**@ROAD®**
MOBILE RESOURCE MANAGEMENT

# The Holistic Approach to Mobile Resource Management

## The unique value of integration

## Februrary 2007

This white paper examines the 'holistic' approach of managing the Mobile Workforce and Assets (Mobile Resources) in real time and the efficient utilization of the Mobile Workforce in delivering services and products.

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# Executive Summary

This white paper will be of interest to any business that utilizes a Mobile Field Workforce to deliver their services and products. It examines @Road's approach to the 'holistic' problem of Mobile Resource Management.

**Business Need**:

There are three primary areas of Mobile Resource Management, each relating to a key business need. The key business needs are:

- Field Force Management (FFM) – the need to manage the Field Workforce in order to reduce business costs and maximize return on investment.

- Field Asset Management (FAM) – the need to manage fixed and mobile assets in order to ensure their utilization is maximized and therefore minimize costs.

- Field Service Management (FSM) – the need to manage the delivery of services and products to customers by a Field Workforce in order to ensure customer perceptions of service are high while keeping business costs to a minimum.

## Current Picture and Problems

Field Force Management systems available today encourage compliance with executing assignments and achieving corporate targets through tracking the Field Workforce movements and reporting on their actions. However, monitoring and assessing compliance to scheduled assignments that have been dispatched can be manually intensive.

Field Asset Management systems available today provide the ability to assess whether the Field Workforce has the products, kit and equipment to carry out the work assigned to them. FAM systems today also ensure those assets are fit for their purpose through remote diagnostic checks and by raising alerts when problems are identified. However, monitoring and assessing the movement and availability of assets relating to work that has been dispatched can be manually intensive.

With today's Field Service Management systems, the effectiveness, benefits and levels of automation vary significantly from vendor to vendor. Basic scheduling systems rely on Field Workforce compliance with regard to executing the assignments in the scheduling solution. Advanced scheduling systems rely on the Field Workforce providing accurate feedback regarding current activity and location. Often this compliance and/or feedback are lacking, which means assumptions made as to whether a Field Worker is in the right location or has the kit necessary to do a task may be inaccurate. This can severely disrupt operations and negatively affect customer perceptions of service.

Schedulers, the primary solution for FSM vendors, would not be able to utilize the real-time information that can be supplied by FFM and FAM systems effectively, even if it were available to them. This is because they are essentially predictive of the future. It is at the

time you want to make allocation decisions that real-time information is most beneficial. In these circumstances a human is required to make use of real-time information.

## The Holistic Approach: @Road

It can be seen from the current picture that the problems with FSM today could be resolved if a company's FSM system had the knowledge held by FFM and FAM systems. For example, if the FSM system knew the exact location of a Field Worker at time of allocation, and what products, kit and equipment were available to them, it would be in a position to make a highly informed and therefore intelligent decision as to what work should be allocated to that Field Worker. @Road solutions help meet this need in the FSM solution space because they can utilize real-time information in real-time when making decisions for an online resource requesting work.

Additionally, problems with FFM and FAM systems today could be resolved if they had the knowledge held by an FSM system. For example, if FFM and FAM systems knew about the work that had been dispatched to a Field Worker, the systems would be able to assess Field Worker compliance through tracking workers' movements against dispatched work.

@Road has a full range of solutions for Mobile Resource Management, two of which put it in a position of being able to tackle the problems just described with a holistic MRM offering. These solutions are @Road GeoManager$_{SM}$, which contains @Road's fully integrated FFM and FAM solutions and @Road Taskforce$^{TM}$, which contains the @Road FSM solution.

By integrating its GeoManager and Taskforce products, @Road is able to provide a complete MRM solution for enterprise customers. The primary benefits of the @Road holistic approach are:

- A single-vendor MRM holistic solution – this makes commercial discussions easier and more cost-effective for our customers.

- Integration by design – a truly integrated MRM solution means lower deployment costs and the synchronization of data across the product suite.

- Reduction of the cost of poor decisions that will occur with systems that cannot utilize accurate real-time information.

- Less manual effort required of users when assessing Field Workforce compliance – this increases efficiency and reduces costs.

## The Future

The holistic approach taken by @Road, where knowledge can be shared transparently across the systems that make up our MRM proposition, provides new opportunities for businesses to transform their approach to service delivery.

# Conclusion

With the @Road integrated MRM solution, GeoManager provides the real-time volume and sophistication of data that other FSM systems cannot exploit, while Taskforce utilizes GeoManager data and optimizes allocation of work in real-time. This combined solution provides for higher levels of intelligent decision-making.

# Introduction

*This white paper examines the 'holistic' problem of managing Mobile Resources.*

This white paper is of interest to any business that utilizes a Mobile Field Workforce to deliver its services and products. It examines the 'holistic' problem of ascertaining the exact position of the Mobile Workforce and Assets (Mobile Resources) in real-time and the efficient utilization of the Mobile Field Workforce in delivering services/products to customers, concluding with an assessment on the benefits of the 'holistic' solution to these business problems being developed by @Road.

# Business Need

There are three primary areas of Mobile Resource Management, each relating to a key business need. The key business needs are:

Field Force Management (FFM) – the need to manage and support the Field Workforce in the execution of assigned activities. It is about maximizing Field Workforce productivity, thereby reducing the business cost of ineffectual activity. Corporate FFM targets are achieved by encouraging and enabling the Field Workforce to execute assigned activities as efficiently as possible.

*Businesses want to ensure that Field Workers execute their assigned activities as efficiently as possible to reduce costs and maximize ROI.*

Field Asset Management (FAM) – the need to manage fixed and mobile assets in order to ensure their utilization is maximized, along with the need to provide a safe environment for the Field Worker. It is about maximizing utilization of assets, thereby minimizing the business cost of loss or failure of assets. It is achieved by ensuring commitments to asset servicing are met, quickly identifying when an asset is not operating correctly and carrying out diagnostic checks along with tracking assets and inventory.

*Businesses want to ensure assets are utilized to the maximum effect to minimize costs.*

Field Service Management (FSM) – the need to manage the delivery of services and products to customers by a Field Workforce. It is about achieving the most cost-effective utilization of the Field Workforce in executing work, thereby ensuring customer perceptions of service are high while keeping business costs to a minimum. Ensuring the allocation of the right task to the right person at the right time will achieve this.

*Businesses want to achieve the most cost-effective utilization of the Field Workforce in executing the work such that customer perceptions are high and business costs are low.*

# Current Picture And Problems

## Field Force Management

*Field Force Management systems encourage Field Workforce compliance with the execution of planned day-to-day activities.*

Many businesses have a Mobile Field Workforce that they rely on to carry out activities such as delivering products and services, maintaining assets or moving stock. Carrying out these activities efficiently, cost effectively and productively requires effective management of the Mobile Field Workforce. Planned activities for the day may be produced manually or by a FSM system; either way, field workers are expected to work through these plans, bearing in mind they were produced to obtain the most cost-effective utilization of the workforce during execution of the work based on corporate targets.

*Assessing the movement of the Field Workforce against planned activities is manually intensive, which means the full cost benefit potential that can be achieved with a FFM system cannot be realized.*

FFM systems in the market today use GPS tracking capabilities to accurately track Field Workforce movements and provide the ability to view them on a street map, indicating appropriate and inappropriate landmarks that Field Workers might visit. This helps a business assess the compliance of a Field Workforce when executing work to plan, and thereby encourages them to execute their work to plan. It also makes it easier to ascertain the location of a Mobile Field Worker at any time of the day when dealing with disruptions such as the injection of high priority work. FFM systems provide the ability to identify the best a person to deal with a disruption that needs urgent attention. The differentiator for FFM systems is generally the richness of the reports and alerts they are able to provide and additional features they may support.

*The full cost benefit of a FFM system can only be achieved with an automated assessment.*

The only restrictive aspect of the FFM solution is that this assessment is a manual activity, and although the benefits of a FFM solution are large, the full cost benefit can only be achieved by using automated assessment methods.

An additional benefit that comes with a good FFM system is the awareness of Field Worker inactivity. This inactivity can be investigated to ensure the Field Worker is not injured in any way that makes him incapable of requesting help. In other words, it provides an effective health and safety management tool for handling situations where this might occur.

# Field Asset Management

Many businesses that have a Mobile Field Workforce also have assets that they need to track and monitor in order to achieve the most efficient use of those assets in day-to-day operations. The fact that these assets are associated with the Mobile Field Worker means the workers themselves can also be considered as Mobile Resources. For some businesses, one of the primary assets is the vehicle used by the Mobile Field Workforce. Other assets include equipment, stock, products and materials required to execute a task. For effective use of these assets, businesses need to know where they are located, and if appropriate, the state or condition of those assets.

FAM systems available today generally provide a capability that allows a business to monitor the current location of assets under the control or influence of the Mobile Field Workforce. Some systems also provide sensors that allow the condition of assets to be assessed remotely, with the more advanced systems providing the ability to carry out 'remote' diagnostic checks. Advanced systems can also provide alerts when the door to a vehicle is left open or when there is a significant temperature change to a refrigerated lorry. They can also provide the ability to determine if a vehicle contains all the stock or equipment needed to execute the day's activities. All this provides for efficient and effective utilization of assets monitored by these systems, which means the utilization of these assets is maximized and costs to the business are minimized.

FAM systems have a similar restrictive aspect as FFM systems because they also rely on the manual assessment of the existence and movements of assets against the planned use of those assets. There is no simple capability that allows a user to view the planned activities produced by scheduling solutions on the same map where they monitor the Field Workforce and Assets in real-time—regardless of whether those planned activities are system-generated or manually generated.

*Advanced Field Asset Management systems provide the ability to identify an asset's current location and condition and to carry out remote diagnostic checks.*

*Advanced Field Asset Management systems provide the ability to determine if a vehicle contains all the stock and equipment needed to execute a task.*

*Assessing the movement of the Field Workforce and Assets as well as availability of stock and equipment against a scheduling solution is manually intensive, which means reduced efficiency and greater cost to the business.*

# Field Service Management

Many businesses provide services and products that are delivered and, in many cases, maintained by a Mobile Field Workforce. These businesses generally want to allocate the work to the Field Workforce so that the most cost-effective solution is achieved, balancing the expectations of customers against the capability of the business to deliver. To do this, businesses create schedules that assign which Field Worker should undertake which tasks and when they should do each one. These schedules may cover a number of days or even weeks. They must be flexible enough to deal with changes to the work-stack, such as the injection of a highly important task for a valued customer. To efficiently deal with a change in the work-stack, there is a need to identify the best person to do the task while achieving the most cost effective solution for the business and keeping the customer happy. Each of these individual challenges plays an important part in the bigger picture of managing the work-stack, like keeping costs to minimum while customer perceptions remain high.

Most FSM systems today provide an automated scheduling capability for businesses. Some may have allocation and dispatch capabilities. The effectiveness and benefits of these systems and the levels of automation they provide vary from vendor to vendor. The scheduling capabilities of these systems are generally rule-based and aim to provide a superior scheduling solution compared to that obtainable through a purely manual solution.

Achieving the benefits of the solutions produced by these systems relies on the Field Workforce complying with assumptions made about their location at specific times during in the working day. For example, each task scheduled to a Field Worker is based on an assumption that he or she will complete the previous task at a specific location.

Problems that can occur with most of today's FSM systems are that Field Workers do not always complete a task during the scheduled timeframe and they will not necessarily request their next task from the location of the task just completed. The estimated time it takes a worker to travel to the next task may be based on him or her taking the most direct route—a route that he or she may not have taken. Advanced scheduling systems also rely on the Field Workforce providing accurate feedback about current activity and location throughout the day. This feedback is not always provided or may be inaccurate.

*The effectiveness, benefits and levels of automation regarding today's scheduling, allocation and dispatch solutions vary from vendor to vendor.*

*Most scheduling and allocation systems rely on the Field Workforce providing accurate feedback regarding their current activity and location.*

*The Field Workforce is not always where you assume them to be, thus counteracting some of the benefits that many Field Service Management systems provide.*

For most FSM systems, dealing with work that needs to be done on the day that it comes in, particularly when that work is of a high importance to the business, requires manual intervention. This is also the case when existing work becomes important to the business for one reason or another and is required to be dealt with urgently. Making cost-effective allocation decisions requires accurate knowledge of Field Workers' locations when making those decisions. However, knowledge of Field Workers' locations is not always accurate, which can negatively impact the cost of those decisions.

The following scenarios show in more detail the problems that can arise from inaccurate or misinformed Field Worker locations:

# Scenario 1:

Anton receives his work one task at a time. He is currently working on Task 'A' and is expected to finish at the location of Task 'A'. He is scheduled to do Task 'B' next, then Task 'C', as shown in the following diagram:
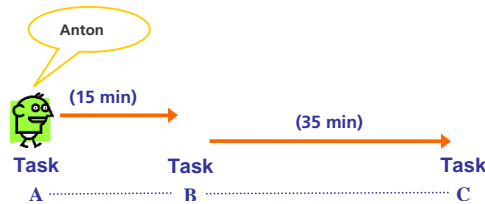


Estimated travel to complete scheduled tasks = 15 + 35 = 50 minutes.

In reality, Anton closes his task at a Service Center (SC) , as shown in the following diagram:



However, the FSM system believes Anton is still at the Task 'A' location and proceeds to give him Task 'B' then Task 'C'. Therefore Anton travels from the Service Center to Task 'B' then after completion of Task 'B' travel to Task 'C', as shown in the following diagram:



Actual travel to complete the scheduled tasks = 60 + 35 = 95 minutes. This is very costly in terms of travel and much greater than the 50 minutes the FSM system expects Anton to take. It is also frustrating for Anton, who drove past the location of Task 'C' on his way to executing Task 'B'. He feels the FSM system should have given him Task 'C' before Task 'B', leading him to believe the system does not know what it is doing.

*Field Workers get frustrated when it appears to them that the FSM system is making bad decisions.*

# Scenario 2:

Anton receives his work as a tour. He is sent a tour of three tasks and expected to do Task 'A' first, then Task 'B' and finally Task 'C'. The FSM system now believes Anton is on his first task. , as shown in the following diagram:
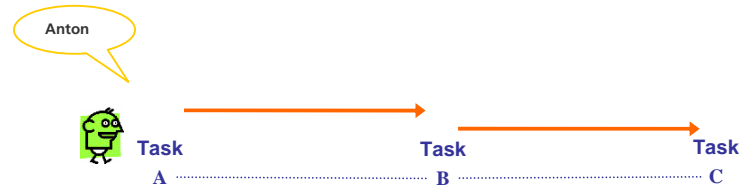
In reality, Anton decides to do the Tasks in reverse order - Task 'C' first, then Task 'B' and finally Task 'A'. However the FSM system is not aware of this, as shown in the following diagram:
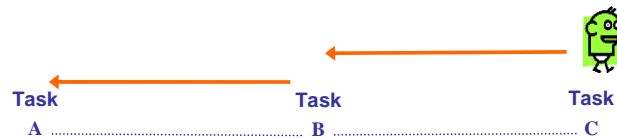
A High Priority task - Task 'X' – comes in. Because the FSM system believes Anton is at the location of Task 'A' it incorrectly determines that Anton is too far away to reach the Task to prevent it failing, as shown in the following diagram:

Travel between Task 'A' & Task 'X' will cause Anton to arrive late.
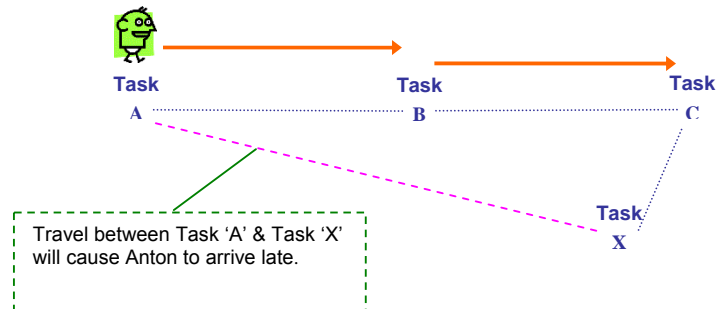
*FSM systems need to be updated with changes to Field Workers' locations in order to make effective decisions.*

Therefore the High Priority task remains unassigned by the system and requires control intervention to assign it to a Field Worker. If the FSM system was aware of Anton's current location, it would have been able to automatically deal with the problem, thus reducing time and cost of manual intervention.

## Scenario 3:

Anton is due to close Task 'A' and Bobby is due to close Task 'B'. It is 4:55 p.m. and both are expected to go home after closing their tasks since they both finish work at 5 p.m.

A High Priority 40-minute emergency task comes in for the local Hospital for which the FSM system can allocate overtime to do the task. The FSM system determines that both Anton and Bobby are capable of doing the task. It allocates the task to Anton because it perceives he is the nearest, as shown in the following diagram:
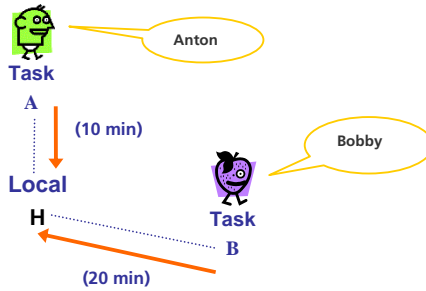
In reality, Anton is 55 minutes away because he finished early and is making his way home, where he will close his task. This means in reality Bobby is closer. But because Anton did not made the FSM system aware he finished and was on his way home, it paged Anton and gave him the task.
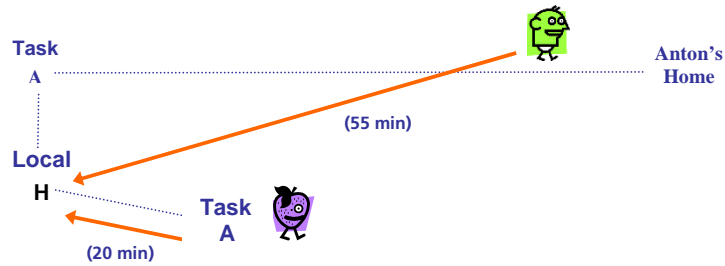
*Not knowing the movements and locations of Field Workers can lead to higher mileage costs and additional overtime costs.*

If Anton had been where the FSM system thought he was, he would have traveled to the hospital in 10 minutes and taken 40 minutes to complete the task. This would have meant that Anton would have been expected to complete the task at 5:45 p.m. and the he would have worked 45 minutes overtime.

However, it took Anton 55 minutes to travel to the hospital and 40 minutes to complete the task. This meant Anton completed the task at 6:30 p.m., which meant he worked 90 minutes overtime.

# The Holistic Approach: @Road

## About @Road
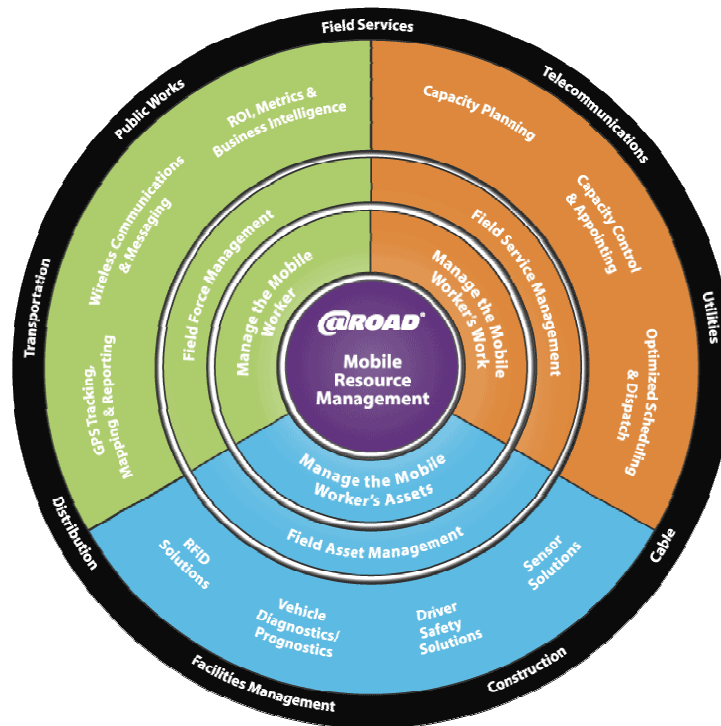


@Road Solutions for Mobile Resource Management

The distinct capabilities of @Road MRM solutions are discussed below. The ever-closer integration of these solutions will see the arrival of a number of products and services, extending @Road customers' capabilities for service innovation, differentiation and optimization of business costs.

# @Road MRM Solutions

## Field Force Management

*@Road FFM solutions are designed to seamlessly connect mobile workers in the field to real-time corporate data on demand.*

Through the integration of wireless communications, location-based technologies, software applications, transaction processing and the Internet, @Road Field Force Management solutions are designed to seamlessly connect mobile workers in the field to real-time corporate data on demand. @Road software products, including the leading @Road GeoManager product line, help you measure overall mobile workforce performance, reduce costs and maximize return on investment, enabling you to effectively Manage the Mobile Worker.

## Field Service Management

*The @Road FSM solution helps service providers deliver a high quality of service to their customers at the right time, the first time.*

With its Taskforce and Dynamic Capacity Management products, along with future integration with GeoManager, @Road helps service providers deliver a high quality of service to their customers at the right time, the first time. These solutions provide companies with a unified, up-to-the-minute view across their field service resource network so they can offer more intelligent scheduling, routing and customer service. Such insight helps companies Manage the Mobile Worker's Work.

## Field Asset Management

*@Road FAM solutions help customers manage their fixed and mobile assets, minimizing costs and maximizing warranties.*

Through Vehicle Diagnostics, Sensor Services and Vehicle Maintenance features, @Road helps customers manage their fixed and mobile assets. Whether a company wants to determine when vehicles are due for service, track inventory in remote vehicles or receive alerts when a fleet member is having engine trouble, @Road solutions can help minimize costs, maximize warranties and Manage the Mobile Worker's Assets.

# The @Road Holistic Approach

*@Road is in the process of integrating its GeoManager and Taskforce products, thus entering the enviable position of being able to provide a complete MRM solution for enterprise customers.*

@Road has two enterprise products that cover the whole spectrum of Mobile Resource Management (MRM). The first is Taskforce, which is the @Road enterprise FSM solution. The second is GeoManager, which is the @Road enterprise FFM and FAM solution. Because @Road is not limited to one area of the MRM problem space, it can be comfortably discussed from a holistic perspective, as a single-vendor solution. A single-vendor approach makes it easier to enter into commercial discussions and to help customers solve the MRM problem.

# Benefits of the @Road Single-Vendor Solution

*A truly integrated MRM solution means lower deployment costs*

For Taskforce, the primary benefit is that assumptions and feedback – whether accurate or inaccurate – about the location of Field Workers is replaced with real-time (and therefore always up-to-date) location information. This means Taskforce is can make decisions based on more accurate information, resulting in more intelligent decisions – particularly at time of allocation and dispatch. By using its patented Optimized Allocator component, Taskforce is able to make immediate use of real-time information. MRM solutions without this capability require human intervention to assess real-time interaction. Having accurate real-time information eliminates the negative impact of the cost of decisions that occur with systems that that cannot utilize real-time information.

*@Road will offer synchronization of data across product suites – integration by design*

Once Taskforce and GeoManager are combined, @Road MRM systems will be able to make use of each other's data, thus creating a truly integrated solution that provides greater benefit. It's not clear whether there are vendors out there today whose systems could truly utilize each other's data, even if proprietary software made it possible to pass data between systems. The primary solutions of other vendor products in the FSM solution space are based on an automated 'Scheduler', but schedulers cannot utilize real-time information effectively because they are essentially predictive of the future. It is when you need to make decisions now that real-time information is most beneficial.

*Schedulers, the primary solution for most competitors, cannot utilize real-time information effectively because they are essentially predictive of the future. It is when you want to make decisions now that real-time information is most beneficial.*

The value that Taskforce's real-time optimization provides at time of allocation and dispatch will be further increased by making use of the real-time location information provided by GeoManager. The integrated GeoManager will be able to display task locations based on the latest schedule and optimized allocation decisions alongside the true location of the Field Workforce. This real-time visibility will provide the ability to monitor Field Workforce compliance in real time.

*@Road's patented Optimizing Allocator uses real-time information to make task-allocating decisions in real time.*

*@Road will offer a common look-and-feel of applications across the MRM product suite.*

For users, the integrated solution will provide the ability for an integrated view across MRM systems using common look-and-feel applications and maps. Users will be able to monitor, in real time, the decisions being made by Taskforce. Manual intervention will become rare, but when it is needed, the integrated views will enable users to make intelligent and timely decisions.

*Less manual effort required of GeoManager users when assessing Field Workforce compliance results in increased efficiency and reduced costs.*

One aspect that sets GeoManager apart from its competitors is its richness of reports. The merging of @Road FFM/FAM and FSM capabilities will also bring integrated MIS reporting that includes both real-time data from GeoManager and real-time data from Taskforce. This will put @Road in the position of being able to provide integrated reports that cover the whole spectrum of MRM.

Additionally, for a business to obtain the same capability as @Road with other vendors, it would need customized, propriety software to allow the individual MRM systems to integrate and utilize each other's data. The propriety software would have to be built in-house or outsourced for external development. Either way, the holistic MRM solution using multiple vendors becomes expensive to build and maintain. @Road eliminates the cost and time of building and maintaining an integrated MRM solution with its holistic approach.

# What does this all mean?

*Using the integrated MapView feature within GeoManager, you will be able to see decisions the Optimized Allocator is making on behalf of a business in real time.*

It is clear that FSM, FAM and FFM systems can compliment each other and not only help businesses in their own right, but together give the extra benefit of providing each other with accurate real-time information. The greater the accuracy of information on Field Workforce locations, task completion times and travel, the greater the quality of decisions for getting the right task to the right person at the right time. Having an integrated MapView to monitor scheduling and allocation decisions will provide the ability to see those decisions in real time. Using the integrated MapView to monitor Field Workforce travel between tasks and order of task execution will generally enforce compliance. All this will, in turn, reduce the cost to the business and increase the customer's perception of the suitability of the @Road solution.

## What does integration mean for Field Asset Management and Field Force Management?

*Less need for manual input means increased efficiency and reduced cost to the business.*

GeoManager provides the ability to identify where Field Workers stop, the duration of their stops during the working day and the ability to track assets. With the integration of Taskforce, GeoManager will be able to utilize the scheduling solutions produced by Taskforce, and more importantly the allocation of tasks to Field Workers. This will provide GeoManager users with the ability to compare the stopping and movements of Field Workers and assets against the location of the tasks scheduled and allocated to them. In particular, it will provide the ability to view Taskforce's scheduling solutions and allocation of tasks on the same map that monitors the Field Workforce in real time. This greatly reduces the manual effort

required to assess the stops and movements of the Field Workforce against the location of tasks allocated to them. Less need for manual input means increased efficiency and reduced cost to the business. Also, being able to monitor the Field Workforce from a holistic perspective increases the ability to monitor and positively effect compliance.

# What does integration mean for Field Service Management?

The following scenarios show how the integrated @Road MRM solution will resolve the problems outlined earlier:

## Scenario 1:

Anton receives his work one task at a time. He was working on Task 'A' and expected to finish at the location of Task 'A'. He was scheduled to do Task 'B' next, then Task 'C', as shown in the following diagram:

**(15 min)**          **(35 min)**

Task          Task          Task
 A ................... B ...................................... C
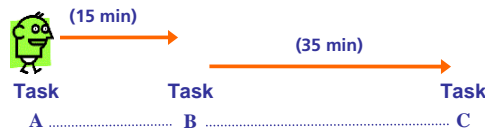
In reality, Anton closed Task 'A' at a Service Center (SC) , as shown in the following diagram:

Task          Task          Task
 A ................... B ...................................... C ........................ SC

*Outside the Optimized Allocator, only a human can assess real-time information for allocation and dispatch.*

Taskforce is updated about Anton's true location in real time and is now aware that Anton is at the Service Center location. The Optimized Allocator identifies this when Anton closes Task 'A' and determines that it is more cost-effective to give him Task 'C' next. Taskforce proceeds to dispatch Task 'C' to Anton and on completion of Task 'C' dispatches Task 'B', as shown in the following diagram:

**(35 min)**          **(25 min)**

Task          Task          Task
 A ................... B ...................................... C ........................ SC

Without MRM integration and real-time information, Anton traveled to Task 'B' first, then Task 'C', which resulted in actual travel time to complete the scheduled tasks of 95 minutes (60 + 35).

With MRM integration and real-time information, the tasks were allocated in a more cost-effective manner. This resulted in actual travel time to complete the scheduled tasks of 60 minutes (25 minutes SC to C + 35 minutes C to B) -- providing a savings of 35 minutes. This time savings can amount to a substantial cost savings for an organization with a large Field Workforce.

There may be scenarios where it still makes sense to give out Task 'B' before Task 'C', such as when Task 'B' is noted as a much higher priority.
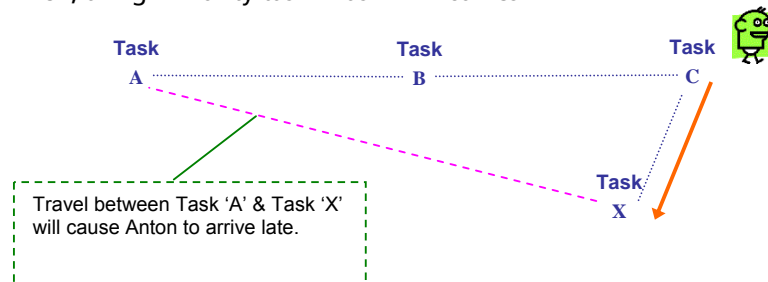
## Scenario 2:

Anton receives his work as a tour. He was sent a tour of three tasks and expected to do Task 'A' first, then Task 'B' and finally Task 'C', as shown in the following diagram:
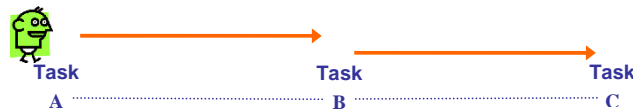


However, Anton decided to do the Tasks in reverse order - Task 'C' first, then Task 'B' and finally Task 'A'.



Then, a High Priority task - Task 'X' – comes in.



Travel between Task 'A' & Task 'X' will cause Anton to arrive late.

Taskforce is updated on Anton's true location in real time and therefore it is now aware that Anton is at the location of Task 'C'. The Optimized Allocator identifies this when Anton closes Task 'C' and determines that he is close enough to be allocated the High Priority Task 'X'. Taskforce proceeds to dispatch Task 'X' to Anton, as shown in the following diagram:

*With MRM integration and real-time information, the Optimized Allocator is able to reduce the occurrences of manual intervention, thus significantly reducing costs.*

Without integration and real-time information Anton was assumed to be at the location of Task 'A' and too far away to reach Task 'X' to meet its commitments. This meant manual intervention was required to find a field worker to do the task.

With integration and real-time information entered into the Optimizing Allocator, Anton was automatically allocated the High Priority Task 'X'. This ensured an important customer was not left waiting for manual intervention, and eliminated the cost of manual intervention.

## Scenario 3:

In this scenario Anton is due to close Task 'A' and Bobby is due to close Task 'B'. It is 4:55 p.m. and both are expected to go home after closing their tasks as they both finish work at 5 p.m.  A High Priority 40-minute emergency task comes in for the local Hospital for which overtime can be allocated to do the task. Both Anton and Bobby are capable of doing the task, as shown in the following diagram:
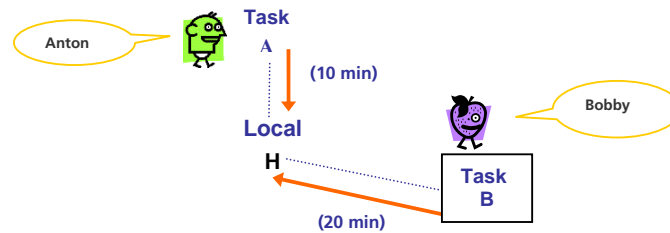


However, Anton is 55 minutes away because he finished early and is making his way home, where he will close his last task.

Taskforce is updated about Anton's true location in real-time and therefore it is now aware that Anton is 55 minutes away from the local Hospital. The Taskforce 'High Priority Interrupt' facility identifies this and determines that Bobby is the closest to the local Hospital. It then proceeds to dispatch the Task at the local Hospital to Bobby, as shown in the following diagram:
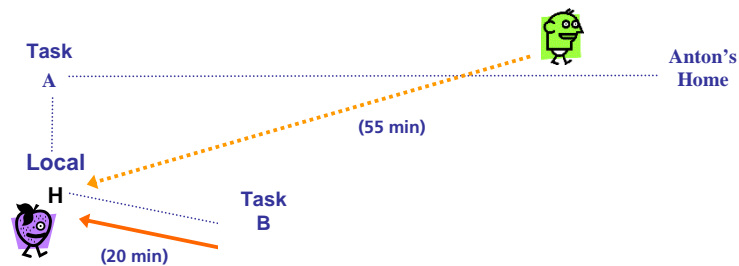
*With MRM integration and real-time information, Taskforce is able to identify the nearest Field Worker able to do an emergency task, thus reducing potential overtime costs and improving customer perception by improving response times.*

Without MRM integration and real-time information Anton was assumed to be closest to the emergency task. This resulted in Anton working 90 minutes overtime.

With MRM integration and real-time information utilized by Taskforce, Bobby was interrupted and automatically allocated the emergency task. This ensured an important customer was not left waiting for Anton to travel all the way back to do the task. It also resulted in reduced overtime cost because Bobby only took 20 minutes to get there and 40 minutes to complete the work. This resulted in Bobby working 55 minutes overtime (receiving the task at 4:55 p.m.)—a reduction of 35 minutes in overtime costs.

# The Future

*The holistic approach taken by @Road, where knowledge can be shared transparently across the systems that make up the MRM solution, opens up a world of opportunities.*

*True integration provides the ability to automate many existing processes that would otherwise rely on accurate feedback or for things to run exactly to plan.*

*The future enhancements and opportunities identified by @Road are only possible through true integration and by taking a holistic approach.*

True integration opens up a world of opportunities, where knowledge can be shared transparently across the systems that make up the MRM solution. This provides for a holistic approach to not only solving future problems that may arise, but also existing problems or indeed the ability to enhance existing solutions.

True integration provides the ability to automate many processes that would otherwise rely on accurate and immediate feedback or for schedules to run according to plan.

True integration will provide the foundation for a MRM solution with a common look-and-feel across applications.

The enhancements and opportunities identified are only possible through true integration and by taking a holistic approach to MRM. The specifics of these advances in MRM will be disclosed through other media when the time is right.

# Conclusion

*@Road is the only vendor who owns both a scheduling and optimization system (Taskforce), as well as a GPS mobile resource tracking solution (GeoManager), putting it in the unique position of being able to take a holistic approach to problem solving in the MRM field.*

*@Road's integrated MRM solution provides for a much higher level of intelligent decision-making than could otherwise be achieved.*

*GeoManager provides real-time volume and sophistication of data that other FSM systems cannot exploit. Only Taskforce can utilize GeoManager data and optimize allocation of work in real time.*

The @Road MRM portfolio includes both a scheduling and optimization solution (Taskforce) and a location-based Field Force Management and Field Asset Management solution (GeoManager). Therefore, @Road is in the position of being able to take a holistic approach to problem solving in the MRM field, enabling it to create a truly integrated MRM solution.

A key aspect of the @Road integrated MRM solution is that GeoManager provides real-time volume and sophistication of data that other FSM systems cannot exploit. Only Taskforce can utilize GeoManager data and optimize work allocation in real time. This puts @Road at the forefront of the MRM market, making it the premier supplier of a truly integrated MRM solution.

# Document Information

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# Abbreviations

| | |
|---|---|
| MRM | Mobile Resource Management |
| FFM | Field Force Management |
| FSM | Field Service Management |
| FAM | Field Asset Management |
| GPS | Global Positioning System |