



Broadcast-Broadband **Convergence** **B²C** Lab
Humber College, Toronto, Canada

Introduction / Overview

Orest Sushko – Director, **B²C** Lab
osushko@humber.ca
b2convergence.ca

October 9-13, 2021
Las Vegas, Nevada, US
NABShow.com

B²C Lab – Location

NABSHOW[®]
Where Content Comes to Life

Barrett Centre for Technology Innovation Humber College North Campus – Toronto, Canada



B²C Lab – Introduction



- ❑ First R&D test bed in North America equipped with both [ATSC 3.0 broadcast ecosystem](#) and [5G core network](#) combining the best of global standards technologies
- ❑ RF anechoic chamber supporting design and testing of wide range of wireless devices and prototypes
- ❑ ATSC 3.0 and 5G experimental licensing
- ❑ In-lab and external RF transmission system
- ❑ North Campus coverage area / multiple antenna configuration for SFN development

B²C Lab – Mission



□ **Contribute to the success and sustainability of industry partners by:**

- Directly transferring knowledge and technology to our industrial partners
- Supporting development of new products and services, enhanced functionality of services, and the creation of valuable intellectual property (novel and patentable)
- Offering access to highly qualified faculty with advanced technical, digital, entrepreneurship and soft/essential skills
- De-risking innovation
- Offering leading-edge infrastructure and innovator-friendly intellectual property (IP) policy facilitating more cost-effective R&D for companies, providing a supportive, low-risk environment where industry can transform ideas into operational efficiencies, technological advancements, and marketable solutions
- Becoming a knowledge hub for multisectoral applications of the ATSC 3.0 standard including convergence applications with 5G and disseminating this knowledge broadly to industry, community, and other academic/research institutions

B²C Lab – Engagement



- ❑ Fostering partnerships between Humber College and private and public sector leading to **business innovation** at local, regional and national levels
- ❑ Joint **NSERC / CFI College-Industry Innovation Fund** supporting lab infrastructure and growth of applied research capacity with industry partners:
 - Facilitating **commercialization** through innovation
 - Technology transfer
 - **Adaptation** in marketplace
 - Supporting **adoption** of ATSC 3.0 in Canada

B²C Lab – Engagement



- ❑ Development research **funding matched 1:1 with industry partner contributions** leveraging greater financial value / Industry partnerships can be established from a single use-case application to multiple use-cases spanning 5 years as partners formulate 3.0 integration strategies
- ❑ Lab engagement allows stakeholders to develop 3.0 and hybrid 3.0/5G solutions with a comprehensive understanding **ahead of market deployment**
- ❑ All **Intellectual Property** developed in **B²C** lab remains with industry partner
- ❑ All cash & in-kind Canadian industry partner contributions are **deductible** through the Scientific Research & Experimental Development (SR&ED) tax credit for qualifying corporations
- ❑ Multinational companies are welcome!

B²C Lab – Research Themes



Television Interactivity

- ❑ Hybrid TV experience with web portals and apps / Direct connection to consumer via broadcast with returnable data from application / addressable advertising / content substitution / enhanced emergency alerting

Data Delivery

- ❑ ATSC 3.0 as capacity multiplier / hybrid 3.0-5G architectures / combined broadcast-unicast value propositions offering greater efficiencies in use of spectrum
 - Connected vehicles – navigation / infotainment / SW-FW updates
 - Multisectoral IoT (agriculture, mining, smart cities, distance education-remote learning)
 - ATSC 3.0 Ultra-long-range wireless backhaul – reducing number of hops to remote communities

GPS Augmentation-backup / Geo-positioning

- ❑ Precision timing source inherent in ATSC 3.0 physical layer / DTV emissions for geo-positioning

B²C Lab – Initiatives



Joint Research with Communications Research Centre (CRC) involving

- ATSC 3.0 Broadcast inter-tower communication (ITC)
- In-band distribution link (IDL)
- Development of ATSC 3.0 broadcast Single Frequency Network (SFN)
- Creation of broadcast core network
- Convergence with 5G core network

Development Projects / Testing with

- Pearl TV / Phoenix Model Market & Detroit test beds
- Michigan State University (MSU/WKAR PBS) Next-Gen 3.0 Media Innovation Lab

ATSC Standards Development – Participation

- Tower Network – Implementation Team 5
- TG3/S43 – Specialist Group on Broadcast Core Network
- Planning Team 6 – Global Recognition of ATSC – Market adoption strategies

B²C Lab – Contact

NABSHOW[®]
Where Content Comes to Life

Thank you!

For more information, please contact [Orest Sushko](#) – Director **B²C** Lab
orest.sushko@humber.ca

www.b2convergence.ca