

# Project Justification – IT08 – Mobility Integration

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## Document Control

### Change History

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### Document Review

This document has been reviewed by the following parties prior to approval:

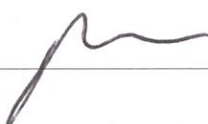
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## Document Approval

Approval of the Project Justification for the IT08 – Mobility Integration project is provided by the signatories shown below.

Changes to this document will be coordinated and approved by the undersigned or their designated representatives via project change management.

The undersigned acknowledge they have reviewed and approved this document.

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## 1. Project Description

### 1.1. Background

Multinet's (MG's) operations are heavily outsourced. Field work is contracted out to MG's external service providers who perform a range of field work on MG's behalf in response to:

- Work orders generated by MG as part of capital works programs and maintenance plans;
- Service orders originating from retailers (for example, work related to new connections, abolishments, meter replacements and special meter reads); and
- Trouble orders from retailers and end consumers.

In MG's current business operating model, service providers generally utilise their own information systems including mobility solutions. Work orders are passed from MG's IT systems to the field Service Providers for them to schedule the work and despatch to field crews.

To varying extents, MG's external service providers have implemented their own mobility solutions. Service Providers either manually or automatically upload batches of work orders from MG systems. These work orders are then scheduled and despatched using their own systems.

MG's highly-outsourced business operating model has proved to be highly efficient and cost effective. However some improvement opportunities have been identified in the interactions between MG and its field service providers including:

- MG has limited visibility of work order activity. For example, MG is unable to track and report on the detailed status of trouble orders (to know that work has been despatched, completed etc.). MG is therefore limited in its ability to monitor some aspects of field work performance and the achievement of service levels. MG remains dependent on the quality of Service Providers systems and processes;
- Integration capabilities between MG systems and Service Providers' systems are limited. Currently, data copy and transfer is largely performed manually. This manual intervention creates additional overheads, administration effort and risks of data entry errors. None of the Service Providers are currently using automated scheduling or optimisation systems; and
- The level of automation of business processes is different for each Service Provider depending on the capabilities of their individual systems.

As a result:

- MG is unable to track and report on the detailed status of trouble orders (to know that work has been despatched, completed etc.). This limits MG's capability to ensure that it complies with Guaranteed Service Level (GSL) obligations and in some cases leads to the double dispatching of a trouble order to different crews; and
- MG is also limited in its ability to monitor some aspects of field work performance and the achievement of service levels and remains dependent on the quality of Service Providers systems and processes.

Technology advances provide opportunities for improved integration between the back office and field services. These advances require MG to regularly review its operating model and contractual arrangements with field service providers and to competitively re-tender for services as appropriate. This allows MG to leverage the benefits these improvements can provide including:

- More accurate and timely data directly from and to field service crews;
- More detailed field data including GPS co-ordinate, asset and location photographs available to both MG and the Service Provider;
- Crew scheduling efficiencies leading to improved customer service and potentially reduced outage times.

- Future retendering opportunities becoming more efficient as the rebuild of new mobility system is not required.

This project leverages the experience of similar projects already in progress for UE and supports future contractual engagements with external service providers.

## **1.2. Project Overview**

The Mobility Integration project will address the current challenges in the processes for defining, scheduling, despatching, reporting and monitoring of field work activities. The project will implement additional capability in MG's systems which will allow better integration with service provider systems or, where appropriate, will reduce dependence on service provider systems by providing an end-to-end solution.

## **2. Objectives / Purpose**

The objective of the project is to:

- Improve field workforce productivity and efficiency;
- Reduce administration and scheduling overheads;
- Increase the efficiency of the Service Provider when tendering for future models: and
- Improve customer service.

## **3. Strategic Alignment**

### **3.1. National Gas Rules Alignment**

The program aligns to the following National Gas Rules (NGR) capital expenditure criteria:

- Rule 79 (1) the capital expenditure is such that would be incurred by a prudent service operator acting efficiently in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;
- Rule 79 (2) (c) (iv) the capital expenditure is necessary to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred.

### **3.2. Multinet Gas Strategic Themes Alignment**

This project provides an opportunity for MG to better monitor the achievement of field work service levels and to improve business processes.

The project supports the following IT strategic themes:

- Ensure ongoing integrity and improve safety of services in the distribution network;
- Utilise field mobility and other technologies to automate field work processes with service providers; and
- Ensure ongoing achievement regulatory requirements.



## 4. Options

All credible options to meet the key drivers of this project have been assessed:

- Do nothing;
- Upgrade MG's existing IT systems capability;
- Implement mobility integration capability; and

The recommended option is Option 2 – 'Implement mobility integration capability' (see rationale section below).

### Option 0 – Do Nothing

Option 0 – 'Do nothing', is not considered viable as it does not address the issues with current arrangements. The potential for saving and avoiding costs would not be achieved. MG would be at risk of not achieving required regulatory service levels because of lack of ability to track and monitor the status of work orders.

### Option 1 – Modify existing systems

Option 1 – 'Upgrade existing capability' is not recommended as current applications only have limited scheduling and despatch capabilities. Upgrading these applications would not meet the business requirements.

### Option 2 – Implement a mobility integration systems solution

Option 2 – 'Implement a Mobility Integration solution' is the recommended option as it provides the capability for MG to monitor both MG's compliance with Guaranteed Service Levels (GSLs) and also the performance of its external service providers against their contractual service levels. MG's high-level business requirements are well aligned with industry best practices and are generally suited to many off the shelf solutions available in the market.

## 5. Economic Evaluation

The Economic Evaluation table below is the result from the "Business Case Output" from the "Financial Evaluation Spreadsheet". This is MG's Capital Project Evaluation tool. The tool ranks the options based on Least Cost (Net Present Value). The least cost project will have a Project Ranking of 1.

	"Status Quo" Reference Case	Option 1: Modify Existing Systems	Option 2: Implement Mobility Integration Solution
<b>Net Capex (\$)</b>	\$0	\$5,945,640	\$4,586,663
<b>Opex (\$)</b>	\$0	\$0	\$752,211
<b>Least Net Cost (\$) (PV)</b>		\$5,945,640	\$5,338,873
<b>Project Ranking</b>		2	1

## 5.1. Recommended Option

It is recommended that Option 2 – 'Implement a Mobility Integration solution' be adopted as this is the lowest cost option that meets the requirements.

## 5.2. Benefits Summary

The overall benefits of the project include:

- Increased ability for MG to both track and ensure compliance with regulatory obligations;
- Improved monitoring of service provider performance and compliance with agreed service levels;
- Increased workforce productivity via better routing, reduced travel and efficient utilisation resulting in service cost reductions;
- Provides field crews with relevant and more accurate asset, customer and location information including previous incidents, hazards and other general details. Improved access to this data maintains and supports safety risk mitigation;
- Significant reduction in manual data entry and associated resource overheads;
- Improvement in data quality through system integration, automated validation, and mobility workflows preventing data entry errors; and
- Improved customer service and increased visibility of operational performance through real-time KPI and metrics data and management reporting.
- Increased efficiency when tendering future Operating and Maintenance contracts to external parties

The key benefits and estimated impacts of the mobility integration project are outlined below:

Benefit Area	Description
<b>Field Productivity/ Efficiency Improvements</b>	<p><b>Reduced Travel (time and distance)</b></p> <p>A works scheduling solution is able to use the GIS and street-level mapping data to improve field crew allocation and routing. The solution allows MG / Service Providers to reduce the average travel time and distance per work order.</p> <p><b>Efficient Resource Utilisation</b></p> <p>A works scheduling solution is able to utilise the maximum length of a field crew's shift to increase the number of work orders that are completed by each crew.</p> <p>Efficient resource utilisation (together with reduced travel) will also reduce the backlog of work orders such as overdue planned maintenance or low-priority trouble orders.</p>



Benefit Area	Description
<b>Reduced Administration and Scheduling Overheads</b>	<p><b>Automated Scheduling</b></p> <p>A works scheduling solution is able to automatically create both short and medium/long term schedules with little or no manual intervention. Importantly, such a solution can optimise a large amount of work orders and field resources in a significantly shorter timeframe than a human scheduler.</p> <p><b>Improved Data Quality</b></p> <p>Using an integrated works scheduling and mobility solution can ensure that critical data (e.g. asset information, customer details, etc.) is well maintained and improved over time. This is achieved through user input validation and results in significant reductions in data management processes.</p> <p><b>Standardised Processes</b></p> <p>Standardisation of work order execution processes will allow MG to improve on-boarding processes for administrative and/or management staff. This will reduce the training requirements for MG employees, service provider employees and contractors.</p> <p><b>Reduction of Duplicated Functions</b></p> <p>An integrated works scheduling and mobility solution will reduce or eliminate the need for data to be manually entered into MG systems. This reduces workload for service provider resources.</p> <p><b>Outage Management Visibility</b></p> <p>The works scheduling and mobility solution can ensure that planned outages are shown on all affected orders. This can reduce the number of cases where multiple outages occur in the same area within a short period of time.</p>
<b>Higher Operational Health and Safety (OH&amp;S) Compliance</b>	<p>The works scheduling and mobility solution can improve OH&amp;S compliance by:</p> <ul style="list-style-type: none"> <li>Ensuring that only an appropriately skilled field crew is sent to execute any given work order;</li> <li>Providing field crews with all the relevant asset, customer and location information including previous incidents, hazards, and other general details; and</li> <li>Enforcing a strict safety workflow which will ensure that field crews will complete the required safety information (e.g. JSA, SWMS) before commencing site work.</li> </ul> <p>The works scheduling and mobility solution will retain historical safety information that can be retrieved and audited as needed for safety compliance analysis.</p>
<b>Improved Visibility and Customer Service</b>	<p><b>Timely Reporting and Analysis</b></p> <p>By capturing real-time data from the field, MG will have access to timely operational reports on field performance.</p> <p>This information will be available on demand to allow MG operators, managers, and supervisors to proactively manage the execution of field work.</p> <p><b>Customer Service Benefits</b></p> <p>Works scheduling and mobility solutions provide significant customer service benefits via the following channels:</p> <ul style="list-style-type: none"> <li>Keeping track of customer appointment windows and ensuring field crews arrive within the agreed timeframe.</li> <li>Allowing early notifications of on-site or completion delays due to traffic or late completion of previous work orders.</li> <li>Automatically scheduling the right field crew to increase the first-time fix rates and reduce repeat visits.</li> <li>Provide scheduling data to customer service portals for self-service and visibility.</li> </ul>

Benefit Area	Description
<b>Internal Scheduling and Execution Capability</b>	Implementing a works scheduling and mobility solution will allow MG to use any of the above contractor engagement models as required. As an example, MG may wish to continue outsourcing full management of certain work orders to some Service Providers (e.g. time expired meters), whilst eventually scheduling and dispatching other work (e.g. planned maintenance) to Service Providers in-house.
<b>Regulatory Compliance and reporting</b>	<p>By capturing real-time data from the field, MG will have access to timely operational reports on field performance.</p> <p>This information will be available on demand to allow MG proactively manage, analyse and report on business compliance with Gas Distribution Code and regulatory requirements.</p>



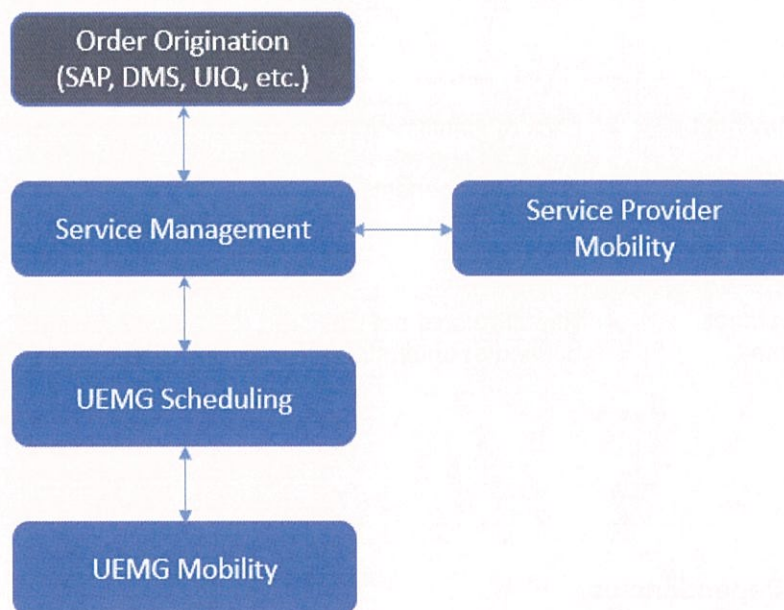
## 6. Proposed Solution

### 6.1. Solution Overview

An implementation of Option 2 – ‘Implement a Mobility Integration solution’ will allow MG maximum flexibility in selecting the optimum scheduling business operating model according to market demands. The proposed solution will allow for the following scenarios:

- Works scheduling and execution performed entirely within the MG Mobility Integration solution;
- Works scheduling within the MG Mobility Integration solution and execution within the Service Providers’ mobility solution; and
- Service and Trouble orders initiated within MG’s origination systems (e.g. SAP) and scheduled and executed within the Service Providers’ scheduling and mobility solution with a real-time interface to MG for visibility.

*Solution Overview for MG Scheduling, Service Provider Mobility*



### 6.2. Assumptions

The costs, scope and benefits of this project are based on the assumptions that:

- The design of the mobility integration solution will be based on a solution delivered for United Energy;
- Commercial off-the-shelf solutions will be available to largely deliver MG’s requirements without significant modification; and
- Commercial arrangements with Service Providers will be modified to address the necessary changes to use of systems and business processes.



### 6.3. Processes and Systems Impacted

This project will impact the following processes and systems

- Customer, Outage and Market System (SAP-ISU)
- Works Management (SAP-ERP)
- Financial Management (SAP)
- Market System Integration (MSI)

### 6.4. Risks

Key Risk	Cause	Mitigation
Project costs and timescales may be greater than expected	<ul style="list-style-type: none"> <li>• Project scope not well understood.</li> <li>• Project team skills not appropriate to task.</li> <li>• Project estimates inaccurate.</li> </ul>	<ul style="list-style-type: none"> <li>• Engage project team with required expertise and track record of success.</li> <li>• Ensure scope and objectives are well defined.</li> <li>• Review estimates based on actual costs incurred in other projects (e.g. UE projects) as part of development of detailed business case.</li> </ul>
Expected benefits may not be achieved.	<ul style="list-style-type: none"> <li>• Lack of identification of all activities and areas required to achieve benefits.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure clear business accountability for definition and achievement of benefits.</li> <li>• Develop and gain approval for detailed benefits realisation plan.</li> </ul>
The solution may not meet business requirements	<ul style="list-style-type: none"> <li>• Requirements not well defined or understood.</li> </ul>	<ul style="list-style-type: none"> <li>• Adopt business processes to minimise modifications to off-the-shelf solution.</li> <li>• Ensure appropriate involvement from business subject matter experts throughout the project.</li> </ul>

### 6.5. Constraints / Dependencies

The Mobility Integration solution whilst not shared with United Energy, will leverage experience and resources of two United Energy mobility projects. The costs shown in this document are MG costs alone, but take into account the shared UE resources.

### 6.6. Project Phases

#### Phase 1 - Trouble orders and Ad-Hoc service orders (e.g. new connections)

This phase will leverage MG's existing scheduling expertise and will introduce the initial efficiency gains of automatic scheduling and optimisation. This phase is further broken down to separate implementation stages for electricity trouble orders and ad-hoc orders and subsequently gas trouble orders subject to commercial agreements between MG and its Service Providers.

### **Phase 2 - Visibility of maintenance order scheduling and execution**

This phase will allow MG real-time visibility of the scheduling and execution processes used by MG's Service Providers and will provide significant insight into possible improvement opportunities.

### **Phase 3 - Scheduling of maintenance orders together with trouble orders**

This phase will build upon MG's experience and insight gained in the previous phases to deliver the capability of scheduling maintenance orders, trouble orders, and ad-hoc orders together in the same solution. This phase will give MG the biggest benefit and return on investment due to the significant efficiency improvement opportunities arising from a large volume of orders across the affected business units.

### **Phase 4 - Capital Works and Future Opportunities**

The final phase of the Mobility Integration project will be to schedule high level assignments to construction crews used in capital works programmes and to consider further opportunities such as integration to asset inspection and vegetation management systems. The former will allow visibility of resource assignment and high level progress against project plans, while the latter will allow for combined visibility of all schedulable work resides within a single centralised solution which can improve outage management.

## **7. Outputs**

The project will implement additional capability in MG's systems which will allow better integration with service provider systems or, where appropriate, will reduce dependence on service provider systems by providing an end-to-end solution.



## 8. Project Capital Costs

This section presents a summary view of the capital costs of developing, implementing and deploying the proposed solution.

Capex Category	Cost (\$'M)	CY' 2018	CY' 2019	CY' 2020	CY' 2021	CY' 2022	Source / Explanation
Labour IT	3.074	2.460	0.614				All IT and business labour costs associated with designing, developing and implementing the project solution.
Hardware (application specific)	0.768	0.615	0.154				Estimate of Hardware purchase costs based on supplier quotations / price lists
Software	0.461	0.369	0.092				Software licence purchase including first year support and maintenance
Security	0.031	0.025	0.006				~1% of Labour
PMO	0.303	0.243	0.61				Project Management Office including IT Capital Overheads
<b>TOTAL</b>	<b>4.637</b>	<b>3.711</b>	<b>0.926</b>				



## **9. Operating Cost Impact**

The IT operating cost impact associated with Hardware and Software maintenance and support from 2019 onwards is forecast at \$63.8k p.a.

## **10. Timeframes**

It is planned that the project will be delivered during between Q1 CY2018 and Q1 CY2019

**End of Document**

