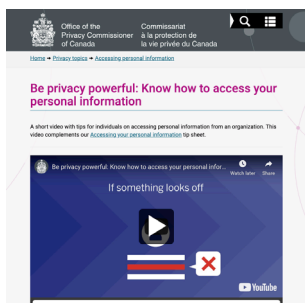
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Resources

Video

The introduction to PIPEDA for your business videos include: information about PIEDA as it pertains to businesess, their oblications and responsibilites regarding privacy and personal information.
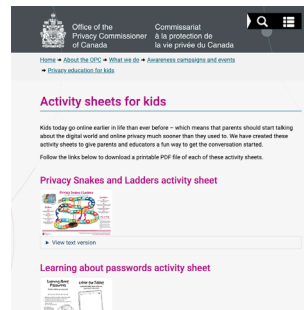
Video

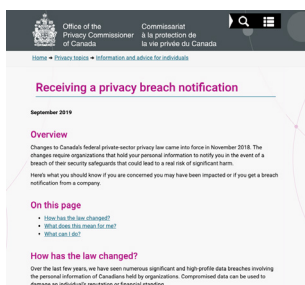Introduction to the fundamentals of creating strong passwords

Video

Find out how you can make a request to access your personal information from an organization.

Worksheets

Activity sheets help start the privacy conversation with kids

Advice

Advice on what to do if you receive a breach notification
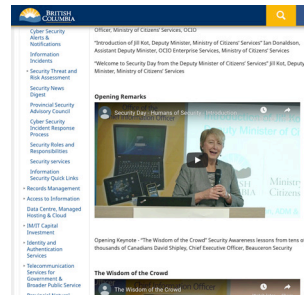
Online Course

This course on information security provides interactive learning on the importance of security, Roles and Responsibilities and Security Policies.

Advice

The BC Government page on Information security advice contains PDF advice handouts and other resources

Video

BC Information Security Day Event Videos. Ten Presentations on information Security on a variety of practical topics.
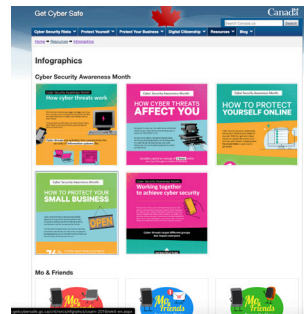
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Resources

Toolkit

BC Government provides a list of Critical Security Controls for Defensible Security in Public Sector Organisations complete with Videos, DefSec Manual, Assessment Tool and Dashboard Template.
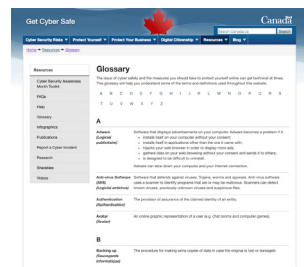
Infographics

GetCyberSafe collection of infographics on a range of themes.

Video

GetCybersafe Videos on a range of topics including online shopping, cyberbullying, digital parenting and more.

Glossary

GetCybersafe Glossary of Information Security Terms.

Interactive

A Day in the life of Jos. Educational Game for grades six to eight developed by Carleton University in collaboration with MediaSmarts.

Toolkit

Cybersec101 provides Slides, videos, quizzes , presenter notes, class notes, glossaries on basic cybersecurity that can be used to provide classes to the general public

Toolkit
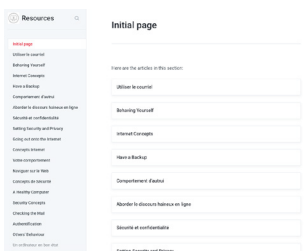
In-Class resources for education on eleven different topics from the Cybersec101.ca program.

Directory

This course directory provides a comprehensive list of cybersecurity courses offered in Canada.

Participants

Angela McAllister   Angela.Mcallister@cyber.gc.ca
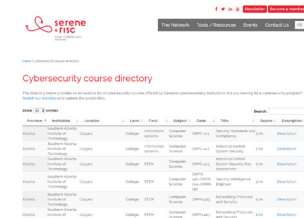
Angela is a cyber security professional who has been working in the field of cyber security for 15 years. She is the Supervisor of the Academic Outreach and Engagement team at the Canadian Centre for Cyber Security. The Cyber Centre is the single unified source of expert advice, guidance, services and support on cyber security for government, critical infrastructure owners and operations, the private sector and the Canadian public. The Academic Outreach and Engagement team is working towards ensuring Canada is a distinguished and enduring multi-disciplinary source of intellectual capacity and skilled talent in cyber security. Operating within the context and mandate of the Canadian Centre for Cyber Security, Angela's team conducts outreach and engagement activities through liaising and partnering. Our collaboration begins internally, but includes other government departments, Five-Eyes allies, academia, professional associations, standards bodies, and industry leaders. Our cooperation is mutually beneficial—we gain much insight into the 'state of the art' of cyber security from a variety of perspectives and we provide leadership, expertise, connection, cohesion, and a national vision.

Dr. Benoît Dupont   benoit.dupont@umontreal.ca

Benoît Dupont is Professor of Criminology at the Université de Montréal where he holds the Canada Research Chair in Cybersecurity and the Research Chair in the Prevention of Cybercrime. As the Scientific Director of SERENE-RISC, he has overseen the design and organization of the Cyberstat Challenge, where students have used results from Statistics Canada's 2017 Cyber Security and Cybercrime Survey to craft cybersecurity awareness posters that can help small and large organizations better understand the threat landscape. He has also started developing a Human-Centric Cybersecurity Partnership in collaboration with 20 other academics and a dozen government and corporate stakeholders.

Dr. Sonia Chiasson   chiasson@scs.carleton.ca

Sonia Chiasson is the Canada Research Chair in User Centric Cybersecurity and an As- sociate Professor in the School of Computer Science at Carleton University. Her research group has done work on understanding and improving users' mental models of security and privacy. The group's research has looked at using infographics and interactive com- ics to teach adults and tweens about attacks and how to protect against various risks, using an interactive ebook to teach young children about online privacy, and developing a game to teach tweens about online privacy and security. All of their work involves user studies assessing the effectiveness of the tools at improving knowledge and behavioural intent.

Claudiu Popa   Claudiu@InformaticaSecurity.com

Claudiu Popa, CISSP, CIPP, PMP, CISA, CRISC, is a leading authority on risk management, personal information protection, data security strategy and author of four books including The Canadian Cyberfraud Handbook: A Professional Reference (Thomson Reuters) and Managing Personal Information: Insights on Corporate Risk and Opportunity for Privacy-Savvy Leaders (Thomson Reuters). He is the co-founder of the Knowl-

Participants

edgeFlow Foundation, a Canadian non-profit organization with the unique objective of bringing children, families and communities in touch with cybersafety techniques that provide lifelong protection from scams, privacy abuses, online victimization and cyber-crime. For over 25 years, he has been an active participant in the development of standards, systems and methods to improve cybersecurity education and protect information assets. Claudiu is the CEO of Datarisk Canada and Informatica Security Corporation.

Emmanuel St Aubin   emmanuel.st-aubin@canada.ca

Emmanuel St-Aubin has more than 17 years of experience in the federal public service. He has lead and managed complex issues and initiatives during organisational changes at the Treasury Board Secretariat and at the Canadian Space Agency. He has expertise in security, strategic planning, as well as in delivery and results management, in governance, and in project management. Emmanuel joined Public Safety Canada in 2018 to manage the Strategic Policy unit for the National Cyber Security Directorate.

Julia Le   Julia.Le@ontario.ca

Julia Le is the Manager of the Education & Awareness Unit, Cyber Security Division, Ontario Public Service.
The Cyber Security Education unit's mission is to raise awareness and provide staff with the knowledge they need to be cyber-savvy digital civil servants. The team takes lead in promoting Cyber Security Awareness Month. We are committed to working with different levels of government, departments, universities and agencies to ensure daily cyber issues continue to be addressed and people understand how cyber security impacts our every day lives.

Krista Hrin   krista.hrin@uwaterloo.ca

Providing support in Cybersecurity and Privacy among researchers, students, government and industry. Advocate for women and girls in the industry - Launching University of Waterloo's Women in Computer Security and Privacy in 2020. Connecting community through forums and events. Educating on the prevalent issues of security and privacy in the digital age. Teaching first year level course - How to be human in the digital world.

Lauri Sullivan Lauri.Sullivan@CSE-CST.GC.CA

Lauri Sullivan is the Acting Manager of the Marketing and Digital Communications team for the Communications Security Establishment (CSE) and the Canada Centre for Cyber Security (Cyber Centre). As of October 2018, the Cyber Centre manages the Get Cyber Safe national public awareness campaign (www.getcybersafe.ca).

Dr. Leah Zhang-Kennedy   lzhangke@uwaterloo.ca

Leah Zhang-Kennedy is a lecturer at the University of Waterloo Stratford School of Interaction Design and Business. She collaborates with the Carleton University CHORUS Research Group, where she previously completed her Ph.D., working on research projects relating to cybersecurity awareness and education. In her teaching, she has partnered with MediaSmarts to create digital media literacy projects with students designing

Participants

children's multimedia educational tools.

Pearl Almeida   **pearl.almeida2@canada.ca**

Pearl Almeida is a Policy Analyst within the National Cyber Security Directorate at Public Safety Canada.

Philip Cheung   **philipdanbond.cheung@canada.ca**

Philip Cheung is the Manager for Cybersecurity and National Security, Digital Research Infrastructure at Innovation, Science and Economic Development Canada

Sana Maqsood   **sanamaqsood@cmail.carleton.ca**

Sana Maqsood is a PhD student at Carleton University. She has over 10-years of industry, government and academic experience in HCI, security, and web development. Her current research focuses on developing games to improve end users mental models of security and privacy. She has also worked in the area of user authentication, looking at alternative password schemes on flexible display devices. Her latest project, a web-based digital literacy game developed in partnership with MediaSmarts has been deployed to 170 Canadian elementary schools.

Trace Muldoon   **Trace.Muldoon@gov.bc.ca**

Trace Muldoon is the Manager of Security Awareness, Office of the Chief Information Officer, Province of B.C. Trace leads the Governance and Engagement teams within the Office of the Chief Information Officer for the BC Government. Trace is a Certified Information Security Manager (CISM) with over 30 years of information systems and information security related immersion. Trace has a wealth of experience and knowledge and is passionate about cybersecurity awareness, risk management and best practices.

Michael Joyce   **michael.joyce@umontreal.ca**

Michael Joyce is the Knowledge Mobilization coordinator for Canada's SERENE-RISC (Smart Cybersecurity Network – Réseau Intégré sur la Cybersécurité) initiative. He oversees new media production, organises the 'Cybersecurity Revolution' (SECREV) an international digital conference, manages the Konnect Knowledge sharing platform, which enables networking between security professionals and academics and is the editor in chief of the SERENE-RISC Quarterly Cybersecurity Knowledge digest. He is a Doctoral student in Criminology at the University of Montreal and a member of the Cybercrime Prevention Lab. He hosts and produces 'cybercrimeology', a bi-monthly podcast on cybercrime research.

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SMART CYBERSECURITY
NETWORK