Crane Intelligence Platform — Developer Refinement Package

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🎯 Mission & Product Vision

Build a **deal intelligence engine** for cranes that goes beyond a static valuation. For any crane (even with **no price provided**), the system should output: - **FMV with confidence band** and explanations - **Depreciation analysis** + **Wear Score** (class-normalized) - **Class-level market insights** (inventory trend, auction vs ask delta, time-to-clear, Market Heat) - **Financing snapshot** (current rates → monthly payment table) + **Utilization ROI** (rental vs finance break-even) - **Freight estimator** (delivered cost + load breakdown)
- **Cross-OEM comparables** surfaced automatically - A unified **Deal Score (0–100)** summarizing the opportunity - Exportable **Bloomberg-style Deal Sheet (PDF)** and dashboard view - **Portfolio Manager** for customer fleets - **Try an Evaluation** funnel for lead capture and demo outreach

North Star: Every valuation reads like a Bloomberg security page—price + context + liquidity + alternatives—so buyers and sellers can act immediately.

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1. End-to-End User Flow

(as outlined before, with Portfolio Manager and Try an Evaluation added)

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2. Data Sources & Pipelines

(as outlined before)

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3. Core Algorithms

(as outlined before)

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4. Portfolio Manager Module

(as outlined before)

5. Try an Evaluation Funnel

(as outlined before)

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6. API Contracts

(as outlined before, with portfolio + trial evaluation endpoints)

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7. Data Model Additions

(as outlined before)

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8. UI/UX — Bloomberg-Style Redesign (Expanded)

Design Tokens
- **Color**: Dark #0E1116; Panels #161A22; Text #E8EDF3; Accent-Up #27AE60; Accent-Down #E74C3C; Accent-Info #3FA2FF.
- **Type**: Inter/Roboto Condensed—H1 28–32px bold for FMV; body 13–14px.
- **Spacing**: 8-pt grid; dense cards; tight tables.

Dashboard Layout (After Login)
- **Top Ticker Bar**: class KPIs scroll (AT FMV Δ, RT inventory %, Crawler auction spread).
- **Left Nav**: Valuation • Market • Finance • Freight • Portfolio • Try an Evaluation • My Reports • Settings.
- **Main Panel**: 2-column grid; right column houses output cards.

Valuation Output Cards (4-up)
1. **Market Snapshot**: sparkline inventory; auction vs ask bar; heat chip.
2. **Depreciation & Wear**: curve chart with dot; wear vs class bar.
3. **Finance & Utilization**: payment table (60/72/84); rental vs finance bars; break-even %.
4. **Freight**: route map; loads + cost; "delivered price" calculator.

Below:
- **Comps Table** (sortable, provenance icon).
- **Cross-OEM Alternatives** (cards with pp-ton & pp-ft-boom).
- **Deal Score Gauge** (speedometer with HOT/FAIR/COLD bands).

Portfolio Manager UI
- **Upload Panel**: drag-and-drop CSV/Excel.
- **Fleet Table**: sortable with per-unit FMV, wear score, depreciation %.
- **Fleet KPIs**: total fleet value, avg wear, class exposure, replacement candidates.

- **Fleet Graphs**: bar by class, residual curve overlay.
- **Export Buttons**: PDF, Excel.

Try an Evaluation UI
- **Landing Card**: Simple form (make, model, year, hours, location).
- **Output**: FMV range only, teaser copy: "Unlock full market insights with a demo."
- **Lead Capture Modal**: email + phone required.
- **Thank-You State**: teaser PDF emailed + sales notified.

PDF Export Rules
- Mirror the cards; add ACC header/footer; expand Notes/Price columns for legibility; minimal color.

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9. Acceptance Criteria

(as outlined before, with portfolio + trial features added)

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10. Project Plan — Extended

(as outlined before, Phase 5 = Portfolio Manager, Phase 6 = Try an Evaluation)

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11. Wireframe Mockups

Valuation Output (Dashboard)

```
--------------------------------------------------
| Crane Title (GMK5250L, 2015, 4,200 hrs)   [HOT] |
| FMV: $1.35M (Band $1.26M–$1.44M) [Confidence:M] |
| Deal Score Gauge (HOT/FAIR/COLD)                |
--------------------------------------------------
| Market Snapshot | Depreciation & Wear | Finance & |
| (sparkline +    | (curve + bar chart) | Util bars |
| heat chip)      |                     | + table   |
--------------------------------------------------
| Freight (map + cost)                            |
--------------------------------------------------
| Comps Table (sortable) | Alternatives (cards)   |
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Portfolio Manager (Fleet Tab)

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-----------------------------------------------------
| Upload Fleet File (CSV/Excel) [Drag & Drop]       |
-----------------------------------------------------
| Fleet Table: Unit | FMV | Wear | Residual | Class |
|---------------------------------------------------|
| Grove GMK5250L    | $1.35M | 72 | 57%     | AT    |
| Link-Belt ATC3275 | $1.28M | 69 | 55%     | AT    |
-----------------------------------------------------
| Fleet KPIs: Total $18.5M | Avg Wear 74 | AT 65%   |
| Graph: Value by Class | Residual Curve Overlay    |
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| Export Fleet Report [PDF] [Excel]                 |
-----------------------------------------------------
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Try an Evaluation Funnel

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-----------------------------------------------------
| Try an Evaluation — Free Instant Crane Valuation  |
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| Form: Make | Model | Year | Hours | Location      |
| [Submit]                                          |
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| Output: FMV Range: $1.2M–$1.4M (Confidence: Low)  |
| "Unlock full insights with demo" [Book Demo CTA]  |
-----------------------------------------------------
| Lead Capture Modal: Email | Phone | Submit        |
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⚡**Final Guidance:** With the **Portfolio Manager**, customers keep coming back (their fleet data lives in your system). With **Try an Evaluation**, you build a powerful lead funnel. Together, they make this platform the **Bloomberg Terminal for cranes + CRM driver for sales.**