**Enabling mobile workers**

The most valuable asset in today’s increasingly service driven economy is infrastructure and providing the services and workforce to deliver it. Optimizing the usage and lifecycle of infrastructure and maximizing the capabilities and efficiency of its workforce has to be at the heart of any operational strategy.

Utility companies, as other asset-intensive industries, find in mobility the catalyst for transforming their operations and responding to the new challenges. New advances in mobile technology provide a powerful platform for reviewing and adjusting existing workflows and automating manual processes to manage assets more efficiently and to improve how to respond to outages and service their customers.

However, despite the myriad of available technologies and solutions, pulling together the technologies to effectively manage the assets and the workforce in the field, is still a challenge. Also, there is a common misconception in assuming that field workforce requirements in the Utility sector are similar or equal to those of other sectors and that they can be satisfied with a “standardized” solution. This misconception leads to a misapplication of technology and weak results with the deployment of the chosen solution.

Relying on solutions specifically designed for asset intensive industries, like those proposed in this guide helps define an adequate strategy to enable Utility companies to make faster, better-informed decisions in both daily operations and long-term planning strategies.

It is only when integrating field workforce management software with innovative mobile devices and embedded with Intel® vPro™ technology, that Utilities gain the true value to deliver sustainable gains in performance and profit.

<table>
<thead>
<tr>
<th>Increase in workforce productivity</th>
<th>Improvement in Asset reliability</th>
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<tbody>
<tr>
<td><strong>30%</strong></td>
<td><strong>15%</strong></td>
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<table>
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<tr>
<th>Reduction in incidents improving field safety</th>
<th>Reduction in Total Maintenance Costs</th>
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</thead>
<tbody>
<tr>
<td><strong>10%</strong></td>
<td><strong>40%</strong></td>
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<table>
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<tr>
<th>Fewer accidents involving work vans using mobile connected tablets with routing</th>
<th>Recapture initial investment and operational savings within one year of delivery</th>
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</thead>
<tbody>
<tr>
<td><strong>16%</strong></td>
<td><strong>100%</strong></td>
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**Figure 1.** Benefits realized by a US mid-size utility company after deploying Ventyx Asset & Workforce Management software suite. 
An industry in transformation

The Utility Sector is facing important challenges derived from steeply rising costs and flat or declining demand for electricity, as reflected in a recent Deloitte whitepaper. Technological, regulatory and competitive forces are driving the industry into a potentially disruptive period with profound changes in the way that electricity is generated, distributed, managed and consumed. They face even more pressure as the sector has been underperforming during the last years within the broad market. During the last few years, the S&P 500 (SPY)(IVV) gave returns of 47%, whereas the utilities sector (XLU) gave returns of only 5.5%.

Utility companies face a unique set of challenges and their performance is highly tied to the efficiency of their operational processes, the optimization of their resources and utilization of their assets.

These companies are coming from operational environments with reduced automation and manual intensive activities that limit their capabilities to improve performance. Common limitations they currently have are:

- High volumes of paper-based activities
- No workflow automation for the field work
- Limited on-site documentation (manuals, schematics or paper drawings)
- Inaccurate asset information to achieve better resource allocation and shorter outage resolution
- Reactive asset maintenance due to lack of real-time data status
- Limited collaboration between field workers and coordination teams.
Specific industry Challenges

The industry is looking for tools to help them automate their operational workflows and optimize their field workforce. However, for a successful implementation utilities have to take into consideration challenges specifically related to their own sector, such as:

**Capacity Management:**
- Crew management in real-time
- Adequate reaction to urgent events (outages, SLA compliance)
- Predict future workload

**Reliability:**
- Pass on knowledge of experienced workforce
- Redundant information capture
- Increase overall safety

**Asset Utilization:**
- Optimization of critical assets and their lifecycle
- Minimize outages and reduce risk of disasters
- Asset strategy aligned to operational output

**Operational Efficiency:**
- Follow consistent workflows
- Reduce data errors
- Lack of consistent baselines and processes
- Make optimal contractor vs. employee decisions

**Field crew Mobilization:**
- Hostile environments (extreme temperatures, wet conditions, hard knocks)
- Special usage conditions (gloved hands, direct sunlight)
- Full-shift battery performance
- High demand enterprise apps (complex graphics, processing power)
- Device maintenance and integrated manageability with IT systems
Utilities conduct business with a unique set of operating characteristics that have evolved over decades, beginning with paper-based operations and evolving into complex IT-driven business processes. Aiding in this transformation is the arrival of improved workforce management software and new mobile technology that have helped utilities run their operations more efficiently and develop a distinct advantage.

When Utilities look for ways to drive operational optimization and increase field productivity, they focus on how to better coordinate their resources to optimize short- and long-cycle work activities, such as:

**Operations**: Includes everyday field work typically completed within a shorter duration (hours, days); it is often considered “unplanned” and “undesigned” work that the utility must manage. Some examples are responses to customer inquiries, such as a new service hookup, gas or water leak, or to outage conditions, such as a downed power line or broken main.

**Maintenance & Construction**: Includes complex work that must be planned, scheduled and executed over longer periods of time, such as construction of new infrastructure or repair and replacement of aging assets.

Integrating the management of the field workforce with the automatization and coordination of the asset operations and construction activity can produce measurable and repeatable benefits in operational efficiencies by having the right insight and information to optimize how to allocate the resources and optimally schedule their activities.

An example of how this integration can provide business value is when a field technician repairs a downed power line, enters data via a mobile device and shares the data with customer service, dispatch, scheduling and other departments. When it comes time to inspect and/or maintain that same power line, the field crew can access the prior repair information on-site. In turn, this data can be leveraged when planning and preparing for larger-scope work (long cycle). It is easy to see how integrating operational information and coordinating activities among different departments, can ultimately be a cost-saving tool when it comes to deploying both human capital and physical resources.

To evolve from a paper based and manual operational model into a one that facilitates the decision making process in managing the field workforce, automates the operational workflows and provides the insight and knowledge required by the mobile field crews, this guide proposes a robust solution to help evolve their current workflows and processes into a more productive and efficient operational model.

**Ventyx® Workforce Management software suite combined with the full range of Panasonic® rugged mobile devices and the security and manageability functionality embedded in the Intel® vPro™ technology provides the solution to drive the workforce and operational transformational improvements required by the Utility Industry.**
The first functional element of the proposed solution is the Enterprise Workforce Management (EWFM) software. **Ventyx Service Suite** is an end-to-end, enterprise mobile workforce management solution that delivers integrated forecasting, scheduling, dispatch, mobility and reporting.

Service Suite automates the entire asset service cycle, from short-term decision-making in the control center, to long-term maintenance planning in the back office. It also delivers a platform for managing work across the enterprise – regardless of the application from which the work is generated – and enables seamless, real-time data and communications flow between enterprise systems and mobile field workers.

**Figure 2.** Key functional elements of the proposed solution and how they interact to each other.
Key capabilities of the suite include:

**Forecasting**: Allows organizations to more accurately and transparently predict future demand for both long-term budget-cycle planning and short-term operational planning.

**Workforce Optimization**: Automatically assigns work orders to technicians and continuously optimizes work assignment as conditions change, making adjustments and reassigning work to maintain the best possible schedule.

**Dispatch**: Provides dispatchers with list, Gantt, and map views to monitor work and technician assignments within their area of responsibility, including real-time work updates from technicians in the field.

**Workforce Availability**: Allows administrators, dispatchers, & supervisors to define technician qualifications & rosters.

The real-time communication between the enterprise systems and the field technicians is provided through the second key element; the broad availability of wireless communications. The combination of extensive 3G/LTE networks deployed by mobile operators, with the growing ubiquity of wifi hotspots facilitate the interaction between field crews and the EWFM.

The third element is the mobile devices with the EWFM mobile applications that empower field workforce to access critical knowledge and resources, wherever they are. Filed crews see their work on mobile laptops and tablets, access customer and asset information and provide work updates and status back to dispatch in real time. Technicians are supported by Panasonic’s Toughbook* and Toughpad* portfolio and a number of mobile tools within the mobile application, including driving directions, text messaging, and timesheets. Offline processing allows technicians to work and complete orders, even when they are in areas with an unreliable signal or are completely out of coverage.

The fourth key element is the underlying technology that supports the security levels and manageability functionality required in the enterprise environment. Security cannot ever be compromised when mobilizing the workforce and Intel® Identity Protection Technology (Intel® IPT™) embedded within the mobile devices’ hardware improves the level of security and prevents unauthorized access to customer and business data. Furthermore, Intel® vPro™ Technology provides robust remote management capabilities and gives IT managers full control to manage any mobile device, whether it’s connected to the network, powered off, lost, or stolen.

The combination of all these elements ensures Utilities “do more with less”, increase customer satisfaction and proactively maintain assets while reducing costs by working smarter.
The following illustration reflects how the solution is able to automate the service workflow and optimize the activities and assignment of the mobile work crews. Operations or construction & maintenance activities trigger the initiation of the workflow and each module performs different functions and generates the required output to complete the activity.

**Figure 3.** Process for asset and workforce management.
The old and new way. An example of how this solution can impact on the operational model when the field crew is dispatched to fix a transformer in a distribution substation.

With paper-based workforce

An asset must be fixed before a peak period. The crew supervisor gets job cards from dispatch, finds the manuals for the equipment and suggests tools for the crew to load.

Asset managers send an investigation team prior to the work team. They discover an additional problem and contact the work crew to get more equipment.

The work crew returns to the work site get the additional equipment.

The crew takes longer to get back to the site because of heavy traffic, but has the necessary tools and spare parts to be able to repair both problems so the work can be completed.

The crew radios back to dispatch that the work is completed. When the crew returns, the supervisor makes the additional entries in the asset management system to update the replaced inventory at the substation.

With mobilized field crew

The crew supervisor receives all the info from the mobilized worker with his rugged tablet and the crew checks to ensure they have all tools and docs. specified for that repair.

Asset sensors detect an additional problem, that information is added to the work ticket and pushed to the tablet before the crew leaves the site.

While en route to the substation, the work crew receives asset maintenance and inspection work directly with full history, safety checklists and step-by-step instructions.

The crew receives routing indications and arrives in plenty of time to correct the issues before peak period starts. All work is automatically updated into the system.

The work queue is updated, and the crew receives the next dispatch with all the required information and documentation.
Enabling the field workforce

There is a broad range of available software solutions to help Utilities to proactively maintain their assets and automate the field workforce. However, to ensure the right software is deployed, in order to work smarter and do more with less, there are some key factors to consider when designing the solution:

**Intelligent and opportunistic data management.** The worker must be able to operate in a disconnected mode independently and since not all data needs to be real-time, the solution must identify which data should be transmitted and when, opportunistically and intelligently imperceptible to the worker.

**Data collaboration and orchestration.** When automating the field work, the solution must support meshed communications between multiple applications in the back office and a single or multiple mobile applications. This communication integration must be fast, seamless and non-intrusive to minimize cost and risk.

**Data Integrity and Intelligence.** Field data with contextual awareness is not only very powerful for operational analysis but also as a means to automatically initiate critical processes both in the field and in the back office, thus the solution must support the data validation and enforcement of data quality.

**Change readiness.** Asset intensive enterprises are in a constant state of change. The solution must continually adapt to these dynamic environments, ensuring the company can continue with the service and production without interruption and without affecting the day-to-day operations.

**The OS Dilemma**

Enterprises are risk averse and are looking to mitigate OS platform risk wherever possible. This means sustainability and lifecycle support when it comes to application development and design, seamless back-office integration capabilities and the use of non-proprietary open tools in a highly scalable and reliable framework.

The use of Windows solutions for frontline mobile applications across a variety of industries is widespread and represents the legacy platform for many significant applications. Although many organizations, when defining their mobility strategy, are also considering alternative mobile platforms such as iOS or Android, these legacy Windows users remain highly committed to their platforms. The capabilities ranging from platform stability and security, to management infrastructure and continued support for existing applications, are all factors leading to continued investment in Windows for many frontline mobile solutions.

One reality of today’s mobile enterprise, however, is that the days of a single dominant platform are behind us and organizations are evolving to support multiple mobile platforms including iOS, Android and Windows. Even though Android has become the dominant smartphone platform and is rapidly evolving as a tablet solution, enterprises have taken a cautious approach to supporting this platform. Android has been perceived as a vulnerable platform for enterprise applications, but Google is making significant strides in addressing enterprise security.
Mobility, an untapped opportunity

Enterprises see the value of extending the concept of workspace leveraging the capabilities provided by an ubiquitous network connectivity and new mobile computing platforms. In order to do so, they require devices that, despite the technical features, provide the reliability, stability, robust security and device management as well as a strong lifecycle support that their businesses demand.

When asking IT decision makers about the key requirements for choosing devices for their mobilization strategy, the main ones they identify are battery life, reliability and security features, all ahead of price competitiveness.

Panasonic Toughbook and Toughpad lineup take into consideration these key requirements and the specific environmental and working conditions faced by Utility field workers.

Figure 4. Panasonic Toughbook and Toughpad line for enterprise mobility.
Impact on TCO when implementing enterprise-grade tablets

Initial mobile implementations started with clamshell PC devices installed on vehicles, but these are displaced by tablets as the form factor of choice. Workers can enter data and fulfill orders while outside the truck, pull up Customer information on the spot and implement a pool of devices for a grab-and-go functionality when responding to outages.

Furthermore, enterprise-grade tablets are able to meet expectations of three key stakeholders: field workforce, IT management and finance.

**Field workforce** is looking for devices that are easily accessible and:

- Withstand the demands of their job, including different hazardous situations (extreme temperature, wet conditions, vibrations and drops) and usage of gloves.
- All-shift power coverage with hot-swappable battery options and efficient power consumption technology
- Clear displays viewable in daylight.
- Continuous connectivity and usage for personal needs.

**IT managers** must design their mobile device strategy with enterprise levels of security and manageability:

- Including chip-level security with advance hard drive protection, enabling disk encryption and remote wipes.
- Ensuring rapid deployment and easy training.
- Supporting a holistic MDM solution with integrated software and security tools.
- With increased durability and reliability to minimize the high cost of mobile worker downtime.

**Finance** expects a low total cost of ownership, taking into consideration:

- Consumer-grade devices may have less upfront costs but device failures can lead to data loss, inefficiencies and labor costs, increasing long-term costs.
- Value of making employees more productive.
- Not putting more strain on IT resources with less durable devices and complex manageability and maintenance.

![Figure 5. TCO savings when implementing enterprise-grade tablets.](image)
Enterprise Security and Manageability

Mobile devices are often the weakest point of security for an enterprise so IT managers have to ensure the integrity of the data on the device, secure the device itself and ultimately, control how mobile devices access corporate systems. With Intel® vPro™ technology embedded into the hardware, higher levels of security are achieved when a device is lost or access is required to non-enterprise sites. Mobile devices can be accessed within the enterprise security and management systems, protecting the OS kernel, ensuring their boot integrity and maintaining data integrity with Intel self encrypting SSDs and Intel® Identity Protection Technology (Intel® IPT ™). IT is able to remotely diagnose, isolate and repair after a security breach is detected.

IT must also regularly monitor the devices in the field to maintain the optimal working condition and performance and, more importantly, the integrity and security of the applications and data on the device. The solution must facilitate the automatic installation of software and updates individually or en masse, over the air or via cradle banks. Furthermore, IT support has to be received on site, when the mobile device is malfunctioning, remotely accessing the device even when the device is not booting up and updating system software. Intel® Active Management Technology™ provides all these capabilities, even when the device is turned off, as long as the device is connected to a network. Having a common infrastructure and tools across enterprise systems and mobile devices also facilitates management consistency.

- Protect the OS kernel
- Ensure boot integrity
- Protect BIOS from modification
- Self encrypting SSDs to protect data automatically

- Remotely manage mobile fleet
- Remediate remote devices with Intel® vPro™ technology
- Remote SSD password reset
Dispatchers, asset managers and crew supervisors are empowered with a new comprehensive group of tools when the solution is implemented. A modern work environment for smarter operations allows them to manage and control asset current condition, the situation of the mobile field workforce, the status of the workflows and track work queues.

A comprehensive view from Ventyx Software Suite also empowers supervisors to make better-informed decisions and manage the whole team in real-time, react quickly to urgent events and achieve better technician utilization. This set of tools facilitates their planning & scheduling and workforce management.

Figure 6. Integrated Ventyx Software Suite for Asset & Workforce Management.
Field workers also experience how the new mobile tools in their hands empowers them to be more “intelligent”, secure and efficient in developing their day-to-day work.

How do mobile devices impact the field crew activity? The following list describes key behavioural changes when the filed workforce is mobilized:

• Field workers can **start the workday at home** after central dispatch teams push overnight service assignments for the day, reviewing office communications and documentation to be used for the scheduled activities.

• Less time is spent in traveling as field crew receives **updated traffic information and best route indications** as well as real-time notifications.

• Even in a hazardous environment, field workers can **put all their focus in performing their activities**, ensuring their rugged mobile devices support extreme temperatures and wet conditions without damage and significant disruption to their work.

• Field workers can use their tablets in direct sunlight conditions as they have **displays visible in bright light** and work with protection as the tablets also support interaction with gloved hands through electronic pens.

• When accessing their back-end systems there is no need to enter a password to the VPN every time, as **NO Password VPN** allows use of a digital PKI certificate in the platform. Intel® Identity Protection Technology (Intel® IPT™) provided better protection of this certificate, because PKI management processes (generation of keys and others) take place at firmware level, instead being run by SW platforms, reducing exposure of keys to malware attacks (same functionalities that a Smart Card Reader embedded in the tablet platform HW).

• Activity on-site can be extended with no worries about battery duration. Toughbook and Toughpad **hot-swappable battery capabilities** and embedded Intel® vPro™ power efficiency assure field crew stay connected and productive throughout their shifts.

• **More in-depth data collection**, easier collaboration through integrated camera, video and voice recording.

• Network coverage does not limit the field activity as Panasonic incorporates **long range wireless antennas** specifically designed for on-site conditions and Ventyx mobile applications ensures **seamless operation in and out of coverage**.

*Figure 5. Ventyx mobile application running on different devices.*
Some enterprises often think that, when deploying a field workforce mobilization solution, they are implementing an add-on or extensions to their existing inventory of back office capabilities. This misperception is further amplified by the misleading small or portable nature of the mobile devices. The simplified user experience is often misperceived as a “dumbed down” solution. These enterprises are thus surprised when they experience drawn out implementations.

In truth, mobile applications can be more robust or intelligent than back office applications. The simplicity required in the field to be able to work efficiently and independently with complex data and working conditions, in an often disconnected mode, requires intelligence and logic not typically required in the back office. A simplified user experience, location based services, device monitoring, peripheral integration, opportunistic and intelligent data management and security must all pack into the mobile solution, often with considerable development and configuration cycles. Yet asset intensive organizations are in a constant state of dynamic change and by the time a typical mobile solution is deployed it can be obsolete.

Choosing the mobile devices is one of the key decisions when implementing the solution and there are some considerations to take into account when addressing the deployment. These are:

Let the application and environment drive the device selection. Understanding the conditions within which devices are used is imperative to selecting the best fitting solution.

Don’t make device accessories an after-thought. Mobile devices often require third party accessories such as payment sleds, bar code scanners and others, as part of the field mobile solution. These add-on devices can represent substantial upfront investments and often can be a key source of failure. Moreover, not properly anticipating accessory lifecycles and replacement/upgrade can adversely impact the success and ROI of a solution.

Ensure there is enough training. Migrating from a manual process or from existing solutions may be a challenge for employees despite the benefits and improved productivity they will enjoy. It is important to set the right expectations and provide ample support and training for employees throughout the transition.

Take the TCO into account. Understanding what the support requirements will be for mobile devices – from helpdesk calls to replacement and upgrades of mobile devices – is critical. The cost of supporting and managing a device post deployment is just as, if not more important that the upfront device investment. Establish and track key support metrics.

Focus on sustainable application development platform. Lifecycle management for not only the mobile device, but also the application and any associated peripherals, including key upgrades, needs to part of a broader mobile strategy. For more sophisticated enterprise mobility applications, the need for stability and reliability is critical.
Solution applicability in other sectors

Utility companies (Electricity, Gas and Water) are not the only asset intensive industries. There are other industries with similar challenges of maximizing workforce utilization and optimizing asset lifecycle that can take advantage in implementing the proposed solution. Examples of other industries that can exploit the proposed solution benefits are:

**Mining and Metal:** They need to manage complex assets in remote and dangerous locations with similar criticalness of asset availability and a loss of production is never regained.

**Rail and Transportation:** They have to manage their assets throughout a broad extension of locations. Asset availability is critical, since upon an asset failure, service is never regained and what is even worse, it may result in human casualties.

**Telecommunications:** It is a highly competitive industry constantly looking for ways to lower their operational costs. This solution helps them to automate their service delivery and assure and optimize their field worker activity.

**Extending the Application Usage**

Despite Utilities being considered a conservative and slow-moving industry, some of these companies are starting to investigate within and without the traditional IT organization how new advances in technology can help assure higher field worker safety and health as well as increase their productivity.

Wearable devices and augmented reality are two disruptive technologies identified by Utilities to provide real benefit to field workers. Some companies are starting to collaborate with innovative technology companies, such as Intel, to develop new transformative solutions to overcome some of their operational challenges.

Utilities are looking for applications of wearable technology that can bring real business value to overcome some of the safety and productivity challenges.

<table>
<thead>
<tr>
<th>Wearables</th>
<th>Glasses that show diagrams and relevant contextual information for hands free activity and increased safety with alerts if engineer is doing something wrong.</th>
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<tbody>
<tr>
<td></td>
<td>Sensors in clothing, hats and gloves that detect and have warning alerts for high voltage, gas leaks, vibrations, etc.</td>
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<tr>
<td></td>
<td>Wearables that track and alert when performing intense physical activity - e.g. lifting heavy weights, time on knees or back strain, that also help to redesign workflows in order to avoid injuries.</td>
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</tbody>
</table>
Augmented reality (AR) technology overlays graphical information, sound and other sensory stimuli into a real-life environment throughout a mobile device or wearing glasses to alter and complement the perceived environment. Field workers can integrate GIS information with their tablet’s camera feed overlying complementary asset data such as maps, text or 3D visualization of current or future installations. Some uses being tested by Utility companies are:

**Augmented Reality**

- Provide contextual information on-site of new network routing, underground pipe location or accurate position for new device installation.
- Communicate, while performing the activity, potential asset faults and safety notifications
- Help field workers test in what if scenarios or in training simulations
- Help customers with their decision making process - e.g. optimal new boiler location

Intel has recently announced the Intel® RealSense™ family of software and depth cameras. The Intel® RealSense™ 3D camera for tablets is an integrated 3D camera that delivers real-time depth sensing for rear-facing devices. It senses the surrounding world to scan, interact and generate augmented reality and enhance photo and real-time video in three dimensions.

Other companies like Filedbit (www.filedbit.net) are developing solutions that combine smart-glasses and augmented reality together to change the way field personnel perform complex service and repair tasks. Also, Total Immersion (www.t-immersion.com) is developing applications specifically for the industry sector to assist companies with precise site or field information in real-time.
Developing smarter operations

The proposed solution described in this guide focuses on helping Utility companies to work smarter. The key business benefits the proposed solution can deliver are:

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<th>Business Benefits:</th>
<th>Delivered Value:</th>
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<tr>
<td><strong>Maximize workforce productivity and utilization</strong></td>
<td><strong>Optimal work scheduling.</strong> Using real-time asset and work status, dispatchers can make better decisions and assign the right resources to the right activities.</td>
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<td></td>
<td><strong>Higher workflow automation.</strong> Electronic work orders and activity status are updated on site by the mobilized workforce and vehicle tracking and traffic conditions are used to assign the activities.</td>
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<td></td>
<td><strong>Contractor integration.</strong> External field workforce is incorporated into the scheduling to optimize costs and integrate them into the automated workflows.</td>
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<tr>
<td><strong>Increase asset reliability and lifecycle</strong></td>
<td><strong>Improve first time issue resolution.</strong> On site detailed asset information and electronic documentation to assist work execution, including e-learning capabilities on the spot.</td>
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<td></td>
<td><strong>Faster response to outages.</strong> Assign the most convenient crew based on the status and situation of field workforce. Push directly the relevant information to the mobile field crew devices.</td>
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<td></td>
<td><strong>Proactive asset maintenance.</strong> Analytics on asset usage and failure patterns to plan and schedule long-term activities intelligently balanced with operational work activities.</td>
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<tr>
<td><strong>Improved workforce safety</strong></td>
<td><strong>Better situational awareness.</strong> Updated information about asset locations and status and real-time notifications and alerts on environment changes.</td>
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<td></td>
<td><strong>Tools adapted to working environment.</strong> Usage of rugged mobile devices to support specific environment situations and ensure all the attention and focus is on performing the activity.</td>
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<td></td>
<td><strong>Easier field and central teams collaboration.</strong> Fluent and permanent communication with headquarters with different collaboration tools. Obtain the required information while performing dangerous activities.</td>
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<tr>
<td><strong>Empowered mobile field workforce</strong></td>
<td><strong>Advanced tools for stronger performance.</strong> Specialized mobile devices and applications to seamlessly work in and out of coverage.</td>
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<tr>
<td></td>
<td><strong>Smarter worker.</strong> Instant availability and visibility of key asset data. On site access to documentation and key information to perform the activities.</td>
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<tr>
<td></td>
<td><strong>Enhanced customer support.</strong> Updated asset information and access to customer records to provide up-to-date information on service delivery and fault resolution.</td>
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</table>
For more information:

To learn more about Ventyx workforce management software, visit: www.ventyx.com/en/solutions/utilities

To learn more about Panasonic’s Toughbook and Toughpad line, visit: www.toughbook.eu

To learn more about Intel’s Utility solutions, visit: www.intel.com/energy

1 Intel does not control or audit third-party benchmark data or the web sites referenced in this document. Please consult with Ventyx for further details.

* Other names and brands may be claimed as the property of others.

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Intel® vPro™ Technology requires setup and activation by a knowledgeable IT administrator. Availability of features and results will depend upon the setup and configuration of your hardware, software and IT environment. Learn more at: http://www.intel.com/technology/vpro.

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