

# Key Success Requirements For In-Vehicle Push to Talk Communications Solutions

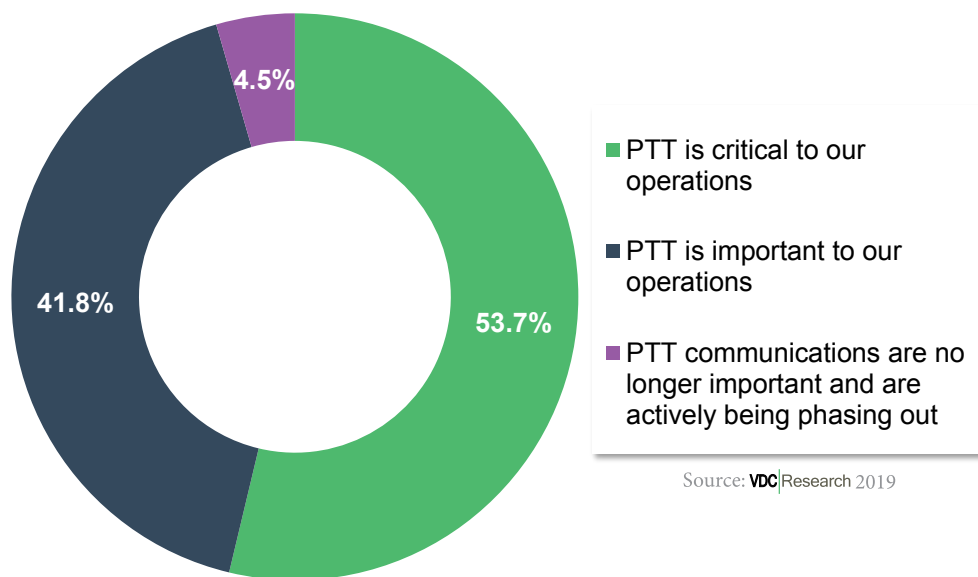


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By David Krebs, Executive Vice President

# INTRODUCTION

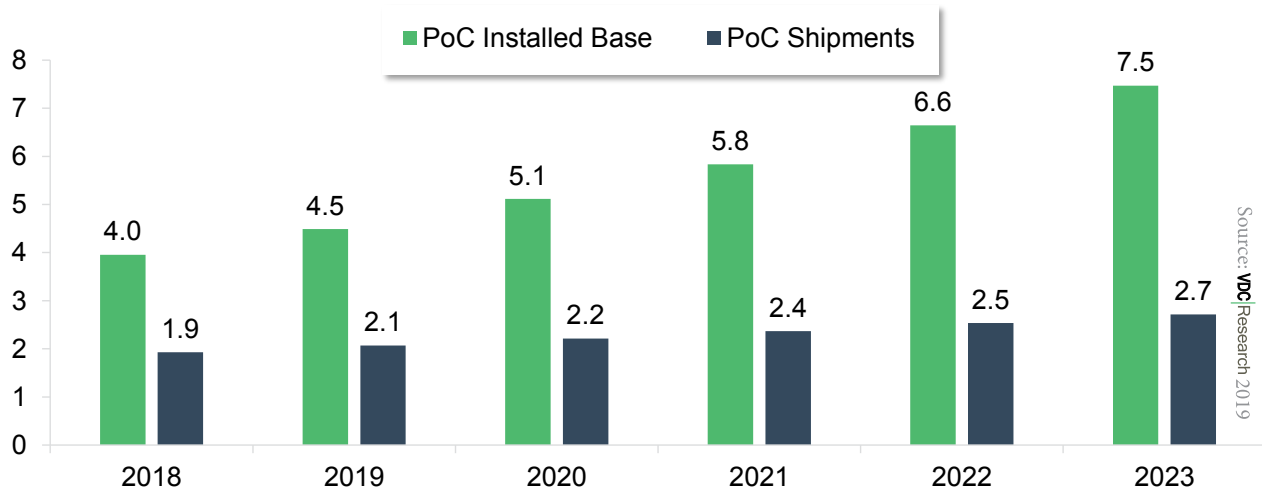
Push to talk (PTT) communications solutions have been ubiquitous among mission and business critical mobile frontline workers with the technology first introduced in the 1930s. From police officers to construction workers and from customer service agents to hospitality coordinators, the benefits provided by instant one-to-one and one-to-many communications represent a vital and irreplaceable mode of communication. Today, PTT communication is primarily supported over private LMR (Land Mobile Radio) networks. Although PTT solutions over public commercial cellular networks have been available since 1996, thanks to the robustness, reliability, and reach of LMR solutions, these continue to represent the primary network for mission critical communications, in particular among first responders. However, with the rapid pace of development of broadband wireless networks and the massive proliferation of smart mobile devices, broader opportunities for PTT over cellular (PoC) solutions are rapidly emerging.

*Exhibit 1: PTT Communications Integrated with Critical Workflows*  
Source: VDC Research PoC Decision Maker Survey (n=118)



With the rapid pace of development of wireless networks and the massive proliferation of smart mobile devices, opportunities for PoC solutions are emerging in business-critical and operations-critical use cases. One of biggest drivers we have seen behind this PoC resurgence is LTE and the fact that networks can handle the throughput while providing a good suite of features/high quality voice. This has resulted in carrier organizations getting more serious about targeting PoC solutions to the commercial market. Moreover, many organizations in both the public and private sectors are faced with the growing decision of continuing to invest in maintaining legacy LMR infrastructure or offset those spiraling costs and migrate critical PTT communications to alternative cellular-based solutions. In fact, VDC Research forecasts the US population of PoC users to grow from 4.5 million in 2019 to 7.5 million by 2023, a CAGR (compound annual growth rate) of 13.6%.

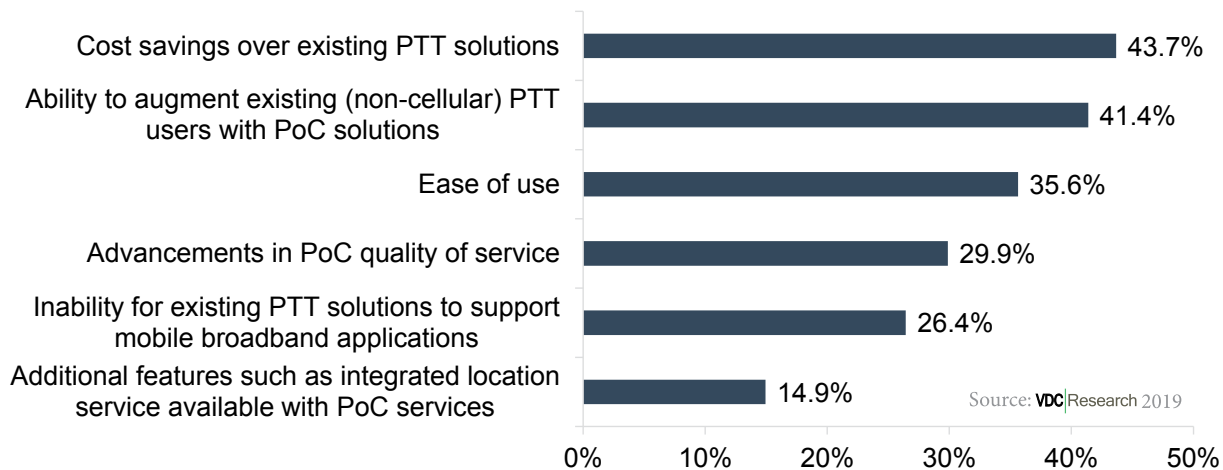
Exhibit 2: PoC Installed Base and Annual Device Shipments (Millions)  
Source: VDC Research Group



## The PTT over Cellular (PoC) Opportunity

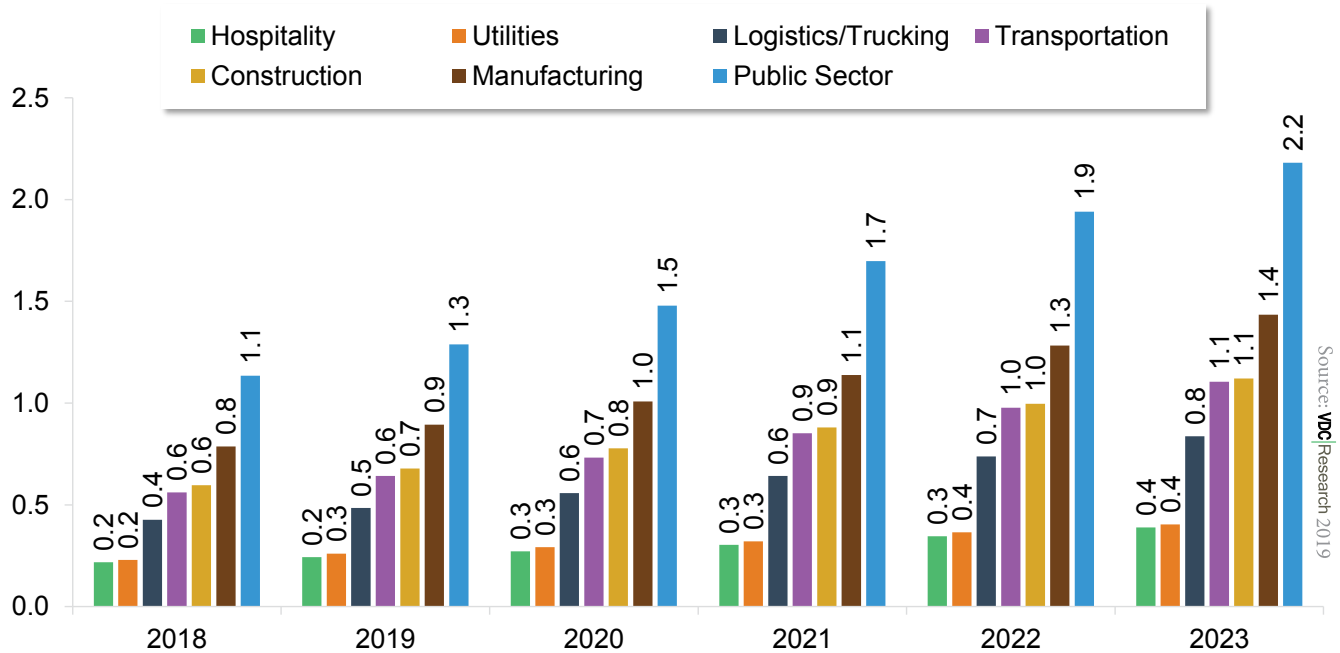
Demand for PoC solutions cuts across virtually any industry with a mobile workforce. Adoption spans existing LMR end users looking to either augment or displace their LMR solutions and organizations looking to roll out PTT communications for the first time. Among current LMR end users, a consistent theme in our research was the spiraling cost of maintaining legacy LMR network infrastructure in addition to the already high costs of acquiring radios (which range in price from several hundred to several thousand USD per unit). In fact, according to research conducted among PTT investment decision makers, the leading PoC investment driver is “cost savings over existing PTT solutions.”

Exhibit 3: Leading PoC Investment Drivers  
Source: VDC Research PTT Decision Maker Survey (n=118)



With the availability of viable carrier dependent and OTT solutions and demand for integration of PTT into modern workflows growing, many organizations are rethinking their LMR investment strategies and are opting to either augment existing LMR users with PoC solutions or to completely replace their LMR infrastructure with PoC solutions. According to our research, the two leading factors driving PoC investments include cost savings over existing PTT solutions and the ability to augment existing PTT users with PoC solutions.

Exhibit 4: U.S. PoC Market Volume (No. of Users (Mn)), By Industry  
 Source: VDC Research Group



Source: VDC Research 2019

Demand for PoC solutions by industry sector spans trucking and logistics, utilities, hospitality and public sector organizations. Opportunities are greatest among organizations with mobile workforces often broadly distributed in the field who are leveraging PTT communications to improve productivity, enhance collaboration and create safer work environments. Of the 4+ million PoC end users in the United States, the public sector represents the single largest PoC user segment today, followed by manufacturing, construction and transportation service organizations. Strong and consistent growth is projected across all industry and user segments.

Within the public safety market in the US, FirstNet activity is also a catalyst for PoC adoption among primary and extended primary users. While police officers will continue to rely on the radios for communications support, others in public safety are leveraging PoC solutions to consolidate the devices they need to carry and as a means to directly communicate with first responders carrying traditional LMR radios. In addition, extended primary users including hospitals and EMTs, utilities organizations and others are similarly adopting PoC solutions to streamline communications solutions.

FirstNet will cause the public safety sector to consider PoC in a more strategic way because of the requirement to have band 14 compatible devices. Verizon Wireless and AT&T are the leading cellular service providers supporting the Public Safety and First Responder communities in the US today. Both stand to gain from the shifting communications requirements among these users. While Verizon has historically lead the Public Safety market in the US, with FirstNet AT&T has significantly enhanced its profile.

Public Safety – Primary Users		Public Safety – Extended Primary Users	
Target Segments	Police, Fire and Ambulance/EMT	Target Segments	Utilities, Removal Services, School Operations (Buses)
Key Trends	Augmentation of existing LMR public safety users. Device consolidation among personnel with critical communications requirements (detectives; undercover police; narcotics; battalion chiefs; etc.).	Key Trends	High costs of maintaining LMR infrastructure driving replacement with PoC. Broad coverage area requirements more suitable to PoC. Communications interface with public safety LMR for common platform.
Transportation/Trucking/Delivery		Construction Services	
Target Segments	Courier Services, LTL & TL Trucking, Urban Transit	Target Segments	Road Repair, Cement Delivery, Construction Operations
Key Trends	Need for greater operational visibility. Liability involved with contacting their drivers via a two-way radio or voice phone. Unsafe method of employee communication, and the ideal implementation would be a PoC-enabled in-vehicle device that removes all the clutter from the cabin and maintains the same ease of use/feeling as an LMR device	Key Trends	Workforce and materials coordination. Group communication.

A good proxy for market potential – in particular for in-vehicle PoC devices – is the total volume of commercial and public sector fleets in use. VDC Research estimates that almost 24 million vehicles – including automobiles, trucks and buses – are currently in use (Note: This includes approximately 10 million owner-operator trucks). Of the 24 million, approximately 17% - or 4 million – are public sector vehicles and the balance spanning various commercial market segments.

*Exhibit 5: Automobile Fleets: US Fleet Sizes  
(Source: US DOT & VDC Research)*

	Total Vehicles (In '000)
Business	613
Government	1,236
Utilities	317
Police	441
Taxi	135
Rental	1,820
<b>Total (&gt;15 Vehicles In Fleet)</b>	<b>4,562</b>
Total (4-14 Vehicles In Fleet)	975
<b>Total Automobiles</b>	<b>5,537</b>

*Exhibit 6: Truck Fleets: US Fleet Sizes  
(Source: US DOT & VDC Research)*

	Total Vehicles (In '000)
Business	2,564
Government	1,898
Utilities	498
Other	77
Rental	496
<b>Total (&gt;15 Vehicles In Fleet)</b>	<b>5,533</b>
Total (4-14 Vehicles In Fleet)	2,053
Total (<4 Vehicles In Fleet)	10,000
<b>Total Trucks</b>	<b>17,586</b>

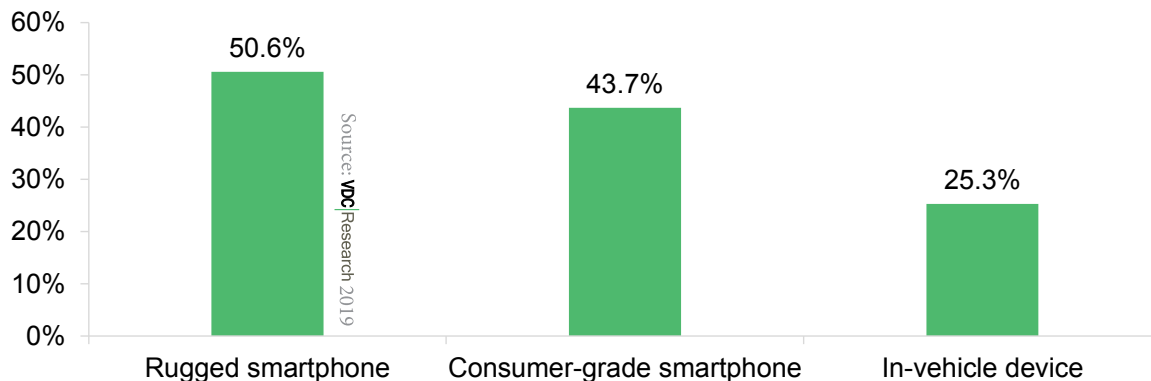
*Exhibit 7: Bus Fleets: US Fleet Sizes  
(Source: US DOT & VDC Research)*

	Total Vehicles (In '000)
Education	480
Transit	140
Motor Coach	35
<b>Total Buses</b>	<b>655</b>

## PoC Communication Requirements and the In-Vehicle PoC Solution Value Proposition

Many existing and target PoC end users work in the field spending a large portion of their shift in a vehicle. These represent anyone from school bus drivers to utilities service technicians and waste management workers. Although smartphones and other mobile device form factors represent the primary device type supporting PoC communications, demand for in-vehicle solutions is growing. This is confirmed by our research with one in four respondents opting for in-vehicle solutions as their preferred PTT communications form factor.

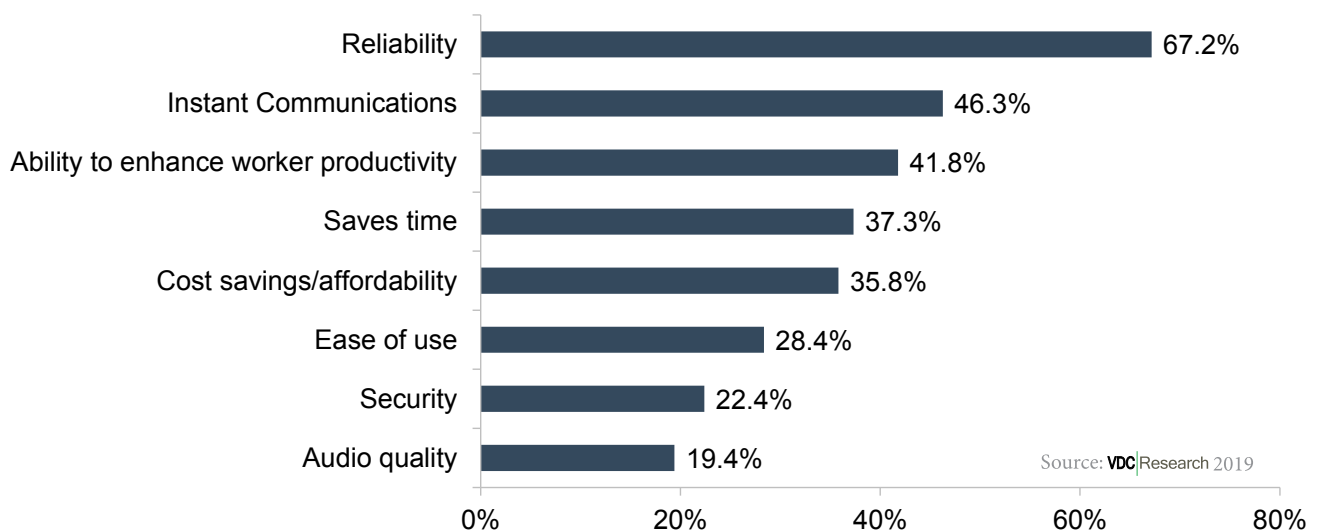
*Exhibit 8: Device Types Used/Plan to Use to Support PoC Communications  
Source: VDC Research PTT Decision Maker Survey (n=118)*



Considering that most PTT users spend the majority of their day in a vehicle, dedicated in-vehicle PoC solutions offer some distinct advantages over smartphones or other mobile devices and address many of PTT solution's current pain points. These include:

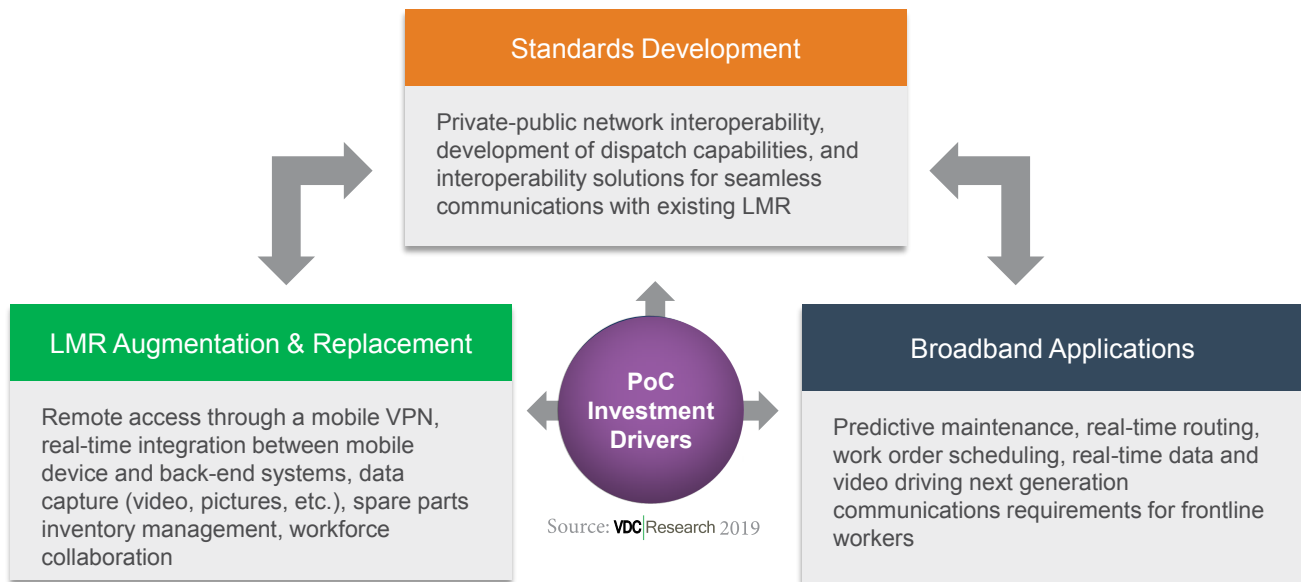
- > **Superior user experience.** In comparison to a docked or cradled phone, dedicated in-vehicle PoC devices can offer substantial improvements to the user experience. From the large user control buttons to the superior audio experience, addressing many of the limitations of operating a cradled phone.
- > **Audio quality and connection reliability.** These represent two of the top three workforce communication solution selection criteria. In-vehicle solutions are designed specifically to operate in environments with significant ambient noise such as in a vehicle cab and more effectively eliminate and interference or echoing common with mobile PoC devices. In addition, the external RF and GPS antennas enhance coverage and provide more accurate location data.
- > **Worker safety.** A critical issue for any technology deployed to frontline mobile workers is its impact on worker safety. Especially for workers operating vehicles, minimizing disruption is critical. Permanently mounted in-vehicle solutions offer hands-free operations and large, easy to reach buttons to operate without sacrificing line of sight.
- > **Modern mobile platform.** In comparison to existing in-vehicle LMR solutions, in-vehicle PoC solutions leverage 3G and LTE network connectivity for greater coverage. In addition, most are based on modern mobile platforms such as Android and support a variety of workforce and fleet management applications.

*Exhibit 9: Leading Considerations When Selecting a Communication Tools for Workers*  
Source: VDC Research PTT Decision Maker Survey (n=118)



## PoC Solution Requirements and Investment Drivers

When it comes to PoC solutions in the market today, there is a number of different requirements and investment drivers to consider for organizations evaluating/implementing these solutions. While not every PoC solution is created equally, the baseline requirements for an efficient PoC solution include things like quality of service (QoS), speed/setup time, scalability, low latency and cost of ownership. These requirements are critical for any organization implementing a PoC solution within their operations today, and need to be addressed in every scenario/use case where a PoC solution can be applied.



PTT services can be broken down into 3 different customer segments – business critical, operations/process critical, and mission critical. Business critical PTT refers to customers typically found in business/enterprise communities. This could be anyone in an administrative/management type role that has access to a smart device/OTT PTT application, and needs to be able to communicate with mobile/field workers on LMR channels. Operations/process-critical refers to users of PTT in environments like transportation/logistics, utilities, construction, hospitality, facilities management, etc. These users typically leverage PTT as a means of to organize workflows/processes for employees as well as ensure worker safety. Lastly, mission-critical PTT is typically used in public safety sectors with first responders being the primary user. The primary form of workforce communication in a mission-critical environment remains LMR systems, and this will continue to be the case until the 3GPP standards around MCPTT are finalized and public safety users become comfortable using this type of solution.





## CUSTOMER PROFILE: DARTS Transit

DARTS is a door-to-door shared ride transportation service employing wheelchair accessible buses, vans, MVs and contracted taxi services in Hamilton, Canada. DARTS service is available to persons with disabilities who are unable to access regular transit service.

Each day DARTS and its subcontractors provide rides for 3,000 to 4,000 passengers with the commitment of getting all passengers to their desired destination within one hour. Optimizing routes and managing the complexities of cancellations, inclement weather conditions and other operational challenges prompted the organization to first digitize their scheduling and dispatch operations with cellular connected “consumer-grade” tablets and a separate two-way radio mounted into the vehicle.

Over time clear deficiencies of this approach emerged. One of the biggest issues was the inability for the tablets to hold up over the 12 hour shifts. Cracked displays, damaged ports and rapid battery degradation in addition to the tablets not holding up to the extreme temperatures necessitated a growing pool of spares and a growing maintenance and repair budget. In addition, the system devised to check the tablets in and out at the beginning and end of a drivers shift added workflow challenges, especially if the tablets did not charge properly overnight. Finally, mounting of the tablets and radios in the cab of the vehicle created a crowded work environment creating potential distractions for the driver.

With the escalating costs supporting their initial solution and its disruptive impact on operations DARTS elected to replace both the tablets and radios with the vehicle mounted UV350 from Siyata Mobile. According to DARTS Transit decision makers involved, the benefits of the transition have been immediate and significant. Key benefits include:

- 1. Two for one device replacement.** The UV350 supports both PTT communication and the dispatch application and dynamic routing solution from Trapeze that previously ran on the tablet – eliminating the need for a separate radio and tablet and freeing up considerable space in the driver’s cab.
- 2. Driver safety.** The hands free PTT communication capabilities of the UV350 provide a significant driver safety advantage for DARTS drivers over their previous handheld radios.
- 3. Operational efficiencies.** Installing the UV350 directly addressed many of the operational challenges exposed with the prior solution. Permanently mounting the UV350 eliminates the damages to the ports from consistently mounting and unmounting the tablets. In addition, the display damage caused by accidental drops to the tablet have been eliminated by the UV350.

# ABOUT SIYATA MOBILE



**Company Overview** – Siyata Mobile, Inc., headquartered in Montreal, Canada, is a global developer, designer and supplier of cellular communication systems for primarily enterprise customers in the transportation sector. Within transportation, they specialize in providing fleets, trucks, buses, etc. with a number of different connected vehicle devices. Outside of transportation, they cater their products to verticals that include waste management, Oil & Gas, and public safety.

**Go-to-Market Trends** – In terms of GTM strategy for Siyata, they sell their products and services through carrier partners, directly to end users as well as through partners. Siyata has entered into carrier relationships with AT&T to support its recently introduced in-vehicle LTE PTT solutions. Siyata recently received FirstNet certification from AT&T for its UV350 vehicle mounted device. FirstNet is built with AT&T in a public-private partnership with the First Responder Network Authority (FirstNet Authority) – an independent agency within the federal government. It is designed for first responders and those critical to their emergency response and strategically positions AT&T’s communications solutions among primary and extended primary first responders. Siyata expects to sign on additional carriers in North America through the end of 2019, significantly expanding its market reach.

**Product Portfolio: UV350** – Siyata Mobile recently launched the UV350, a uniquely differentiated LTE PTT solution designed for in-vehicle use among field-based frontline mobile workers. Siyata Mobile designed the UV350 to address many of the challenges workers have today with their current in-vehicle communications solutions. Compared with current in-vehicle communications solutions – including phones with 3rd party car-mount kits, tablets mounted in vehicles or LMR radios – the UV350 offers some distinct advantages. The table below illustrates some of the key benefits of the UV350 when compared to alternative in-vehicle communications options.

	UV350	Phone with 3 <sup>rd</sup> Party Car Kit	Tablet Mounted in Vehicle	LMR Radio
Superior in-vehicle audio quality	✓			✓
External antennas providing superior cellular receptivity and GPS location	✓			
Dedicated easy to reach and use buttons designed for safe driver operation	✓			✓
Designed to withstand the environmental rigors of in-vehicle conditions (temperature extremes; vibration; excessive dirt and dust)	✓			✓
Fully integrated solution designed provide long lifecycle and low cost of ownership	✓			
Always-on and ready for use	✓			✓
Superior LTE and 3G Network Coverage	✓	✓	✓	
Support Modern Mobile Apps (AVL; Dispatch; Navigation; etc.)	✓	✓	✓	
Serve as Modem for IoT Devices and WiFi Hotspot	✓	✓	✓	

**Key Differentiators/Outlook** – Siyata Mobile’s core value proposition is delivering communication solutions for today’s business and mission critical workforce. This includes their ability to do audio in a vehicle in a very loud, clear, and reliable manner and addressing many of the other requirements – from driver safety to total cost of ownership – for this unique audience. While the majority of manufacturers struggle to get audio optimized in a vehicle, Siyata has a real differentiation in this area where their solution has clear audio quality and is the only LTE in-vehicle device (Uniden UV350) compatible with FirstNet frequencies. Moving forward for Siyata’s core market focus for the UV350 will be any sector with fleet operations which in the United States alone represents over 24 million vehicles. This includes transportation/logistics, oil and gas, public sector/public safety and other sectors with commercial fleet operations. Public Safety represents a huge opportunity for Siyata not only with FirstNet, but also with secondary level personnel in town construction, waste management, and school/administrative roles.

# ABOUT THE AUTHOR



David Krebs

**David Krebs** has more than 10 years of experience covering the markets for enterprise and government mobility solutions, wireless data communication technologies, and automatic data-capture research and consulting. David focuses on identifying the key drivers and enablers in the adoption of mobile and wireless solutions among mobile workers in the extended enterprise. David's consulting and strategic advisory experience is far reaching and includes technology and market opportunity assessments, technology penetration and adoption enablers, partner profiling and development, new product development, and M&A due diligence support. David has extensive primary market research management and execution experience to support market sizing and forecasting, total cost of ownership (TCO), comparative product performance evaluation, competitive benchmarking, and end-user requirements analysis. David is a graduate of Boston University (BSBA).

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# ABOUT VDC RESEARCH

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