

## CLAIMS

1. A computer-implemented system for outbound forecasting, the system comprising:
  - a memory storing instructions; and
  - at least one processor configured to execute the instructions to:
    - receive an initial distribution of priority values to each fulfillment center (FC) in each region;
    - run a simulation, using a simulation algorithm, of the initial distribution;
    - calculate an outbound capacity utilization value of each FC;
    - determine a number of FCs comprising an outbound capacity utilization value that exceeds a predetermined threshold;
    - feed the simulation algorithm with at least one of the determined number of FCs to generate one or more additional distributions of priority values;
    - generate a FC priority filter comprising an optimal set of priority values based on the one or more additional distributions of priority values; and
    - modify an allocation of a plurality of SKUs among a plurality of FCs based on the generated FC priority filter,
  - wherein each of the initial distribution and the one or more additional distributions comprises a two-dimensional matrix of priority values.
2. The system of claim 1, wherein the predetermined threshold comprises a minimum outbound of each FC.
3. The system of claim 1, wherein the outbound capacity utilization value of each FC comprises a ratio of an outbound of each FC to an outbound capacity of each FC.
4. The system of claim 1, wherein the initial distribution of priority values to each FC in each region is randomly generated.

5. The system of claim 1, wherein the at least one processor is further configured to execute the instructions to cache at least a portion of the simulation algorithm.
6. The system of claim 5, wherein the cached portion of the simulation algorithm comprises at least one constraint that remains substantially constant with each run of the simulation algorithm.
7. The system of claim 1, wherein the at least one processor is further configured to execute the instructions to:  
simulate customer demand at each of the plurality of FCs; and  
modify the allocation of the plurality of SKUs among the plurality of FCs based on the simulated customer demand.
8. The system of claim 1, wherein the simulation algorithm comprises at least one constraint, the constraint comprising at least one of customer demand at each of the FCs, maximum capacities of the FCs, compatibility with FCs, or transfer costs between FCs.
9. The system of claim 1, wherein each of the plurality of SKUs is indicative of at least one of a manufacturer, material, size, color, packaging, type, or weight of a product.
10. A computer-implemented method for outbound forecasting, the method comprising:  
receiving an initial distribution of priority values to each fulfillment center (FC) in each region;  
running a simulation, using a simulation algorithm, of the initial distribution;  
calculating an outbound capacity utilization value of each FC;  
determining a number of FCs comprising an outbound capacity utilization value that exceeds a predetermined threshold;  
feeding the simulation algorithm with the determined number of FCs to generate one or more additional distributions of priority values;

generating a FC priority filter comprising an optimal set of priority values based on the one or more additional distributions of priority values; and  
modifying an allocation of a plurality of SKUs among a plurality of FCs based on the generated FC priority filter,  
wherein each of the initial distribution and the one or more additional distributions comprises a two-dimensional matrix of priority values.

11. The method of claim 10, wherein the predetermined threshold comprises a minimum outbound of each FC.
12. The method of claim 10, wherein the outbound capacity utilization value of each FC comprises a ratio of an outbound of each FC to an outbound capacity of each FC.
13. The method of claim 10, wherein the initial distribution of priority values to each FC in each region is randomly generated.
14. The method of claim 10, further comprising caching at least a portion of the simulation algorithm.
15. The method of claim 14, wherein the cached portion of the simulation algorithm comprises at least one constraint that remains substantially constant with each run of the simulation algorithm.
16. The method of claim 10, further comprising:  
simulating customer demand at each of the plurality of FCs; and  
modifying the allocation of the plurality of SKUs among the plurality of FCs based on the simulated customer demand.
17. The method of claim 10, wherein the simulation algorithm comprises at least one constraint, the constraint comprising at least one of customer demand at

each of the FCs, maximum capacities of the FCs, compatibility with FCs, or transfer costs between FCs.

18. A computer-implemented system for outbound forecasting, the system comprising:
  - a memory storing instructions; and
  - at least one processor configured to execute the instructions to:
    - receive an initial matrix of priority values to each fulfillment center (FC) in each region, wherein the initial matrix is randomly generated;
    - run a simulation, using a simulation algorithm, of the initial matrix;
    - calculate an outbound capacity utilization value of each FC, wherein the outbound capacity utilization value of each FC comprises a ratio of an outbound of each FC to an outbound capacity of each FC;
    - determine a number of FCs comprising an outbound capacity utilization value that exceeds a predetermined threshold;
    - feed the simulation algorithm with the determined number of FCs to generate one or more additional matrices of priority values;
    - generate a FC priority filter comprising an optimal set of priority values based on the one or more additional matrices of priority values;
    - and
    - modify an allocation of a plurality of SKUs among a plurality of FCs based on the generated FC priority filter.