



## **Wireless Field Service Automation**

This document is a result of my personal research and experience in field service. It summarizes, in my own words, the research conducted by recognized leaders in the information technology community and case studies of actual wireless field service solutions. It is intended as a source of information for those exploring the merits of wireless computing solutions for field service applications. It is also intended to provoke thought and asks questions designed to assist you, the reader, to envision improvements that wireless field service solutions provide.

## **Better Control of Your Service Operation**

The service billing cycle is the span of time beginning with service work being performed and ending with an invoice being sent to the customer. Depending on which industry one studies, the majority of services billing cycles at best are measured in days and at worst in weeks. During the service billing cycle, data related to service calls and customers is collected, written, typed, collated, processed, etc. Because this data is in process and not readily available, accurate and reliable management reporting and other decision data is lacking. As a result, managers have an incomplete perspective of their service operation and are not well prepared to make pragmatic and timely decisions. Unfortunately, this happens at critical times - just before, during, and just after service work is being performed for customers. To make matters worse, except for sales calls, these are possibly the only and consequently the most important opportunities for a service organization to interact with their customers. Because decision data is not timely, or is unavailable, opportunities are wasted and management's effectiveness is diminished.

With wireless field service automation, service billing cycles become compressed to minutes or hours versus days or weeks. Wireless field service automation enables excellent management reporting tools because decision data is more timely and accurate, and data is more standardized. Service managers can discern almost immediately who is billing what, and for which customers, and have significantly better control of their operations.

## **Accuracy/Timeliness Drive Productivity**

The vast majority of service industries use hand-written forms or notes. Completing paperwork is often a result of field personnel's 'best guesses', as documentation is often prepared well after service work is accomplished. Hand-written data is notoriously difficult to understand, which leads to data entry errors.

Paperwork can be lost. In paperwork-driven service organizations, one can find examples of service jobs being 'forgotten' and coming to light later, only due to luck or worse, due to an irate customer wondering what happened to their request for service. Paperwork-driven processes set the stage for inventory shrinkage (non-billed service inventory),



payroll shrinkage (non-billed labor), and low levels of customer service. Therefore, in paperwork-driven organizations, inaccuracies in service billing and other customer service and organizational problems likely exist.

In service industries, most workers grumble about completing paperwork. Service personnel prefer accomplishing their core service tasks relevant to their training and job descriptions. Consequently, clerical workers in service organizations often struggle to obtain timely, legible, and accurate paperwork from field personnel. As paperwork becomes available, how long does it take to key data from paperwork to other applications? How many human-induced errors are generated in the process? What additional processes must be initiated for error handling?

Wireless field service automation eliminates paperwork by automating the process of collecting and transmitting data. Additionally, wireless field service solutions provide information to front-line service personnel. Information about service calls, service history, inventory availability, technical support, checklists, customer information, etc. can be put into the hands of front line service people, at the time of need. Essentially, the concept of wireless field service automation is putting the correct information in the right people's hands at the exact moment in time it's needed. 'Headache', errors, interpersonal struggles, and manually collecting, sending and keying data are all eliminated. With wireless field service solutions, service delivery people and their support operations are significantly more productive. A case study of IBM service personnel using a wireless field service solution effected a 32% increase in productivity.

Wireless field service automation provides simple, timely, and intuitive human/machine interface. Capturing data becomes timelier because it's more convenient for field personnel, and it's measurable by management. Data is more accurate because it's not hand written and is touched by fewer people. Because accurate, reliable data is readily available by those in need, wireless field service solutions create and enable leverage points for management and field people to improve the overall capability of the service organization and provide excellent customer service.

### **Leverage Customer Service To Gain Market Share**

Wireless field service solutions provide customers their bill for service within hours (and in many cases immediately) after work is completed. Billing will be accurate due to the elimination of human-induced errors, and the standardization and timeliness of data capture. Because information is readily available and accurate, customer service issues are eliminated, and productivity is significantly enhanced. Obvious savings are associated with avoiding customer service issues. Less obviously maybe, as excellent customer service drives customer retention and referrals for new business, the P&L line item 'cost of sales' is decreased. Wireless field service solutions generate excellence in customer service and excellent customer service drives gains in market share.



## **Cash Flow Savings**

We've seen that wireless field service automation enables decreasing the service-billing cycle. The service billing cycle is the time span beginning when service work is performed and ending when the service work is billed. Thus, one aspect of measuring return on investment associated with a wireless field service initiative is measuring the amount by which cash flow is increased. One way to do this is to multiply the service organization's revenue per day by the number of days the service billing cycle is decreased.

## **Employee Retention/Employee Satisfaction**

With wireless field service automation, people are more productive and content. After dealing with some initial adjustment associated with change, field personnel appreciate wireless field service automation because it makes their jobs easier. It's like life before cell phones. Remember how some folks rebelled at having to carry a cell phone? Today, whom do you know that doesn't realize and appreciate the benefits derived from cell phones? Why? Because cell phone technology makes life easier, and it's affordable. The same is true of wireless field service automation.

Wireless field service automation generates savings in human resource, payroll, and other expense associated with the capability it affords management to quickly identify nonperformers and conversely to drive desired behavior through appropriate and timely employee recognition.

Standardized data, instantaneous or as-needed availability of billing, timekeeping, scheduling, expenses, logistics, and other information afforded by wireless automation make this possible.

## **A Few Words About Architecture and Wireless Service Availability**

In North America, wireless service infrastructure is being constructed rapidly. Wireless service is available today in most metropolitan and suburban areas, and in some rural areas, especially along interstate corridors. In Japan and a handful of other European and Scandinavian countries, per capita wireless service availability and usage outpaced that of North America.

Wireless field service automation is implemented using synchronized, or real-time, or hybrid architectures. Hand-held touch-screen or similar devices are available, in 'ruggedized' versions, with various sized screens, from a variety of manufacturers. One's choice of hand-held devices is to some extent dependent on the architecture of the wireless automation solution, and architecture is dependent on business process.

A synchronized architecture does not need wireless service availability to function. Rather, it relies on infrequent availability of wireless service, or the user plugging the device into a cradle to synchronize the wireless device's data with the back office application. A hybrid architecture combines real-time and synchronized architecture



functionality. It can function without wireless service, or via wireless connection with back office applications.

Real-time architectures require no synchronization. Rather, using wireless service, the hand-held device is connected in real time to the back office application. When wireless service is present, this architecture works. When wireless service isn't available, the application doesn't work. However, real-time architectures essentially eliminate initial and ongoing expense of client applications, applications development, and hardware associated with synchronizing data between the wireless device(s) and other applications. Real-time architectures also eliminate expense associated with maintaining, upgrading, and securing client applications on the wireless device. In addition, compared with synchronized architectures, real-time architectures utilize significantly less total bandwidth of wireless service. Thus, assuming wireless service is available, of the three wireless architectures, real-time offers the best return on investment, simpler and quicker implementation, and the lowest total cost of ownership. However, a real time architecture compromises business process functionality, which is addressed more eloquently by synchronized and especially by hybrid architectures.

In synchronized or hybrid architectures, when field personnel are disconnected from wireless service, they can still capture and use data on their device. Then, at a later time, using wireless or network connections, the data is synchronized with other applications. However, to enable synchronizing data between the wireless device and the back office application, sophisticated client applications must be loaded on the end user, or client wireless computing device. A significant advantage with synchronized or hybrid architectures is that a wireless connection need not be present for the wireless applications to function. However, the following trade-offs are also significant:

1. The client application on the wireless device will need to be distributed, maintained, upgraded, managed, secured, redistributed, etc., all of which will add expense.
2. Synchronized and hybrid architectures use significantly greater computing and wireless service bandwidth than real-time architectures; these additional bandwidth requirements add expense.

Where wireless service is lacking, depending on the application, satellite service may be an alternative. Satellite service typically offers lower bandwidth than wireless service, but offers a global footprint of service availability. Using satellite service, some wireless applications function with little or no appreciable loss of functionality. However, satellite service will severely limit one's choice of hardware devices. Satellite service is also significantly more expensive than wireless service.

### **What's the bottom line?**

I believe a correctly implemented wireless field service automation project offers return on investment in between six and eighteen months. Wireless field service automation also

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offers compelling leverage points to increase existing revenue and margin. In other words, by not implementing a wireless solution, field service organizations suffer lost opportunity, lost revenue, lost profit margin, and lost market share - every day.

### **How Do I Learn More, or Take A First Step?**

The NT Group represents a full line of solutions targeted at field service and other 'mobile' organizations. We routinely meet with senior executives, project managers, and support staff who are planning a wireless/mobile implementation, or simply getting more information with which to make informed decisions. We'll be happy to answer your questions.

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