White Paper
The Benefits of Standardizing on Rugged Tablet PCs for Public Sector Mobility
The Tablet PC in Public Sector

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Introduction

The following white paper is designed to explore the many benefits of standardizing through mobile computing technologies in the public sector. Rugged tablet PCs provide a lightweight and durable alternative to the traditional laptop. With all of the functionalities of a PC, including the complete Windows operating system, rugged tablets are the ultimate solution for firefighters, law enforcement officers and public works professionals. Those who work in the public sector often risk life and limb to protect our communities by preventing accidents, illnesses and catastrophic events. It’s essential to their safety, as well as the safety of the communities they serve, to arm these brave men and women with the tools they need to work safely and effectively.

Mobile Computing in the Public Sector

The demand for mobile computing technology is growing exponentially across all industries and the public sector is no exception. Advancements in technology, from smart phones to laptops to mobile computing devices, have made it possible to access information from even the most remote locations.

For many working in the public sector, real time access to information and communications is essential to not only their job responsibilities but to their safety. Having access to a computing device in the field enables these professionals to work more efficiently and remain in contact from even the most remote of locations.

The launch of the Apple iPad in 2009 breathed new life into the tablet PC industry, making this technology available to the average consumer. Though the iPad is one of the leaders in the tablet PC market it is simply not designed to withstand the harsh environments necessary to serve those working in the field.
Rugged tablet devices facilitate data and communication transfers from anywhere. Today’s leading rugged tablets combine the conveniences of a touch screen with a built in numeric keypad for fast and easy data entry. These sleek, compact and durable mobile computing devices provide all of the functionalities of a PC with the capability of withstanding even the harshest of environments.

**What Sets a Rugged Tablet PC Apart?**

For a tablet PC to be considered truly rugged it must comply with some standard or certification. Unfortunately there is no official industry standard; the U.S. military did however establish a baseline standard to which many in the rugged tablet industry comply.

The MIL-STD-810F standards specify a variety of tests which manufacturers can use to prove that their rugged PCs, including tablets, can in fact hold up in harsh conditions. These tests are designed to determine if a PC can withstand exposure to humidity, high and low temperatures, solar radiation, shock, pressure and harsh environmental conditions including: ice, freezing rain, rain, sand and dust. The tablets that pass these rigorous tests are truly equipped to perform in any environment.

**Advantages of Rugged Tablet PCs**

The average annual failure rate for non-ruggedized handheld computers is 38%, compared to just 11% for ruggedized models. Organizations typically plan to keep mobile computers for enterprise operations for 3.5 years, but less than one in five non-ruggedized models will survive that long.

Unlike consumer-grade tablet PCs, rugged tablet PCs are built to take the abuse that life in the field can dish out. This means longer equipment lifespan, lower long term costs, and reduced downtime. Rugged mobile PCs can have longer warranty periods and longer replacement cycles versus consumer-grade notebooks and tablets.
Durability:
A VDC Research study indicates average failure rates for commercial-grade tablet PCs are 16.7% as opposed to the 8.5% failure rate for rugged tablet PCs (source: VDC Research, page 29 for small form factor).

Size & Weight:
In many field applications, space is at a premium. A large, bulky, fully ruggedized laptop takes up volume in gear bags and storage compartments that could be used for other equipment. They can weigh up to 9 pounds, and can cause fatigue when carried around all day. A rugged tablet PC takes up less space and is lighter.

Mini rugged tablet PCs can be as small as 8.8” x 1.55” x 5.7” and range in weight from approximately 2.5 pounds to 4.5 pounds, depending on configuration and battery size. Larger rugged tablet PCs can be up to 12” wide and 3.5 pounds to over 5 pounds.

Rugged Tablets and the Public Sector
The technical capacity of rugged tablet PCs coupled with their unmatched durability make them the ideal tool for mission critical computing; both at the office and in the field. Professionals working in the public sector not only need access to intelligence remotely they often need to capture information. There are several software applications, available for rugged tablet PCs, designed to facilitate effective and safe work flows in virtually every area of the public sector.

Public Sector Tablet PC Applications
With applications specifically designed to serve the public sector including law enforcement, emergency management, health inspections and more; MobileDemand is revolutionizing the public works industry.

Law Enforcement
The law enforcement officials who work to protect our streets and serve our communities are faced with unpredictable and dangerous situations on a daily basis. Having accurate intelligence is critical to their success in the field as well as their safety.
Rugged tablet PCs arm police and law enforcement officials with the tools and information they need to work smarter, faster and safer.

Rugged tablet law enforcement applications are designed to streamline the many responsibilities law enforcement officials face while facilitating instantaneous data transfer and communication via the World Wide Web.

Law Enforcement Application Functionalities include:
- Accident and crime scene investigation
- Personnel tracking and deployment
- Field command center operations
- Security and crowd control
- Access control
- Field interviews
- Asset tracking
- Situational analysis

From crime scene and accident investigations to SWAT operations these applications provide a comprehensive mobile computing solution for law enforcement officers in the line of duty.

**Public Safety**

Whether it’s a natural disaster or a terrorist threat public safety officers are often first on the scene; averting dangerous situations and protecting the public interest. It’s extremely important that these men and women are equipped with the tools and information they need to act both quickly and cautiously. The portability and functionality of a rugged tablet PC arms our public safety workers with the insight and information they need to do just that.

Rugged tablet public safety applications provide a complete suite of software capabilities designed to assist these brave men and women in the unpredictable situation they face daily.
Public Safety Application Functionalities Include:

• Multi-agency operations
• Hazardous materials
• Public safety threats
• Emergency response
• Border security
• Drug enforcement
• Natural disaster response
• Accident and crime scene investigation
• Personnel tracking and deployment
• Security and crowd control
• Field interviews and situational analysis

Rugged tablet PCs enable public safety officials to access to the information they need to work effectively and react accordingly in real-world field conditions.

**Fire Investigation**

Fire investigators sort through the aftermath of devastating fires in hopes of providing victims with the answers they so desperately need. Making sense out of the rubble often requires meticulous and rapid data collection. Rugged tablet fire investigation applications help these public service professionals accurately and efficiently capture mission critical information. The multifaceted capabilities of these applications also enable investigators to comply with department standards without hindering their ability to perform.

Because rugged tablet PCs are equipped to withstand the harsh conditions fire investigators face, even immediately following a fire, these tablets equip investigators with the resources they need to be successful.

Fire Investigation Application Functionalities include:

• Arson, insurance investigations
• Evidence documentation
• Legal approvals and documentation (onsite authority)
• Photo evidence, cataloging
• Documenting measurements, meter readings, product data
• Downloading structure blueprints, electrical/mechanical schematics
• Evidence chain of custody tracking
• Onsite depositions
• Insurance documentation

In addition rugged tablets facilitate wireless data transfers enabling investigators to access and share information in real time. From arson and insurance investigations to statement gathering, rugged tablet fire investigation applications provide investigators with the resources they need.

**Military and Defense**

Military and defense personnel often face extreme environments and harsh conditions. It’s extremely important for these brave men and women to have access to secure intelligence while in some of the world’s most remote and dangerous locations. Not only does this facilitate successful operations, it ensures their safety. Rugged tablet PCs provide a durable and secure mobile computing solution for military and defense operations.

Military and Defense rugged tablet applications have truly revolutionized the way military and defense personnel approach mission critical work. From data collection to equipment tracking to deployment, these applications make it possible to access and analyze information in order to make logistical, real time decisions.

Military and Defense Application Functionalities Include:
• Field operations and logistics
• Quartermaster, warehousing
• Hazardous materials cleanup and inspection
• Emergency medical response
• Personnel tracking and deployment
• Asset tracking and deployment
• Security and crowd control
• Field interviews and situational analysis
• Mapping and plotting
• Evidence and record keeping

Military and defense personal put their lives on the line a daily basis. By standardizing field operations rugged tablets PCs equip these men and women with the intelligence they need to execute their missions effectively while ensuring their safety.

Public Inspection

Public inspections are designed and executed to ensure public safety. From restaurant inspections to building code and fire safety inspections, government service personal work diligently to gather critical information. This information is then analyzed to protect the public from threats of neglect, violence and other catastrophic events.

Public inspection applications for rugged tablet PCs make it possible for inspectors to record detailed findings and gather information in multimedia formats. Voice recordings, photos and data and can be gathered, stored and shared, all while the inspector is in the field.

Public Inspection Application Functionalities Include:
• Fire safety
• Building codes
• Health & human services
• Restaurant and food inspection
• Environmental protection
• Transportation infrastructure
• Energy and utilities
• Agriculture

The real time data capture functionality of a rugged tablet coupled with capabilities of the leading public inspection applications make it the ideal mobile computing solution for public safety inspectors.
Total cost of ownership

Now let’s look at how the total cost of ownership compares between ruggedized and non-ruggedized devices.

Upfront costs of hardware adoption accounts for only 16% of mobile computer TCO. TCO analysis often misses the mark by not considering “soft costs” and variables that impact user productivity. Other soft costs include training and operational elements (see chart below).

Soft costs such as support time, lost productivity, and device management account for a much higher percentage of TCO than hard costs. They also vary considerably by device type, accounting for about 65% of the TCO for fully rugged devices, 87% for consumer-grade devices.

The report’s major conclusions state that TCO analysis must evaluate upfront costs, long-term costs, and soft costs. Average annual TCO for a rugged device (large form, i.e., notebooks and large tablet PCs) is $2,814. The TCO for a non-rugged device is $6,598. In a 5-year period, the average is $14,071 to $34,788, rugged vs. non-rugged. In both cases, that’s a 40.4% difference in favor of rugged tablet PCs.
The savings on small form factor devices are even greater at 44%. A rugged small form factor device’s annual TCO of $2,356 versus $3,568 for non-rugged, and the 5-year TCO is $11,778 to $17,841.

Additional research shows:

Lost productivity is responsible for nearly half of the TCO for mobile devices, with a variety of other factors accounting for the other half. Some of the differences between ruggedized and non-ruggedized devices that have important TCO considerations include software and IT support issues, ease of use, power management, and administrative control.

IT support is considered a soft cost and contributes 26.8% to TCO, which is the second highest category. Soft costs for smartphones and non-ruggedized PDAs average $3,205, nearly double the $1,851 for ruggedized devices.

TCO falls for every level of ruggedness (consumer-grade, durable, semi-rugged, and fully rugged), i.e., fully rugged devices cost the least, while consumer grade PDAs cost the most. The difference can be more than $1,600 per device, per year.
On average, the TCO for rugged computers over three years is 15% lower than that of non-rugged notebooks. This translates to savings of hundreds of dollars per unit.

**Five Year TCO by Form Factor and Key Contributor**

<table>
<thead>
<tr>
<th>Form Factor and Grade</th>
<th>Hard Costs</th>
<th>IT Support</th>
<th>Productivity Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Form Factor - Rugged</td>
<td>27.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Form Factor - Commercial Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Form Factor - Rugged</td>
<td>29.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Form Factor - Commercial Grade</td>
<td></td>
<td>49.8%</td>
<td></td>
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</tbody>
</table>

**Things to Consider**

When deciding on a rugged tablet PC, there are several factors to consider.

**Real Windows:**

Rugged tablet PCs using Microsoft Windows offer real advantages in the form of reduced user training costs and wider availability of applications. End users gain the familiarity and comfort, and IT teams avoid having to support another application or migration path to a different operating system.

Gartner reports on the advantages of using Microsoft Windows: “Gartner recommends that clients deploying applications on a ruggedized device primarily consider only Windows platforms to reduce project risk ... Other options represent a high degree of risk for buyers because of the small number of vendors producing those products.”
Built in components:
Add on peripherals such as RFID readers, bar code scanners, and GPS receivers can add functionality, but peripherals add additional points of failure and may significantly reduce battery life. Peripherals also increase the risk of downtime and total device failure. In a large organization, managing tablet PCs and their numerous add-ons can be a logistical and inventory management challenge.

Rugged tablet PCs with integrated components mean inventory is easier to manage, repairs are systemized and centralized, and application development is streamlined.

Implementing Rugged Tablet PCs
The value-add of a rugged tablet PC is undeniable. The durability and technology available through these compact and portable devices arm those working in the public sector with the resources and information they need to be successful.

We depend on public service professionals to ensure our safety, police our streets, protect our infrastructure and maintain order. These selfless men and women facilitate many of the public services that we take for granted. These versatile devices enable public service professionals to standardize workflows and improve productivity regardless of location or conditions. The state of the art technology made available through rugged tablet devices, and cutting edge software applications, enables them to work smarter, faster and safer.

If you are looking to improve productivity and arm your team with the resources they need to protect and serve, contact MobileDemand at 319.363.4121, or visit www.ruggedtabletpc.com.

About MobileDemand
As a leading provider of rugged tablet PCs, MobileDemand serves the men and women of the public sector with mobile computing solutions for mission critical work. Our complete family of xTablet rugged PCs were designed to meet the individual needs of each client we serve. Because we understand that no two customers are exactly alike we developed a host of products that can be customized to serve professionals across all industries and in any environment. Contact us today to learn what sets our complete line of xTablets apart.

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