



How Simulation-Driven Insights Strengthen Strategic Decision-Making

Presenter: Jeff Wirtz



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Agenda

Introduction to simulation modeling with AnyLogic

- How simulation supports operational and business decision-making

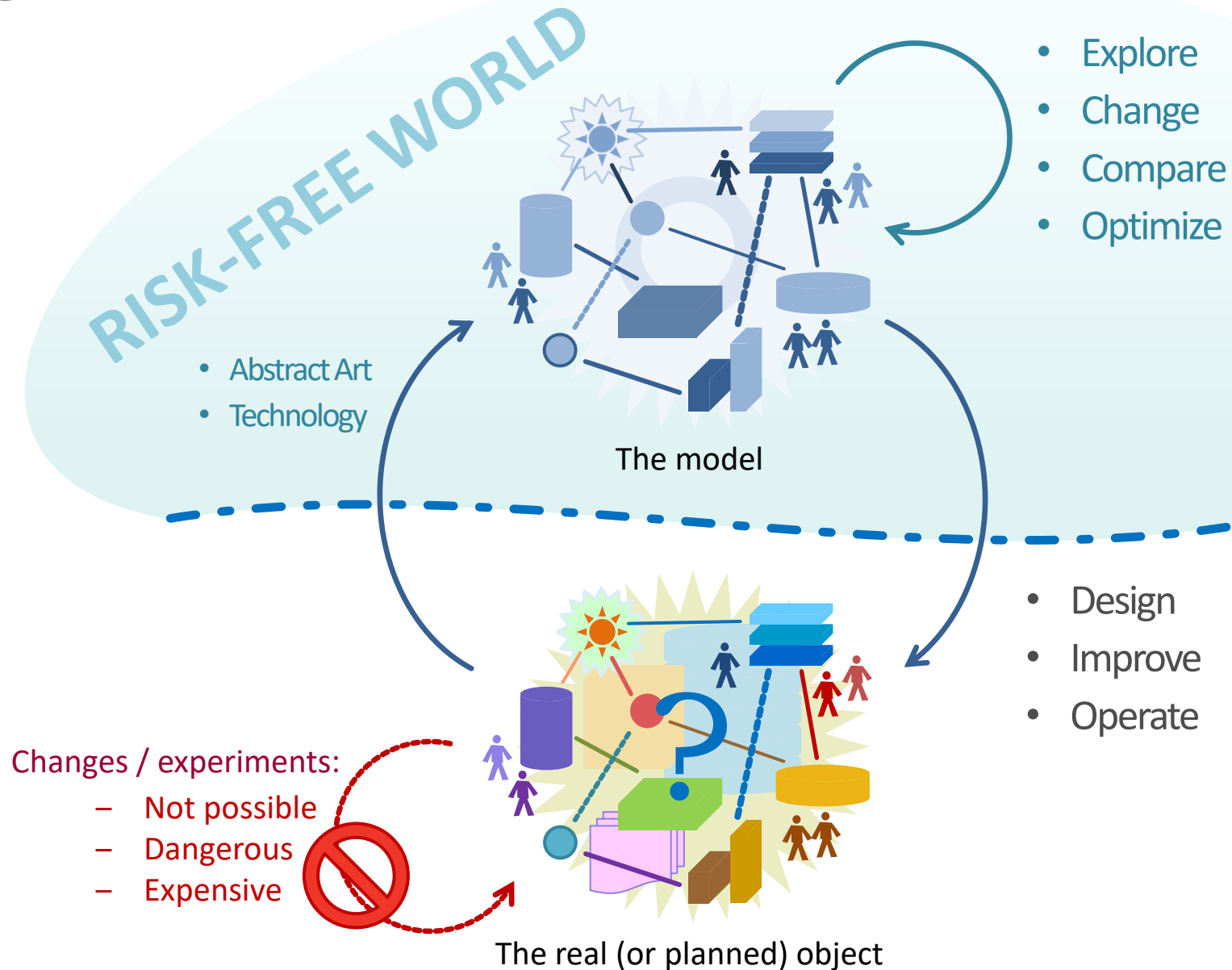
Model demonstrations & business applications

- Drive-thru and walk-in kitchen staff scheduler
- Open coal pit mine operations
- Truck congestion and dock unloading
- Car assembly line simulation

Key Modeling Insights

- Why each model was created
- Operational questions being answered
- Running experiments and evaluating scenarios
- Identifying bottlenecks and process improvements

Q&A Session

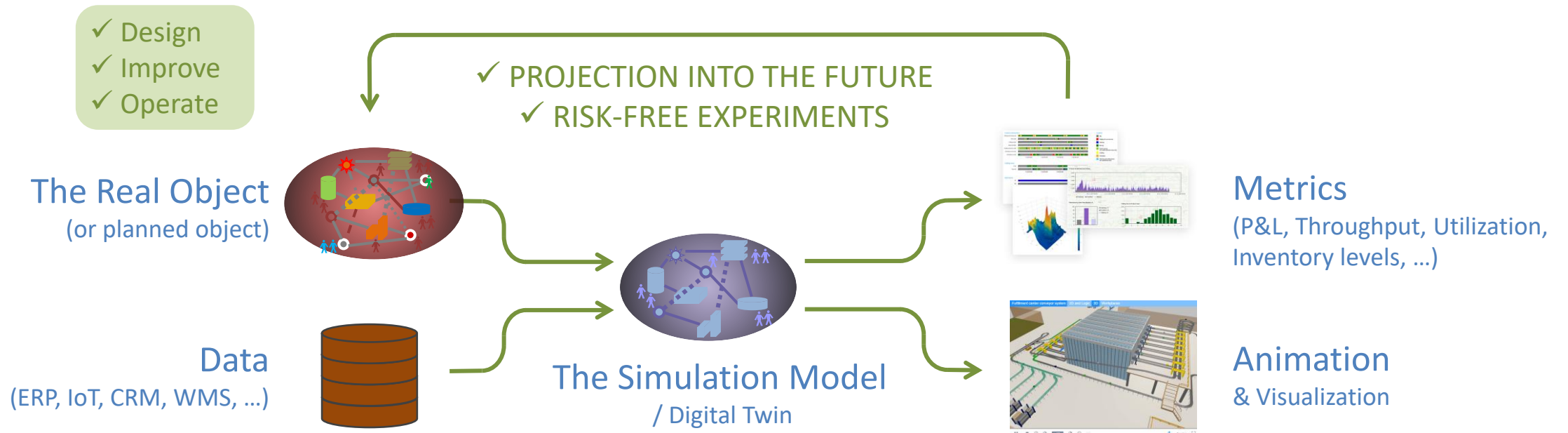


The value of simulation

Business value of simulation

Simulation is a powerful forecasting and decision-support tool.

- It helps organizations reduce risks, cut costs, and find the best operational strategies.
- It is applied on strategic, tactical, and operational levels across almost every industry
- It allows businesses to test ideas, measure, predict outcomes, and optimize performance in a virtual environment before making real-world changes.



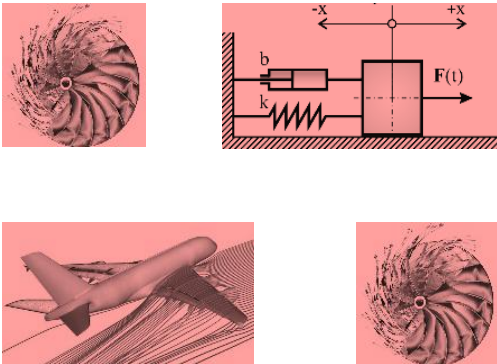
Workflow supported by AnyLogic product ecosystem

AnyLogic: what it does and what it does not

What it does and what it does not do

What AnyLogic DOES NOT DO:

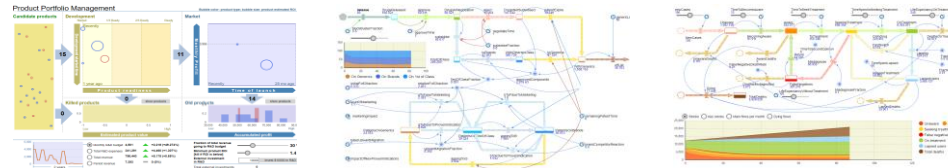
Engineering applications
(SolidWorks, MATLAB) – control
systems, "hardcore" physical
modeling, finite element method,
etc.



What AnyLogic DOES:

Business Applications – more diverse, less straightforward

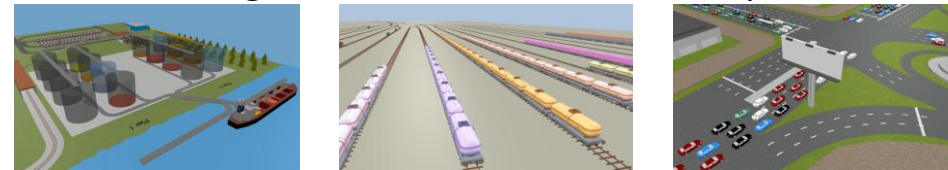
Strategic level: Market, Competition, Product portfolio, etc.



Larger scale: Supply Chains, GIS-based models...



Small scale logistics: Cars, Trucks, Trains, Pipelines, Tanks



"Close to Physical" level: Material handling, Pedestrian

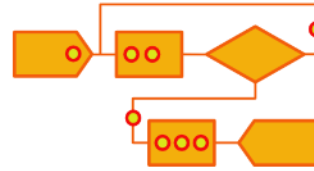


AnyLogic, simulating any complexity:

Multi-method

Multi-method modeling

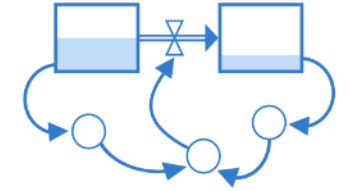
- Develop models using **all three existing simulation methods** in any combination to simulate systems of any complexity
- AnyLogic was **the first** tool to introduce multimethod simulation modeling, and still remains **the only** software that has that capability.



DE (Process model)



Agents



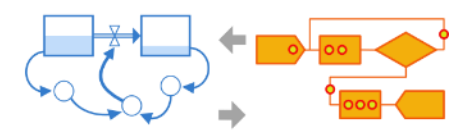
System Dynamics (SD)



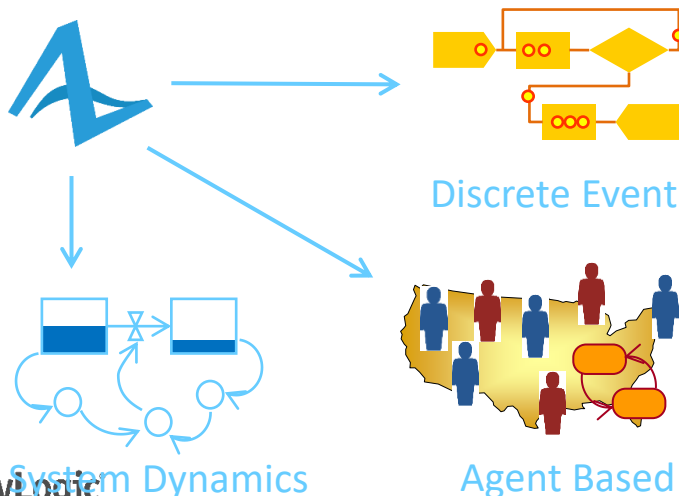
Agents + SD environment



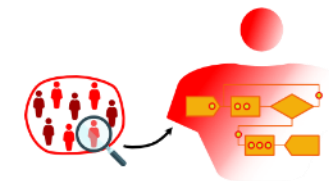
Agents + process model



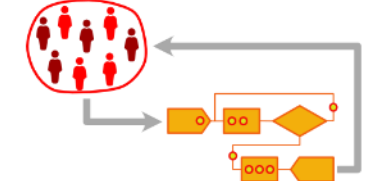
SD + process model



SD inside agent



Process model inside agent



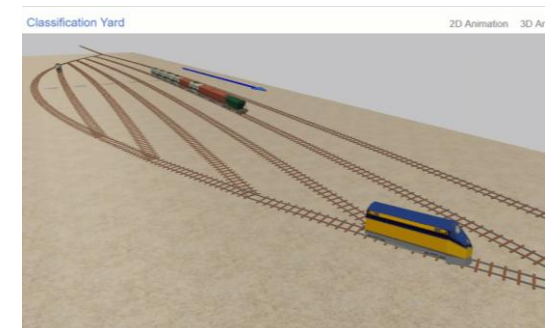
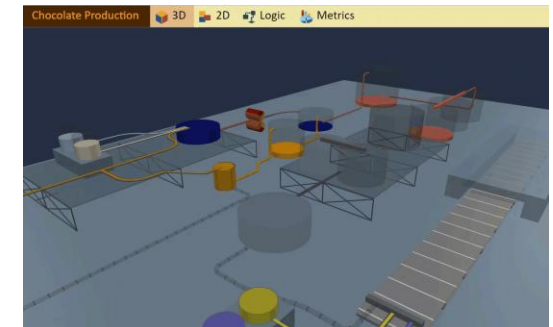
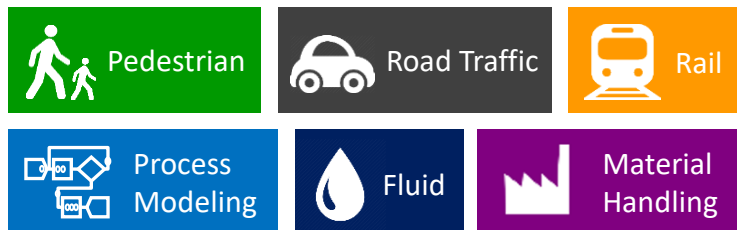
Agents become entities

AnyLogic, model building made easy:

Libraries

Industry-specific libraries

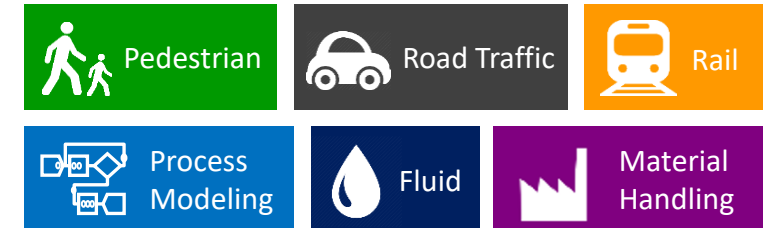
- A unique suite of industry-specific tools in one package, at no additional cost
- **Process Modeling** and **Fluid**: generic libraries for logical processes with discrete items and bulk/liquid transfer
- **Pedestrian**, **Rail**, and **Road Traffic**: detailed physical-level simulation of objects' movement and interaction
- **Material Handling**: conveyor networks, stations, transporters/AGVs, cranes, robots

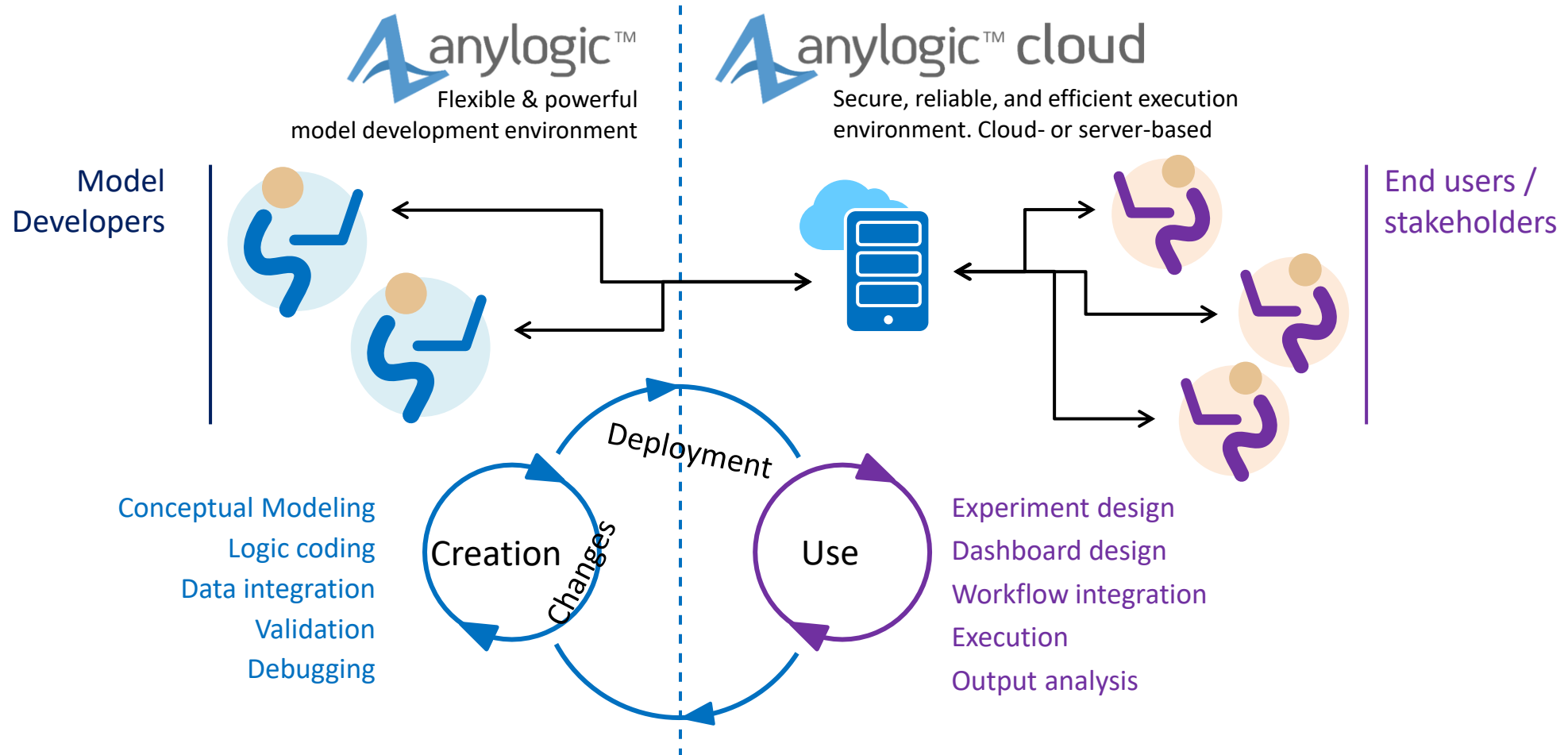


AnyLogic, Real-World Applications of the AnyLogic Libraries

Demonstration Model	Primary Libraries	Industry References
Drive-Thru & Walk-In Kitchen Staff Scheduler	Process Modeling	Cargill Workforce Capacity Planning; Retail Checkout Optimization; Outpatient Patient Flow Simulation
Open Coal Pit Mine Operations	Process Modeling, Road Traffic	Coal Mining Operations Optimization; Load & Haul Optimization; Vale Mine Traffic Management
Truck Congestion & Dock Unloading	Process Modeling, Road Traffic, Material Handling	Amazon Transportation Yards; Truck Yard Revision; Amazon Warehouse Yard Optimization
Car Assembly Line Simulation	Process Modeling, Material Handling	Automotive Production Optimization; Manufacturing Digital Twin; GE Manufacturing Decision Support

These demonstration models were inspired by real-world AnyLogic applications and conference presentations, illustrating how simulation is used to solve workforce planning, mining operations, logistics, and manufacturing challenges across industries.





Thank you!