

Practical Analytics Use Case for Retail: Use of Advanced Analytics to Reduce Line Volatility

by Lauren Crawley and Danny Oviedo

In today's challenging and still volatile retail industry, the most successful footwear and apparel manufacturers are renewing their commitment to private brands and new differentiated products in line with consumer demand. To compete with companies like Amazon, the focus should be on producing a smaller set of more customized products that appeal to specific target audiences.

To be more nimble, productive and profitable, retail, footwear, and apparel companies need to focus on increasing efficiency in the product development process. Here's one practical example of the application of advanced analytics to achieve this goal.

Understanding Line Volatility

Inherently, new products come with the risk that those resources could be wasted if the product never makes it to market. When product configurations are added, removed, or substantially changed after agreement on the line plan, volatility is introduced. This volatility impacts the productivity and morale of design and development teams while also inflating costs. Whether it's from the technical viability of production or the marketing team deciding the product doesn't align with consumer preferences, line volatility is costly to any organization. ?

Move Beyond Just Understanding Root Causes – Get Predictive, Prescriptive and Proactive with PLI

Advanced analytics can help solve this problem by predicting the likelihood of whether an item will be dropped during line planning by using information related to the features of a product. This machine learning application, called [Product Lifecycle Intelligence](#) (PLI), uses historical information on attributes such as material, trim, carryover status, color and dozens more imported from a product lifecycle management (PLM) tool to determine which products with which specific attributes were historically dropped from a line. PLI then applies the learnings to make predictions about the future.

Specific attributes can be flagged as having a high relative influence on volatility – warranting a closer look. For example, at one apparel company, PLI identified that products with a metallic logo were almost always removed from the line prior to production. After further investigation, it was uncovered that there were technical challenges with printing metallic colors, and as a result, the company could either remove metallic logos altogether or change the printing process to improve volatility. These actionable recommendations derived from PLI can provide substantial cost-savings benefits.

PLI doesn't only look at individual attributes. It can also evaluate how multiple characteristics combine to affect the drop rate. Profiles of different products are created by grouping key variables together, and patterns are uncovered in which profiles deviate from the mean drop rate. These profiles can be used to educate designers who may have otherwise forgotten that certain combinations of attributes have caused issues in the past.

Not only can PLI uncover trends from the past, but it also goes a step further to proactively assess the volatility risks of seasonal lines and product portfolios. Products can be evaluated against the insights derived from the historical data and identified as highly likely to be eliminated prior to production.

But Can You Really Trust the Insights from Analytics?

The concern for many companies boils down to trust in the analytical model and thus the insights derived. Dropping a product unnecessarily can result in substantial lost revenue, so there needs to be a high degree of confidence in the predictions. PLI provides an accuracy score to indicate how likely it is that the correct products have been identified based on the data given. As more data is available to the model, this gets more and more accurate. Additionally, any products that have been "red flagged" as likely to be dropped are assigned a score to indicate the confidence level of this outcome.

PLI reduces the costs associated with line volatility. Relying on a designer's memory and tribal knowledge of what items had challenges in earlier seasons can result in many missed opportunities, as well as unnecessary rework. Predicting where wasted effort will occur helps save money and time, and supports overall team morale and confidence. With PLI, teams know they are working on products that are more likely to make it through to production.

This is just one application of PLI driving insights by applying machine learning to structured product data. [Learn more about the value cases of PLI.](#)

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