IMPLEMENTING BUSINESS-CRITICAL MOBILITY SOLUTIONS

Successfully Minimizing Downtime and Mobile Worker Disruption

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INTRODUCTION

Mobility is transforming organization's operations and represents a crucial channel for interfacing and interacting with customers and employees. Access to increasingly powerful mobile devices, intuitive and immersive applications and robust networks, has significantly changed the way we work. With more than 50% of the workforce mobile – representing 1.7 billion workers – mobile solutions are no longer a luxury but rather a necessity for many of these mobile workers to perform their jobs. It is this intersection between mobile solutions and strategic workflows that we refer to as business-critical mobility. Be it field service technicians, delivery drivers, nurses or first responders, many of these workers depend on reliable access in real-time to critical information at the point of interaction.

However, mobility has also represented a game of compromises, especially with respect to both the performance of the network, the application and the mobile device. Considering the criticality of the workflows supported by many of these enterprise mobile solutions, the impact of failure can be significantly disruptive. In fact, according to research conducted by VDC Research, the consequence of each failure incident can result in over 100 minutes in lost productivity – or 23% of a daily shift. Moreover, these disruptions can have a ripple effect throughout the organizations as others who depend on the outcome are impacted.

The nature of mobile and wireless technologies, and the environments they are used in to support business-critical applications, dictates that failures will occur. The challenge is how prepared organizations are to respond to the outages to minimize the disruption. In that respect a recent SOTI-sponsored survey conducted by VDC Research, among business-critical mobility solution decision makers, revealed some striking results. In fact, according to the research, only one in five organizations claimed to have complete visibility into the performance of mobile solutions used by their frontline mobile workforce. Given the critical nature of mobile solutions for many organizations today, providing support staff with real-time visibility into the performance characteristics of these solutions, and the tools to expeditiously address problems, substantially reduces the disruption caused by poorly performing solutions.

Key research findings include:

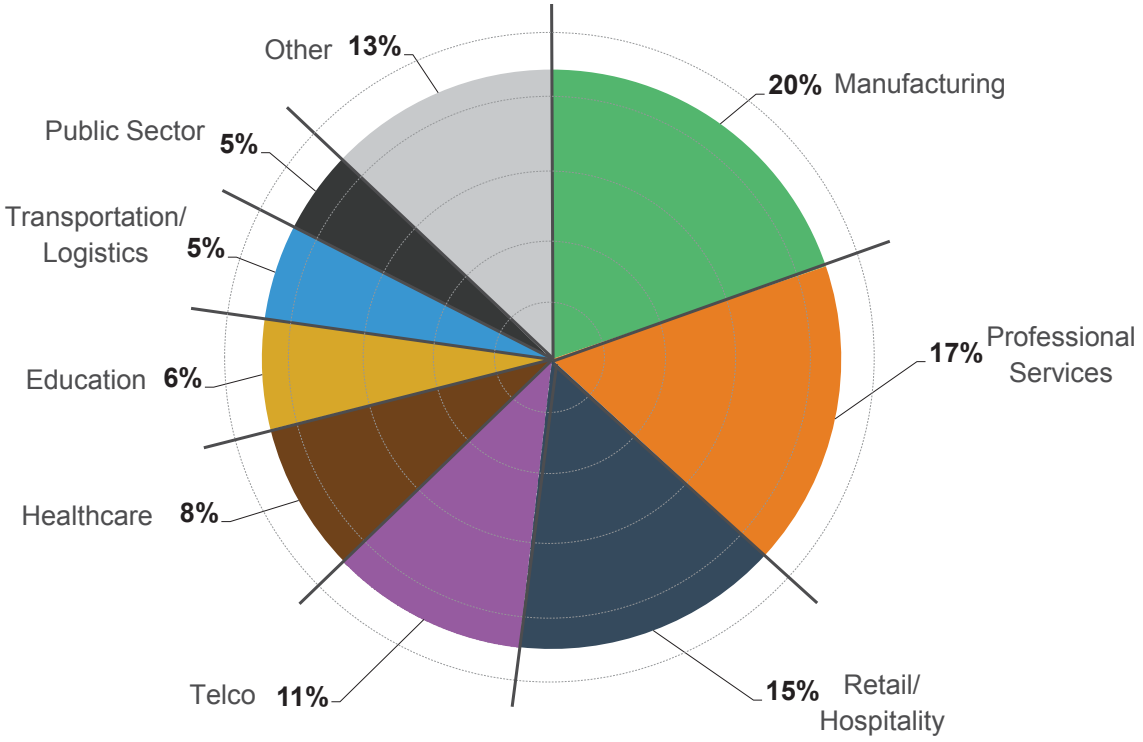
- The requirements for business-critical mobility solutions are substantially stricter than for everyday mobile solutions. Tolerance margins are much narrower thus necessitating solutions that provide comprehensive visibility into mobile device, application and network performance.
- While **improving workforce productivity (36% of respondents)** remains the leading business-critical mobility investment driver, organizations are similarly leveraging these investments to **drive revenues (29%), improve real-time decision-making (27%) and differentiate competitively (26%)**.
- However, when mobile solutions fail they can negatively affect workflows, contributing to a drop in productivity. The three leading causes of mobile failure leading to workflow disruption include network/connectivity (49% of respondents), application performance (41%) and battery life (37%). With each incidence of failure, **workers lose over 100 minutes of productivity**.
- The use of Enterprise Mobility Management/Mobile Device Management (EMM/MDM) solutions vastly reduces the support overhead required for business-critical mobility solutions. Key performance indicators such as ability to remotely diagnose and fix issues, reduction of NTF (no trouble found) and time required to fix issues (including software reload) are all enhanced through EMM/MDM.
- With **mobile applications taking an average of five months and $55K to develop**, organizations are struggling to keep up mobile application demand.
- **Nevertheless, only one in five respondents claim having "complete visibility" into their business-critical mobility solutions**. Although EMM/MDM solutions are widely adopted to support mobile solutions, many organizations fail to fully take advantage of the benefits of these solutions, limiting their ability to quickly diagnose and fix issues.

ABOUT THE RESEARCH: SCOPE AND METHODOLOGY

VDC fielded a global survey among enterprise mobility decision makers spanning multiple industries including retail, manufacturing, transportation/logistics, healthcare, energy, professional services and public sector organizations. VDC Research fielded the survey in September 2018. A total of 400 respondents completed the survey. The respondents all supported significant mobile estates averaging 2,267 devices. The primary objective of the research was to measure the hidden costs of business-critical mobility and to identify the unique requirements among organizations supporting these solutions. The senior-most business and IT leaders completed the survey.

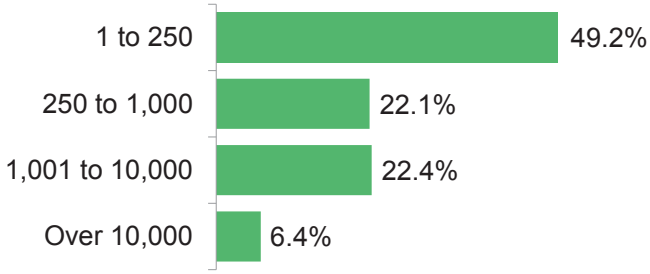
Exhibit 1: Business-Critical Mobility Research: Survey Respondent Demographics

Respondents by Industry

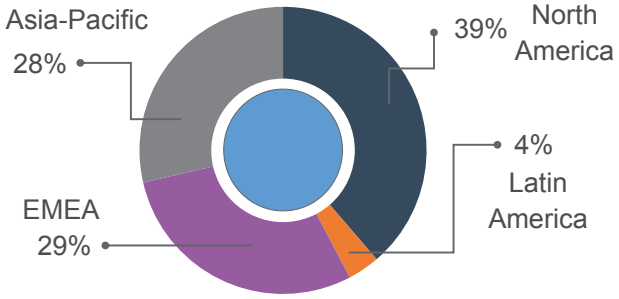


Total Mobile Devices

Average Mobile Devices: 2,267



Respondents by Regional Market



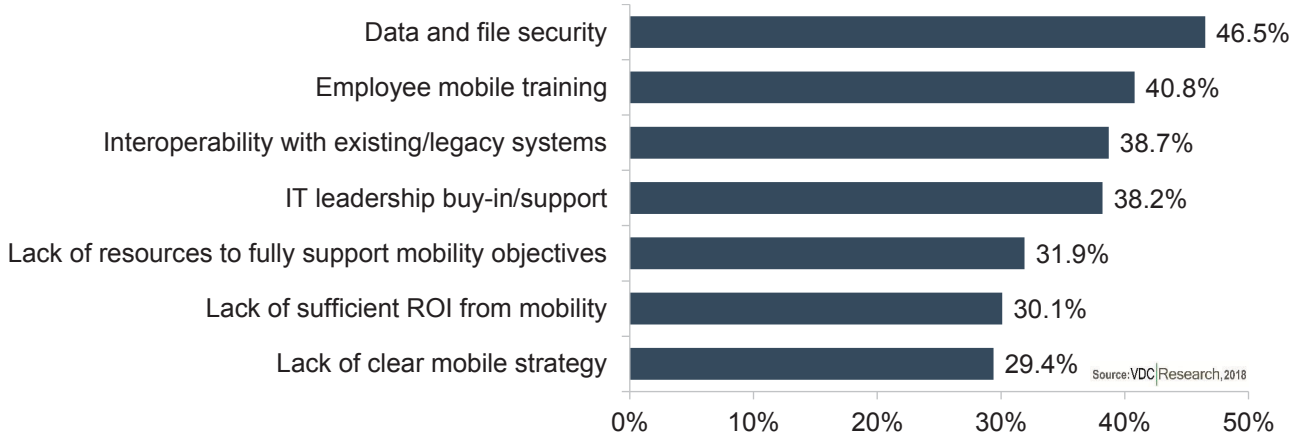
WHAT IS BUSINESS-CRITICAL MOBILITY?

The ubiquity of mobile devices extends well into the enterprise. Be it enterprise issued/corporate liable or personally owned/BYO devices, mobile devices are very much a part of the average worker's daily routine. However, requirements differ significantly, in particular for mobile workers who require access to critical customer or asset information in real-time at the point of interaction. For these workers, reliability of their mobile solutions comes at a premium. These workers are frequently dispatched to remote locations to provide acute care or services, and for many organizations represent their primary connection or interface with customers. Mobile solutions support a variety of applications including dispatching, customer relationship management, asset management, mobile POS, medication administration and warehouse management to name a few. The benefits associated with these investments are equally diverse including increasing workforce performance efficiencies (first time fix rate, for example), increasing sales (for example enabling technicians to cross or up-sell other services), improving decision making speed and scale, and ultimately improving competitive advantage.

Exhibit 2: Leading Business-Critical Mobility Investment Drivers

The support requirements associated with business-critical mobility solutions introduce challenges and complexities. These complexities range from device selection and provisioning to application and security management. Selecting the right support solution partner is critical as they can reduce the cost and complexity of managing and securing mobile deployments while delivering the level of service required for business-critical deployments. One of the clear challenges for many organizations – beyond technical or funding concerns – is the lack of internal resources to fully support their organization's mobility initiatives.

Exhibit 3: Leading Business-Critical Mobility Investment Challenges



Coordination among individuals with network, security, device, application and budgetary responsibilities represents a critical first step any successful mobility initiative must undertake. Included among the most significant mobile investment barriers cited by decision makers are:

- **Security concerns.** A critical building block requirement for any field mobility solution. However, with the growing number of connected endpoints managed by enterprises, the points of vulnerability are only increasing. Almost one in two respondents to our survey admitted being the victim of a recent cyber-attack or data breach. According to respondents, the greatest point of vulnerability are communication protocols, remote access and mobile devices, and connected devices. However, organizations struggle staying current with new threats and developing/maintaining appropriate cybersecurity personnel to effectively address these issues.

- **Wireless coverage issues.** Network coverage is not a given for many mobile workers who operate in remote locations. Designing solutions with this reality is a critical yet often overlooked requirement. Ensuring that applications perform in an offline state in addition to addressing performance and session persistence in areas with limited coverage all need to be taken into consideration to minimize downtime or disruption events.

- **Application performance.** Many applications are not well designed and are very chatty, often making the same service calls repeatedly. While chattiness of applications is not always avoidable, it can be optimized. Leveraging the necessary tools to at first diagnose application performance issues and then addressing them to minimize network congestion is crucial for business-critical mobile solutions. According to VDC's research, application and network performance issues are the top two contributors driving help desk calls and creating trouble tickets by mobile workforces.

- **Project complexity and support infrastructure.** Knitting together the key team members to effectively address an organization's mobility requirements is challenging in that it spans multiple functional departments and points of influence, including, for example, network, application, security and finance. In addition, making the business case around the benefits of mobile investments can be less tangible, especially when measuring outcomes such as the quality of an end user experience or the impact on customer experience and service.

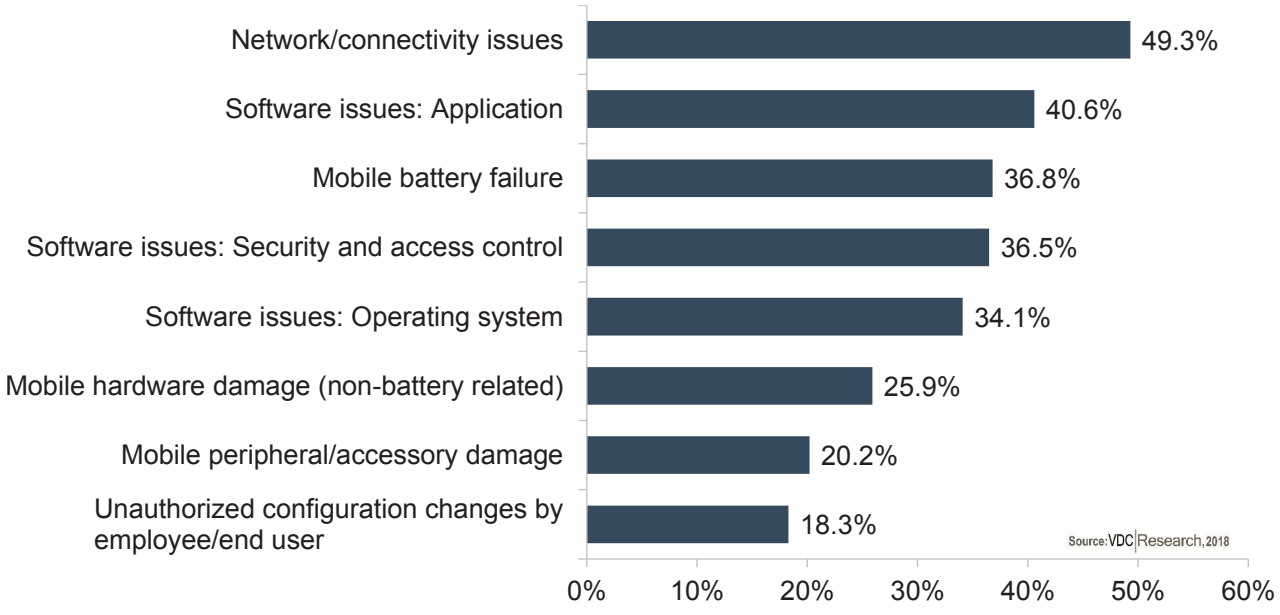
WHEN THINGS GO WRONG: MINIMIZING DOWNTIME AND WORKFLOW DISRUPTION

Enterprise mobility solutions can represent substantial investment for organizations. Especially in today's budget constrained environment, the focus on cost containment is heightened as organizations look to limit their investment exposure. However, not all mobile solutions are equal and failing to align the "right" mobile solutions with the target application or use case can expose organizations to significantly higher cost of ownership. This places a premium on reliability for business-critical solutions to minimize the disruptive impact of solution failure and visibility to quickly identify and respond to problems that do arise.

Total Cost of Ownership (TCO) analyses offer a core measurement to understanding the cost and benefits of mobile solutions. Most importantly, TCO analyses balance the upfront invest costs of any technology option with the ongoing support costs (otherwise known as soft costs). While TCO analysis is a powerful measure of the ultimate cost and impact of a technology investment, today it is not a standard measurement implemented in mobile deployment evaluations. According to VDC's research, only 31.6% of organizations performed a TCO analysis during their most recent mobile computing deployment. Key reasons for the lack of TCO analysis is the expense, mistrust of outsider assessment, and lack of justification.

According to VDC's research, network connectivity and application software are the leading sources of mobile failure of their business-critical solutions. Each of these interruptions causes approximately 100 to 110 minutes of productivity loss. For frontline mobile applications, the premium for reliability cannot be understated. An incidence of even one dropped connection or poorly performing application per shift can translate into almost $20,000 in annual support and productivity loss costs per mobile worker. The disruption to the workflow, support costs and redeployment costs represent a few of the overlooked "hidden" adoption costs. Deploying solutions that have sustainable lifecycles and support frameworks that align with enterprise requirements are equally critical investment requirements.

Exhibit 4: Leading Causes of Mobile Solution Failure



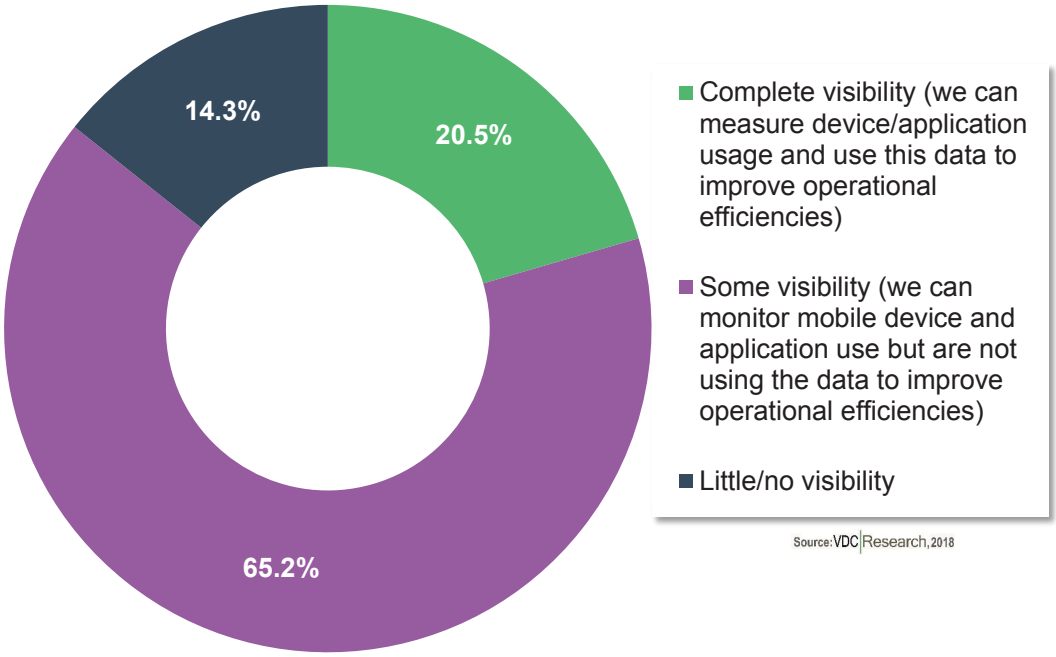
The key to minimizing the impact of failure of business-critical mobile solutions is the visibility and ability to remotely manage mobile solutions provided by EMM/MDM solutions. Securing mobile devices (protecting data through encryption and passcode policies, locking down certain device features, auditing devices, etc.); managing mobile devices (asset and inventory management, updating and provisioning new policies, pushing out new configuration policies, etc.); and deploying mobile devices (activating devices, enrolling them in policies, authenticating users, configuring policies, provisioning apps, etc.) are the core competencies of many EMM/MDM solutions today.

EMM platforms have become core IT infrastructure elements, particularly in deployment environments where mobile data collection and processing is business-critical. In these environments, EMM solutions have been indispensable for managing device lifecycles, as well as in automating time consuming administrative tasks such as onboarding and decommissioning users. Customers also rely heavily on the ability to customize user groups and assign access privileges, configurations, and application availability based on job function or role. VDC's research confirmed the value of EMM/MDM solutions with research respondents claiming substantial benefits, including:

- 9% increase in mobile devices fixed remotely
- 29% reduction in mobile device sent to service depots resulting in "No Trouble Found"
- 29% reduction in time require to fix mobile solution include software reload
- 8% reduction in mobile trouble tickets opened

Next generation solutions must not only be endpoint agnostic, but also be able to compile data from all potential sources across network elements, including headless devices such as connected IoT endpoints. However, VDC's research also suggests that many organizations are not leveraging EMM/MDM solutions to its fullest potential. In fact, a scant one in five organizations supporting business-critical mobility solutions claim to have complete visibility into mobile device and application usage. This represents a massive underserved opportunity for organizations to further streamline business-critical mobility support, improving the end user experience.

Exhibit 5: Remote Visibility into Mobile Device and Application Use



KEY SUCCESS CRITERIA

The most successful business-critical mobile solutions take into account all of the key factors influencing performance – from mobile device and application capabilities to network performance and ultimately user experience. Understanding and addressing the key challenges that affect the success of mobile solutions in the field – from application performance to network latency, data throughput, among others – is similarly important. In addition, a critical element for any successful mobility solution is to analyze the business elements. Some of the critical considerations and key success requirements for business-critical mobility include:

- **Visibility and Analytics.** While organizations are making significant investments in enterprise mobility solutions, too few are supporting these investments with the requisite visibility and analytics. Being able to monitor performance and track mobile assets through their lifecycle can significantly enhance the user experience while lowering the total support costs of these investments.
- **Application Development.** Many organizations today are facing an uphill battle in their attempts to keep up with demand for mobile applications in a time and budget friendly manner. According to the research, mobile applications can take an average of five months to develop and cost an average of $55K per application. Leveraging tools that can rapidly develop and deploy minimum viable products offers organizations an opportunity to streamline this process and stay ahead of application demands.
- **Application Management.** With the number of mobile applications only increasing, ensuring disciplined application version control and providing access to the "right" applications by the "right" employees is an important capability.
- **Help Desk Integration.** Traditional PC help desk solutions are not designed to support business-critical mobile assets. Seamless integration of EMM/MDM support tools with existing help desk platforms will provide service and support technicians with the necessary tools and information to quickly diagnose and address any points of failure.
- **Battery Performance.** According to VDC's research, over 35% of respondents claim that batteries do not last the entire shift. Batteries are an all too common point of failure while also representing a significant expense for organizations to manage. Providing visibility into battery health and inventory vastly reduces the challenges of this frequent point of failure.
- **Security from the Ground Up.** While there is no perfect security and all organizations have vulnerabilities in one form or another, security has become an economic imperative for every organization. Security attacks have taken many forms and can enter an organization through a variety of techniques, making detection particularly difficult. The attack surface on mobile platforms is broad (Bluetooth, NFC, WiFi, GPS, etc.), and the pocketable nature of mobile devices makes possessing the ability to remotely lock down and wipe devices critical, particularly for end users with access to corporate data and applications. Moreover, security solutions need to extend beyond traditional mobile endpoints and encompass other networked endpoints such as printers, kiosks, remote sensors, etc.

APPENDIX: INDUSTRY VIGNETTES

Healthcare

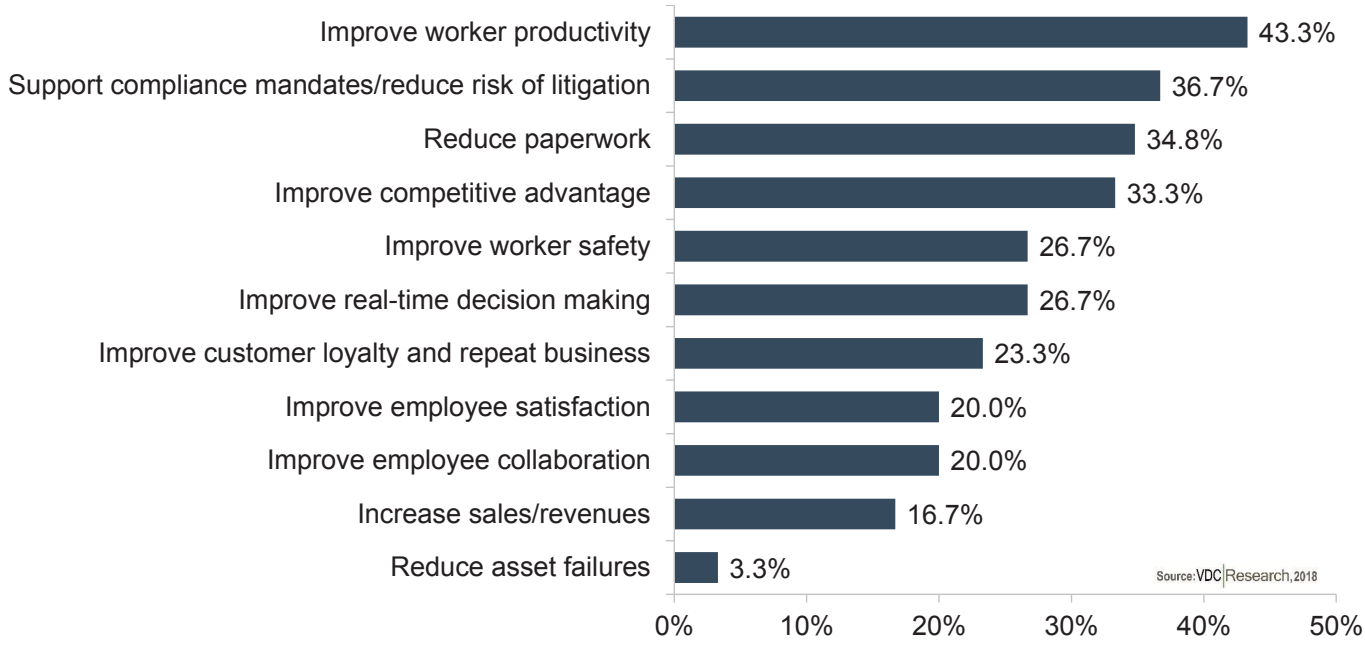
Healthcare mobility offers significant benefits to healthcare providers. With mobile solutions, healthcare organizations bring a wealth of information to the caregiver's fingertips and enable new workflows by removing informational borders. Telemetry, e-prescribing, and patient monitoring are among the many new functions that mobility enables. Additionally, applications available to healthcare providers enable easy reference and secure communication for healthcare practitioners as well as access to patient information. Smartphones are central to delivering mobility benefits as their high portability allows healthcare providers to carry them throughout the day.

Healthcare organizations struggle to get the right information to the right person at the right time. They have stitched together patchworks of products and services to assist their healthcare professionals, but these solutions have not delivered the effective communication that healthcare organizations demand. Although the highly fragmented healthcare mobility market offers a wide variety of products and solutions that enable various aspects of healthcare communication, no one solution offers a truly unified information platform.

Healthcare providers are well on their way to adopting technology, but there is still room for progress. These organizations have seen tangible benefits from adopting mobility solutions, and the majority have ambitious plans for the adoption of further mobility solutions. Security is also a top concern for healthcare organizations.

Service, safety, and satisfaction for patients and clinicians are the top priorities behind mobility investment for healthcare organizations. While allowing staff to spend more time in patient-facing capacities was historically a key priority, it has fallen in emphasis behind such factors as productivity, collaboration, and the ability to view and interact with data. These priorities reflect an increased emphasis on using mobility to improve workflows.

Exhibit 6: Healthcare Business-Critical Mobility Investment Drivers



Retail Services

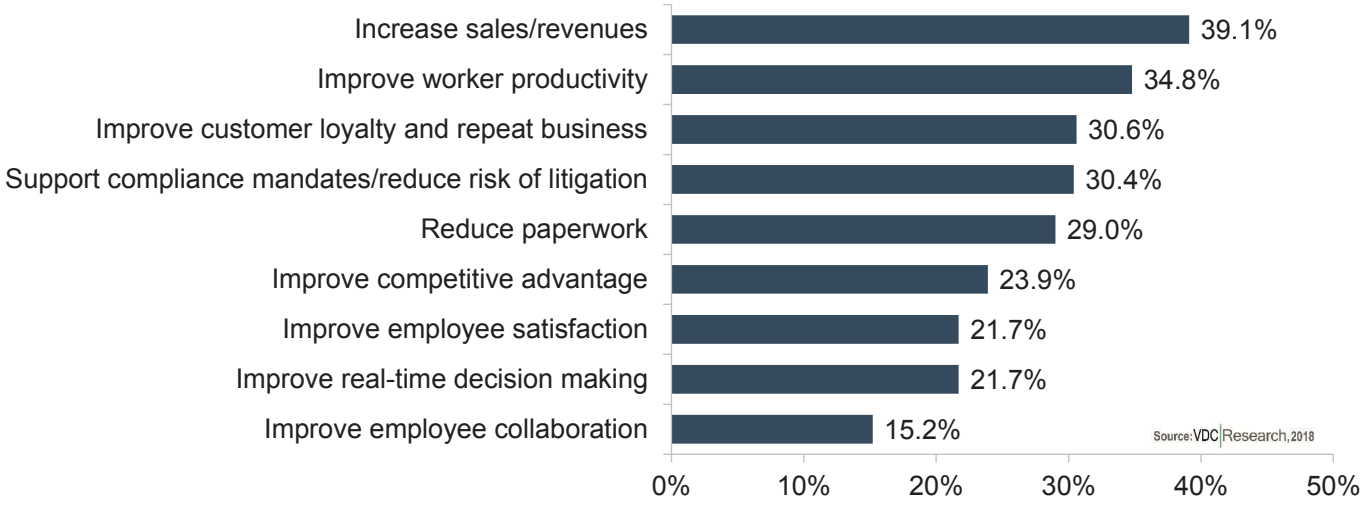
With the continued rapid convergence of traditional commerce with e-commerce, the adoption of digital and mobile technologies to improve retail services and optimize the customer experience is directly translating into improved loyalty, increased share of wallet and greater profitability. Today's customer desires convenience and expects a seamless experience across all channels. This is forcing retailers to re-think and re-calibrate their operations across many dimensions, melding the digital with the physical domains. Improvements to digital technologies will enable retailers to more effectively respond to this new normal, driving decision making in unprecedented ways.

In-store digitization is moving beyond the experimentation phase as retail executives and IT teams prove the value of the digital store. Successful retailers are combining mPOS and clienteling to create a rich in-store experience that touches multiple parts of the customer lifecycle to create a more compelling and differentiating customer experience. Moreover, digitizing the entire supply chain will unlock new opportunities like making stock availability more transparent to customers and enabling more flexible multichannel integration and fulfillment. However, these investments are placing increasing strain on already resource-limited retail IT and operations departments.

From mobile point of sale (POS) to inventory management, and from customer service to merchandising, the impact of mobile solutions to support and improve business and customer critical workflows in the retail sector is far-reaching. This sector has an inherently mobile workforce, which is estimated at 220 million workers and is expected to grow by 9% through 2021. Equipping these workers with mobile devices and access to critical enterprise content and applications is transforming retail organizations and driving new levels of performance, productivity, and customer service. The role of mobile devices in retail operations is changing from supporting worker transactions to engaging customers. Retailers want their next-generation mobile devices to show customers videos, support promotions, browse the web, place online orders, and more. In addition, retailers are rolling out customer-focused mobile applications to provide better in-store experiences and better integrate brick and mortar and web presences.

To support their strategic goals, retailers are planning to deploy many more mobile devices into their stores, increasing the ratio of mobile devices to store associates. In addition, investments to expand in-store wireless infrastructure, upgrade payment infrastructure and next generation beacon micro-location technology is driving demand for services that more effectively manage and support this increasingly sophisticated technology profile. Once seen as a tactical resource to be deployed to improve specific business processes, retailers now see mobility as a strategic tool to enable innovation and maintain competitiveness. Retailers are shifting their technology investment focus to customer engagement and creating more efficient shopping experiences that more seamlessly merge physical and digital environments.

Exhibit 7: Retail Business-Critical Mobility Investment Drivers



Manufacturing

The state of mobile adoption in the manufacturing sector – especially in core manufacturing and shop floor environments – has been low when compared to other sectors as many manufacturing organizations typically take a cautious approach to technology investment. Among the most significant barriers holding back adoption has been the general lack of wireless infrastructure in addition to concerns regarding wireless security. This is set to change with the number of mobile connections within global factories expected to almost double by 2020.

Mobile enablement has the potential to have a profound impact in the enterprise, and manufacturing organizations will be no exception. Manufacturers are keen on leveraging mobile technologies that can deliver better collaboration and workflow, productivity gains, improved quality, and most importantly, lowered costs in their production processes. In addition, addressing critical regulatory and compliance requirements and worker safety concerns are all areas manufacturing organizations are looking to leverage mobile solutions.

Another growing concern for manufacturing organizations is in the management of their assets and production equipment. As a manufacturer, ensuring that hard assets are operating at their potential is a key requirement for vehicles. While most new production equipment can be independently run and operated, older solutions require greater direct support. The use of mobile solutions to support equipment calibration, test and measurement application, uploading programs and other asset management functions provide significant benefits to equipment uptime in addition to workforce productivity. After years of focusing on cost-cutting, manufacturing organizations are looking for new ways to differentiate themselves and fend off disruptive new entrants. For many, the ability to gather data and turn it into insight is an important factor in building and sustaining competitive advantage. Enterprise mobility solutions are closely connecting with many of these initiatives, including:

Increase revenue: Companies are using mobile and connected solutions to find new ways to grow revenue and increase profits. For example, industrial equipment manufacturers are selling outcomes, like machine hours, rather than just products. This uses mobile, embedded and connected sensor technologies to measure use and enable predictive maintenance.

Improve operational efficiency: Tracking and maintaining assets in a manufacturing plant can be a time consuming and costly endeavor. Location is becoming increasingly critical for asset management and inspection applications. Especially in large manufacturing plants, which can span multiple miles, the ability to easily locate assets that require inspection by using a mobile solution and indoor location service, in addition to geo-tagging and imaging the asset has the potential to greatly improve the efficiency of plant workers and inspectors.

Improve quality control: Quality control is the leading mobile shop floor investment initiative according to VDC's research. The ability to catch quality issues early helps contain the cost of a quality event by minimizing wasted labour, materials, and equipment time.

Improve worker safety: Mobile solutions can help keep employees safe, especially those working alone in hazardous areas. For example, lone worker applications or the use of wearable devices that can sense environmental factors — such as temperature, levels of toxic gases, or prolonged periods of inactivity — and identify when a worker has had an accident or is in imminent danger. The use of mobile solutions to provide safety information, report on narrow escapes and on incidents will enable organizations to make the necessary improvements more expeditiously.

Exhibit 8: Manufacturing Business-Critical Mobility Investment Drivers

Transportation/Distribution

From fleet management to material management, and from customer service to safety and maintenance, the impact of mobile solutions to support and improve business and customer critical workflows in the transportation sector is far-reaching. Equipping these workers with mobile devices and access to critical enterprise content and applications is transforming transportation organizations and driving new levels of performance, productivity, and customer service. The industry's 24/7 dynamics lend themselves to the anytime, anywhere nature of mobile apps and smart devices. Cargo, passengers, and goods in transit can be tracked by capturing and analyzing information in real-time, while the distributed nature of the industry means transport workers can increase operational efficiency with the use of mobile devices and apps to replace static, paper-based workflows.

At the heart of today's transportation and logistics organizations is a vast, widely dispersed, and inherently complex maze of workflows. Providing access to key business applications and databases through mobile solutions not only enables a more productive workforce but also enhances the responsiveness and quality of service these organizations can deliver for their customers. Consumer expectations of faster, more flexible deliveries at the lowest possible cost are forcing transport organizations to compete intensively for long-term survival. Mobile technologies have and will continue to play a key role as they impact many of the mission-critical applications on which the industry relies. The power and flexibility offered in today's modern mobile devices – from integrated dedicated GPS and image sensors to high-resolution multi-touch displays optimized for daylight visibility – only further enhances the mobile value proposition for frontline transportation workers. Leading mobile application investments include the following:

Fleet optimization. The management of the fleets, its drivers, and shipments is one of the most critical and well-established mobile and wireless transportation applications. Optimizing operational efficiencies, achieving service level agreements, and improving government compliance levels are all among the catalysts driving these opportunities.

Mobile check-in and ticketing. The use of sophisticated handheld devices to better manage passengers and the ticketing process can significantly reduce if not eliminate terminal congestion and waiting in ticket lines.

Pickup and delivery services. Mail and courier organizations manage some of the most sophisticated supply chain operations where real-time visibility – down to the individual item from receipt to delivery – is considered a cost of doing business. The use of mobile solutions is integral to these workflows supporting a variety of applications, including electronic proof of delivery and signature capture, turn-by-turn directions, field sales, and others.

Exhibit 9: Transportation/Logistics Business-Critical Mobility Investment Drivers

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

Founded in 1971, VDC Research provides in-depth insights to technology vendors, end users, and investors across the globe. As a market research and consulting firm, VDC's coverage of AutoID, enterprise mobility, industrial automation, and IoT and embedded technologies is among the most advanced in the industry, helping our clients make critical decisions with confidence. Offering syndicated reports and custom consultation, our methodologies consistently provide accurate forecasts and unmatched thought leadership for deeply technical markets. Located in Natick, Massachusetts, VDC prides itself on its close personal relationships with clients, delivering an attention to detail and a unique perspective that is second to none.

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ABOUT SOTI

SOTI is a proven leader at creating innovative solutions that reduce the cost, complexity and downtime of business-critical mobility and the IoT. Thousands of companies around the world depend on SOTI to secure, manage and support their mobile operations. SOTI's two decades of success has built strong partnerships with leading mobile platform providers and device manufacturers. These relationships give the company unparalleled insight into new technology and industry trends before they happen. SOTI is a proven innovator — clear vision, laser focus and a commitment to R&D has made us the market leader at delivering exciting, new business-critical mobility solutions. SOTI helps businesses take mobility to endless possibilities.

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