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| RESEARCH ARTICLE

Dual Unit-of-Measure Catch Weight Management in SAP Extended Warehouse Management

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| ABSTRACT

A large and commercially important class of products, meat, poultry, fish, dairy, and produce, among them, does not weigh the same from one unit to the next, because weight varies biologically and is lost during storage. These products are traded by weight yet handled by count, so a warehouse system that assumes a fixed conversion between units introduces financial error at every transaction. This article examines how SAP Catch Weight Management (CWM), integrated with SAP Extended Warehouse Management (EWM), resolves the problem by managing a product in two independent units of measure, a countable logistics unit and a measurable catch weight unit, with no fixed factor linking them. The study reframes catch weight from a configuration task into an inventory-control architecture and quantifies its financial value. The methodology is a design-oriented, practice-grounded analysis: the dual unit-of-measure model and its valuation choice are characterized, the capture of actual weight is traced through the execution flow from goods receipt to physical inventory, the integration with valuation, quality, and production is examined, and the findings are organized into a design framework distinguishing constraints that gate adoption from criteria that shape configuration, cross-referenced against SAP documentation and the catch weight literature and validated against anonymized food and retail scenarios. The findings show that value is captured only when actual weight is recorded at each execution step rather than once at receipt, that valuation on the measurable parallel unit keeps inventory value aligned with physical reality, and that the principal financial benefits, recovered give-away and avoided billing disputes, scale directly with the value of the weight. An illustrative model for a mid-size fresh-protein distribution operation indicates combined annual value commonly ranges from one to three percent of throughput, reaching seven figures. The study concludes that for variable-weight products, dual unit-of-measure control is not an enhancement but the foundation of financial accuracy, the only arrangement in which the warehouse, the ledger, and the invoice describe the same product identically.

| KEYWORDS

Catch weight management; dual unit of measure; supply chain warehousing; logistics; SAP Extended Warehouse Management; Parallel valuation; food distribution; variable-weight products

| ARTICLE INFORMATION

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1. Introduction

Most inventory systems rest on a quiet assumption: that a product unit is fixed. A case contains a known number of pieces, a piece weighs a known amount, and any quantity converts to any unit by a constant factor. For most products this assumption is harmless. For a large and commercially important class of products it is false, and the falseness is expensive. The products at the center of food and retail distribution, meat, poultry, fish, dairy, and produce, vary in weight from piece to piece, both through biological variation and through weight loss during storage (SAP SE, 2023a). A case labeled as holding a dozen pieces does not hold a fixed number of kilograms, and two such cases rarely weigh the same.

Yet these products are bought and sold by weight. The customer is invoiced for the kilograms shipped, the supplier is paid for the kilograms received, and the inventory is worth the kilograms held, while the warehouse counts, picks, and ships by the case because that is the physical handling unit. The product therefore lives in two units at once, and the relationship between them isn't fixed; it varies with every batch and case. A system that forces a single unit, or a fixed conversion, cannot represent this without error at every transaction: inventory value drifts, invoices diverge from what shipped, and give-away or dispute becomes a routine cost of doing business (SAPinsider, 2025).

This article treats catch weight not as a niche configuration topic but as an inventory-control architecture that keeps physical handling, financial valuation, and customer billing consistent for products whose weight won't stay the same. It is written for readers who may not be warehouse-systems specialists, and it develops the argument in two directions: how SAP Catch Weight Management, integrated with EWM, executes dual unit-of-measure control, and how that control translates into measurable financial value.

2. Literature Review

The material relevant to catch weight falls into three groups: the SAP documentation of catch weight management and its EWM integration, the industry literature on variable-weight products, and the broader treatment of unit-of-measure handling and valuation in enterprise systems.

The SAP-specific literature documents the function in depth. SAP describes catch weight as an industry function for the consumer-products and food-processing sectors that manages a material in two independent units of measure across purchasing, production, quality management, sales, and logistics, with functions for costing, inventory, and integration to financial accounting and controlling (SAP SE, 2023b). SAP guidance recommends a countable base unit such as piece, case, or carton and a measurable parallel unit such as kilogram or gallon, and requires choosing which unit carries valuation, commonly the parallel unit (SAP SE, 2018; SAP SE, 2021). The EWM documentation adds that catch weight products are processed on mobile devices, where radio-frequency transactions detect a catch weight material and open an additional screen to capture weight during deconsolidation, counting, putaway, picking, packing, physical inventory, and ad hoc movements (SAP SE, 2023a). This body of work is authoritative on capability but focuses on configuration rather than framing the function as an architecture.

A second body of work, from practitioners and analysts, describes the business problem. It explains why fixed conversion factors fail for products whose composition varies, identifies the sectors affected, and catalogs the benefits of managing the parallel unit: invoicing on actual weight, inventory visibility in parallel quantities, improved picking accuracy, reduced re-measuring, more accurate freight, and reduced giveaway with fewer disputes (SAPinsider, 2025; SAP PRESS, 2026). This literature is persuasive on value but tends to present benefits as a list rather than tracing them to the execution steps that produce them.

The broader literature on unit-of-measure handling treats the general problem of representing quantity. Still, variable-weight products are a special and demanding case, because the two units are genuinely independent measures that must both remain accurate through every movement. A recent academic treatment examines advanced catch weight in EWM specifically, covering activation, handling units, tolerances, and parallel valuation (Scientific and Academic Publishing, 2025), and foundational operations-science work establishes the storage and handling principles any warehouse system operationalizes (Bartholdi & Hackman, 2014). Across these three strands, a gap remains: SAP material documents the mechanism, industry material lists benefits, and the general literature abstracts from the variable-weight case, but few sources trace the dual quantity through the execution flow as an architecture that keeps the warehouse, ledger, and invoice aligned. This study addresses that gap.

3. Methodology

This study follows a design-oriented, practice-grounded method rather than an empirical or experimental one, and involves no human subjects or personal data. It proceeds in four stages. First, the dual unit-of-measure model is characterized conceptually, including the valuation choice that links physical variability to financial value. Second, the capture of actual weight is traced through the EWM execution flow, from goods receipt through putaway, picking, packing, and physical inventory, including behavior on radio-frequency devices. Third, the integration of the dual quantity with valuation, quality management, and production supply is examined. Fourth, the analysis is distilled into a design framework that separates the constraints gating catch weight adoption from the criteria shaping its configuration, and is validated against three anonymized implementation scenarios drawn from food and retail distribution.

The analysis draws on the author's implementation experience with catch weight in retail and food distribution and cross-references SAP product documentation, SAP consulting notes, and the practitioner and academic catch weight literature cited throughout. All sources are publicly available secondary materials; no proprietary configuration or client data is reproduced, and

the illustrative financial model uses representative, non-client figures. The method is intended to be reproducible, meaning any architecture team can apply the same framework to its own product portfolio and operations.

4. Results and Findings

4.1 The Dual Unit-Of-Measure Model

The foundation of catch weight is that the product is kept in two units of measure of equal status, independent of each other, with no fixed conversion between them. Figure 1 shows the model. The logistics unit, countable, is how the warehouse handles the product; the catch weight unit, measurable, is how commerce and finance see it; and the valuation unit, chosen between them, determines inventory value (SAP SE, 2021).

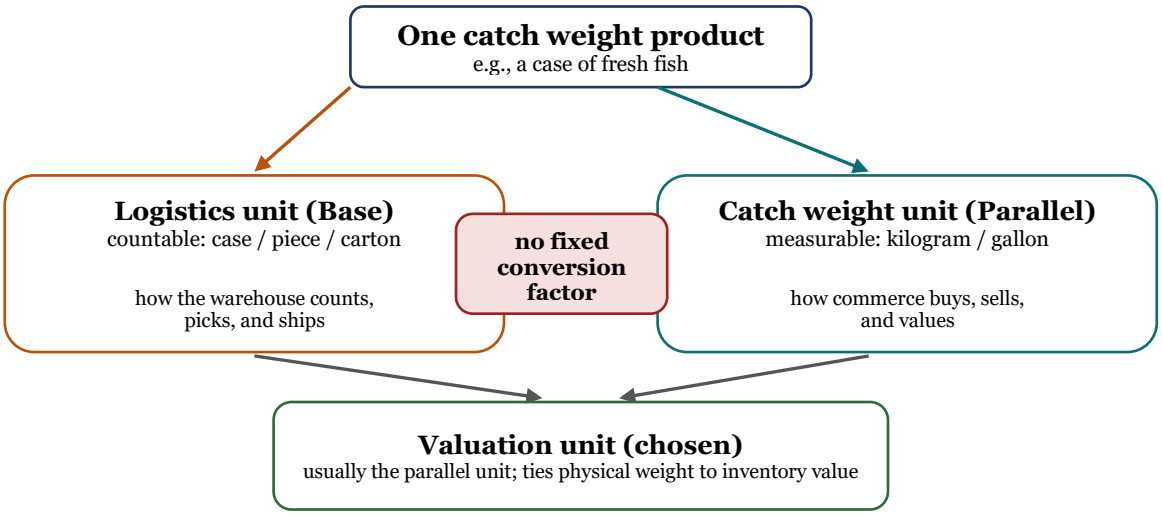

Figure 1. The dual unit-of-measure model. A catch weight product is held in a countable logistics unit and a measurable catch weight unit with no fixed conversion; the chosen valuation unit ties physical weight to inventory value. (Shapes are editable.)

The independence of the two units is the whole point. If a fixed factor linked them, one unit would be redundant, and the system would again assume a case has a constant weight. Instead, each case carries its own actual weight, captured at handling time, so the kilograms in stock are the kilograms actually present. A change worth noting for S/4HANA is that the platform no longer supports the older configuration in which the base unit itself served as the valuation unit in a particular category. Hence, the modern setup pairs a countable base unit with a measurable, valuation-bearing parallel unit (SAP SE, 2023c).

4.2 Capturing the Catch Weight through Execution

A dual unit-of-measure model is only as accurate as the moments at which the actual weight is captured. If weight is recorded only at receipt and then assumed constant, the model degrades into the fixed-factor approximation it was meant to replace, because the product loses weight in storage. Catch weight in EWM therefore captures or carries the weight at each execution step (Figure 2).

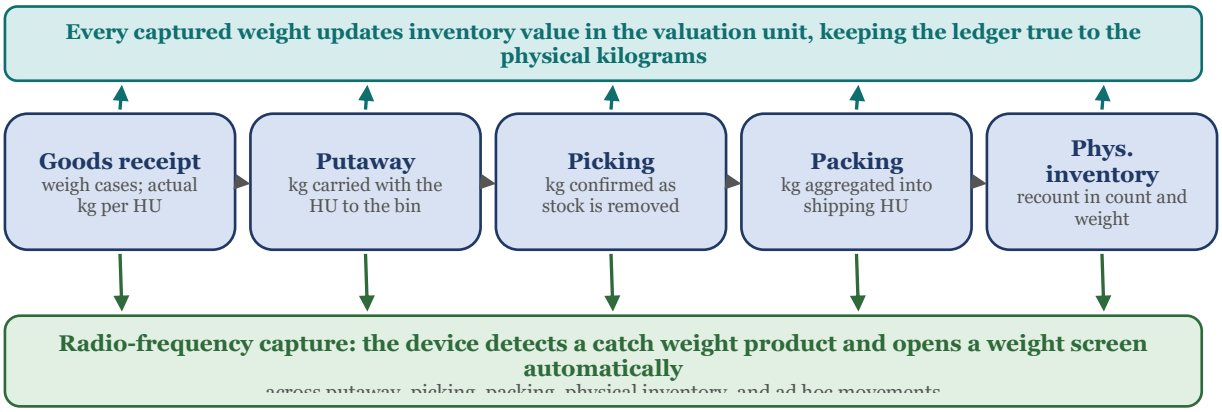

Figure 2. Capturing the catch weight through execution. RF devices capture or carry the actual weight at each step, automatically open a weight screen, and update valuation so the ledger tracks the real kilograms. (Shapes are editable.)

The receipt step sets the foundation. An inbound delivery may state a case count, but the system captures each case's actual weight as the handling unit is formed. As a result, the goods receipt posts the actual kilograms rather than a nominal figure, and the catch weight quantity can be adjusted before posting (SAP SE, 2021). From there, the weight travels with the handling unit through putaway, is confirmed during picking as stock leaves the bin, and is aggregated as goods are packed, so the outbound weight reflects exactly what is in the carton. Physical inventory recounts in both dimensions: count and weight. The radio-frequency framework makes this practical because the device recognizes catch-weight material and automatically opens the weight-entry screen. As a result, the worker captures the actual weight in the same guided flow as any other task (SAP SE, 2023a).

4.3 Integration with Valuation, Quality, and Production

Catch weight would be of limited value if the dual quantity stopped at the warehouse door; its worth comes from remaining consistent across the enterprise. The valuation integration is the reason catch weight exists: because the valuation unit is typically the measurable parallel unit, inventory value is calculated on actual weight rather than on a case count multiplied by an assumed weight, and in S/4HANA the always-active material ledger records movements in multiple units, so the financial and warehouse records move together (Scientific and Academic Publishing, 2025). Quality integration matters because weight and quality interact for perishable goods: inspection for a catch weight material must show both quantities, and where a sample is drawn, its weight must be deducted so remaining stock stays accurate. Production integration extends dual quantity to staging, consumption of production material request items, and repetitive manufacturing, using a production interface that supports catch weight directly rather than two-step updates (SAP SE, 2021).

4.4 A Design Framework for Catch Weight

The findings distill into a design framework (Table 1) that separates the constraints gating adoption, largely determined by the product and the platform, from the criteria shaping configuration, which the design team controls. Figure 3 renders the logic.

Criterion	Type	Guidance
Product variability	Gate	Catch weight applies only where weight genuinely varies per unit; fixed-weight products should not be made catch-weight-relevant.
Commercial basis	Gate	If the product is bought or sold by weight while handled by count, dual unit-of-measure control is effectively required.
Platform and release	Gate	S/4HANA changes the valuation-category setup; confirm the supported configuration for the target release and deployment.
Base and parallel units	Shaping	Countable base (case, piece) and measurable parallel (kg, gallon), per SAP guidance.
Valuation unit	Shaping	Usually the parallel weight unit, so value tracks actual weight.
Capture points and tolerances.	Shaping	Where weight is captured or reweighed, and the tolerances for variation and storage loss.
Integration scope	Shaping	How far the dual quantity extends into QM, production, and freight.

Table 1. Catch weight design criteria, separating gating constraints (product, commercial, and platform) from shaping criteria (configuration under the design team's control).

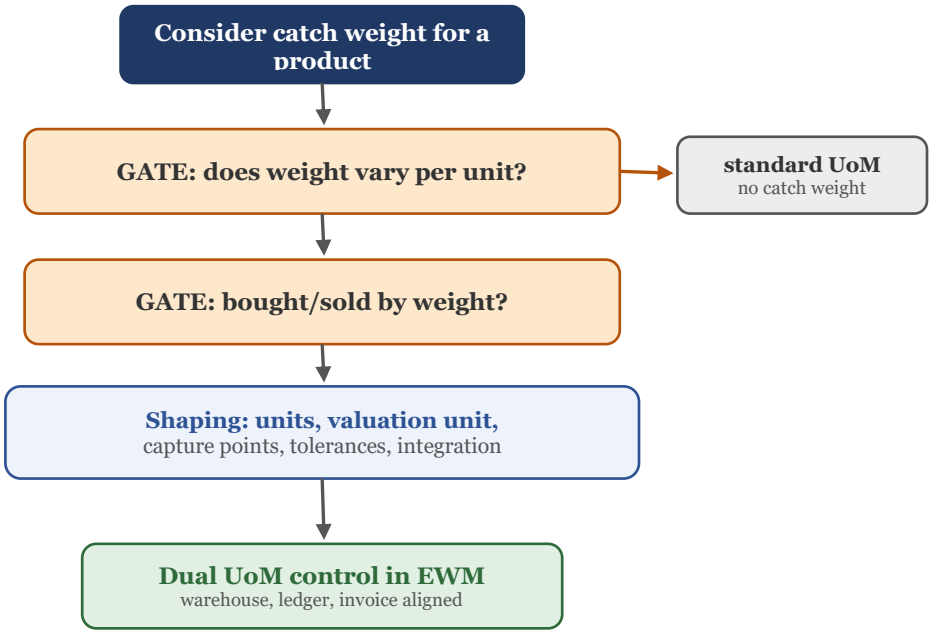

Figure 3. Catch weight decision logic. Product variability, commercial basis, and platform gate the decision; configuration choices then shape a dual unit-of-measure design that keeps warehouse, ledger, and invoice aligned. (Shapes are editable.)

4.5 Application Scenarios

Retail distribution of fresh protein. A retail operation distributing fresh meat and seafood handled cases on the floor but billed customers by the kilogram. Catch weight captured actual weights at receipt and confirmed them at picking and packing, so each outbound handling unit carried its true weight and invoices matched what shipped, eliminating routine give-away and billing disputes previously treated as an unavoidable cost of selling fresh product.

Dairy operation migrating to S/4HANA. A dairy business moving from an older EWM landscape to EWM on S/4HANA adapted its setup to the platform's changed valuation-category rules, pairing a countable base unit with a measurable, valuation-bearing parallel unit; the migration was as much about preserving the integrity of the dual quantity through cutover as about configuration (SAP SE, 2023c).

Perishable goods with storage weight loss. For products that lose weight in storage, capturing weight only at receipt would have overstated inventory value over time; reweigh points during physical inventory and at picking kept recorded kilograms aligned with reality, showing why single-point capture is insufficient and dual-unit control must live across the whole flow.

4.6 Value Realization

Because catch weight value is measured in the currency of the products themselves, weight and therefore money, it is unusually concrete (Table 2). The economic core is giveaway and disputes, both of which scale directly with weight value. When the case bills a product but each case carries a little more weight than the nominal figure, that extra weight ships unbilled, a giveaway that recurs on every order; when case-count billing overstates weight, the customer disputes the invoice, generating credits and administrative cost. Actual-weight billing removes both at once (SAP SE, 2013; SAPinsider, 2025).

Value lever	Effect	Mechanism
Billing accuracy	Invoice matches actual weight.	Outbound handling units carry captured weight, so customers are billed for what shipped.
Give-away reduction	Less unbilled weight shipped.	Actual-weight billing captures product a case-count basis would have given away for free.
Dispute reduction	Fewer overbilling disputes	Weight-based invoices reconcile with receipt, cutting claims and credits.
Inventory value accuracy	Value tracks real kilograms.	Valuation on the parallel unit removes the drift of assumed-weight valuation.
Picking accuracy	Fewer weight errors	Dual-quantity handling units and RF weight capture reduce mis-picks and re-measuring.
Freight accuracy	Truer shipment weight	Accurate weights improve freight calculation and reduce reloading and correction.

Table 2. Indicative value levers for catch weight management and the mechanism behind each. Effects are directional, not guaranteed, and scale with price per unit weight.

A transparent illustration makes the money concrete. Consider a fresh-protein distribution operation shipping roughly 5,000 cases per day, about 1.25 million cases per year, at an average of 10 kilograms per case, so about 12.5 million kilograms annually. At a representative 6 US dollars per kilogram, that is roughly 75 million US dollars of throughput. Under case-count billing, if each case ships on average just one percent more weight than the nominal figure it is billed against, that is 0.1 kilogram of unbilled product per case, about 125,000 kilograms per year, or on the order of 750,000 US dollars given away annually; at two percent the giveaway approaches 1.5 million US dollars. Actual-weight billing essentially recovers all of it. Where overbilling on other cases previously generated disputed credits of even half a percent of throughput, that removes a further roughly 375,000 US dollars a year. The precise numbers vary with product, price, and prior discipline. Still, the structure does not: on a 75 million US dollar operation, the combined effect commonly falls in the range of one to three percent of throughput, seven figures a year, recovered from a capability that also improves valuation, picking, and freight accuracy (Table 3).

Value lever	Indicative annual value	Basis (illustrative $75M fresh-protein DC)
Give-away recovery	~$0.75M to $1.5M	Recovering 1 to 2% unbilled weight shipped on every case, billed on captured actual weight.
Dispute and credit reduction	~$0.3M to $0.4M	Removing ~0.5% of throughput in disputed credits and admin as invoices reconcile with receipts.
Inventory valuation error	Error largely eliminated	Valuation on the parallel weight unit replaces assumed-weight estimates, correcting stock value.
Re-measuring labor	Lower handling cost	Weight captured once in the guided RF flow travels with the HU, avoiding repeat weighing.
Freight correction	Lower freight and rework	Accurate shipment weight improves freight calculation and cuts reloading and correction.
Costing and margin accuracy	clearer profitability	Product costing on the valuation unit avoids distortions from assumed weights.

Table 3. Quantified value with an illustrative dollar model for a mid-size fresh-protein distribution center of about $75M annual throughput. The giveaway and dispute lines commonly combine to seven figures a year. Figures are directional planning estimates that scale with price per unit weight and volume, not guarantees.

5. Conclusion

For a product whose weight does not vary, a single unit of measure is correct and catch weight would be needless complexity. For a product whose weight varies from piece to piece and case to case, and which is nonetheless traded by weight, a single unit is not a simplification but a source of continuous error, because it forces the system to pretend a case has a constant weight it does not. SAP Catch Weight Management, integrated with EWM, resolves this by carrying two independent units of measure, a countable one for handling and a measurable one for commerce and valuation, and by capturing the actual weight at each execution step so that the kilograms in the ledger and on the invoice are the kilograms actually received, held, and shipped.

The study's contribution is threefold: it reframes catch weight as an inventory-control architecture rather than a configuration task, it traces the dual quantity through the full execution flow to show why weight must be captured at each step rather than once, and it separates the product and platform facts that decide whether catch weight applies from the configuration choices that determine how well it works. The financial significance is substantial: on a mid-size fresh-protein operation, the recovered giveaway and avoided disputes alone commonly reach seven figures a year, one to three percent of throughput, from a capability that simultaneously sharpens valuation, picking, and freight accuracy. The broader conclusion is that for variable-weight distribution, dual unit-of-measure control is the foundation of financial accuracy, the only arrangement in which the warehouse, the ledger, and the invoice describe the same product identically. Future work should quantify give-away and dispute reduction across specific product categories empirically and examine how automated in-line weighing and cloud deployments will further sharpen weight capture.

6. Statements and Declarations

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Ethics and Consent: This study involved no human subjects, human material, or human data, and no ethics approval was required.

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