Appendix A1 – LCM Predictive Modelling Algorithm Outline

Module: LCM Predictive Modelling
Purpose: This module forecasts future lease performance, energy efficiency risk, or occupancy likelihood using real estate and external data. The model enhances strategic decision-making across the asset lifecycle.

Key Inputs: Historical lease performance data Occupancy trends by postcode Property type and EPC rating Proximity to amenities, transit, crime scores Local employment and business density indices Macroeconomic signals (interest rates, inflation) **Key Outputs:** Lease Renewal Probability (%) Predicted EPC Deterioration Risk (Low / Med / High) Forecasted Occupancy Rate (%) over 12 months Risk-adjusted Rent Forecast (£/sqft)

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Algorithm Pseudocode (Simplified)

1. Clean and normalize input data (leases, EPC, local stats) 2. Feature Engineering:
- Calculate lease duration ratios - Encode property type & EPC rating - Generate
location risk index from external data 3. Train ML model: - Use Gradient Boosted
Trees for prediction - Target variables: occupancy rate, EPC downgrade risk -
Cross-validate using time-based splits 4. Scoring: - Predict future values for each
asset - Assign weighted score (0-100) using: Score = 0.4 * EPC Risk + 0.3 *
Occupancy Forecast + 0.3 * Rent Stability Index 5. Classify assets: - High Risk
(<40), Moderate (40–70), Stable (>70)
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Why This Is Difficult to Replicate:
Combines real estate, ESG, and socioeconomic data in a dynamic scoring framework Incorporates custom external data ingestion pipelines (e.g., Ofgem, ONS feeds) Trained on time-series-specific ML techniques with explainable scoring Highly adaptable to regional market variances via proprietary weighting logic