

AI Features (Priority Order)

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Overview

Plock is **AI-native** — not AI-bolted-on. Every data model is designed with AI querying in mind. The AI layer runs continuously; warehouse workers are alerted, not asked to check.

Target user for AI: A warehouse worker with dirty gloves asking *var finns SKU-X* on a cracked phone screen — not an analyst building pivot tables.

Language: Swedish first. Short, direct responses. Action-oriented. Mobile-friendly.

Priority 1 — Plock AI Chat (Launch)

Type: LLM natural language interface **Model:** Claude API (claude-sonnet-4-5) **Language:** Swedish

What it does

- Answer warehouse questions in natural language Swedish
- Execute actions with single confirmation (move stock, reserve, assign pick)
- Access real-time inventory, orders, performance data
- Multi-turn conversation with warehouse context injected

Example queries

- *Hur många enheter av SKU-1234 har vi?* — live stock count + trend
- *Vilka ordrar är försenade idag?* — list with root cause
- *Flytta 50 enheter från A-01-01 till B-02-03* — confirmation + action

Architecture

- System prompt includes: warehouse schema snapshot, org context, user role, current time
 - Function calling for write operations (move, reserve, assign)
 - Organization data never sent raw to Claude — only sanitised context
 - Response target: less than 3 seconds
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Priority 2 — Smart Picking (Launch)

Type: Route optimisation **Engine:** OR-Tools (Google) — VRP/TSP solver **Reduction target:** 30-70% travel time

What it does

- Automatically generates optimal pick routes when orders are released
- Groups orders into picking waves based on zone, carrier cutoff, priority
- Outputs sequential bin list on mobile scanner
- No configuration required — runs on every order release

How it works

1. Order released — ML microservice receives order + bin locations
2. OR-Tools VRP solver computes shortest path across warehouse zones
3. Optimised pick list returned to mobile app in under 2 seconds
4. Worker follows sequence — no backtracking

ROI

- Industry data: 30-70% of warehouse time is walking (not picking)
 - Conservative 20% efficiency gain = 8,800 SEK/month per worker saved
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Priority 3 — Anomaly Detection (Launch)

Type: Statistical detection on inventory transactions **Algorithms:** Z-score + isolation forest (scikit-learn) **Trigger:** Real-time, on every transaction

What it detects

- Sudden stock drops (theft, mispick, data error)
- Unusual pick rates (demand spike or data entry error)
- Inventory discrepancy after goods receipt
- Carrier label printed but no scan out (lost shipment risk)

Alert flow

1. Transaction recorded — Python microservice analyses against rolling baseline
 2. Z-score above 3 sigma or isolation forest flags as outlier — alert created
 3. Warehouse manager receives push notification + AI chat message
 4. Manager confirms or dismisses — feedback improves model
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Priority 4 — Demand Forecasting (Month 6)

Type: Time-series forecasting **Models:** XGBoost + Prophet (Facebook) **Input:** Order history (minimum 90 days)

What it does

- Predicts demand per SKU for next 7/14/30 days
 - Generates reorder recommendations with suggested quantity and timing
 - Adjusts for seasonality (Swedish calendar events, e-commerce peaks)
 - Accessible in AI Chat: *Vad ska vi beställa hem nästa vecka?*
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Priority 5 — Smart Slotting (Month 6)

Type: ML-based placement recommendations **Input:** Pick frequency, order affinity, SKU dimensions

What it does

- Recommends optimal bin locations for each SKU based on pick frequency
 - Groups frequently co-picked SKUs near each other (affinity slotting)
 - Identifies slow-movers in prime locations and suggests moves
 - Presented as actionable task list, not a forced migration
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Priority 6 — Labor Planning (Month 12)

Type: Shift optimisation **Constraints:** Swedish labour law (Arbetsstidslagen)

What it does

- Predicts staffing needs based on demand forecasts
 - Generates compliant shift schedules (max hours, breaks, rest periods)
 - Suggests overtime or temp worker needs 1-2 weeks in advance
 - Integrates with order volume forecasts from Demand Forecasting module
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AI Cost Model (per customer)

Feature	Est. cost/month (Growth plan)
Plock AI Chat (1,000 queries/month)	~45 SEK (Claude Sonnet pricing)
Smart Picking (10,000 optimisations)	~5 SEK (OR-Tools compute)
Anomaly Detection (100K transactions)	~10 SEK (Python microservice)
Total AI cost per Growth customer	~60 SEK/month
Growth plan revenue	2,990 SEK/month
AI cost as % of revenue	~2%

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