



## Shrink Resolution Times with Field Service Automation (FSA)



### Abstract

The end goal of any organization is a satisfied customer. The process of locating, procuring, and transporting the ingredients needed to achieve this goal is the core function of supply chain management. Medium- to large-sized organizations in the discrete manufacturing domain encounter several business problems in their call-to-resolution (C2R) cycle. Thus, the design of the supply chain in the manufacturing industry must address physical products and a broader supplier base, while ensuring that proactive maintenance is performed in a timely fashion.

Field service automation is an effective solution to tackle these problems and can help organizations achieve significant competitive advantage.

## A typical day in the life of a field service engineer

Medium- to large-sized discrete-manufacturing organizations have 200–350 field service engineers in each business territory. In a typical setting, the service back office (SBO) raises requests to correct communication breakdowns that are registered by customers through phone calls or e-mails. Consequently, the following happens:

- Service requests for preventive maintenance (PM) jobs are identified based on associated service contracts.
- A report with details of PM service-requests that require attention is generated and provided to the engineers.
- The engineers use this report to schedule the visit based on discussions with the customer-contact executive. More often than not, the SBO also orally communicates additional details to engineers about breakdowns.
- Service engineers, equipped with laptops, travel to the customer's site for resolution and also visit the SBO for meetings and training sessions. They normally schedule visits from their home and once the job is completed, finish the associated paperwork (comprising of customer service reports, various equipment-specific checklists, additional works forms, etc.) that is sent to the SBO.

## Business challenges that require better technology

Given the setting outlined above, the SBO and management encounter the following significant business problems:

- Minimal visibility into the work schedule of engineers — this results in lack of flexibility in altering their schedules (to take care of scenarios such as sickness). The SBO struggles to make optimum use of opportunities to tactically staff jobs and assignments. This has a significant impact on the business's competitive edge.
- Delayed updates on completed jobs — this reduces customer satisfaction levels and also causes delayed invoicing.
- Delayed invoicing (of completed jobs) – it typically takes 10–15 calendar days to complete paperwork and generate an invoice after an engineer completes the job. This impacts the working capital considerably and businesses prefer to send invoices much earlier to customers (in approximately 2–3 days).
- Duplication of work — reduces overall productivity levels (25% on an average) of engineers and the SBO.
- Delayed job closure – this occurs when engineers need spare parts instantly, but instead, have to call the SBO and speak to the concerned person who creates the order and processes the same. As a result, errors and delays get introduced which lengthens the C2R cycle by about 15%.



The need of the hour is to achieve a significant level of field service automation – encompassing scheduling, dispatching, de-briefing, and monitoring of service requests / tasks.

## Field service automation using Oracle ERP

Oracle ERP provides the following solutions in the broad area of field service automation:

- Mobile Field Service
- Wireless Field Service

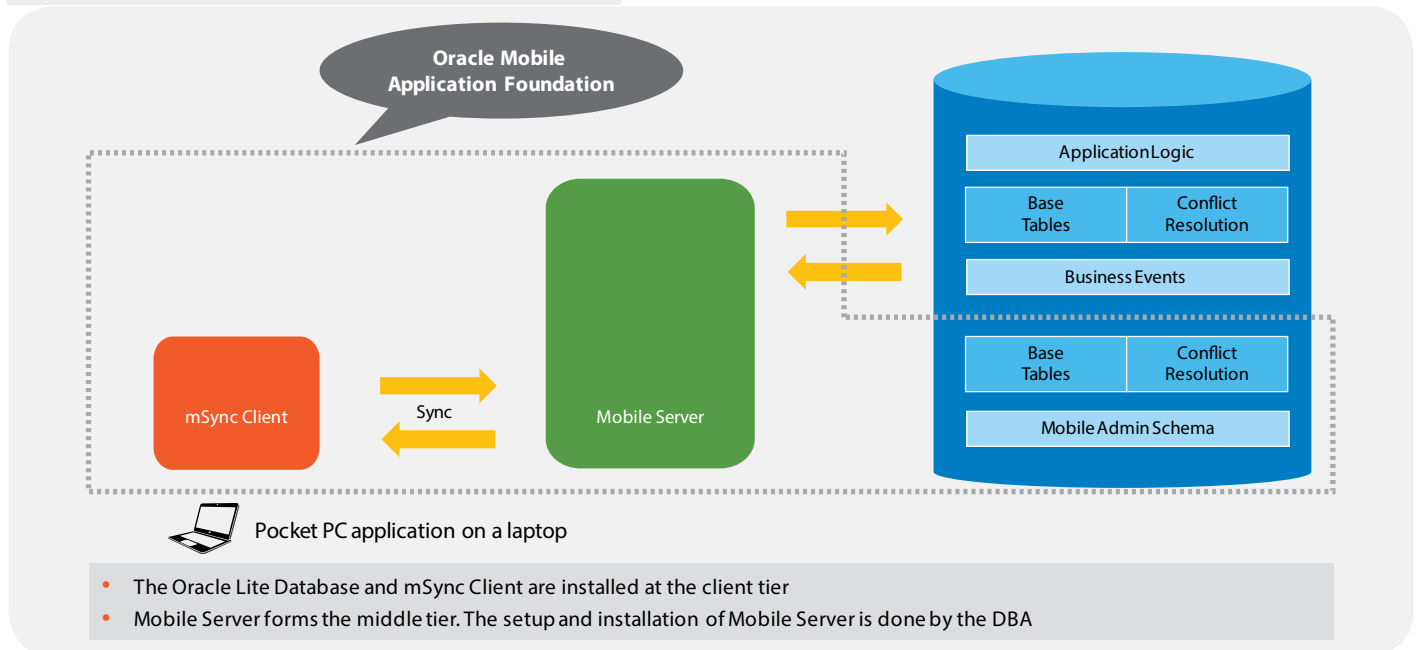
### Mobile Field Service (MFS)<sup>1</sup>

Oracle MFS is part of the Oracle Field Service suite of products. This application is a disconnected solution that enables a field service engineer to service a customer in a fully automated manner. It can automatically receive the customer service history along with the service request. Equipped with this information, field engineers can function better at the customer site. Likewise, they are made aware of customer install base information, as this is downloaded with the service

request. If replacement parts are required for a customer's product, the field service engineer can access the robust 'spare parts management' feature. When the field service engineers have completed their task, they can report the labor, materials, and expenses incurred during their work. This information can then be sent back to the service organization at electronic speed, so that an invoice can be sent to the customer in a timely manner.

Oracle MFS runs on a mobile device, thus making it very usable at any field location. What's more, the service request and associated information is stored locally on this device, enabling field service engineers to work at any location independent of network coverage. The dispatcher sends a job to the field service engineer using Oracle Service Online, Oracle's field service application.

The following depicts the architecture of Oracle MFS:



<sup>1</sup>Suitably adapted from the Oracle Mobile Field Service User Guide, Part No B14365-01, July 2004

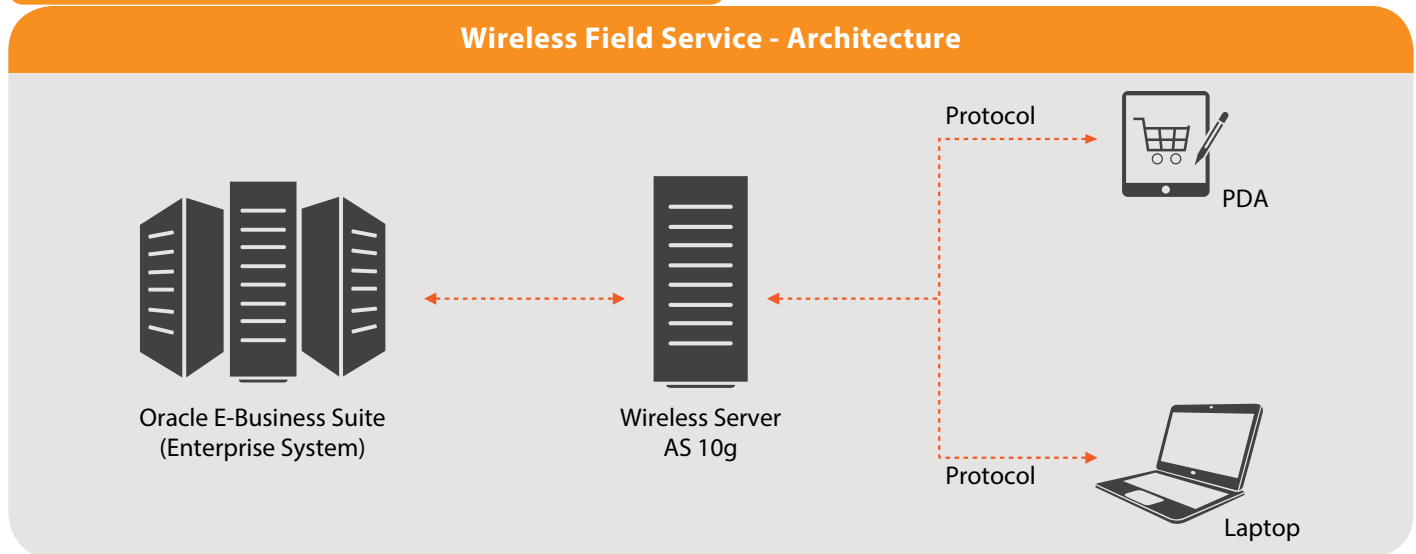
## Wireless Field Service (WFS)<sup>2</sup>

Oracle WFS offers complete, automated, and streamlined field service solutions to field service engineers, by providing real-time wireless access to enterprise applications. Using any wireless device (such as smartphones, tablets, and

laptops), field service engineers can remotely access the latest, most accurate, and critical information required to perform their job (and carry out all activities mentioned under MFS in the

previous paragraph). This information enables them to meet customer expectations by delivering superior customer service, resolving problems quickly, and ensuring consistent service.

The following diagram depicts the architecture of Oracle WFS<sup>3</sup>:



## Evaluation – MFS versus WFS

The following table compares the two mobility alternatives:

Parameter	MFS	WFS
Connectivity	Has online and offline modes. Data entered offline is synchronized separately.	Always connected. Offline mode not available.
Integration with core Oracle E-Business Suite (EBS)	Partially seamless — data entered in offline mode has to be synchronized separately	Completely seamless — data entered is instantly reflected in real-time
Data conflict resolution	Needed at the time of synchronization	Not required as data is recorded in the database in real-time
Flexibility	Offline mode provides additional flexibility to work from remote locations (where internet connectivity problems might exist)	Needs to be always connected for it to work effectively

The MFS option might be suitable for businesses with fewer number of service requests, as a result of which, data conflict in resolution efforts could also be minimal. It is an effective option (in offline mode) in service locations where network

connectivity is non-existent or extremely difficult to obtain.

On the other hand, businesses with a relatively large number of service requests would find the WFS option

more suitable and would benefit from its seamless integration. In the subsequent sections, business processes before and after automation via the WFS option are discussed.

<sup>2</sup>Suitably adapted from the Oracle Wireless Option for Service – Concepts and Procedures Guide, Part No B12233-01, May 2004

<sup>3</sup>Suitably adapted from the Oracle Wireless Option for Service – Concepts and Procedures Guide, Part No B12233-01, May 2004

# Business processes before and after automation using Oracle WFS

## As-is process

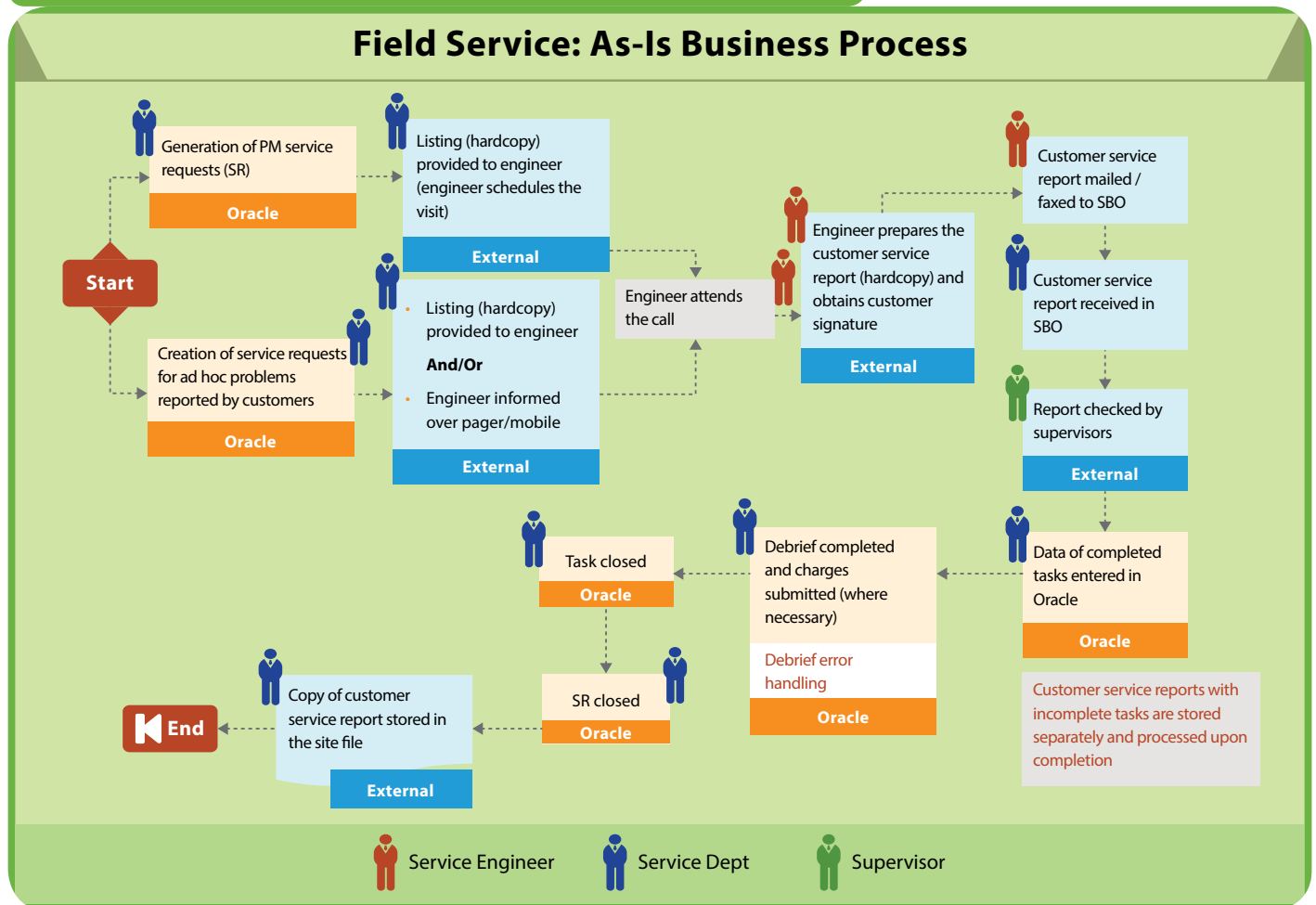
Service engineers are scheduled to visit customer sites at fixed intervals, if equipment is under a service contract. However, not all service requests are governed by contracts, which means that service engineers have to respond to two types of service requests:

- Preventive maintenance service requests generated by the system
- Ad hoc service requests raised for problems reported by customers

A list of the scheduled service requests is handed to the service engineers or they are informed of the same via phone or mail. At

the customer's site, the service engineers would note down the effort, material, and expenses incurred for the work done and prepare a customer service report, signed by the customer. This report is then mailed / faxed back to the office, following which, it would be examined by the supervisor and its data then entered into the system.

The following is a pictorial representation of the as-is field service business process:



In case the service engineer requires spare parts to complete the job at a customer's site, he would contact the SBO and inform them about the same. The office

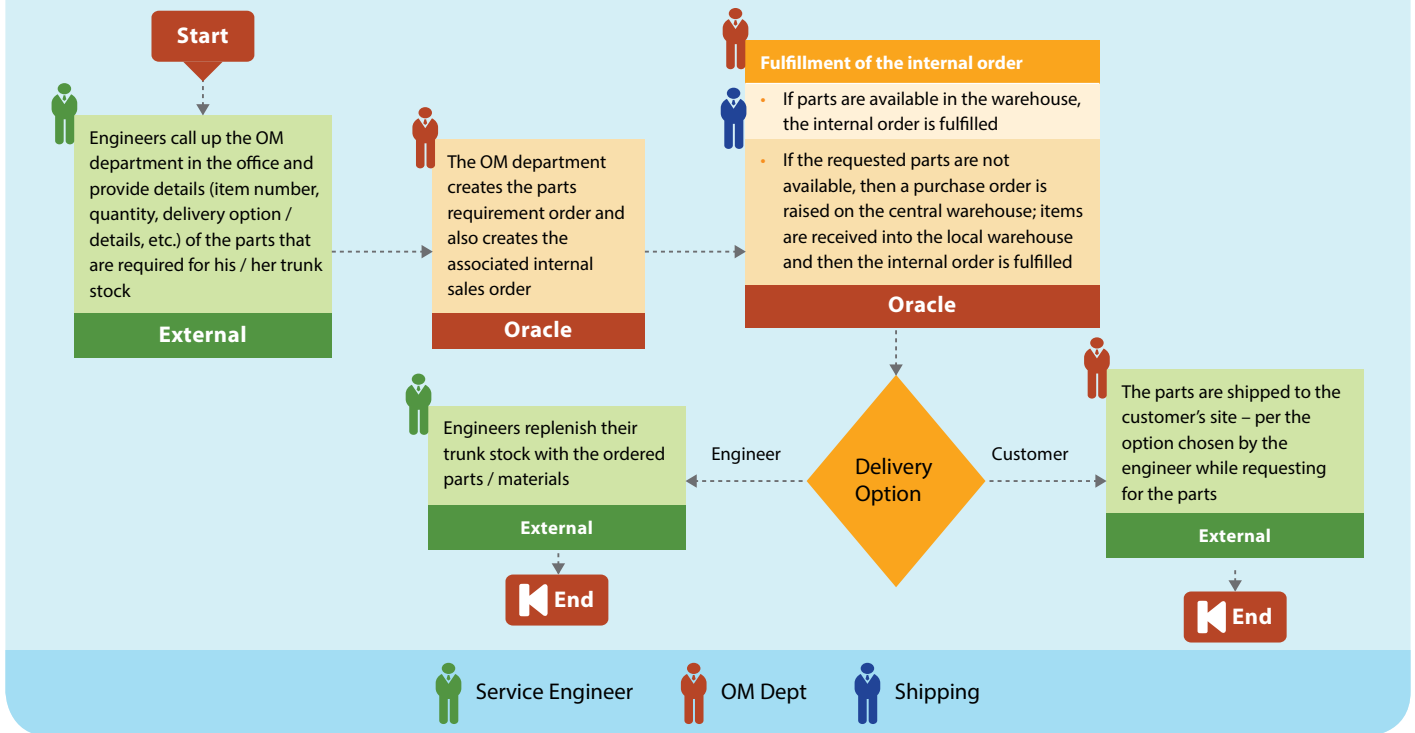
would then create an internal order in the system to provide the required parts to the engineer. Once the order is fulfilled, the engineer is informed about the same.

Depending upon the delivery option, the part is either sent to the customer's location, or the engineer's default location to replenish his stock.

Following is a pictorial representation of the as-is parts requirement process:

### Field Service: As-Is Business Process

#### Parts Requirement - Trunk Stock Replenishment



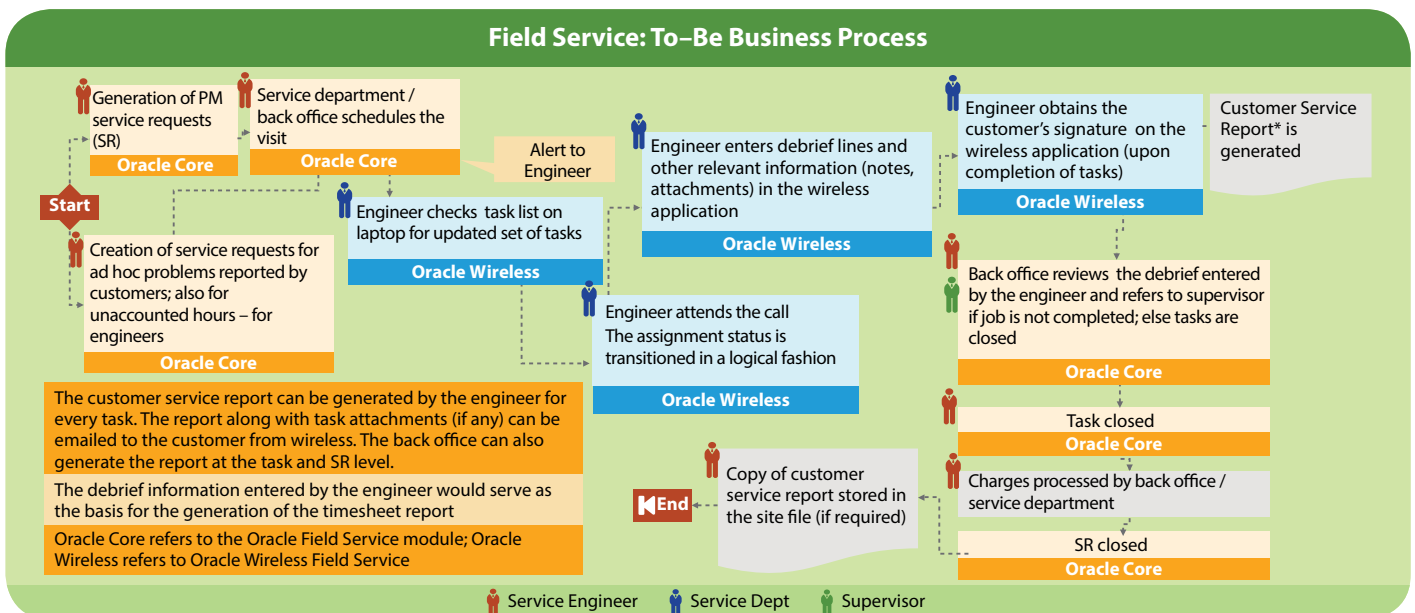
#### Drawbacks

Some of the important drawbacks of this process are as follows:

- In the entire business process, the engineer does not have real-time access to the system. This contributes to lengthening the call-to-resolution cycle.
- The supervisors and the service administrators cannot keep track of service engineers' schedules and efforts spent on a continuous, real-time basis
- There is considerable paperwork and duplication of effort

#### To-be process

Oracle's wireless solution attempts to get rid of these drawbacks in the to-be business process that is depicted as follows:



**The wireless solution provides the following benefits to the service engineer:**

- Automatic updates about new service requests / tasks that need to be completed for a given day. The office need not inform the engineer of the scheduled service requests (as was required earlier).
- Easy monitoring of task assignment status on a service request, which the engineer has to transition in a logical fashion, helps the office keep track of

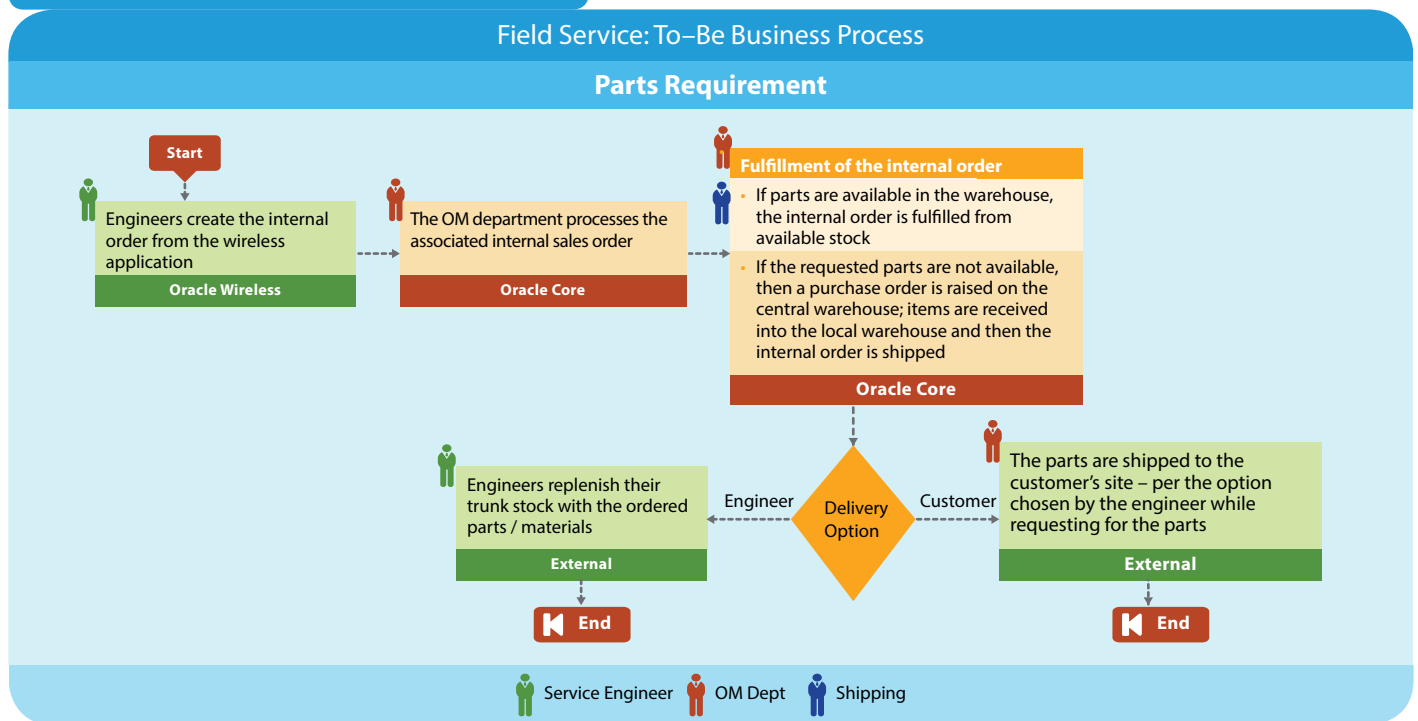
the engineer's activities on the service request (predominantly through the plan board of the dispatch centre).

- Automatic updates about completed jobs - the effort, material, and expenses incurred - are recorded on the wireless device, which is then reflected in the system instantaneously. Thus, the office does not have to manually record this data into the system, thereby eliminating the duplication of effort.
- Seamless recording of customer's consent about job completion, in the

form of the customer's signature, is again captured on the wireless device itself. The customer service report can be generated with the customer's signature and mailed to him / her instantaneously, along with other information.

- Quick ordering of parts at the customer's site using the wireless device. The internal order is processed by the office and depending on the delivery option, the part is either sent to customer's location or picked up by the engineer to replenish stocks.

Following is a pictorial representation of the same:



**Case study: Reducing call-to-resolution cycle time through field service automation**

The client is a network power solutions provider with over US\$2.5 billion in sales revenue and is a division of a multi-billion-dollar global conglomerate that brings together technology and engineering to provide innovative solutions for customers in a wide range of industrial, commercial, and consumer markets. Oracle Applications modules (such as Field Service, Install Base, Service Contracts, Spares Management, Financials Suite, Distribution Suite, and Project Accounting) were implemented at the client's sales and service offices

(market units) in various EMEA and APAC geographies. Their service business in one of the key geographies (market unit) was characterized by the following:

1. Over 80% preventive maintenance work – based on service contracts with end customers
2. Install at sites (the exact location where the serviceable equipment is installed) far and widespread, encompassing normal, remote, and restricted (high-security) locations

3. Demand for quick turnaround and minimal call-to-resolution (C2R) cycle times

It faced the following business problems:

1. Minimal visibility into the work schedule of the engineers
2. Delayed updates on the details of jobs completed at various sites
3. Delayed invoicing (of completed jobs)
4. Delays in ordering and delivery of spare parts

Therefore the client approached Infosys to overcome the above challenges. We re-engineered their business process and Oracle WFS was implemented and made to work on Panasonic Toughbook laptops (used by the engineers). This resulted in:

- Reduction in C2R cycle time; the overall service business process became more streamlined and efficient
- Reduction in the time to invoice – due to the improved and efficient C2R cycle
- Reduction in duplication of work
- Increased productivity of engineers and the service back office

## Conclusion

The following are some of the important benefits to be gained by implementing Oracle WFS:

- Reduction in call-to-resolution cycle time (to the extent of 50-70%)
- Reduction in the time taken to send an invoice to the end customer (by virtue of the above)
- Better visibility for the SBO into the workday activities of service engineers
- Enhancement in the productivity levels of service engineers and the SBO
- Empowerment of service engineers as they gain better control of their work times and stock of spares
- Considerable reduction in the duplication of work and associated paperwork

## About the author



### Prabhu

*Principal Consultant, Oracle Practice, Infosys Ltd*

Prabhu is a Principal Consultant with the Oracle Practice at Infosys Ltd. He has over 11 years of experience in Oracle ERP applications and specializes in implementation, rollout, upgrade, and support assignments. He has been helping clients in the US, England, and Singapore and his focus areas include supply chain management, distribution, and field service.

For more information, contact [askus@infosys.com](mailto:askus@infosys.com)



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