



BUSINESS WHITE PAPER

Mobile Resource Management 2.0: How Mobility is Redefining the Logistics Market

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Mobility is driving significant change in all facets of life. The adoption of mobile technologies is having an impact across both the consumer and commercial user spaces. The proliferation of high capability devices and innovative software, coupled with the drive for efficiency in business processes and mobile technology's role in achieving that, is ushering in a new era of mobile resource management (MRM).

Early adoption and continued growth in MRM has come from delivery and field service intensive industries where planning and tracking assets has been a key element to improving safety, productivity, and customer service. Historically expensive propriety hardware and communications costs associated with early MRM solutions could be justified for expensive delivery resources and high value service assets. In today's world however, commercial and often consumer based hardware technologies and ubiquitous low cost high speed data networks are enabling the spread of MRM technologies across all mobile worker oriented industries.

Classic MRM applications like route and resource tracking have evolved to the point where mobile adoption is making its way into non-traditional sectors such as mobile white collar sales and service workers such as merchandisers. Many sectors that traditionally relied on either simplistic tools (e.g. cell phones to call in delivery information) are discovering that the new generation of mobile resource management solutions are opening up previously uneconomic levels of visibility, productivity management, and customer service.

Tablets and smartphones with enhanced computing, imaging, location awareness, and local and wide area communications power are changing the landscape of business mobile computing. At the same time, the cost of real-time mobile communications technology has fallen while expanding coverage and increasing speed. With technologies such as 3G, 4G, LTE (long-term evolution) and WiMAX infrastructures that deliver broadband speeds in a very broad geography.

With this combination of advanced capabilities, lower cost and ubiquitous access, businesses have a real time opportunity to capitalize on what mobile has to offer, whether that's tracking mileage, measuring driver/field worker performance, interacting with back-end systems (e.g. CRM – customer relationship management, payroll, etc.), or managing scheduling and routing. Even on the compliance front, mobile technology can be leveraged to automate vital information, such as hours of service, hours per work week, fuel tax reporting, fuel consumption, and engine and driver performance. Current and future regulatory activities are in fact mandating such on-board compliance solutions in certain circumstances and in some jurisdictions.

While there has been much innovation on the mobility front, the market has been in a fragmented state with independent niche providers of tracking, compliance, design, dispatch, planning solutions. Fragmentation has made it more difficult for customers to deploy holistic solutions to maximize value, drives up costs of ownership, and may increase risk of project failure. The market is maturing however, and consolidation of capabilities and

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suppliers, driven by customer demand for efficient and broadly capable solutions is changing the nature of mobile resource management.

The future of MRM is having a single vendor or systems integrator that can work with data plan providers, hardware/software solutions, and installers to tie all the mobile pieces together.

MRM 2.0 - The Power of Convergence

Solutions such as the Descartes Routing, Mobile and Telematics™ offering are designed to help logistics organizations plan, track and evaluate actual performance and increase the productivity of technology and human resources. Descartes' mobile resource management strategy is based on three areas of functional/technical convergence in the mobile space. These include:

- Route Planning solutions to facilitate the proper design and daily execution of route plan based logistics activities and mobile workers
- Route Dispatch and Status solutions with handheld and fixed device solutions that monitor the condition and status of a resource against plan, support dynamic stop/work changes and assignments, and provides data and insight related to at stop/customer activities
- Telematics and Compliance solutions for capturing information about driver behavior, hour, fuel tax data, and other information about sensors and status of the route equipment truck engine data, trailer temperature, etc).

In today's world it can be both impractical and inefficient to rely on independent vendors for an AVL (automatic vehicle location) solution, another for fuel tax reporting, and yet another for handset software. We are now at an inflection point, where the traditional, fragmented MRM approach needs to transition to functional and technological convergence. Ultimately, customers need providers that can address all three through a single integrated solution, even when multiple providers are contributing to the overall solution.

This new approach – known as MRM 2.0 – is one that leverages the power of real-time planning and wireless mobile technology as if they were designed to work as one from the beginning. The optimized planning and wireless mobile technology within MRM 2.0 solutions are built on event-based architectures that allow for the bi-directional propagation of messages as they occur, from planning through to the mobile applications. This architecture provides new, real-time capabilities that allow for more dynamic and effective command and control of resources in motion.

In order to support customers' desires to have pre-integrated solutions that combine the diversity of communications and wireless mobile technologies, MRM 2.0 vendors must have programs in place that bring together software, hardware and wireless network partners in a unified solution. These solutions should dynamically communicate through open standards and eliminate the duplication of data and functions inherent in disparate technologies.

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Why Now?

A number of factors have come into play in setting the stage for MRM 2.0. First we are witnessing an era of true functional *and* technological convergence possibilities through the widespread adoption of service oriented architectures and cloud based application delivery models. Second, early adopters of MRM 1.0 solutions have realized gains, but have also come to realize that full potential for saving, productivity, and service improvements can only be achieved by closing the design, plan, execute, tracking loop in a way that MRM 2.0 can accomplish. Simply put, continuous improvement requires MRM 2.0. As discussed above, price points for enabling technologies has made MRM 2.0 feasible from an investment standpoint. Finally, MRM 2.0 focuses on deployments and value achievement measure in days and weeks, not months an years.

To achieve MRM 2.0, vendors must have the capability to integrate optimized route planning, dynamic dispatching, real-time tracking, in-field commercial activity, compliance, sensor based asset and goods data, POD and financial functions. Despite the high technical threshold for MRM 2.0 solutions will not be limited to large fleets, big trucks and commercial delivery workers however. MRM 2.0 is modular and adaptive and will serve organizations of all sizes in many industries with mobile assets and workers ranging from transportation and driver activity, to inventory management, sales and merchandising, and mobile workforces in areas such as healthcare.

In summary the combination of technical advances, price point reductions, solution integration, and cloud delivery models sets the stage for widespread adoption of MRM 2.0 across industries and company sizes, with projects that delivery value in weeks, not months and years.

MRM 2.0 is attainable and affordable. Organizations can access single-source, comprehensive solution providers that allow them to access an ecosystem of route planning and other mobile resource management solutions to meet the logistics demands of today and the future.

About Descartes

Descartes (TSX:DSG) (Nasdaq:DSGX) is the global leader in logistics technology. If logistics is critical to your business, Descartes connects the people and technology to put your organization in motion. We extend the command of logistics operations, helping the world's largest and most connected logistics community to quickly reduce costs, improve service and comply with customs and transportation regulations. Descartes' cloud-based Logistics Technology Platform uniquely combines the power of The Global Logistics Network, the world's most extensive multi-modal network, with the industry's broadest array of modular and interoperable web and wireless logistics applications. At our core, Descartes' team of industry-leading logistics experts is dedicated to delivering innovative solutions while working closely with our customers to help ensure their success. Descartes is headquartered in Waterloo, Ontario, Canada and has offices and partners around the world. Learn more at www.descartes.com.