

Honeywell

FIELD SERVICE

Walkthrough Guide



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Preface

Increased competition and customer demands are driving Honeywell and its partners to better deliver complete “whole product” solutions that meet customer needs well beyond the traditional hardware and related support services approach. By focusing on specific solutions that address the customer’s business needs and challenges, the salesperson can create an important competitive advantage by establishing themselves as the Trusted Advisor to the customer. Achieving the level of credibility and respect that comes with the trusted advisor role puts the salesperson in a much stronger competitive position and a more powerful role to influence a complex buying decision. Honeywell believes this position is gained by demonstrating a thorough operational knowledge of the customer’s business, “borrowing” credibility via demonstrating past customer engagement successes and creating unique business value and a compelling event around high-value workflow process improvements. This document is designed to help the salesperson/team understand and execute the specific walkthrough process for this Deployment Environment (DE) to enable making a compelling workflow analysis and solution recommendation to prospective customers.

It is important to note that in order to maintain consistency across all DEs, in this document the term “Walkthrough” is being used to include all onsite or field-based reviews of a company’s operations, including “route rides,” “field rides” or other “ride-along” activities. In the case of the typical Field Service operation, there will be both in-premise and field workflows to evaluate.

The DE Guide, sales decks and sales deck instructions are resources currently available online to help with the Value Engagement Process (VEP) sales cycle management methodology. This Walkthrough Guide works in concert with those other resources and is designed to address Step Two in the four-step sales engagement noted in Figure 1 below. This VEP is not a substitute for good strategic and consultative selling practices. It is a simple solution selling sales cycle management process to be used in conjunction with a strategic consultative sales approach.

Value Engagement Process

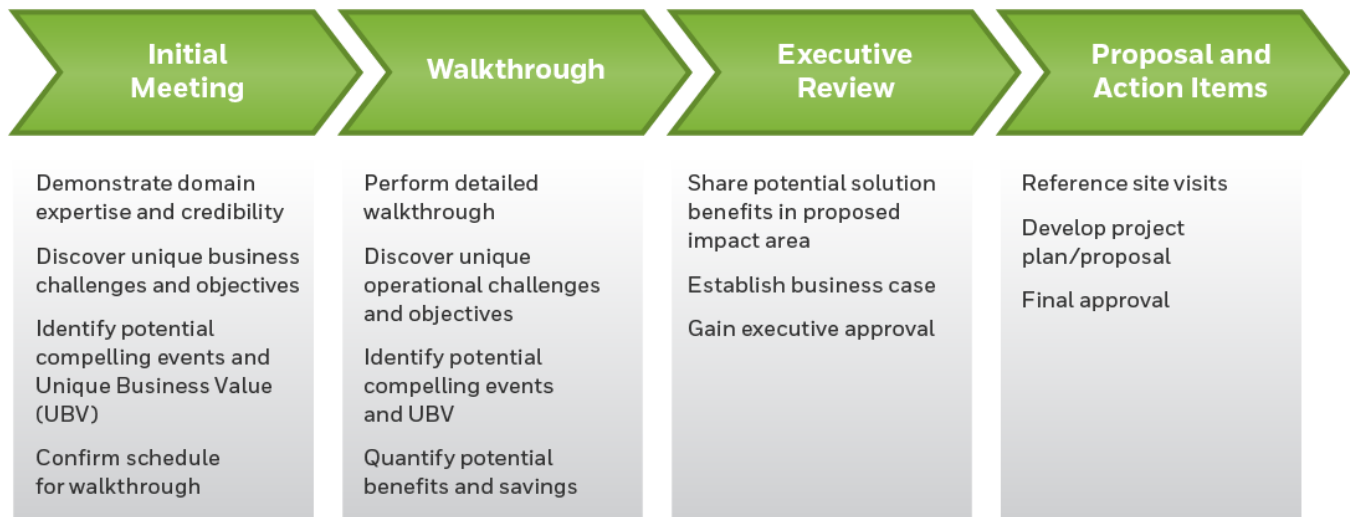


FIGURE 1

As defined in the prior documents, the VEP process begins with an initial customer meeting. The objectives of that meeting are to understand the customer's business challenges, current focus and to get the customer to agree to engage in the VEP and allow you to do a walkthrough of their operations (Step 2). A key requirement in the initial meeting is to set a clear expectation that your sponsor/coach can and will fulfill their side of the Value Engagement Process and that they have the power to deliver on these requirements. Once these objectives have been obtained, end the meeting by establishing a start date and move to the next step of actually conducting the walkthrough.

The Walkthrough Process

The walkthrough will involve discussions, observations and interviews of supervisors/management, in-premise and field technical personnel. The objective is to discover and document the customer's current business and operational processes, and to develop ideas and document ways that technology and process changes can be applied to make operational improvements. The main deliverables of this Step 2 in the VEP sales cycle are to identify and/or create a compelling event and develop your unique business value (UBV) with a solution recommendation, rationale and business case with payback analysis based on the facts gathered in the Walkthrough process.

This Walkthrough Guide is intended for the use of Honeywell and partner sales reps and systems engineers that are preparing to call on client or prospect organizations in an effort to help them identify cost savings through technology and process change.

Note that the content in this document, while extensive, is not exhaustive. The content contains what is common or typical in most Field Service operations. But keep in mind that companies and operations will vary. It is important to gain as much knowledge and understanding of the client or prospect's business objectives, their pain points, issues and problem areas in the Initial Meeting before conducting the walkthrough. Many of the specifics of the business discovered in the initial meeting are going to be validated during the walkthrough process.

This document provides detailed walkthrough questions to profile a customer's operations. The answers to these questions will provide data for a payback model that will convey cost savings and performance improvements in areas where Honeywell and partner products and services can be leveraged to obtain greater accuracy, productivity and cost savings benefits. See Figure 2 for potential outputs from executing a walkthrough.

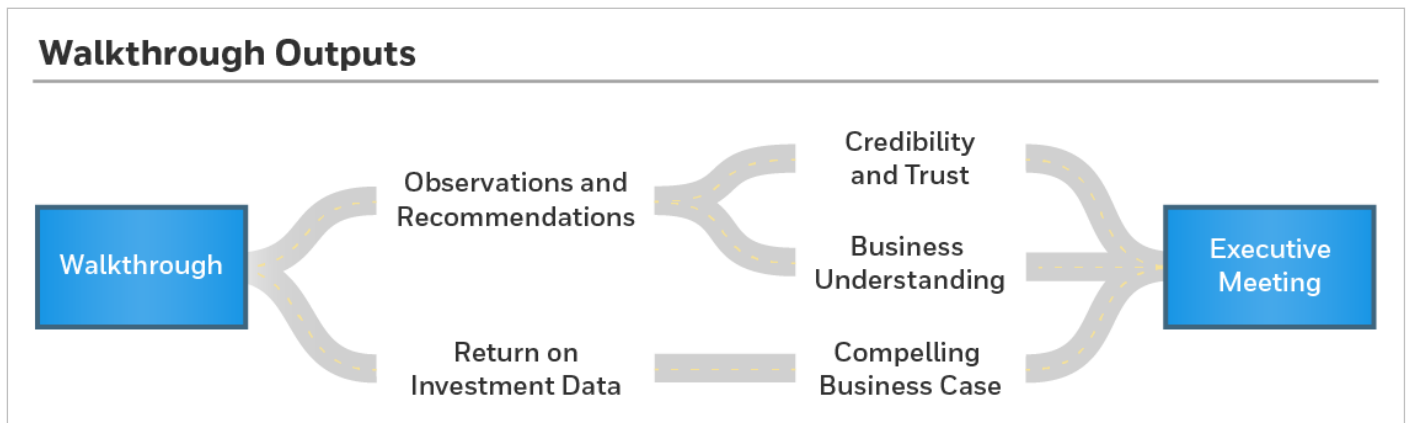


FIGURE 2

After reading this guide, you should be:

- Familiar with the step-by-step procedures for conducting a walkthrough
- Familiar with the typical workflow process areas
- Able to identify and document business, IT and operational challenges
- Able to identify areas of potential technology or process improvement
- Able to document proposed benefits and develop a sound business case
- Able to deliver a proposal based upon real payback savings important to the customer

Workflow Process Overview

Dispatch Operations

DISPATCHERS

Begin the walkthrough by meeting with the Dispatchers (sometimes called Routers). One of the primary beneficiaries of an automated field service solution is the dispatch operations team. These are the individuals responsible for managing work orders and managing mobile workers. When a call for service is received at the call center, a work order is generated and sent to the dispatcher. The Dispatcher (or Router) may reside in the call center or may be located in a remote office closer to technicians and their supervisors. A popular trend is to centralize dispatch operations in an effort to reduce headcount and save costs.

DOWNLOADING WORK ORDERS

In a manual environment the dispatcher will print out work orders and post them to a dispatch board where technicians will retrieve them first thing in the morning before starting their day. With an automated solution work orders are downloaded directly to the device that's either cradled for charging in the office or at home with the technician. Reporting to/from home is a great benefit in that it allows the tech to start their day by driving straight to their first work assignment and avoid driving into the office. In this case technicians typically come to the office from time to time for meetings and to replenish parts. Any time you see any paper in any process, this is an area where we can establish better automation and workflow associated with best practices.

SCHEDULING

Typically work is scheduled a day or two in advance of the commitment and most times a customer is given a window of time when the technician will arrive onsite. This may be a day, half-day or several-hour appointment commitment. Best-in-class companies try to narrow this window down as much as possible in order to provide better customer service or create a competitive edge. In some cases special Service Level Agreements (SLAs) negotiated with business customers require a technician to be onsite within a specified period of time (i.e., within two hours of a reported problem). In order to be as responsive as possible, best-in-class service organizations have gone to dynamic routing of work orders. With dynamic routing a Dispatcher will issue one or two work orders to each technician in order to get them started and then add work orders as the day unfolds. This gives them a great deal of flexibility in determining which technician should respond to a certain service call, allowing optimal responsiveness. Best-in-class dispatch systems will take into account certain criteria to make a preliminary decision as to which technician should receive a work order that can be overridden by the Dispatcher.

STATUS REPORTING

Dispatchers track work using what's commonly referred to as a dispatch board. Best-in-class dispatch systems allow the Dispatcher to see a list of Technicians and work orders currently assigned to each of them. A color-coded status allows the Dispatcher to easily recognize which orders are current being worked, which orders are completed and which orders have not been started by each Technician. They can move work around by dragging and dropping a work order from one Technician's list to another Technician. Elements like Technician skill level, location, whether or not they have the right part, and even traffic patterns may come into play when a Dispatcher makes an assignment decision. Dispatchers must also keep track of information about a work order, like priority or severity, when making dispatch decisions to ensure the highest-priority work is responded to accordingly. Dispatchers don't like to issue work too far in advance in case an unexpected situation arises on a particular job or a Technician reports in sick or is unable to complete their work that day for a variety of reasons. The status (and usually color) changes when a message is received from the mobile device indicating that the Technician has started a work order, completed a work order or is enroute to the next work assignment. Status messages are also received when a Technician reports that they're taking a lunch break or off work.

TRACKING

Best-in-class dispatch systems allow a Dispatcher to monitor work and even alter work assignments from a map. Using GPS coordinates sent from the mobile device, the Dispatcher can track mobile workers and view their current location. Some systems will report if the vehicle is moving, off or idle. These systems greatly enhance a Dispatcher's capability by providing a geographical overlay of each Technician's route. Work orders will appear on the map and may be color coded showing the current status. With some systems a work order can be dragged and dropped from one Technician's route to another right from the map itself. A corresponding update is made to the Technician's work list of work assignments on the dispatch board.

Technician – Start of Day

Note: *If at all possible, a field ride should be scheduled with a technician to view processes firsthand. Take pictures or videos to use in the executive briefing.*

SERVICE TERRITORY

Technicians will start their work day from home or a local reporting office. Field Service organizations can save a great deal of time by having their Technicians report from home and drive directly to their first work assignment. They avoid the typical "coffee social" at the office or depot that often slows down progress, especially at the beginning of the shift. Likewise, many technicians are assigned to an area that may be closer to their home than the office, so a trip to the office can waste valuable drive time and add fuel costs. Even in cases where Technicians report from home, they still occasionally return to the office for meetings, training and parts replenishment.

ASSIGNMENTS

Whether reporting from home or an office the mobile computer needs to be charged and ready to go first thing. Usually a Technician is assigned his/her own device, but in some cases they may pull from a pool of units. In the case where they pull from a pool they won't receive work assignments until they log on. With a thick client work order application the system must wait until the user signs on before it can download work assignments. With a thin client (browser) solution a Technician can view work assignments once they log in to the server. If Technicians are assigned a specific handheld device the work can be downloaded at any time. In most cases Dispatchers will wait as long as possible to assign work in case a Technician calls in sick or is unable to work. Best-in-class solutions allow for data to be downloaded to the handheld computer overnight for software and information updates (i.e. tech bulletins).

START OF DAY

The start-of-day routine for most Technicians involves logging onto the device (username and password) and entering an initial set of data. A security check may take place with the server to verify the username and password before allowing the Technician to proceed. In this case communications must be established at the start of day through Wi-Fi, wide area cellular data or direct connection (if in the office). Once logged on the technician may see a start time that is used for time reporting purposes and initial starting mileage taken from the previous day's ending mileage. They can usually edit these fields, which some companies don't allow because they consider the device to be a time clock. Other start-of-day routines can include completing a vehicle inspection report, taking inventory and reviewing company bulletins as examples.

Technician – Processing Work Orders

MOBILE WORKERS

Once work order assignments have been downloaded to the handheld computer, the Technician is ready to begin processing them. The number of work orders a technician completes during a day is highly variable depending on the length of a service call, the complexity involved, parts required, distance to travel, issues encountered, etc. In some cases technicians work all the calls in a certain area and others may travel great distances. Some specialty Technicians (i.e. medical equipment technicians) may actually fly to a customer location to service medical equipment. In the Telecommunications industry a Technician, or group of Technicians,

may work one service call for multiple days as when they have to dig up a phone line under a street. Some Technicians may be divided up by specialty with certain Technicians being assigned to installation, preventive maintenance and service work.

WORK ORDER DATA

Information for each service call is downloaded to the Technician's handheld device. This information is used to help the Technician and may include the location of the service call, information about who to contact, details about the problem reported, history of the asset, expected parts to be used and any special instructions. In most cases this information is downloaded with the work order, but some applications download a minimum amount of data and allow the Technician to electronically request additional information as required. In a manual environment the Technician must get on the phone and talk to a representative in the back office to read off additional details not included with the printed information, so an automated solution saves time for both back office and mobile workers.

REPORTING LOCATION

When the Technician begins travel to the first service call, he/she will alert the Dispatcher by pressing a key or selecting an option, typically called "ENROUTE". GPS-enabled devices will also send coordinates with the enroute status message to show the actual location of departure. Automated Vehicle Location (AVL) systems don't require the press of a key, but work instead off GPS coordinates and engine idle/run time information to alert the dispatcher to the location and status of the mobile worker. Additional status messages that may be sent to the Dispatcher include ARRIVED, JOB COMPLETE and OFF DUTY as examples. In a manual environment the mobile worker must call in status information, which can be time-consuming for the Dispatcher to track, and may often be missed. An automated status information system delivers big cost savings over manual systems and is an improvement over systems that do not support that functionality.

ARRIVAL

Once the technician arrives on site, they make contact with the customer (hopefully the individual who called for service). At this point they typically review details concerning the service call with the customer. They will also check "entitlement," which means they will ensure whether the requested repair is covered under warranty or a service agreement. With disputed situations the Technician may call the back office for clarification and/or additional information. With best-in-class systems this can be an electronic inquiry eliminating the need to call the back office for assistance. In a manual environment this means another phone call to someone in the back office to answer questions and even speak to the customer to resolve the dispute.

PRODUCTIVITY TRACKING

Once the Technician validates entitlement, they are ready to begin work. At this point some companies require the Technician to send another status message indicating that work on the actual job has begun. This allows the Field Service organization to better track statistics relating to job time versus travel time or time related to non-productive activities. Tracking detailed statistics is a best practice followed by many Field Service organizations. It allows them to identify inefficiencies in the workflow process and make adjustments to the business. Having an automated system to track activities is another cost benefit for automation.

OBTAINING INFORMATION

While working the service call, the Technician may need to refer to certain information to aid in completing the task. Information downloaded with the work order typically includes the problem reported, the type of equipment or service to be performed, location information, historical data and any results regarding troubleshooting procedures already performed. The service order may also include special instructions from the customer to be performed in addition to resolving the reported problem. All of this information is valuable to enabling the Technician to complete the job quickly and efficiently. In a manual environment this information must be printed out and passed to the Technician at the start of the day or read off to the technician over the phone when they call in.

KNOWLEDGE MANAGEMENT

Technicians often require additional information like technical bulletins, step-by-step instructions, schematics and other how-to information to refer to while working a service call. Traditionally this information has been kept in binders or manuals that get

packed around in the back of the service vehicle. Technicians don't automatically carry this information with them into the premise. If they need to refer to a manual it generally means another trip to the van and a waste of valuable time. In an automated environment these knowledge management tools are downloaded or accessible by the handheld computer. In some cases a larger display may be required to fully access this data. However, in most cases a screen the size of a rugged, small form factor handheld computer is sufficient. Best-in-class companies have started to use videos that Technicians can access on the job as a means to provide Techs with additional instructions. Likewise, video and voice conference calls amongst techs are being used to aid less experienced workers.

ASSET MANAGEMENT

Asset management involves the tracking of customer assets. This might include an air conditioning unit for an HVAC company or an appliance for a Field Service company involved with appliance repair. Asset information includes the date the asset was installed, the location of the asset, historical data (i.e. readings) and any problems reported since the equipment was put into use. This data is typically stored in a central database. With an automated system Technicians can access and update this data while onsite. Best-in-class companies make use of RFID tags and barcodes for quick access to this information. For instance, an appliance repair Technician might scan the barcode of a refrigerator to quickly gain access to asset data or an HVAC repair person might interrogate an RFID tag to learn the history of a chiller unit. Keeping this information updated and available to field workers increases efficiency and improves customer service. If the work performed on a device is the first encounter for the Technician or his company with a given piece of equipment, often times having the ability to apply a barcode label or RFID tag with specific information is a benefit. This may be fulfilled by a mobile printer under certain conditions.

USING THE COMPUTER AS A WORK TOOL

With some Technicians the mobile computer is also a work tool. An example is an elevator company with a custom Bluetooth interface to the elevator patch panel that enables the Technician to run diagnostics and change the configuration right from the handheld computer. Another example is a Technician for a cable company who uses the mobile computer to test Internet service following an in-home installation. Combining these technologies saves costs and makes it less burdensome on the Technician by giving them fewer items to carry and manage.

PARTS MANAGEMENT

It may be necessary for a Technician to use replacement parts during the repair of customer equipment. For operations that tend to use a lot of replacement parts, effective parts tracking is an important process. Best-in-class companies attach barcodes to parts for Technicians to scan as they use them. Scanned parts are automatically added to the customer invoice instead of relying on the Technician's memory to write down the parts used. The outcome is an increase in service revenues resulting in improved accuracy. Using barcodes also makes it much easier for Technicians to complete physical inventory of truck stock when required. Additionally, parts usage data can be transmitted to the parts department for tracking and replenishment of the Technician's vehicle inventory stock. There are many different types of parts and some can be quite small or come in multi-part packaging. When investigating the use of replacement parts, inquire as to how parts are barcoded. Depending on the size, locations and numbers of labels that need to be scanned, mobile computers with imager capabilities may provide distinct capability and performance advantages over commercial-grade "camera" type scanners for reading barcode labels.

COMPLETING THE WORK ORDER

Once the Technician has completed work on the customer's job they are ready to close out the service order. This typically involves updating the work order with information about the service call like the completion time, disposition of the equipment (i.e. motor burned out), what was done to make the repair (i.e. replaced motor), amount of labor involved, parts used and any comments. This information is reviewed with the customer. Many companies require the technician to obtain a signature from the customer as part of the completion process to denote that the information was reviewed and accepted by the customer. The technician may answer any questions and resolve disputes with the customer prior to departure. Using a mobile computer can greatly improve the completion process. Completion information can be reviewed with the customer right from the screen and the signature can be

electronically captured and stored for later retrieval. Surveys suggest that customers consider Technicians to be more professional when they use a mobile computer on the job.

INVOICING

Invoicing the customer for service work is another benefit of an automated work order management system. Many companies are implementing solutions that improve the service-to-bill cycle and reduce DSOs (Day Sales Outstanding). By invoicing the customer at the time of service, field service organizations find that their revenues increase and their DSOs drop significantly because customers are more likely to pay their bills at a time when they're most satisfied. Accordingly, best-in-class companies are automating the invoicing process by having the Technician provide the customer with an invoice upon completion of the job. The invoice can be emailed or printed and left with the customer. In order to print the invoice the Technician requires a system that calculates the bill and enables printing in the field. Mobile printers can be mounted in the vehicle or carried by the Technician to the job site. Once the invoice is created on the mobile computer it can be printed and left with the customer. A built-in credit card scanner enables Technicians to take payment on the spot.

UP-SELLING AND CROSS-SELLING SERVICES

Another popular process being automated by field service companies is the up-selling and cross-selling of service agreements. Survey results show a significant increase in service revenues when they engage Technicians in the process of closing additional business. For example, a cable Technician who just completed the installation of TV service at a customer's location may engage in a discussion about the benefits of using their phone and Internet service at a discounted rate. Likewise, an appliance repair Technician may be incented to discuss extending a maintenance agreement on a customer's appliance. The fact that the Technician is the "hero" by getting the customer's problem solved gives them a credibility that can then be successfully used in the sales process. Best-in-class companies report an average 20% increase in revenues when they incent Technicians to up-sell and cross-sell services. In order to engage in this activity, service organizations need to equip Technicians with sales tools including pricing, service agreements, current entitlement data and sales training. Automating these processes using mobile computers greatly enhances their ability with step-by-step instructions, updated price lists and electronic agreements with signature capture.

Technician – End of Day

END OF DAY ROUTINE

When the Technician has completed all the work orders for the day he/she may have some final processing to complete. This might include entering ending mileage on the vehicle for expense purposes and completing entries in a timesheet. Best-in-class systems will build a timesheet from the status transactions sent throughout the day and then allow the Technician to make any final edits before sending the timesheet to payroll. Additional expenses, such as fuel and other company purchases, can be added to the expense report as well. The manual process for time and expense reporting often meant returning to the field office and spending a half hour on "paperwork," so automating these processes is a big cost savings.

MANAGEMENT REPORTING

Managing a mobile workforce is a difficult task made much easier through automation. In a manual environment, supervisors have little information to make adjustments to the workforce. They rely on reports run from the system days later to view information like the total number of work orders completed, call backs, completion times, etc. Most of this information comes from timesheet data entered manually by the Technician at the end of the day. With automated workflow processes this information becomes real-time and can be accessed anytime throughout the day. Supervisors can make timely adjustments and identify those Technicians who might need additional training or supervision.

Managing Mobile Devices

MOBILE DEVICE MANAGEMENT

Managing computing equipment in the office is simple compared to managing mobile computers in the field. The IT organization must ensure that each device is properly loaded and tested prior to deployment. In some cases units going to a certain location require a different load and must be managed accordingly (i.e. mapping by region). Mobile assets are difficult to track. Users may have occasion to swap devices with other users or may swap out to a spare device when their unit fails. Reporting problems and managing spares is another concern of the IT organization. Having a central help desk available to respond to questions/problems resulting from hardware, software or communication failures is a best practice. Managing spares from a central location will help reduce costs. And finally, keeping applications and data up to date is another issue that must be addressed. Some organizations do this overnight when the device is not in use in order to minimize the impact on productivity. Be aware of opportunities to “outsource” the mobile device lifecycle management for companies with widely dispersed operations.

A TCO FOR RUGGED

Field Service organizations that choose to deploy smartphones or other consumer-grade products face issues that impact the productivity savings described above. Some field service organizations are capable of using consumer-grade products in their environment with little impact to operations. But many require a rugged mobile computing solution to withstand the rigors of daily use. When a hardware failure occurs it becomes a much more costly issue than simply paying for the repair. This becomes clear by walking through the step-by-step processes experienced by the Field Service Technician when the unit stops working. The responses can be used to develop a detailed TCO calculation in the hardware total cost of ownership model.

Walkthrough Worksheet

The term “Walkthrough” is being used to include all reviews of the company’s operations, including Field Service “field rides” or other “ride-along” activities. It is important to understand the company’s overall operations process in addition to what you experience during a specific walkthrough/field ride.

Walkthrough Preparation

When planning the walkthrough it is very important to align expectations and determine the specifics of the walkthrough. You will need to identify and more importantly communicate the following:

THE DATE AND TIMES FOR THE WALKTHROUGH

A thorough walkthrough can be time-consuming so it is important to set the proper expectations.

THE LOCATIONS FOR THE WALKTHROUGH

Some customers run multiple Field Service locations that can be very different in their operational processes so it may be necessary to do a walkthrough at multiple locations.

THE WALKTHROUGH PARTICIPANTS

- Honeywell sales representative
- Honeywell technical resource (need determined by sales rep)
- Honeywell business/operational consultant (need determined by sales rep)
- Client executive who understands their operations and business strategies end to end
- Client personnel who understand the details of the operation and can answer the detailed questions during the walkthrough
- Client IT personnel (need determined by client contact)

Conducting the Walkthrough

The walkthrough questionnaire is provided on the following pages. Print them out, take them with you, use the questions and record your observations and answers on them. The best and most revealing things that happen in a typical walkthrough process are often very unpredictable. Be ready to ask a lot of “why do you do that?” types of questions for any of the workflows included below. These open-ended questions will often surface frustrations, issues and other undocumented processes that will prove to be a great source of potential payback in your analysis. Also, use the blank space on the bottom of the pages to make any other notes or observations.

Take a picture or video camera (assumes you have already received permission to take pictures or video) and record processes and workflows. There is nothing more powerful than a picture or a video to executive management to prove that you have uncovered a real process improvement and payback opportunity.

Dispatchers

Note: If possible sit with a Dispatcher for as much time as you can to see the full daily cycle of dispatch operations on a “typical day” and to observe how the Dispatch process impacts the other aspects of the back-office operations.

Look for:

- The amount of time Dispatchers spend interacting with Service Technicians
- How much time could be saved through improved systems
- The steps required to move work from one Technician to another
- How status messages from Techs help determine work assignments
- Inefficiencies in their daily routine that can be resolved with an improved system

Questions:

1. What ERP and CRM system do you use to manage customer information?
2. What work order management system do you use?
3. Where is your call center located?
4. Are your dispatchers central to the call center or remote?
5. What is the average burdened hourly rate for a dispatcher?
6. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Downloading Work Orders

Look for:

- The steps involved to download initial work assignments
- Delays getting Technicians on the road that can be solved through automation

Questions:

1. Do your techs start from home or come into the office?

2. If starting from home, how often do they come in to the office?

3. How are devices set up to communicate overnight?

4. What is the process for downloading initial work assignments?

5. How do you deal with issues when a device can't be contacted for download?

6. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Scheduling

Look for:

- Possible improvements in customer service by shortening commit times
- Ways to use automated scheduling to make assignments

Questions:

1. How far in advance do you schedule work with the customer?
2. What is the typical window for service commitments?
3. Do you have special SLAs requiring shortened response times?
4. What information is taken into account when making an assignment?
5. Is the Dispatch system using dynamic scheduling processes?
6. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Status Reporting

Look for:

- The types of status messages received from Techs to convey location
- How those messages get used by Dispatchers to make assignments
- Ways to use the system to improve the timeliness of status reporting

Questions:

1. How do Dispatchers receive status messages from Technicians?
2. Which status messages do you track?
3. How do Technicians report that they're on/off duty?
4. What levels of priority are given to work assignments?
5. How often do you talk to Technicians?
6. What communication methods do you use?
7. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Tracking

Look for:

- The level of sophistication used to monitor and track mobile workers
- The accuracy of location data
- Tracking efficiencies that can be gained with an improved system

Questions:

1. Does your dispatch system support mapping of work assignments?

2. Can you track Technicians on a map in real time using AVL (Automatic Vehicle Location)?

3. What status updates can you view from the map?

4. Do you have any communication or other issues with the mapping system?

5. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Service Territory

Look for:

- Times savings that can be achieved by routing Technicians directly to their first assignment
- Problems that arise due to improper assignments
- Ways to reduce the number of trips to the office using an automated solution

Questions:

1. Do your Technicians report from home or a local office?
2. Do they get paid for drive time to and from the office?
3. Are they assigned a vehicle or do they pull from a pool?
4. How often do they replenish parts? Where/how do they get parts?
5. How often do they attend meetings and training sessions?
6. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Assignments

Look for:

- Inefficiencies in the overnight process for charging devices and downloading software
- Ways to improve the process using Honeywell equipment

Questions:

1. Are technicians assigned their own handheld device or do they pull from a pool?

2. How do devices get recharged?

3. When do you update software on the handheld computers? How?

4. When do you download initial work assignments?

5. Do you download a complete day or drip-feed assignments?

6. What issues do you encounter with the download process?

7. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Start of Day

Look for:

- Manual processes in the start of day routine that can be improved through automation
- Time savings that can be achieved with a better system
- Problems that can be resolved with a better device

Questions:

1. What's involved in a typical start of day routine?
2. How is the handheld computer used to complete these tasks?
3. Is there benefit to automating some of the manual tasks?
4. What issues do you encounter during the start of day?
5. How do they get resolved?
6. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Mobile Workers

Look for:

- The number of service technicians and their respective service territories
- How the work is divided (i.e. skill level, location, availability, etc.)
- The training and provisioning process for new hires
- The costs associated with managing the field service business
- Inefficiencies in the field service management practice

Questions:

1. How many Technicians do you have?

2. Are they assigned to specific areas or do they roam throughout the territory?

3. Are your Technicians divided by skill level? If so, what?

4. How are they trained?

5. What is the average burdened labor rate for each type of Technician?

6. What percentage of overtime do you typically experience?

7. What is the overtime rate?

8. What is the average number of service calls worked in a single day?

9. Do you assign work orders by specialty?

10. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Work Order Data

Look for:

- Information required by Technicians in the field to service equipment
- How often they need to contact back-office personnel to get additional information
- Ways to improve the process through automation

Questions:

1. What type of information is downloaded with the service order?

2. Do Technicians have the ability to request additional details?

3. Is there ever a problem with Techs not having the information required to work the service call?

4. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Reporting Location

Look for:

- Ways Technicians use the system to update Dispatchers on their status
- Problems with the system that can be improved with better hardware or applications

Questions:

1. What status messages do you receive from Technicians?

2. How do they communicate status to the Dispatcher?

3. Are GPS coordinates used in status messaging?

4. Do you ever encounter problems with status messaging?

5. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Arrival at the Customer's Site

Look for:

- Ways the Technician uses the system when they arrive at the customer's premise
- How they access information to confirm entitlement
- Number of times the Technician must request additional information from the back office
- Inefficiencies with these processes that can be improved through automation

Questions:

1. What information is available to the Technician to validate entitlement?

2. What is the process to resolve entitlement disputes?

3. Does the Technician need to place phone calls to the back office?

4. Is a voice-enabled handheld computer a requirement?

5. Are there any issues encountered with the entitlement validation process?

6. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Supervisors – Productivity Tracking

Look for:

- Information used by supervisors to track and manage mobile workers
- How that information is obtained
- How accurate the information is
- Improvements that can be made in collecting this data using handheld computers

Questions:

1. What statistics do you track to assist management?
2. What is your average first-time complete rate?
3. Is this information collected electronically or manually?
4. What do you consider the accuracy of this data to be?
5. Do you encounter problems collecting this information?
6. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Obtaining Information While at the Job Site

Look for:

- The number of times a Technician must request additional information when working the job
- The method used to obtain the data
- How timely is the information that is downloaded
- Any problems or inefficiencies encountered during the process

Questions:

1. What information is required in order for the Technician to work the job?

2. Is there ever a need to obtain additional data?

3. How is this need fulfilled?

4. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Knowledge Management

Look for:

- The process used to train technicians
- Tools available after training to reinforce their knowledge
- The role the mobile computer plays in providing this information
- Inefficiencies when manual processes are used to search for data
- Amount of time wasted trying to get answers to questions

Questions:

1. How do technicians get trained on the latest equipment/processes?

2. What knowledge tools do they have access to on the job?

3. Who do they contact when they encounter a problem they can't resolve?

4. How do they make contact?

5. How frequently does this happen?

6. Do you currently use a mobile computer for knowledge management?

7. If so, how?
8. What problems do you encounter in this area?
9. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Asset Management

Look for:

- The system used to track customer assets
- Processes used to retrieve asset data when necessary
- Method of updating and storing this data
- Improvements that can be made in tracking assets using RFID and/or barcode scanning

Questions:

1. Do you track customer assets?

2. Where do you keep this information?

3. Are there special security concerns surrounding this data?

4. Do your Technicians require access to this data while onsite?

5. How do they obtain this information?

6. Is it as timely as it needs to be?

7. Do your customers perceive a benefit of having you tracking this information?
8. Do they pay for that benefit?
9. What problems are encountered with this process?

Using the Computer as a Work Tool

Look for:

- Ways the technician uses the mobile computer for something other than managing work orders
- Other functions the mobile computer can be engaged in to improve their job

Questions:

1. Do you use the mobile computer for anything other than managing work orders?

2. Is there a technology solution that the handheld computer can handle?

3. If so, how would it benefit the Technician?

4. How would it benefit the organization?

5. How would it benefit the customer?

6. If you currently use the handheld computer for something other than managing work orders, are you experiencing any problems?

7. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Parts Management

Look for:

- Inefficiencies in the parts handling process
- The number of times parts are not accurately included on the customer's invoice
- Method used to track and replenish parts
- Speed and accuracy required in scanning barcodes
- Improvements that can be made in tracking and managing parts using mobile computing technology

Questions:

1. Do your mobile workers use parts?

2. How do you track parts used during the service process?

3. Do you make use of barcodes?

4. How/when do the barcodes get applied?

5. How are barcodes scanned?

6. Do you encounter problems scanning barcodes?

7. Are scanned barcodes used in the creation of the customer's invoice?

8. Does this information get used in the parts tracking process? If so, how?

9. Do Technicians maintain vehicle stock?

10. What is the average value of a single Tech's vehicle inventory?

11. How often do you take inventory?

12. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Completing the Work Order

Look for:

- How the mobile computer is used to complete the service call
- Ways the unit is used to convey information to the customer
- Signature capture process and whether or not the mobile computer can be used to capture customer signatures
- Inefficiencies with the close-out process that can be improved with automation technology

Questions:

1. Do your Technicians use mobile computers to track completion data?
2. What type of information do you capture?
3. Does the Technician use the computer to review completion data with the customer?
4. How do your customers perceive this?
5. Do you capture signatures electronically?
6. What happens with the signature... how does it get used?
7. What problems do you encounter with the completion process?
8. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Invoicing

Look for:

- The invoicing process and whether or not onsite invoicing could help with collections
- Ways to reduce lag times between invoicing and collections using mobile computing technology
- Possibility of including printers to print invoices and receipts
- Manual processes that can be replaced by mobile computers to improve timeliness and accuracy

Questions:

1. Do you invoice customers for service work?
2. How is the invoice created?
3. Do your mobile workers invoice in the field?
4. Is the process manual or automated?
5. How accurate is the invoicing process?
6. Do your Technicians have the ability to collect payment in the field?

7. Can your Technicians print invoices in the field?

8. What problems do you encounter with the invoicing process?

9. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Up-Selling and Cross-Selling Services

Look for:

- Whether or not Technicians are compensated for selling additional products and services
- The pricing and quoting tools required for Techs to conduct sales
- Accuracy of pricing information
- Ways the mobile computer can be used to improve the sales process

Questions:

1. Do you incent your Technicians to sell service programs?
2. What tools do they use?
3. How are they trained?
4. Is the process automated?
5. How are they compensated?
6. Do they have access to online tools?
7. What problems do you encounter?
8. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

End of Day Routine

Look for:

- Ways the mobile computer is used by the Technician in the end of day routine
- Possible manual processes that can be automated
- Amount of time wasted doing manual tasks that could be improved using the mobile computer

Questions:

1. What is the typical end of day routine for your Technicians?
2. Do they return directly home or stop at a field office to complete their work?
3. How do time and expense reports get submitted?
4. Is the timesheet built from status transactions?
5. What issues do you encounter with the time and expense reporting process?
6. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Management Reporting

Look for:

- Management practices that can be improved with a mobile computing solution
- Inaccuracies with information that's untimely or unreliable

Questions:

1. How does your management staff obtain feedback from daily operations?

2. What action do you take based upon that feedback?

3. What systems do you use to collect customer service data?

4. Is the information timely and reliable?

5. What problems occur with these processes?

6. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Mobile Device Management

Look for:

- Inefficient operations in the processes used to load, track and manage equipment
- Impacts on productivity resulting from delays updating software and databases
- High costs associated with inefficient spares management and exchange processes
- Delays when Technicians contact the help desk in need of assistance

Questions:

1. Who's responsible for loading and managing software releases?

2. How do new software updates get distributed?

3. Are there delays in getting new releases in the field?

4. How are units tracked?

5. What type of problems do you encounter trying to keep track of units?

6. How is the help desk organized?

7. Does a central help desk respond to all inquiries?

8. Where are spare devices kept?

9. Are they centrally located or distributed throughout the regions?

10. How do you ensure that batteries for spare units are charged?

11. How do they get loaded with the latest applications before shipping?

12. If there was one thing you could change about this process to make it easier/better/safer, what would that be?

Hardware Failure – Sample Step-by-Step Process and Questions

1. Tech is in the middle of a service call

Number of service calls per day? Average length of a service call?

2. Needs to check service call data

How often does tech use device during a service event?

3. Attempts to power on device but won't power on

Are technicians trained on troubleshooting procedures?

Do they carry a user guide with troubleshooting instructions?

4. Tries to do a hardware reset but unit does not power on

How often do failures occur?

What percentage of failures is hardware vs. software?

What percentage of failures results in a device replacement?

5. Concludes the unit must have a dead battery

What types of hardware failures are encountered in the field?

What percentage of failures are no trouble found?

6. Takes the unit to the vehicle to plug in

Do techs charge units in the vehicle?

7. Leaves unit to charge in the vehicle (or plugs in power adapter inside)

Do they carry a spare power adapter?

What does tech do while waiting for the unit to recharge?

Is power readily available near the service location?

8. Returns to the vehicle to retrieve the unit

How close do techs usually park?

How long before the unit charges enough to power on?

9. Attempts to turn on the device but it still doesn't power on

What other failures can occur that render the device inoperable?

10. Decides needs to talk to Technical Support

Do techs carry separate cell phone for voice communication?

What does tech do if they don't have a phone?

11. Tech calls Technical Support

Who provides technical support?

What is the hourly burdened rate of a tech support specialist?

Do techs experience hold time? How often? Average length?

12. Technical Support gathers data on the failure event

What is the average length of a call?

13. Technical Support walks tech through basic troubleshooting

What type of troubleshooting processes take place?

14. Problem can't be resolved over the phone... RMA issued

Who tracks RMAs?

Is there a breakdown of reported problems?

15. Call concludes

Do techs return to the office for troubleshooting assistance? How often?

Average drive time?

Company cars or personal?

Mileage reimbursement cost?

16. Tech begins working service orders without device

Do techs print routes at the start of day?

Is there a backup plan for device failures?

17. Tech calls dispatch for next work assignment

How does tech get access to a phone?
What is the dispatcher's hourly burdened labor rate?
Are techs put on hold?

18. Dispatcher reads off pertinent data

What type of data is critical to work a job?
Would dispatcher provide all data for remaining route?
What is the average length of a call?
How many dispatchers are available to support the field?

19. Tech continues working jobs through the end of the day

How often would tech need to contact dispatcher?
How would dispatchers track status?
Would job completion data be collected throughout the day?

20. Tech goes through end of day processing without device

How would timesheet data be collected?
Can techs work jobs from home computer?
How often would a tech return to the office to complete work?
How are expenses tracked?
What other routines might be impacted?

21. RMA process triggers a replacement device

What is the cutoff time for a replacement?
What is the average length of time a tech is without a unit?

22. Unit is pulled from spares stock

Are hot spares kept onsite? Who maintains spares onsite?

23. Spare unit loaded and configured

Length of time to configure a spare?
What type of personal configuration is done?
Cost per event?

24. Spare unit is shipped to user location

Do units get sent to tech's home or office location? Who pays for shipping?

25. User unpacks device

Are units pre-charged before shipping?

Is tech required to complete any steps before use? If so, what and how long?

26. Tech is back up and running

What is the average total time a tech is without a device?

Company Business Metrics

The information gathered in the business overview is vital to the eventual success of the project. Some of this information may already be knowledge possessed by the sales team, especially in the case of current customers. This information is commonly acquired in initial qualification calls, however, in some instances these specifics are captured in the initial meeting and/or in the conference room before conducting the walkthrough. This vital information includes:

Key contacts within the organization (Business, IT, Operations)

Project scope and drivers

- It is important to understand what the client deems as a successful project

Client business specifics

- Market segment/industry vertical
- Annual service revenue and volumes
- Client customer types
- Client product types

Competition

- Client competitors
- Honeywell competitors involved in project and/or currently entrenched

Partner involvement

- Honeywell partners
- Client partners (CRM/ERP vendors, consultants, integrators)

Current and planned customer service objectives

Cost reduction goals

Current and planned IT infrastructure

- Current and/or planned software systems installed (Enterprise and CRM)
- Current and/or planned hardware utilized
- Current and/or planned automation and/or robotics
- Current and/or planned network (WLAN, WWAN)
- Interface requirements
- DB and OS preferences
- Desire for onsite or SaaS/HaaS
- Business Intelligence/Reporting/Alerting requirements
- Staff size and expertise
- What responsibilities will client and Honeywell assume for project

Other Key Business Metrics

The following table is a list of key metrics that should be gathered in order to complete an accurate benefits model.

GENERAL COMPANY DATA	METRIC	VALUE	CUSTOMER INPUT
# Workdays per Year (365 or 260)	Days	260	
# Holidays per Year	Days	10	
# Vacation/Sick Days per Year	Days	15	
# Training Days per Year	Days	5	
Net Workdays per Year (C2-C3-C4-C5)	Days	230	
Average Workday Length	Hours	8	
# Field Technicians	Number	1,000	
Average Cost per Job (Salary & Benefits x Hours/Job)	\$	\$45	
Annual Customer Turnover (% Customers Who Discontinue Service)	%	3%	
# of Customers Serviced by Company	#	100,000	
Reduction Target in Lost Customers Due to Better Service	%	5%	
Profit Savings Factor Applicable to Just Revenue Retention	%	10%	
Annual Revenue Growth per Customer	%	2.00%	
Profit Growth Lost by Imperfect Service	%	1.50%	
BACK-OFFICE DATA	METRIC	VALUE	CUSTOMER INPUT
# Existing Dispatch Centers	Number	30	
Annual Average Fixed Cost per Dispatch Center	\$	\$150,000	
# Dispatch Centers after Consolidation	Number	2	
# Dispatch Personnel	Number	30	
Average Work Orders per Day per Dispatcher	Number	60	
Loaded Cost per Dispatcher per Hour	\$	\$50	
Loaded Cost per Part Support Person per Hour	\$	\$40	
Dispatcher Talk Time per Call	Minutes	2	
Cost per Month per Dispatcher Phone Service	\$	\$50	
Loaded Cost per Hour for Data Entry Personnel	\$	\$10.00	
Average Time for Data Entry per Service Call (Close Out)	Minutes	2	
Average Time for Data Entry for Route Sequencing per Tech per Day	Minutes	5	
TECHNICIAN DATA	METRIC	VALUE	CUSTOMER INPUT
Average Length of Service Call (including Travel)	Minutes	90	
Average Travel Time per Service Call	Minutes	30	
Average Cost per Service Call (Time, Parts, Overhead)	\$	\$145	
Average Revenue per Service Call	\$	\$225	
# Customer Visits per Day per Tech	Number	5	
# Customer Visits per Year per Tech	Number	1,300	
# Phone-Ins per Tech per Day	Number	6	

Loaded Cost per Tech per Hour (Salary, Benefits)	\$	\$65	
Loaded Cost per Tech per Year (Salary, Benefits)	\$	\$135,200	
Average Cost for Overtime Hours per Tech per Week	\$	\$270	
Overtime Cost Factor (Time and a Half, or Double)	Number	1.5	
Average Talk Time per Phone Call by Tech (including Hold Time)	Minutes	3	
Cost per Month for Technician Phone Service	\$	\$50	
# Monthly Repeats or Call Backs per Tech (within 30 Days)	Number	1	
% Repeat Rate Reduction Target	%	10%	
# Hours on Administrative Tasks per Day per Tech	Hours	0.25	
% Time Saved Due to Automation of Administrative Tasks	%	10%	
Corporate Cost to Hire a New Field Technician	\$	\$5,000	
Corporate Cost to Equip a New Field Technician (Vehicle, Instruments and Tools)	\$	\$15,000	
Reduction in Training Demands to Take Technician out of the Field	%	25%	
Average Corporate Cost to Train a New Field Technician	\$	\$10,000	
PARTS DATA	METRIC	VALUE	CUSTOMER INPUT
% Calls Requiring Parts	%	25%	
% Calls with Parts Unavailable in Vehicle Stock (when parts are needed)	%	20%	
% Calls Broken Due to Parts Unavailable (when parts are needed)	%	15%	
% of Occasions That Tech Can Get Part Easily from Other Vehicle Stock	%	25%	
Average Time per Call to Determine Parts Availability and Decide Action	Minutes	10	
Average Value of Van Stock per Tech	\$	\$10,000	
Average Value of District Stock per Tech	\$	\$7,500	
Average Value of Regional Inventory per Tech	\$	\$5,000	
Average Value of National Inventory per Tech	\$	\$2,500	
Average Shipping Cost per Emergency Shipment	\$	\$15.00	
Average Number of Emergency Shipments per Day (All Techs)	Number	250	
Carrying Cost of Inventory per Year (including Overhead)	%	20%	
Inventory Savings by Providing Full Visibility of Supplies	%	5%	
% Time Efficiency Gain through Logistics Automation	%	25%	
# Physical Vehicle Inventories Annually	Number	2	
Average Time to Conduct a Physical Inventory	Hours	1.50	
% Reduction in Inventory Time through Automation	%	50%	
Talk Time per P/N Call	Minutes	5	
# of P/N Calls per Day per Tech	#	1	
% of Times a Tech Has Local Product/Model Information	%	25%	
VEHICLE DATA	METRIC	VALUE	CUSTOMER INPUT
Vehicle Miles or KM Driven per Day per Tech	Miles/KM	125	
Vehicle Cost per Mile or KM	\$	\$0.28	
% Reduction in Daily Miles per Job	%	5%	

% Customer Calls where RF Can Present Mileage Savings	%	5%	
% Reduction in Windshield Time per Job	%	10%	
ENTITLEMENT/BILLING DATA	METRIC	VALUE	CUSTOMER INPUT
# Times per Year per Tech Work Is Performed but Not Entitled	Number	12	
% Target Un-Entitled Work Reduction	%	25%	
% Un-Collectable Revenue	%	0.25%	
% Improvement in Collections Due to More Accurate Billing	%	5%	
Average Daily Time Spent Verifying Contract Coverage	Hours	0.10	
% Reduction in Contract Verification	%	50%	
% of Calls with Time & Material Billing	%	10%	
Average Annual T & M Billing Increase	%	4%	
Average Time (Min) to Get New T & M Billing Rates to the Field	Months	3	
Time (Min) to Get Electronic T & M Rates to Field	Months	1	
SALES DATA	METRIC	VALUE	CUSTOMER INPUT
% Occasions Where Sales Opportunities Are Presented to Tech	%	10%	
Closing Ratio	%	5%	
Average Sale Amount	\$	\$60	
Tech Incentive Compensation (% of sales)	%	5%	
Cost of Sales Collateral and Sales Support (% of sale)	%	10%	
OPERATIONS DATA (FOR CUSTOMERS OPERATING MANUALLY)	METRIC	VALUE	CUSTOMER INPUT
Average Number of Paper Documents Distributed Annually (to the Field Technician)	Number	24	
Average Printing Cost per Paper Document	\$	\$5	
Average Cost to Electronically "Transcribe" Equivalent Document	\$	\$2	
Average Distribution Cost per Paper Document	\$	\$2	
Average Cost to Electronically Distribute Electronic Equivalent Document	\$	\$1	
# of Pieces of Paper Used Daily Eliminated	Number	15	
Average Company Cost to Handle Each Piece of Paper	\$	\$0.05	
# Times Daily When Field Tech Must Refer to Documentation	#	3	
Average Time Spent Searching/Finding Relevant Information	Minutes	5	
% Reduction in Time Spent Searching because of Electronic Medium	%	25%	
% of Call-Ins That Can Be Handled with RF (Coverage Measure)	%	85%	
# Data Errors per Tech per Month Requiring Resolution	Number	2	
Average Cost to Company to Resolve Error	\$	\$15	
% Reduction in Data Error Target	%	50%	
Tech Time to Resolve Error per Event (Hours)	Hours	0.1	
TCO FAILURE DATA (FOR CUSTOMERS CURRENTLY USING MOBILE COMPUTERS)	METRIC	VALUE	CUSTOMER INPUT
# of Devices Deployed	#	1000	

# of Failures per Year	#	100	
Cost per Repair	\$	\$250	
Cost for Annual Maintenance Program (per unit)	\$	\$200	
Tech Time Required for Troubleshooting per Incident	Minutes	30	
Tech Time Required to Call Tech Support	Minutes	20	
Dispatcher Time Required to Reroute Work Order	Minutes	10	
Est. Cost for Missed Appointment	\$	\$50	
Average Tech Time Required to Drive to/from Depot upon Failure	Minutes	60	
Average Miles Driven per Failure	#	20	
Mileage Reimbursement Cost	\$	\$25	
Tech Time Required to Configure New Device	Minutes	45	
Tech Support Time Required to Troubleshoot Problem	Minutes	30	
Tech Support Burdened Hourly Rate	\$	\$25	
Tech Support Time Required to Provision Spare Device	Minutes	30	
# of Spares Required to Support Operations	#	100	
Cost per Spare	\$	\$25	