

Claims

What is claimed is:

1. A computer-implemented system for intelligent distribution of products, the system comprising:
 - a memory storing instructions; and
 - at least one processor configured to execute the instructions for:
 - receiving forecasting data comprising an expected demand of a stock keeping unit (SKU);
 - determining, based on the received forecasting data, a target inventory of the SKU to satisfy the expected demand, the target inventory comprising:
 - a cycle stock for the SKU; and
 - a safety stock for the SKU.
 - determining, based on the target inventory of the SKU, a regional target inventory of the SKU of a region comprising a plurality of fulfillment centers, the regional target inventory comprising:
 - a regional cycle stock for the SKU; and
 - a regional safety stock for the SKU;
 - receiving historical data comprising the inbound and outbound shipment history of a fulfillment center in the plurality of fulfillment centers.
 - generating, based on the received historical data, a profile for the fulfillment center, the profile comprising:
 - an inbound capacity;
 - an outbound capacity; and
 - a current inventory of the SKU;
 - assigning, based on the profile of the fulfillment center, a portion of the regional target inventory to the fulfillment center.

transmitting instructions to a device to stock a number of SKUs in the fulfillment center based on the portion.

2. The system of claim 1, wherein assigning a portion of the regional target inventory is further based on a determination that a SKU should be in multiple fulfillment centers.
3. The system of claim 2, wherein the determination that a SKU should be in multiple fulfillment centers is based on the popularity of the SKU in the region.
4. The system of claim 1, wherein assigning a portion of the regional target inventory is further based on an aggregate of generated profiles for each fulfillment center in the plurality of fulfillment centers.
5. The system of claim 1, wherein the at least one processor is further configured to consult a record of current outbound orders of the SKU, and assigning a portion of the regional target inventory is further based on the current inventory of the SKU and the current outbound orders of the SKU.
6. The system of claim 1, wherein the cycle stock is an amount of the SKU determined to meet the expected demand, and the safety stock is an additional amount of the SKU determined to meet an excess of the demand.
7. The system of claim 1, wherein the transmitted instructions comprise one of:
instructions to maintain the current inventory of the SKU so that it remains equal to the assigned portion of the regional target inventory of the SKU; or

instructions to adjust the current inventory of the SKU so that it becomes equal to the assigned portion of the regional target inventory of the SKU.

8. The system of claim 7, wherein maintaining the current inventory comprises one of:

maintaining an inbound quantity of the SKU so that it remains equal to an outbound quantity of the SKU; or

modifying an inbound quantity of the SKU so that it becomes equal to an outbound quantity of the SKU.
9. The system of claim 7, wherein adjusting the current inventory comprises modifying or maintaining an inbound of the SKU for the fulfillment center so that the current inventory approaches the assigned portion of the of the region target inventory of the SKU.
10. The system of claim 1, wherein the transmitted instructions comprise instructions to generate purchase orders to a supplier associated with the SKU for shipment to the fulfillment center based on the assigned portion of the regional target inventory.
11. A computer-implemented method for intelligent distribution of products, the method comprising:

receiving forecasting data comprising an expected demand of a stock keeping unit (SKU);

determining, based on the received forecasting data, a target inventory of the SKU to satisfy the expected demand, the target inventory comprising:

a cycle stock for the SKU; and

a safety stock for the SKU.

determining, based on the target inventory of the SKU, a regional target inventory of the SKU of a region comprising a plurality of fulfillment centers, the regional target inventory comprising:

- a regional cycle stock for the SKU; and
- a regional safety stock for the SKU;

receiving historical data comprising the inbound and outbound shipment history of a fulfillment center in the plurality of fulfillment centers.

generating, based on the received historical data, a profile for the fulfillment center in the plurality of fulfillment centers, the profile comprising:

- an inbound capacity;
- an outbound capacity; and
- a current inventory of the SKU;

assigning, based on the profile of the fulfillment center, a portion of the regional target inventory to the fulfillment center.

transmitting instructions to a device to stock a number of SKUs in the fulfillment center based on the portion.

12. The computer-implemented method of claim 11, wherein assigning a portion of the regional target inventory is further based on a determination that the SKU should be in multiple fulfillment centers.
13. The computer-implemented method of claim 11, wherein assigning a portion of the regional target inventory is further based on an aggregate of generated profiles for each fulfillment center in the plurality of fulfillment centers.
14. The computer-implemented method of claim 11, wherein the at least one processor is further configured to consult a record of current outbound orders of the SKU, and assigning a portion of the regional target inventory is further

based on the current inventory of the SKU and the current outbound orders of the SKU.

15. The computer-implemented method of claim 11, wherein the cycle stock is an amount of the SKU determined to meet the expected demand, and the safety stock is an additional amount of the SKU determined to meet an excess of the demand.
16. The computer-implemented method of claim 11, wherein the transmitted instructions comprise one of:
instructions to maintain the current inventory of the SKU so that it remains equal to the assigned portion of the regional target inventory of the SKU; or
instructions to adjust the current inventory of the SKU so that it becomes equal to the assigned portion of the regional target inventory of the SKU.
17. The computer-implemented method of claim 16, wherein maintaining the current inventory comprises one of:
maintaining an inbound quantity of the SKU so that it remains equal to an outbound quantity of the SKU; or
modifying an in inbound quantity of the SKU so that it becomes equal to an outbound quantity of the SKU.
18. The computer-implemented method of claim 16, wherein adjusting the current inventory comprises modifying or maintaining an inbound quantity of the SKU for the fulfillment center so that the current inventory approaches the assigned portion of the of the region target inventory of the SKU.

19. The computer-implemented method of claim 11, wherein the transmitted instructions comprise instructions to generate purchase orders to a supplier associated with the SKU for shipment to the fulfillment center based on the assigned portion of the regional target inventory.
20. A computer-implemented system for intelligent distribution of products, the system comprising:
 - a memory storing instructions; and
 - at least one processor configured to execute the instructions for:
 - receiving forecasting data comprising an expected demand of a stock keeping unit (SKU);
 - determining, based on the received forecasting data, a target inventory of the SKU to satisfy the expected demand, the target inventory comprising:
 - a cycle stock for the SKU; and
 - a safety stock for the SKU.
 - determining, based on the target inventory of the SKU, a regional target inventory of the SKU of a region comprising a plurality of fulfillment centers, the regional target inventory comprising:
 - a regional cycle stock for the SKU; and
 - a regional safety stock for the SKU;
 - receiving historical data comprising the inbound and outbound shipment history of a fulfillment center in the plurality of fulfillment centers.
 - generating, based on the received historical data, a profile for the fulfillment center, the profile comprising:
 - an inbound capacity;
 - an outbound capacity; and
 - a current inventory of the SKU;

assigning, based on the profile of the fulfillment center, a portion of the regional target inventory to the fulfillment center;

determining, based on the current inventory of the SKU and the portion, whether the current inventory of the SKU meets the assigned portion; and

based on a determination that the current inventory does not meet the assigned portion, transmitting instructions to a device to modify or maintain an inbound flow of a SKU at the fulfillment center until the current inventory of the SKU meets the assigned portion.