Market Guide for Mobile Workforce Management Systems for Utilities

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Initiatives: Energy and Utilities Technology Optimization and Modernization

Remote-work impacts from COVID-19 are forcing utilities to evaluate MWM systems to manage asset-related activities and optimize field personnel in support and delivery of a broad spectrum of utility field work. This guide provides insights for utility CIOs on MWM market directions and providers.

Overview

Key Findings

- Recent impacts seen across the globe from the COVID-19 pandemic are forcing utilities, now more than ever, to evaluate their field worker mobile capabilities to capitalize on optimization opportunities and build in field personnel and work efficiencies.

- Market confusion continues on differences in product support for utility-specific use cases and ecosystems, as utilities evaluate and procure MWM and FSM products.

- MWM deployments are increasing as utilities move away from job/department-specific mobile applications, driven by utility digitization initiatives, with field mobility a priority to optimize field personnel and existing processes for cost reduction and operational improvements.

- Field assets inspection and maintenance, customer and meter services and damage assessment and storm response are top MWM use cases.

Recommendations

As CIOs responsible for utility foundational technology optimization, you should:

- Evaluate current field personnel technology constraints with your operations and maintenance teams, and work with the MWM vendor to understand how to fully capitalize on proven product capabilities.

- Perform a gap-fit analysis for utility mobile workforce management products. Your organization may require extensions for FSM functional elements to provide a breadth of capabilities.

- Identify optimization opportunities in field operations by collaborating with business executives focusing on which internal business processes and capabilities in areas such as customer
service, asset reliability, and regulatory compliance could be transformed with MWM.

- Assess mobile field products within the context of a broader enterprise field workforce mobile technology strategy by comparing business requirements with current capabilities and use cases mapped with anticipated future scenarios.

Strategic Planning Assumptions
By 2023, 70% of Transmission and Distribution utilities will have functionality that provides elements of both FSM and MWM.

By 2025, water and wastewater MWM deployments will account for more than 20% of the market; up from 11% today.

Market Definition
Mobile workforce management (MWM) systems are designed to optimize utility field workforce activities. MWM systems manage field work requests from within MWM and utility enterprise systems — such as from enterprise asset management (EAM) or a customer information system (CIS). They are distinguished by their ability to handle utility-specific work requirements and the full life cycle of scheduled, asset-intensive work processes. This is especially true for production systems (supply, transmission or treatment) and delivery networks within regulated electric, gas and water utilities. MWM products must demonstrate that they are marketed, sold and installed separately from enterprise systems offered by the vendor and must integrate with utility specific systems (for example, an advanced distribution management system [ADMS]) and multiple EAM products.

Market Description
Utility MWM products can support the breadth of field personnel functionality and deliver the utility-specific field use cases required by utility companies. In simple terms, MWM is particularly suitable in asset-centric field work processes for utility-owned assets.

Gartner regards utility MWM and field service management (FSM) as distinct markets, although some vendor products overlap and share common characteristics. Some utilities may need one or both, depending on their desired business outcomes; and often, these decision challenges arise with insights from the business on mixed requirements, unclear business processes, system overlap and so on.

Utility MWM products are generally inadequate for the customer-facing functions required by the utility, such as in integrated utilities or competitive retailers. In these utilities, therefore, organizations tend to supplement MWM products with an add-on FSM solution or capabilities to enhance customer-facing business processes beyond utility-owned assets — such as for energy efficiency, energy service and smart thermostat programs. In simple terms, FSM products are better suited in utilities that offer services beyond the network or utility infrastructure, such as with energy
services that are completed on the customer premises or for customer-owned assets (see “Utility Mobile Workforce Management and Horizontal Field Service Management Systems Provide Different Capabilities to Utilities”).

MWM products focus on the optimization of field operations. Most MWM solutions address field service related functionality for:

- Contingent workforce management
- Field data capture (including image/video)
- Fleet/asset management
- Supporting GIS-based work design, such as with sketching and redlining
- Integrated automatic vehicle location
- Materials management for the purposes of a particular field service action (not overall materials management)
- Mobile device/application management
- Reporting and analytics
- Resource forecasting
- Work assignment and dispatch
- Schedule optimization
- Route optimization
- Time tracking and reporting
- Work order completion, quality assurance (QA) and closeout

Gartner surveyed representative vendors to assess their coverage of functional capabilities. The vendors shown in Figure 1 supplied the number of in-production clients for each functional capability.

Figure 1: Functional Capabilities of Representative Vendors
For utility organizations, the most common MWM use cases include:

- Customer services from customer information systems (CISs; for example, connect disconnect and payment delinquency)
- Meter services from CISs (meter installation, inspection and testing and deployments)
- Damage assessment, storm response and recovery
- Field asset inspection and maintenance
- Field engineering design support
- Forestry/vegetation management
- Gas or water leak detection
- Joint pole use
- Long-cycle construction work
The list above is not intended to be an exhaustive list but to provide more understanding of the market and its offerings. Gartner surveyed vendors for the types of MWM use cases supported in their customers’ production environments. Figure 2 summarizes the responses from representative vendors profiled in this guide.

**Figure 2: Consolidated Use Cases Reported by Representative Vendors**

- Mutual aid, foreign crews
- Plant facilities inspection and maintenance

While the number of use cases reported by vendors are increasing overall, a few declined. Field assets inspection and maintenance, customer and meter services and damage assessment and storm response are top MWM use cases. Additionally, there are many use cases where utility needs are minimally served by the vendors evaluated in this research. This is partly due to availability of third-party products and MWM product limitations to fully meet market expectations for these use cases.
Although MWM products provide a breadth of capabilities for these use cases, due to functionality limitations and historical job/departmental approaches, some utilities leverage third-party products for particular purposes and then interface with other systems (for example, enterprisewide MWM or FSM with CIS). MWM deployments are increasing as utilities move away from job/department-specific mobile applications, driven by utility digitization initiatives, with field mobility a priority to optimize field personnel and existing processes for cost reduction and operational improvements.

Utilities are in a transition phase with their mobile capabilities for field personnel as they look to digitalize work processes and optimize personnel. Although vendor products have not yet matured to provide the breadth and depth in capabilities needed (spanning both asset-related and customer-facing requirements); Gartner expects utility MWM deployments to increase as vendor products become more advanced and utilities progress digital transformation initiatives.

Gartner surveyed vendors for the percentage of their clients by utility subsector. Figure 3 summarizes the responses from representative vendors. Nine vendors responded to Gartner’s survey in 2020. Vendors may indicate multiple use cases per customer. Not all vendors responded to this survey question: “Summarize how many deployments of your MWM product are in production use today, by business use case.”

**Figure 3: MWM Deployments by Utility Sector**

<table>
<thead>
<tr>
<th>MWM Customers by Utility Subsector</th>
<th>Number of Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Generation: Fossil Generation</td>
<td>62</td>
</tr>
<tr>
<td>Power Generation: Nuclear</td>
<td>30</td>
</tr>
<tr>
<td>Power Generation: Hydro</td>
<td>27</td>
</tr>
<tr>
<td>Power Generation: Renewables (Wind, Solar, etc.)</td>
<td>33</td>
</tr>
<tr>
<td>Transmission &amp; Distribution: Electrical T&amp;D</td>
<td>541</td>
</tr>
<tr>
<td>Transmission &amp; Distribution: Gas Distribution</td>
<td>196</td>
</tr>
<tr>
<td>Water/Wastewater</td>
<td>108</td>
</tr>
</tbody>
</table>

Source: Gartner
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There are many utility subsectors specifically within power generation where MWM needs are minimally served by the vendors evaluated in this research. This is likely due to the nature of the generation subsector (specifically nuclear and hydro), which have spatially distributed assets, but are concentrated plant assets that also do not need customer- or meter-related services. MWM is
primarily used by utilities that have spatially distributed and linear assets and customers/meters. Generators have “plant assets,” which have different requirements and do not need the same type of functionality or have end customers. For these utilities, needs are addressed in other enterprise systems such as EAM or third-party, fit-for-purpose alternatives.

**Market Direction**

Although vendor products for utility MWM continue to become more advanced, the market is not mature, and products are yet to fully meet the broad spectrum needs of all utility field work. The nature of field work continues to be complex:

1. Utility field work is variegated and occurs extensively, constantly and typically over wide geography and use cases.

2. Utility assets are typically long-lived and have different cycles of field attention across their life cycle, from design and commissioning to maintenance and upgrade and refurbishment and retirement.

Utilities typically see between 25 and 40 discrete field service use cases, requiring support that can be optimized across the organization. Although the requirement for mobile functionality in the field for a utility is nothing new, there are a few emerging requirements:

- Improve asset management activities
- A need to better equip field personnel (including access to various systems and tools and data)
- Field collaboration and visibility (including technician location and connecting field personnel with back-office personnel)
- Optimize field personnel across the organization
- Efficiency gains in routing and location services

**MWM Market Observations**

These forces are accelerating product advancement in the MWM market. The following are MWM market observations that we are highlighting in 2020.

**Utility Market Evaluates MWM Products With Optimization in Mind**

Optimization continues to be a top priority for utility organizations. According to the 2019 Gartner CIO Survey, for utilities, most digital activity was seen in optimizing existing processes for cost reduction and operational improvements, with 21% of utilities ranking operational excellence and 15% ranking cost optimization as top priorities. With MWM, utility organizations are pursuing “optimization” in two key areas:

- Improving effectiveness and productivity of field personnel
Historically, utility mobile deployments were largely siloed mobile work solutions that targeted specific business processes, business groups or assets within different parts of the utility organization or even the value chain (such as meter-related work). More recently, MWM deployments are expanding across utility organizations. This is due to their relative capabilities to support many utility specific use cases (such as storm response and meter services) and integrate enterprise systems (such as advanced distribution management systems [ADMSs] and customer information systems [CIS]). Utility MWM products complement the mobility needs of utility enterprise systems (such as ADMS and CIS), but cannot yet fully replace them. MWM can help utilities orchestrate and optimize field work in ways that disparate utility systems alone cannot. With this, utilities are increasingly seeking mobile solutions that can continually optimize a broad spectrum of utility work across a resource-constrained pool of field workers.

Utilities are evaluating how MWM products can optimize and support field personnel through leveraging and integrating technologies (such as augmented reality or virtual reality AR/VR) and enterprise systems (for example, EAM). MWM systems are increasingly the focus of data and functionality convergence (such as with AR/VR, asset management and GIS systems and other technologies). Having streamlined access provides utility field personnel with real-time access to information and decision support that can drive new work optimization. A more-integrated solution can help asset operators maximize productivity, improve operational safety and reduce maintenance costs through better planning. MWM can provide access to information and insight from multiple systems delivered at the right time and format to create efficiency and productivity.

Cloud-Based Deployments Slowly Gain Traction

Although cloud deployments continue to increase, we still have not reached a tipping point where utilities are fully embracing cloud delivery options for MWM. Most MWM vendors offer hybrid options (on-premises and cloud) and cloud deployment, in addition to traditional premises-based products. Additionally, new vendor ecosystem partnerships are providing combined capabilities, such as cloud integration and analytics in the cloud. Typically, the biggest factor in cloud acceptance is the treatment of cloud as an operating expenditure (opex) that utilities cannot put in the rate case. This is because the utility financial model is focused on reducing opex and increasing capital expenditure (capex). Other factors, such as security capabilities and top-to-bottom application portfolio rationalization of the utility digital business technology platform, are also considerations.

As many new capabilities are being layered/embedded into applications that are cloud-native and sometimes cloud-dependent, cloud-based solutions are gaining traction, and utility CIOs see greater scalability, configuration flexibility and efficiency in data transfer, along with enhanced cost savings. In addition, a growing number of vendors are catering to the requirements for regulatory compliance, thereby ensuring the security and privacy of sensitive data through their cloud-based offerings.
Cloud technology can potentially deliver on the promises of speed to capability and speed to value, and provide utility CIOs with flexible deployment. Additionally, SaaS-based MWM deployments over public or private cloud deployment models enable a faster deployment with minimal downtime. The SaaS-based deployments enable a full bring your own device (BYOD) program for the workers, which, in turn, results in several cost savings, because the utility doesn't need to provide mobile phones to the workers (see “Update Mobile and Endpoint Policies to Reduce GDPR Risk and Address Bring-Your-Own-Device Policies”). A SaaS solution will feature an always-up-to-date version when compared with web-hosted solutions. However, these options often come with other considerations, such as personnel- or employee-owned personal device data consumption cost or with unknown network devices that access corporate data.

Gartner surveyed vendors for the percentage of customer deployments of their field mobile product by delivery model. Table 1 summarizes the responses from representative vendors profiled in this guide. Although growth from previous market activity continues at a slow pace, compared with last year's data cloud/SaaS, deployments have increased by 6% over the current dominant on-premises model.

Table 1: Percentage of Utility MWM Customer Deployments by Delivery Model

<table>
<thead>
<tr>
<th>Delivery Model Option</th>
<th>Percentage of Customer Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Premises</td>
<td>61%</td>
</tr>
<tr>
<td>Cloud/SaaS</td>
<td>39%</td>
</tr>
</tbody>
</table>

Source: Gartner (May 2020)

**Integration for Advancing Asset Management Activities**

Integrating MWM with asset management systems continues to be an important component in advancing asset management strategies and optimizing fieldwork. Most organizations need good mobile capabilities to extend asset performance management (APM) and other complementary technology for offline use. Complementary to the data collected through the Internet of Things (IoT), MWM products are employed for the capture and viewing of inspection data in the field in the form of operating statistics and condition data. Interfacing with a mobile product such as MWM allows the capture and use of real-time data in the field, an essential underlying prerequisite to a predictive forecasting strategy and a crucial building block for reliability-centered maintenance (RCM) analysis (see “Market Guide for Asset Performance Management Software”).

MWM products are also increasingly of interest to fill the gaps of some EAM systems’ mobile capability. Mobility is critical for the support of personnel away from a workshop environment, when information must be delivered to users in the field and data is captured from inspection tasks or completion of jobs. Even after decades of development by EAM vendors and partners, mobility remains an area of high concern for users because of differing end-user needs, constantly evolving
technology in mobility and user expectations set by consumer devices. This, in some cases, is leading to buyers of EAM seeking other mobile vendor products outside of the EAM’s mobile capability to fill the “gaps” (see “Survey Analysis: EAM Functional Satisfaction in 2020”).

**Enhanced Planning With Artificial Intelligence/Machine Learning**

Increasingly, utility requirements demand improved field service efficiency and effectiveness. Artificial intelligence/machine learning (AI/ML) capabilities combine historical data with external sources that could provide more accurate estimates of important service metrics, such as:

- **Duration of tasks** — that have a material impact on key service business decisions
- **Identifying the best resource** — based on past performance of specific tasks
- **Prioritizing job scheduling** — based on current work orders, criticality and service impact
- **Route optimization** — based on traffic patterns within a utilities service territory
- **Parts recommendation** — based on service history and work order type

ML capabilities can also have more accurate resource planning and better scheduling by providing deeper insights into staffing requirements. Not all MWM vendors are developing these capabilities, and those who are will be at various stages of development.

**Geospatial Capabilities Offer More Robust Location Insights**

Utility field work is complex, with the majority being for the deployment, inspection or repair of assets. Geospatial capabilities provided through MWM equip field personnel with access to real-time mapping data, data to help them understand what is happening with an asset as it relates to the associated location and context and why. These capabilities aid the move away from an analog approach of location data in paper maps to digitalized, providing a near-real-time digital interactive map. Utilities leverage two main types of systems:

- **GIS** — These are designed to represent locations of assets, customers and surrounding elements based on spatial positioning. These systems can also support real-time modeling; visualize electrical, gas and/or water network topology; and depict the relationship between assets and the environment. GIS is foundationally a spatial information system.

- **GPS** — These provide capabilities such as dynamic rerouting and traffic data using sourced map tiles (such as Google, Bing or HERE Technologies). GPS provides time-specific location capabilities for street-level routing.

The important distinction is that GIS provides capabilities, such as viewing layers of infrastructure, where the data must be sourced from less “public” sources. GIS can be embedded for a graphical interface, which assists with better planning and routing. Some uses include field mapping and
design for asset inspection, maintenance and procurement and for decision making in the field (see “3 Practices Utility Company CIOs Should Include in an Integrated EAM-GIS Solution Strategy”).

Market Analysis

The MWM market is served by a diverse set of solution providers (see Notes 1 and 2). The global market has developed unevenly due to the regional differences in operational environments, as well as the many different types of utility organizations. Utilities have been using MWM products since the late 1980s. Most are on their third generation of applications with digital initiatives geared toward optimizing existing processes for cost reduction and operational improvements. More recently, utilities have been evaluating opportunities to rationalize their mobile application portfolios driven by consolidation efforts toward enterprisewide mobile workforce strategies. With MWM, utility organizations expect to address a variety of pain points, such as:

- Simplifying field work via system integration
- Collecting and reporting accurate real-time information and data in the field
- Offline capabilities
- Subcontractor management
- Employment productivity
- Number of field technician trips to a site
  - Lack of visibility into the justification and effectiveness of the maintenance strategies executed
  - Data silos
- Reducing multiple instances of mobile applications for a single or consolidated source for field mobile needs
- Access to data (such as asset information or GIS data)
- Automation and optimization of work
- Ability to quickly and efficiently respond to emergency situations and last-minute changes

The utility field workforce mobile product market is composed of two distinct, but overlapping, submarkets. One is a market of vertically focused MWM vendors that specifically cater to energy and water utilities. The other is a market of horizontal FSM vendors that target utility or water organizations, along with other industries.
MWM Vendors

Utility MWM vendors deliver industry-specific MWM systems. Their properties include:

- Field mobile product designed specifically for utilities
- A tenured, sizable and proven utility client base
- Understanding of utility work processes and the ecosystem of enterprise systems
- COTS-ready dynamic templates for utility use cases (such as meter services or storm response)
- Integration (in many cases prepackaged interfaces) to utility specific solutions (like ADMS)
- Alignment with utility industry standards (such as MultiSpeak or the common information model [CIM])

These systems have been designed specifically for utility organizations, with a sizable and proven utility client base developed over decades. Due to their tenure, focus and experience in the utility industry, MWM vendors can support a wide range of business use cases (as described in the Market Description section). They have a good understanding of utility work processes and workflows, as well as the ecosystem of enterprise systems. They provide integration to utility-specific solutions for work order generations and for data needed in the field, (such as, ADMS or CIS solutions) along with others, which in many cases are through prepackaged interfaces. Products can support alignment to utility industry standards, such as Multispeak, for standardized interfaces among software applications in electric utilities, or the International Electrotechnical Commission (IEC) CIM in electric power transmission and distribution utilities.

FSM Horizontal Vendor Products

Horizontal FSM products typically provide a subset of capabilities for utility organizations. Their properties include:

- Designed for cross-industry use
- Utilities are one of the main targeted industries, but not the only
- Can provide most of the mobile field personnel functionality
- Can provide the customer-facing functions for services beyond the network or utility infrastructure
- Cannot provide the breadth and depth of dynamic templates, capabilities or utility use cases that are COTS ready
- Limited or no experience with support for utility industry standards
These products are designed for use in many industries. Most of these vendors provide FSM products that target the utility and water industries along with others (such as manufacturing, healthcare and telco). Typically, the product origins are from outside of utilities, however, the expansion of the IoT is leading vendors to increasingly explore utility markets as their solutions grow more sophisticated. Products tend to target only a specific type or set of utility use cases (such as field asset inspection). FSM vendors that supply horizontal solutions for field services are exposed to many product categories, which are all increasingly smart and connected. For example, a vendor that has deployed solutions across sectors may have learned to address the growing sophistication of internet-connected consumer appliances. At the same time, the vendor may have been working with commercial building equipment (such as elevators and HVAC systems), or even doing maintenance work on cruise ships. All systems are growing smarter through advances such as AI and increasing automation, so many types of service work are growing more complex. Utilities (especially those with customer offerings, such as appliance services, energy services, residential solar installations, customer battery storage and electric vehicles [EVs]) are working with FSM vendors to address these work types. They can be used strategically or tactically as part of a more comprehensive field resource strategy. For more information, see “Utility Mobile Workforce Management and Horizontal Field Service Management Systems Provide Different Capabilities to Utilities.”

Figure 4 illustrates the field-proven use cases of vendors represented in this Market Guide. It is not a complete list of existing solutions, but it does include the major MWM and related ecosystem vendors, indicated as follows:

- Categories colored dark blue have a proven capability of 20 or more in-production clients as per supported by both vendor and client claims.
- Categories colored light blue have a proven capability of between 10 and 19 in-production clients as per supported by both vendor and client claims.
- Categories colored gray have a product available; however, with limited deployments between one and nine clients, as per vendor claims.
- Categories with no coloring indicate a vendor does not have a capability.
- Categories with “NR” indicate the vendor did not respond to this survey question.

**Figure 4: Use Cases Reported of Representative Vendors**
Gartner surveyed representative vendors to assess their coverage of global markets. The vendors shown in Figure 5 supplied the indicated percentages of 2019 field mobile product revenue by geographic region. Clearly, there are many geographic markets where field mobility needs are not yet served by the vendors evaluated in this research.

Figure 5: Percentage of Utility MWM Revenue by Geographic Region
**Representative Vendors**

**Market Introduction**

The vendors listed in this Market Guide do not imply an exhaustive list. Table 2 is intended to provide more understanding of the market and its offerings.

**Table 2: Representative Vendors in Mobile Workforce Management Systems for Utilities**

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Product, Service or Solution Name</th>
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</thead>
<tbody>
<tr>
<td>ABB</td>
<td>Service Suite and ABB Workforce Management (WFM)</td>
</tr>
<tr>
<td>Accruent</td>
<td>vx Field</td>
</tr>
<tr>
<td>CGI</td>
<td>PragmaCAD</td>
</tr>
<tr>
<td>Cleest</td>
<td>Mobile Workforce Management</td>
</tr>
</tbody>
</table>
The vendors listed in this Market Guide do not imply an exhaustive list. This section is intended to provide more understanding of the market and its offerings.

Vendor Profiles

Utility MWM Vendors

The vendors listed in this section of the Market Guide do not imply an exhaustive list. This section is intended to provide more understanding of the market and its offerings.

ABB

ABB is a publicly held, multinational conglomerate based in Zurich, with an estimated annual revenue of $28.0 billion. In February 2019, ABB announced plans to sell off its Power Grids division to Hitachi, which will operate as the majority owner in the joint venture. Hitachi plans to close the purchase in the first half of 2020. Their MWM products are developed, marketed and supported by Hitachi.
ABB’s Enterprise Software product group, part of ABB’s Power Grids division. The primary MWM client base is located in North America with a majority in electric transmission and distribution with on-premises deployments.

ABB provides two solutions in the MWM segment:

- **ABB Service Suite**: A traditional on-premises MWM application, with the latest release of version 9.7.1 in December 2018, and version 9.8.1 planned for mid-2020. Service Suite has more than two decades of history in the utility industry, which means that utility customers have configured the Service Suite product for nearly all use cases. The product includes the following capabilities: forecasting demand; field technician auto scheduling; field monitoring and worker dispatching; appointment booking for customer services representatives (CSRs); field worker mobility; historical database; operations notice board for emergency work; business intelligence; and deployment options. GPS and automatic vehicle location (AVL) integration are supported, as are dispatch mapping and mobile mapping. The HTML5-based FieldWorker runs on Android, iOS and Windows 10, and the laptop mobile application runs on Windows 7 and 10. The majority of MWM client deployments are on the Service Suite product.

- **ABB Digital Enterprise WFM**: A multitenant SaaS application, which can be hosted on any platform and managed by ABB, or as an on-premises or private cloud deployment that customers manage themselves. The WFM FieldWorker mobile application, available for Android, iOS and Windows 10 platforms, provides technicians with work order details and navigation, and enables them to complete their orders, returning results to the data repository. WFM 1.3 is planned for release as part of Digital Enterprise 1.2 in April 2020. The product features: dispatch capabilities; automated scheduling, outage management through integration with ABB Ability Network Manager ADMS; asset inspections; access to asset and defect hierarchy details; inspection compliance; and inspection history at the test point. It also features: support for customer service, maintenance and repair workflows; and integration with wearables.

**Technology partner: Microsoft**

**Prepackaged interfaces:**

- **EAM**: SAP ERP (ERP Central Component ECC 6.0; Service Suite and Ellipse WFM) and Ellipse EAM to Ellipse WFM
- **APM**: Ellipse APM
- **GIS**: Esri (ArcGIS)
- **CIS**: Banner CX (Hanson)
- **ADMS**: ABB Ability ADMS
System integrators: Wipro, DXC Technology (formerly CSC), FieldForce4 and Accenture

CGI

CGI is a publicly held, global business process services and system integration firm based in Montreal, Canada with approximately $12.1 billion in annual revenue. CGI’s primary customer base for their MWM solutions are North America-based electric and gas distribution utilities.

CGI’s OpenGrid Workforce is the company’s newest MWM product version 6.8, released in January 2019, which is part of their bigger suite of solutions, OpenGrid360. The product is based on the PragmaCAD (version 6.8) product. The product’s functional capabilities include: resource forecasting; schedule optimization; route optimization; workload optimization; management of appointments, workforce contingencies, fleet/assets and materials; and provides reporting and analytics, work assignment and dispatch, work order completion, field data capture and time tracking. OpenGrid Workforce enhancements include offline mapping, multisource map tiling, Esri integration, web dispatch and the launch of storm manager; and web-based supervisor. OpenGrid Workforce supports Windows and HTML5, and both smartphones and tablet handheld devices. All current MWM deployments for utilities are on-premises; however, both hosted and cloud options are available.

As a system integrator, CGI provides its own implementation and support services; therefore, it reports experience integrating with a wide range of available APIs and web services.

Technology partners: Microsoft, Oracle, SAP, Hitachi, Cisco, Salesforce and OpenText

Prepackaged interfaces:

- EAM: CGI OpenGrid Asset and OpenGrid Work (previously known as the Asset & Resource Management [ARM] suite)

System integrators: A list of partners was not provided by the vendor at the time of gathering this data.

Clevest

Clevest is a privately held provider of MWM solutions based in Vancouver, Canada. Its offerings include a mobility platform supporting MWM; location services, which include AVL and automatic worker location (AWL); mobile GIS; advanced network deployment; and meter reading products. Its customer base mainly encompasses North America-based operators in transmission and distribution electric, water and gas utilities.

Clevest MWM (latest release was 7.0.3 in October 2019) addresses functional areas, including enterprise scheduling, appointment booking, automated and manual work assignments, work order receipt and completion, mobile GIS, resource and time tracking, job costing and reporting. Utility customers have configured the product for nearly all use cases. Clevest’s WorkBook mobile EAM: CGI OpenGrid Asset and OpenGrid Work (previously known as the Asset & Resource Management [ARM] suite)
application supports laptops and smart devices running Windows, as well as iOS and Android. Clevest’s WorkSpace application for office users is accessed through an HTML5 browser-based interface. Clevest offers both hosted cloud and on-premises deployment options.

Technology partners (Certifications): Microsoft, Oracle, SAP and Amazon Web Services

Prepackaged interfaces:
- EAM: IBM, Oracle and SAP
- FSM: Oracle and SAP
- GIS: Esri

System integrators: Deloitte, Hexagon, Cayenta, ITLogica, EY, Capgemini, Alstom-Utility Integration Solutions (UISOL) and UtiliWorks

GE

GE, a publicly held company with approximately $120 billion in annual revenue, operates as a digital industrial company worldwide. GE Grid Solutions business unit serves the utility market with customers in over 80 countries with its digital energy portfolio. The majority of GE’s MWM customers are in North America, Australia and Western Europe. The majority of deployments span transmission and distribution electric, gas and water utilities and renewable power generation. GE offers both hosted cloud and on-premises deployment options. GE operates in the MWM segment through its Digital Worker solution, which is part of GE’s wider Digital Energy portfolio of utility applications. It offers MWM adapted to business-critical use cases, like as-built design, outage/damage assessment, mobile switching and predictive maintenance through outage management system (OMS), ADMS, GIS and APM integration.

GE’s Digital Worker solution includes a number of components:
- GE Mobile Enterprise Suite (version 5.2.3 released in December 2019) can be configured for a variety of map-centric use cases, including damage assessment, inspection, as-built updates, vegetation management and gas leak surveys. Mobile Enterprise Suite apps are designed around “HTML5 micro apps” that are targeted at specific workflows. Mobile Enterprise Suite leverages Google Maps and Couchbase distributed database technology in its deployments and is the BYOD upgrade platform for its FieldSmart mobile GIS customers. The product also has in-production utility client’s utilizing the disconnected mode capability.
- ServiceMax, a GE partner (see “Magic Quadrant for Field Service Management”), has integration capabilities to support utility workflows within the Mobile Enterprise Suite. GE is continuing to be a ServiceMax reseller and preferred partner. GE, which had acquired ServiceMax in 2017, retains a 10% interest after selling the company to technology investor Silver Lake in 2019. The first GE-
ServiceMax joint utility customer went live in January 2020, and GE remains a reseller of ServiceMax to utilities.

Technology partners: Silver Lake-ServiceMax, Accruent, Google and Couchbase

Prepackaged interfaces:

- APM: GE Predix Asset Performance Management (Predix APM)
- GIS: GE Smallworld
- ADMS: GE ADMS

System integrators: CGI, Capgemini, Deloitte, Accenture and PwC

SAP

SAP is a publicly held application software, analytics and business intelligence company founded in 1972 and based in Germany. It has a presence in about 180 countries, with approximate annual revenue of $30.92 billion. The majority of SAP’s MWM client base are in North America and Europe, with the rest spread across the world, and a majority as on-premises deployments.

SAP’s MWM solution is a combination of three products: SAP Work Manager (version 6.5.10 released in November 2019), SAP Multiresource Scheduling and SAP Asset Manager (1911.0.0 released in November 2019). The products include: work order management; scheduling and dispatching; flexible support (SAP ERP and SAP S/4HANA); offline and online access to maintenance management; multiple deployment options — iOS, Android and Windows devices; and on-premises or cloud deployment options. SAP Rounds Manager can be integrated into the Work Manager, which provides the tools needed to magnify the value of routine condition monitoring, meter reading and field measurements by recording more accurate data and analyzing it faster.

SAP has positioned SAP Mobile Platform (SMP) as a platform for application development, SAP Mobile Secure for mobile application and device management, and SAP Work Manager as a mobile app for EAM. Additionally, SAP has launched a cloud counterpart to SMP, which is called SAP Cloud Platform Mobile Services. Both customers and industry partners can develop solutions on the SMP platform.

SAP declined to provide customer numbers for the graphics above.

Technology partners: Cisco, Fujitsu, HP Inc., Hitachi, GE, Huawei and SAS

Prepackaged interfaces:

- ERP: SAP ERP (Business Suite)
Integration partners: Accenture, IBM, Vesta and Deloitte

Schneider Electric

Schneider Electric is a publicly held provider of energy and automation digital software and services across multiple market segments, including utilities, infrastructure and consumers. Its approximate revenue is €27 billion, and it is based in France with a presence in more than 100 countries. Most of the company’s mobility customers are located in North America and Europe in transmission and distribution gas, electric and water, with a large majority as on-premises deployments.

Schneider Electric offers mobility solutions in two areas:

- **EcoStruxure ArcFM Mobile** (version 11.2 released in March 2020) is a GIS-based mobile application that includes scalable offline maps, configurable search, network tracing, work enablement, redlining workflows, data forms and integration support features. The product offers map corrections and as-built edits with workflow tools that enable the creation of redlines in the field. The latest release provides new capabilities, including bidirectional linking with external apps, measurement tools and GPS integration.

- **EcoStruxure ADMS Field Client** (version 3.8 SP1 released in September 2019) is a web-based solution primarily focused on coordinating detailed work requests, switching plans, damage assessments and safety documents with tablets and laptops. It provides the as-operated state of the grid represented with geographic, schematic and station views so that the field crew has the same insight into the grid as is available at the enterprise.

The products offer functionality for: contingent workforce management (ArcFM Mobile, ADMS Field Client), work assignment and dispatch (ArcFM Mobile, ADMS Field Client), switching orders (ADMS Field Client), field data capture (ArcFM Mobile), fleet/asset management (ArcFM) and GIS-based work design (ArcFM). However, they are not for integrated automatic-vehicle location, materials management, reporting and analytics, resource forecasting, route or schedule optimization, time tracking and reporting, or work-order completion at this time. The products are utilized for several use cases. Integration with work management systems is supported. Both are multiplatform solutions supporting Microsoft, Android and iOS devices.

Technology partner: Microsoft

Prepackaged interfaces:

- **ERP**: SAP
- **EAM**: IBM and SAP
- **GIS**: Esri
Integration partners: IBM, POWER Engineers, RAMTeCH and UDC

Horizontal FSM Vendors

The vendors listed in this section of the Market Guide do not imply an exhaustive list. This section is intended to provide more understanding of the market and its offerings. For more information see “Magic Quadrant for Field Service Management.”

Accruent

Accruent is a privately held global software company that develops and delivers facilities management, asset management and real estate solutions to organizations globally. It is headquartered in Austin, Texas, with an approximate annual revenue of $270 million. Accruent was founded in 1995. Its primary customer base is in North America.

In late 2016, Accruent acquired FSM vendor Verisae. Its MWM solution, vx Field (last released January 2020 of 20v1), includes: resource forecasting; schedule optimization; work assignment/dispatch; exception management, work order closeout; time and tracking; parts management; reporting and analytics; and a performance management module for analyzing workforces. Vx Field offers two mobile strategies: a Windows Mobile version based on HTML5, which supports both online and offline modes, and its Android- and iOS-native applications, which offer voice enablement. The vx Field mobile app acts as a “personal assistant” mobile app that provides contextual information, real-time updates and customer information supported in both online and offline modes. Nearly 100% of Accruent’s MWM utility deployments are on-premises.

Technology partners: Oracle and Google

System integrators: Cyient, GRINTEC (Austria-based) and Accenture

Gomocha (Formerly Tensing)

Gomocha (known as Tensing until January 2017) is a privately held subsidiary of Tensing, with an approximate revenue of $4.3 million. The company is based in the Netherlands. The majority of mobile clients are located in North America and Europe. Gomocha offers the Field Mobility Platform 360 (FMP360-version 4.3 released in September 2019) solution, which supports back-office, mid-office and mobile-office employees. This is a mobile-enabled GIS solution for enterprise mobility and workforce automation, targeted at multiple industries, including utilities.

The product is Microsoft-centric, offered on all major platforms (Windows, iOS and Android) and supports disconnected usage. The platform can run on-premises or as a cloud-based SaaS environment. The FMP360 mobile application is designed for laptops, smartphones, tablets and wearable devices. Its latest release includes enhancements for safety messaging, quoting and subcontracting. Functionality includes: contingent workforce management, field data capture,
fleet/asset management, GIS-based work design, materials management, reporting and analytics, route and schedule optimization, time tracking and reporting, work assignment dispatch and work order completion. It has been configured for most utility use cases.

Gomocha has a relatively small customer base in the utility industry and is focused more on FSM across several industry segments, rather than specifically on utility MWM.

Technology partners: Microsoft, SAP, DAQRI and Esri

IFS

IFS, founded in 1983, is a privately held, global ERP vendor based in Sweden, with a revenue of approximately $668 million. IFS does not represent itself as a utility MWM vendor. However, it targets five specific industries, including utilities, with the majority of customers located in Western Europe and North America across all utility subsectors and the majority as on-premises deployments. Its products include:

- IFS Field Service Management (the latest release of FSM6 was in May 2018), which provides intelligent planning and scheduling optimization, mobile field service, reverse logistics, depot repair, spare parts management and warranty management. The product has been used for most utility use cases and has in-production utility clients with offline mode use.

- IFS Planning & Scheduling Optimization (the latest release of PSO6 was in May 2018), which provides a dynamic scheduling engine, target-based scheduling, predictive analytics, advanced resource planning and route optimization software.

Both of these solutions can be part of the broad IFS FSM (ERP application) or can be deployed separately. Its latest release includes enhancements for subcontractors, customer portals and scheduling capabilities. These products are primarily deployed in field service applications in nonutility industries, but have been adapted for the utility market (particularly to address resource optimization, high-density planning and other unique aspects of smart meter programs).

Technology partners: Oracle, Microsoft, Esri, NEC and B&M TRICON among others

System integrators: Accenture, Novacura and Canyon Tech

Oracle

Oracle is a publicly held global technology company headquartered in California. The company revenue is approximately $39 billion. Oracle develops, manufactures, markets, sells, hosts and supports database and application software and cloud services, cloud infrastructure and hardware systems worldwide across approximately 145 countries. The majority of Oracle Field Service utility customers are in Western Europe and Latin America spanning all utility subsectors, with all clients having cloud deployments.
Oracle offers two solutions in the MWM ecosystem: Oracle Field Service Cloud Professional Cloud Service and Oracle Field Service Cloud Enterprise Cloud Service. Version 20A was released in February 2020, which is organized in multiple functional components: scheduling and routing; team collaboration; field resource enablement; resource planning, manage and dispatch interface; and customer engagement.

Oracle Field Service provides functionality for planning, scheduling and executing work. Reports are available with analytics through an integration with Oracle Analytics Cloud. Third-party work is handled natively within Oracle Field Service. The product is built on open architecture allowing system integrators to have access via standards-based web services to perform all necessary integration work. Oracle Field Service is accessed using the browser-based, HTML5-based application including support for Windows and/or the installed Android and iOS applications, which work in a connected or disconnected mode.

Technology partners: Oracle did not provide a list of partners during the data-gathering process for this document.

Prepackaged interfaces using Oracle Integration Cloud:

- CIS: Oracle Customer Care and Billing, Oracle Utilities Customer to Meter (C2M)
- Oracle Utilities: Work and Asset Management (WAM), Work and Asset Cloud Services (WACS)
- EAM: Oracle Products: Maintenance Cloud, E-Business Suite and JD Edwards EnterpriseOne
- ERP: Oracle E-Business Suite (financials only), JD Edwards EnterpriseOne and Oracle ERP Cloud

System integrators: Leadent, Wipro, Deloitte, Accenture, Infosys, Speridian, Helix, eVerge Group and Group Seven

OverIT

OverIT is a privately held and wholly owned subsidiary of Engineering Group, an Italy-based IT product and engineering service provider with an annual revenue of $42.88 million. It offers field, mobile, AR and GIS solutions to customers across energy and utilities, oil and gas, industry, services, and transportation. The majority of OverIT’s MWM customers are located in Western Europe and Latin America, with a large majority of its clients in distribution and water/wastewater.

OverIT’s product for field service is Geocall (version 9 was released October 2019). It can be deployed as an online and offline multiplatform native app or a hybrid app, leveraging HTML5. OverIT has integrated GIS, AR, AI and wearable technology to enhance field workers’ experience in its SPACE1 AR solution that can be integrated with Geocall. The product has been configured for a majority of utility use cases. OverIT also introduced several in-house product updates, such as: virtual user collaboration, advanced digital content sharing, VR for training, IoT Integration, Geocall Plant templates, Geocall and Qlik BI for advanced and self-business intelligence and analytics, and...
greater GIS OpenLayers integration. Geocall offers both hosted cloud and on-premises deployment options.

Technology partners: Esri, Microsoft, RealWear

Prepackaged interfaces:

- EAM: SAP, IBM and Infor
- GIS: Esri and GE Smallworld
- ERP: SAP, Oracle and Infor

System integrators: Engineering Group, Eptisa, Khatib & Alami, Accenture, the Engineering Group and Geoxite (L. America)

**Salesforce (ClickSoftware)**

Salesforce is a publicly held cloud-based software company headquartered in San Francisco, California. It provides customer relationship management SaaS, and also sells a complementary portfolio of SaaS offerings focused on customer service, sales, marketing, commerce and analytics, as well as communities, application development and collaboration. It also provides an FSM product called Field Service Lightning (FSL), which was a challenger in the 2019 FSM Magic Quadrant (MQ).

In October 2019, Salesforce acquired FSM vendor ClickSoftware. ClickSoftware's two field service products, Service Optimization Suite for on-premises deployment and Click Field Service Edge, a SaaS-based FSM platform, now fall under the Salesforce FSM umbrella. The legacy ClickSoftware product has a substantial position in the utility MWM market, which was its largest vertical market. The product has customers in renewables, electric, gas and water utilities. It also has a geographically diverse utility customer base.

Salesforce declined to provide customer numbers for the graphics Figures 1 and 4, above.

Technology partners: Amazon and Google

System integrators: Accenture, Capgemini and PwC

**Other Vendors Considered by Utilities**

Utilities also often consider the following vendors as they seek mobile field resource solutions. These vendors provide certain aspects of MWM functionality, or offer MWM products, mostly on a regional basis.

**Hexagon**
Hexagon, a publicly traded company based in Sweden, provides industrial and geospatial enterprise solutions (such as GIS). The company was founded in 1975, with a revenue of approximately $4.24 billion. In July 2009, Hexagon acquired Intergraph, which included the InService product. In January 2018, Intergraph Germany SG&I was rebranded as Hexagon Safety & Infrastructure. In February 2019, Hexagon acquired Thermopylae, which specializes in geospatial applications, mobile frameworks and cloud computing for enhanced location intelligence.

Hexagon’s Safety & Infrastructure division offers MWM capabilities only within the context of its Intergraph InService product. Intergraph InService is an integrated outage management and MWM solution that combines Critical Capabilities for network management (such as network monitoring, analysis and operation) with those for outage management and MWM. It can be integrated with third-party systems to track outages and restore service, feed customer communications, monitor and operate the distribution system, provide grid analysis and optimization, manage and inform field crews and provide operational intelligence to the enterprise. Hexagon does not present its products as meeting the requirements for a full MWM solution. In August 2018, it formed a strategic alliance with Clevest to offer Clevest’s workforce automation products, alongside Hexagon’s utility GIS and outage management systems for integrated office-to-field solutions in the North American market.

Technology partners: Cisco, GeoSpatial Innovations (GSI), Microsoft and Oracle

irth Solutions

irth Solutions is a privately held, cloud-based work order automation software vendor. The company was founded in 1985 and is based in the U.S. Its last estimated annual revenue was $42 million. Its flagship SaaS offering, irth UtiliSphere, includes a wide range of capabilities to easily automate work processes required to protect and maintain distributed assets such as pipelines, transmission lines, electricity distribution networks and fiber-optic lines.

The product comprises the following features: one-call ticket management, no-code application designer, mobile device access, work and asset mapping, customized scheduling and routing and reporting and analytics. The product has been configured for a variety of utility use cases and is use-case-agnostic. Its integrated mobile application enables remote access on any device (desktops, laptops, tablets and smartphones) and on any operating system (Windows, Android and iOS), connected or disconnected from cellular or internet service.

Its major client base comprises the North American oil and gas, energy, telecom, and utilities companies.

Technology partners: IBM, Expedient, Microsoft, HERE Technologies and Esri

Smart Energy Water

Smart Energy Water (SEW) is a privately held company, founded in 2010 and headquartered in Irvine, California. SEW is a provider of cloud-based SaaS solutions to the energy and utility industry
with a core focus on digital customer experience, mobile workforce engagement and AI/ML/IoT analytics. Its Smart Mobile Workforce solution is a single integrated mobile workforce engagement platform that helps increase productivity, efficiency, safety, accuracy and compliance. It does this by enabling real-time two-way communication between utility and its field workers and providing field personnel with job, safety and asset-related information.

The product can be deployed on all devices, with an online/offline capability. The solution enables intelligent decision making via AI operational reports and advanced analytics, including outage management, work order management, auto scheduling and dispatching, asset and inventory management, e-learning, safety and compliance, workforce collaboration, route optimization and damage assessment.

Technology partners: IBM, Microsoft, Oracle and SAP

System integrator: HCL, PwC, Tech Mahindra and Wipro

Other partners: GPS Insight, Itron, Milsoft and TMG Consulting

**Market Recommendations**

Utilities should seek MWM solutions that can continually optimize a broad spectrum of utility work. Enterprise MWM solutions can optimize and orchestrate work in ways that disparate utility systems cannot. More specifically, utilities evaluating MWM options should consider a number of criteria, including:

- **Ease of integration and compatibility with key systems of record**: What core system-of-record applications do you have in place, and what are your future investment plans? MWM systems have tie-ins to a variety of systems of record (depending on the use case), and some system-of-record vendors also sell MWM systems. A common vendor does not always mean tight integration out of the box, nor should it be the only criterion.

- **The MWM vendor’s domain expertise and its future roadmap**: Does it have customers already using the product for the required use case? If not, then what is the vendor’s roadmap?

- **The MWM vendor’s alignment with the utility’s own mobile technology roadmap**: How well does the vendor’s architecture support future deployment modes, including enabling technology interfaces (such as AR/VR or GIS), cloud deployment options and different mobile device form factors?

- **The MWM vendor’s plans for adding a mobile app development platform to its product suite**: Many MWM vendors are building out this capability.

- **The MWM vendor’s ability to support new digital business models**: This includes equipment as a service or connected service that relates to new capabilities to weave in IoT data, outsourced service models and BYOD models.
Range of deployment and integration support from system integrators

Quality and breadth of partner ecosystem

Approach to development and innovation (for example, range and speed of product improvement to include on-premises version versus cloud/SaaS options)

### Acronym Key and Glossary Terms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
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<td>MWM</td>
<td>Mobile Workforce Management</td>
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<td>FSM</td>
<td>Field Service Management</td>
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<tr>
<td>CIS</td>
<td>Customer Information System</td>
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<td>ADMS</td>
<td>Advanced Distribution Management System</td>
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<td>OMS</td>
<td>Outage Management System</td>
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<tr>
<td>EAM</td>
<td>Enterprise Asset Management System</td>
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### Evidence

The data used to inform the opinions and recommendations has been formed from a number of internal Gartner sources, including:

- Gartner analysts acquired insights from several hundred utility companies for selecting an MWM and FSM system through the Gartner inquiry process, one-on-one meetings at events and customer reviews on Gartner's Peer Insights page. These provided directional support for opinions derived from earlier data.

- Gartner received associated material from 12 MWM vendors (most have global reach, but some are only regional) in December 2019 and February 2020.

- Gartner also surveyed secondary research sources for information on market trends and vendor activity.

- A sampling of utility MWM vendor briefings provided data for market direction and analysis.

- Other sources include credible public sources.
Note 1:
Representative Vendor Selection
The 15 vendors named in this guide were selected to represent the three market segments as discussed in the Market Analysis section: MWM software vendors, MWM ecosystem horizontal products and other ecosystem offerings. For each of these three categories, we list vendors for which Gartner has received the most client interest.

Note 2:
Gartner’s Initial Market Coverage
This Market Guide provides Gartner’s initial coverage of the market and focuses on the market definition, rationale for the market and market dynamics.

Recommended by the Author
Utility Mobile Workforce Management and Horizontal Field Service Management Systems Provide Different Capabilities to Utilities
Magic Quadrant for Field Service Management
Market Guide for Asset Performance Management Software
Magic Quadrant for Enterprise Asset Management Software
Transmission and Distribution Utilities Context: ‘Magic Quadrant for Enterprise Asset Management Software’
Survey Analysis: EAM Functional Satisfaction in 2020
Best Practices for Choosing an Asset Management System Integrator
Magic Quadrant for Multiexperience Development Platforms

Recommended For You
Building a Learning Environment That’s Safe: Learning Environment Blog Series (Part 4 of 4)
Intel’s Development Opportunity Tool With Ginny Gray
Quick Wins for Brokering Experiences
How the Platform Economy Could Revolutionize L&D
Creating a Skills Exchange
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