The background features a dark blue gradient with a subtle pattern of white dots. Overlaid on this are several circular and semi-circular graphic elements in a lighter blue color. These include concentric circles, dashed lines, and a prominent scale on the left side with numerical markings from 140 to 260 in increments of 10. Some of the circles have arrows indicating a clockwise direction.

UPFRONT AND DIGITAL: TRAINING AND EDUCATING FOR DIGITAL LITERACY

C.A.P.E. 2019

JUNE 06, 2019

DR. OLIVER R. STOETZER, WLU

MR. JAMES ROBERTSON, ONTARIO TECH UNIVERSITY

ABOUT US...



ostoetzer@wlu.ca



james.robertson4@uoit.net



OUR OBJECTIVES FOR THIS MORNING

1. Discuss the digital society and the current crime landscape
2. Describe current police education practices
3. Define digital literacy and the need for a digitally literate frontline police officer
4. Present the need for an evidence-based platform to promote the inclusion of digital literacy education in both pre-employment, post hire, and in-service learners
5. Review the PSC Competency Framework (2013) and propose the inclusion of digital literacy as a core competency.
6. Explain some of the barriers to incorporating digital literacy in police education

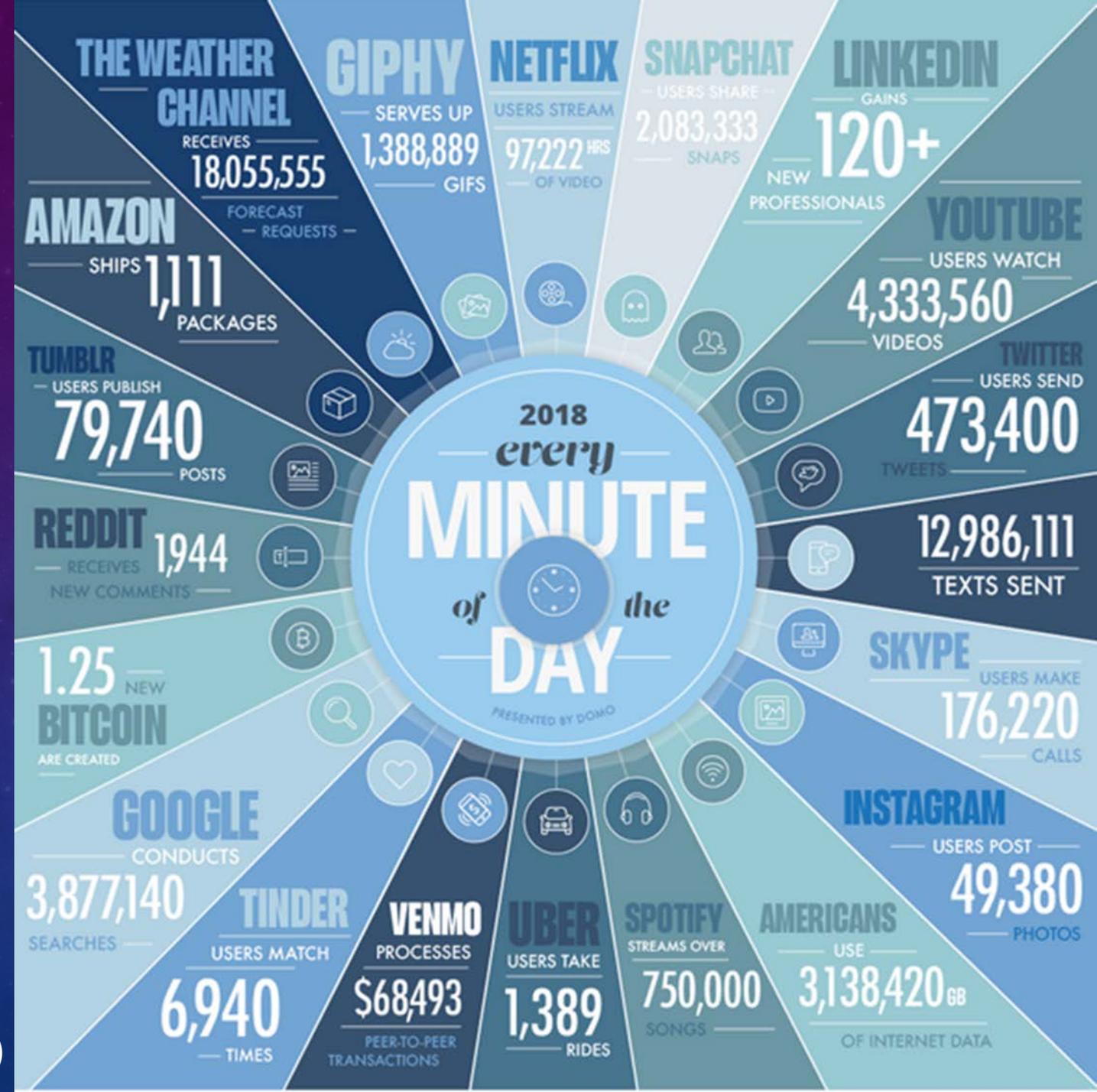
The Digital Society and Crime Landscape

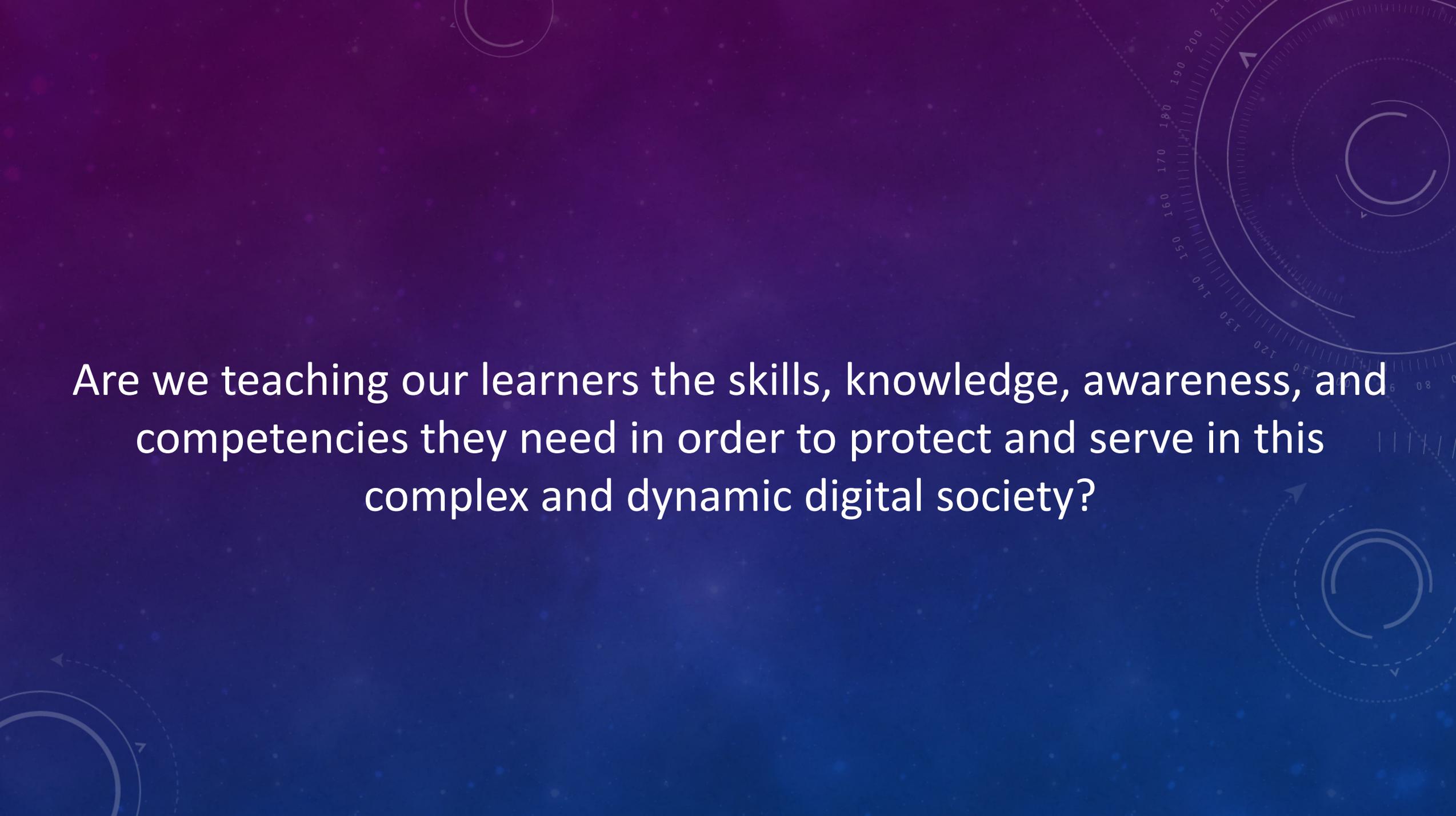
- Society is **increasingly digital**. (Windsor & Razzaq, 2018)
 - IoT, wearables, IP video surveillance, smartphones, 5G and Wi-Fi6 networks, robotics, cryptocurrencies, autonomous vehicles, mixed realities, and smart buildings/homes/cities initiatives
 - Digital tools replacing physical tools in most industries
- **“Data is the new oil”** (Goodman, 2016; Taplin, 2017)
- **Cyber skills gap** exists in nearly all industries (Berthiaume, 2018; Vogel, 2016)
- Virtually **every crime today has a digital footprint** (Belsher, 2018; Thornton, 2018)
- Digital tools allow **new ways to commit old crimes**.
 - Ex. organized crime, extortion, terrorism, human trafficking, etc.
- **Cybercrimes** increasing exponentially (Akhgar & Brewster, 2016; RCMP, 2012)
- **Digital evidence** identification, handling, process, and analysis is an issue (Hitchcock et al, 2016; Horsman, 2017)

TODAY'S CRIME IS FUELED BY (AND FOUGHT USING) DATA

- The evolution of the criminal. Hired hackers, Organized Crime Groups, cyber terrorists, nation states (Goodman, 2016).
- This data explosion has created a greater number of threat vectors (Waschke, 2017)
- Lack of skilled IT and digitally literate officers looking for data as evidence. Sources of digital evidence abound (ex. ubiquitous IP video, smartphones, activity trackers, car GPS, cloud, OSINT, smart homes)
- Digital crime legislation emerging, but legislative frameworks years behind reality (Stol, 2013)
- Urbanization and IoT = the creation of smart cities, buildings, and billions of IoT devices (Vincent, 2019)

Domo.com (2019)





Are we teaching our learners the skills, knowledge, awareness, and competencies they need in order to protect and serve in this complex and dynamic digital society?

CURRENT PRACTICES IN POLICE EDUCATION



- Dominant police training and education based on the ideology of the 1970s and 1980s (Deverge, 2016; Stresak, 2019)
- Technology adoption challenges in police education despite increased use in practice (RuiHsin & Lin, 2018; Steyn, 2018)
- Requires secondary training by individual service (Chappell, 2014)



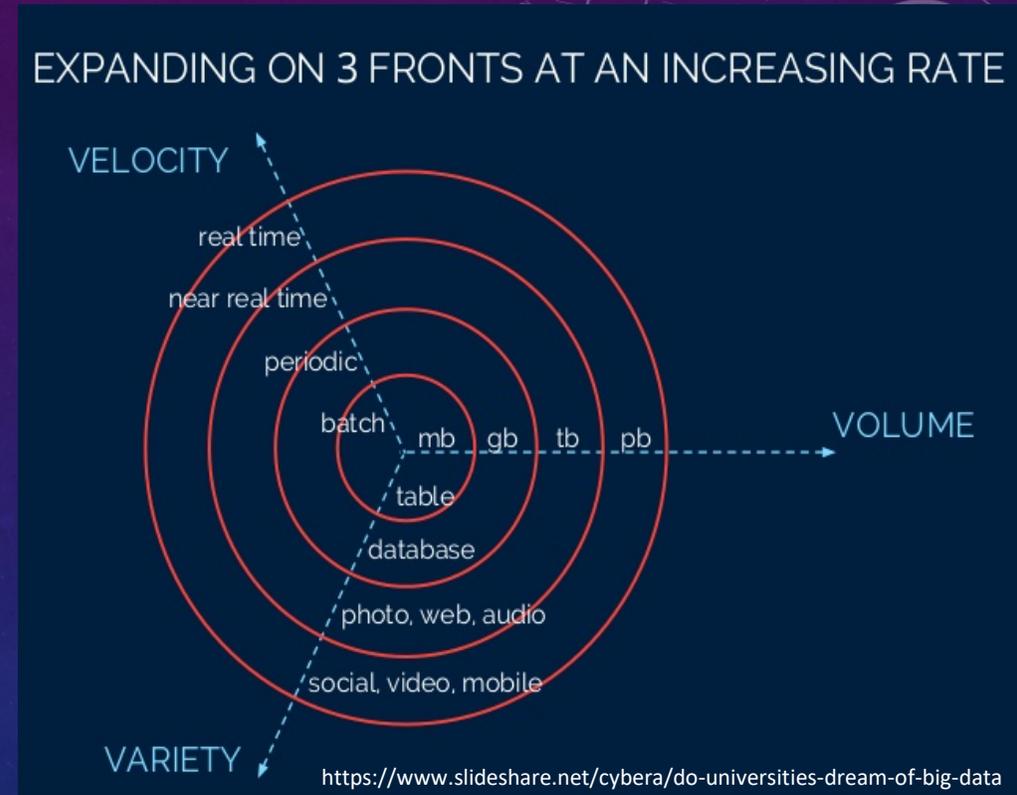
- Digital literacies and skills training reserved for specialized units, not frontline first responders
- Demographic of new officers changing from millennials (GenY) to GenZ (Stensland, 2018; Twenge, 2017)

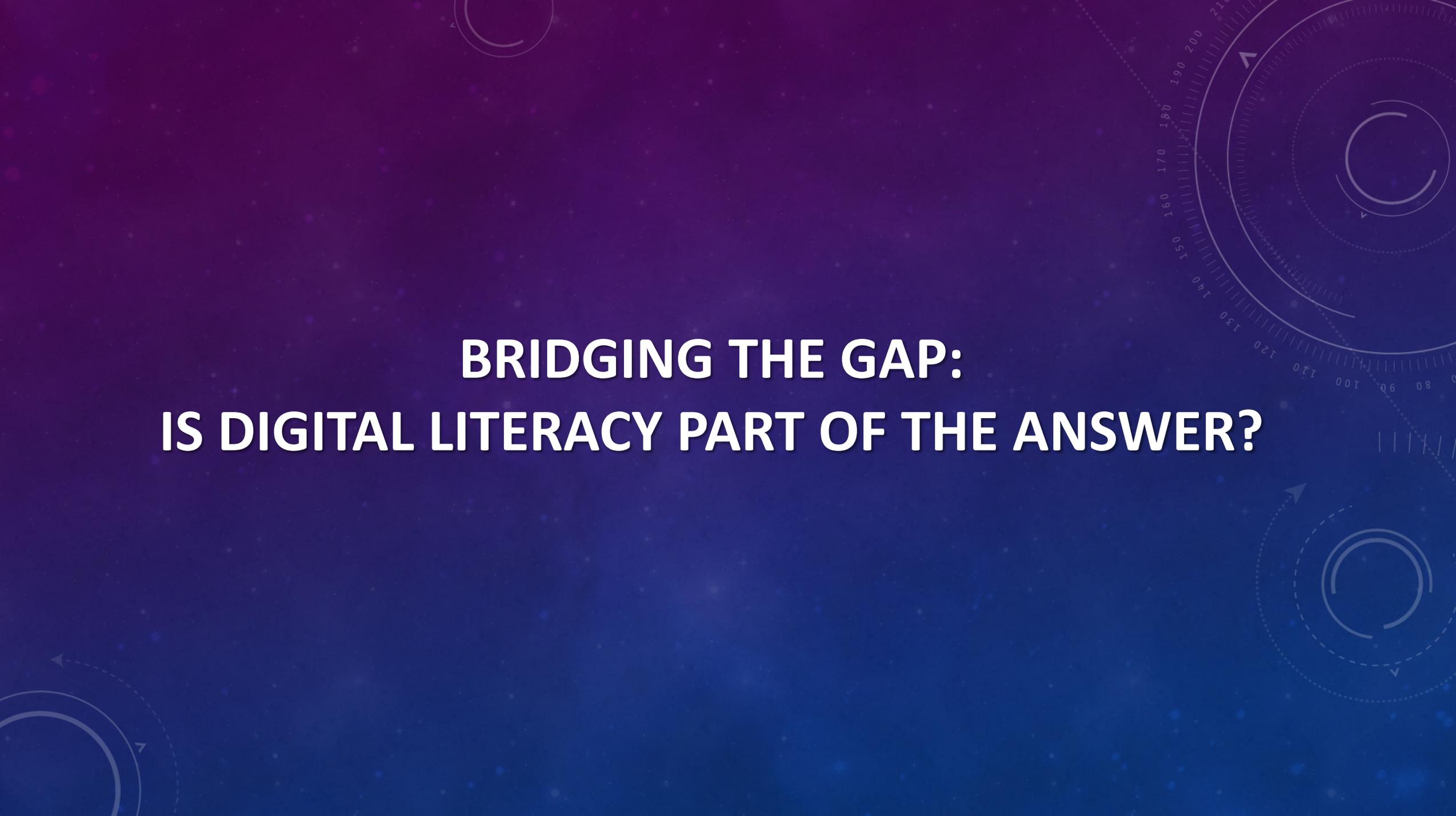
<https://www.meridiaars.com/giving-law-enforcement-better-training-management-tools/>

<https://www.silicon.co.uk/mobility/smartphones/privacy-international-police-smartphone-data-230715>

CURRENT POLICING ENVIRONMENT (THROUGH A DIGITAL LENS)

- **Volume, velocity and variety** (v^3) of data demands digital literacy at all levels (Belsher, 2018).
- **More data-dependent systems** being adopted by police, **but data remains largely siloed**. Interagency information sharing in real time is rare (Evans, 2019; Nadezhda, 2017).
- Police **increasingly dependent on data** for decision-making. Shifting from reactive response to proactive involvement. Growth of **evidence-based policing** (decisions based on data and research) (Coats, 2018; Kutnowski, 2017).
- **Budgetary pressures** – increasing demand to do more with less. (HMIC, 2016; MacDonald, 2015)



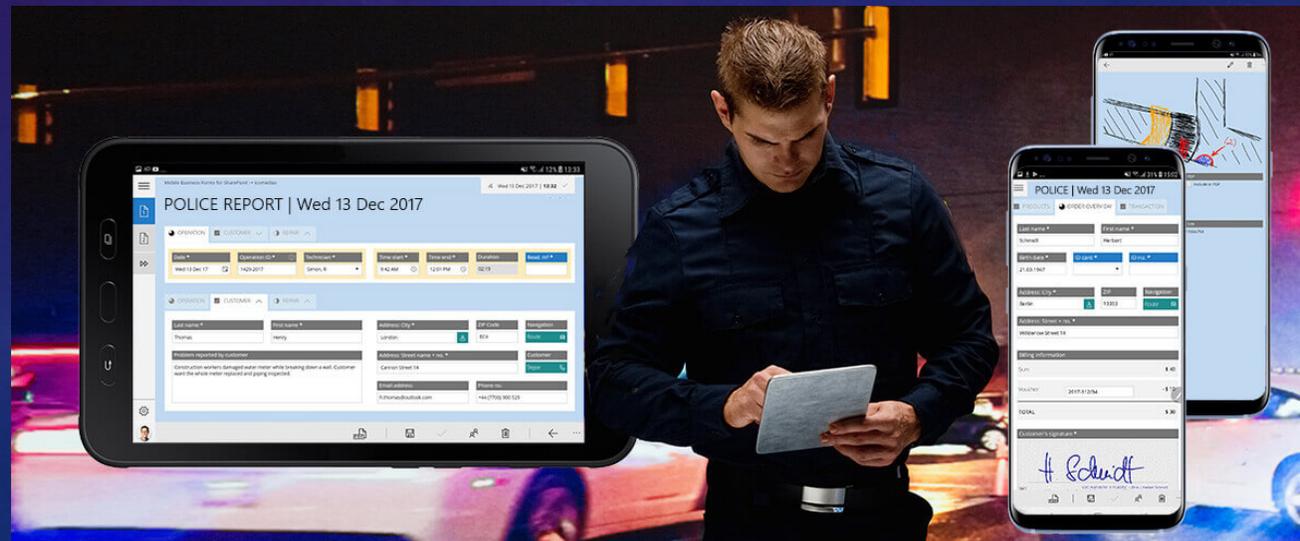
The background is a dark blue gradient with a subtle pattern of small white dots. Overlaid on this are several faint, light blue technical graphics. On the right side, there is a large circular gauge or dial with numerical markings from 80 to 210. Below it, there are several concentric circles and dashed lines, some with arrows indicating a clockwise direction. In the bottom left corner, there are more circular elements, including a dashed line with an arrow pointing left. The overall aesthetic is clean, modern, and technical.

BRIDGING THE GAP: IS DIGITAL LITERACY PART OF THE ANSWER?

WHAT IS DIGITAL LITERACY?

- “Digital literacy refers to a particular set of **competencies** that allow you to function and participate fully in a digital world.” (Webwise.ie, 2019)
- “... includes the ability to find and use information (otherwise known as information literacy) but goes beyond this to encompass **communication, collaboration** and **teamwork, social awareness in the digital environment**, understanding of **e-safety** and creation of **new information**. Both digital and information literacy are underpinned **by critical thinking and evaluation**” (Reed & Goodfellow, 2012, p.3)

“**Digital competence** involves the confident and critical use of information society technology (IST) for work, leisure and communication. It is **underpinned by basic skills in ICT**: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the internet” (European Commission, 2006, p. 16)





Competency-Based Management

WORK STREAMS / ROLES

General duty
(8 roles)

Investigation
(21 roles)

**Mgmt/
Leadership**
(4 roles)

- Constable
- Sergeant
- Staff Sergeant
- Inspector
- Superintendent
- Chief Supr
- Deputy Chief
- Chief

- Sexual Assault (2)
- Child Abuse (2)
- Counter-terrorism (2)
- Dom. Violence (2)
- Drug Enforcement (2)
- Financial Crime (2)
- Homicide (2)
- Organized Crime (2)
- Bloodstain Pattern
- Crim. Intelligence
- Digital Forensic
- Fingerprint Ident
- Forensic photo

- Front Line Management
- Mid-Level Management
- Senior Management
- Executive Management

COMPETENCIES

Behavioural
(18 competencies)

Technical
(9 competencies)

Leadership
(14 competencies)

- Achievement Orientation
- Adaptability
- Conflict Mgmt
- Critical Judgement
- Decision Making
- Developing self & others
- Fostering Relationships
- Interactive Communication
- Organizational Awareness
- Planning & Organizing
- Problem Solving
- Resource Mgmt
- Risk Mgmt
- Strategic Thinking
- Stress Tolerance
- Teamwork
- Visioning
- Written Skills

- Information Mgmt
- Leg., Policies, Procedures & Standards
- Confidential Informant Handling
- Court Testimony
- Crime Scene Mgmt
- Interviewing Victims & Witnesses
- Interviewing & Interrogating Suspects
- Obtaining Judicial Authorizations
- Note Taking and Report Writing

- Change Mgmt
- Decision Making
- Financial Mgmt
- HR Mgmt
- Information Tech Mgmt
- Strategic Mgmt
- Community/Media Mgmt
- Fostering Relationships
- Interactive Comms.
- Org. Awareness
- Ethical Accountability
- Public Accountability
- Public Safety
- Valuing Diversity

**Task list + Competencies =
Competency Profile or "Occupational
Standard" by Role**



DIGITAL LITERACY NEEDS FORMAL RECOGNITION

- “Digital or online offences are now so common that all police should be equipped with the **skills, knowledge and awareness to understand and be able to proactively fight cyber crime**” (HMIC, 2016)
- Digital Literacy is not currently being recognized as a core competency required for frontline officers (PSC CBM (2013) lists “using” technology as a **task**).
- Digital Literacy is not being **formally** developed in most police education curriculums
- Digital Literacy is often **inferred based on the age** of the learner (DeLung, 2016; Gresham, 2015)
- **Qualifications** of a new police recruit **do not include digital literacy**
- Digital Literacy is a **lifelong process** that should be incorporated in each of the steps in the police education process (Kurbanoglu, 2014)

SOME OF THE WAYS WE CAN RECOGNIZE DIGITAL LITERACY

- Incorporate digital literacy as **part of recruitment process**; this implies a need for greater emphasis on pre-employment education
- Designing digital literacy into existing curriculum (**Digital Literacy by Design**) for both recruit and in-service learners
- Encourage a data-informed policing culture both **on and off the job**
- **Invest in research** that will help clarify the need, scope, and strategy to determine the required digital literacies, options for implementation, and measurement tools
 - **Cultivate partnerships** between academic institutions, the police, and private companies (APPPs)





**REIMAGINING
THE POLICE
WORKFORCE**

A Vision for the Future

A DIGITAL TRANSFORMATION

- **Accenture** (2018) has recently researched the digital transformation
- “Public safety agencies will need to develop a workforce and environment that are underpinned by **four pillars**” (Accenture, 2018, pp. 10-21):
 1. **ADAPTIVE AND AGILE:** (a) Build radical relationships; (b) Adopt agile ways of working, and; (c) Make workforce-planning strategic
 2. **EMPOWERED AND ENABLED:** (a) Enhance the workforce; (b) Harness the power of machines, and; (c) Equip the workforce with the right skills
 3. **OPEN AND COLLABORATIVE:** (a) Build trust; (b) Reset the culture, and; (c) Inspire through leadership
 4. **HEALTHY AND FULFILLED:** (a) Differentiate to attract talent; (b) Personalize to retain, and; (c) Focus on health and well-being

HOW A NON-DIGITALLY LITERATE OFFICER CREATES RISK

- Susceptible to **phishing attacks** on the organization
- Increased risk due to **lack of cyber-hygiene** (personal and professional digital practices)
- **Inappropriate** use of social media (credibility in court)
- May miss **digital evidence**, destroy it, or allow it to be destroyed
- Unnecessarily **ties up resources** that could be allocated to higher priority tasks
- **Delays** prosecution of offenders
- Poor response may negatively impact **public perception and trust** of police



HOW A DIGITALLY LITERATE OFFICER ADDS VALUE

Scenario: Vehicle is reported stolen

- Officer responds to the complainant and takes a verbal statement
- Confirms a theft has occurred
- Determines the owner's steps taken to recover vehicle
- Promises to let the owner know if they find anything
- May canvas the neighbors



Scenario: Vehicle is reported stolen

- Officer responds to the complainant and **takes the same actions, but also:**
- Calls car company to ask for GPS tracking info
- Checks online for cars for sale on buy/sell sites
- Checks RMS and crime maps for similar vehicle thefts from same geographical areas
- Checks nearby traffic cameras, homes with video doorbells
- Checks twitter and Instagram to see if anyone has posted about the vehicle and uses geolocation on any posted images to determine proximity to victim's home
- Requests permission to search the victim's smartphone and home router for evidence of location tracking or social engineering emails that the perpetrator used to confirm when victim was away from home.
- Properly collects and preserves this key evidence (places evidence in Faraday bags).

SUSTAINABILITY: HOW DIGITALLY LITERATE OFFICERS POSITION THEIR ORGANIZATION TO UTILIZE EMERGING TECHNOLOGIES



<https://www.rt.com/uk/444940-uk-police-precrime-algorithm/>



<https://www.dailymail.co.uk>

- Increased use of **artificial intelligence** in public safety sectors. AI being relied on to make decisions in real time and to provide actionable intelligence to responding officers.
- Increasingly diverse means of police **engaging the public**
 - **NG911, social media outreach, SMS blasts (Amber Alerts), Hackathons, etc.**
- Massive data sets (**big data**) allowing for advanced predictive analytics. Qualified officers will need to use this data
- **Future landscape** includes drones and robotics, autonomous vehicles, crimes in virtual worlds, implants and wearables, cryptocurrencies, etc.
- **Emerging tools** (such as AR/VR, Biometric Identification, Drones, and Robotics, 5G/IoT)

No more real frog dissections? Dawson College project puts focus on AI in education

Dawson College announced a new artificial intelligence program, the most ambitious ever for a Quebec CEGEP, with a budget of more than \$1 million.

BRENDAN KELLY, MONTREAL GAZETTE Updated: June 5, 2019

Artificial intelligence (AI) is set to radically change education.

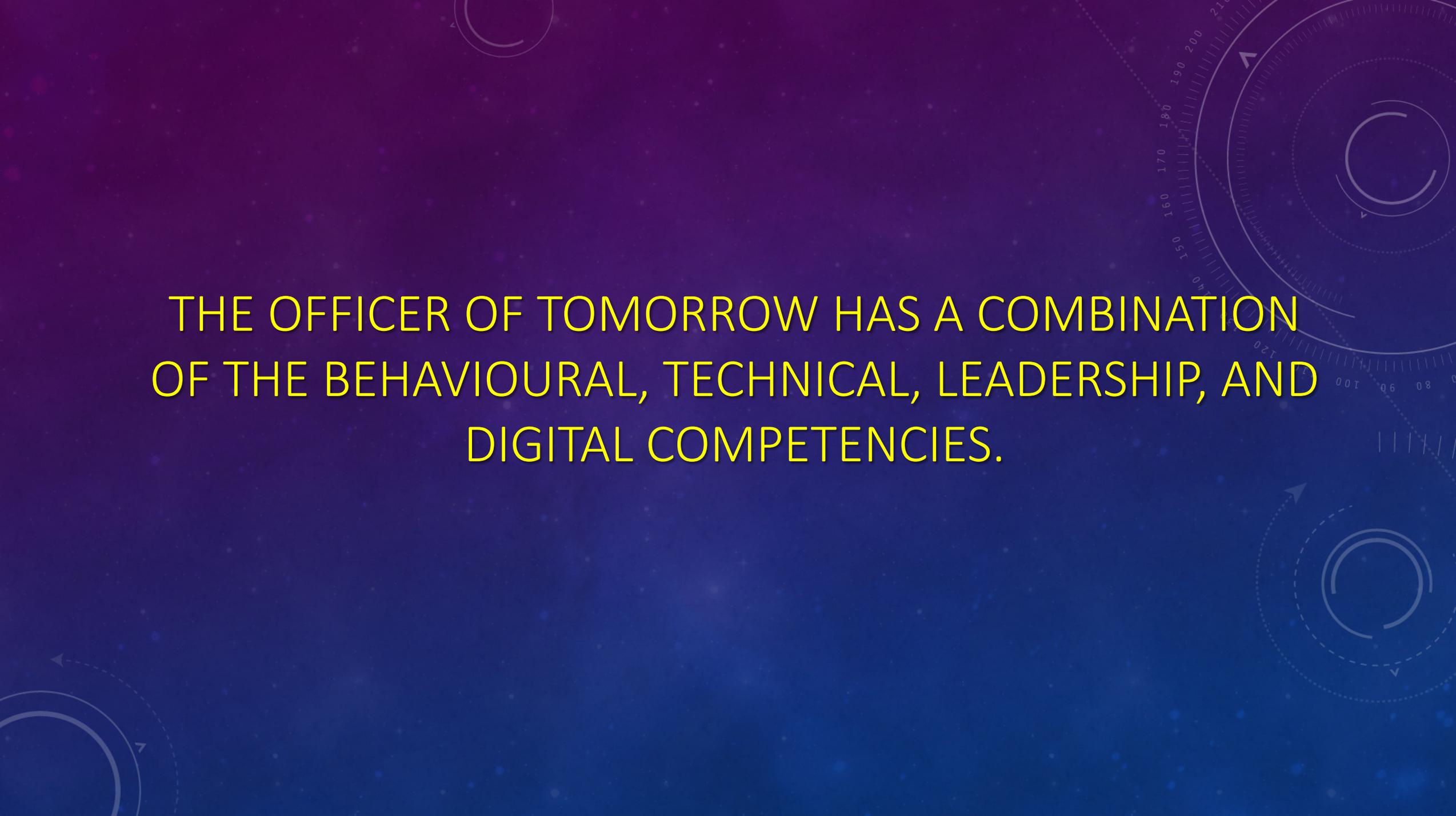
That was the theme of a conference at Dawson College on Tuesday that brought together academics specializing in AI, one gaming executive and a rock star. They also concluded that the introduction of AI into the high-school and college curriculum could mean that kids may never have to dissect another real frog.

At the conference, Dawson director-general Richard Filion announced the Montreal English-language CEGEP is investing more than \$1 million in AI research, the largest-ever investment in an AI project by a Quebec CEGEP. Dawson has a three-year plan that will involve professors taking time off from teaching to develop AI research and to create an AI strategy for the CEGEP.

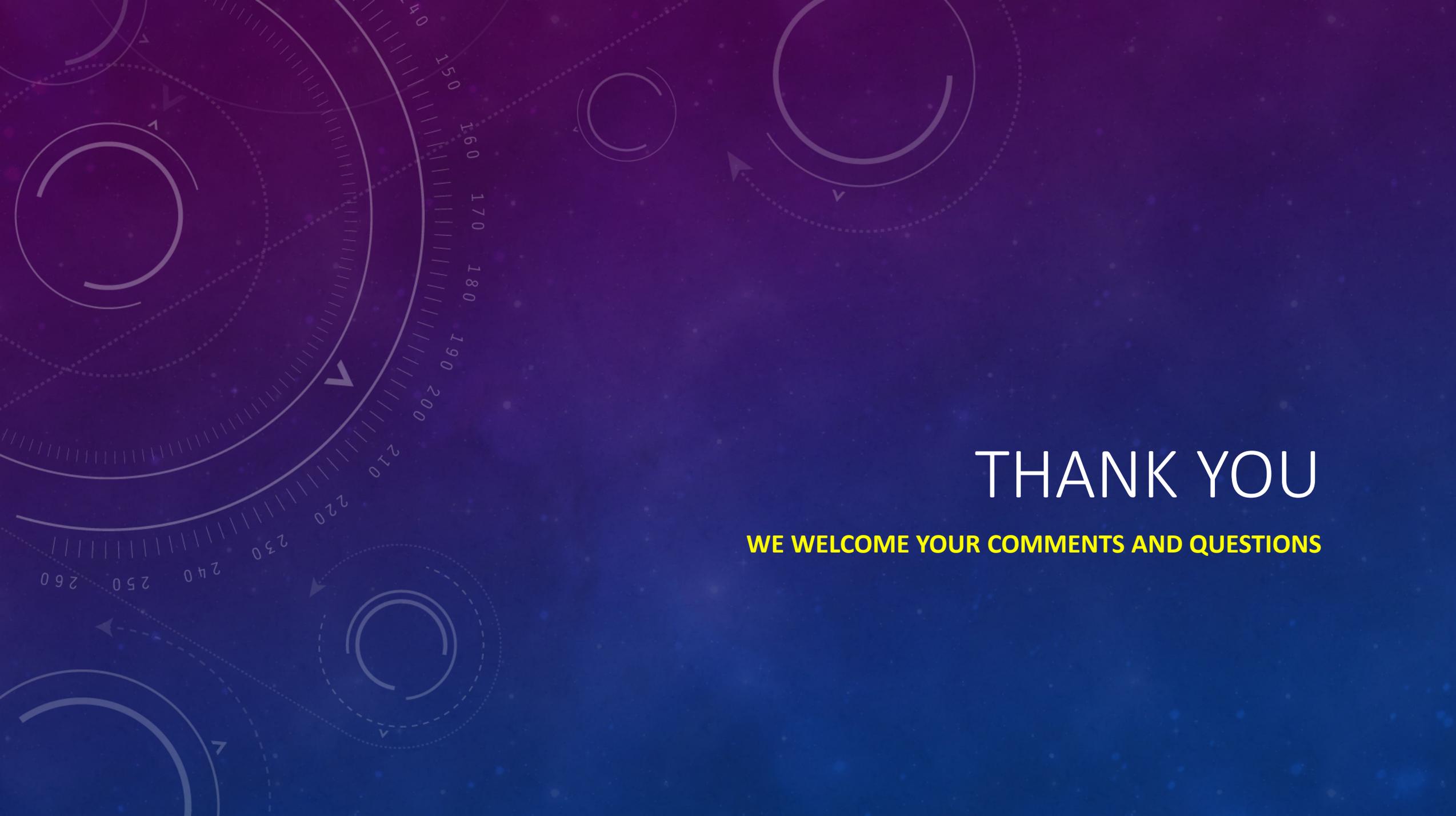
"There's lots of promise for AI in education to globally make education even more efficient and to make it more interesting to every student," said Olivier Palmieri, a game director at Ubisoft Montréal.

BARRIERS TO IMPLEMENTING DL INTO POLICE EDUCATION CURRICULUM

- Lack of governance/framework for implementation methods and measurement
- Insufficient infrastructure to support more technology-enabled teaching
- Resistance by staff (qualification, comfort, value challenge)
- Lack of appropriate software available
- Cybersecurity and the protection of our confidential data
- Top-down support and budget
- Rate of technological change
- Need for more research



THE OFFICER OF TOMORROW HAS A COMBINATION
OF THE BEHAVIOURAL, TECHNICAL, LEADERSHIP, AND
DIGITAL COMPETENCIES.



THANK YOU

WE WELCOME YOUR COMMENTS AND QUESTIONS