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In **Pursuit** of **Sustainable Margins**

Fashion retailing is a dynamic, complex and highly competitive business – and it's not getting any easier. Margins are coming under increasing pressure as a number of factors play-out, but speed, agility and applied intelligence in the warehouse will be pivotal in maintaining a sustainable margin for the future.

The fashion industry is vast. Pre-covid figures from a number of sources estimate its global worth to be between $1.7 trillion and $2.5 trillion – predominantly apparel (55%) but also footwear and accessories. According to a McKinsey report published in 2017, if ranked against national GDPs, the fashion industry would be the seventh-largest economy in the world. That is without considering all the 'non-fashion' items of apparel, from workwear to military uniforms. And the industry continues to grow beyond pre-Covid levels.

In all, the sector is estimated to produce more than 150 billion individual items each year. How they are sold defines 'multi-channel' business. Ecommerce is big in any market that has the necessary supporting infrastructure, but according to the 2023 RetailX Global Fashion report, 64% of fashion shopping globally still takes place off-line. With this balance, most distributors and retailers have to support both ecommerce – home delivery or click'n'collect – and high street store replenishment activities simultaneously.

Coping with the disparate demands of multi-channel fulfillment has been, and continues to be, a major challenge for the sector. Consolidation of inventory in facilities that can serve both channels makes immense financial and practical sense. But then scale is not the only issue. There is the complexity created by the vast variety of items or stock keeping units (SKUs) that retailers have in their supply chains. Automation, together with advanced 'intelligent' software offers a way forward, free from the constraints of limited labor resources and rising labor costs. But how should fashion businesses reshape their fulfillment operations to deliver the flexibility and responsiveness that will create competitive advantage, as well as healthier margins?

While by value the sector is dominated by the likes of Nike, Adidas, Zara, Uniqlo or H&M – not to mention the luxury brands such as Chanel that combine couture with other high-end products such as fragrances – there are huge numbers of other manufacturers and retailers, from the mass market to the seriously niche. The latter naturally produce in small volumes, but even in the mass market, production of individual lines may be limited. Even 'commodity' garments, workwear or uniforms, will come in a wide range of sizes and fits, and a simple white cotton t-shirt is available, not only in different sizes, but with ever-increasing options for 'personalisation'. So, there are huge numbers of skus in the logistics system.

2.11%
Annual market growth US (CAGR 2023-2028).

Source: Statista

Therefore, retailers are faced with the need to distribute very large numbers of items, from a vast range of almost indistinguishable skus, to fulfill both ecommerce orders (perhaps half a dozen single items across garments, footwear and accessories) and high street store requirements (which even if for a single design, may represent a range of sizes and therefore skus). In both cases accuracy is essential, to keep returns down, and time pressures onerous. For ecommerce there may well be a same day/next day promise, so expediency in fulfillment is essential, with as late a cut-off as possible, but in retail replenishment, poor availability in-store is even more likely to result in a lost sale.

In addition, returns are a notorious problem for the sector, typically around 30% and it can be much higher, despite the growing trend for retailers to charge for returns. In fact, for many businesses, 'returns' can effectively be their biggest single supplier!

Importantly, returns need to be reintegrated into salable and available stock as quickly and efficiently as possible, as many fashion items have only a short 'full price' shelf life. How quickly these returns can be processed and re-dispatched may not only increase successful sales but can also reduce the need for mark-downs, so improving margins.

Flexibility in tight spaces

Many businesses in the sector are still working out of 'legacy' buildings, which put constraints on the deployment of both people and technology – typically there are just too many pillars.

Mayoral, the children's fashion brand, established a second DC in Malaga in 2017. This occupies an old spinning mill and the historic structure was cramped and awkward. However, the inherent flexibility of Ferag's Skyfall system, with compact design and tight curve radii, fit well within the confines of the building, as well as saving floor level space and offering scope for future expansion. In total the complex overhead pouch conveyor system runs for 2.2km, carrying 58,000 pouches and hangars to serve ecommerce, high street stores and returns processing requirements with a single inventory pool at a rate of 12,000 units per hour.

Productivity is triple that of the existing Mayoral 1 DC, which uses different technologies.

Handle with care

Fashion items, especially garments, are particularly vulnerable to poor manual handling practices or ill-suited automation. They are unstructured (floppy) and come in varying and irregular shapes and sizes, making them difficult to pick up and manipulate. Fabrics and garments, even the most robust and well-made, are prone to damage. They crease, tear, and stretch, are easily stained and buttons can be caught and torn off. Automation needs a gentle touch with as little intervention by the human hand as possible.

Besides these problems in moving an item from A to B, there are other issues. Often, within the warehouse or DC, there are processes to be applied to garments, particularly but not exclusively on any returns line. Inspecting, pressing, perhaps personalization, folding and packing usually require garments to be spread out, which takes a lot of space – unavailable if it is full of ground-level conveyors or pathways for manual or automatic vehicles.

Then there is the issue of how to go about assembling or consolidating a mixed order, be it ecommerce or high street store. A pile-up of mixed items on a packing station is for reasons already stated, sub-optimal. Ideally, the order should be built up as the goods move around the distribution center.

Resolving these issues would be easier if businesses knew what they needed. But, of course, this is difficult. What will sell in fashion is inherently unpredictable – who knows why a particular look, or even an individual item, suddenly takes off. There are expected, but only vaguely predictable, influences such as the weather or the economy. This summer turned out well for businesses offering a lot of pink in their range, thanks to a certain hit movie, but there was nothing guaranteed about that.

Even broader factors, such as the likely balance of ecommerce and high street store orders at any particular time, can be very uncertain. For example, it would not be unusual for a DC to spend 30% of its effort on ecommerce, 50% on retail replenishment, and the rest on processing and reintegrating returns. But the business might choose, in the run up to an event like Black Friday, to build up retail store consignments in advance – perhaps on the basis of a 'best guess' of what will be required, so that in the Black Friday aftermath it can concentrate almost entirely on ecommerce orders. But that depends on the brand's strategy towards the event, which may not be the same as last year's. So many variables and unknowns.

Automation needs a gentle touch with as little intervention by the human hand as possible.

$351.40bn
Revenue US apparel
market 2023

Source: Statista

Flexible automation is the future

Given all this, the key word for automation in this sector has to be 'flexibility', in several ways. The goods are themselves often highly flexible; the mechanics need to be flexible enough to be accommodated in awkward spaces; the system needs to be flexible in coping with the different picking/consolidation strategies of ecommerce and retail store replenishment; and also, to cope with peaks and varying balances of activity.

The solution to this multi-channel challenge can be found in overhead, pouch-based, conveyor/sortation systems, such as Ferag's advanced Skyfall technology. Overhead conveyor systems are of course nothing new, but Skyfall brings together some unique and forward-thinking features.

Skyfall is a system that conveys articles on a mix of garment hangers and pouches, the latter being capable of conveying garments together with flat or boxed items such as shoes or accessories to build an order and which can

be customized to requirements, at loadings of 3kg, 10kg, or using two hanging points, 20 kg. Throughput of some 10,500 items per hour, per line or more is achievable.

Ferag regards 'processing while conveying' as a core competence, so automatic load/unload, pick-up, transfer, weighing, ejection, labeling and more can all be carried out, at high speed, and largely overhead and out of the way – descending to 'ground level' if required for particular processes conducted by a person. This keeps floor areas free for other activities, and by reducing floor traffic contributes to safer operation.

Starting from height, the system's subsequent operation is powered, at least in part, by gravity, thus saving energy. 'Rolling technology' using very low friction elements and minimizing the number of drives, is a core design feature, dating back to our origins in the print and graphics industry – another area where urgency, speed and reliable handling of delicate items is essential.

'Intelligent' buffering

A big strength of Skyfall, and the foundation for its claim to be an 'intelligent' conveyor technology, lies in its buffering capabilities.

The ability to buffer between processes with different throughput rates – for example, ecommerce, retail store, returns handling – is powerful. It means that, for example, the elements for a store-friendly sequenced consignment can be gathered together at the same time as individual ecommerce orders are being processed. It means that ecommerce orders for a particular despatch slot/vehicle can be consolidated in advance, with only final additions to be made as the cut-off time approaches – which in turn means that cut-off can be postponed, offering the consumer a faster service and increases the potential for sales.

It also means that fast-moving items that have been returned, can instead of being laboriously returned to deep storage, be placed in a buffer and made immediately available for the next order, making the process far more responsive and cost-efficient.

Buffering also means that workflow peaks can be smoothed out, reducing the amount of labor required, whether at particular hours of the day or during the busiest seasons.

Buffering capacity is only limited by the available space. But, since Skyfall is an overhead system, using the full height of the building gives plenty of scope for expansion. And as software and artificial intelligence continues to develop, creative use of these buffering capabilities can only increase.
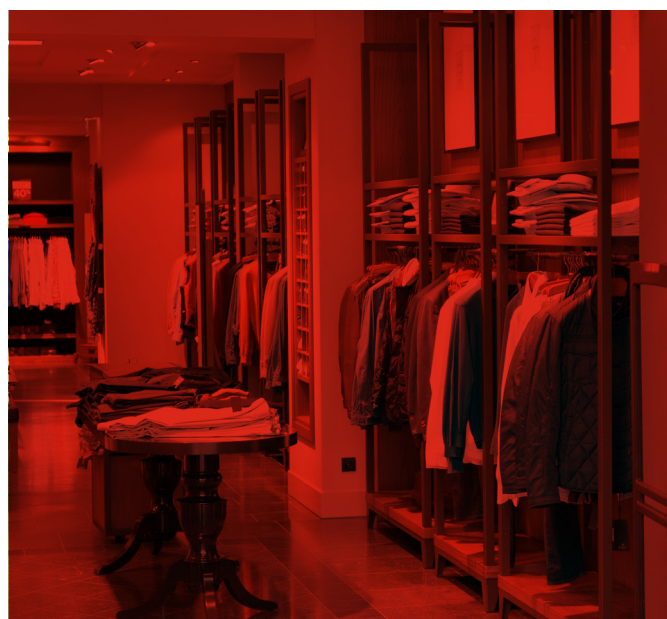
Geo campaigns

As is widely known, Zara, the major fashion brand of Spain's Inditex group, changes its assortments up to 15 times a year. Less widely known is that this isn't necessarily simultaneous across geographies. A collection may launch in the Basque Country and sell for three weeks. After this, what remains is pulled back, replenished with fresh stock – adjusted for what has or hasn't sold well – and relaunched in, say, Andalusia.

$187.40bn
Largest segment is women's apparel US 2023

Source: Statista

Ferag has always developed its own software, using industry-standard development tools.

Fashion gets smarter

However good the physical aspects of a system are, the real differentiators now lie in the planning, control and management software. Increasingly this means applying elements of Big Data, Machine Learning and Artificial Intelligence (AI).

Ferag has always developed its own software, using industry-standard development tools. However, software is a critical element in the future development of highly responsive, 'intelligent' intralogistics systems. With a desire to lead this exciting field, Ferag recently acquired the Australian warehouse automation software developer, dereOida. Now branded as ferag.doWarehouse, the business offers all forms of warehouse software, from WMS and WCS to PLC and manual warehouse management – covering multiple warehouses, automated systems control, flexible workflows and local language support, all under ISO 27001 certification.

Control and operation of systems such as Skyfall will in future be increasingly augmented by AI tapping into the resources of warehouse and logistics planning, as well as wider management data. For example, businesses are already beginning to use predictive analytics to work out which fast-moving items, or combinations, should be brought forward into buffering in advance of a firm order arriving.

It is also becoming possible to predict with some validity the nature and rate of returns to be expected, and when they will be needed, and to plan the most efficient routes for their speedy reintroduction into available stock. And whereas at present whole lines tend to focus on one particular picking strategy to suit a given activity, say retail store replenishment, and then switch strategies for a spell of ecommerce fulfillment, it might be possible to run multiple strategies – wave picking and zonal picking, for example – simultaneously with AI predicting and resolving any physical or other conflicts. All these possibilities come alive through clever use of buffering technology.

The future competitive landscape for fashion businesses will be the speed and flexibility with which brands can respond to changing market needs. In no small way, this will place a heavy emphasis on the capabilities of the distribution center, its agility and resilience in coping with more frequent peaks, demands from intelligent and more complex planning tools and a growing insistence from the consumer for a more sustainable fashion supply chain.

35.2bn pieces
Expected market volume US by 2028
Source: Statista

Fashion choices

Overhead pouch systems can really bring order to the huge complexity of fashion fulfillment. Here are seven key themes that DC operators should be considering:

Flexible omnichannel solution: Skyfall can move seamlessly from retail replenishment to ecommerce fulfillment, or any balance between the two, without loss of performance.

Enables predictive picking: dynamic buffering capabilities allow for pre-picking and preliminary consolidation of goods based on forecasts: they remain in the buffer but unassigned until a firm order is received, but then they are instantly available – even minutes before a 10pm cut-off time.

Batchless strategy: an unlimited number of put-wall locations can be virtually created in the 'cloud', which can dramatically increase the number of units picked per location.

Gentle touch: conveyance in pouches or hangars, as well as load/unload techniques, are inherently gentle for delicate items: 'hard' pouches carry products through buffering, sorting, sequencing and delivery to pack stations without any human intervention.

Seamless returns: returns can, if assigned to orders or imminent demand is predicted, be placed directly into buffer, making them readily available and reducing the labor required.

Sustainable and ergonomic: Skyfall is an intrinsically low energy system. Ergonomically, goods can be brought down to a convenient operator height where required; meanwhile the working floor is free of machinery, obstructions and hazards.

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