



Alhona Logistics Library

Virtual Factory

alhona
— smart industry —

01 Value Proposition

02 Main objects

03 Starting information

04 System Modeling

05 Performance indicators

06 Use cases

07 Who is this library for?

Summary



1 Value proposition

Do it yourself

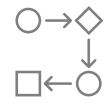
Offer the **user** the ability to create **agile and modular** simulation environments for automated logistics processes, such as automated warehouses or sorters.



Library based on SIEMENS software (Tecnomatix Plant Simulation)



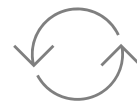
User-focused development, no programming knowledge required.



Agile and modular design, designed to adapt quickly to changes.

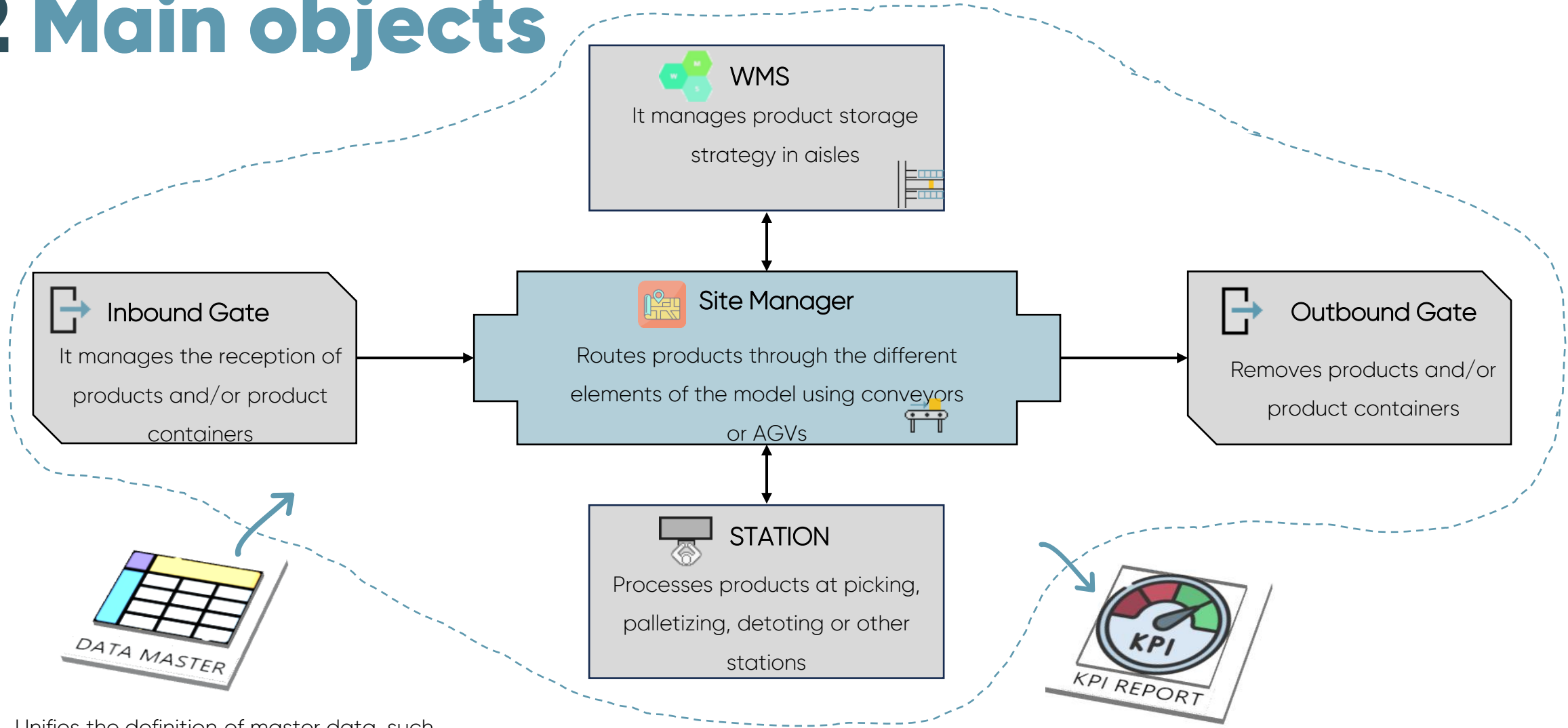


Custom reports



Updated library with the requirements of our customers.

2 Main objects



Unifies the definition of master data, such as product or order data, that is commonly used for the entire model.

Collects information from the statistics of each object and generates a report with the simulation results.

3 Starting information

PRODUCTS



- Product ID
- Containers
- Dimensions
- Units per container
- Units per pick

STOCK



Product Arrival Frequency or Planning



Warehouse capacity



Storage strategy

TIMES



Product transport, unloading and loading times.



Picking, palletizing, detoting times, etc..

DEMAND



- Order frequency or planning
- Delivery time
- Orderlines

PROCESS



Layout



Transport routes

LIBRARY ITEM LEGEND:



Data Master



Layout



Inbound Gate



Site Manager



Racklane



Sorter

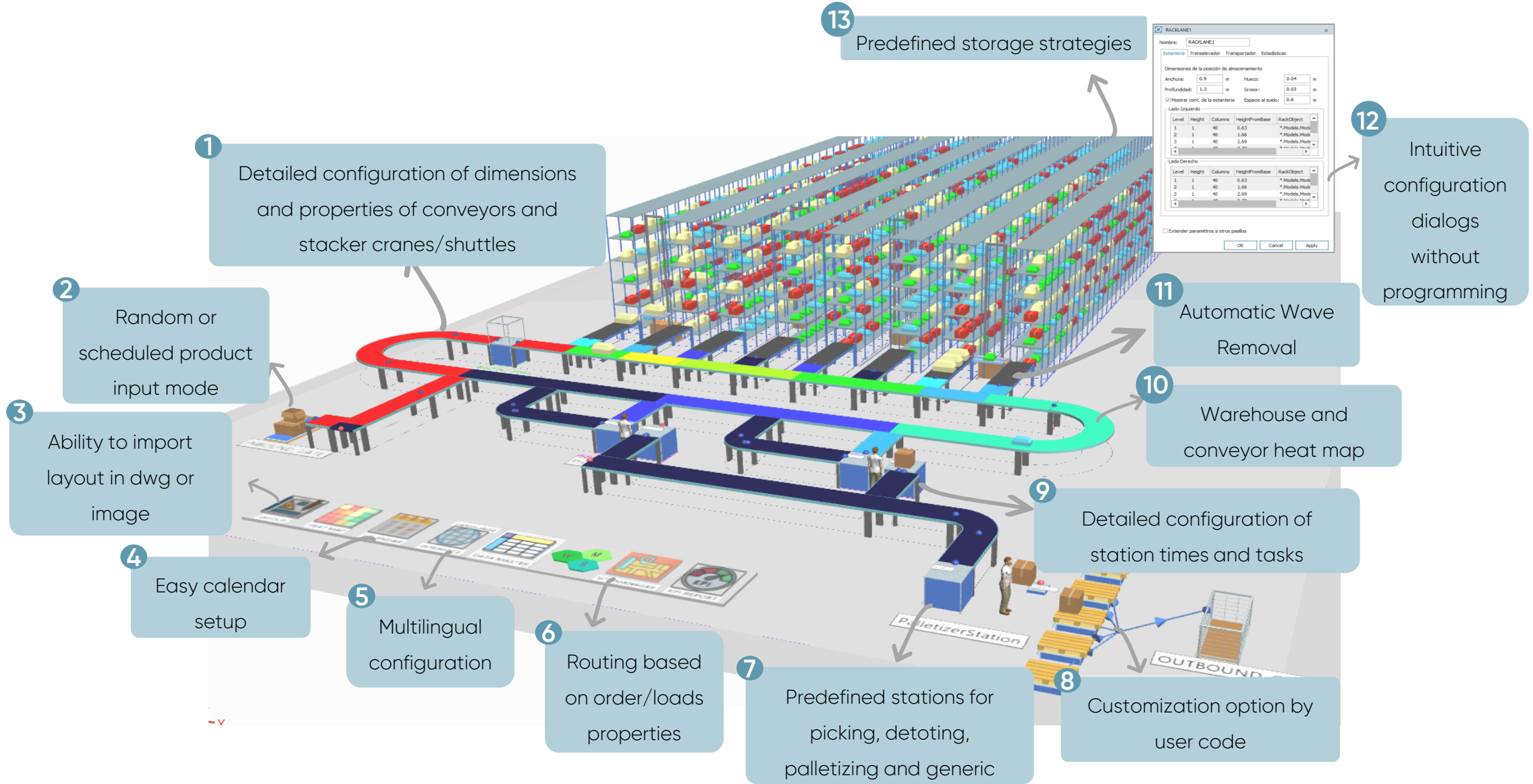


WMS



Station

4 System modeling



RACKLINE1

Nombre: RACKLINE1

Estantería | Transportador | Estadísticas

Dimensiones de la posición de almacenamiento

Anchura: 0.9 m Hueco: 0.04 m

Profundidad: 1.3 m Grosor: 0.03 m

Mostrar cont. de la estantería Espacio al suelo: 0.6 m

Lado Izquierdo				
Level	Height	Columna	HeightInBase	RackObject
1	1	40	0.63	**Modelo.MoG
2	1	40	1.66	**Modelo.MoG
3	1	40	2.69	**Modelo.MoG
4	1	40	3.72	**Modelo.MoG

Lado Derecho				
Level	Height	Columna	HeightInBase	RackObject
1	1	40	0.63	**Modelo.MoG
2	1	40	1.66	**Modelo.MoG
3	1	40	2.69	**Modelo.MoG
4	1	40	3.72	**Modelo.MoG

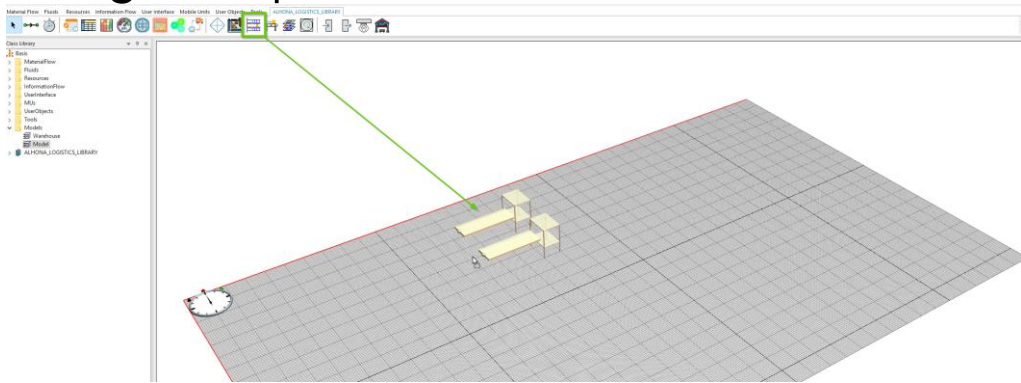
Extender parámetros a otros pasillos

OK Cancel Apply

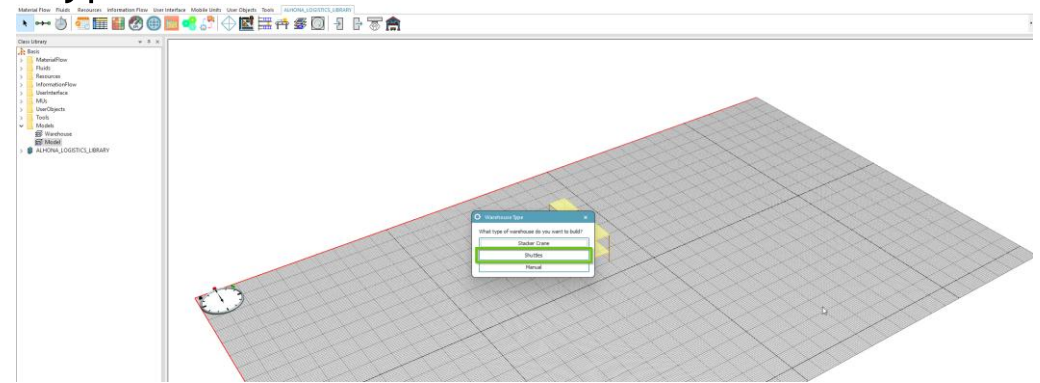
4 System modeling

How to use

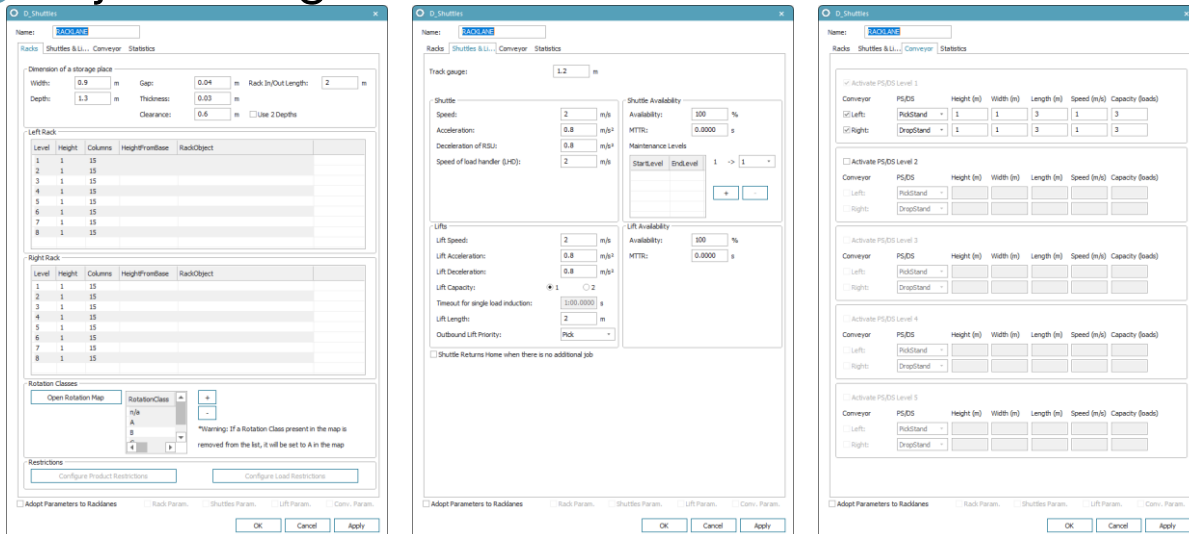
1 Drag & Drop



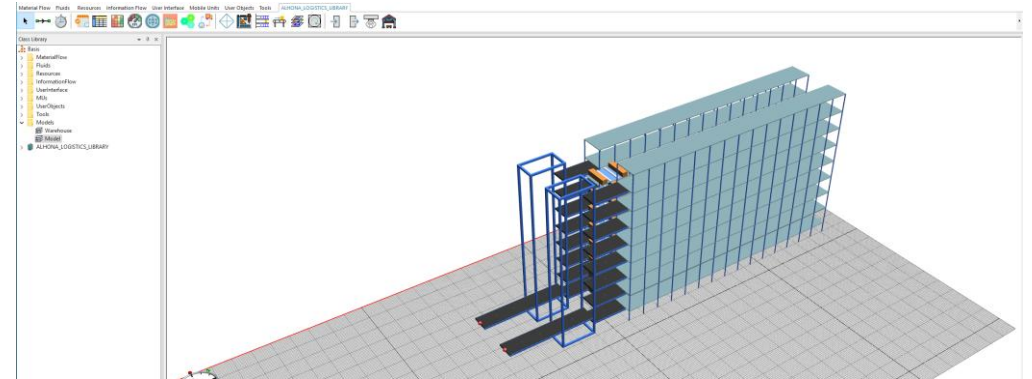
2 Type Selection

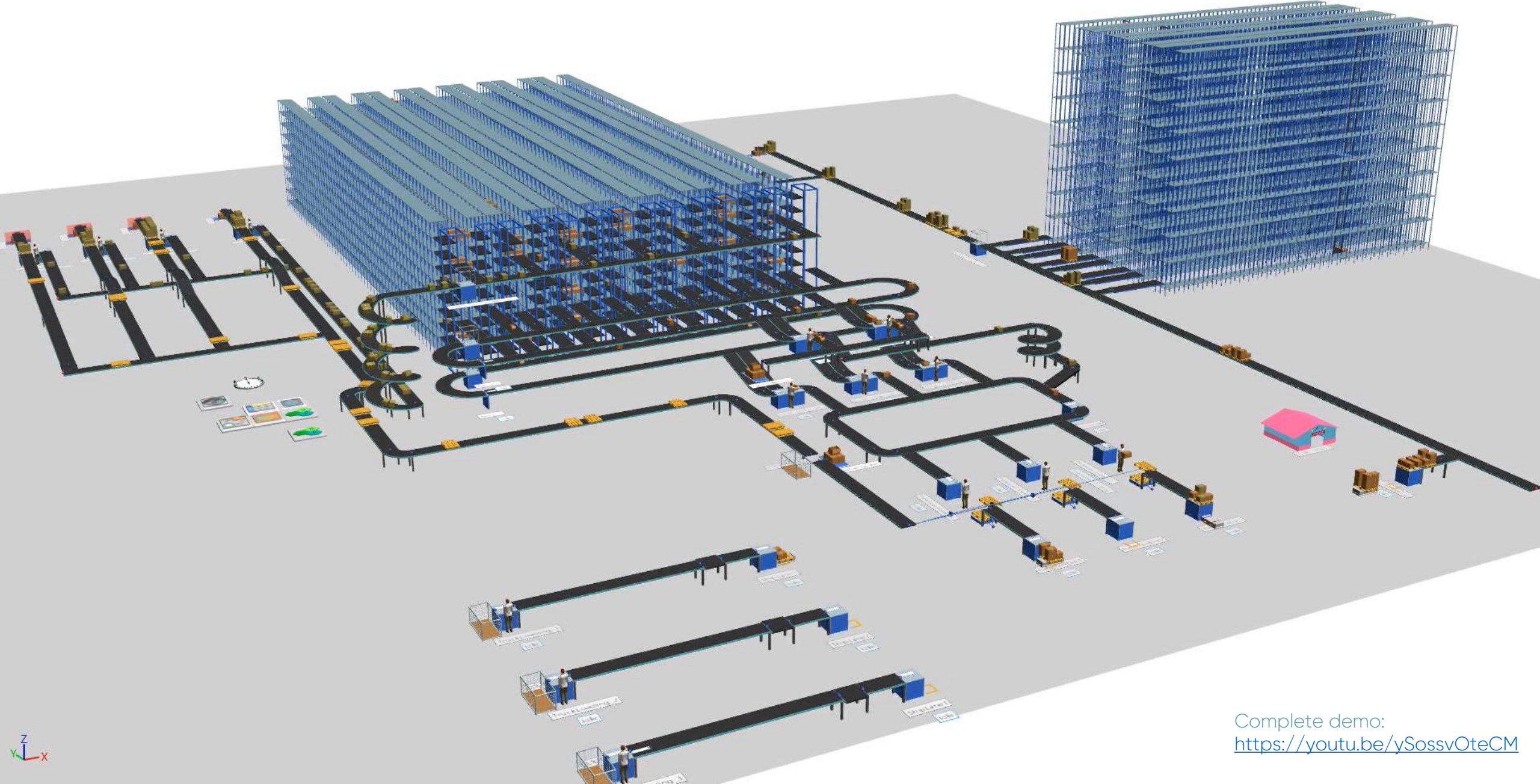


3 Object configuration



4 Working object





Complete demo:
<https://youtu.be/ySossvOteCM>



5 Performance indicators



KPIs

Objectives



Warehouse Occupancy

Maximize your occupancy without impacting product flow



Rack Service Unit (RSU) Performance

Maximize your utilization without impacting order demand



Performance of picking, palletizing and detoting stations

Maximize your utilization without impacting order demand



Quantity of products processed at the entrance and exit of the facility

Assess the capacity and feasibility of the facility



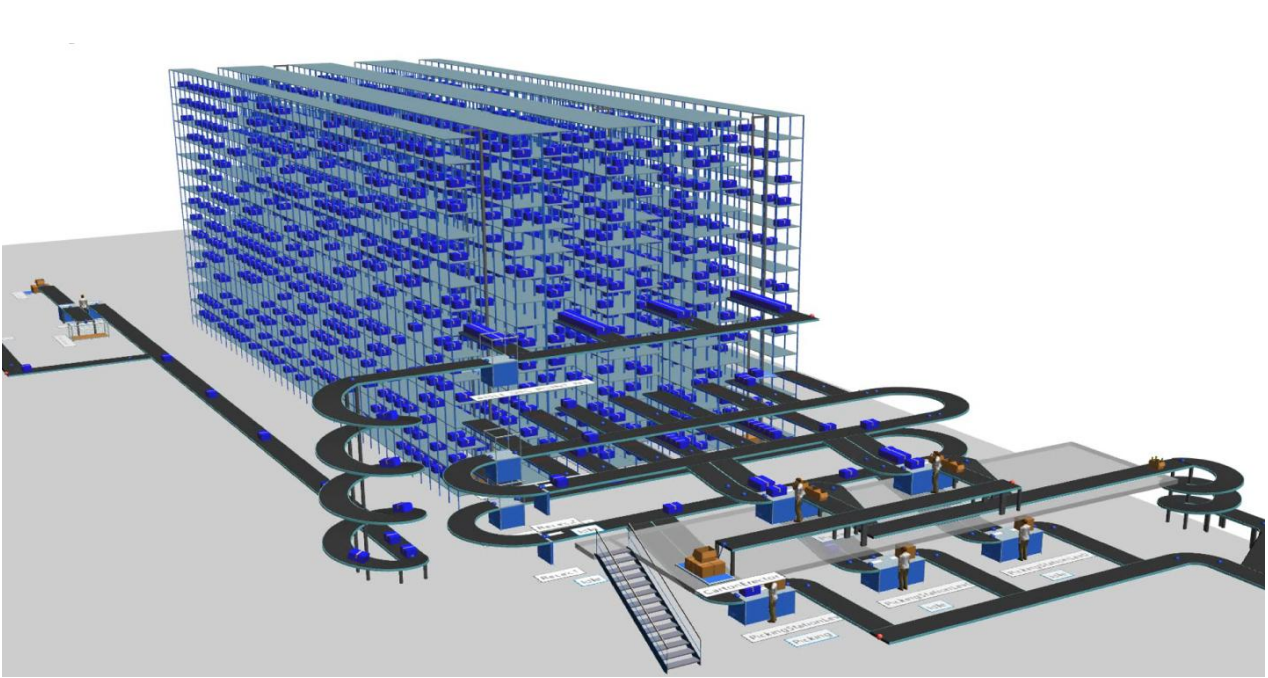
Sorter and shelves heatmap

Balancing product flows

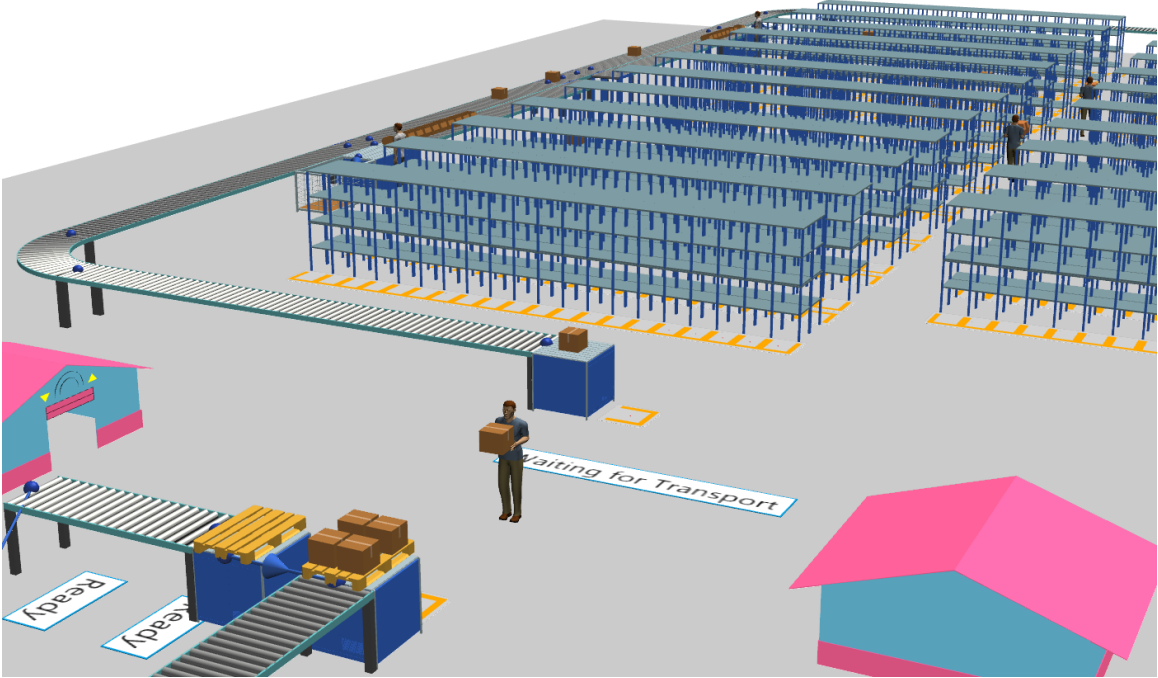
6 Use cases

- Full operation of automated (shuttles & stacker cranes) or manual Warehouses w/ Receiving, Picking & Palletizing, using units, boxes, crates & pallets.
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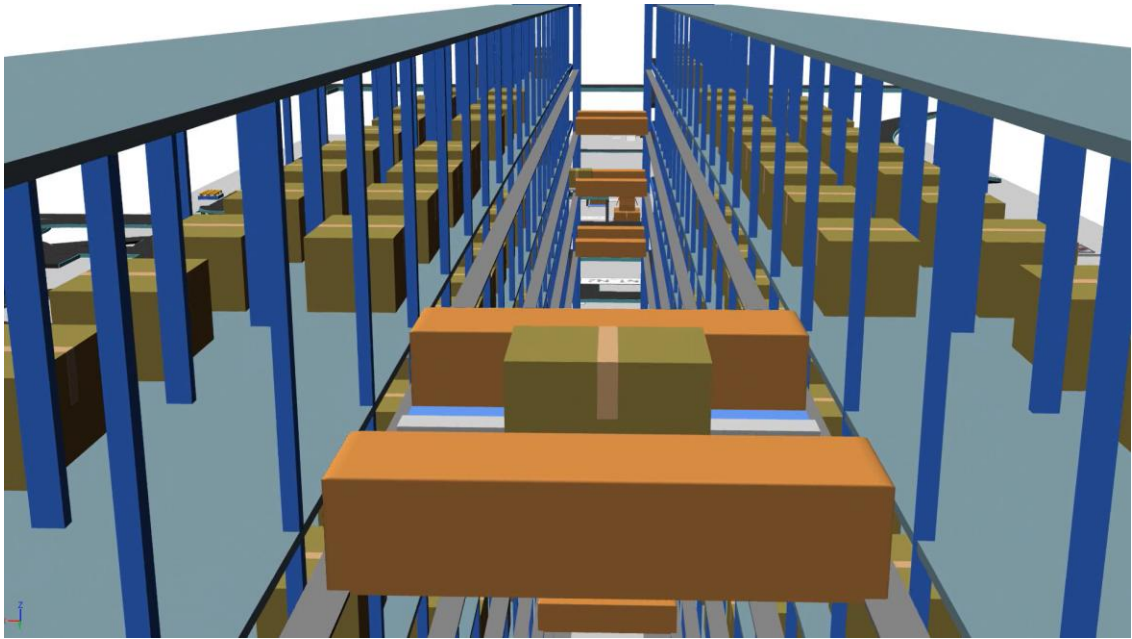
AUTOM. WAREHOUSE (STACKER CRANE)



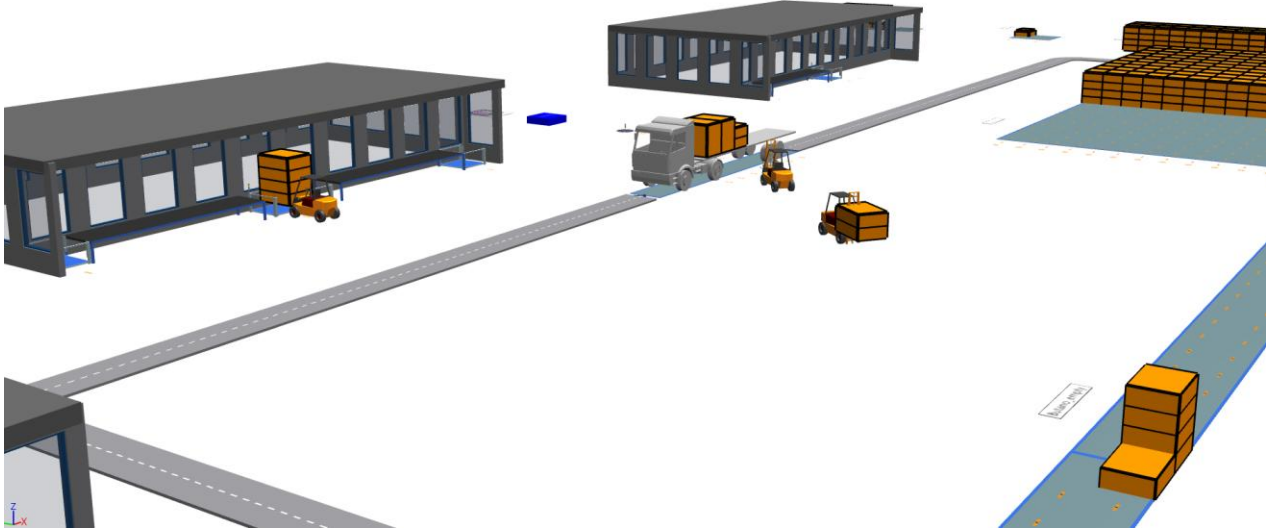
MANUAL WAREHOUSE



AUTOM. WAREHOUSE (SHUTTLES)



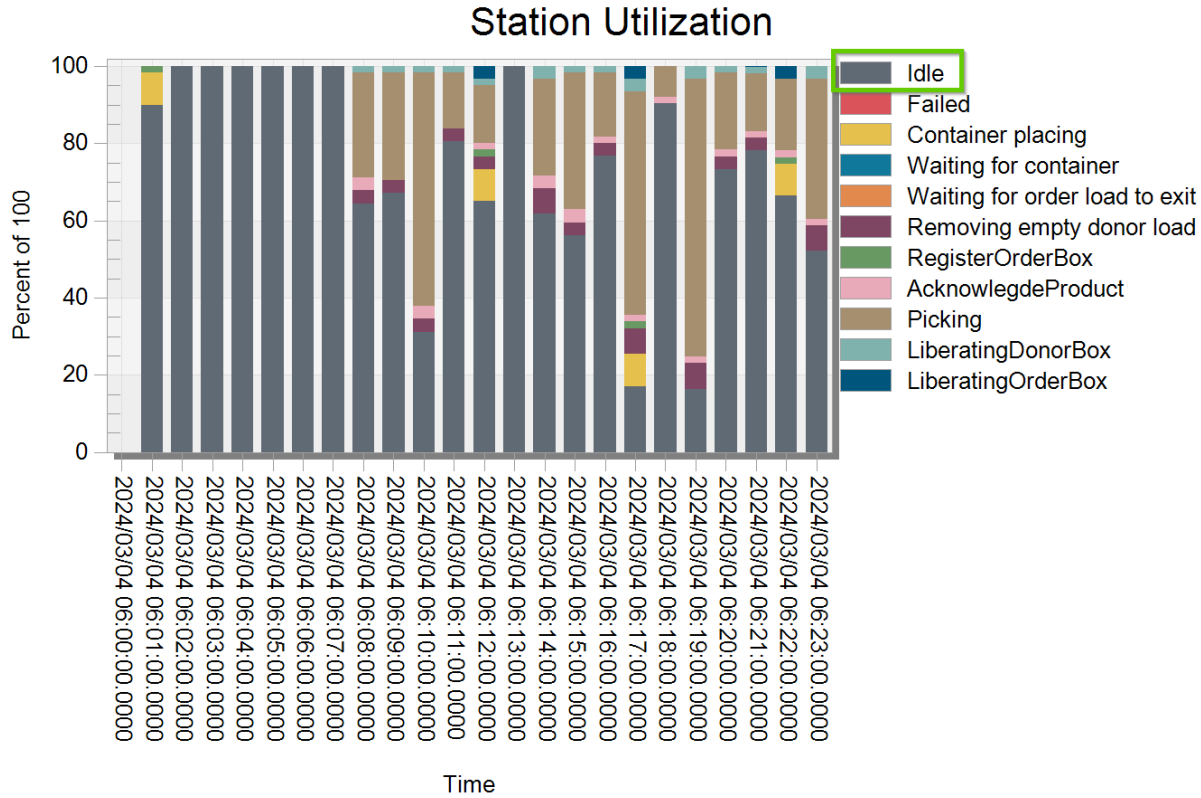
FORKLIFTS



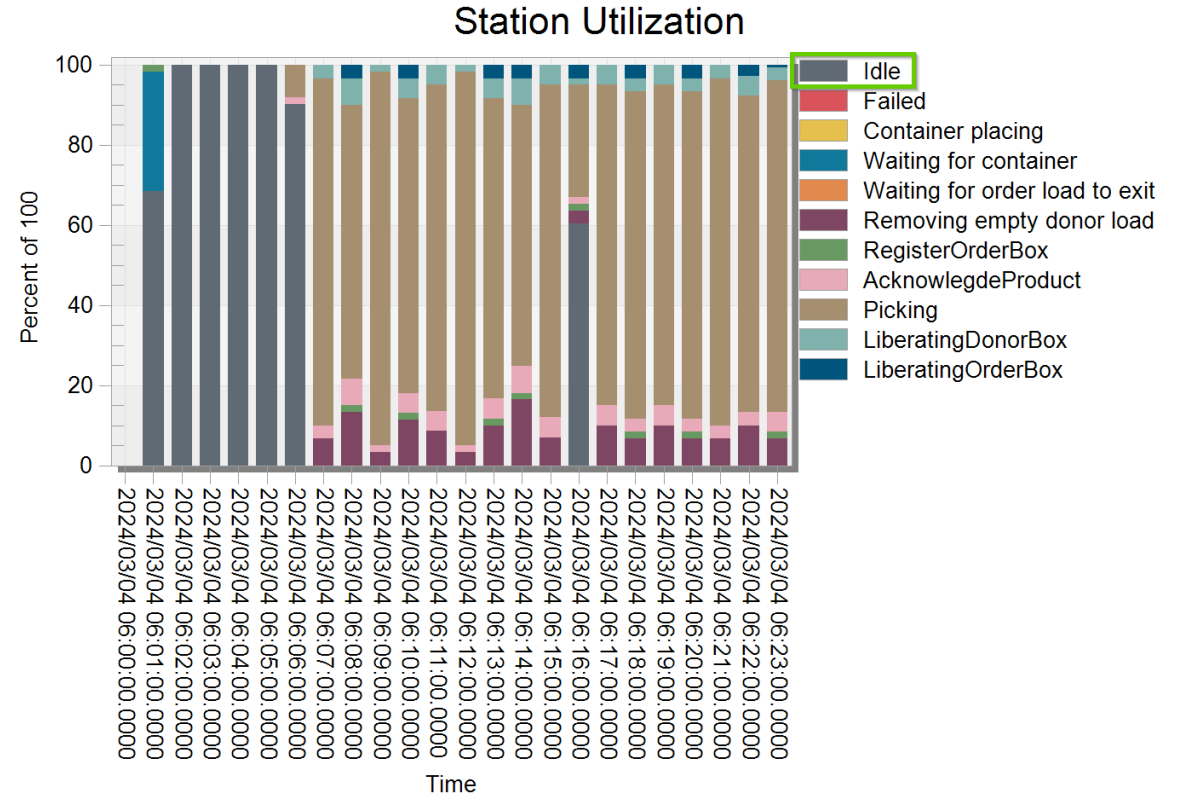
6 Use cases

- Full operation of automated (shuttles & stacker cranes) or manual Warehouses w/ Receiving, Picking & Palletizing, using units, boxes, crates & pallets.
- Resource dimensioning: detect inefficiencies when planning the number of racks, workers or stations to be used.
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UNDERUTILIZED RESOURCE



FULLY USED RESOURCE



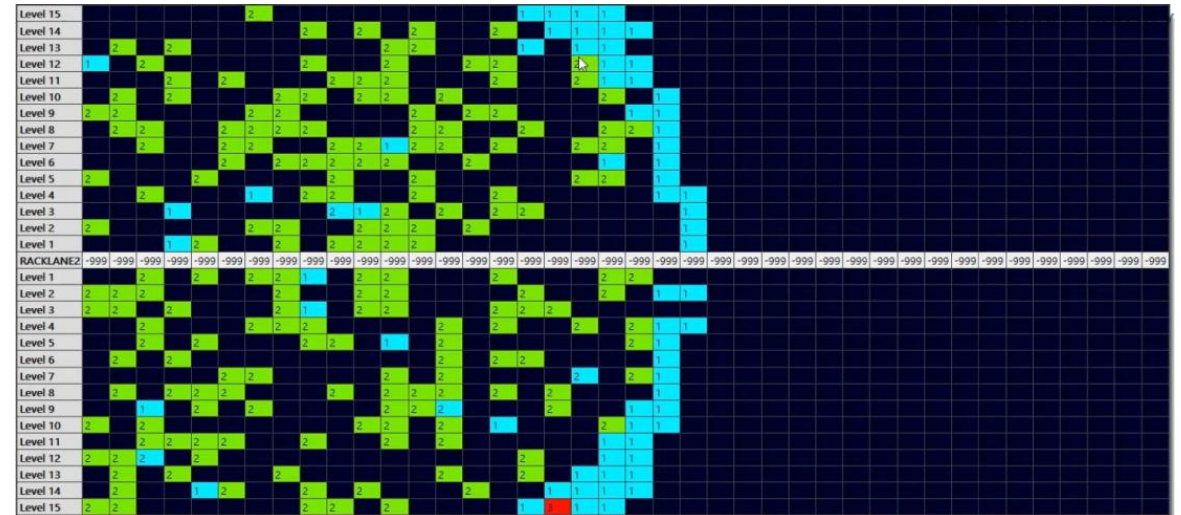
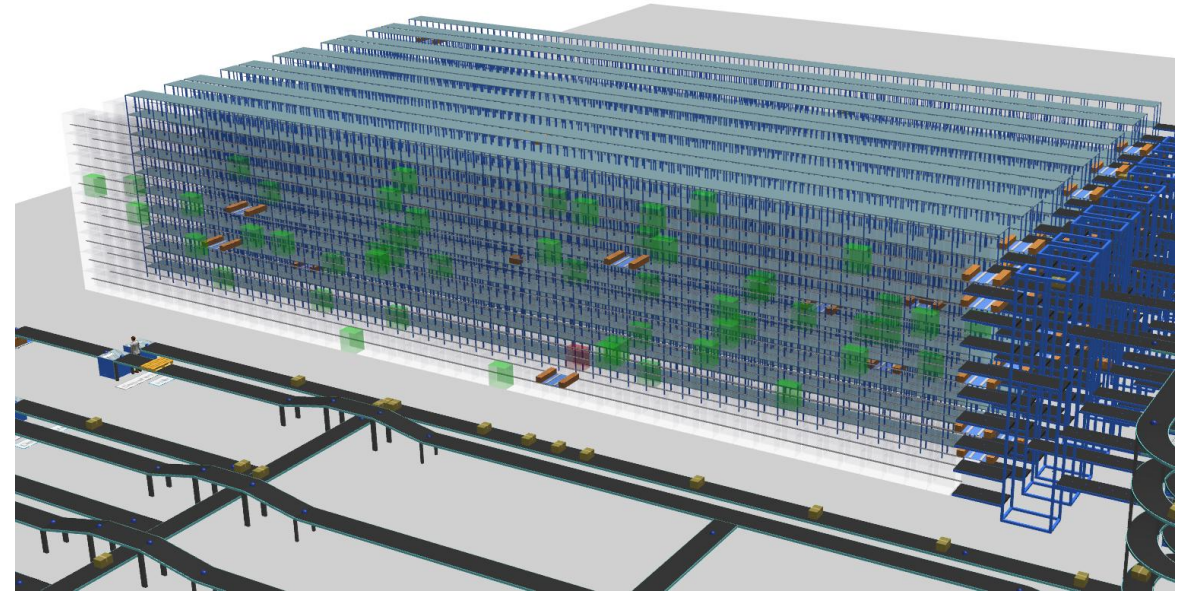
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- Full operation of automated (shuttles & stacker cranes) or manual Warehouses w/ Receiving, Picking & Palletizing, using units, boxes, crates & pallets.
- Resource dimensioning: detect inefficiencies when planning the number of racks, workers or stations to be used.
- Stock tracking: define ABC rotation to products and assign specific locations in the racks to see how the system performs along with heat map.
-

CUSTOM ABC MAP

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1 Left Level 9 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
2 Left Level 8 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
3 Left Level 7 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
4 Left Level 6 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
5 Left Level 5 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
6 Left Level 4 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
7 Left Level 3 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
8 Left Level 2 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
9 Left Level 1 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
10 Left Level 9 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
11 Left Level 8 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
12 Left Level 7 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
13 Left Level 6 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
14 Left Level 5 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
15 Left Level 4 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
16 Left Level 3 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
17 Left Level 2 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
18 Left Level 1 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
19 CENTER LANE	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20 Right Level 1 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
21 Right Level 2 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
22 Right Level 3 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
23 Right Level 4 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
24 Right Level 5 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
25 Right Level 6 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
26 Right Level 7 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
27 Right Level 8 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
28 Right Level 9 Depth 1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
29 Right Level 1 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
30 Right Level 2 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
31 Right Level 3 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
32 Right Level 4 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
33 Right Level 5 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
34 Right Level 6 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
35 Right Level 7 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
36 Right Level 8 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
37 Right Level 9 Depth 2	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C

HEAT MAP



6 Use cases

- Full operation of automated (shuttles & stacker cranes) or manual Warehouses w/ Receiving, Picking & Palletizing, using units, boxes, crates & pallets.
- Resource dimensioning: detect inefficiencies when planning the number of racks, workers or stations to be used.
- Stock tracking: define ABC rotation to products and assign specific locations in the racks to see how the system performs along with heat map.
- Order planning: fill in an order schedule and get a forecast on how the system will work.

CUSTOM ORDER SCHEDULE

DATA MASTER

Hide Contents of the containers

Products Containers **Orders** Order Lines Load Attributes

In the table below all the orders are listed. Each row represents a single order, and each column an attribute for the whole order.

OrderID	ArrivalTime	CutoffTime	Pool	PalletID
OrderID_1	2024/03/04 06:05:00.0000	2024/03/05 07:46:39.0000	WMS	Pallet_1
OrderID_2	2024/03/04 06:05:00.0000	2024/03/05 07:46:39.0000	WMS	Pallet_1
OrderID_3	2024/03/04 06:05:00.0000	2024/03/05 07:46:39.0000	WMS	Pallet_1
OrderID_4	2024/03/04 06:05:00.0000	2024/03/05 07:46:39.0000	WMS	Pallet_1
OrderID_5	2024/03/04 06:05:00.0000	2024/03/05 07:46:39.0000	WMS	Pallet_1
OrderID_6	2024/03/04 06:06:30.0000	2024/03/05 07:51:39.0000	WMS	Pallet_1
OrderID_7	2024/03/04 06:06:30.0000	2024/03/05 07:51:39.0000	WMS	Pallet_1
OrderID_8	2024/03/04 06:06:30.0000	2024/03/05 07:51:39.0000	WMS	Pallet_2
OrderID_9	2024/03/04 06:06:30.0000	2024/03/05 07:51:39.0000	WMS	Pallet_2
OrderID_10	2024/03/04 06:06:30.0000	2024/03/05 07:51:39.0000	WMS	Pallet_?

Import from file Check table Restore table

Path to the orders file: .xlsx

Please, select which column indicates the Order ID. The Order ID must be unique.

Please, select which column indicates the Cut Off time.

Please, select which column indicates the allocated Order Pool.

OK Cancel Apply

CUSTOM ORDERLINES

DATA MASTER

Hide Contents of the containers

Products Containers Orders **Order Lines** Load Attributes

In the table below, order lines for each Order ID must be defined. Each row represents a single product ID, and the column "Order Line" must be unique.

Order ID	Order Line	Product ID	Quantity
OrderID_1	OrderLine_1	P000027	5
OrderID_1	OrderLine_2	P000097	11
OrderID_1	OrderLine_3	P000100	1
OrderID_1	OrderLine_4	P000047	4
OrderID_1	OrderLine_5	P000001	3
OrderID_2	OrderLine_6	P000014	5
OrderID_2	OrderLine_7	P000044	9
OrderID_2	OrderLine_8	P000043	10
OrderID_2	OrderLine_9	P000082	9
OrderID_2	OrderLine_10	P000056	2
OrderID_3	OrderLine_11	P000004	2
OrderID_3	OrderLine_12	P000034	6
OrderID_3	OrderLine_13	P000027	8
OrderID_3	OrderLine_14	P000068	9
OrderID_3	OrderLine_15	P000047	4

Import from file Check table Restore table

Path to the order lines file:

OK Cancel Apply

7 Who is this library for

As stated, the **user** does not have to have any programming skills or knowledge on the use of simulation, that is why this user-focused library may result useful for the following profiles:

SALES ENGINEERS

Who need to show a potential customer a quick moving mockup of the final site.

DESIGN ENGINEERS

Who need to validate the design of a solution and get useful insights without a dedicated simulation team.

SIMULATION ENGINEERS

Who can deploy a base functional model within minutes and work in a more efficient way.

MANAGERS

Who can test theoretical scenarios in order to improve or optimize production.

ON-SITE PERSONNEL

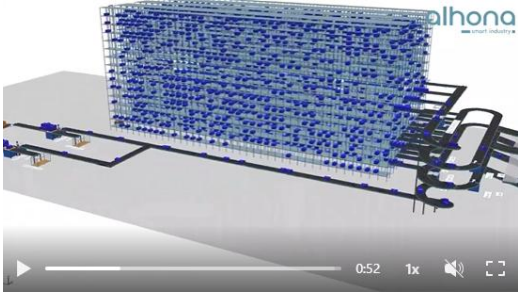
Who can use the model to forecast resource allocation and the impact of changing some parameters without real life risk.

Additional information

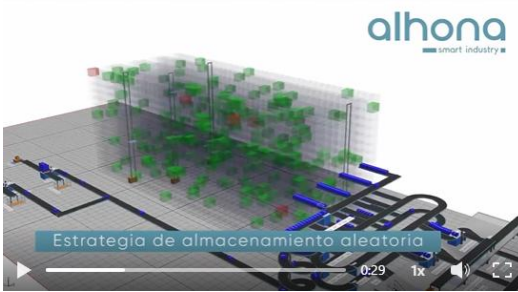
LOGISTICS-ORIENTED SIMULATION LIBRARY



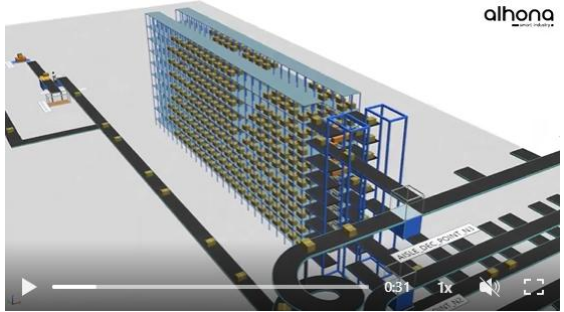
AUTOMATIC WAREHOUSE LIBRARY



LIBRARY CAPABILITIES: HEATMAPS



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