

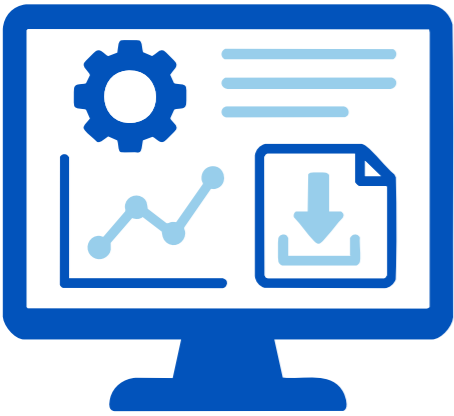
### Core Simulation Modes

- **Up-Peak Analysis** – Simulates morning lobby traffic in fixed intervals, computes capacity, wait times, and car interval efficacy.
- **Down-Peak & Two-Way Analysis** – Models end-of-day exits and mixed flows, measuring wait/travel times for varied control strategies.
- **RTT (Round-Trip Time)** – Offers quick cycle-time estimates for different speeds and car counts.
- **Full Dynamic Simulation** – An event-driven, stochastic model that captures realistic passenger behaviors and dispatch outcomes.



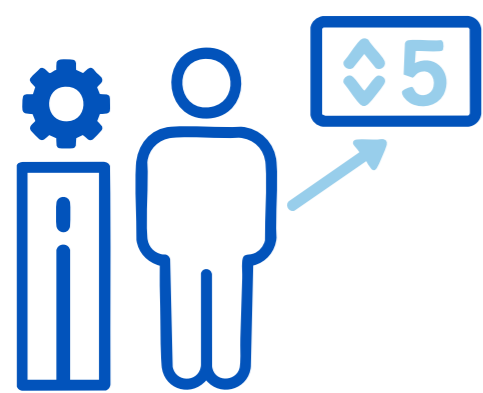
### Advanced Modeling & Control

- **Custom Algorithm Integration** – Plug in proprietary or research-based dispatch logic and test against standard methods.
- **Parametric Sweeps** – Batch test variations in speed, capacity, door dwell times to optimize performance vs cost.
- **Kinematics Analysis** – Chart velocity, acceleration, jerk to ensure ride comfort and code compliance.



### Visualization & Export

- **BIM Export (IFC/Revit)** – Generate 3D elevator family models and shaft geometry for seamless integration.
- **2D/3D Layouts & Animations** – Produce annotated plans, sections, isometrics, and animated passenger traffic for design reviews.
- **Reports & Analytics** – Auto-generate performance dashboards in PDF/Excel with charts for client presentation.



### Optimization & Integration

- **Expert-System Optimization** – Automatically find top configurations (e.g. ≥95 % capacity, ≤ 15 s wait) without manual iteration.
- **People-Flow Integration** – Model elevator interactions with corridors, lobbies, escalators in mixed-use environments.

## Next-Gen Simulation Capabilities

- **Access-Control Integration** – Simulates security workflows via badge swipes or biometrics, enforcing floor permissions within elevator logic.
- **Ghost-Call Analysis** – Measures performance penalty from redundant dispatch calls and helps optimize overrides.
- **Arrival-Pattern Modeling** – Import real entry logs (turnstiles, app check-ins) to drive simulation realism.
- **Surge-Event Simulation** – Model spikes like conferences or shift changes to test queue resilience.
- **Predictive & VIP Dispatch** – Tag high-value users or predict habits for pre-allocated car dispatch.
- **Energy Modeling** – Assess energy use across dispatch strategies for green-building and lifecycle costing.
- **Predictive-Maintenance Impact** – Simulate random faults and maintenance timing to quantify downtime effects.
- **Evacuation Modeling** – Simulate safe evacuation using certified elevator capacities and refuge floor assignments.
- **Express Modes & Out-of-Service Scenarios** – Model skip-stop, express cars, car failures, and phased modernization impacts.
- **Real-Time Digital Twin & AI Integration** – Replay live traffic and test alternate strategies; benchmark AI performance; detect drift with predictive alerts.

## Why SimEYES Matters

Benefit	Outcome
Performance Optimization	Reduces wait times and improves capacity planning
Cost & Time Savings	Enables rapid iteration, reducing manual design labor
Design Confidence	Design Confidence    Data-driven visuals and BIM reduce RFI cycles and errors
Stakeholder Alignment	Animations and reports simplify complex design narratives
Future-Ready	Supports AI, energy modeling, predictive maintenance, and more