

THE CONVERGENCE OF INNOVATION AND CASE WEBINAR

Innovation and CASE Sub-Committees of the IBTTA Emerging Technology Committee

WE WILL BEGIN SHORTLY...



Today's Moderator





Joe Averkamp is Vice President for Systems and Solutions at Parsons Corporation. Joe is an IBTTA Leadership Academy alumni, a member of the Emerging Technologies Committee and the Connected and Autonomous Vehicle Working Group.

Today's Logistics

- The webinar will last for 90 minutes.
- During today's webinar, all participants are in listen and view only mode.
- Questions throughout the webinar are encouraged use the Chat function!
 - Make sure to set your Chat to send to "All Panelists and Attendees"
- Questions will be addressed after the presentations are finished.
- This webinar will be posted to the IBTTA Website within a few hours.
- **SURVEY** please fill out the survey that will appear in your window at the close of this webinar. We need your input to improve our virtual events in the future!



Emerging Technologies Sub-Committees



• Blockchain

Chair: Matt Milligan, Milligan Partners LLC

Big Data

Chair: Marwan Madi, CDM Smith

CASE
 Chair: Lev Pinelis, Transurban

Tolling & Customer Management
 Chair: Shannon Swank, BancPass

Innovation

Chair: Jeff Dailey, P.E., Central Texas Regional Mobility Authority



JEFF DAILEY, P.E.

Chair, Innovation Sub-Committee and Deputy Executive Director, CTRMA

LEV PINELIS

Chair, CASE Sub-Committee and Director, Innovation, Transurban

BRIAN KELLEY

Chief Technology Officer, Ohio Turnpike and Infrastructure Commission

BRENNAN HAMILTON

FordToll Advanced Product and Business Owner, Ford Motor Company

THOMAS GREINER ASFINAG

or

TODAY'S PRESENTERS & PANEL

INNOVATION AS AN ENABLER

Strategies for Innovation and Technology

TRENDS OF TOMORROW

Preparing for The Future of Mobility



INNOVATION AS AN ENABLER



Innovation Capacity

Task Force Objectives: Case Studies and Trends

Trends:

- Agency commitments to innovation
 - Chief Innovation Officer type position (~50%)
 - Dedicated staff resources and budget (~70%)
- Use of data and analytics (~65%)
- Innovative procurement and partnerships (~80%)
- "Real-world" technology demonstration pilots

Findings:

- No "one size fits all"
- Innovative culture championed by Chief Executive
- Primarily driven by business process improvements

Technology Matrix

TRENDS OF TOMORROW

Task Force Objectives: Use Cases and Trends

Trends:

- Electric Vehicles
- Smartphone / Third Party Tolling
- 5G Cellular
- Artificial Intelligence & Machine Learning
- Integrated Corridor Management
- Sensor Fusion
- Connected Vehicles
- Subsurface Dielectric Profiling / Electrical Resistivity

Findings:

- Connected vehicle technology operational +/- 5 yrs
- Dramatic mobility/toll technology change next 10 yrs
- Advanced traffic control / MAAS +10 Yrs

CASE Impacts on Tolling Systems White Paper

IBTTA Connected Automated Shared and Electric (CASE) Vehicles Working Group

Objective: Identify how growing use and integration of CASE vehicles will impact tolling systems.

Process:

- Started in 2019 by evaluating previous related IBTTA whitepapers and efforts
- Interviewed 20-30 tolling industry / emerging tech experts to gather thoughts
- Analyzed emerging trends and technologies:
 - Connected and Automated Vehicles
 - Zero Emission Vehicles
 - Smart Mobility
 - Road User Charging
- Considered how the above trends could affect the current tolling system in the coming 0-10 years
- Drafting final version of the white paper this month

Goals:

- Work proactively to prepare for increased use of CASE vehicles on tolling systems
- Understand how the tolling system will need to change for CASE vehicles
- Identify potential future roadblocks and solutions to those issues
- Give CASE vehicle owners and users value added for using toll roads



How Emerging Trends Could Impact Tolling System



	Asset Management Manage Roads	Road Equipment Roadside Toll Collection	Tolling Back Office Create the "Billable" Trip, Identify who should pay	Customer Collect Funds	Channels Enforce	Impact Timing	
Mobile Payments (Smartphone or in- vehicle telematics)	The tolling system needs to be able to interface and reconcile with different forms of mobile payments.						
		\checkmark	\checkmark	\checkmark	\checkmark	years	
Shifting Vehicle Ownership Trends	Changing vehicle ownership could create a need to modify how toll accounts are managed (possibly by individual instead of vehicle).						
			\checkmark	\checkmark	\checkmark	years	
Road User Charging (RUC)	RUC could improve enforcement and lower the risk and agency cost associated because 3 rd parties / the government will collect and ensure payment.						
		\checkmark	\checkmark	\checkmark	\checkmark	years	
Integrate Tolling and Traffic Back Office	CV-based data could be incorporated into the traffic management system which could facilitate integration between the tolling and traffic back offices.						
		\checkmark	\checkmark			years	
Embedded V2I Communication - DSRC/CV2X	Toll systems could need to have the ability to work with embedded vehicle communication in the future.						
	\checkmark	\checkmark	\checkmark			years	
Enforcement	Enforcement may become increasingly managed by 3 rd parties if CVs, RUC and/or mobile based tolling achieve sufficient penetration rates and could eventually lead to the elimination of gantries.						
		\checkmark	\checkmark	\checkmark	\checkmark	years	
Dedicated CASE Vehicle Lanes	Toll lanes (e.g. managed lanes) could be purpose built for CASE vehicles and have features for added customer value such as connectivity, special signs, lane markings for computer vision, and charging ability.						
	\checkmark	\checkmark				years	





Ohio Turnpike & Infrastructure Commission



Strategic Objectives

To be the industry leader in providing safe and efficient transportation services to our customers, communities and partners, we must...

OTIC Guiding Principles

1. Improve SAFETY

- 2. Improve QUALITY OF WORK LIFE
- 3. Improve CUSTOMER EXPERIENCE
- 4. Maintain excellent SYSTEM CONDITIONS
- 5. Maintain strong FINANCIAL STEWARDSHIP

Task Force Teams





DSRC Project







Solar Energy Development Opportunities

- We have identified 255 acres on the Ohio Turnpike where solar fields could be developed and we are also considering large solar carport structures over existing parking areas on the Ohio Turnpike
- Identifying areas around our 31 Toll Plazas/Interchanges, 14 Service Plazas, 8 Maintenance Buildings, and right-ofway property



Smart Belt Coalition



Table 4: Vehicle Platooning Regulations				
STATE	VEHICLE PLATOONING REGULATIONS			
Michigan	Michigan Vehicle Code – Section 257.643a			
Ohio Title 45 – Section 4511.34				
Pennsylvania PA Title 75 – Section 3317 (Platooning), Section 3310 Platooning Policy				

This project, led by the Coalition, will demonstrate how a truck platoon will navigate the administrative and procedural requirements necessary to travel continuously across all three core Coalition states. The demonstration would allow for Coalition members to identify the processes needed to ensure a successful truck platooning operation and provide the opportunity to align processes with best practices to the extent allowable by existing state regulations. This will also present a public relations opportunity to showcase work being done collaboratively through the coalition as something tangible that the public and public officials could witness first hand.

Smart Vehicles in a Smart World

Connected – Autonomous – Shared -Electric

VEHICLE TO VEHICLE

Vehicles transmit status, can warn drivers of potential risks

THE FUTURE IS BUILT

Building C-V2X Accelerated Deployment





CTRMA 45SW Video



Brennan Hamilton, FordToll Advanced Product and Business Owner

Brennan.Hamilton@Ford.com (313) 236-5059

Thank You!





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AN OVERVIEW.

ASFINAG VISION

"WE ARE A RELIABLE, INNOVATIVE AND SUSTAINABLE MOBILITY PARTNER, LINKING PEOPLE AND REGIONS AT THE HEART OF EUROPE."

SCOPE OF ACTIVITIES

€



EXPANSION COLLECTING TOLLS

FINANCING

ASFINAG AN OVERVIEW.

CORPORATE STRUCTURE

THE REPUBLIC OF AUSTRIA





WORKING AT ASFINAG



Flexible Working

- Home office 2.0
- Sabbaticals
- Maternity leave
- 1 month's paternity leave
- Partial retirement
- Reduced hours for in-service training
- Reduced hours for reintegration /resettlement

Company Culture

- Culture: desired image
- Culture & Management rollout: workshops for everyone
- Cultural history

Training

- Comprehensive
 programme of training
- Development programme for managers and deputies
- Trainees programme
- Project management training
- Coaching platform
- · Career pathway
- In-house trainers

Diversity

- 30 apprentices in seven trades
- Gender-neutral language right across the group
- Women's Talk
- Facilities for people with disabilities

ANNUAL REPORT 2018



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~ 19 %

As at 2018

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SELECTED INDICATORS

In million Euros

TOTAL TOLL PROCEEDS2,156

Total toll proceeds – cars	691
Revenue from toll stickers	502
Route toll proceeds (toll-paying sections)	189



Total toll proceeds – trucks1,465



TOLL RATES - TRUCKS

Costs Infrastructure

Dependent on
 number of axles

 Dependent on charging structure

Tarifnetz	Infrastruktur- tarif 2020 in Cent pro KM ¹
Basisnetz	19,19
Unterinntal	19,19
Arlberg	51,04
Brenner	51,04
Bosruck Gleinalm	43,23
Karawanken	85,28
Tauern	39,92



 25% surcharge for Lower Inn Valley and Brenner



- Number of axles
- EURO emissions class
- Exemption for E/H2
 drive types

External costs **Noise**



- Number of axles
- Time (day/night rate)

2018: EUR 45 m BMVIT (Ministry for Transport, Innovation and Technology)





TRUCK MILEAGE



CONSTRUCTION PROGRAMME



With the second state to the total

Construction programme under agreement reached autumn 2019



SELECTED PROJECTS IN PLANNING



ASFINAG NOISE PROTECTION

1,360 km of noise barriers on 2,233 kilometres of motorway and

expressway

135 million Euros for noise insulation structures and measures to protect local residents (by 2025)

Noise register transparent display of noise exposure across the whole network

Noise pollution calculated using current and projected traffic figures on the basis of the six busiest months

ASFINAG CORE STRATEGIES





Road safety

Sustainability,

greening &

climate protection

International &

partnerships

Service and control





Multimodality, parking & breaks



Innovation



ITS



Construction and Maintenance

ASFINAG AN OVERVIEW.



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CORE STRATEGY - SUSTAINABILITY 2030 GOALS



ON THE PATH TO CO2 NEUTRALITY BY 2030

- Vehicle fleet 100% alternative drive systems
- Above-ground structures and tunnels supplied with 100% green energy
- Min. 10% own energy produced by PV, water and wind power
- Façade renovation
- LED lighting system



SELECTED STRATEGIC PROJECTS

VAO Austria Traffic Information ASFINAG site has Austriawide route planner and multi-modal traffic map with display of public transport alternatives as standard

DOMINO ASINFAG is coordinating introduction of new services for sustainable and intermodal mobility incl. test environment for various public and private operators

C-ITS Road communicates with vehicle, WiFi rollout from 2020

ALP-LAB: Test tracks for automated driving

EXTENDED MONITORING

Increased road safety with focus on monitoring trucks and abnormal loads ÖBB AND ASFINAG NETWORKING PLATFORM

ASFINAG AN OVERVIEW.

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