Mobile Workforce Management

How technology & automation can increase efficiency by 3-5x

Graphite Partners

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Introduction

For many businesses, a mobile workforce is essential. For example, companies in the service, utilities, construction and transport industries rely on teams that spend the majority of their time away from a central office, working in the field. Engineers, drivers, pest controllers, auditors, and countless others make up the mobile workforce, and that workforce is growing. According to one report, the global mobile workforce is on track to reach 1.88 billion in 2023, making up 43.3% of the global workforce.

In addition, advances in technology have revolutionised how mobile teams work. Smart mobile devices are now commonplace and affordable. Improved infrastructure has reduced the number of places without internet access and, with 5G rolling out, has increased the number of high-speed connections over mobile networks. 'Bring Your Own Device' (BYOD) policies are also becoming more popular, which means an end to steep learning curves for new hardware. Instead, people can use devices they're already familiar with to do their job.

These advances have helped level the playing field, allowing smaller businesses to take advantage of technology that was previously only available to the largest enterprises. Even for large multi-national businesses, new technology has led to new possibilities. Coupled with the increase in demand, more companies than ever are making use of technology to provide new services, more efficiently, with increased compliance and at a reduced cost.

However, while the capability and potential are now within reach for the majority of businesses, companies still struggle to implement an effective mobile workforce solution. Many are unaware of the options available to them, while others are cautious about introducing change and managing potentially complex technology deployments to their staff.

In this white paper, we'll address the challenges of managing a mobile workforce, common misconceptions, and how to take full advantage of the opportunities available today. We'll also share the 10-step process we use to guarantee effective Workflow Solution deployment to mobile teams.

Getting started with mobile workforce management

When you have a mobile workforce, it's essential that they're properly managed. This will typically cover four key areas:

- **Scheduling -** ensuring your team is in the right place at the right time
- **Monitoring -** keeping track of any factors that could affect your service
- **Coordinating -** supporting your staff to correctly address potential problems before they become an issue
- **Analysing -** identifying areas for improvement

Other important elements make up an effective management program, such as improved communication and increased productivity. The best systems are both reactive, helping you respond to problems quickly, and proactive, allowing to prevent problems from occurring in the first place. Many times this will involve replacing manual processes with automated, digitised solutions.

When set up properly, mobile workforce management acts as a link between the office, the staff, and the customer, enabling real-time updates and access to information for whoever needs it.

Challenges and misconceptions

While it's now easier than ever to implement field-based workforce management, it still involves more than just downloading and running an app on your phone. If there's pressure to meet objectives, a solution might be implemented without the necessary preparation. Controls need to be put in place from the very beginning regarding expectations (on both sides), security, support, and strategy.

Communication issues can be a big enough problem in the office, let alone when your teams are remote. Will communication be limited to one specific app? Which document formats will be supported? What information will you collect? How will you manage it? How will you ensure standards or regulations are met? How can you make sure your data and that of your customers is safe?

Processes that make sense on paper may fall apart when things don't go exactly as planned, leading to unexpected delays and costs. To be effective, mobile workforce management also has to be scalable. It's great if you can schedule and automate the work of one engineer in one location, but what happens with a team of 10? 100? 1,000?

Finally, there are other psychological challenges. Many people, both in management and in the field, are wary of big changes. If it's not broken, why fix it? What about your worker's privacy? Should mobile workers be tracked at all times? What constitutes reasonable monitoring, and what's an invasion of their privacy?

These challenges may seem overwhelming but, with the right setup, they're outweighed by the benefits of a mobile workforce solution.

Implementing successful mobile workforce solutions

Despite all of the above challenges, it's entirely possible to put systems in place that meet the needs of your team and your customers by planning the process and following a few basic steps.

Include employees in the conversation. It's vital that the people who will actually be using the system are invested in the solution. Get their input from the very beginning, and it's more likely to stick. It's only a good solution if they use it, so it's essential they're involved. What are they concerned about? Where can you make their job easier? Rather than enacting a 'Big Brother' monitoring program, clarify what you will be tracking and why, particularly if it personally benefits them. Outline the tangible benefits that they'll enjoy: less paperwork, easy access to information, more flexibility, and fewer phone calls. Make it relevant for them personally; perhaps they'll only need to visit the office once a week, meaning one less stop on the way home and less time commuting.

Solve problems, don't create them. Just as some people are cautious of new technology, there are others who love it. They will happily run ahead, putting overly-complex technology in place to make them look like they're making technological progress. Rather than obsessing over what's possible, document your procedures and analyse where solutions are actually needed. For example, digitising paperwork means that technicians are able to access valuable information, such as operating manuals and contracts, on-demand while they're out in the field. As a result, they're able to deliver a better service in less time, in turn leading to happier customers and lower costs.

Manage your data. We live in the age of big data, and it's easier than ever to collect data on every little metric you can imagine. However, it's more important to manage it correctly. Studies show that poorly managed data can be worse than no data at all, so don't just collect data for the sake of it. As part of your documented procedures, make sure you're only measuring the data that adds value to your business.

Provide training and support sessions: One of the big advantages of today's technology is how much easier it is to use. Anyone who was involved in personal computing in the '90s knows how difficult just installing software could be. Manuals for the simplest software would be hundreds of pages long. However, while technology is much more intuitive than it once was, then training and support are still essential—especially when potentially business-critical work is involved. Give staff the ability to try out the software before it's launched and allow them to ask any questions, raise their concerns, and contribute to the design of the tools.

Start with a gradual changeover. Even the best plans will need fine-tuning once they go live. By keeping the initial rollout to a single team, you'll have the opportunity to test the system and iron out any problems without too much pressure. As well as safeguarding you from any major issues, a successful rollout can also help persuade any reluctant individuals of the benefits and increase confidence in the solution.

Benefits of mobile workforce management

One of Graphite Partners' customers, a major UK train operator, implemented a mobile workforce management system to streamline cleaning and auditing processes for both their trains and stations. By digitising their paperwork and making it easier for staff to record their work, they've so far enjoyed productivity gains of up to 25%. With over 6,000 staff and 400+ stations to manage, that means significant savings in time and money across the network. There was also an improvement in quality, with audit scores for train cleanliness increasing by 5.5 percentage points in less than 6 months (a result of analysing the collated data and re-engineering the process).

Paper vs digital. How much of a difference does going paperless really make? In one recent test carried out by Graphite Partners, a standard visual inspection of an operational asset took 8 min 59 seconds the "old fashioned" way. By optimising the task with a digital form and automatic data capture/upload, the same check was carried out in 2min 47 seconds, saving more than six minutes on a single check.

Of course, most engineers don't check just one asset or piece of equipment. Assuming 100 checks were carried out each month, this would save over 10 hours spent on paperwork and administration, while also providing results that are easier to analyse and audit. That time can now be spent on more high-value tasks, improving the level of service uptime, increasing the lifespan of the asset through better maintenance, and reducing customer complaints.

The best in class tools can schedule, monitor, and analyse your mobile teams' workload. With the proper setup, they can be configured to your business's unique requirement so your management, staff, and customers have real-time access to the information they need.

Using the Internet of Things for 'smarter' processes

Another key part of a modern remote workforce management solution is the Internet of Things (IoT). IoT is all about harnessing the power of the internet in everyday devices, connecting them to share data and improve processes. While it may have seemed an alien concept just a few years ago, devices that connect to the internet to provide enhanced experiences are now commonplace in the home. Thermostats, lights, and security devices are regularly connected to the internet to increase convenience and deliver better service.

The benefits aren't just limited to consumers though. When placed on equipment that you're servicing/monitoring, IoT sensors can provide real-time data on what's happening, monitoring a wide range of data points such as temperature, movement, pressure, moisture, and much more.

In an example business context, this could mean monitoring:

- The number of people using an escalator
- The temperature of a chilled storage unit
- Warehouse stock levels of key components used in vehicle fleet maintenance

As the number and type of sensors increase, so does the potential for integrating them into your workforce and asset management solutions.

Challenges and misconceptions

Many hesitate to implement IoT solutions because they assume it must be expensive. In fact, the sensors needed are likely far cheaper than you might think—certainly cheaper than paying someone to manually check readings every few hours.

However, there are other costs you need to consider, beyond the sensors themselves. To get actionable data, you'll need to ensure that the infrastructure is in place for your sensors, with sufficient connectivity (especially for wireless connections) and correct placement to enable physical access (for battery replacement).

It's also important that sensors are installed correctly. For example, a temperature sensor by the door to a chilled storage unit will give you a different reading to one in the centre of the unit. You also need to consider any potential for damage, either inadvertently or maliciously.

As with every element of your management solution, you'll need to ensure you have a clear plan for implementation, including your ultimate data-collection objectives. With the wide variety of sensors out there, it's easy to get carried away and measure anything and everything. You need to gather the right data, then you need to be able to understand it. Otherwise, you'll be left with a mountain of data and no way to interpret any actionable insights from it.

Making the most of IoT data

One of the key advantages offered by IoT is the ability to optimise the time your mobile workforce spends in the field doing higher-value tasks.

Many tasks are carried out in line with advised time intervals. Toilets may be checked hourly, plant equipment may be serviced monthly, and so on. In many cases, this means the work is unnecessary, as time intervals are set by the manufacturers or internal Planned Preventative Maintenance (PPM) schedules to account for the worst possible heavy usage scenarios.

With IoT, these tasks can be based on what's actually happening, right now, with instant updates. Sensors can provide a constant stream of data to give a complete and accurate picture of the current conditions. This data can be displayed using Business Intelligence (BI) tools such as Tableau, PowerBI or QlikSense to make it interpretable and actionable at a glance.

For example, movement sensors can let you know; how many people have entered a bathroom, how much soap is left in the dispenser, and whether the bins are full. Therefore, cleaners aren't wasting time cleaning an unused washroom and can focus on other locations that require their attention. You can see exactly how many times a piece of equipment has been used and if it's running outside of standard parameters. Use of sensors on lifts and escalators can provide a greater understanding of outages or entrapments and enable engineers to react to failures in real time, or even prevent them from occurring in the first place. This also frees up highly qualified (and expensive) staff, who no longer need to go and perform regular visual checks.

The result is that you're never caught off guard by unexpected equipment failure. Along with saving time and money, this also improves safety, compliance, and customer satisfaction.

Rather than simply collecting the data though, it's possible to automate actions based off of the data. It is possible to automatically trigger tasks, order parts, and schedule visits. This means businesses can be proactive, minimising downtime and complaints, rather than being purely reactive.

The data gathered can also be used to make smarter business decisions, such as staff roster changes or enabling contractor efficiency reviews, to ensure effective deployment of staff and improved service delivery for all.

Replacing manual and time-consuming processes, with data collection via IoT sensors, gives time back to your field-based operatives and enables them to make more cost-efficient use of their time.

Streamlining workflows with automation

For a mobile workforce management system to be effective, automation is an integral consideration. While IoT sensors provide the information you need, automation takes that data and uses it to make smart decisions instantly. By setting up triggers and associated actions in advance, these can be carried out in future without any human input.

Ideal candidates for automation include:

- Mundane tasks, such as repeated admin work
- Remedial actions, where a fast response is essential
- Tasks defined by a clear decision-making logic, that is applicable every time

Challenges and misconceptions

Just because a task can be automated, doesn't mean it should be. It's important to carefully assess tasks to see if they are feasible candidates for automation.

A key question to consider - are there multiple potential triggers and outcomes? Disaggregated tasks with a complex decision logic can be automated, but will likely need careful planning to do so successfully. How much time will you save with the automation? Automations take time to set up properly. If you're saving a negligible amount of time on a task that you only carry out once a year, it's not worth automating.

Automation also isn't a magic wand. To use one of the author's favourite phrases (with the expletives replaced), 'garbage in, garbage out.' In other words, if the data triggering your automation is not accurate or interpretable, you're going to get rubbish results. How can you improve the reliability and accuracy of the data source?

If data needs to be reviewed or manually cleaned before a task can go ahead, automation isn't going to help you. If you want to automate, you have to design the data collection process specifically with the automation triggers in mind.

Examples of successful automation

For mobile teams, one useful automation hack is for 'commonly known' data entry. Many tasks require the same information to be recorded multiple times, into different systems, therefore duplicating work. For a paper-based system, this might mean recording the time and date, location, staff member's name and signature, etc. for every task carried out. With a digitised solution in place, it then becomes straightforward to automatically

record this information without any user input. This also makes it easier to control what information is gathered, in a consistent format with high reliability.
In addition, automation can facilitate the sharing of data in real-time. For example:

- A field-based operative could be informed of upcoming tasks via a 6am notification every day
- Customers could be informed of an engineer's estimated arrival time
- Orders could be placed with suppliers based on stock levels

What about remedial (follow-up) actions? Even where manual checks are still required, automation can be used to trigger corrective actions. For example, with a maintenance check, any negative results automatically prompt the engineer to input a fault code. From there the different fault codes could trigger different responses using established decision making logic, such as alerting management, scheduling a follow-up visit, ordering a replacement part, and so on. If set up correctly, this kind of automation can save significant time and encourage more efficient working practices.

Building in logic to the back-end of the system makes the data coming out of these tools usable immediately, allowing teams to make remedial decisions on the fly by following previously designated criteria/protocols.

Putting it all together

Having covered the key components that go into an effective mobile workforce management strategy, it's now time to put it all together into a workflow that works for your unique situation. First of all, we'll consider the typical stages of deployment and how you can 'level-up' your existing solution. We'll then take a look at the workflow creation process from start to finish.

The stages of deployment

Using the world of facilities management and engineering as an example;

Stage zero: No digital solutions in place. This is where every company starts, and most companies remain in this stage (particularly ones that were incorporated pre-1990). All systems are manual with paper-based records. As a result, maintenance and tasks are typically late, multi-stakeholder processes are difficult to control and direct, and tasks are found to be completed with poor compliance to designated standards upon auditing.

Stage one: Digital workflow implementation. With a basic digital deployment, engineers are now using mobile devices to digitally log any activities, issues and results. The system is still reliant on human input to log the issues, but information can be recorded and shared faster. Engineers arrive sooner, procurement order parts quicker, and less time is spent filling in paperwork. This can reduce the time-to-resolve metrics significantly—typically increasing efficiency by 3x to 5x (or more) compared to stage zero.

Stage two: IoT automation. Sensors are deployed and used to measure equipment performance, user activity, and so on. Faults are automatically noted and trigger remedial actions without a staff member having to flag the issue manually. In the engineering world, for example, this can again significantly reduce time-to-fix, particularly for equipment that's hard to access manually. Reactive actions are reaching the ceiling of optimisation capability at this point.

Stage three: Proactive systems. Data from IoT sensors are analysed to create an optimised workflow that's proactive, rather than reactive. Maintenance schedules (PPM) are based on actual condition and usage, rather than on standardised time intervals. Advanced data analytics leads to a system that prevents breakdowns from happening in the first place. Time and money are saved maintaining equipment that isn't used as often, along with less downtime and increased customer satisfaction. Parts are automatically ordered in advance, and stock rooms are monitored automatically, so key items are never out of stock.

The ten-step mobile workflow creation process

Here's the process used at Graphite Partners to determine the best possible workflow solution for mobile workforces. We encourage considering these steps when undergoing a project that will significantly alter the operational workflow within your organisation.

Step 1: Understand the current workflow

Every workflow should start with a clear understanding of your current process. Identify your 'current state' of deployment, then map out your process from start to finish. Make sure every touchpoint is recorded.

Step 2: Identify possible opportunities

Go through each touchpoint and look for optimisation opportunities. Which steps are easily digitised? Where would real-time data transfer be beneficial? What opportunities do you have for automation? What's your 'ideal state' for the future?

Step 3: Mapping the process

With your potential opportunities, draw out what your new workflow would look like in detail. Do your proposed adjustments work in the overall workflow, or do they introduce new issues or complexities?

Step 4: Prioritise work stack

Identify your low-hanging fruit. What changes will deliver the biggest advantages with minimal disruption? From there, choose which steps to priorities for maximum effectiveness and immediate return on investment (ROI).

Step 5: Documentation

Each part of the process should be fully documented, with a detailed analysis for each step showing its relative importance in the workflow. Take into account any potential for deviation; what happens when things go wrong? Do you have the required infrastructure? What training will be needed?

Step 6: Automation

Configure your automation, setting up your triggers and associated actions. This can be coded from scratch or you can use an automation platform. Make sure your data sources are adequate and that the system is capable of handling scenarios outside the standard specification.

Step 7: Testing

Thoroughly test the system before deployment so there is minimal disruption to your business. We recommend a gradual rollout, so any issues are easily resolved. Ensure that all carefully selected 'Champion' staff involved in the test have full training provision.

Step 8: Fine-Tuning

Using the test results, evaluate the process and review for further simplifications and automation opportunities. This will likely be done, on loop, during the lifetime of the solution.

Step 9: Go live

Prior to the full launch, explain every aspect of your new workflow to your employees, with training and support to ensure maximum efficiency and a smooth deployment.

Step 10: Continuous improvement

Once the system is launched, it's important to continually review the workflow. As your process changes and new technology becomes available, evaluate how you can further improve your processes and future-proof them.

About Graphite Partners

Creating value through simplification and automation

Graphite Partners helps medium-to-large companies optimise their businesses by improving their operational workflows, transforming their procurement systems, and implementing the resources they need for ongoing success.

Working with Graphite Partners means access to our team of experienced industry experts, as well as our large network of partners and service providers. Today we work with clients across a wide range of industries including such fields as transport, logistics, hi-technology, and help them take their business to the next level.

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If you need help implementing a mobile workforce solution or are considering your approach to the subject for the first time, Graphite Partners can support you. Head to our website to request a consultation with a member of our team, or contact our Director of Business Development, Tom Parker, via email: tom.parker@graphite-partners.com.

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