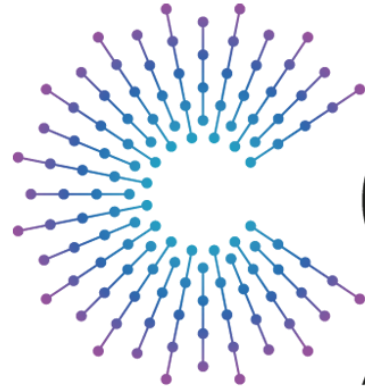


Connected Safety Birds of a Feather Working Group

All Members Meeting
April 17, 2024



COVESA

Accelerating the future of connected vehicles

Hosted by:



Tim VanGoethem

Chief Product Officer

Emergency Safety Solutions



Larry Williams

Co-founder

LiDAR Saving Lives Public Safety Coalition

Connected Safety Birds of a Feather Working Group

All Members Meeting
April 17, 2024

Today's Agenda

- Welcome and Introductions – Tim VanGoethem & Larry Williams
- BoF and Journey Map Recap - Tim VanGoethem
- Enabling accurate and prompt implementation of rescue services and start of emergency response
 - Visual contextual information - Magnus Anfersson (Terranet AB,)
 - Gaps for Intelligent Collision Data to PSAPs - Guillaume Ouellette (WirelessCar)
 - State of Connectivity to Emergency Services - Roger Lanctot (TechInsights)
- Upcoming Meetings - Tim VanGoethem
- Next Steps and Close

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Connected Safety BoaF Goal & Strategies

Bring together public safety, automotive, commercial transportation, and government to make our roadways safer for everyone:

- Define comprehensive stakeholder-based safety-related scenarios and value propositions
- Collaborate with COVESA members and others safety-related organizations to develop safety expertise and community within COVESA
- Develop integrated safety system prototypes and references implementations
- Publish white papers on key findings, best practices, and implementation recommendations

Connected Safety Birds of a Feather Working Group

All Members Meeting
April 17, 2024

Connected Safety BoaF Result

Accelerate delivery of connected technologies to benefit everyone that shares, protects, and maintains our roadways.

Examples:

- Protect and give aid to vulnerable vehicles and occupants stranded along roadways
- Reduce response time and secondary collision risk for motorists involved in a crash
- Provide 911 Public Safety organizations with critical information so that they dispatch the right personnel and equipment to the scene
- Mitigate liability and lost productivity for commercial vehicles involved in roadway crashes

Journey Map Example (1 of 2)

Imagery

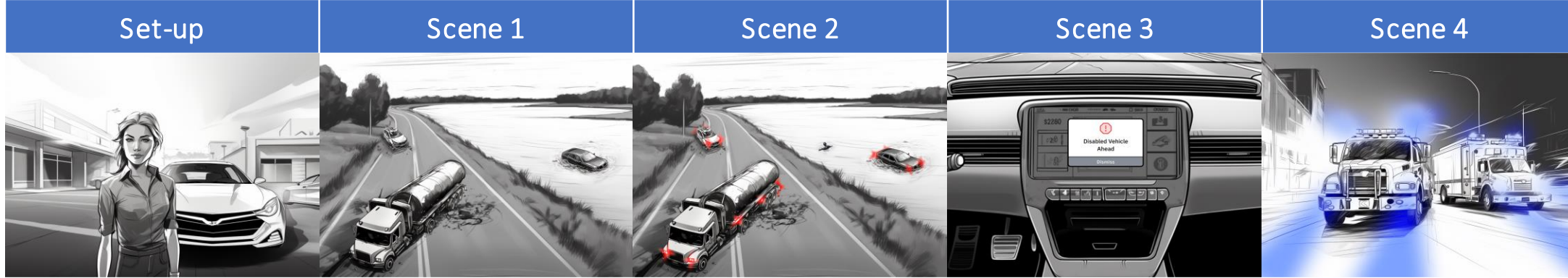
Cartoons, animated presentations, or demonstrations that bring storyline to life

Storyline

Overall story that we're bringing to life

Value Proposition

The value that each company and technology brings to this story



Sophia is a 24-year-old professional that is commuting to work in her new EV.

A tanker truck abruptly changes lanes, collides into Sophia's car, and forces the driver of a rental car to swerve into a nearby lake. The embedded vehicular emergency sensor triggers the submersion escape system in the rental car and instantaneous IP notification for emergency services in all vehicles. ¹

- Automated submersion system enables rental car occupants to escape quickly.
- Instantaneous IP notification enables accurate and prompt implementation of rescue services and start of emergency response.

Recognizing that a collision has occurred, all three vehicles automatically flash hazard and other vehicle lights at a faster rate so that other drivers have more time to react, and Emergency Responders can see them.

- Conspicuous lighting protects scene, gives other motorists time to slow down and move over, and helps locate vehicles that has left the roadway.

In parallel, on-coming drivers receive an alert in their in-dash system so that they have even more time to react to the upcoming crash scene.

- Digital alerts work in tandem with lighting alerts to protect the scene and give motorists time to slow down and move over.

The nearby E911 center is notified and dispatches a police car, fire truck, and ambulance to the scene.

- Timely notification of vulnerable vehicle location reduces response time and further collision risk.

1. Separate Journey Maps can be used to capture the stories for the tanker truck and rental car occupants since they unlock different solutions and value propositions. The following scenes will focus on Sophia.

Journey Map Example (1 of 2)

Imagery


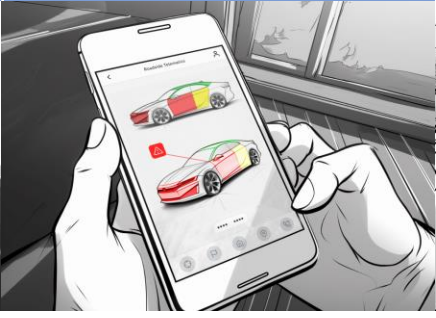



Cartoons, animated presentations, or demonstrations that bring storyline to life

Storyline

Overall story that we're bringing to life

Value Proposition

The value that each company and technology brings to this story

Scene 5	Scene 6	Scene 7	Scene 8	Scene 9
				
<p>The E911 Dispatcher sees that the tanker truck has leaked potentially hazardous materials onto the road.</p>	<p>Fire responders are provided a VIN-specific extrication guide for Sophia's EV.</p>	<p>Sophia sees a map indicating her location with icons for the responding vehicle location and their projected ETA.</p> <p>In parallel, family/emergency contacts are notified and provided the same map.</p>	<p>Responders arrive on scene and safely remove Sophia from her vehicle.</p>	<p>Sophia seems OK but is taken to the hospital for further medical evaluation.</p> <p>Vital health parameters are transmitted to the hospital while in transit.</p> <p>Family/emergency contacts are updated.</p>
<ul style="list-style-type: none"> • LiDAR/radar/camera 3D point cloud let's E911 Dispatcher assess scene and better inform emergency & incident responders what to expect • Point Cloud image protects privacy since no identifying information is visible. 	<ul style="list-style-type: none"> • Emergency Responders can safely extract victims without compromising the vehicle's power wiring or battery system that may lead to fire or hazardous materials being spilled into environment. 	<ul style="list-style-type: none"> • Piece of mind that someone is on their way and when they will arrive. • Awareness that a loved one is in danger, but help is on the way. 	<ul style="list-style-type: none"> • Reduced response time decreases risk of secondary collision. • Proper on-scene care minimizes complications. 	<ul style="list-style-type: none"> • Sophia is safe and can focus on recovery. • Sophia's family knows that she's OK and where to meet her.

Submerged Vehicle Needs



Example “Network Effect” of Connected Vehicle BoF

- AWOS sensors to automatically roll down windows to increase occupant survival.
- Instantaneous IP notification of 9-1-1 public safety to expedite arrival of rescuers.
- Faster rescue (police, fire, EMS) with automatic emergency messaging
- Enhance visibility with automatic emergency lighting

- ~500 US fatalities/year due to submersion
- Occupants have ~1 minute to exit before vehicle starts to sink
- Time is lost trying to open door, call for help, or wait for compartment to fill

Source: Sabrina Percher | COO & Co-Founder | AWOS Technologies

Vulnerable Vehicle Needs



In US alone:

- 23,000 people injured or killed annually
- a crash occurs every 4 minutes
- problem is compounding at 8.4%/year

What can be done to address this?

- Building awareness
- Education/Training
- Regulatory Solutions
- Leverage Technology
 - Lighting Alerts proven to compel 87% drivers to reduce speed and move over ~1/4 mile sooner verses 30% that moved over with conventional hazard lighting
 - Digital Alerts give drivers advance warning, reducing collision risk by 90% and hard braking events by 80%

Source: Andrew Coetzee | Chief Safety Advocate | Emergency Safety Solutions

A white circular icon containing a stylized black and white shape, resembling a signal or a car's profile.

WirelessCar

- 1 Understand the current landscape
- 2 Understand what the need is
- 3 Establish strategies that work for key stakeholders
- 4 Get on with it with ongoing dialogue

- 1 Understand the current landscape
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The value chain



OEM



Connectivity



Occupants



TPS Call Centre



PSAP



First Responders

The value chain



Connectivity



Occupants



TPS Call Centre



PSAP



First Responders

OEMs

OEMs add hardware or services in vehicles if it will...



Sell more cars or generate revenues



Reduce costs or improve efficiencies



Regulatory requirement

The value chain



OEM



Connectivity



Occupants



TPS Call Centre



PSAP



First Responders

Connectivity partners

Whether in-housed or outsourced, they are limited to:



The hardware in cars



The data exposed to the cloud



The features requested by the OEM

The value chain



OEM



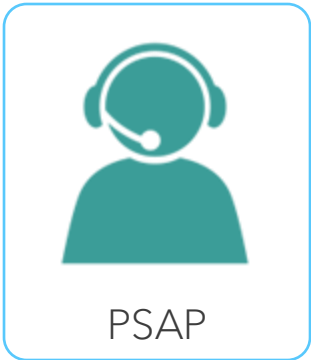
Connectivity



Occupants



TPS Call Centre

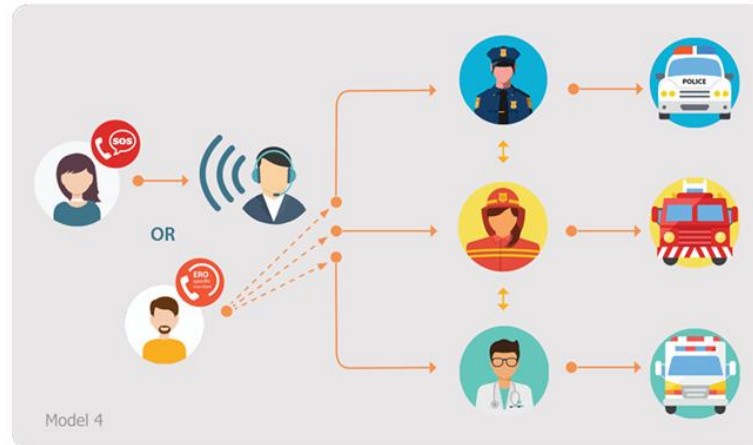
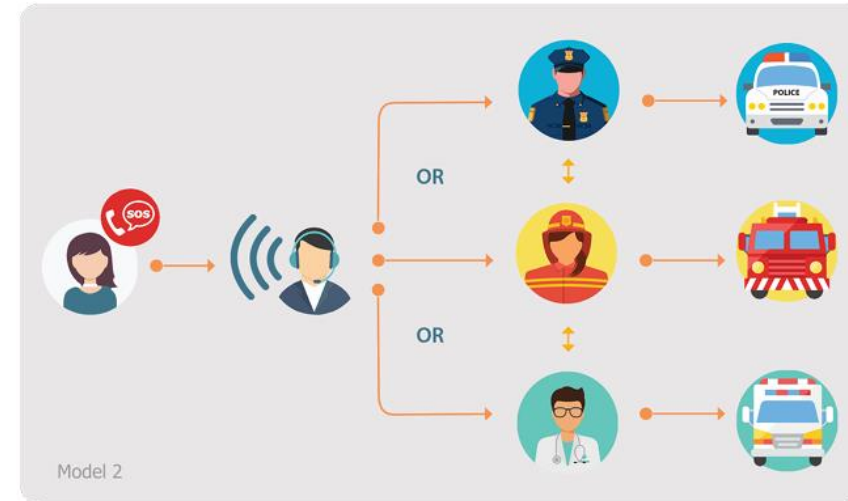
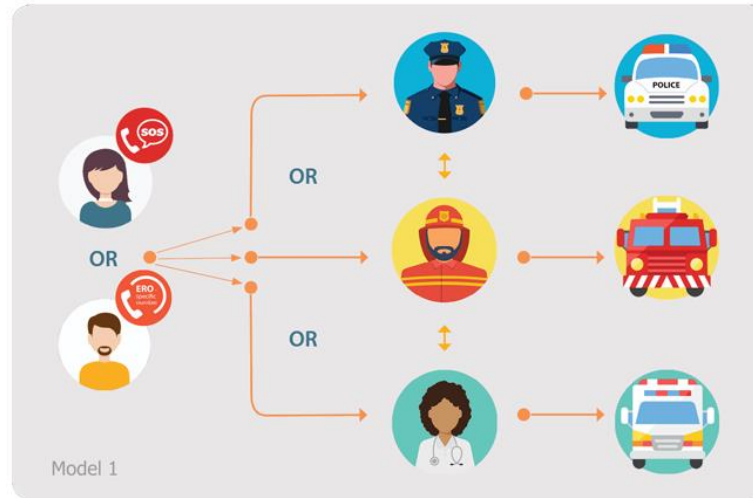


PSAP



First Responders

Every country has different setups for 112/911/999



Source: [EENA 2023 PSAPs Global Edition](#)

The value chain



OEM



Connectivity



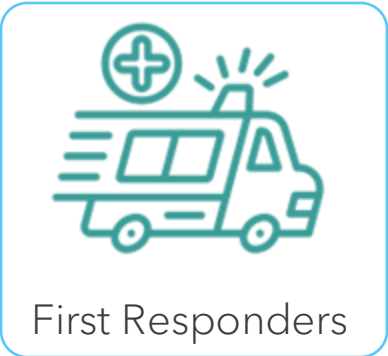
Occupants



TPS Call Centre



PSAP



First Responders

Every country uses different technology

Example: difference of equipment in police vehicles between two countries:



100% radio dispatch



Mix of radio and CAD

There is no "one way" things are done, even within one country.

Public Safety Agencies

They have:

- Limited and often reducing budgets
- Complex setups
 - Example: UK has 45 police services with
 - Different dispatch systems
 - Different vehicles
 - Different uniforms
 - Different equipment
- Different IT suppliers, consortiums
- Different standard operating procedures
- Different expectations of emergency services by the public

Public safety organizations do what they do because based on their definition of success, it works, changes to this requires thorough reviews and receives much scrutiny

General government total expenditure on public order and safety, 2022, % of GDP

	Public order and safety	Police services	Fire protection services	Law courts	Prisons	R&D Public order and safety	Public order and safety n.e.c.
EU*	1.7	0.9	0.2	0.3	0.2	0.0	0.1
euro area 19*	1.7	0.9	0.2	0.3	0.1	0.0	0.1
euro area 20*	1.7	0.9	0.2	0.3	0.1	0.0	0.1
Belgium*	1.7	1.0	0.2	0.3	0.1	0.0	0.1
Bulgaria	2.5	1.3	0.2	0.7	0.2	0.0	0.2
Czechia	1.8	0.9	0.3	0.3	0.2	0.0	0.2
Denmark	0.9	0.5	0.1	0.1	0.2	0.0	0.0
Germany*	1.7	0.8	0.3	0.4	0.1	0.0	0.1
Estonia	1.8	1.1	0.2	0.3	0.1	0.0	0.1
Ireland	0.7	0.4	0.1	0.2	0.0	0.0	0.0
Greece	2.0	1.2	0.3	0.3	0.1	0.0	0.0
Spain*	1.9	1.2	0.2	0.4	0.1	0.0	0.0
France*	1.7	0.9	0.3	0.3	0.2	0.0	0.1
Croatia	2.1	1.3	0.2	0.4	0.1	0.0	0.1
Italy	1.8	1.1	0.2	0.3	0.2	0.0	0.0
Cyprus	1.6	1.2	0.1	0.1	0.1	0.0	0.0
Latvia	2.0	1.0	0.2	0.4	0.2	0.0	0.2
Lithuania	1.2	0.4	0.2	0.2	0.1	0.0	0.2
Luxembourg	1.2	0.5	0.2	0.2	0.2	0.0	0.0
Hungary	2.0	1.2	0.2	0.3	0.2	0.0	0.0
Malta	1.4	0.7	0.1	0.4	0.2	0.0	0.0
Netherlands	1.9	0.9	0.2	0.3	0.3	0.0	0.2
Austria	1.3	0.7	0.2	0.3	0.1	0.0	0.1
Poland	2.3	1.1	0.2	0.5	0.2	0.0	0.2
Portugal*	1.6	1.0	0.1	0.3	0.1	0.0	0.1
Romania	2.1	1.1	0.3	0.4	0.1	0.0	0.2
Slovenia	1.6	0.8	0.1	0.4	0.1	0.0	0.1
Slovakia	2.3	1.0	0.2	0.3	0.2	0.0	0.7
Finland	1.2	0.5	0.2	0.2	0.1	0.0	0.0
Sweden	1.3	0.7	0.2	0.2	0.2	0.0	0.0
Iceland	1.5	0.9	0.1	0.2	0.1	0.0	0.3
Norway	0.9	0.4	0.2	0.1	0.1	0.0	0.0
Switzerland	1.7	0.7	0.1	0.3	0.2	0.0	0.4

Source: Eurostat (gov_10a_exp)

* provisional

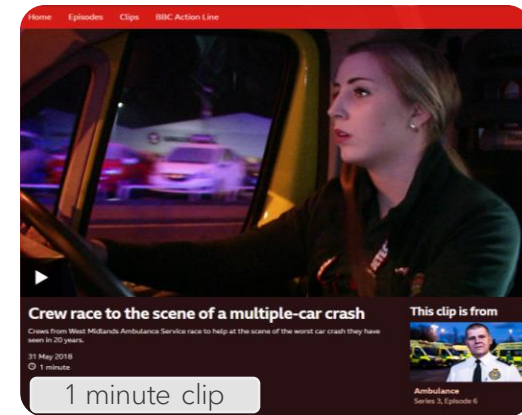
- 1 Understand the current landscape
- 2 Understand what the need is
- 3 Establish strategies that work for key stakeholders
- 4 Get on with it with ongoing dialogue

Improve the context



Example:

- Belgrave Middleway incident in Birmingham, 2017
- Seven vehicles involved
- Six deaths
- Caused by a young driver in a performance car under the influence at 100mph









The mission





Getting the right help, to the correct location, with the right equipment, as quickly as possible.

Where TPS eCall helps today

PSAPs have refined their approaches over decades, the advent of eCall has brought benefits:

-  Especially in North America, simply making the data available outside of the car
-  Validating the call and only passing “real” cases to the PSAP
-  Understanding the customer’s language immediately
-  Staying on the line with occupants for as long as it takes
-  In the EU, going beyond the MSD as technology advances
-  Building relationships with PSAPs

The downside:

-  Delay of reaching the PSAP for critical cases
-  Especially in North America, customers unaware subscriptions have expired
-  Inconsistency of data available to establish the context
-  Only provides data on the subject vehicle, PSAPs must merge calls

- 1 Understand the current landscape
- 2 Understand what the need is
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Call Center Services - WirelessCar Mission



Improve the context

The core objective is to save more lives, followed by helping people cope with moments of anxiety and distress.



Information commonly available today:



Precise location of the event



Number of occupants



Are occupants belted



Speed of the collision



Which SRS components were deployed



Information sometimes available today:



Language of driver



Which collision system was triggered



Likelihood of injuries



What is not fully achieved today:



Clear executive summary of the collision



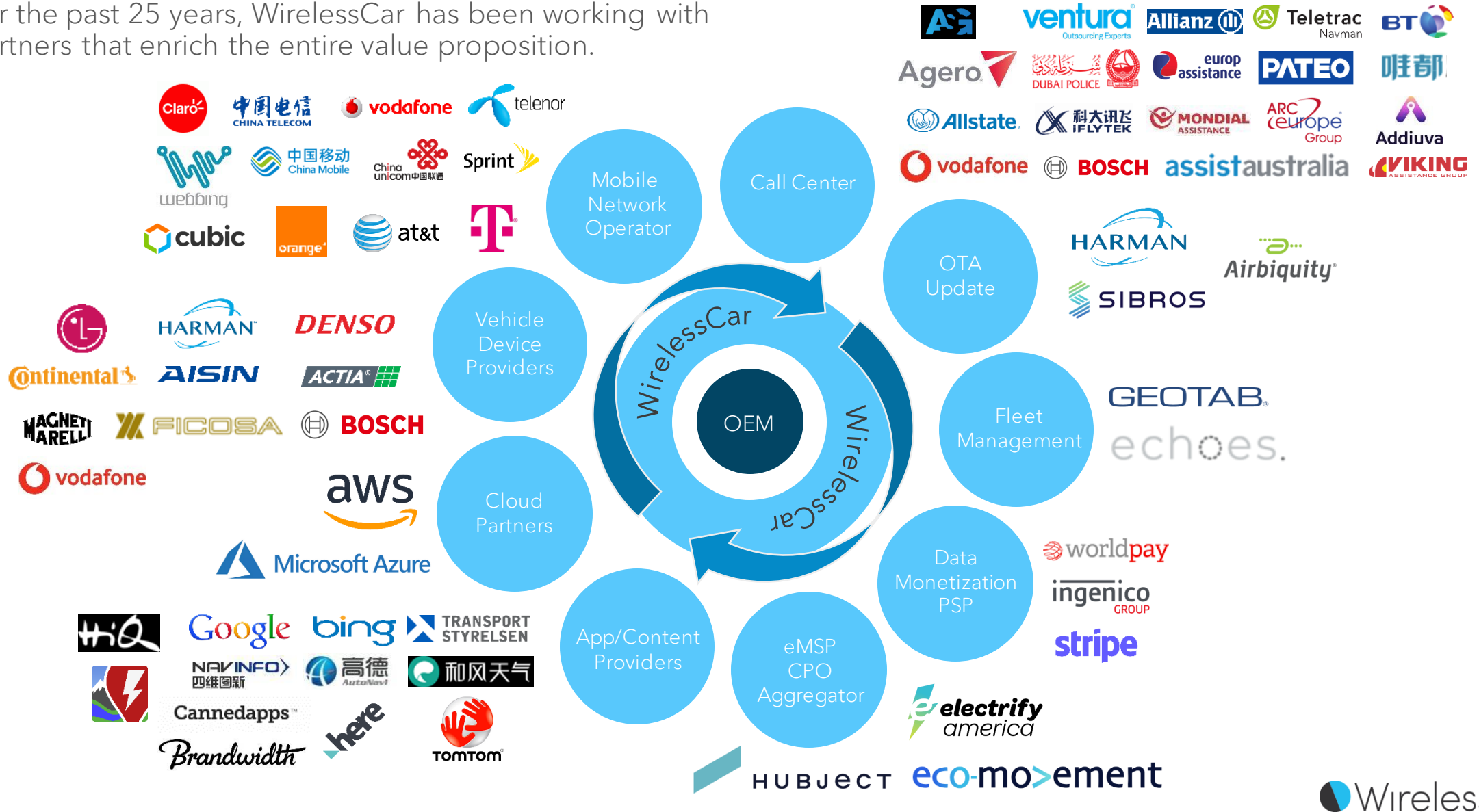
Make the data and context easily sharable



Evidence of the credibility of the data

Our Eco System Cocreators

For the past 25 years, WirelessCar has been working with partners that enrich the entire value proposition.



Evolution of the WirelessCar CCC

The screenshot displays the CCC interface with a table of vehicle data at the top. Below the table, there are several sections for vehicle management and diagnostics:

- Vehicle Details:** Includes fields for Registration, VIN, and other identifiers.
- Services:** A grid of buttons for various services such as "NCC to play on Radio", "Emergency Assistance", "Tech Mobile", "Technical Assistance", "Road Assistance", "Route Guidance", "Travel Itinerary", "Vehicle Diagnostic", "Customer Activation Call", "Dealer Activation Call", "Darkroom Test Call", "Carry-Over Learning", and "Remote Door Unlock".
- Vehicle Status:** A section for monitoring the vehicle's current state.
- Diagnosis:** A section for handling diagnostic information, including a "DTPM Follow-up" area.

The screenshot shows the web application interface for a specific vehicle case. It includes a navigation menu, a case overview, and a detailed view of the vehicle's specifications and location:

- Case Overview:** Shows the case ID, start time, and last event.
- Vehicle Details:** A table of vehicle specifications including registration country, VIN, model, production date, color, gear box type, and engine type.
- Position:** A map showing the vehicle's current location at 215 Piccadilly, St. James's, London W1J 9NR, UK.
- Vehicle Status:** A section for monitoring the vehicle's current status.
- Events:** A section for viewing a history of events related to the vehicle.

Active Case Report

Service	Status	Case Taken	Closed	Reported
ACN	Started	9/23/23, 7:03 PM		
	Last Event	9/23/23, 7:13 PM	Request acknowledged by vehicle	

Summary Copy ID

Main Info Customer Vehicle

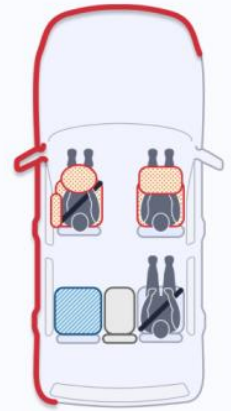
Karin Alvbring

Mobile Phone	External User ID
+46 0761274569	Unspecified
Email	Brand
jhon.wilse2@gmail.com	Cars AB

[Close case](#)

Collision details

- Airbags
- Belts
- Collision Area



Airbag Deployed Airbag not deployed

Collision Information Airbag status Seat belt status

- Front
- Back

Driver	Curtains
<input checked="" type="radio"/> Seat front deployed	<input type="radio"/> Not equipped
<input checked="" type="radio"/> Seat cushion deployed	<input type="radio"/> Not equipped
<input checked="" type="radio"/> Seat side deployed	
<input type="radio"/> Seat knee fired not equipped	

Passenger
<input checked="" type="radio"/> Seat front deployed
<input checked="" type="radio"/> Seat cushion deployed
<input type="radio"/> Seat knee fired not equipped

Address: **Frihamnen 16A, 417 55 Göteborg, Sweden** [Update vehicle position](#)

Latitude 57.725889 Longitude 11.961288 Heading East 80° Speed 34 km/h

The content of this image has been simulated. No real data was used.



Roadmap Details - App bCall (Release 1)

Product Affected	
Call Center Client	
TPS eCall	
SVT	
xCall	■
Status	
In Progress	■
Scheduled	
On Roadmap	
Availability	
Core Product	
Add-on	■
New Product	
TBD	
Primary Focus	
OEM Stakeholder	
Call Centre - Mgmt	
Call Centre - Agent	
End Customer	■
External Parties	

What

Enabling the start of a bCall from a smartphone, using data residing on the OEM companion app (including vehicle status, phone location, user's name, etc.), passed to the app API via the BFF

Why

In the EU, governments provide guidance to not remain in a broken-down car on fast roads, but bCall asks a customer to do just that. Additionally, a car bCall cannot be started if the vehicle has no power.

Expected Impact

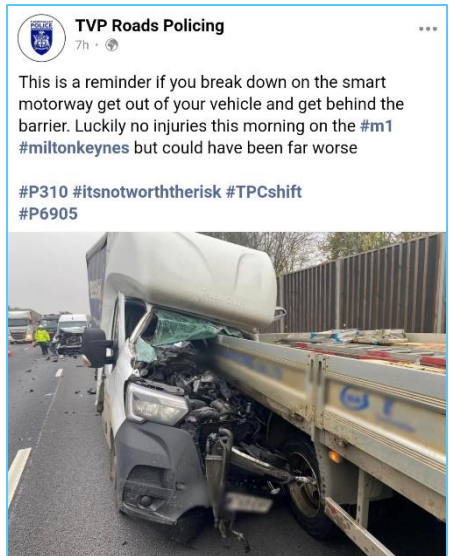
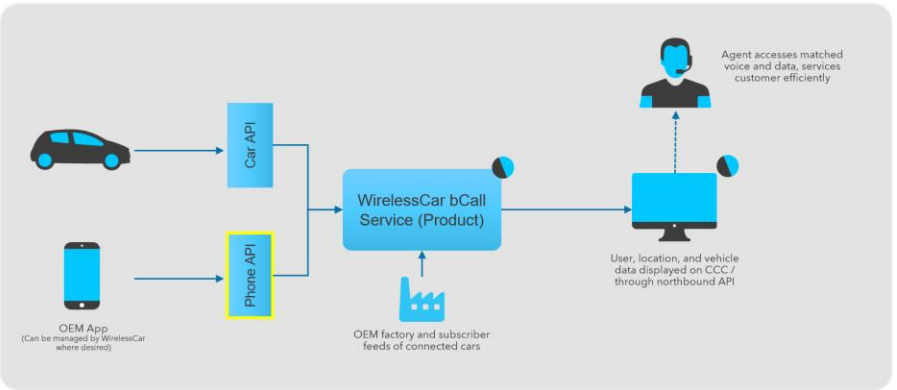
- Provide call centre agents with both phone and car locations, static and dynamic data
- Increase the usefulness of existing companion apps
- Provide improved context to call centre agents
- Add a digital experience where embedded connectivity is not possible or viable

Current Status

- Work underway, onboarding from June 2024

Opportunities

- Contribute to the user stories for subsequent releases
- Early adoption by June 2024



The WirelessCar Outlook

- The EU is being driven by regulation (e.g., 16102) and programmes (e.g., Euro NCAP)
 - TPS eCall must be offered for the “life” of the car (often 10 years)
 - Regulation-driven
- US being driven by business models
 - SOS/TPS eCall is often attached to short subscriptions
 - Improvements often made by new actors on the value chain requiring revenues

Example goals:

Steps	Fragmented	Show Value	Grow Usage	Standardization
Value chain coordination	Ad hoc	10-25% of markets	50% of markets	>80% markets
Data sharing	US: Limited integrations EU: Voice, email	US: Limited integrations, data viewing EU: Email, direct data viewing	>10% API integration	>40% API integration
OEM data outlook	US: Fragmented EU: EN16102, Euro NCAP 2023		US: General consensus EU: 16102, NCAP 2026+	Recognized TPS eCall data set

- 1 Understand the current landscape
- 2 Understand what the need is
- 3 Establish strategies that work for key stakeholders
- 4 Get on with it with ongoing dialogue

Saving more lives every day through collaboration

OEMs



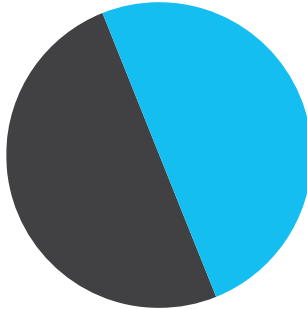
Industry groups

Connected Safety
Birds of a Feather
Working Group

COVESA
Accelerating the future of connected vehicles

Journey Map Example (1 of 2)

	Setup	Scene 1	Scene 2	Scene 3	Scene 4
Imagery					
Storyline	Car is in a parking lot and a pedestrian is walking towards it.	A pedestrian suddenly changes lanes, crosses into the driver's lane, and forces the driver of a car to swerve into a nearby lane. The advanced safety system in the car and insurance P notification for emergency services in the vicinity.	Recognizing that a collision has occurred, all three vehicles automatically flash hazard and other vehicle lights in a bid to warn other drivers. Emergency responders can see them.	Connected emergency services receive an alert in their own system so that they have even more time to react to the upcoming crash scene.	The nearby 911 center is notified and dispatches a police car to the scene, and ambulances to the scene.
Value Proposition		Advanced safety system enables real-time notification to emergency services.	Connected lighting or other active gear other vehicles can see and take faster action that will save lives.	Connected alerts work in tandem with lighting alerts to protect the scene and give motorists time to slow down and move over.	Timely notification of vulnerable vehicle location enables responders and further collision risk.



Call centre operators



Regulatory / Programmes



Let's connect

Guillaume Ouellette
Product Manager

The State of Connectivity to Emergency Services

April 2024

Roger C. Lanctot

Presentation to MWC 2023 Las Vegas

Authoritative Semiconductor & Microelectronics Intelligence Platform

Leveraging a unique reverse engineering competency, we reveal innovations in technology products that provide advanced technical and market analysis to organizations that will help guide them to make fact-based technology and intellectual property decisions.



Reverse Engineering

We help decision makers in semiconductor, system, financial, and communication service provider companies make more informed decisions on their product roadmaps with competitive technical intelligence.

We help supply chain and procurement professionals to more effectively negotiate with suppliers and understand true costs of technology products.

We collaborate with IP professionals in global technology companies, licensing entities and legal firms to plan strategies on the assertion/defense of their patent portfolios and licensing negotiations.



Market Analysis

We help business and technology leadership de-risk strategic investment and procurement decisions with visibility into semiconductor manufacturing, silicon demand, and capacity.

We enable more informed decision-making for product and market strategy with curated insight into the performance, application, and functionality across individual SoCs and aggregated across market segments.

This is all supported by building out stronger products from acquisitions (The Linley Group, VLSI and most recently with Strategy Analytics. Read more about Strategy Analytics [here](#)).



Spend Insights

We help competitive analysis teams at OEMs and component suppliers to understand design philosophies and BOM costs through deep-dive hardware teardowns of consumer electronics devices. This is delivered through the world's largest library of independent and nonbiased teardowns.

We help supply chain and category management teams to understand pricing and lead-time trends for the commodity electronic components that engineers are selecting for new designs.

Let's be Honest about Car Connectivity



The Automotive Industry Has Lost Its Way

- A. GM dissolves OnStar as a standalone division
- B. Next Gen eCall still relying on “minimum set of data”
- C. Car makers obsessing over data monetization
- D. Highway fatalities continue to rise
- E. Loss of focus on the original purpose of connectivity – to speed emergency response, save lives






What's at Stake; What is Possible

- A. The focus has shifted to collision avoidance
- B. Auto makers are avoiding the post-crash care discussion – and responsibility
- C. NG eCall shifts to packet-switched IP-based solution – a tiny step in the right direction
- D. Failure to recognize the need for fast-as-possible communication of post-crash status of vehicle and passengers
- E. Immediate data delivery must be the priority

What is Possible

- A. Cars come with faster networks, faster processors, faster wireless connections – but same old eCall
- B. Data transmission must take priority – even if the voice call is preserved
- C. The prioritization of safety is essential
- D. This will define what connectivity actually means to the consumer
- E. Today, connectivity means nothing to the average consumer – it means more to the car maker

What Actually Happens after a Crash?

	Set-up	Scene 1	Scene 2	Scene 3	Scene 4
<p>Imagery Cartoons, animated presentations, or demonstrations that bring storyline to life</p>					
<p>Storyline Overall story that we're bringing to life.</p>	<p>Sophia is a 24-year-old professional that is commuting to work in her new EV.</p>	<p>A tanker truck abruptly changes lanes, collides into Sophia's car, and forces the driver of a rental car to swerve into a nearby lake. The embedded vehicular emergency sensor triggers the submersion escape system in the rental car and instantaneous IP notification for emergency services in all vehicles. ¹</p>	<p>Recognizing that a collision has occurred, all three vehicles automatically flash hazard and other vehicle lights at a faster rate so that other drivers have more time to react, and Emergency Responders can see them.</p>	<p>In parallel, on-coming drivers receive an alert in their in-dash system so that they have even more time to react to the upcoming crash scene.</p>	<p>The nearby E911 center is notified and dispatches a police car, fire truck, and ambulance to the scene.</p>
<p>Value Proposition The value that each company and technology brings to this story.</p>		<ul style="list-style-type: none"> Automated submersion system enables rental car occupants to escape quickly. Instantaneous digital, sensor-driven IP notification enables accurate and prompt implementation of rescue services and start of emergency response. 	<ul style="list-style-type: none"> Conspicuous lighting protects scene, gives other motorists time to slow down and move over, and helps locate vehicles that has left the roadway. 	<ul style="list-style-type: none"> Digital alerts work in tandem with lighting alerts to protect the scene and give motorists time to slow down and move over. 	<ul style="list-style-type: none"> Timely notification of vulnerable vehicle location reduces response time and further collision risk.

1. Separate Journey Maps can be used to capture the stories for the tanker truck and rental car occupants since they unlock different solutions and value propositions. The following scenes will focus on Sophia.

What Data Do First Responders Need?

- A. How many people in the car?
- B. How severe was the crash?
- C. Where is the car? - Upside down? Underwater?
- D. Is the car ICE/EV/PHEV/Hybrid? What are the extraction requirements?
- E. Will other drivers be notified of the crash location?
- F. What are known existing health conditions of driver?
- G. Is the car stolen?

What is the Legacy of Angela Chao?



What about the Francis Scott Key Bridge Collapse?



AWOS: Message in a Bridge Collapse

If 5G isn't about Saving Lives, Why Bother?

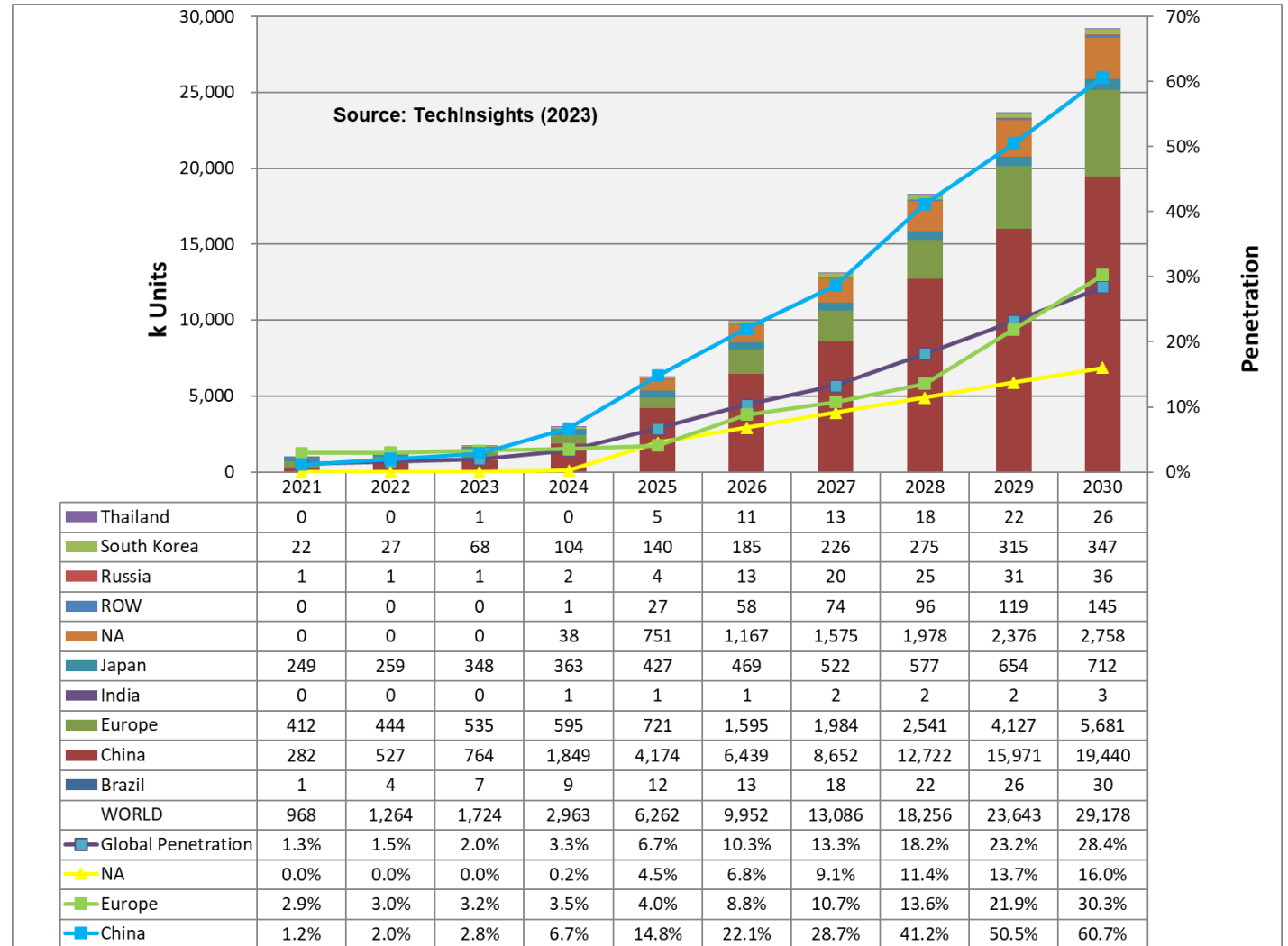
- A. Safety relevance
- B. Future proofed
- C. Enhanced performance for safety, infotainment
- D. Multi-modal communications
- E. Tele-operations
- F. Satellite connectivity?

What do car companies want?

- A. A single global connectivity platform
- B. Best connection at all times
- C. Carrier independence
- D. Integration of vehicular and non-vehicular connectivity
- E. Unlimited automotive wireless data plans
- F. More reliable/comprehensive coverage
- G. Prioritization of automotive (safety) applications
- H. **NONE OF IT HAS ANY VALUE IF IT IS NOT SAVING LIVES!**

V2X Forecast

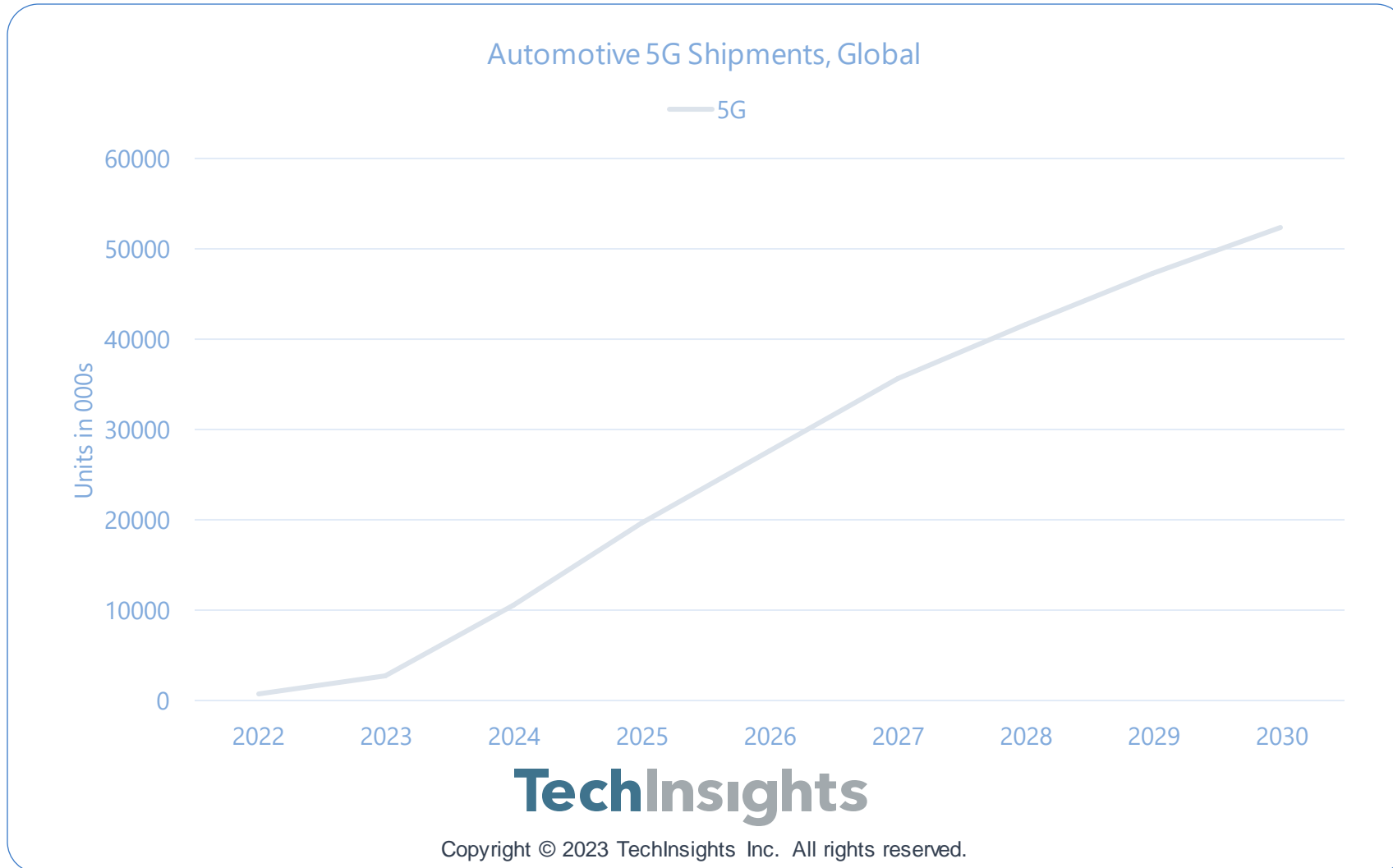
- Forecast without EU or US mandate
 - 968k shipments in 2021 to 29.2M in 2030
 - C-V2X will dominate with 27M units vs. 1.2M DSRC shipments in 2030
 - Mandates in the works but timelines remain in flux
 - Without mandates, V2X will continue to flounder
- 90% of V2X deployments will be in China over the next 3-4 years
- V2X should follow closely with 5G implementation in vehicles – Ford in US?



Automotive Embedded 5G Modem Shipments

Automotive 5G Shipments

TechInsights forecasts that shipments of systems with embedded 5G modems will increase from 562K units in 2022 to an estimated 52.7M units by 2030 at a CAGR of 76.3%.



What has Defined the Car?

1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020 2030 2040



Benz Patent Motorwagen



Ford Model T



1932 Ford with Flathead V8



Volkswagen Beetle

CONNECTIVITY!!!

Bendix Electrojector / Bosch D-Jetronic

ABS Braking

Stability Control



Apple iPhone



Tesla Model S

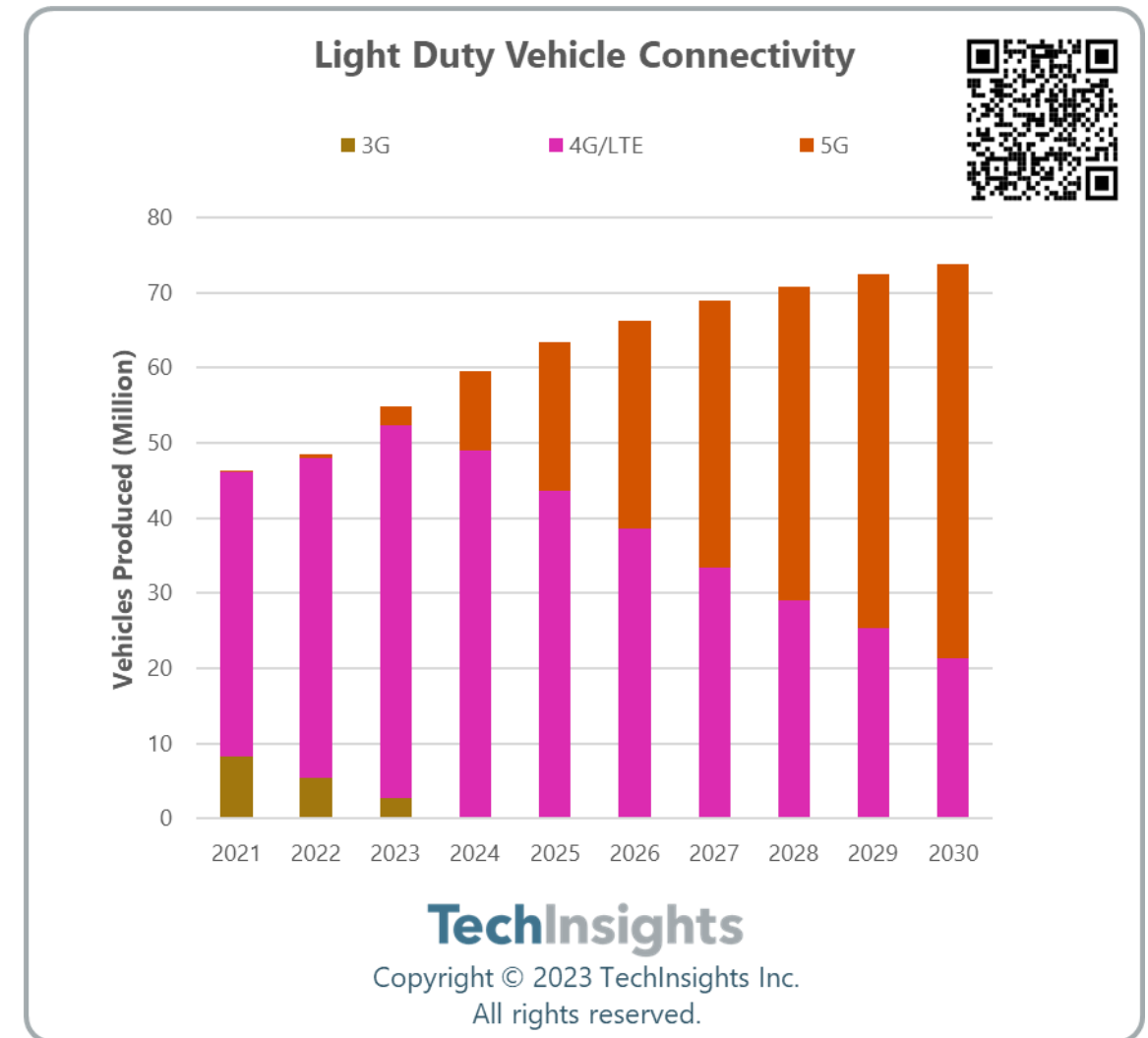
MECHANICAL

ELECTRONIC

SOFTWARE

The Software-Defined Car is Built on Connectivity...

- Well over half of vehicle produced globally are now connected
- There is an increasing need for a **connection mediation gateway** capable of managing connectivity based on:
 - **Type**
 - Wi-Fi, LTE/5G, Satellite (LEO or GEO)
 - **Application**
 - Safety, streaming...
 - **Availability/Quality of signal**
 - Intermittent connectivity is a big problem for data uploads/downloads to vehicles in motion
 - **Cost**
 - Do I need this data transfer **now**? Or can it wait and be cheaper later on?



Source: [Automotive Infotainment & Telematics – Systems & Features Q3 2023](#)

Connectivity Means Safety

- A. It is collision avoidance
- B. It is emergency response to collisions
- C. A car crash represents: the LOWEST point of customer satisfaction & the HIGHEST point of customer defection
- D. What is the value of elaborate sensor portfolios and connectivity if we do not capture and transmit the data?
- E. Data matters; Data saves lives

Any Questions?

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Future Meetings

Date	Proposed Topic
May 2, 2024	Emergency Vehicle Crashes
June 6, 2024	On-Board Digital Alerting
July 11, 2024	Instantaneous 9-1-1 Notification and Computer-Aided Dispatch
August 1, 2024	Post 9-1-1 Computer-Aided Dispatch
September 5, 2024	Real-Time Crash Identification and Data Analytics

*

* Will define and kick-off a project in this timeframe

Connected Safety Birds of a Feather Working Group

All Members Meeting
April 17, 2024

More Information

- COVESA Connected Safety Boaf wiki page



<https://wiki.covesa.global/display/WIK4/Connected+Safety+Birds+of+a+Feather>

- Register at following link to join mailing list:



<https://docs.google.com/forms/d/12jd9LGtOkQXjeiably2pdAli9RD1DBqJQxvGiKDSDNo/edit>