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REALIZING VALUE BY APPLYING ANALYTICS TO WMS EXECUTION AND OMNI-CHANNEL FULFILLMENT

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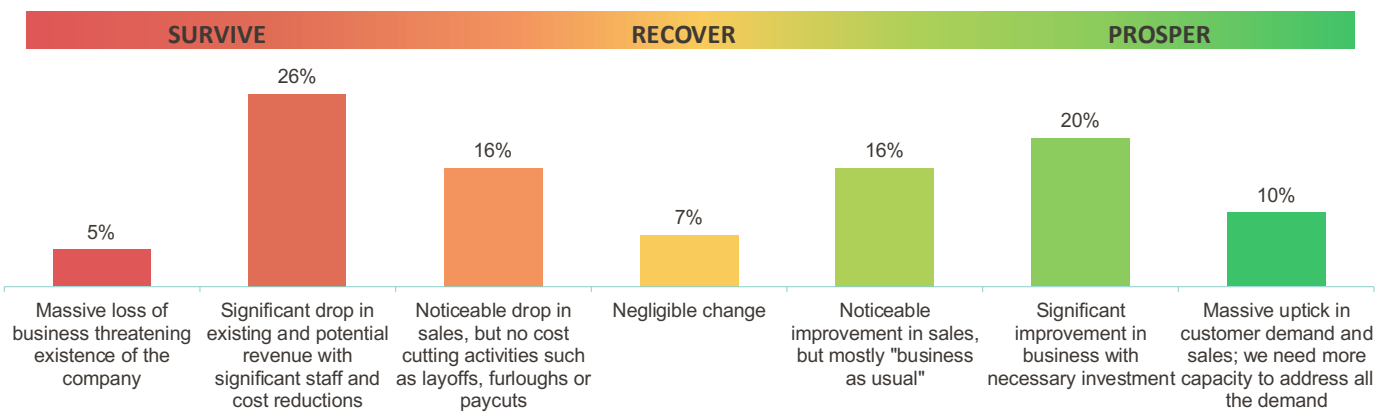
ABERDEEN

The pandemic and resulting economic shutdowns have affected companies worldwide. As it relates to retail and consumer goods organizations, the buying habits for much of the population changed as restrictions were imposed. Many retail storefronts were closed, and a surge in online shopping ensued virtually overnight, requiring direct-to-consumer fulfillment. This report will examine how *all levels of retail and consumer goods* organizations are now involved in the fulfillment effort utilizing their warehouse management systems (WMS) and how analytics play a huge role in the challenges they now face.

Current State: How Companies Fared After Shutdowns

The following chart indicates where companies landed following the pandemic-related economic shutdowns and the corresponding resilience levels for them (Figure 1). The information comes from Aberdeen's survey (sidebar) and looks at resilience in three phases: survive, recover, and prosper.

Figure 1: Economic Impact of Pandemic-Related Shutdowns



n = 178, Source: Aberdeen, October 2020

ABR 2020 survey

Companies around the globe are facing a new reality, filled with economic volatility and business uncertainty.
While certain industries have been impacted more than others, the next several business cycles will favor those organizations that have built up a measure of resilience and agility across their core business processes.

The ABR 2020 survey (N = 1,953) aimed to uncover the strategies and tactics employed by today's most resilient companies, and the tangible outcomes attainable across seven key areas of investigation.

Approximately 47% of companies ended up with noticeable to massive revenue loss, 7% with negligible change, and 46% with some improvement. Companies on the far left are those struggling to survive. The majority find themselves in some form of recovery, and a few on the right actually had a boom from being in the right place / time. Aberdeen inquired about their ability to invest on some level. On a scale of 1-5, 70% indicated they had the ability to invest, while 30% were not in a position to do so. It's good news, however, that 70% have some ability to further adapt beyond their base level of resilience by investing on some level to fix pre-existing issues, or add new capabilities to move their organization ahead.

Business Pressures as Companies Recover

Beyond the obvious concerns of a pandemic recurrence and further shutdowns, the respondents from Aberdeen's ABR survey also identified the business pressures they were most concerned about after going through the initial shutdowns. Top-of-mind for these organizations is *changing customer needs,* which will be a factor for all companies as they begin to reengage with their customers and their customers' customers. Even the grocery world, which has remained open throughout the pandemic, has had to adjust to demand for a safer customer experience.

A challenge for most organizations was the *inability to interact with their customers except by phone or a meeting application*. In-person contact or site visits were not unavailable to most, so reestablishing those relationships and validating / verifying the demand stream is critical to planning and forecasting with some level of intelligence. Click and collect or curbside pickup services have become essential for companies to maintain employee and customer safety, and providing high-quality customer experience can be more difficult without face-to-face interaction.

There is also a *concern about the ability to quickly adapt and adjust* — how strong is the resiliency? This is a top concern for companies as they assess where they landed and determine what they need to do to recover**.** *Knowing exactly how their business model might change going forward* is still an unknown to some degree as companies are starting to recover and build resiliency. This lack of certainty may cause some hesitancy on investments to move beyond the recovery stage. Even if companies are resilient, they will need to adapt to prepare for the future — a task only 70% of respondents indicated they were prepared to do.

Omni-channel Fulfillment Issues Driven by Shutdowns

The immediate impact of the shutdowns changed the buying habits for much of the population as restrictions were imposed and people remained at home

Best-in-Class Definition (Based on performance metrics)

- ► Best-in-Class: Top 20%
- ► Industry Average: Middle 50%
- ► Laggards: Bottom 30%
- ► All Others: The sum of the Industry Average and Laggards, equal to the Bottom 80%

with limited mobility, with the exception of the businesses deemed essential. Grocery and supporting businesses along with homecare and the food supply chain were some of the prominent industries that saw negligible impact and, in some cases, growth.

At the consumer level, online activity instantly increased as traditional retail (brick and mortar) was restricted, and retailers and consumer goods companies were faced with a surge in direct-to-customer order flows. This created a significant shift in WMS solution requirements to manage the increase in omni-channel volume and complexity due to the sudden shift in buying patterns. The effect of this increase in direct-to-customer orders is amplified by the fact that consumers often order in singles while warehouses typically ship cases to retailers and wholesalers.

To support this shift and growth in the volume of order transactions, inventory visibility across all locations within an organization is required and the fulfillment costs to multiple new locations must be updated in order for the most optimal point of fulfillment to be determined for direct-to-customer orders. Decisions must be made on the optimal location to *ship from* to profitably meet demand in near real-time as online orders are entered for next day deliveries. At the order level, multiple items on an order coming from multiple locations just add to the complexity. The order management (OM) / distributed order management (DOM) and WMS intersection must be agile, flexible, and adaptable at the data level to boost the speed of execution to handle all the combinations and permutations.

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The need to process higher omni-channel fulfillment volume at faster speeds to support direct-to-customer shipments, across all WMS systems within a supply chain, puts a lot of stress on warehouse resources, data management, and process speeds. The ability to adapt on the fly requires superior analytics and data access to facilitate insights. Data sources currently reside in many systems such as OM / DOM, inventory levels across multiple entities, ERP systems, shipping and in-transit information from transportation management systems (TMS), planning and scheduling across and within WMS systems, as well as partner applications. Having all of this data on one platform to provide a holistic picture of fulfillment would greatly simplify the data access, analysis, and time-to-decision for warehouse management and operations.

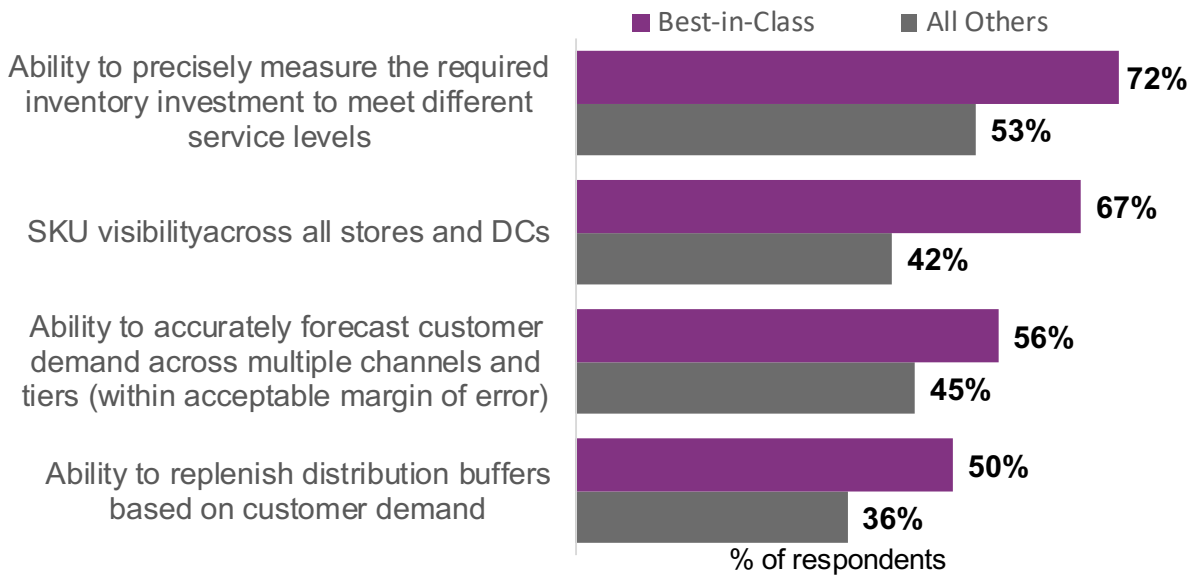
Another exacerbating factor is realizing that multiple organizations are needed to support omni-channel. For retailers and consumer goods products, fulfillment is distributed across stores, retailers DCs (distribution centers), wholesale distributors, and consumer goods manufacturers to ensure that orders are delivered on time. This points to the need for a common data

model platform supported by an advanced analytics backbone to address all the modeling and analysis required for robust omni-channel fulfillment.

Intelligent Inventory Visibility Requirements to Support Omni-channel Fulfillment

Figure 2 reveals the capabilities that WMS solutions rely on for inventory visibility to support their omni-channel fulfillment efforts for Best-in-Class companies compared to All Others.

Figure 2: Inventory Visibility Capabilities for Omni-channel Fulfillment



n = 271, Source: Aberdeen, October 2020

The most important capability is the ability to determine required investment to hit service levels — key to omni-channel inventory management, having the product in the right place at the right time. This is a continuous exercise requiring quick data access and analysis to make profitable decisions.

FG (finished goods) visibility across all locations is required to make informed decisions for fulfillment shipping points — ideally including partners' inventory levels as part of the decision process. Best-in-Class companies are much further along compared All Others who only have 42% adoption.

Accurately forecasting customer demand across multiple channels within acceptable margin of error is the basis for setting the inventory levels by location to support omni-channel distribution. This ties in the need for forecasting and planning systems as well for accurate data. Shopper hoarding is notoriously difficult to forecast, plan for, and respond well to. With

Best-in-Class Performance

► **Complete and on-time delivery of products**
- Best-in-Class: 94%
- All Others: 81%

► **Cash Conversion Cycle**
- Best-in-Class: 10.6 Days
- All Others: 21.8 Days

► **Average forecast accuracy at the SKU level**
- Best-in-Class: 84%
- All Others: 59%

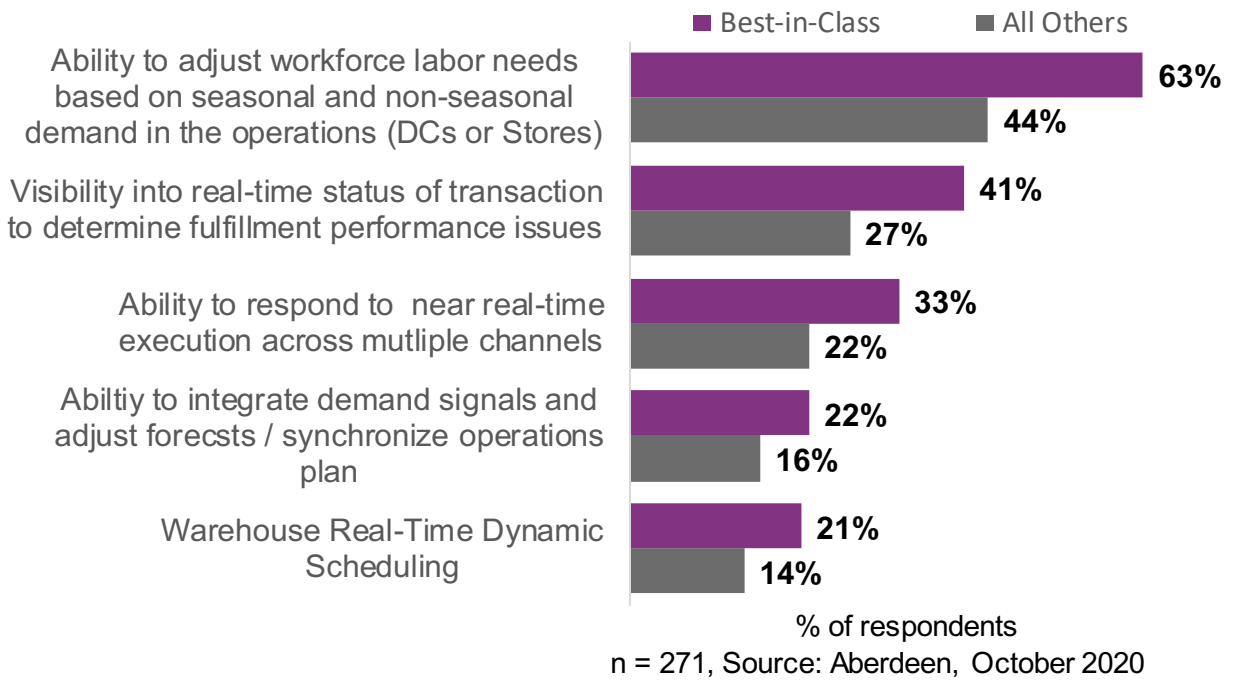
warehouse management systems that enable predictive analysis for comprehensive forecasting, companies are better equipped to support fluctuating customer demands. Forecast accuracy has a direct impact on these calculations, and the Best-in-Class are significantly ahead in this area.

Replenishing inventory into distribution buffers based on demand automates the replenishment for established channels — freeing resources to manage direct-to-customer options. However, as a result of the pandemic and shutdowns, the forecasts and demand signals that trigger replenishment need to be verified and validated with customers to ensure these demand signals are reliable.

Warehouse Management (WMS): Analytics Are Critical

Figure 3 shows the core capabilities that Best-in-Class companies have in place within their WMS solutions to support and address the process speed and decision-making requirements of an omni-channel environment. The integration / connectivity with order management systems is critical for success.

Figure 3: WMS Capabilities for Omni-channel Fulfillment



As a result of the sudden increase in direct-to-customer shipments, the ability to adjust labor based on order volume is a big cost advantage, and the volatility under restarting and pull back adjustments puts the seamlessness of the resource adjustment process in high demand.

The ability to course correct for fulfillment processes optimizes Best-in-Class execution to deal with adjustments on the fly. Having real-time visibility into shipment status highlights issues that can be quickly remedied with real-time visibility. Added to this is the ability to respond to near-real-time execution across multiple channels, which is the aspiration for all omni-channel fulfillment organizations. This requires visibility first, then analysis to evaluate the alternatives, then making and communicating the decision to all involved.

As countries and local economies reopen and adjust their policies based on conditions, there may be incremental volatility beyond normal customer and channel fluctuations. Keeping WMS in sync with these changes is critical to managing resources and capacity in a timely manner. Delays can be costly if resource levels and priorities aren't addressed with a sense of urgency.

Real-time dynamic scheduling for the warehouse enables constant reprioritization of WMS picking, packing, and scheduling operations in real-time as new orders are entered requiring same day / next day deliveries. There are normally several picking algorithms to choose from in most WMS systems, but dynamic scheduling is new to most of these solutions and can be a best-of-breed addition if needed. This is the final step to keeping priorities valid on the warehouse floor to meet schedules and satisfy customer demand.

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Summary and Key Takeaways

The recent economic shutdowns stemming from the pandemic have had a significant impact on retail and consumer goods buying patterns worldwide, forcing a shift toward an even more complex omni-channel fulfillment environment. To support this fulfillment effort at the WMS level, inventory visibility to all finished goods levels at stores, DCs, inbound and outbound shipments is required.

Best-in-Class have a significant advantage in handling direct-to-customer orders as well as a much stronger suite of capabilities and supply chain planning / scheduling to manage the additional workflows to support forecasting and warehouse operations and resource management. Dynamic warehouse scheduling and labor management are critical factors in addition to the OM / DOM solutions as part of the overall fulfillment process. The Best-in-Class have a definite advantage in effectively managing the increase in direct-to-customer orders that many companies are seeing.

In addition to the advantages that the Best-in-Class already have, having all of their data in a common data model to support WMS in a retail and consumer goods supply chain would be a huge advantage. The speed of

information for real-time responses and scheduling requirements have accelerated due to increased direct-to-customer demands. A common data model would eliminate delays due to data gathering and process handoffs that are real barriers to increasing the speed and agility required for omni-channel fulfillment.

Aberdeen recommends that companies follow the lead of Best-in-Class companies and consider investing in a retail and consumer goods platform with a unified data model to manage and improve direct-to-customer omni-channel fulfillment in the new retail and consumer goods environment.

About Aberdeen

Since 1988, Aberdeen has published research that helps businesses worldwide improve their performance. Our analysts derive facts-based, vendor-neutral insights from a proprietary analytical framework which identifies Best-in-Class organizations from primary research conducted with industry practitioners. Aberdeen provides intent-based marketing and sales solutions that deliver performance improvements in advertising click-through rates and sales pipelines, resulting in a measurable ROI. Aberdeen is headquartered in Waltham, Massachusetts, USA.

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