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THE FORWARD DEPLOYED INVENTORY SYSTEM

The Forward Deployed Inventory System

Chapter 7 · Part II · The Shift from FDI to FDIS

Forward deployed inventory is a different operating problem,
and it requires a system designed for that reality.

FROM CHAPTER 7

Glenn Caudill

COMPLIMENTARY PREVIEW · NOT FOR RESALE

PART II · THE SHIFT FROM FDI TO FDIS

Chapter 7

The Forward Deployed Inventory System

"We tend to formulate our problems ... [so] the solutions ... demand precisely what we already happen to have at hand."

— Abraham Kaplan, *The Conduct of Inquiry* (1964)

"Forward deployed inventory is a different operating problem, and it requires a system designed for that reality."

— Glenn Caudill

FDIS Defines a Distinct Category

Most organizations with forward-deployed inventory would not say that they lack an inventory system. They can point to an ERP platform, a warehouse management system, a field service application, or some combination of the three. Inventory is recorded somewhere, shipments are processed somewhere, and inventory consumed during service is eventually charged to a work order or a customer account.

Yet having systems that contain inventory transactions is not the same as having a system designed to manage forward-deployed inventory.

ERP maintains the financial and transactional record of the enterprise. A warehouse management system controls the movement of material through a structured facility. A field service system coordinates personnel, work orders, schedules, assets, and customer commitments. Each performs an important role. None of those roles is managing inventory that has been positioned outside the controlled warehouse, near the point of service.

The distinction is easy to miss because the individual transactions appear to be covered. One system knows that inventory left the warehouse. Another knows that a work order was completed. A third eventually records that the item was consumed. But no single system is responsible for whether the right inventory is in the right location, whether it is present and accessible, whether the quantity matches the local service risk, or whether the record can be trusted.

The transactions have homes. The problem does not.

When no system owns the complete problem, responsibility settles wherever the work must continue. A local manager creates a spreadsheet. A planner maintains a separate report. Field service personnel remember where items are located and call one another before making a trip. Elsewhere, a warehouse or field service system is modified as far as it will go, though its underlying design remains centered on a different environment. These approaches keep the operation functioning and are often reasonable responses to the tools available. But they produce a form of management that depends on local knowledge, personal effort, and informal coordination. Visibility varies by location, procedures differ by team, and

decisions are made through email, telephone calls, and experience rather than through a system responsible for the entire network.

Accountability divides along the same lines. The inventory may belong to supply chain while being physically controlled by field service personnel. The field may be held responsible for availability without authority over replenishment. Central planners may be accountable for the investment while lacking reliable information about what is present, accessible, or needed locally. Each group owns part of the outcome. No one owns the operating system that connects them.

That is the gap a Forward Deployed Inventory System is intended to fill.

A system category is defined less by the functions it contains than by the problem it is accountable for solving. An FDIS uses familiar capabilities: scanning, inventory transactions, replenishment rules, optimization models, mobile workflows, and enterprise integration. None of them is unique. What makes the system different is that they are organized around the operating conditions and objectives of forward-deployed inventory.

Classification matters because it determines how the problem is managed. Treated as an extension of warehouse inventory, forward stock inherits warehouse assumptions. Treated as a feature of field service, it becomes secondary to the personnel and the work order. Viewed only through ERP, the financial record receives more attention than the physical conditions producing it. Each system sees an important part of the problem. The difficulty arises when one part is mistaken for the whole. Recognizing FDIS as a distinct category does not diminish those systems; it makes their boundaries more honest. They continue performing the functions for which they were designed, while FDIS accepts responsibility for the decisions, controls, and processes specific to inventory in the field.

The management question then changes. Instead of asking how far an existing system can be stretched, the organization asks what is required to manage inventory reliably and economically under field conditions, then determines how the surrounding systems should participate.

That is where the Forward Deployed Inventory System begins.

The Operating Environment Changes the Problem

A warehouse is a highly managed environment. Even a large facility has defined boundaries, controlled access, trained personnel, established receiving and shipping processes, and systems built around the regular movement of material. Inventory enters through known points, moves through designated locations, and leaves through processes intended to capture each transaction.

These controls are not perfect. Warehouses still experience inaccurate receipts, misplaced inventory, picking errors, and shrinkage. But the environment itself supports inventory discipline. People are present because inventory is their work, and the facility is organized to make that work repeatable.

Forward-deployed inventory operates under different conditions.

A field location may be a vehicle, an unattended locker, a customer's storage room, a cabinet inside a hospital, a cage in a factory, or a small depot shared by people who do not report to the same organization. Some locations are staffed only occasionally. Others operate around the clock with no one assigned to

inventory. Access may depend on a key, a badge, a customer representative, a security desk, or whoever happens to be nearby.

Security is therefore a different problem. A warehouse protects inventory through a controlled perimeter, staffed receiving areas, surveillance, and people whose responsibilities include controlling access. Forward inventory sits where those protections are limited, inconsistent, or controlled by someone outside the organization. But more security does not by itself solve anything, because inventory near the point of service creates value only if authorized people can reach it when it is needed. An item that is perfectly protected but unavailable after hours is operationally useless. FDIS must create secure accessibility: enough control to protect the inventory without defeating the reason it was positioned in the field.

Movement is different as well. In a warehouse, moving inventory is the work being performed. In the field, inventory moves because someone is trying to complete another task: a field service person removes an item because equipment needs to be restored, a manager transfers inventory because a customer is waiting. The transaction matters, but it is rarely the person's primary objective at that moment.

That places consistent tracking at risk. A process that works for trained warehouse personnel may create too much friction for someone standing beside failed equipment with a customer waiting. If recording the transaction takes too long, requires information that is not at hand, or depends on an unreliable connection, the physical event occurs without the digital event that was supposed to describe it. The person may have made the correct service decision and still weakened the inventory record.

Distance compounds the error. A missed warehouse transaction may be caught during the same shift by someone working a few aisles away. A missed transaction in the field can remain invisible until the next replenishment, service call, cycle count, or stockout, by which time the person who moved the item may not remember the circumstances and the person investigating may be hundreds of miles away.

The same difficulty appears in the opposite direction. Repairable cores, defectives, unused items, and excess stock must all find their way back into the supply chain. In a warehouse, returns are consolidated, inspected, and moved through an established process. In the field, they are scattered across dozens or hundreds of low-volume locations, transportation is not scheduled regularly, and ownership becomes unclear once an item has been removed from service. A repairable core can sit in a vehicle for weeks while the organization purchases a replacement for an asset it still owns, unavailable for reuse, repair, or warranty recovery. Its value disappears from management attention long before it disappears from the financial record.

	THE WAREHOUSE	THE FIELD
LOCATION AND ACCESS	Defined perimeter, designated entrances, staffed receiving, controlled access.	Vehicle, locker, customer storage room, hospital cabinet, shared cage. Access may depend on a key, badge, escort, or whoever happens to be nearby.
WHO IS PRESENT	People whose work is inventory. The facility is organized to make that work repeatable.	People whose work is restoring equipment. Some locations are staffed occasionally; some have no one assigned to inventory.
THE TRANSACTION	Recording the move is the job.	Recording the move competes with a customer waiting beside failed equipment.
WHEN AN ERROR SURFACES	Often the same shift, a few aisles away.	At the next replenishment, service call, cycle count, or stockout — and the person looking into it may be hundreds of miles away.
RETURN FLOW	Consolidated, inspected, classified, and moved through an established process.	Cores and defectives scatter across many low-volume sites, with no scheduled pickup and ownership that becomes unclear.

Figure 7.1 *The warehouse and the field are not the same operating environment. These are not differences in discipline. They are differences in what the environment itself makes possible.*

This is why field inventory cannot be managed by exporting warehouse procedures to smaller locations. A process that appears disciplined from central supply chain may be impractical where the work occurs. When that happens, people do not stop serving the customer. They work around the process.

Those workarounds are often treated as failures of compliance. Sometimes they are. But repeated workarounds are also evidence that the system was designed for an environment that does not exist in the field. A good FDIS creates control without assuming warehouse conditions. It makes the correct transaction easy enough to perform during the service event, protects inventory without making it inaccessible, maintains accountability across dispersed locations, and supports the timely return of items moving back through the network.

The field is not an undisciplined warehouse. It is a different operating environment.

And when the operating environment changes, the system designed to manage it must change as well.

The Goal and the Cost of Failure Are Different

The operating environment explains why forward-deployed inventory is difficult to control. The reason organizations accept that difficulty is that proximity creates value. Inventory is placed in the field because something important can happen when the right item is available at the moment it is needed.

In a conventional inventory setting, the cost of not having an item is measured through a backorder, a delayed shipment, an expedited purchase, or a lost sale. Those costs can be significant. In a field service environment, the missing item may prevent an operating asset from being restored, and the consequence

extends far beyond the price of the item itself. An item may cost fifty dollars. Its absence may leave a production line idle, require a second visit, force an emergency shipment, extend customer downtime, or cause the organization to miss a service-level commitment. The financial value of the item and the operational value of having it available are not the same.

Forward deployment also changes what the customer expects. Positioning inventory near the point of use is an implicit promise about responsiveness, and that promise magnifies the failure when the item cannot be found, accessed, or delivered. The customer does not experience the event as an ordinary supply delay. The inventory was supposed to be nearby. When service still fails, the problem is understood as a failure of the service promise itself.

In some environments, one serious failure places the entire customer relationship at risk. A customer whose operations have been disrupted may not separate the missing item from the broader reliability of the service provider. The immediate expense is downtime, emergency transportation, and additional labor. The longer-term exposure may be lost trust, a failed renewal, or the loss of the customer.

This creates a tension that traditional inventory measures do not capture. From a supply-chain perspective, an item that sits unused for months looks like excess. From the perspective of the service organization, the same item may protect against a failure that is rare but extremely costly. Both perspectives are reasonable. The difficulty lies in determining when the protection justifies the investment.

The answer cannot be to place every item everywhere. That would improve availability while increasing working capital, handling expense, security requirements, shrinkage exposure, reverse-logistics cost, and obsolescence. Nor can the answer be to minimize field inventory without weighing the service failures that follow. Either approach optimizes one side of the problem while ignoring the other.

An FDIS must balance the cost of holding and controlling inventory against the cost and probability of not having it. That calculation changes by item, asset, customer, location, and service commitment. A component supporting equipment with a convenient workaround does not carry the consequence of one supporting a critical operation. An item available from a nearby location does not present the risk of one requiring an international shipment. The calculation must also include the cost of recovering inventory from the field, because an item that can be returned promptly for repair or reuse has a different economic profile from one that may remain stranded for months.

This is why service outcomes belong inside the inventory decision rather than in the review that follows a failure. If those consequences are absent from the decision, the system may reduce inventory cost while increasing the total cost of service.

The goal of FDIS is therefore neither maximum availability nor minimum inventory. It is to position and control inventory so that the organization can meet its service obligations at an economically justified level of risk. That is a different objective from managing inventory efficiently inside a warehouse. The item is no longer valuable only because it can eventually be sold, consumed, or repaired. Its location and availability help determine whether an important service outcome can occur, and whether the customer continues to trust the organization responsible for it.

The cost of the item matters.

The cost of not having it may include the customer.

The Objective Function Uses Different Variables and Weights

Every inventory system is designed to produce an outcome. The objective function is the formal expression of that outcome: what the system is trying to improve, what it is trying to avoid, and the constraints within which it must operate.

In a traditional inventory environment, the objective emphasizes carrying cost, order frequency, inventory turns, fulfillment efficiency, and the stock required to support expected demand. These variables remain important in an FDIS. They are simply no longer sufficient to describe the decision.

Forward deployment introduces variables that are less important, or absent, in a warehouse model: equipment downtime, asset criticality, service commitments, travel time, accessibility, replenishment reliability, emergency freight, nearby alternatives, security exposure, and the probability and consequence of a service failure. It is not enough to add these variables to an existing model. They must also be given the appropriate weight.

The same item can have a very different value in two service situations. Its absence may be inconvenient at one customer location and may stop production at another. An item supporting redundant equipment does not carry the exposure of one supporting a critical asset with no backup. The inventory cost is identical. The cost of not having it is not.

Time and distance also take on different meanings in the field. Twenty miles may represent an acceptable alternative in one market and an unacceptable delay in another. An item may appear to be nearby and still be unavailable because the location is inaccessible, the record is unreliable, or the item cannot be released when the service event occurs.

None of this requires a new body of mathematics. Established forecasting, replenishment, allocation, and optimization methods remain useful. What changes is the problem those methods are being asked to solve. An algorithm designed to reduce inventory will find opportunities to remove stock. An algorithm designed to protect service while controlling inventory will evaluate the same stock differently. Both calculations may be mathematically correct. Only one reflects the actual operating objective.

An incomplete objective function produces a precise answer to the wrong question. A model that recognizes the cost of holding inventory but not the service exposure created by removing it will make the item look too expensive almost every time. One that recognizes service risk but ignores security, obsolescence, reverse logistics, and replenishment cost will recommend more inventory than the operation can support.

FDIS makes these tradeoffs explicit. It gives the organization a way to decide which variables matter, how much they matter, and how those priorities change according to the item, asset, customer, service commitment, and operating environment.

The mathematics may be familiar.

The objective is different.

Local Markets Supply the Decision Context

Enterprise policies are necessary. Organizations need common rules for ownership, financial control, item identification, security, transaction discipline, and service performance. But a worldwide policy cannot, by itself, determine what forward-deployed inventory is needed in every place where service occurs.

Those decisions require market context.

For FDIS purposes, a market is the practical service geography within which field service personnel, inventory, and customer demand interact. It may be a city, a metropolitan area, or a territory defined by a reasonable driving distance or travel time. It does not have to follow a municipal boundary or a sales territory. A dense city may contain several distinct service areas within a short distance, while a less populated region covers many more miles and still functions as a single market. Traffic, road access, geography, operating hours, and service commitments matter more than the number of miles shown on a map.

The market, rather than the individual stocking location, becomes the focus.

Forward-deployed inventory is usually distributed across that market. Some is held in a local depot. Other items sit in lockers, service vehicles, customer locations, hospitals, or factories. These are not isolated miniature warehouses. They are parts of a larger service network operating within the same market.

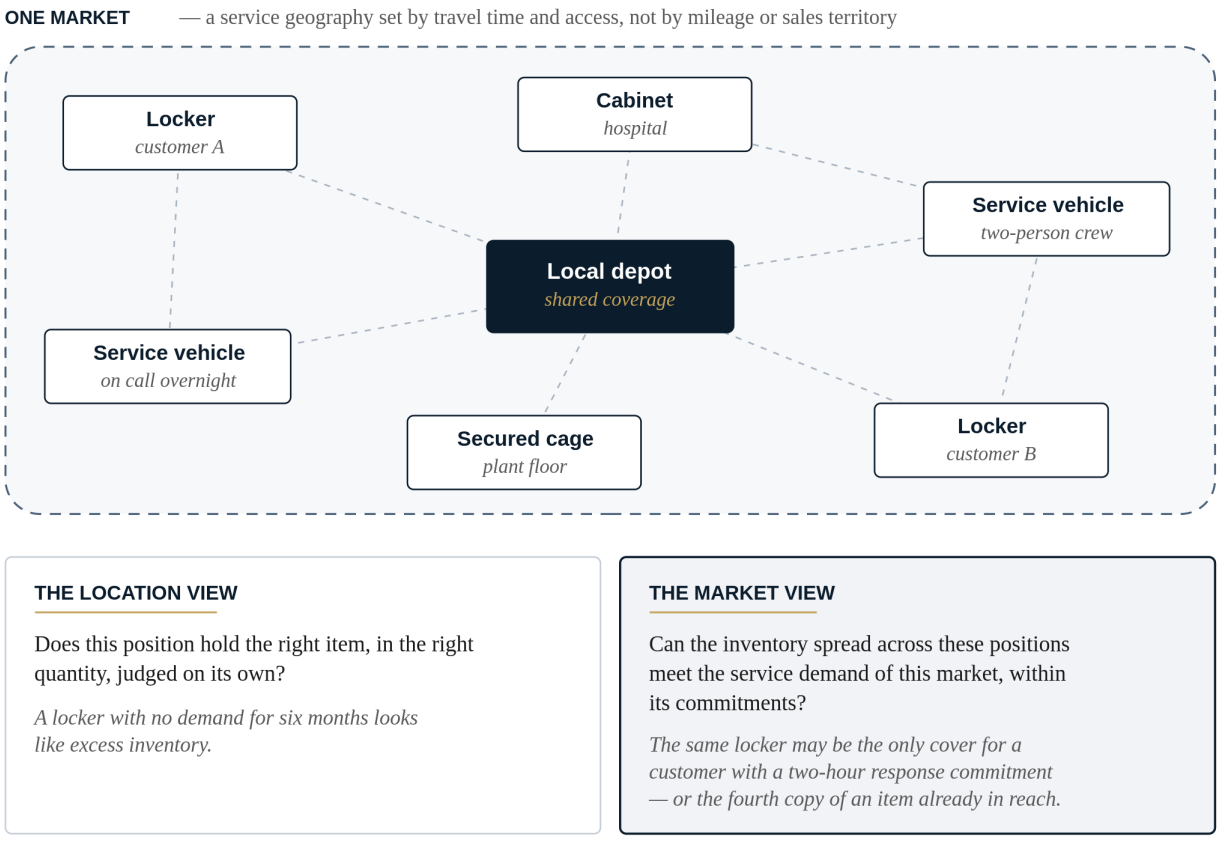


Figure 7.2 *Forward-deployed inventory is not a collection of small warehouses. The unit of analysis is the market, and the two views ask very different questions about the same locker.*

That changes the question being asked. It is not whether each location has the correct inventory when considered by itself. It is whether the inventory distributed across the market can collectively support the service demand of that market.

Local conditions supply the context. The installed asset population differs by customer, age, configuration, and criticality. Failure patterns reflect the equipment mix and the operating environment. Replenishment lead times, access restrictions, transportation options, and nearby sources of supply also vary. Two markets supporting the same products may not face the same demand or the same service risk.

Looking only at enterprise-wide demand hides these differences. Looking only at individual stocking locations is equally misleading, because it obscures the relationships among the inventory positions within the market. A locker with no recent demand looks inefficient in isolation and may be the only cover for a customer whose commitment allows little time to respond. The reverse is just as invisible: several positions may carry the same item even though one of them is reachable across the market within the required time, so each looks reasonable on its own while the market as a whole holds more than it needs. FDIS must preserve both views: the local evidence that explains the need, and the market view that shows how the distributed inventory supports it.

This also changes how performance is interpreted. Low inventory turns do not automatically mean that a forward position has no value, and high availability does not automatically mean that the inventory is economically justified. Both measures must be read against the service risk and the other inventory available across the market. The purpose is not to make every location self-sufficient. It is to give the market, as a distributed service network, the inventory capability required to meet its obligations at an economically justified cost.

The enterprise establishes the standards. The market supplies the operating context.

How inventory should ultimately be distributed across that market is a separate question, one that requires better data and more advanced decision methods. At this stage, the important point is more fundamental:

Forward-deployed inventory is not managed one location at a time. It is managed as a distributed service resource across a market.

Inventory Becomes Part of the Service Decision

In many organizations, the service decision and the inventory decision occur separately. A service request is received. Field service personnel are assigned based on availability, skill, location, or customer priority. Only afterward does someone determine whether the required inventory is available. If it is not, the organization begins searching, expediting, transferring, rescheduling, or planning a return visit.

By then, the first decision may already be wrong.

A member of the field service organization may be close to the customer and qualified to perform the work, but unable to complete it without the required item. Another person may be farther away and have access to it. The item may also be available at a nearby locker, customer location, or depot. These conditions are not secondary details. They are part of the service decision itself.

FDIS brings inventory into that decision at the moment of need. This requires more than showing an on-hand quantity on a screen. The system must consider whether the item is the correct one, whether it is in usable condition, whether its location is known with sufficient confidence, whether it can be accessed, and whether it can reach the customer within the service requirement.

An item recorded in a service vehicle that is no longer in that vehicle is not available. An item stored behind a locked door after operating hours is not available for an emergency response. A defective item awaiting return is not service inventory merely because it remains recorded at the location.

On-hand is a transaction status.

Available is an operating condition.

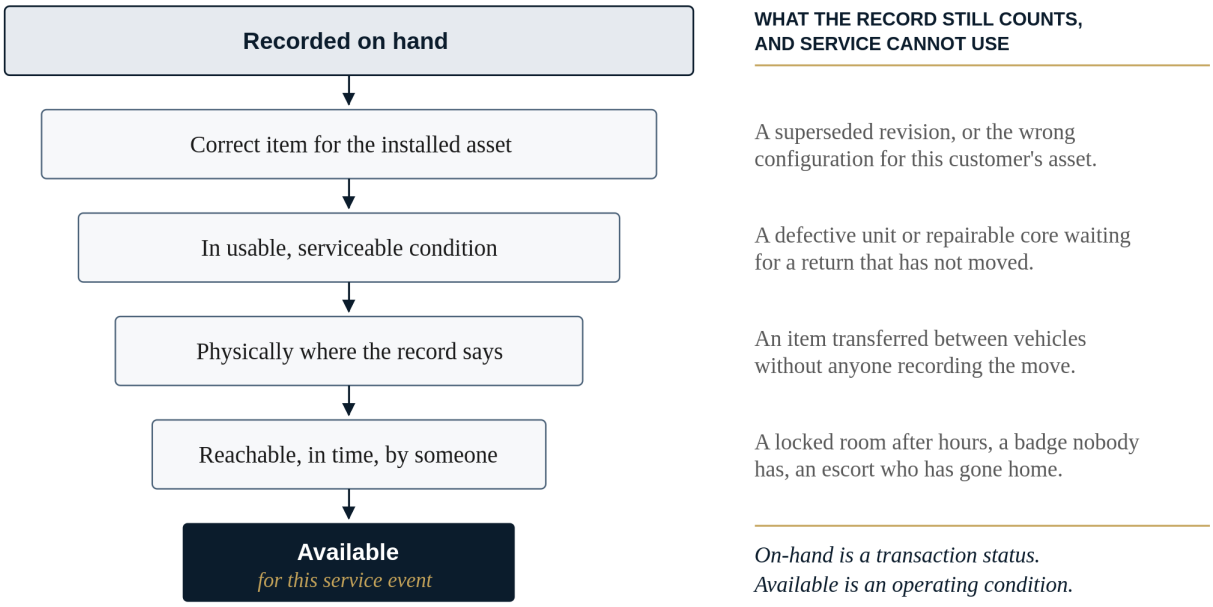


Figure 7.3 *Each test between the record and the service event removes inventory the system still counts. What survives all of them is the only inventory that can support the work.*

Once inventory participates in the service decision, it can influence how the work is performed: which personnel are assigned, where the item is obtained, whether another inventory position can support the event, and whether the work can be completed within the promised response. The service requirement and the inventory position are evaluated together rather than passed between disconnected processes.

The relationship continues after the item is used. Consumption changes the ability of the market to respond to the next service event. A removed component may create a repairable core or a return obligation. An unused item may need to be restored to available inventory. A transaction may trigger replenishment, reveal an emerging shortage, or provide new evidence about demand. The service event therefore changes both the customer's asset and the inventory system that supports it.

This is a larger role than adding inventory visibility to a field service application. Visibility shows where an item is believed to be. FDIS must determine whether that item can support the work, incorporate it into the service decision, and capture the consequences after the decision is executed.

The service decision and the inventory decision are not two separate events.

In forward service, they are one operating decision.

FDIS Creates a Clear System Boundary

A distinct system category does not operate in isolation. FDIS must connect with the systems that already manage the enterprise, but its purpose is not to replace them. ERP remains responsible for the financial and enterprise record. WMS manages inventory within structured warehouse operations. FSM manages customers, service requests, work activity, and the deployment of field service personnel. Asset, analytical, and planning systems perform their own specialized roles.

Each system sees part of the forward inventory problem. None of them is designed to own the entire problem.

FDIS creates a clear boundary around that responsibility. It operates between forward inventory activity and the enterprise systems that depend on it. It receives item data, inventory records, service demand, asset information, replenishment activity, and organizational policies. It then adds the field context needed to determine what is happening and what action is required.

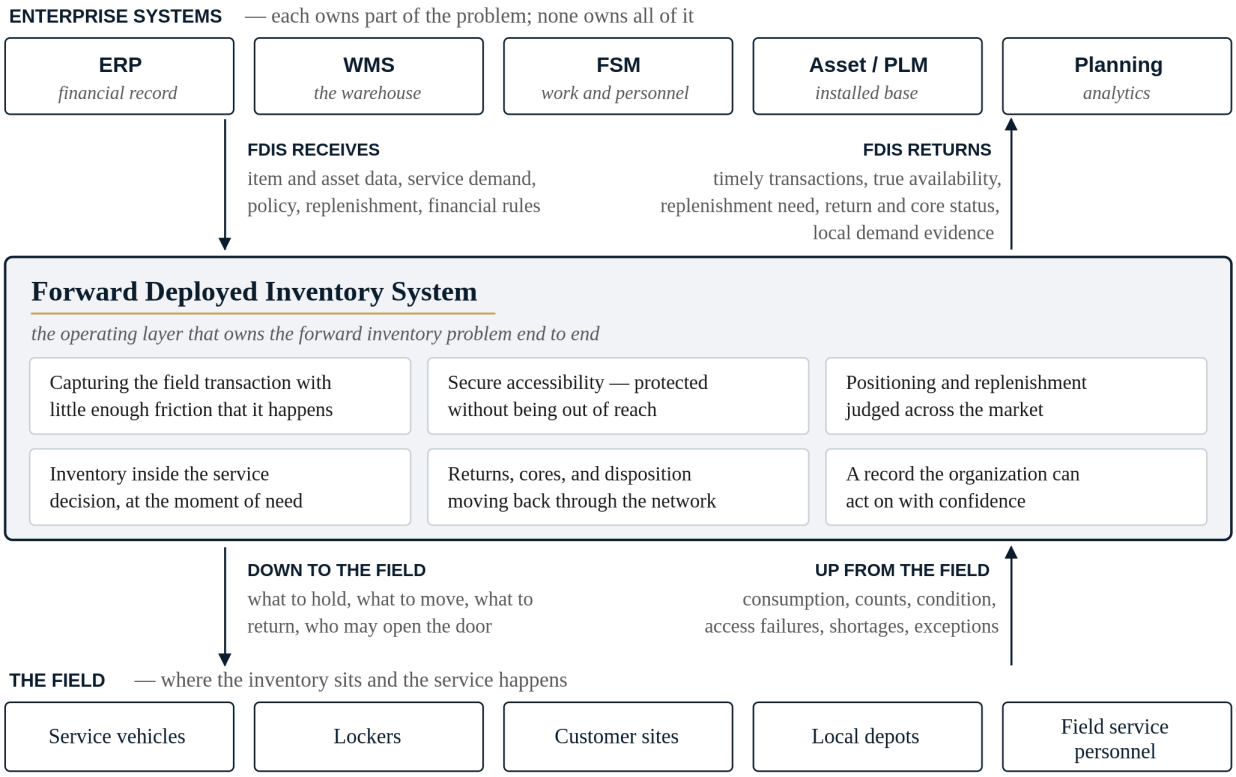


Figure 7.4 *FDIS does not replace the enterprise systems around it. It is the operating layer between those systems and the field, and it exchanges different information in each direction.*

That context is often missing from the enterprise record. An item may have been consumed during a service event but remain available in the inventory system until the work order is closed. Inventory may have moved between service vehicles without a formal transfer. A defective item may still appear usable because the return transaction has not been completed. A repairable component may be waiting at a

customer location while the organization plans another purchase. The transaction eventually recorded by an enterprise system may be technically correct and still arrive too late to support the next decision.

FDIS captures forward inventory events closer to where and when they occur. It applies the controls appropriate to the field, identifies missing or conflicting information, and returns faster and more accurate data to the systems surrounding it: timelier transactions to ERP, clearer replenishment and return requirements to WMS, dependable availability to FSM, and better evidence about consumption, shortages, and local demand to planning.

The value is not limited to transferring transactions more quickly. FDIS also gives those transactions operating meaning. It distinguishes between an item that is physically present and one that is usable, accessible, and available for service. It can identify whether a delay was caused by a shortage, an inaccurate record, an access restriction, or a failure in the return process. That distinction matters, because the enterprise cannot improve a problem it cannot see accurately.

FDIS therefore serves two connected purposes. It is the decision and control system for forward-deployed inventory, and it is the source of improved field information for the larger enterprise. It does not create a competing system of record for every activity. It creates the missing operational layer that allows the existing systems to perform their own roles with better information.

The surrounding systems provide the enterprise foundation.

FDIS returns the field reality.

Data Begins with What Is Available and Grows with Capability

Organizations often begin an inventory improvement effort by describing all the data they would like to have: accurate location records, complete transaction histories, installed asset information, product configurations, service histories, failure patterns, replenishment lead times, customer commitments, and real-time inventory status. All of it can improve an FDIS. Most organizations will not have all of it when they begin.

That should not prevent them from beginning. Waiting for complete data creates a circular problem: the organization delays FDIS because its field data is incomplete, even though one of the primary reasons for implementing FDIS is to improve the control and information produced by field operations.

The recommended starting point is the organization's current maturity level. For an organization with limited field visibility, the first priority may be establishing what inventory exists, where it is located, who is responsible for it, and how movements are recorded. Better reconciliation and transaction discipline can create immediate value before advanced analysis is possible. An organization with reliable records and established controls may instead begin by connecting service demand with inventory, improving market-level decisions, or introducing more advanced replenishment and planning capabilities.

Starting at the current maturity level does not mean accepting current weaknesses as permanent. It means building the first FDIS capabilities around the data and processes that are genuinely available, while identifying the gaps that limit the next level of performance.

Capability and data mature together.

At a foundational level, an organization must be able to answer basic questions. What inventory exists? Where is it located? What quantity is available? What condition is it in? Who is responsible for it? What transactions have changed the record? These questions sound elementary. In a distributed field environment, answering them consistently can represent a substantial improvement.

Once that foundation is reliable, the organization can connect inventory activity to the market it supports. Consumption history, service demand, lead times, access restrictions, return activity, and nearby sources of supply move it beyond identifying what it has to evaluating whether the inventory is supporting service effectively. More advanced capability requires detail about the installed assets: model and serial numbers, configuration, module-level bills of material, service and repair history, operating environment, and observed failure behavior. These distinguish between assets that appear similar but require different service inventory or present different levels of risk.

The progression matters because the value of additional data depends on the decisions the organization is prepared to make. Collecting serial numbers creates little value if they are never associated with installed assets or service events. Recording detailed failure information will not improve inventory positioning if it remains in a separate system and never reaches the inventory decision. More data does not automatically produce better decisions. The data must be usable, connected, and sufficiently reliable for the purpose it serves.

FDIS should therefore expand its data requirements deliberately, with each additional element supporting a defined capability. When a decision cannot be made because information is missing, the organization can identify the gap and weigh the value of closing it against the effort required. Some gaps require new integrations, some require changes in field processes, and some involve data that already exists but remains divided among systems, departments, and local records. Distinguishing among them turns data improvement into an operating plan rather than an endless search for completeness.

The sequence also protects the organization from applying advanced analytics to an unstable foundation. A detailed optimization model cannot compensate for inaccurate location records. Predictive recommendations cannot overcome service events that are recorded inconsistently. Analytical sophistication increases the value of good data, but it also magnifies the consequences of bad data.

Progress therefore begins with an honest assessment, not an idealized data requirement. The FDIS Maturity Model discussed in the next chapter provides the framework for that assessment.

The objective is not to collect every possible data element.

It is to acquire the next data needed to make the next better decision.

Product Data Continues Through the Service Life of the Asset

For many manufacturers, the most detailed information about a product exists before it reaches the customer. Engineering defines the design. Manufacturing records components, revisions, serial numbers, configurations, and test results. Distribution tracks the finished product until it is delivered. At that point, the commercial transaction may be complete.

The operating life of the asset is just beginning.

Once installed, the asset changes. Components fail and are replaced. Modules are repaired or upgraded. Configurations are modified. Software and firmware change. Environmental conditions and usage patterns influence performance. Over time, the product in the field may no longer match the product described by the manufacturing record.

That difference matters to forward-deployed inventory. Two assets with the same model number may not require the same replacement item. A design revision may have changed a component. One customer may have received an upgrade that another did not. A repaired module may have returned to service with a different configuration. Without a continuing asset record, the organization can position a technically related item near the customer and still discover that it is not the correct item for the installed equipment.

Product data should therefore continue through the service life of the asset. For an original equipment manufacturer, this connects the information created during design and manufacturing with the evidence produced during operation. The original bill of material provides the starting point. Installation, service, repair, replacement, and modification events allow that record to develop with the asset.

FDIS does not need to replace product lifecycle, asset management, manufacturing, or field service systems. Its role is to use the relevant information from those systems when making forward inventory decisions, and to return field events that improve the continuing product record.

This continuity improves service. It helps the organization identify compatible items, anticipate the needs of the installed asset population, avoid sending inventory that cannot complete the work, and manage serialized components, repairable items, warranty returns, and product revisions.

The value extends beyond service execution. When inventory usage is connected to specific assets, configurations, operating conditions, and failure events, the organization gains evidence about how products perform in the field. Patterns that appear to be inventory problems may reveal reliability issues. Repeated failures within a particular configuration may identify a design weakness. Differences among environments may explain why one market consumes an item at a higher rate than another. That evidence can inform quality, engineering, warranty management, service planning, and future product design.

The flow of information should therefore continue in both directions. Product data created before delivery helps FDIS support the asset. Service and inventory data created after delivery help the enterprise understand the product.

Shipment should not mark the end of useful product information.

It should mark the beginning of the asset's operating record.

The Category Exists Because the Problem Already Exists

The problem existed before the category was named. Organizations already place inventory in service vehicles, lockers, customer locations, local depots, hospitals, and factories, and they already live with inaccurate records, missing items, delayed returns, stranded inventory, emergency shipments, and repeat visits. When the arrangements managing that inventory fail to produce it, organizations compensate, and they tend to do so in one of two directions.

One response is to hold less inventory in the field and rely on speed. Items are supplied through next-day, expedited, emergency, or end-of-runway delivery. This reduces visible inventory investment, but the savings are purchased with premium transportation, delayed restoration, equipment downtime, operational disruption, and greater customer risk.

The inventory cost goes down. The cost of responding without the inventory goes up.

At the other extreme, organizations "shotgun" items into the field. Several possible items are sent because the exact requirement is uncertain, or because the cost of another delay is unacceptable. If one of them resolves the problem, the service event is protected. The remaining items must then be identified, tracked, returned, restocked, or left in the field.

The immediate problem is solved by creating several new inventory problems.

Both can be rational responses to an urgent service requirement. Neither is a complete system for managing forward-deployed inventory. They are workarounds for incomplete information, fragmented responsibility, and decisions made without a full view of the consequences, and the total cost is hard to see because it is divided across the organization. Supply chain sees premium freight and excess inventory. Service sees repeat visits and delayed completion. Finance sees working capital and write-offs. Field service personnel carry the transaction burden. Customers experience the downtime and uncertainty.

No single system sees the entire result.

FDIS creates that missing view. It recognizes forward-deployed inventory as a distributed service resource, establishes a boundary around the processes and decisions that must be managed, connects enterprise policies with market conditions, brings inventory into the service decision, and returns better information to the systems around it. It can begin with the data and discipline the organization has today and expand as the organization matures, without assuming that every market, customer, asset, or item carries the same risk.

Naming the category makes the problem visible. Defining the category establishes what a system must be able to do. Managing the category allows the organization to replace costly improvisation with deliberate decisions.

The inventory is already in the field.

The service risk is already being carried.

The costs are already being paid.

Forward-deployed inventory is a different operating problem, and it requires a system designed for that reality.

Looking Ahead: The FDIS Maturity Model

Recognizing FDIS as a distinct system category establishes what must be managed. The next question is how an organization begins and how its capabilities develop over time.

FDIS is not a single end state that every organization can or should implement at once. Organizations begin with different levels of inventory control, process discipline, data quality, integration, and analytical capability. The appropriate path is to begin at the current level of maturity and build from there.

Chapter 8 introduces the FDIS Maturity Model and its four levels: **Foundation, Optimization, Demand Management, and Predictive Placement**. Each level builds upon the capabilities established by the one before it, moving from basic visibility and control toward increasingly informed and forward-looking inventory decisions.

The model provides a practical path for turning FDIS from a defined system category into an operating capability.

ABOUT THIS SAMPLE

The Forward Deployed Inventory System

A Maturity Model for Seeing, Trusting, and Improving Field Inventory

This complimentary chapter is offered so leaders in field service, spare parts, aftermarket operations, and supply chain can examine the operating case for Forward Deployed Inventory Systems before committing to the full book. Chapter 7 defines the category and explains why inventory positioned near the point of service presents a different management problem.

The full book develops the complete maturity path: Foundation, Optimization, Demand Management, and Predictive Placement. It shows how organizations can establish control, connect inventory to service, respond to local demand, and progressively improve placement decisions as their information and capabilities mature.

If this chapter describes a problem your organization already experiences — fragmented responsibility, improvised field processes, expensive emergency delivery, excess inventory, or unreliable visibility — the rest of the book provides a structured path for addressing it.

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