AI driven Concurrent Planning

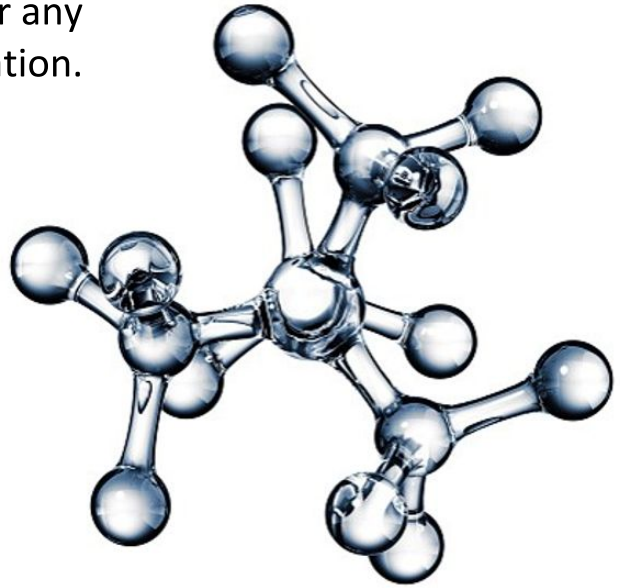
Intelligent Agent performs Prescriptive Analytics in Retail

WHAT IS IT?

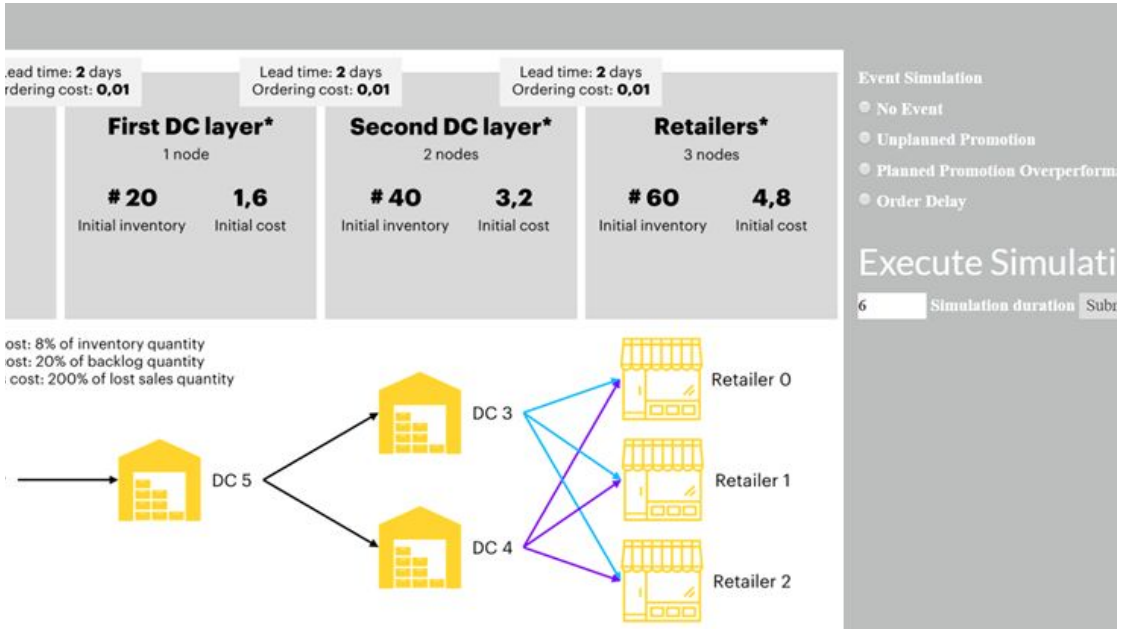
Autonomous Control Tower that simultaneously plans, monitors and responds to unplanned events across all distribution channels. Using data from descriptive and predictive analytics the agent is a reinforcement learning based model that suggests actions under any unexpected situation.

WHY IS IT RELEVANT?

The agent complements the standard S&OP processes by continuous planning within a fast changing and volatile business environments.



Supply Chain Event Simulation Cockpit

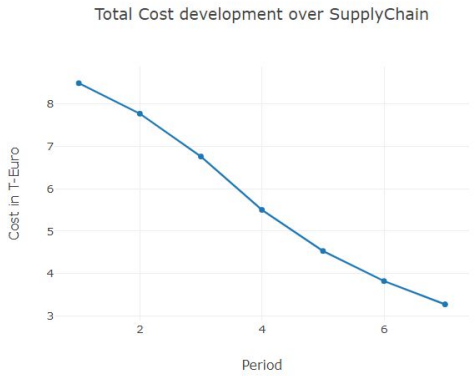


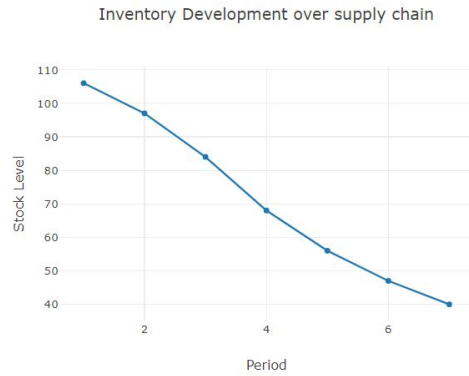
Retailer #21 Shanghai – KPIs & action plan

5,734
Average Total Cost over Supply chain

0
Average Lost Sales

5,691
Average Holding Cost





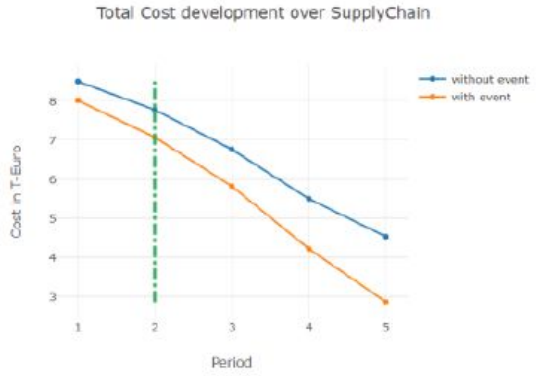
Show 10 entries Search:

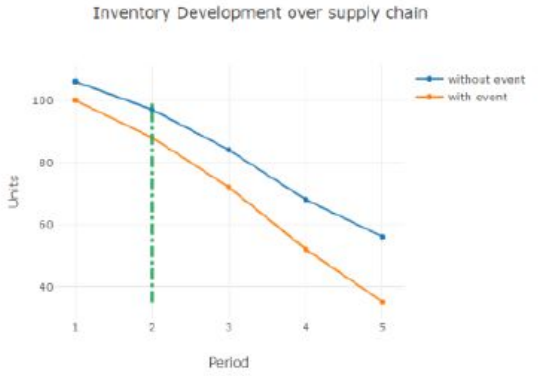
period	text	delta
0	DC-Shanghai orders 1 Product XY from DC-Barcelona	unaffecte
1	DC-Shanghai orders 1 Product XY from DC-Barcelona	unaffecte
2	Retailer-Shanghai orders 1 Product XY from DC-Shanghai	unaffecte
3	Retailer-Beijing orders 1 Product XY from DC-Beijing	unaffecte
3	Retailer-Shanghai orders 1 Product XY from DC-Shanghai	unaffecte
3	DC-Shanghai orders 2 Product XY from DC-Barcelona	unaffecte
3	DC-Beijing orders 1 Product XY from DC-Barcelona	unaffecte
4	Retailer-Beijing orders 1 Product XY from DC-Beijing	unaffecte
4	Retailer-Beijing orders 1 Product XY from DC-Shanghai	unaffecte
4	DC-Shanghai orders 2 Product XY from DC-Barcelona	unaffecte

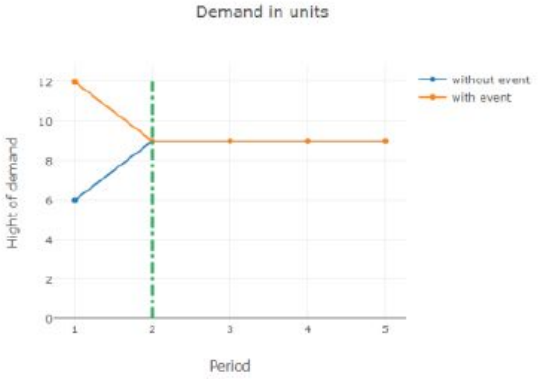
Showing 1 to 10 of 38 entries Previous 1 2 3 4 N

Total overview of Supply Chain simulation with effect development over unexpected events

5,596	0	5,552
Average Total Cost over Supply chain	Average Lost Sales	Average Holding Cost







Show 10 entries Search:

period	text	delta
0	DC-Shanghai orders 1 Product XY from DC-Barcelona	unaffected
1	Retailer-Shanghai orders 1 Product XY from DC-Shanghai	event affected
2	Retailer-Beijing orders 1 Product XY from DC-Beijing	event affected
2	Retailer-Shanghai orders 1 Product XY from DC-Shanghai	event affected

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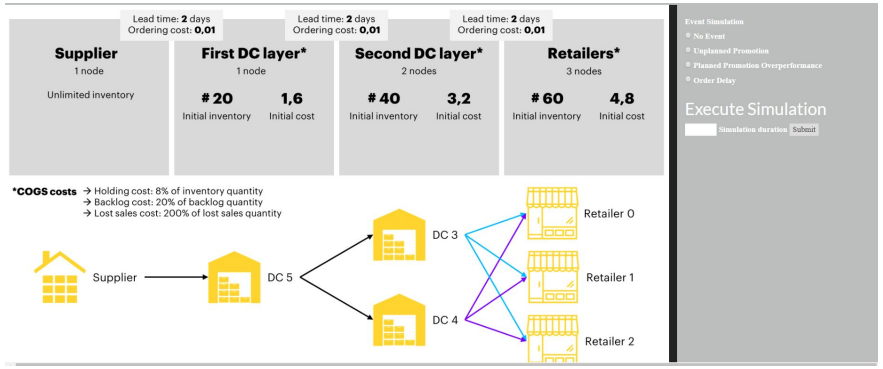
- Retailer-Shanghai
- Retailer-Beijing
- Retailer-Guangdong
- DC-Shanghai
- DC-Beijing
- DC-Barcelona

Event Simulation
- No Event
- Unplanned Promotion
- Planned Promotion Overperformance
- Order Delay

Execute Simulation

Simulation duration Submit

Technical: Django - Actor Critic DRL interface



urls.py
Main_simulation

```
urlpatterns = [
    path('landing/', views.landing, name='landing'),
    path('', views.index, name='index'),
    path('main_simulation/<str:insertID>', views.main_simulation, name='main_simulation'),
    path('node_simulation/<int:node_id>/<str:insertID>', views.node_simulation, name='node_simulation'),
]
```

"Request" : HttpRequest object that contains metadata about the request. E.g. Form info

views.py
Main_simulation

```
def main_simulation(request, insertID):
    return views_util_main.main_simulation_outside(request, insertID)
```

Reinforcement Agent Block

```
return render(request, 'visual/main_simulation.html', context)
```

"context" - dictionary with variable names as the key and their values as the value

Technical: Reinforcement Learning Block - generalized workflow

```
def main_simulation(request, insertID):
    return views_util_main.main_simulation_outside(request, insertID)
```