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THE FORWARD DEPLOYED INVENTORY SYSTEM

Inventory Has Already Moved Forward

Chapter 1

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The system used to manage it had not been designed to follow.

FROM CHAPTER 1

Glenn Caudill

COMPLIMENTARY PREVIEW · NOT FOR RESALE

Chapter 1

Inventory Has Already Moved Forward

“For want of a nail the shoe was lost; for want of a shoe the horse was lost; and for want of a horse the rider was lost.”

— Proverb, in Benjamin Franklin, *Poor Richard Improved* (1758)

“The inventory had moved forward. The system used to manage it had not been designed to follow.”

— Glenn Caudill

The Final Call of the Day

The equipment had settled into a steady hum by the time Joseph closed the access panel. The customer watched the display return to normal, then waved the employees who had been waiting nearby back to work.

"That is why I ask for you, Joseph," she said. "You get it done."

The component that made the repair possible was not especially valuable. It came from a separate tote where Joseph kept several items he considered essential. The company owned the inventory, but Joseph maintained his own tally and thought of the tote as his reserve—the inventory he trusted.

He did not advertise everything in it. If an item entered the shared supply, someone might take it, and a replacement might not arrive before he needed it. Joseph did not protect inventory to deprive anyone else. He protected it because he did not want to disappoint his customers.

The reserve had worked. Joseph checked the address of his final call.

Within twenty minutes of arriving, he had identified the problem. The repair required a replacement module. It was not difficult, and the module was not unusual.

According to the inventory system, one was available at a shared location twelve miles away.

"I should be back in a little over an hour," Joseph told the customer.

"Make sure it is there before you leave."

Months earlier, another missing item had forced Joseph to make a second visit. The customer remembered.

Joseph checked the record again. "It's there."

At the shared location, the assigned bin was empty.

Joseph checked the nearby bins and refreshed the inventory record on his phone.

One available.

He was standing where the module was supposed to be, looking at the empty space it was supposed to occupy.

Joseph thought about Kim.

They had eaten lunch together on Tuesday. Kim kept a clipboard in his vehicle with a handwritten tally of the items he carried. Joseph was nearly certain he had seen the module on it.

He called Kim.

"Do you still have that control module?"

"I don't think so."

"I saw it on your tally Tuesday."

"I may have used it. I can't check right now, and I'm an hour west of you."

Kim might not have the module. Even if he did, he was an hour away and serving another customer. Moving Kim would move the problem rather than solve it.

Joseph knew only that he had seen the module on a clipboard two days earlier. That was not reliable inventory visibility. It was a memory of someone else's personal record.

The support desk found no other confirmed inventory nearby. A module could be sent from the distribution center by premium freight and arrive the next morning.

When Joseph returned, the customer was waiting.

"Where is the part?"

"The system showed one in stock, but it wasn't there. We're sending another one overnight. I'll have it tomorrow morning."

"Tomorrow?"

"I'm sorry."

"I expected you to fix it."

"I understand."

"No, Joseph, you don't. You get to leave. I have to explain why we're still down."

Joseph started to describe the missing inventory, but the customer cut him off.

"I don't care where the part was supposed to be. This is not the first time you've left without finishing the job. You know what is wrong, but that does not help me if you cannot fix it. If your company cannot send someone prepared, send someone else."

The customer did not see an inaccurate record, an empty bin, or a premium freight shipment. He saw Joseph leaving while the equipment remained down.

"I'll be back tomorrow morning," Joseph said.

"Make sure you have the part before you come."

Outside, Joseph opened his vehicle and looked at his reserve. Nothing in it could complete this repair.

He drove home as daylight disappeared. In the garage, he unfolded a lawn chair and sat down.

His garage was carefully organized. Tools hung in outlined spaces. Fasteners were separated into labeled drawers. Clear containers showed exactly what they held. If Joseph needed something, he knew where to find it.

One customer had told him that he always came prepared. The other had told him to send someone else. Joseph's knowledge had not changed. His commitment had not changed. The difference was whether the item he needed was available.

The door from the house opened, and his wife stepped into the garage.

"What are you doing out here?"

"Just sitting."

"It's freezing."

"I know."

She started to close the door, then stopped.

"When you come in, can you look at the dishwasher? It's making a strange sound."

Joseph looked at her and smiled.

"Yes," he said. "I can."

Joseph's reserve and Kim's tally were both attempts to preserve the ability to serve the customer in front of them. Together, however, they made the shared inventory less dependable. The less field service personnel trusted it, the more they relied on their own records and protected inventory—and the less the organization could see and rely upon.

The inventory had moved forward. The system used to manage it had not been designed to follow.

The Inventory Moved Before the System Did

Joseph's story takes place in field service, but the problem is not limited to equipment repair. Field service is not an industry. It is an operating environment found across industries and across many kinds of customer-facing work.

Forward deployed inventory is broader still. It exists whenever inventory is intentionally positioned close enough to anticipated use or delivery that its availability can materially change the outcome. It is defined by the relationship among position, time, and purpose—not by a particular industry, item, or function.

Organizations moved inventory forward for good reasons: customers could not always wait, operations could not always remain idle, and opportunities could not always be postponed. Yet in many

organizations, the movement did not begin with a deliberate decision to create a forward inventory network. Inventory was placed in vehicles, customer locations, local facilities, lockers, and other forward positions as individual requirements appeared. Each placement answered a practical need: a service expectation, a response requirement, or a consequence too important to wait for inventory from farther upstream.

Over time, those decisions accumulated into a substantial inventory environment. The organization had created a forward network whether or not anyone had named it, designed it, or chosen to manage it as one. The physical inventory moved forward faster than the processes and systems used to manage it.

The system in this sense is not merely the inventory application. It includes the records, processes, responsibilities, physical locations, replenishment decisions, personal practices, and workarounds through which the inventory is managed. Those elements may all exist without operating as one coherent system designed for forward deployed inventory.

To understand why this gap is so common, begin with the force that moved inventory forward in the first place: time.

When Distance Becomes a Constraint

Every requirement has a response window: the period between the moment a need appears and the time by which the item must be available for use or delivery. When the window is long enough, the normal supply network can respond. The item travels from a central facility through an established process and arrives in time.

Centralization is good at this. It pools inventory, protects it within controlled facilities, and serves many points of demand with less total stock, handled by trained personnel through consistent processes. But centralization also creates distance.

When the response window is shorter than the supply process requires, that distance becomes an operating constraint. The inventory may exist, the record may be accurate, and the process may work exactly as designed. The item still arrives too late to affect the outcome.

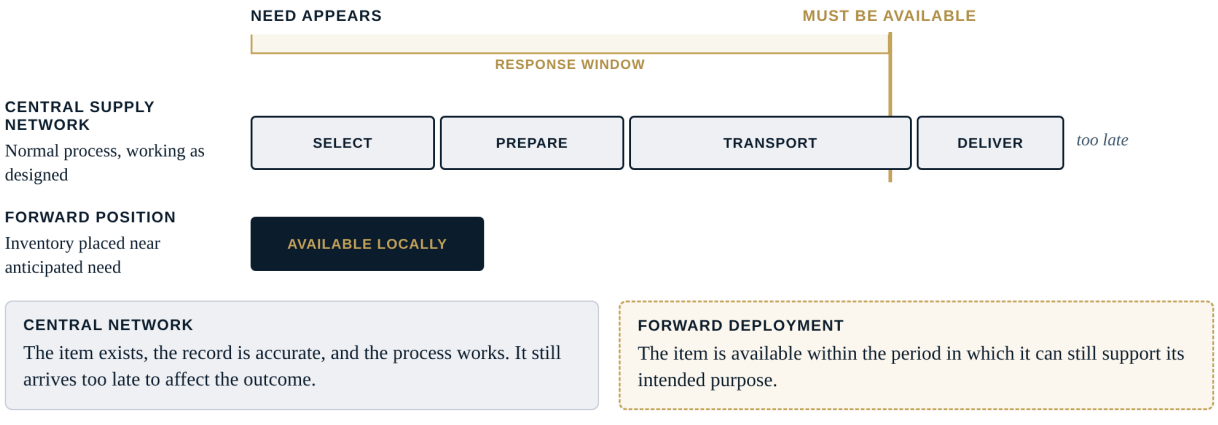


Figure 1.1 *The response window. When it is shorter than the normal supply process, the item can exist, be accurately recorded, and still arrive too late. Forward deployment places it inside the window.*

Availability somewhere in the network is not enough. The item must be available within the period in which it can still serve its purpose.

Organizations respond by positioning selected inventory closer to anticipated need. This does not mean the central network has failed. It has met a requirement it was not positioned to satisfy in the time available. Centralization still provides pooling, control, and efficient replenishment; forward deployment adds the local readiness that distance cannot.

That distinction is the beginning of FDI.

Forward deployment begins when the required response time becomes shorter than the normal supply network can reliably support.

Proximity Has Become an Operating Capability

Inventory is often treated as an asset at rest, with a quantity, a location, and a cost. From that perspective, moving an item to a forward position merely changes where it is stored.

Operationally, something more important has changed. By positioning an item closer to anticipated use or delivery, the organization creates a capability: the ability to respond within a period the upstream network could not reliably meet. The item may remain physically unchanged, but its role in the operation is different.

Joseph's first call illustrates the distinction. The component was not especially valuable, but its availability allowed the repair to be completed and the customer's employees to return to work. Its importance came from the activity it restored, not only from the value of the component.

The same principle applies beyond repair, to delivery, installation, continued operation, and other time-sensitive outcomes. What matters is the difference between having the item within the required time and waiting for it to arrive from somewhere else.

Proximity alone does not guarantee availability. An item may be nearby but inaccessible, unusable, committed elsewhere, or incorrectly recorded. The operating capability exists only when the inventory can reliably be converted from stock at rest into an item available for its intended purpose.

When that conversion can occur, an inexpensive item can support an activity worth many times its own value. An item with little direct margin may protect a customer commitment, preserve revenue, or prevent a larger loss.

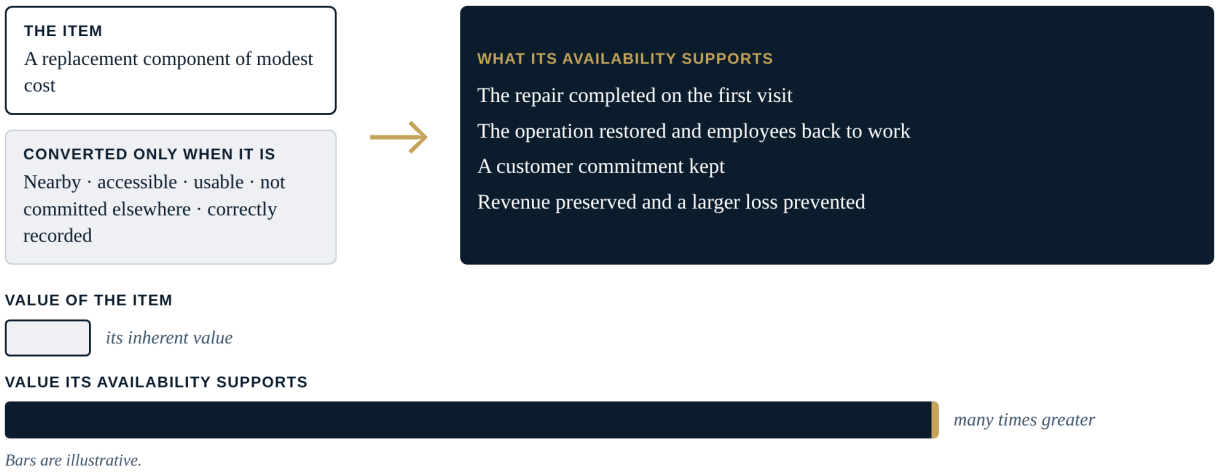


Figure 1.2 *The value of forward deployed inventory transcends the value of the item. A component of modest cost can support an outcome worth many times more, but only when it can be converted into an item available for its purpose.*

The value of FDI therefore transcends the inherent value of the item. It supports something of higher value.

This does not justify positioning every item everywhere. Forward placement consumes capital, divides inventory into smaller quantities, and multiplies the positions that must be managed. The purpose of FDI is not dispersion for its own sake. It is the deliberate creation of local availability where time can materially change the outcome.

Forward inventory is valuable because of the capability its proximity creates, not merely because of the item it contains.

Forward Deployment Creates a Management Gap

Traditional inventory processes are designed for environments organized around inventory.

In a warehouse or distribution center, receiving, storing, counting, selecting, and shipping are the primary work. The facility, roles, and routines are built around those activities, and employees develop familiarity through repetition. The environment supports the process.

The forward environment is different. FDI may be held in vehicles, customer locations, lockers, closets, garages, self-storage locations, or staffed local facilities. These positions differ in access, security, storage conditions, operating hours, and local control. The people interacting with the inventory are usually present for another reason.

Field service personnel are there to serve customers and complete work. Inventory enables that work, but managing it is not their principal profession. A transaction that appears simple from inside a warehouse may interrupt the primary work in the field.

The management gap appears when a process designed for one environment is carried into another without being redesigned for it. A warehouse process can depend on trained personnel, repetition, fixed storage positions, and disciplined transactions. A forward process must fit into work measured by

response, completion, and the customer outcome—simple enough to understand when needed and practical enough to perform without disrupting that work.

When the formal process does not fit, people adapt it. They keep personal tallies, rely on memory, protect selected items, delay transactions, or ask colleagues what they have. These practices are often treated as failures of discipline. More often, they show that the process and the environment do not fit.

The workaround closes the gap for the individual. Joseph's reserve made him more dependable to one customer. Kim's clipboard helped him maintain confidence in the inventory he carried. Across the organization, however, each person develops a partial version of the truth.

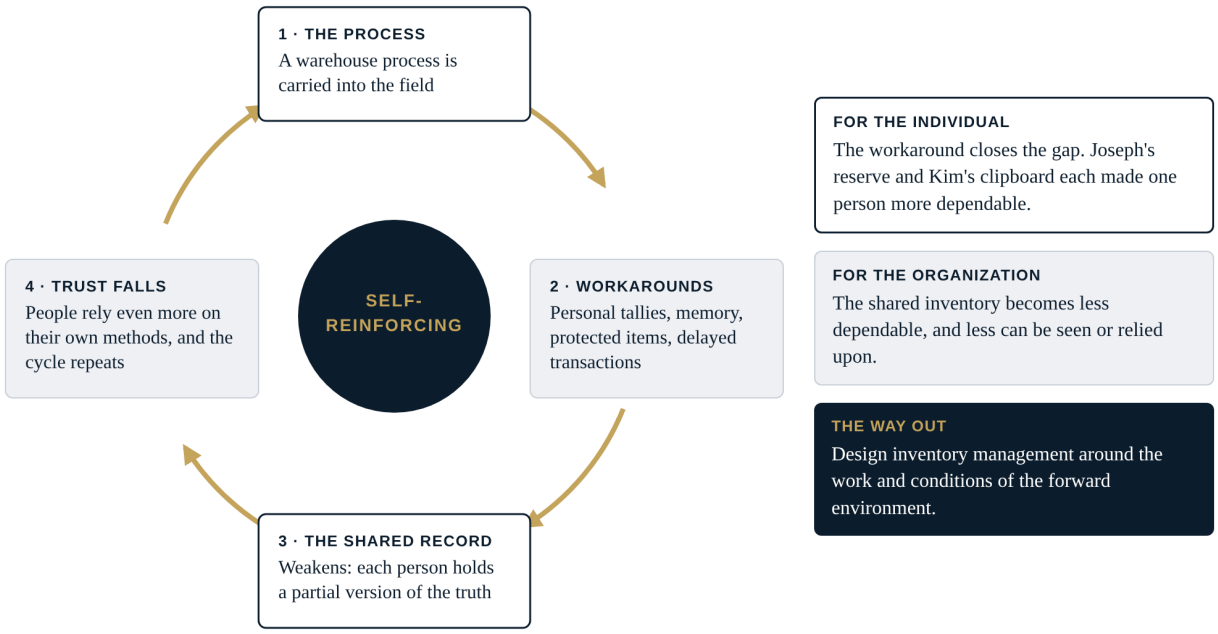


Figure 1.3 *The workaround cycle. Each workaround makes one person more dependable and the shared inventory less so, which gives everyone more reason to rely on their own methods.*

The cycle is self-reinforcing. A process that does not fit the environment produces workarounds. The workarounds weaken the shared process. The weakened process produces more workarounds.

The answer is not to recreate a warehouse around every forward position. It is to design inventory management around the work and conditions that exist in the forward environment.

Workarounds develop when a system designed for one environment is used to manage inventory in another.

More Inventory Is Not the Answer

When local inventory cannot be trusted, the natural response is to add more.

A field service professional protects an additional item. A local manager requests a larger buffer. A shared location receives a higher minimum. Each decision may be reasonable when viewed separately. Across the network, however, those decisions multiply inventory without necessarily improving availability.

A local area can hold substantial inventory and still fail to satisfy a requirement. The item may be in the wrong position, recorded incorrectly, unavailable to the person who needs it, or protected for another anticipated customer. Increasing the total quantity does not correct those conditions.

Applying a separate minimum and maximum to every vehicle or other forward position can make the problem worse. Each position begins to create its own inventory requirement. The combined quantity becomes the sum of many local buffers rather than a deliberate response to the requirement of the market.

The opposite response can be equally misleading. An organization may see low use at individual positions and reduce forward inventory to lower holding costs. The inventory measure improves, but the requirement does not disappear. The cost can return as premium freight, an additional visit, more field service time, a missed commitment, or a longer customer interruption.

These costs appear in different budgets and at different times. The reduction is visible in one measure; the resulting service and transportation costs appear somewhere else. A decision that lowers cost locally can increase the organization's total cost.

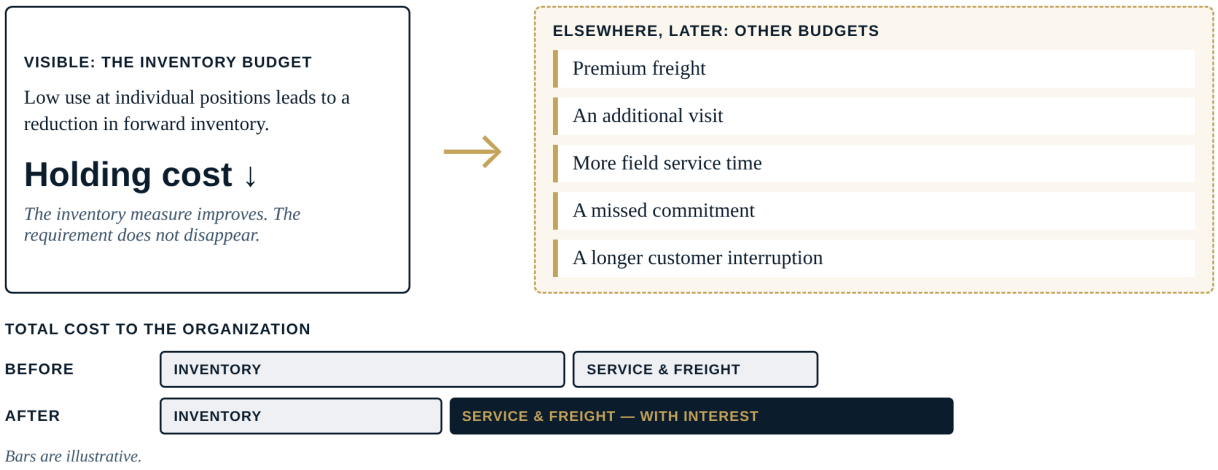


Figure 1.4 *A cost removed from one part of the system can return somewhere else, with interest. The inventory saving appears in one budget; the service and freight costs appear in others.*

A cost removed from one part of the system can return somewhere else—with interest.

Forward inventory should not be protected from scrutiny. Excess inventory still consumes capital and creates risk. But both indiscriminate addition and indiscriminate reduction begin with quantity before understanding the capability the inventory is intended to provide.

The market should be the primary level for determining how much inventory is required. Replenishment processes can then determine how that inventory should be placed within the market. Placement should be deliberate and stable enough to remain manageable; moving items continually among forward positions is costly, interrupts field activity, and can weaken accountability.

Some markets will require more inventory, others less, depending on usage, response time, replenishment reliability, and the consequence of a shortage. The objective is not the lowest inventory level or the highest service level considered separately. It is the inventory capability that produces the required outcome at an acceptable total cost.

The answer to uncertain availability is not indiscriminate quantity. It is a system that can convert inventory into reliable readiness.

The Path Through This Book

This book begins with a simple observation: organizations already operate forward inventory environments, even when they do not use that name. The inventory may sit in enterprise records, several applications, local spreadsheets, or personal knowledge. What is often missing is a common way to understand the environment as a whole.

The chapters that follow develop that understanding in stages.

Chapter 2, **Two Teams, Two Priorities**, examines the different responsibilities of customer-facing operations and the groups responsible for inventory, and why reasonable decisions from each side create conflict when those responsibilities are not connected.

Chapter 3, **What Is Forward Deployed Inventory, Really?**, defines FDI through its position, response window, purpose, and operating conditions. It distinguishes forward inventory from inventory that is merely remote or misplaced.

Chapter 4, **Why Traditional Systems Fail in the Field**, traces the development of today's inventory and enterprise systems and why systems designed around manufacturing, warehouses, and formal stocking locations struggle under forward conditions.

Chapter 5, **The Forward Deployed Inventory System**, defines the FDIS as an intentional management system for forward inventory, distinct from the mixture of applications, processes, and workarounds through which many organizations manage FDI today.

Chapter 6, **The FDIS Maturity Model**, introduces a structured path for improving that system. It shows why visibility and control must come before more advanced management and optimization.

The conclusion brings these ideas together and prepares the transition from understanding the FDIS to developing it. A preview of the next volume, beginning with **You Can't Optimize What You Cannot See**, then shows where that maturity journey begins.

The purpose of this book is not to prescribe a complete implementation. It is to make the inventory environment visible, define the management problem, and establish the system required to address it.

Inventory has already moved forward. The first step is understanding what must follow.

ABOUT THIS SAMPLE

The Forward Deployed Inventory System

This complimentary chapter is offered so leaders in field service, spare parts, aftermarket operations, and supply chain can examine the case for managing forward deployed inventory as a distinct environment. Chapter 1 opens the book with one technician, one empty bin, and one customer left waiting, and shows how inventory moved closer to the work faster than the systems used to manage it.

The chapters that follow explain why inventory and customer-facing teams pull in different directions, define forward deployed inventory precisely, show why traditional systems struggle in the field, and describe the Forward Deployed Inventory System and the maturity path for developing it.

If your field teams keep their own reserves and tallies, if the record says one is available and the bin is empty, or if cutting inventory has quietly raised freight and repeat visits, the rest of the book provides a structured way to see and manage the environment you already have.

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