

# Transit Innovation Yard (TIY)





## Introduction

The Transit Innovation Yard (TIY) represents a major collaboration between the Toronto Transit Commission (TTC), Toronto Metropolitan University (TMU), and DMZ startup incubator to accelerate transit innovation in Canada. This initiative combines DMZ's proven startup acceleration methodology with TMU's research excellence and TTC's operational expertise to create a first-of-its-kind innovation hub focused on solving critical transit challenges.

Through this unique partnership, TTC will gain access to cutting-edge solutions from both TMU researchers and top-tier startups, while providing a real-world testing ground for transit innovation. The initiative focuses on four key areas critical to TTC's future operations: 1) Data-Driven Transit Optimization; 2) Way-Finding and Customer Dashboards; 3) Tracking of Illegal Entries and Unauthorized Individuals at Track Level; and 4) Assisting the TTC to Plan/Develop Key Performance Indicators (KPIs).

### Overall, the proposed TIY initiative involves:

- Leveraging DMZ's expertise in sourcing and accelerating world-class startup ventures to develop innovative transit solutions aligned with TTC's priorities.
- Supporting cutting-edge research projects at TMU that address critical operational challenges in public transit.
- Creating a collaborative innovation ecosystem where researchers and entrepreneurs can pilot solutions within TTC's network.
- Establishing a framework for evaluating and implementing successful solutions across TTC's operations.

## About DMZ

DMZ is a global startup ecosystem that features a world-leading incubator, talent academy, partner network and strategic investment fund. Through its award-winning programming, DMZ equips tech founders with the tools needed to build, launch and scale high-impact ventures.

From its headquarters at Toronto Metropolitan University, DMZ has also grown a strong international presence — with offices and partnerships across North America, Europe, Latin America, Asia, Africa, the Middle East and the Caribbean.

From 2015 to 2021, DMZ consistently ranked as a top incubator by UBI Global, a network of over 1,000 incubators across 90 countries. In 2018, DMZ became the first Canadian university-based incubator to achieve the #1 global ranking. Today, DMZ supports UBI Global through advisory and research efforts in assessing top incubators worldwide.

### DMZ by the Numbers:

# 1,800+

companies supported

# \$2.78B+

in funding raised

# 23K+

jobs created





## Why Now?

Canada stands at a pivotal moment in addressing critical challenges in the mobility sector. Rapid urbanization, increasing population and environmental concerns have placed immense pressure on our aging infrastructure, transportation systems and transit networks.

Mobility issues are particularly evident in urban centres like [Toronto, where congestion costs over \\$11 billion annually](#) — highlighting major inefficiencies that impact economic productivity and quality of life. Plus, the transition to sustainable solutions such as electric vehicles (EVs) and connected infrastructure has been frustratingly slow, leaving Canada far behind global leaders in adopting new mobility technologies.

At its core, TMU and DMZ are focused on responding to the most urgent societal needs by accelerating solutions that improve how we live, work and move. For the Transit Innovation Yard (TIY), we aim to create a dedicated hub for innovation that addresses pressing issues in mobility across North America — providing innovators with the tools and resources they need to make a real difference, both in Canada and beyond our borders.

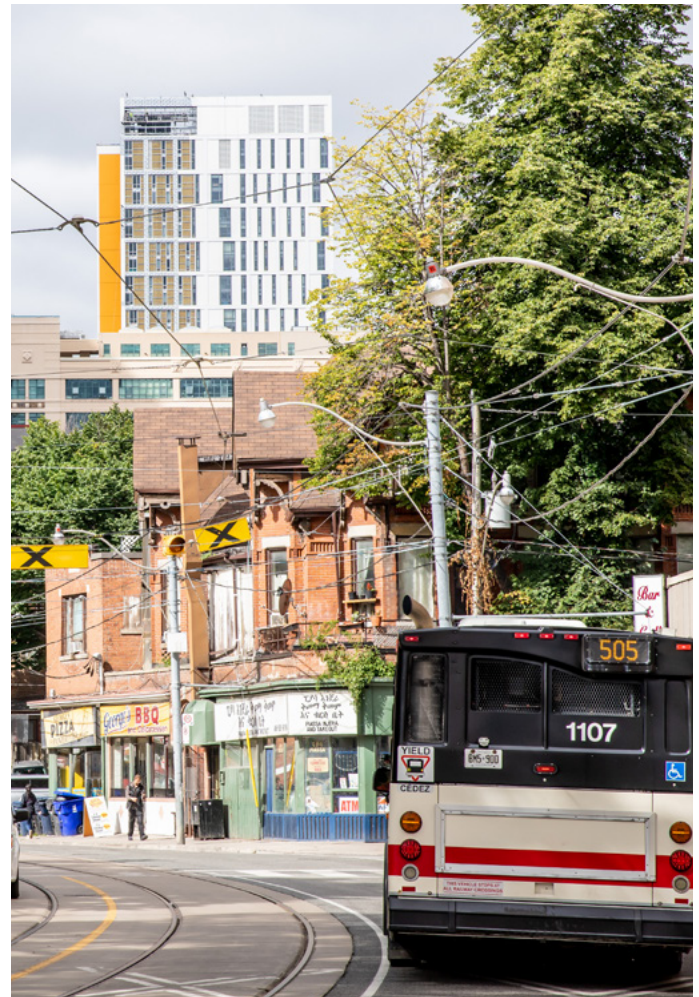
Overall, TIY is not just about solving immediate challenges — it's about being a global leader in sustainable, community-driven development. Together, TTC, TMU and DMZ can build a legacy of innovation that transforms the future of Canadian mobility.

## TTC Partnership Value

The Toronto Transit Commission stands as North America's third-largest transit system, serving over 500 million customers annually. As the primary public transit agency in Toronto, TTC's involvement in the Transit Innovation Yard provides an unparalleled opportunity to implement and scale innovative solutions in a real-world environment.

### Key advantages of TTC partnership include:

- Direct access to one of North America's largest transit operations
- Opportunity to pilot solutions in a complex, multi-modal transit system
- Ability to impact millions of daily commuters
- Experience working with a transit leader committed to innovation
- Potential to scale successful solutions across other major transit systems



## TTC Focus Areas

TIY will focus on four strategic themes that align with TTC's operational priorities. Under each theme, we have identified key opportunities for innovation through this initiative:

### 1) Data-Driven Transit Optimization.

- **Real-time fleet management solutions:** Systems that track and optimize vehicle locations and schedules in real-time to improve service delivery.
- **Predictive maintenance systems:** Technology that anticipates potential equipment failures before they occur, reducing downtime and maintenance costs.
- **Route optimization algorithms:** Advanced computational models that enhance route efficiency based on historical and real-time data.
- **Passenger flow analysis:** Tools that measure and predict passenger movement patterns to optimize service frequency and capacity.

### 2) Way-Finding and Customer Dashboards.

- **Interactive navigation systems:** User-friendly platforms that help passengers plan and navigate their journey through the transit network.
- **Real-time service updates:** Systems that provide immediate information about service changes, delays, and alternatives to passengers.
- **Accessibility enhancement tools:** Solutions that improve transit accessibility for users with diverse needs and abilities.
- **Multi-modal journey planning:** Integrated platforms that combine various transportation options to optimize passenger travel.

### 3) Track-Level Security Solutions.

- **AI-powered surveillance systems:** Advanced monitoring technology that enhances safety and security across the transit network.
- **Early warning detection:** Systems that identify potential security threats before they escalate into serious incidents.
- **Automated response protocols:** Streamlined procedures that enable quick and effective responses to security situations.
- **Preventive security measures:** Proactive solutions that help prevent unauthorized track-level access and other security breaches.

### 4) KPI Development and Analytics.

- **Performance measurement frameworks:** Comprehensive systems for tracking and evaluating transit service quality and efficiency.
- **Data visualization tools:** Intuitive interfaces that transform complex transit data into actionable insights.
- **Predictive analytics:** Advanced modeling that forecasts transit patterns and user needs.
- **Impact assessment methodologies:** Systematic approaches to evaluate the effectiveness of new transit initiatives and improvements.





## Our Approach

### TMU AND DMZ: RESEARCH EXCELLENCE AND ACTION

Toronto Metropolitan University (TMU) combines academic rigour with practical innovation through its unique approach to research and experiential learning. TMU's foundational mission of “research in action” perfectly positions us to successfully implement the Transit Innovation Yard initiative.

At TMU, education and real-world experience are inseparable. Our Zone Learning program — featuring 10 specialized startup incubators across campus, including DMZ — exemplifies this approach, creating vibrant hubs where innovative ideas transform into practical solutions. This same philosophy underpins our research excellence, fuelling our passion for tackling complex urban challenges through interdisciplinary collaboration.

TIY aligns seamlessly with TMU's and DMZ's commitment to developing infrastructure that enhances community well-being. Our researchers and startups will navigate the interconnected landscape of social, economic, political, cultural, and technological factors to create evidence-based transit solutions. Through this holistic approach and our dedication to sustainable innovation, we will combine our expertise to drive transformative change in transit.



## RESEARCH STREAM

TMU will leverage its interdisciplinary research expertise to address TTC's four priority areas through rigorous academic investigation and practical application. The research process will focus on developing evidence-based solutions that can be implemented within TTC's operations, including:

### Research Team Formation and Project Design

TMU will establish cross-faculty collaboration between Engineering, Science, Business, and Arts to create comprehensive research solutions. Key components include:

- Integration of graduate students and post-doctoral fellows into specialized research clusters aligned with TTC priorities.
- Development of research methodologies that combine academic rigour with practical applicability.
- Creation of clear research objectives and deliverables that align with TTC's operational needs.
- Expert panel review of research proposals to ensure both academic merit and practical value.

### Research, Development and Implementation

Research projects will be executed through a structured approach that ensures both academic excellence and operational relevance. Primary activities include:

- Establishment of research protocols that integrate TTC operational data and insights.
- Regular progress monitoring and milestone tracking with TTC stakeholder feedback.
- Implementation of rigorous analysis methodologies that account for real-world constraints.
- Development of practical implementation guides and training materials.

### Knowledge Translation and Impact Assessment

Research outcomes will be translated into actionable solutions for TTC's operations, with emphasis on practical implementation:

- Regular knowledge transfer sessions with TTC teams to ensure research findings can be operationalized.
- Development of impact assessment frameworks to measure operational improvements.
- Creation of implementation timelines and resource plans for successful research outcomes.
- Establishment of continuous improvement processes to refine and optimize solutions.

Through this structured approach, TMU's research stream will deliver evidence-based solutions that can be effectively implemented within TTC's operations, while also maintaining high academic standards.



## STARTUP STREAM



### Sourcing Innovative Ventures that Align with TTC Priorities

DMZ will leverage its global venture scouting expertise to identify startups aligned with TTC's four priority areas. The sourcing process will focus on high-potential ventures with proven transit and mobility solutions, including:

- **Proactive Global Scouting:** DMZ's venture scouts will conduct targeted searches across its international network, selecting startups specializing in areas aligned with TTC's needs (e.g., transit optimization, way-finding solutions, security systems, and analytics). This will involve engaging with transit-focused accelerators and innovation hubs worldwide to source qualified candidates.
- **Rigorous Screening Process:** This will involve technical evaluation of solution readiness and scalability, assessment of product-market fit and revenue traction, verification of team capability and transit sector experience, and analysis of potential integration with TTC's existing systems.
- **Collaborative Selection:** DMZ will create a joint evaluation committee including TTC operations experts, TMU researchers, and DMZ leadership — implementing a multi-stage selection process including technical reviews and demonstrations from startups.

### Pilot Scoping and Implementation

DMZ will work directly with selected startups to refine and pilot their technologies within TTC's network. These pilots will be designed to deliver measurable impact while minimizing operational disruption. Key activities include:

- **Pilot Scoping and Planning:** Collaborative workshops with TTC operational teams to define pilot parameters, as well as the development of clear success metrics and KPIs for each solution.
- **Deployment and Performance Monitoring:** Phased implementation approach starting with controlled testing environments, which will involve regular progress tracking and real-time monitoring of system performance and user feedback.
- **Technical and Operational Support:** Dedicated DMZ mentors for each startup team, with regular troubleshooting and optimization sessions, as well as ongoing assessment of scalability potential.

### Outcome Evaluation and Scale-Up Planning

The program will culminate in a comprehensive evaluation of pilot outcomes, with clear pathways for successful solutions to scale across TTC's network:

- **Impact Assessment:** Detailed analysis of pilot performance against established KPIs, as well as cost-benefit analysis and technical integration assessment prior to full-scale implementation.
- **Implementation Roadmap:** Development of full-scale deployment strategies, including resource allocation, budget planning, employee training, and change management plans.