Solving today’s challenges for utilities and telecoms

Today’s infrastructure companies, including utilities and telecommunication companies, are facing more challenges than ever. There is pressure to increase the productivity of the existing work force while managing the retirement of skilled and experienced field workers and the introduction of new workers with different expectations regarding work. Businesses have to be flexible and adaptable to changes brought on by regulators, shareholders, ever-changing market conditions and new technologies like smart meters.

To meet these challenges, customers are trying to understand better the current baseline of their business and then determine how to do more without increasing their costs.

Work Force Optimization with Field Force Automation

GE’s Field Force Automation (FFA) solution is a web-based work force management tool that allows companies to optimize the full life cycle of field service operations, including:

- Creating or collecting work orders from Enterprise Resource Planning (ERP), Outage Management (OMS) and Customer Information Systems (CIS). FFA offers a productized integration to GE’s PowerOn™ Restore product line.
- Managing work preparation and material allocation
- Scheduling and dispatching field personnel, subcontractors, special tools and vehicles
- Tracking equipment under warranty
- Configuration and reading of smart meters
- Managing of spare parts inventory and receiving real-time reports from the field

FFA delivers significant efficiencies and cost savings to technical field service teams within large and small organizations. It meets the needs of infrastructure companies and helps ensure that these companies meet their challenges.

Why FFA?

FFA ensures that you understand your service business and that your service business understands the objectives set, so the right field crew, with the right skills, tools and parts, gets to the right place at the right time.

- Optimize resource allocation
- Boost productivity by 10-25% through:
  - Route optimization
  - Elimination of idle time
- Increase service revenues by up to 15%
- Reduce inventory cost by up to 10%
- Reduce overtime by 10-60%
- Reduce fuel consumption by up to 50%
- Reduce CO2 output by up to 50%
- Ensure up to 50% more on-time arrivals
- Eliminate the use of paper by up to 70%

Key Benefits

- Enables the field to make faster decisions
- Leverage up-to-date maps with Google Maps Integration
- Resolves outages more quickly
- Effectively manages Smart Grid rollouts
- Fosters user acceptance through:
  - Easy-to-use interfaces
  - Usability on many mobile platforms, browser-based and native apps
- Eliminates data entry errors
- Significantly reduces follow-up visits
- Avoids regulator fines and customer churn
- Enables Continuous Performance Management
- Allows for better informed strategic decisions
What does FFA mean to you?

• Find the optimal operating point for your service organization and save dollars by eliminating inefficiencies and providing better service
• Differentiate your service operations and strive for continuous improvement

Proper work force management is complex and requires a flexible and powerful tool.

Challenge 1:
Collaboration – Reducing errors associated with the lack of proper processes and limited information sharing or access.

Solution:
Through its web-based “Service Portal” and closely integrated mobile solution that works both online and offline, FFA ensures oversight and timely access to information.

Benefit:
Planning can discover synergies that are invisible when operating “ad hoc” or within strict boundaries. Execution is more effective through electronic forms and automated timesheets.

Example 1:
A leading gas and electricity utility in the Netherlands introduced FFA to gain increased insight into operations, efficiency and organization structure. The resulting efficiency gains were higher than the initially assumed 10% in the office and 18% in the field. As a result of more correct billing and invoicing of field work, revenue increased by €0.75M per year.

Example 2:
A UK utility with almost 200 crews used FFA to reduce its paper consumption related to work orders by 70%, which is almost 14,000 pounds or more than 2500 reams of A4 paper annually.

Challenge 2:
Complexity – Dealing with the consistent scheduling of thousands of day-to-day tasks while leveraging the full skills and capabilities of the current field workers.

Solution:
FFA has the industry’s only auto-calibrating optimizer, driven by “Business Objectives” that can easily be tailored to business rules and priorities of a specific customer.

Benefit:
Robust optimization results, day-by-day, in an ever-changing environment.

Example:
A large US telecommunication business with more than 2,000 field engineers replaced its existing WFM solution with FFA. As a result, yearly productivity increased by 121 man years and overtime costs were reduced by $3.7M per year.

Challenge 3:
Flexibility – Scheduling emergency work orders that require immediate or same-day attention, while still optimizing the overall schedule of regular work.

Solution:
FFA enables the central management of work and resources and uses dynamic optimization of assignments to accommodate exceptions in real-time. Management dashboards make sure that everybody is on the same page.

Benefit:
Incoming emergencies are automatically routed to the nearest suited technician for quick response, while the remaining work is automatically redistributed to other field workers.
Example 1:
A US utility supplying gas and electricity to more than 1 million customers in 74 countries uses FFA to optimize its field work. Since the introduction, FFA has saved more than $3M in labor costs. Overtime has dropped 17% and unproductive time was reduced by 13.3%.

Example 2:
A US gas utility with 27 crews previously using an in-house developed work management solution used FFA to reduce traveling time on one day from approximately 140 hours to 95 hours. Assuming just half this level of savings was to occur each day for an entire year, a utility with 1,000 field crews using FFA could reduce gasoline consumption by more than 310,000 gallons annually and save more than $930,000 in gasoline costs based on a fuel price of $3 per gallon.

GE’s FFA enables companies to:

Plan for the moment and for the future
FFA provides a complete set of resource planning tools to help you manage your entire planning spectrum. Our product:

- Applies predictive business intelligence to help with strategic resource decisions: How many people do I need? What should be their skill set? And where should they be located?
- Manages a work backlog of long term commitments by optimally pre-selecting the ideal date to perform a given task.
- Optimizes the daily schedules while balancing conflicting business objectives based on the customer's prioritization, boosting productivity by 10-25%. For example:
  - It balances between shorter drive time and best suitability of a given resource based on previous acquaintance with the case or customer.
  - It balances between the cost of a resource and the objective to minimize the risk of missing an appointment, scheduling the task as early as possible.
- Proactively responds to exceptions using a combination of real-time information monitoring and variety of automatic, semi-automatic or manual re-planning tools.

Align daily schedules with the customer’s prioritized business objectives
FFA assures optimal daily schedules to reflect best the customer service business priorities.

- Increases service revenues by up to 15% by automating field tasks, such as filling time sheets and capturing previously non-invoiced work.
- Ensures each job can be completed the first time, without any follow-up visits necessary, reducing overtime by 10-60%.

Model the entire service business
By adhering to the ‘work is work’ concept, you can break unnecessary departmental silos, enforce common service policies across the service organization and utilize your workforce better to perform any task an individual is skilled to do.

With FFA, you can:

- Model individual resources, crews, equipment and even an external workforce. A different management policy might apply for each individual resource type.
- Model any work type from short break/fix tasks to complex, interdependent and long projects. FFA planning tools will automatically blend the different work types into one scheduling plan with optimal assignments.
- Combine a complete inventory and logistics management model and solution with resource and task views and by that improve your scheduling and dispatch decisions as well as streamline the work better in the field.
- Reduce inventory cost by up to 10% due to better work order volume forecasting and increased collaboration. Asset, crew and network information is integrated onto a single map view, updated in real-time.

Cost-effectively extend FFA to meet unique business needs
Meet demanding business user requirements, reduce reliance on highly specialized IT resources, leverage generally available skills (not depending on an expensive, proprietary technical knowledge), and avoid intrusive code development that will be expensive to maintain and impossible to upgrade.

- FFA supports a variety of standard APIs that make it simple to integrate into a customer’s Enterprise Application Environment.
• The FFA Datamart enables any service organization to develop its own business reports utilizing any reporting engine, avoiding the need to understand the internals of an application operational database.
• FFA fosters user acceptance by providing an easy-to-use interface and running on multiple mobile platforms including Android® and Blackberry®.

Leverage industry best practices
FFA introduces a unique approach for capturing industry best practices by embedding a standards-based Business Process Engine with its solution. The FFA Mobile Workforce Management BPM blueprint is a set of workflows that capture the essence of scheduling, dispatch and exception management in field service but at the same time is extensible and continues to improve.

Workflows can easily be adapted to the customer-specific implementation scenario and data.
• Work creation approval to review if work is ready for scheduling and for the field.
• Automated release of work to the field user (dispatching) at regular intervals or based on contingencies rather than releasing the entire workload at start of day.
• Locking of critical assignments to ensure that work is not reshuffled due to other work assignment attempts.
• Dynamic re-scheduling based on resource availability updates (illness, truck breakdown, customer out) or changed priorities.
• Flexible escalations to proactively notify dispatchers of unexpected delays to effectively manage service performance.
• End of day and storm processing to pull back unfinished work already assigned to field workers and re-qualify expired work to make it eligible to be considered for assignment the next day.

How does GE’s solution make sure that your service business will meet its challenges?
The FFA platform optimizes field service operations and associated back office tasks by:
• Intelligently automating processes associated with work and resource management life cycles, from planning to execution.
• Providing agility to respond to dynamic business conditions while ensuring adaptation to changing needs and constant improvement of existing processes.
• Offering powerful visibility by continuously monitoring the workings of operations, enabling an organization to make the right decisions in a timely manner.

FFA is organized into the following four major modules:

1. A good plan needs to be built on good information
The FFA Planning Module was designed to help log work orders, material requirements, equipment and time requirements and field worker abilities, and then perform resource planning and schedule optimization. Historical information, seasonality and trends, provided by the FFA Forecasting & Planning application increases the preciseness of the planning results.
FFA supports a wide range of work order types, from short cycle emergency work, meter services, compliance checks, maintenance and inspection jobs, to long cycle, multi-day, multi-task, multi-person capital construction projects.

2. In order to “stay in plan”, effective collaboration is critical
The FFA Execution Module removes barriers between the front and back
FFA’s closely integrated mobile application ensures reliable operations, online or offline. It is instrumental to the efficiency of the overall WFM solution since it allows for a paperless, electronic processing of forms. Work instructions and asset information, the mobile capturing of travelling time, working time, material used, interruptions and changes in scope are all captured here so that planning runs optimally.

If there are outages or incidents, the mobile application stores up-to-the-minute information about activities, priorities, abilities of field workers, and device availability within the vehicle to provide support to the control room.

3. Executives and operational managers need to stay in the know

The FFA Monitoring Module calculates and displays critical operational and historical data using analytical engines, reporting tools and dashboards for all levels in the service organization.

4. A powerful foundation without excessive costs

The FFA Infrastructure Module is used to host, configure, integrate and deploy the overall FFA solution into the organization and the field. The powerful IT standards at its core guarantees scalability, high availability and cost effectiveness.

Certifications

Field Force Automation is officially “ecomagination approved” by GE. This means FFA has been proven to deliver significant operational and environmental benefits to customers.

Ecomagination is GE’s way of creating new value for customers, investors and society by helping to solve energy, efficiency and water challenges.

Moreover, Field Force Automation has been certified several times by SAP AG as being compliant with the SAP® NetWeaver® platform and for business process integration through the SAP Process Infrastructure (PI) solution. The scope of the certification included: packaging, documentation, syntactical correctness, functional correctness (external scheduling of service orders) and SAP solution manager ready functionality.

System Requirements

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<tr>
<th>SETUP AND ADMINISTRATION TOOLS:</th>
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<tbody>
<tr>
<td>• Windows® 2000/NT/XP/2003/7 and JRE 1.4.2/1.5.x</td>
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<th>GIS SUPPORT:</th>
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<tr>
<td>• SmallWorld™ GeoSpatial Server (SWS) 4.1.1</td>
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<td>• ESRI® 9.3</td>
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<td>• Envisia 4.3 (Mapinfo)</td>
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<th>DATABASE SERVER:</th>
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<tr>
<td>• All supported platforms for Oracle® 10g (10.2.0.4 and up), 11g R2</td>
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<tr>
<td>• Note that FFA supports Standard, Enterprise, and RAC editions of Oracle.</td>
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<th>APPLICATION SERVER (IBM® WEBSphere® 7.0 EXPRESS)</th>
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<tr>
<td>• Windows Server® 2003, 2008, Solaris®, Linux®, AIX®</td>
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<tr>
<th>FFA FIELD ONLINE/OFFLINE - LAPTOP</th>
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<tbody>
<tr>
<td>• All Windows platforms</td>
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<tr>
<td>• Optional: Sophisticated forms management with Microsoft® InfoPath® 2007</td>
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<tr>
<th>FFA FIELD ONLINE/OFFLINE - SMART PHONES / PDA / TABLET</th>
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<tr>
<td>• Windows Mobile 5 and above. The JVM supported for PDA devices is NSicom’s “CREme”.</td>
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<td>• Android 2.2</td>
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<th>FFA MOBILE ONLINE - MOBILE PHONES, TABLETS OR PDAS WITH A BROWSER THAT SUPPORTS:</th>
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<tr>
<td>• WML 1.0-1.3</td>
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<td>• HTML</td>
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