

CONCEPT STUDY · INTERACTIVE PROTOTYPE

SupplyLink: B2B electrical and construction procurement app with volume tiering, job-site tagging, and purchase order routing.

Transparent separation between price quote requests and binding purchase orders. SupplyLink allows field foremen to assemble material manifests with job site delivery tags, dynamically calculating volume price breaks and routing high-value orders to the office finance queue for instant digital PO generation.

INDUSTRY VERTICAL

Retail & Quick Commerce

PROTOTYPE STACK

Next.js / TypeScript

DOMAIN SECTOR

B2B Wholesale & Contractor Procurement

TARGET PRODUCTION RUNTIME

Flutter

Executive Summary

Mark, project procurement manager for an electrical contracting firm, orders 500 feet of industrial conduit, breaker panels, and wiring for Job Site #104 (City General Hospital). Consumer ecommerce shopping carts fail because he needs trade credit terms, volume tier pricing, and automated corporate PO authorization.

Commercial contractors cannot use generic ecommerce carts: orders require job-costing accounting codes, staggered delivery dates across multiple project sites, and dual routing between field managers and corporate accounting for purchase order approval.

Operational Hurdles & The Failure of Conventional Approaches

In real-world mobile deployments within Retail & Quick Commerce, applications encounter operational friction that desktop web portals never face.

Core Engineering Challenges Addressed:

- 1. Operational Bottleneck:** Commercial contractors cannot use generic ecommerce carts: orders require job-costing accounting codes, staggered delivery dates across multiple project sites, and dual routing between field managers and corporate accounting for purchase order approval.
- 2. Data Integrity Risk:** Traditional approaches rely on synchronous network calls that fail under unstable cellular handoffs or high concurrency.
- 3. User Experience Impact:** Frustration occurs when users lose in-progress work or receive misleading feedback from unbuffered user interfaces.

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Architectural Solution & Interface Design

Demonstrated UX & Architecture Decision:

Transparent separation between price quote requests and binding purchase orders. SupplyLink allows field foremen to assemble material manifests with job site delivery tags, dynamically calculating volume price breaks and routing high-value orders to the office finance queue for instant digital PO generation.

Principal Interface Screens (5 Views):

1 Trade Wholesale Catalog

Bulk contractor supplies with contract pricing, live branch availability, and volume tiers.

2 Job Site & Cost Center Allocator

Allocation drawer assigning lines to specific client contracts and billing codes.

3 Procurement Cart & PO Builder

Multi-line order matrix with volume threshold indicators and quote conversion.

4 Finance Approval & PO Sign-Off

Office accounting review showing credit line availability and digital signature stamp.

5 Staggered Shipment Tracker

Split-delivery tracking showing scheduled flatbed truck deliveries per job site.

Interactive Journey: Field Manifest Creation to Corporate PO Dispatch

Select wholesale conduit → Allocate to Hospital Job Site #104 → Unlock tier discount → Route to Finance for approval → Confirm issued PO.

- 1 Open SupplyLink electrical contractor wholesale catalog
- 2 Add 500ft "2-inch Rigid Steel Conduit" to cart (unlocks Tier 3 15% discount)
- 3 Assign order lines to Cost Code: "HOSPITAL-PHASE-2B (Job #104)"
- 4 Specify delivery location: "Gate 4, North Tower Laydown Yard"
- 5 Order total (\$3,420.00) exceeds \$2,500 field threshold: route to Office Finance
- 6 Switch to Finance Officer: apply corporate digital stamp and generate PO #PO-8821

Reset Mechanism: One-click reset to initial empty procurement manifest.

Handled Edge Cases & Exception Recovery

**Edge Condition #1:**

Credit limit threshold warning providing option to route high-value order for immediate wire transfer or invoice financing

**Edge Condition #2:**

Backordered supply split-delivery alert allowing available items to ship immediately while holding backordered lines

**Edge Condition #3:**

Expired volume pricing quote refresh prompt recalculating commodity copper/steel prices automatically

Actual Prototype vs. Target Native Production Runtime



Actual Prototype Stack

Platform & Framework:

Next.js / TypeScript

Languages:

TypeScript, Tailwind CSS

B2B commercial purchasing simulator with tiered quantity discounts, job-costing codes, and corporate PO approvals.



Target Production Stack

Platform & Framework:

Flutter

Languages & Storage:

Dart, REST ERP Gateway, PostgreSQL

Fast complex data entry on construction tablets, seamless ERP catalog synchronization, and PDF purchase order generation.

Explicit Prototype Boundaries & Validation Methodology

Documented Prototype Limitations:

- Simulated in browser using local state machine; does not connect to live Epicor Prophet 21 / SAP B2B wholesale inventory databases.
- Corporate PDF purchase orders generated client-side without live ERP electronic data interchange (EDI 850) protocols.

Target Production Telemetry:

Audit order turnaround times and billing dispute rates across 50 commercial trade contractors.

Commercial Offer Alignment & Handover Guarantees

This technical concept study directly demonstrates the design, state-machine architecture, and resilience engineering delivered under FFNA Solutions' fixed-scope programs:

Product Prototype Sprint

2-week fixed sprint delivering high-fidelity interactive simulation with edge recovery.

Mobile MVP Launch

6–8 week end-to-end production build with backend API, store release, and full IP transfer.

 **Handover Guarantee**

100% intellectual property ownership transferred upon milestone completion. Comprehensive technical documentation, architecture runbooks, and zero vendor lock-in.