

Buy Anything, Get Anywhere 4.0 (BAGA)

Omni Channel Retailing

Buy Anything, Get Anywhere 4.0 (BAGA) uses Artificial Intelligence (AI), Machine Learning (ML) and Big-Data to ensure product fulfillment. The solution uses sophisticated algorithms to optimally balance out multiple variables and constraints to ensure fulfillment while maximizing margins. Whenever a customer wishes to buy an article not immediately available at their channel of choice (brick & mortar and online), BAGA™ finds the item at nearby stores or distribution centers and automatically initiates order fulfillment to reduce “lost sales”.

Buy Anything, Get Anywhere 4.0 (BAGA) delivered \$10M in additional sales for a large U.S. fashion house within 12 weeks of implementation.



Background

Optimal store inventory sizing is a well-known issue in the Retail & Fashion industries: the dilemma of stocking the right mix and quantity of products, including customized SKUs, is non-trivial. When customers visit either the online channel or brick and mortar stores and don't find the goods they would like to buy, two major problems occur: (1) loss of revenue, and (2) customer retention and customer satisfaction gets impacted. The easiest solution is to keep excess inventory which would dramatically reduce profitability. Buy Anything, Get Anywhere 4.0 (BAGA) combines big-data and smart algorithms to deliver the omni-channel customer experience while reducing costs and maximizing profitability.

Business Case

Our Client is a Global Fashion retailer headquartered in New York with about 1,000 retail stores and DCs in four continents supplying both their online and physical retail locations. When customers do not find a specific SKU online or in store the customer is offered home delivery of the product from an alternate location (closest store or Distribution Center). Our Client further required that the solution meets the following criteria: (a) Orders are automatically fulfilled, (b) inventory is synchronized across various locations and (c) Net profit is maximized. In addition, multiple information systems for inventory and sales management creates significant complexities in delivering an optimal solution.

Terminology

- BAGA - Buy anywhere Get anywhere
- BI - Business Intelligence
- DC - Distribution Center
- KPI - Key performance indicator
- ORS - ORS GROUP
- SKU - Stock keeping unit(s)

Key Features

Using Buy Anything, Get Anywhere 4.0 (BAGA), our Client was able to rapidly serve customer requests while ensuring that all of the operational and financial constraints were met and ensuring optimal profitability. Buy Anything, Get Anywhere 4.0 (BAGA) uses a complex non-linear optimization function which is unique for every single SKU requested by customers. The algorithms solving the model are executed in a scalable software environment, ensuring REAL-TIME response. The software architecture of BAGA ensures that, although the solution depends on the execution of complex scientific code, every user operation is managed through a very user-friendly web interface.



Highly customizable business constraints

Buy Anything, Get Anywhere 4.0 (BAGA) supports the unique needs of businesses in the retail & fashion industry. Using a very intuitive user interface, business managers can easily setup various constraints like a list of selectable source locations, products exclusions etc. A few examples of constraints that can be setup using the UI are:

- DC vs Store priority: If for a certain requesting store "A" this constraint is set to "DC", then the most convenient DC will be chosen even if picking from another store in the network would be more convenient. This might be necessary to accelerate DC clearing before the new collections are stocked.
- Quarantine of new products: Excluding new products - for a certain amount of time - might be useful to observe new products sales trends.
- Stores to be excluded: Top sales stores with high product volatility may justify the need to exclude a store from the fulfilment network.

When a “BAGA” request is received, the constraints are checked to determine whether it is valid, and a list of eligible locations is created. Then the list is further reduced by excluding the locations that do not have enough stock (also considering the minimum stock threshold if applicable). Once the list of eligible source locations is defined, the most convenient location is selected from a net profitability perspective. Regardless of the number of business constraints, BAGA will always find the optimum solution in REAL-TIME. Figure 1 shows that no technical knowledge is involved for defining business constraints through the dashboard commands.

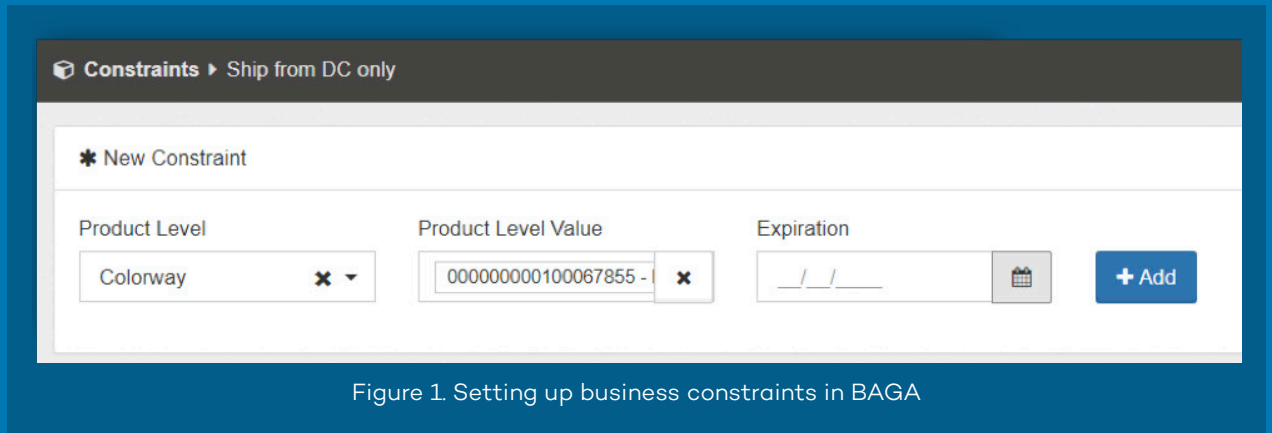


Figure 1. Setting up business constraints in BAGA



Modular BI Dashboard

The Buy Anything, Get Anywhere 4.0 (BAGA) dashboard is designed using state of the art User Experience methodologies and contains a useful BI module, through which it is possible to get a quick, holistic view of all KPIs (see Figure 2). The panel is dynamic: pivot graphs, counters, grids, and alerts can be added on the fly to the visualization panel. Furthermore, KPIs can be customized by composition of basic metrics, and multidimensional data structures are created with zero latency.



Figure 1. Setting up business constraints in BAGA



Smart sales forecast engine

Buy Anything, Get Anywhere 4.0 (BAGA) uses a sales forecast engine to compute expected daily sales. The computation, obtained by analyzing historical operations log, has a very high granularity: daily expected sales are calculated for each store, class and type, for each month. The forecast engine is programmed with Smart Strategies to adapt to the different contexts. For example, adjustment towards previous seasons are automatically made: if new predictions are significantly higher (or lower) than previous season results, all the predictions are reduced (or respectively increased). The engine relies on the ORS Big Data Analytics optimization platform ("R.A.M.S. 4.0") which automatically adapts its forecasting methods based on changing real-time business metrics using a portfolio of sophisticated scientific methodologies.



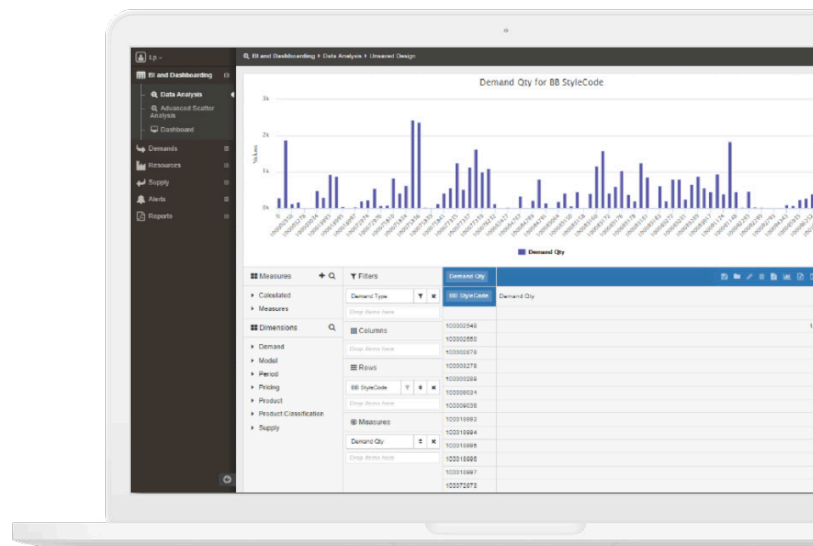
Integrated Data Management

For the computation of the best possible fulfillment location, BAGA needs to get different types of information such as product selling price, shipment cost, available stock, expected product shelf life, etc. Given such variety of data, Buy Anything, Get Anywhere 4.0 (BAGA) is configured to communicate with multiple information systems (POS, inventory system, store management) using proprietary technology.

Major Benefits

Buy Anything, Get Anywhere 4.0 (BAGA) has rapidly delivered the following business benefits for our Client:

- More than \$10 Million in additional sales within 3 months of implementation – which would have been lost due to unavailability of product
- More than 80,000 satisfied requests
- Savings from getting SKUs directly from stores, instead of ordering exclusively from the DCs (that is the only option our competitors offer);
- Reduction of unsold SKUs in stores, with corresponding reduced withdrawing costs;
- Reduction of unsold stocks in DCs



Using ORS RETa.i.L™ Platform, we are able to create a highly sensitive and responsive digital supply chain, to manage inventories in real-time and to optimize operations end-to-end. Buy Anything, Get Anywhere 4.0 (BAGA) is a disruptive solution for automated omnichannel fulfilment to help us build superior customer experience and avoid lost sales.



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