Domino's

Using AnyLogic-based Simulation Capabilities to Create Optimal Store Layouts and Inform Labour Scheduling Decisions

AUSTRALIA NEW ZEALAND BELGIUM FRANCE NETHERLANDS JAPAN GERMANY LUXEMBOURG DENMARK TAIWAN

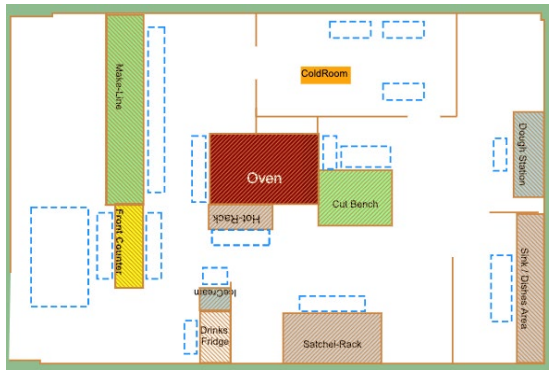
About US

- The Domino's brand is well known for delivering *Hot & Fresh* pizza. It is one of the biggest brands in the world in the QSR industry and the no. 1 pizza Company in ANZ.
- Domino's Pizza Enterprise (DPE) is the largest Master Franchisee of the Domino's Brand with more than 3000 stores in 10 different markets across the Asia Pacific and Europe.
- Expansion into additional Asian markets currently on-going with acquisition of Singapore, Cambodia, and Malaysia.
- Many stores within our portfolio present opportunities for improvement. This relies heavily on the location, the floor space, labour availability/cost, product demand and so much more.
- Our goal is to get our products to the customer as quickly as possible and with AnyLogic we are slowly tapping into some of these hidden opportunities for growth, allowing us to re-imagine the way we design and manage our stores.

STORE SIMULATIONS / Digital Twins

A new data driven approach to designing and managing stores.

Digital Twins: A WORLD OF NEW Opportunities…



Store Design

Discover optimal Layouts for new and existing stores. improve DEL times significantly

Staff rosters

Create optimal rosters for staff given the store layout

What-IF Analysis

Enhanced experimentation Capability WITHIN a cost/TIME Efficient Framework.

Under the Hood

Physical Store Layout

Process Flows

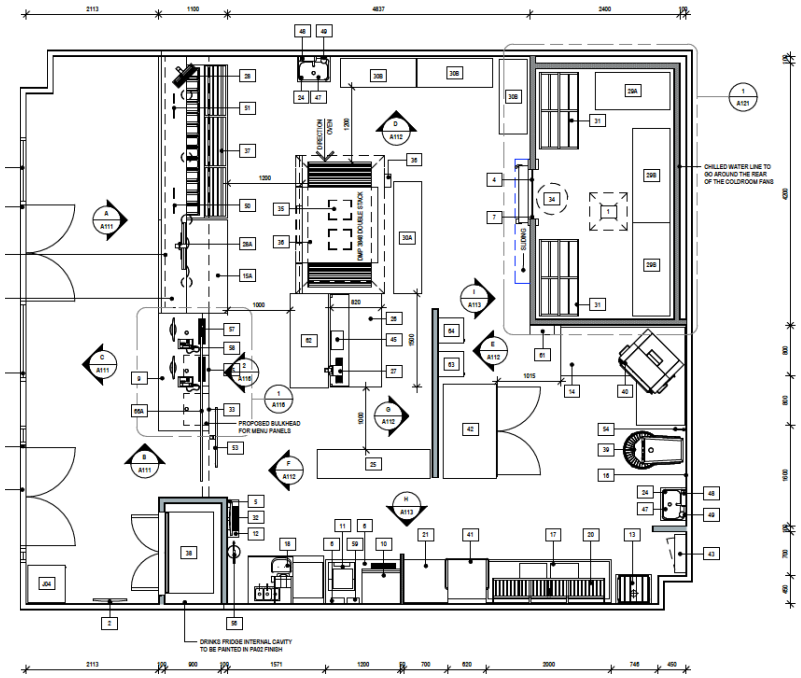
Order, Staffing Data

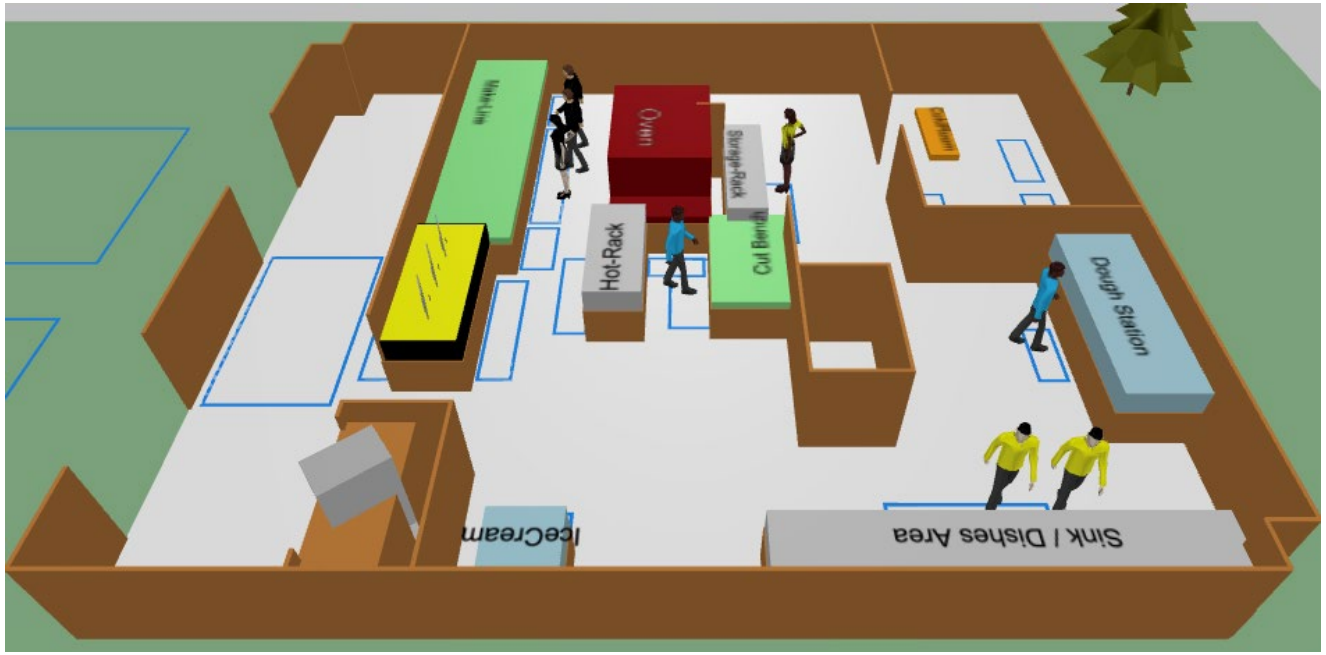
Building Understanding

Getting an understanding of store processes involves:

- Engaging with market specific subject matter experts.
- In-store experience with actual ground staff in peak periods.
- Video footage analysis.
- Time and Motion studies.
- Historical data analysis using minute by minute store specific data.
- Engaging with construction and equipment specialists.

Store Layout: Floor Plan to Simulation





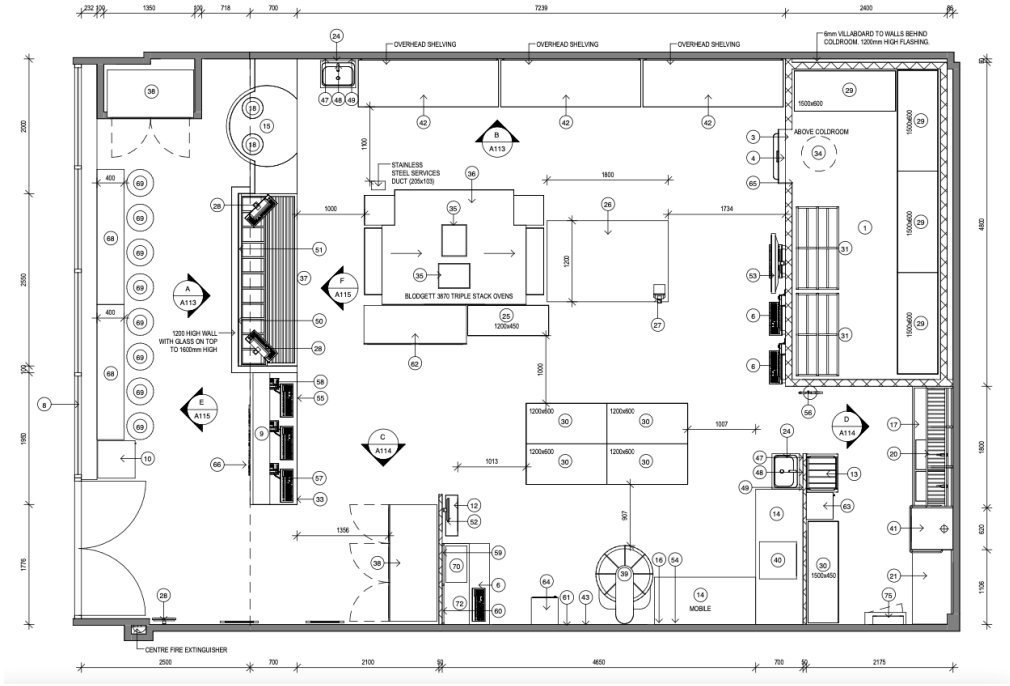
- The construction team hands over the store floor plan which is then traced and converted into a virtual representation of the store in AnyLogic.
- The focus is on getting the critical store equipment mapped out correctly.
- Due to scalability requirements, getting the dimensions and placement correct is more important than the look and feel of the animation.

Square or Rectangle?

Candidate Store 1

Low labour

High Customer Satisfaction Rates

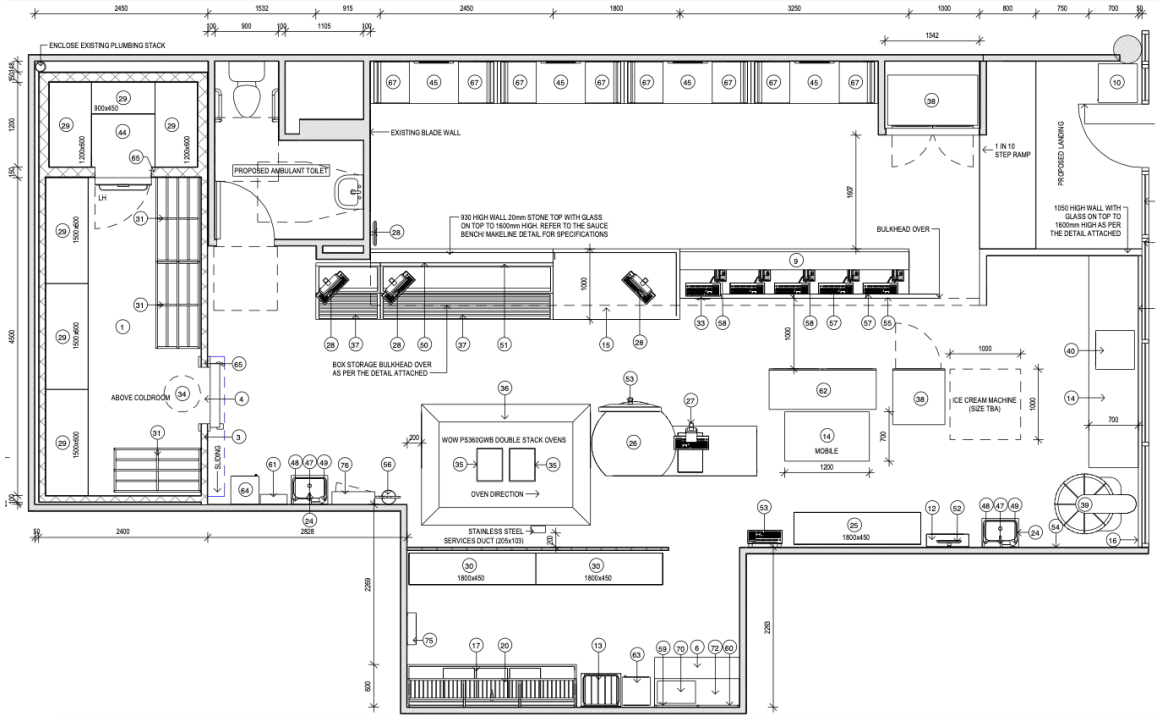


This store has a more proportional floor space which allows for more degrees of freedom for movement and potential design changes.

Candidate Store 2

High Labour

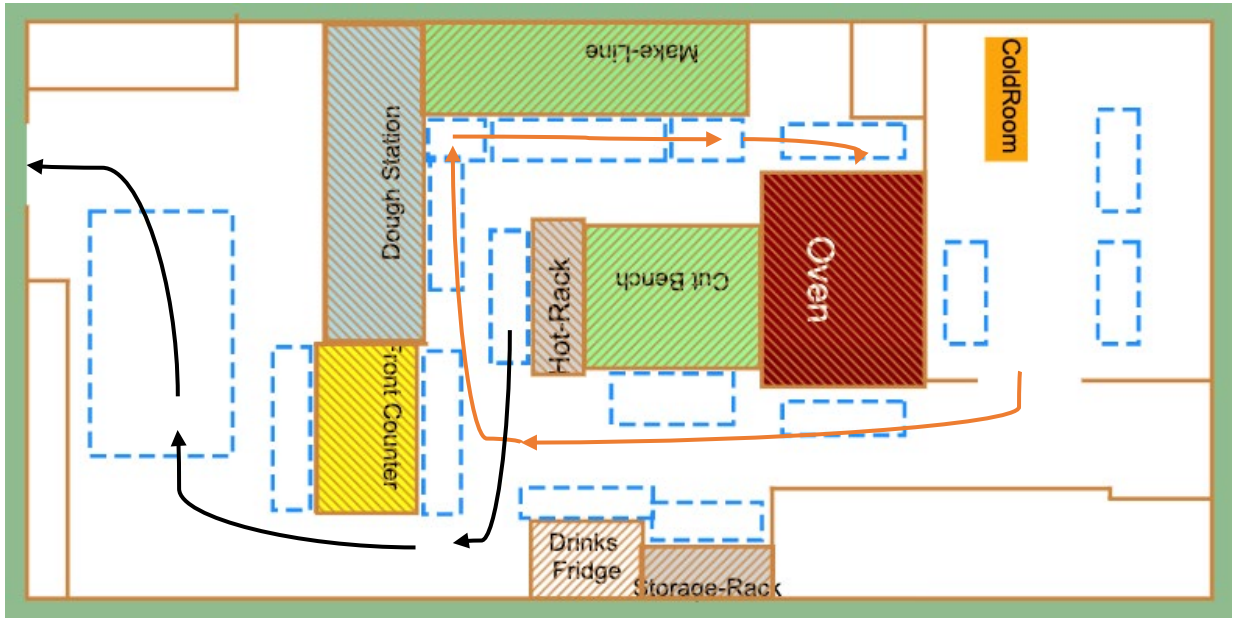
Low Customer Satisfaction Rates



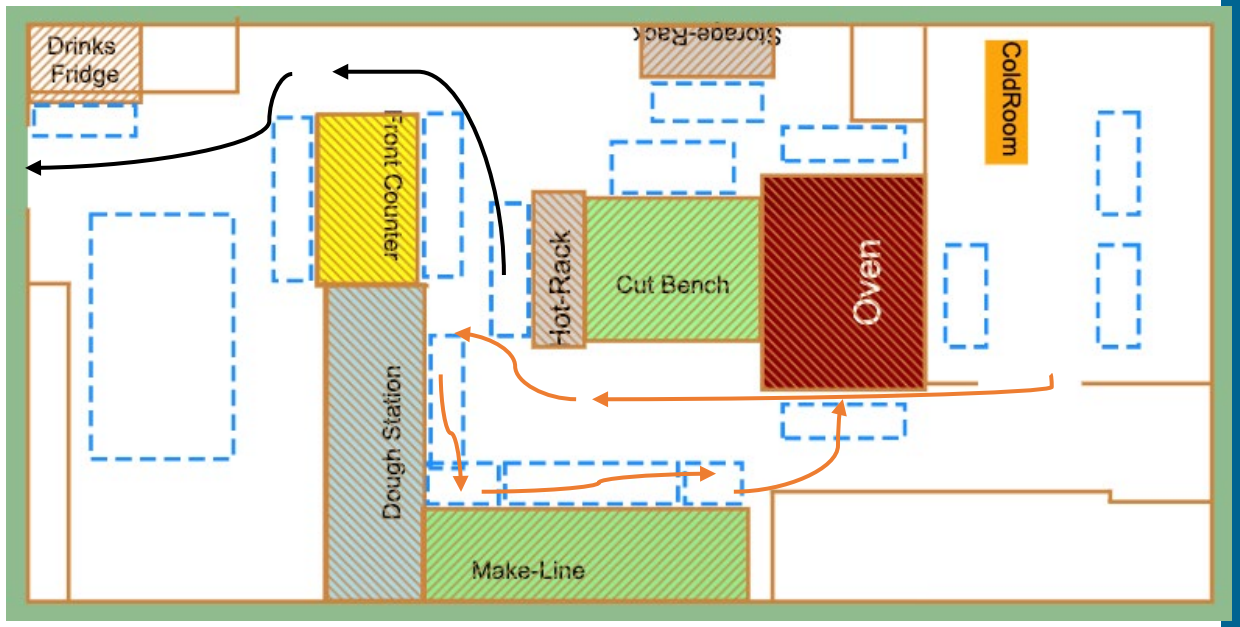
Store 2 has a rectangular floor space which leads to limited design possibilities and range of movement.

Streamlined Movement

Inefficient Layout



Improved Layout via Simulation



Key

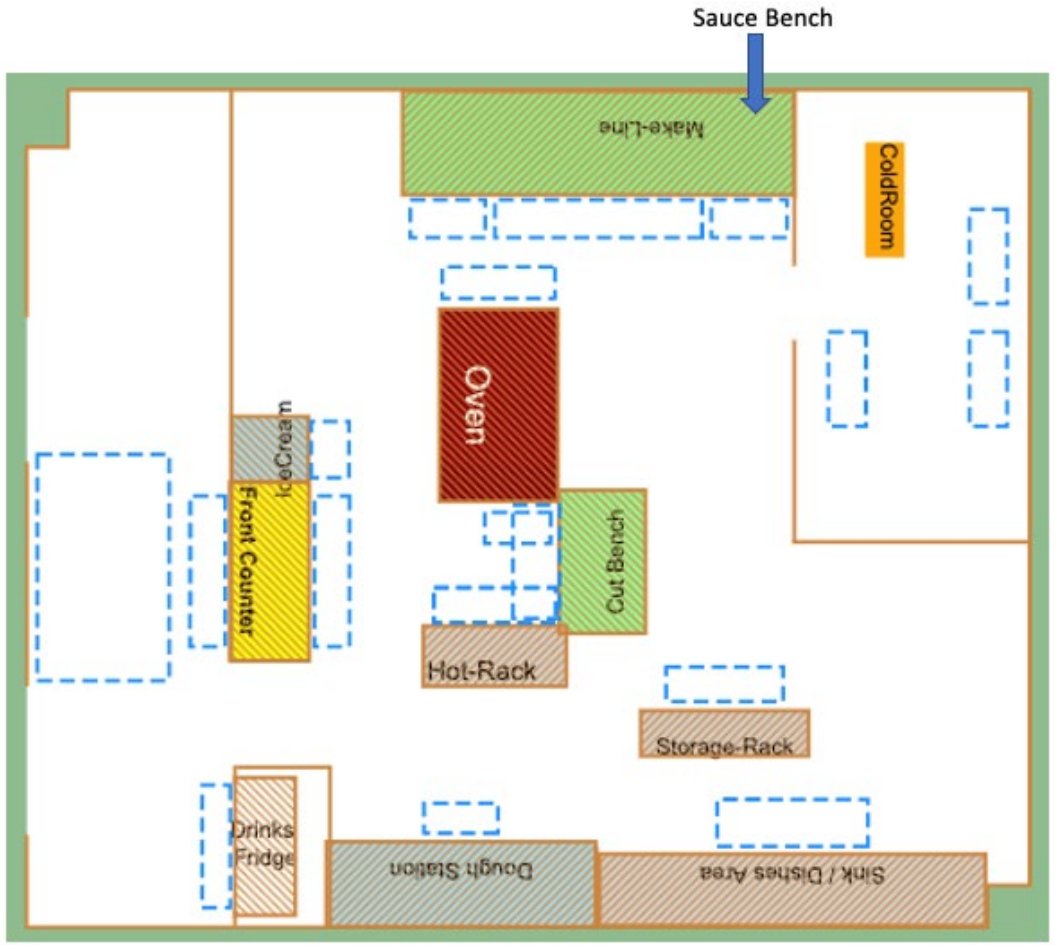
Driver Movement

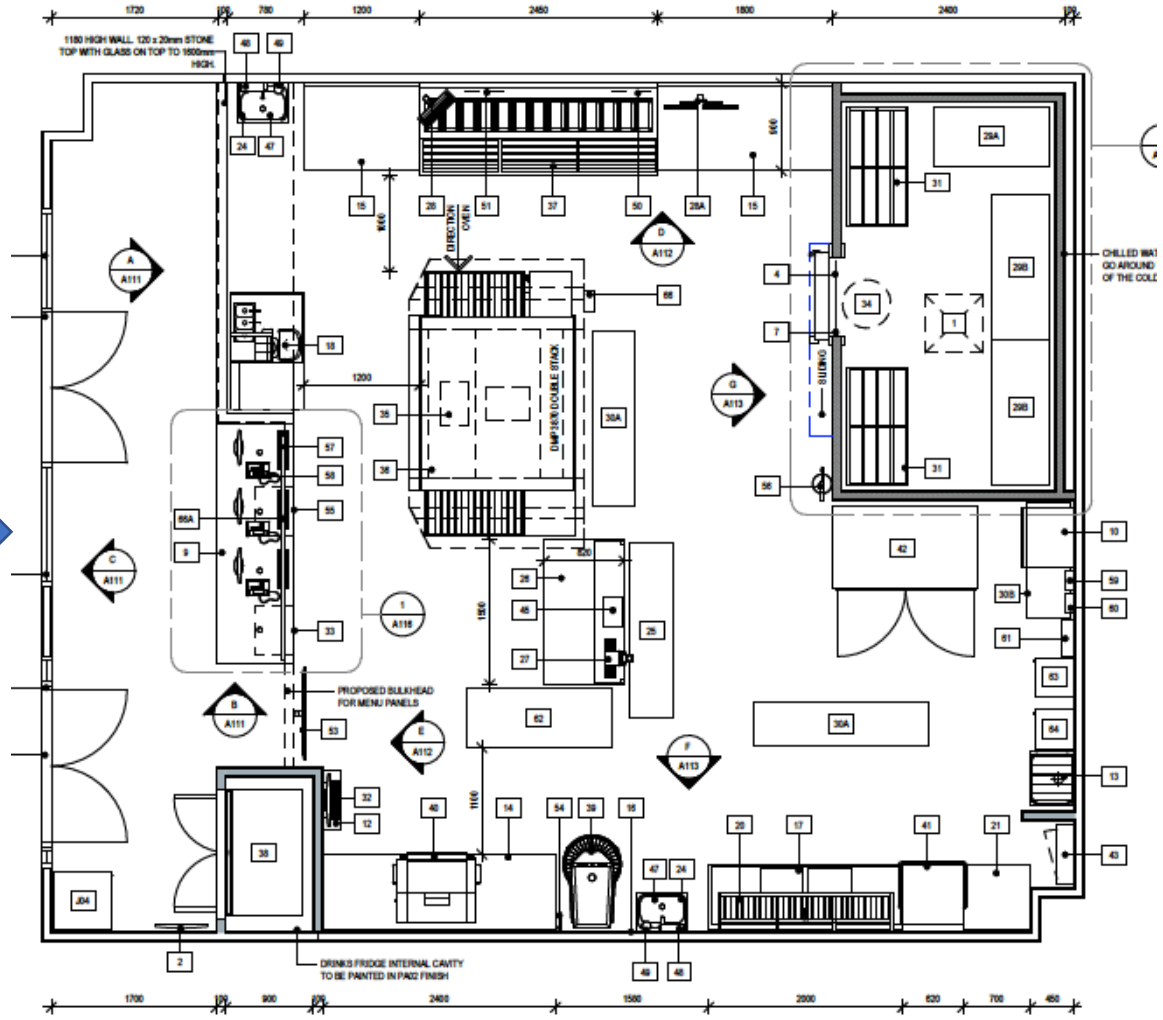
Makeline Staff Movement

Tracing staff movement and analysis of process flows have helped us:

- Reduce number of foot-steps between critical production stations.
- Isolate process-flows and reduce intersections between them i.e. prevent staff members from getting in each other's way.

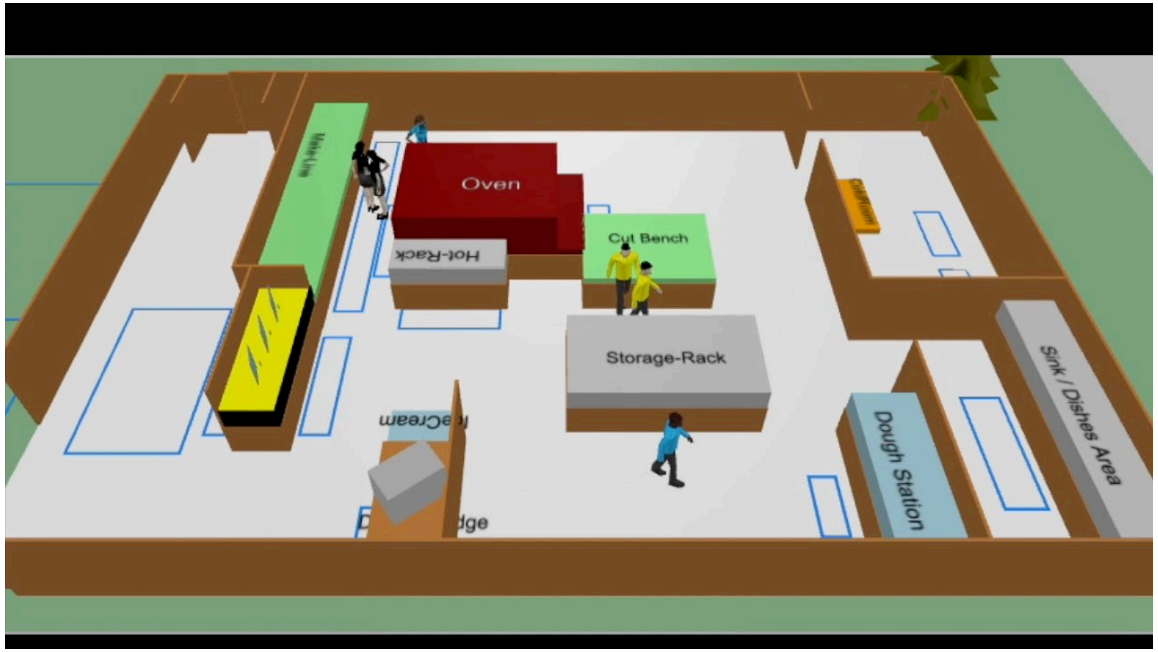
Store Re-Design: From Simulation to Reality



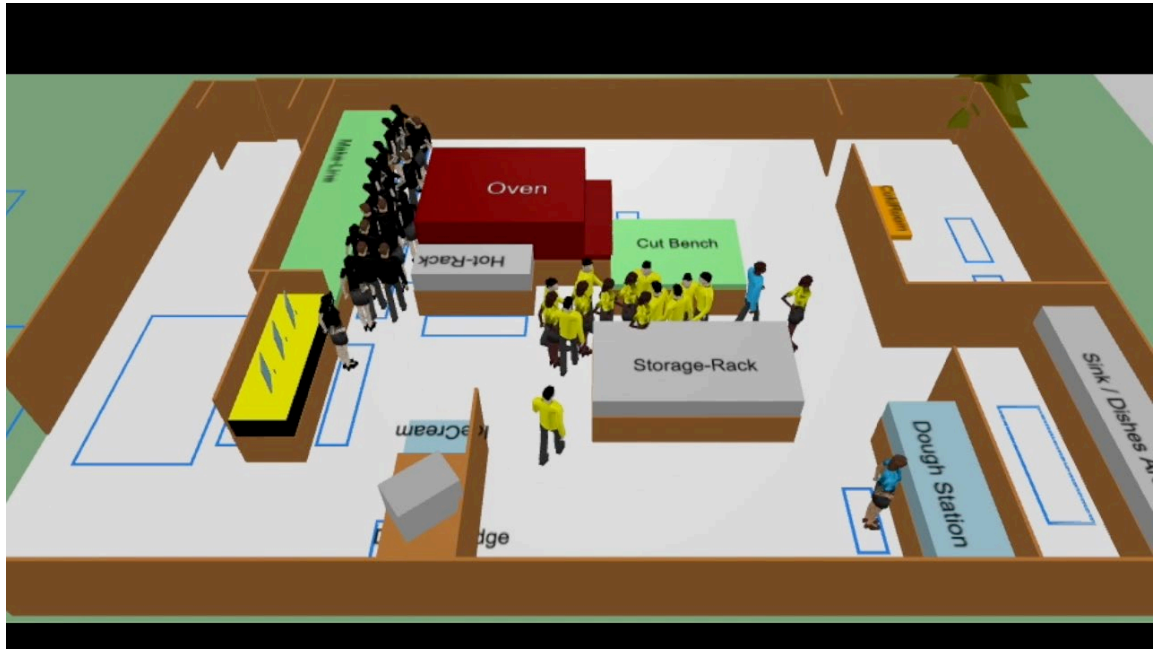


The challenge of Finding the Perfect roster given a design

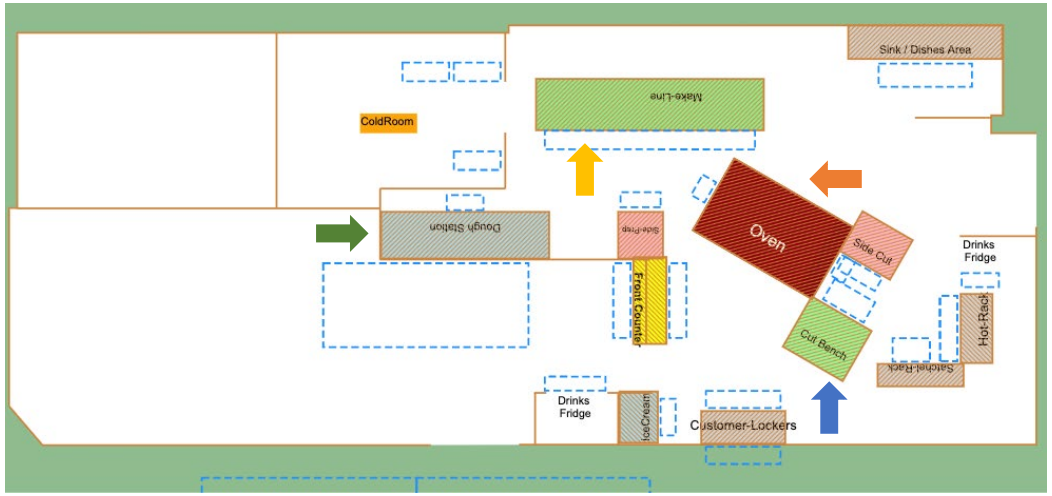
Under-staffing combined with huge order volume leads to delays.



Over-staffing leads to staff getting in each other's way and causing delays.

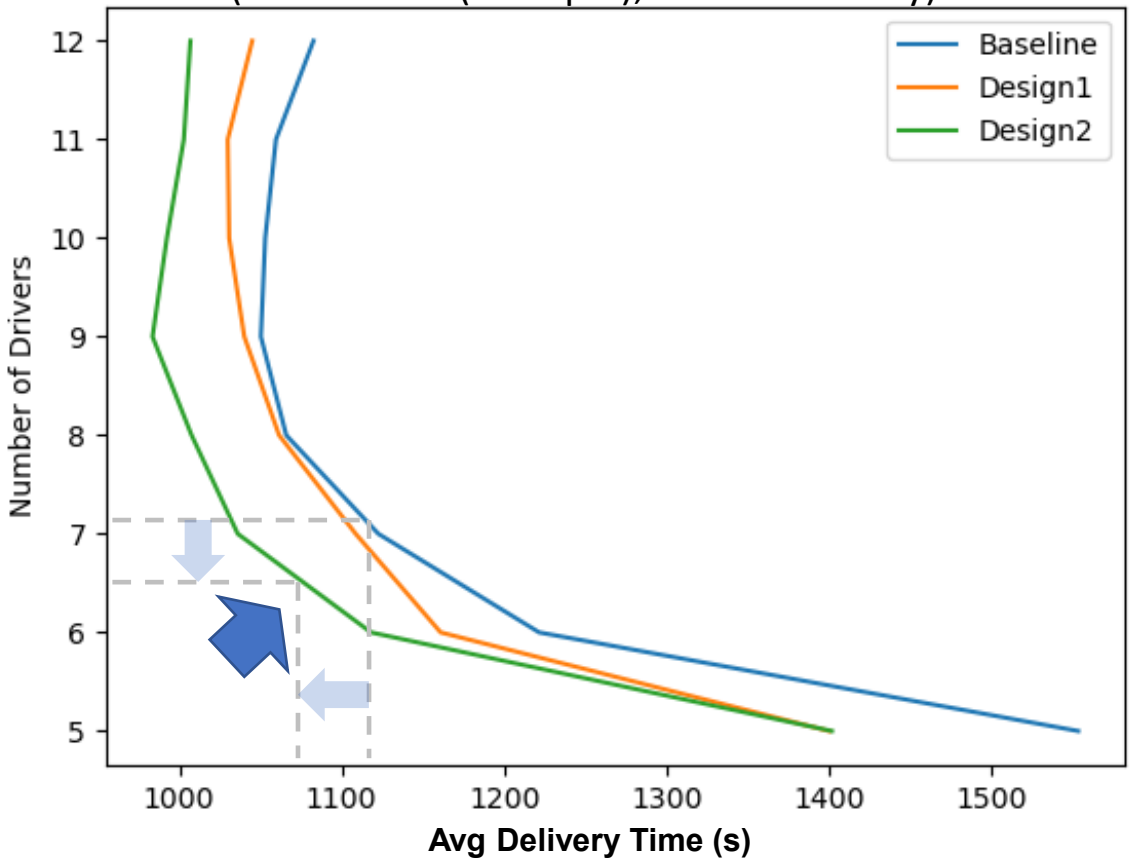


Who says better layouts, ….says better rosters!



Store Efficiency vs Store Layout

(Dinner Shift (5 – 8 pm); DEL orders only)



Key Insights:

- Identify efficiencies *AND*
- ...Reduce dispatch times by 4.5%

Key Insights & learnings to date

- Makeline, Oven and Cold room should be placed close to each other in a triangular formation.
- Smaller compact floor spaces can in most cases overcome the effects of bad design.
- Food theatre maybe the cause of sub-optimal layouts in many cases.
- Proportional floor space allows for better layouts i.e. square spaces preferred over rectangular spaces.