

WHITEPAPER



BORN AT THE DOCK

PLAN WITH EXECUTION BUILT IN

Why physical constraints belong in the planning decision before the order

By Tom Moore, CEO and Founder, ProvisionAi





CONTENTS

03 THE PLAN BECOMES REAL

Why upstream decisions must survive physical execution.

04 OPERATOR DNA

Why the people closest to the work see first.

05 THE 1992 QUESTION

The warehouse problem that defined the standard.

06 THE EXECUTION GAP

Connected systems can still pass an impossible plan.

07 THE DOCK TEST

Five questions every replenishment plan must answer.

08 APPROVED / BUILDABLE

A routine order that exposes planning debt.

10 PLANNING DEBT

Capacity, workarounds and hidden operating cost.

11 SHAPE THE FLOW

LevelLoad moves the decision upstream.

13 BUILD THE LOAD

AutoO2 turns the order into executable work.

15 REPEATABILITY IN PRACTICE

Operational results from Riviana Foods.

16 THE PRACTICAL STANDARD

One lane, one week, every intervention.

17 AUTHOR / STANDARD

The operating standard and its origin.

A PLAN BECOMES REAL AT THE DOCK

The moment a supply chain plan becomes real is not when a planning system approves it. It is when a warehouse team has to find the inventory, pick the cases, build the pallets, stage the order and load a legal trailer before the carrier's appointment window closes.

That is what I mean by Born at the Dock. It does not mean that planning should begin after the truck arrives. It means that every upstream decision should be judged by whether the physical network can carry it out. The origin has to be able to ship the volume, a carrier has to be able to move it at a viable cost, the load has to fit and remain legal, the destination has to be ready to receive it, and the customer still has to get the order in full.



THE DOCK IS THE TEST.

A plan is complete only when the network can absorb it, the carrier can move it, the warehouse can build it and the customer receives it in full.



WHO THIS IS FOR

This standard is written for the people who own the plan before it reaches the floor - VP and director-level leaders in supply chain, transportation and operations who are accountable when a "feasible" plan turns into overtime, detention or a short shipment. If your team is judged on service and cost after the plan has already left the building, the Dock Test applies to you.

THE USEFUL MATH SURVIVES CONTACT WITH A FORKLIFT

I came to the United States from New Zealand more than 40 years ago. I had studied mathematics and operations research, but my first education in supply chain was practical. A large industrial company moved me through roles running truck fleets, warehouses, planning, sales and an ERP implementation. I have jokingly called that period a baptism of fire, and I still have a few marks on my back to show for it.

Those jobs left me with a bias I have never lost: listen to the people at the coal face. The person loading a trailer or managing a shift often sees the flaw in a plan long before the person reviewing a dashboard.

Sophisticated mathematics matters, but it has to reflect the way the operation actually works. The useful mathematics is the kind that survives contact with a forklift.



**OPERATOR
DNA**

**Listen to the people
at the coal face.**

THE QUESTION THAT PUT US IN THE SOFTWARE BUSINESS



In 1992, Procter & Gamble brought us a problem from the warehouse floor. Its facilities had historically shipped full truckloads of a single product, perhaps a trailer of detergent. Orders were becoming more complex, with dozens of products in smaller quantities on the same truck. Warehouse teams now had to pick individual cases, build stable pallets and fit those pallets into a trailer without sacrificing productivity, legality or product condition.

P&G asked how to automate the thinking behind that work. The customer still had to receive exactly what it ordered.

Heavy, strong cases had to support lighter ones, because nobody wants the bricks on top of the eggs. Pallets had to fit inside the trailer, the weight had to be legal across the axles, and the finished load had to survive braking, cornering and hundreds of miles of road.

We did not begin with a software category or a product roadmap.

A customer brought us a physical problem, and we worked with the people doing the job to turn their knowledge into a repeatable process. That experience established a principle that still guides our work: an instruction is not the same thing as execution.

42 PALLETS

A system can tell a warehouse to ship 42 pallets, but that does not prove the pallets fit.

45,000 LB

It can create a 45,000 pound order, but that does not prove the weight can be distributed legally.

RELEASED

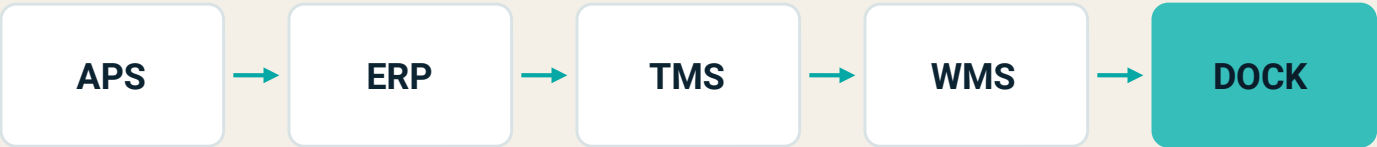
It can release a shipment, but that does not prove the product can be picked, staged and loaded before the carrier leaves.

CONNECTED SYSTEMS CAN STILL PASS AN IMPOSSIBLE PLAN

Advanced planning, ERP, transportation management and warehouse management systems each perform important work. The planning system determines what inventory should be available and where. The ERP creates and controls the order. The TMS tenders the movement. The WMS releases tasks to the floor.

Those systems can exchange data perfectly while passing along a plan that the physical network cannot run. The execution gap is the distance between what the software has approved and what the origin, carrier, trailer and destination can actually absorb.

THE GAP IS NOT THE DATA HANDOFF



THE EXECUTION GAP

The distance between what the software has approved and what the physical network can actually absorb.

A Carrier Cannot Manufacture Capacity Overnight

24

SHIPMENTS / DAY 1

3

SHIPMENTS / DAY 2

One client showed us a lane with 24 shipments on one day and three on the next. That was real operating data, not a hypothetical example. A preferred carrier built to handle eight or ten loads a day cannot create another 14 tractors, trailers and drivers overnight. It either rejects the excess volume or repositions equipment at a higher cost.

The shipping warehouse pulls labor from other work, changes door assignments and fills staging space.

The receiving site faces the same spike from the opposite direction. If urgently needed inventory is sitting in trailer 19, the customer can still go short, even though the planning system shows the product in transit.

Operations then repairs the plan with overtime, broker calls, reloads, short shipments and constant reprioritization. The work gets done often enough that the underlying design problem can remain hidden.

THE DOCK TEST

Before a replenishment requirement becomes a committed order, it should answer five questions.

01

Can the origin execute it?

The shipping site needs the inventory, labor, doors, staging space, handling equipment and time required to pick and load the volume.

02

Can transportation move it?

The right equipment and committed carrier capacity must be available at a viable cost, and the daily volume has to be stable enough for the carrier's network to absorb.

03

Can the load be built?

The products must fit by weight and cube, remain legal across the axles, respect stackability and segregation rules, and arrive without damage.

04

Can the destination absorb it?

The receiving site needs an appointment, a door assignment, labor, storage space and enough throughput to unload and process the product before it is needed.

05

Can the process be repeated?

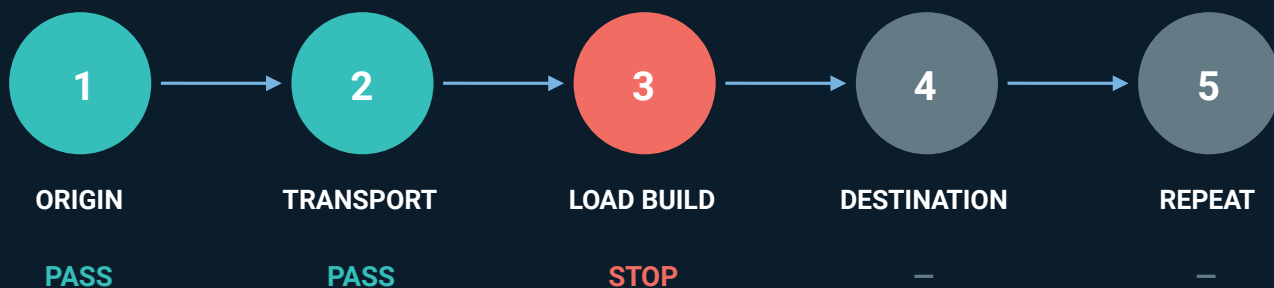
A new operator or a different shift should be able to follow the same instructions and produce the same result. When inventory or equipment changes, the load should be recalculated without depending on one veteran employee to improvise.

THE DOCK SHOWS A LOAD THAT CANNOT LEAVE

45,000 LB

Released and approved by the planning system

Consider a routine replenishment order. It passes questions one and two – the origin has inventory, and a carrier is booked. But question three stops it cold: the weight cannot be distributed legally across the axles without rebuilding the pallet configuration.



ERP

**COMPLETED.
ON TIME.**

DOCK

**CANNOT
LEAVE.**

The ERP shows a completed, on-time shipment. The dock shows a load that cannot leave.

That gap between “approved” and “buildable” is where planning debt is created — and it is exactly what the Dock Test is designed to catch before it reaches the floor.

CAPACITY IS NOT ONE NUMBER

CAPACITY THAT LOOKS BALANCED ON A SCREEN CAN STILL BE UNBUILDABLE ON THE FLOOR.

Capacity is therefore more than a storage number. It changes with the hour, the shift and the work mix. A building may have room for inventory but lack a free door, a certified operator, staging space or enough time before the next appointment. Planning against assumed capacity rather than demonstrated capability is how a balanced plan on a screen becomes detention and overtime at the site.

UNUSED CAPACITY IS A LOAD-BUILDING PROBLEM

Unused truck capacity is one visible result. In an analysis of 156,000 heavily loaded trucks crossing Georgia weigh-in-motion scales, 91% still had unused capacity. That does not mean every trailer could accept another identical pallet. Trailer tare weight, axle position, product density, stackability and local rules all matter. It does show that conservative assumptions and incomplete load building leave a meaningful payload opportunity. In our experience, mathematical load optimization can typically improve payload by 5% to 10% while keeping the load legal and damage-aware.

91%

OF 156,000 HEAVILY
LOADED TRUCKS STILL
HAD UNUSED CAPACITY.

5-10%

TYPICAL PAYLOAD
OPPORTUNITY WITH
MATHEMATICAL
OPTIMIZATION

THE RESCUE WORK CAN HIDE AN INCOMPLETE PLAN

Supply chain professionals are very good at rescuing difficult plans.

They call additional carriers, move people between tasks, reassign doors, turn pallets, find dunnage and lower target weights to create a margin for error. That skill protects service, but it can also hide the cost of an incomplete planning process.

Over time, the workaround becomes standard work. The business sends an extra truck because the higher target weight may be difficult to execute. A supervisor becomes indispensable because the loading rules live in that person's head. A spreadsheet sits between systems because the official process does not represent a local constraint.



EXTRA CARRIER

REASSIGN
DOORS

RELOAD

LOWER TARGET

SPREADSHEET

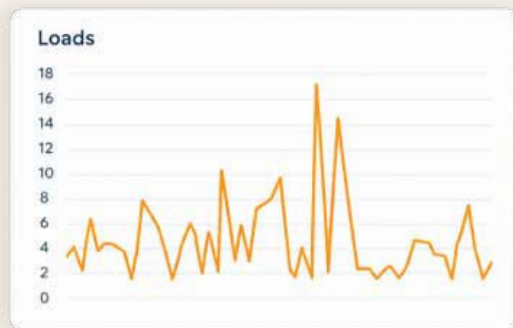
**WHEN THE WORKAROUND BECOMES STANDARD WORK,
PLANNING DEBT BECOMES INVISIBLE.**

SHAPE THE FLOW BEFORE THE SPIKE

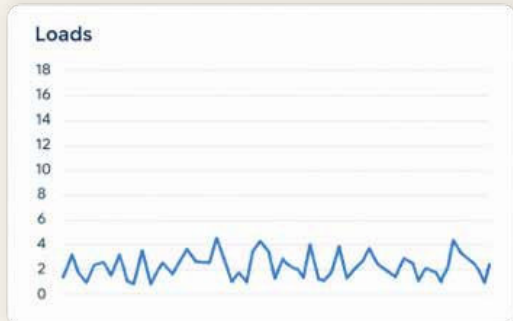
TWO DECISIONS HAVE TO WORK TOGETHER

30-DAY VIEW

BEFORE / SAWTOOTH



AFTER / CAPACITY-CONSTRAINED



Move priority freight earlier. Let lower-priority demand wait when service is protected.

LevelLoad

NETWORK CAPACITY PLANNER

Execution has to shape two related decisions: how freight flows across the network and how each individual truck is built.

LevelLoad works on the first decision. It looks roughly 30 days ahead and turns replenishment requirements into a capacity-constrained transportation schedule.

The optimization considers customer service, inventory priority, site throughput, storage, carrier capacity, equipment and cost across the network. It can move high-priority product earlier when capacity is available and allow lower-priority requirements to wait when service is protected. The result is a feasible flow that protects service while reducing unnecessary peaks and valleys.



**LevelLoad decides when and how much moves.
Auto02 decides how it gets built.**

PREDICTABLE VOLUME IS EASIER TO PLAN, PRICE AND SERVE

The same forward view makes earlier carrier commitments possible. A carrier generally needs to know the equipment type, origin, destination and ship date before it needs every final product detail. Placeholder stock transfer orders can reserve capacity while the shipper keeps enough flexibility to finalize the best load content closer to execution.

At Kimberly-Clark, this approach reduced daily shipment variability by about 60%, moved first-tender acceptance into the high 90s and generated several million dollars in annual freight savings. The carrier economics are straightforward: predictable volume is easier to plan, price and serve.

LevelLoad

NETWORK CAPACITY PLANNER



AutoO2

LOAD BUILDER

Together, they turn a network-level plan into a truck that can legally and safely leave the dock.

60%

DAILY SHIPMENT
VARIABILITY
REDUCTION

HIGH 90s

FIRST-TENDER
ACCEPTANCE

\$M

SEVERAL MILLION
DOLLARS IN ANNUAL
FREIGHT SAVINGS

MAKE THE LOAD EXECUTABLE

Dozens
of interacting rules

WEIGHT, CUBE, AXLE LOAD, STACKABILITY AND MORE - SOLVED TOGETHER,
NOT ONE AT A TIME

VISUAL LOAD / AXLE-AWARE BUILD



LEGAL AXLE DISTRIBUTION

Auto02

LOAD BUILDER

Auto02 works on the second decision. P&G calls the original picking and loading capability APAL, or AutoPallet/AutoLoader, and that work became a foundation of Auto02.

The software evaluates a wide set of interacting rules - including weight, cube, trailer dimensions, axle distribution, pallet orientation, stackability, product segregation, unloading sequence and customer-specific handling requirements - solved together rather than one at a time.

WEIGHT

CUBE

AXLE

STACKING

PRODUCT
SEGREGATION

SEQUENCE

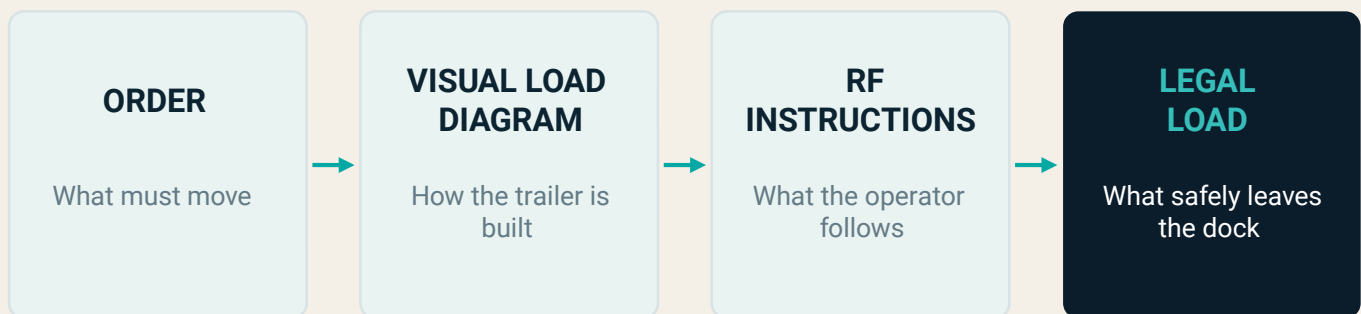
TRAILER

CUSTOMER RULES

THE MATHEMATICS HAS TO BECOME SOMETHING A PERSON CAN USE

AutoO2 produces visual load diagrams and RF instructions that guide the picker and loader through the build. If a pallet is missing or equipment changes, the plan can be recalculated instead of handed back to the floor as a new puzzle.

The physics of moments helps distribute weight legally across the axles, while the rest of the logic makes the load stable, damage-resistant and practical to execute.



**MISSING PALLET
OR EQUIPMENT CHANGE?**

**Recalculate the plan instead of
handing the floor a new puzzle.**

THE PROOF IS OPERATIONAL

RIVIANA FOODS / MEMPHIS



Riviana Foods illustrates why that matters. Its Memphis operation ships products ranging from heavy bags of rice to lightweight cups, creating a broad range of pallet weights.

Loader turnover, inconsistent pallet patterns, damage and over-axle trailers all affected the operation.

After implementing Auto02, Riviana reported more than \$1 million in annual savings at the plant, freight-cost reductions above 10% on affected lanes, a 75% reduction in loader training time and payback within 90 days.

\$1M

ANNUAL PLANT
SAVINGS

+10%

FREIGHT SAVINGS
ON AFFECTED
LANES

75%

LESS LOADER
TRAINING TIME

90

DAYS TO PAYBACK

The broader lesson is not specific to one product mix or one facility. When the same volume moves in fewer, better-built trucks, freight cost, dock workload and transportation emissions decline together.

FIND WHERE THE EXECUTION GAP IS PAID

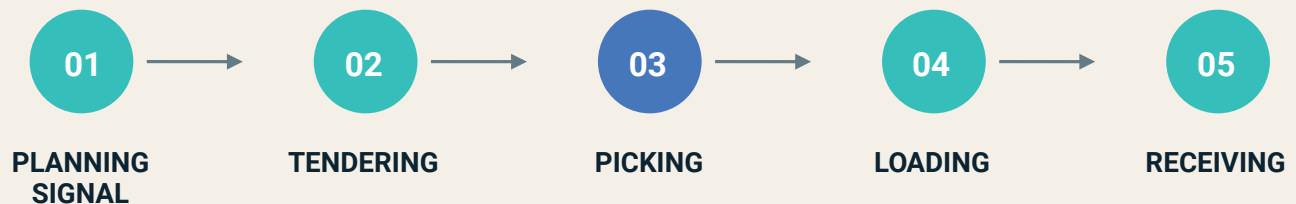
The common denominator in these results is the quality of the decision before the work reaches the floor. Smoother flows reduce shocks to carriers and sites. Executable load plans put product and loading knowledge into the process rather than leaving it in individual heads.

Warehouse teams spend less time repairing upstream assumptions and more time executing a plan they can trust.

A useful next step:

**ONE LANE.
ONE WEEK.**

Follow a week of orders from the planning signal through tendering, picking, loading and receiving.



RECORD EVERY INTERVENTION



Those interventions show where the execution gap is being paid for today and where physical constraints need to become part of the planning decision.

ABOUT THE AUTHOR

TOM MOORE



Tom Moore is CEO and founder of ProvisionAi. He has spent more than four decades in manufacturing, warehousing, trucking, planning and supply chain software, working with companies including Procter & Gamble, Kimberly-Clark and Riviana Foods. He studied mathematics and operations research in New Zealand.



BORN AT THE DOCK

AN OPERATING STANDARD FOR UPSTREAM PLANNING

Born at the Dock is a standard for judging upstream planning by its physical consequences.

It asks whether the origin can ship, the carrier can move, the trailer can carry, the destination can receive and the operation can repeat the result across shifts.

The plan is complete when the physical network can deliver it and the customer receives the order in full. That is what it means to plan with execution built in.

THE FIVE TESTS

ORIGIN / CARRIER / TRAILER
DESTINATION / REPEATABILITY



PLAN WITH EXECUTION BUILT IN.



THE PLAN IS COMPLETE WHEN THE PHYSICAL NETWORK CAN DELIVER IT.

