SUPPLY CHAIN COLLABORATION IN TRANSFORMATIVE VERTICAL INDUSTRIES

Implications of Omnichannel and Dropshipping

LEHIGH UNIVERSITY

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DiCentral™

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FOREWORD

Consumer buying behaviors are changing from brick and mortar shopping to e-commerce shopping, a change that is having a profound effect on retailers, manufacturers, transportation companies, and equity investors.

Besides numerous retail bankruptcies, we have seen the rise of retail e-commerce sites, the equity impact on Real Estate Investment Trusts (REITs) with heavy exposure to retail properties, the pivotal moves by Consumer Product Goods (CPG) manufacturers to publicly tout their advances in Direct-to-Consumer (DTC) sales, and the expansion of parcel post carriers that now deliver goods directly to our front doors.

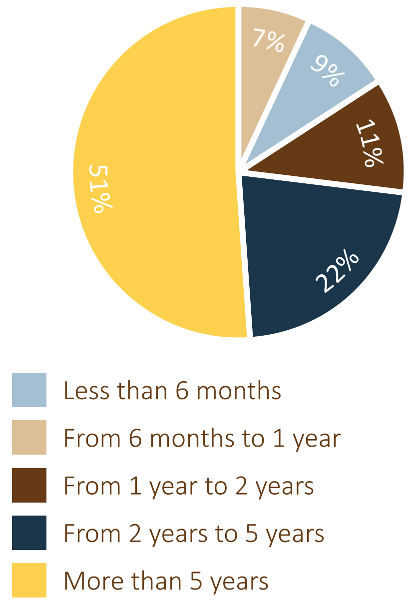
As a global leader in cloud-based B2B integration (B2Bi) for the retail industry, DiCentral stands in the center of this transformation, having clients both positively and negatively impacted by these changes. Many are in the process of updating all or some elements of their business in order to evolve with the times, thus we felt compelled to better understand this changing landscape. We partnered with the Center for Supply Chain Research at Lehigh University to take an in-depth look at existing DiCentral clients, and through a series of interviews and questionnaires, identify trends that might make this transformation easier to navigate.

We would like to thank Lehigh University, the Center for Supply Chain Research, and the over 180 DiCentral customers who participated, for being gracious with their time and their insights. In addition, we would like to thank Dr. Zach G. Zacharia, who agreed to undertake this study while teaching full time and running the Center for Supply Chain Research at Lehigh University.

Respectfully,

DICENTRAL CORPORATION

73% OF THE STUDY RESPONDENTS HAVE MORE THAN 2 YEARS OF DROPSHIPPING EXPERIENCE



EXECUTIVE SUMMARY

The current transformation taking place in the retail industry impacts retailers, CPG manufacturers, transportation providers, and numerous other industries, all of which are part of the same ecosystem. Over one hundred and eighty companies representing retailers, CPG manufacturers and other companies participated in a study conducted by the Center for Supply Chain Research at Lehigh University, dealing with consumer buying preferences that have changed from brick and mortar stores to online e-commerce stores. The first of its kind, this study looked at the implications of this change for both retailers and manufacturers. The study investigated the impacts already absorbed and asked participants to weigh in on future trends.

This study has value to both retailers and CPG manufacturers, as it summarizes the impact of change, the pace of change, and the investments being made to accommodate the change. In some respects, retailers and manufacturers see similar challenges, yet on many fronts it is clear that they respond to these challenges in different ways.

While the study highlights many findings that the reader will find helpful and interesting, it is abundantly clear from the regression analysis that retailers and manufacturers who have most benefited financially from this transformation are those that have invested in electronic collaboration. The ability to share information quickly, reliably, frequently, and with greater detail has led to greater revenue growth for both retailers and manufacturers.

PARTICIPANT DEMOGRAPHICS

The participants of this study were not new to e-commerce or dropship. The majority of the 180 survey respondents were C-Level executives, VPs and senior managers across a variety of different sized companies, including those with fewer than 100 employees and those employing more than 5,000. They were also at least five years into the journey from traditional replenishment to drop shipment, and over one-third were fulfilling more than twenty-five percent of all orders via dropship. Interestingly, nearly half of the manufacturers in this study indicated that more than ten percent of their retail customers now ask them to perform dropship.

The motivations for adapting to these changes differ for each constituent, yet the forecasted pace of change for retailers appears to mirror historical growth rates provided by the US Department of Commerce, which in November of 2018 reported year over year growth in US retail e-commerce sales of 14.5%, while traditional retail sales increased only 5.3%. Manufacturers were more bullish, forecasting the velocity of change at greater than 25%.

RETAILERS

MOTIVATIONS FOR E-COMMERCE AND THE ADOPTION OF DROPSHIPPING

A variety of factors drive the strategic behaviors of retailers. Consumer behavior, competitive threats, and the opportunity to merchandise in a richer environment are key motivators for adopting e-commerce and dropshipping. However, retailers have experienced mixed results when making the leap to e-commerce, and several have gone out of business as a result. While not every retailer intends to adopt e-commerce and dropshipping, it is becoming increasingly difficult to find a retailer that has not at least considered how such technology could be incorporated into their business model to better support buyer needs.

Consumers drive growth, and the advent of e-commerce has meant access to more choices; more styles, sizes, and colors, along with the opportunity to easily compare costs. Besides purchasing directly from a store, new options include allowing consumers to buy online then pick up in the store, as well as buy online but receive the item directly from the manufacturer (dropship). To synchronize these fulfillment models, retailers must make investments in modern order and inventory management systems to oversee shared inventory across each channel and meet customer merchandising expectations while mitigating costs.

The merchandising strategy for retailers appears to be radically different than start-ups with no incumbent infrastructure to protect. Forty percent of the retailers in the study stated that e-commerce and dropshipping would have no material impact on their brick and mortar strategy, but they were happy to accommodate it. One-third of the retailers believe that the customer has a richer buying experience in the physical store than online.

> the advent of e-commerce for consumers has meant access to more choices; more styles, sizes and colors, along with the opportunity to easily compare costs

RETAILERS: CONTINUED

However, some may argue that this mindset has caused traditional retailers to lose market share to online retailers that allow buyers to compare information and online consumer reviews quickly and without having to travel to make the purchase.

In addition, retailers seeking to optimize capital would normally seek to stock items that would meet their inventory turn requirements and avoid stocking expensive items with low turnover. Yet, in a dropship fulfillment environment where the inventory expense is zero, retailers have used this as an opportunity to add more expensive, slower turning merchandise that will appeal to their customers. (This has also provided an additional merchandising opportunity to the manufacturers.)

Additionally, customer service in an online world is dramatically different and richer, given that retailers now have a quantitative buying history that shows buyer frequency, preferences, and economic profile. For many retailers, expanding sales used to be governed by the number of stores and their physical location. In the online world there are no such barriers, allowing retailers to expand their market shares and grow revenue without the cost to increase their physical presence.

Ultimately, the research suggests that e-commerce and dropshipping has benefited retailers by allowing them to boost revenues, increase margins, improve customer service, and increase market share. Manufacturers also reported financial benefits, given that retailers have negotiated a smaller margin on the direct sale of the product.

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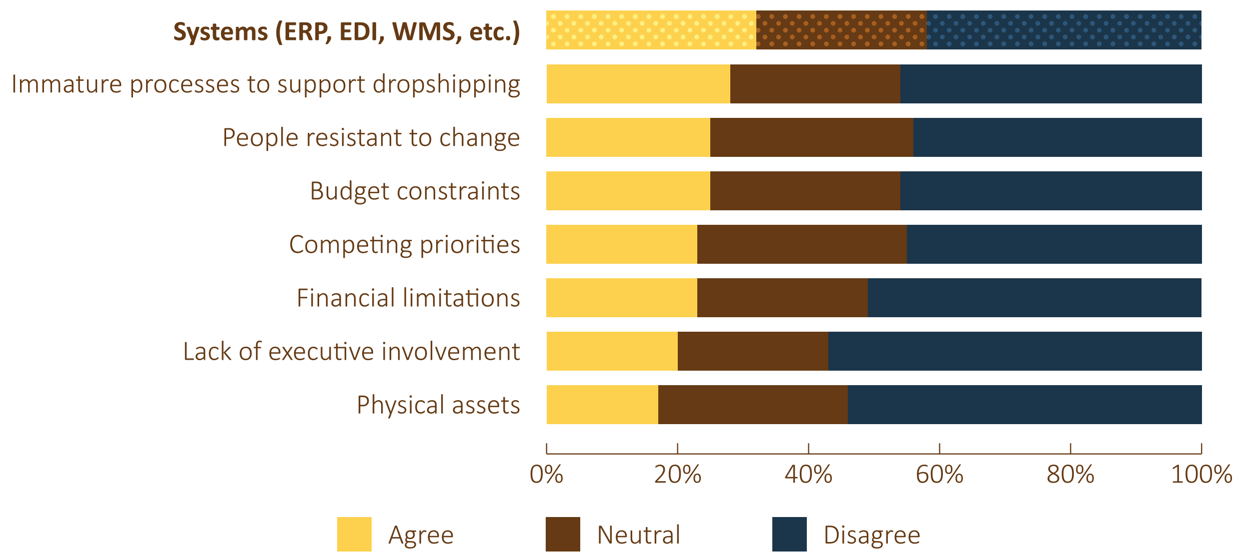
RETAILER CHALLENGES TO IMPLEMENTING DROPSHIPPING

There is no doubt that retailers with the traditional replenishment model (multiple physical stores, distribution and merchandising, along with human resource challenges) have more issues to deal with than a purely online retail start-up. In an effort to identify a common set of challenges for retailers, study participants were asked to comment on a variety of topics such as: executive involvement, resistance to change, limitations with existing technological systems, budget constraints, and competing priorities.

While some retailers were impacted by these challenges, most retailers indicated that no single deterrent was a barrier on the transformational activities. Only “systems” broke the 30% threshold (see fig. 1), being cited by approximately one-third of the respondents as an issue with making the transformational change to e-commerce.

The most significant challenge for retailers is aligning the strategy of planning for merchandising, logistics, e-commerce and compliance. Once aligned, technology must be enabled to support collaboration with manufacturers and visibility into manufacturer inventory. Without real-time insight into inventory levels, retailers run the risk of virtual stock-outs and lost sales opportunities to other online retail competitors, as well as reputational damage.

FIG 1. CHALLENGES PREVENTING RETAILERS FROM IMPLEMENTING DROPSHIPPING

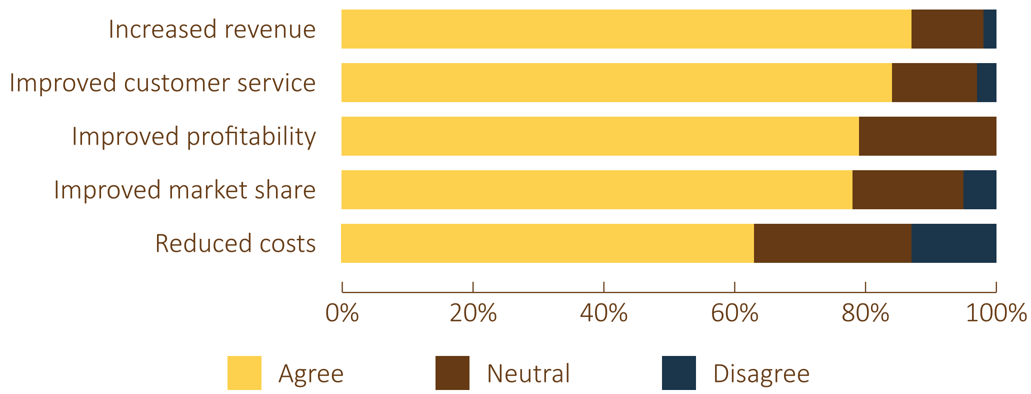


Although many cannot afford the multiple processes and related technologies to enable each fulfillment model, the research indicates that retailers are utilizing a combination of fulfillment models to gain a competitive edge. Enterprise dropship, in which the manufacturer fulfills orders on behalf of the retailer directly to the end consumer, has been around for decades, but has recently gained popularity due to the growing consumer expectations for a broader assortment and category selection. Utilizing dropship programs allows retailers to improve the customer experience and increase revenue by expanding their virtual inventory without incurring additional carrying and fulfillment costs.

Forward-thinking retailers have sought to completely change the way information is shared, realizing that deploying old processes is ineffective in this new environment. Retailers that have retained existing direct-to-consumer fulfillment do not see the same bottom-line benefits as those who have selected to augment standard fulfillment models with virtual inventory delivered by the manufacturer (dropship) (see fig. 2).

Consumers have grown accustomed to same-day or next-day shipping, and it is imperative that the product is available to ship when the order is placed. In a dropshipping model, manufacturers need to quickly communicate any inventory changes immediately to their retailers. In the same sense, the product must be delivered on a timeline made transparent to the consumer (order tracking).

FIG 2. FINANCIAL RESULTS ACHIEVED BY RETAILERS HAVING ADOPTED DROPSHIP



STRATEGIC IMPLICATIONS FOR RETAILERS

There are a number of variables that impact the strategy that a retailer might deploy, given the pace of consumer expectations, the competitive landscape of online retail start-ups, the long-term investments in physical assets, and the changing view that manufacturers are beholden to retailers as their primary go-to-market model. Other factors that dictate strategy include the retail segment in which one participates (e.g. grocery, electronics, do-it-yourself (DIY), apparel, sporting goods, etc.).

One strategy employed by effective retailers involves sharing more margin with the manufacturer, given that manufacturers are asked to invest in new collaborative solutions and pick up a greater share of the fulfillment obligations. This strategy works well for retailers that are not burdened with long-term investments in physical stores, distribution centers, and hundreds of sales associates. As revenue moves to an e-commerce model, retailers must proactively and aggressively remove cost from the legacy business in order to conserve margin. To expand margin in the traditional brick and mortar business, retailers have increasingly deployed new strategies and technology, including:

- Self-checkout centers, allowing the retailer to run physical stores with fewer sales associates;
- Increasing numbers of in-house private labels along with expanded shelf space; and,
- Advertising aimed at getting shoppers to buy now, along with quick replenishment strategies to keep inventory levels low so retailers can avoid stock outs and markdowns.

In many supply chains, some of the most cutting-edge activity in artificial intelligence is occurring in retail, where algorithms, in an effort to ensure goods can be delivered to consumers within 24 hours, will often move goods from one warehouse to another in anticipation of an order simply based on the online viewing of an item on a merchant’s website.

Retailers are experimenting with different fulfillment options to optimize margin and leverage existing infrastructure. Instead of asking manufacturers to re-bond their information systems, hold inventory and perform consumer fulfillment, these responsibilities are held by the retailer and orders are fulfilled using parcel post deliveries from existing distribution centers or the store. Such strategies have tended to reduce changes imposed upon the manufacturers, yet they place limitations on the concept of aisle expansion and adds expensive (slow moving) new products to the merchandising mix.

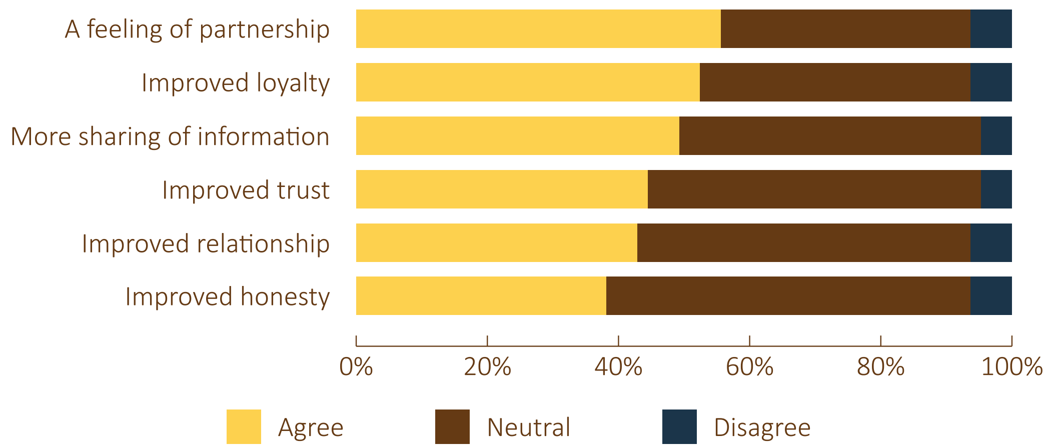
The research clearly and conclusively demonstrates that successful e-commerce and dropship programs are highly correlated to the level of collaboration developed between the retailer and the manufacturer. This collaboration is developed by integrating the systems of retailers with that of the manufacturers. Sharing data openly and frequently allows information to flow and increases visibility for both parties.

Retailers gain increased visibility into the manufacturers' behaviors, which in turn increases the retailer's confidence that products ordered are acknowledged and shipped within the promised time frame. Retailers equipped with this readily available information can provide higher levels of customer support when consumers seek clarity about their orders or seek to make modifications.

It should again be noted that systems challenges were highlighted as a top issue for retailers and manufacturers in the deployment of e-commerce and dropship strategies. The research further suggests that the bonding of these systems led both the retailer and manufacturer to new levels of collaboration with retailers reporting greater levels of trust, honesty, loyalty, and an improved feeling of partnership and solidarity (see fig. 3).

As e-commerce and dropship growth continues to increase, it is critical that supply chain partners share data and establish best practices. Binding the systems of retailers with that of manufacturers requires an investment in both time and finances, but allows the parties to communicate in real time, sharing inventory, order reports, and fulfillment status information.

FIG 3. RETAILERS PERCEPTION OF THE RELATIONSHIP WITH MANUFACTURERS



CPG MANUFACTURERS

MOTIVATIONS FOR E-COMMERCE AND THE ADOPTION OF DROPSHIPPING

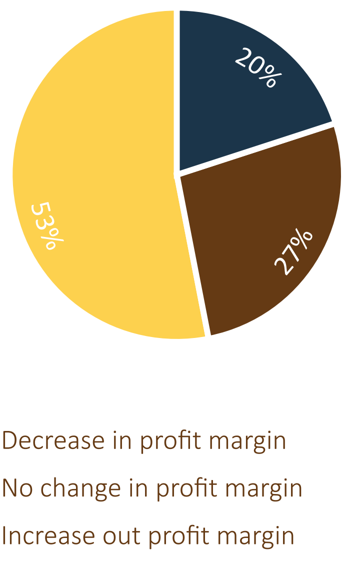
Manufacturers had mixed sentiments in terms of adopting e-commerce and dropship. Historically, they have been dependent on their distributers (retailers) as the primary go-to-market model. The challenges of downstream retailers have a dramatic impact on the fate of manufacturers, as evidenced when toy and sports equipment firms were negatively impacted by the bankruptcies of Toys ‘R Us and Sports Authority.

Manufacturers that have traditionally optimized order management and logistics processes around bulk replenishment to a handful of retailers have found that selling thousands of individual units, each with its own order and parcel post shipment increases operational overhead without any increase in sales.

Manufacturers have seen increasing pressure by their downstream clients (retailers) to adopt e-commerce and dropship, and this has been largely welcomed, given that the majority of manufacturers have shown assorted financial improvements, including revenue and margin growth (see fig. 4).

Because many retailers offer in-house branded items to replace manufacturer brands, some manufacturers are acting as their own retailer, with numerous brand boutique stores (e.g. Under Armour, Michael Kors, Oakley) serving as examples of successful self-merchandising. In addition, in the online retail space more manufacturers have joined the strategy of selling directly to the consumer and bypassing the traditional retailer. In many cases, the manufacturers are touting success in their annual reports. Such strategies have enormous and immediate implications on revenue, where the manufacturer now gets to keep 100% of the retail price paid by the consumer.

FIG 4. MANUFACTURERS EXPERIENCING MARGIN EXPANSION WITH E-COMMERCE & DROPSHIP



Whether the manufacturer is adopting direct-to-consumer (DTC) or dropship as a result of retailer initiatives, the implication is clear: manufacturers must retool and adapt to this new order management and fulfillment process. The transformation to e-commerce and dropship has been more turbulent for manufacturers, as can be seen in figure 5.

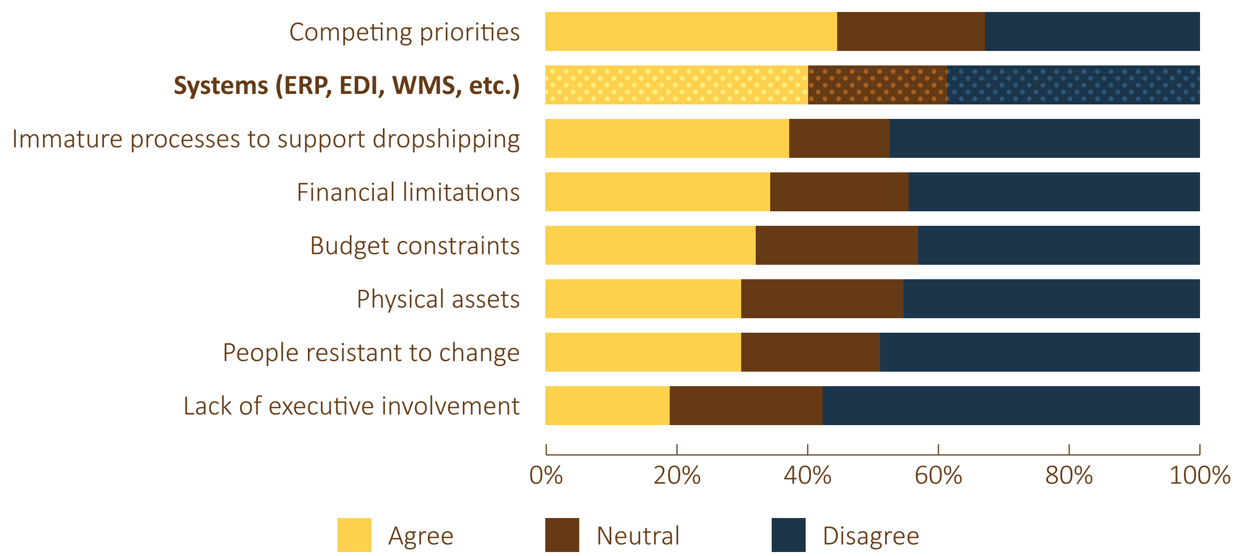
MANUFACTURER CHALLENGES TO IMPLEMENTING DROPSHIPPING

The barrier to entry for manufacturers is lowered when retailers seek to expand product aisle assortment without taking physical possession of the goods. Requirements associated with lot sizes, labeling, and distribution have changed, allowing manufacturers to sign agreements with existing and new retailers that were not available with traditional, in-store replenishment.

Consumer fulfillment has become an increasingly large contributor of overall costs in the world of e-commerce and dropship. In 2018, Amazon incurred $27.7 billion in shipping costs, which represented nearly 20% of the cost of sales. In many cases, the manufacturers incur these expenses when asked to perform direct-to-consumer fulfillment.

Because of this, manufacturers, more so than retailers, have struggled to transform their business processes to adopt the needs of e-commerce and dropship. In the case of manufacturers, seven items were cited by at least 30% of the respondents as being a challenge. The top three challenges are competing priorities, systems limitations, and immature processes within the organization to support the new e-commerce business needs.

FIG 5. CHALLENGES MANUFACTURERS FACE IN IMPLEMENTING DROPSHIPPING



CPG MANUFACTURERS: CONTINUED

Like retailers, systems limitations repeated itself as the second most cited challenge by manufacturers. And much like retailers, manufacturers share systems limitations with their internal systems, such as Enterprise Resource Planning (ERP), Warehouse Management Systems (WMS) and Electronic Data Interchange (EDI). However, it’s important to note that in no case were any of the challenges also listed as barriers to adopting changes.

When surveyed about the systems limitations, 57% of the manufacturers indicated they could support anticipated growth in order volume without any capacity constraints. An additional 33% indicated growth could be supported but there would be some capacity constraints placed upon the organization. Supporting volume growth and fulfilling orders in a timely and accurate manner is critical to the future success of manufacturers.

Manufacturers struggle to control the costs of unique business processes surrounding multiple fulfillment models, such as standard bulk fulfillment and retailer-led e-commerce and dropship initiatives. Supporting the dropship programs of multiple retailers increases complexity for manufacturers, as they take on more responsibility for order management, inventory, and fulfillment.

Manufacturers have a more complicated task in bonding to retailers than retailers to manufacturers. In the bonding relationship the retailer is still setting the rules, by defining the orchestration of events, information needed, sequence of events, frequency of transmissions, articles of data needed, business rules to be applied on the treatment of orders and the fulfillment of product.

These rules are generally non-negotiable, and the guidelines are imposed upon all manufacturers bonding with the retailer. Because they bond with many different retailers, each with their own set of rules, manufacturers must manage hundreds of unique business rules on the manner in which they process and manage data and fulfill orders. These complex business rules make satisfying and managing the unique needs of each retailer difficult, and often require an investment in systems to manage this complexity.

Additionally, business rules dictated by a retailer on the traditional replenishment side of the business differ can from the business rules for the same retailer on the e-commerce and dropship-side of the business. Thus, manufacturers see DTC as a vehicle for removing this level of complexity from their business.

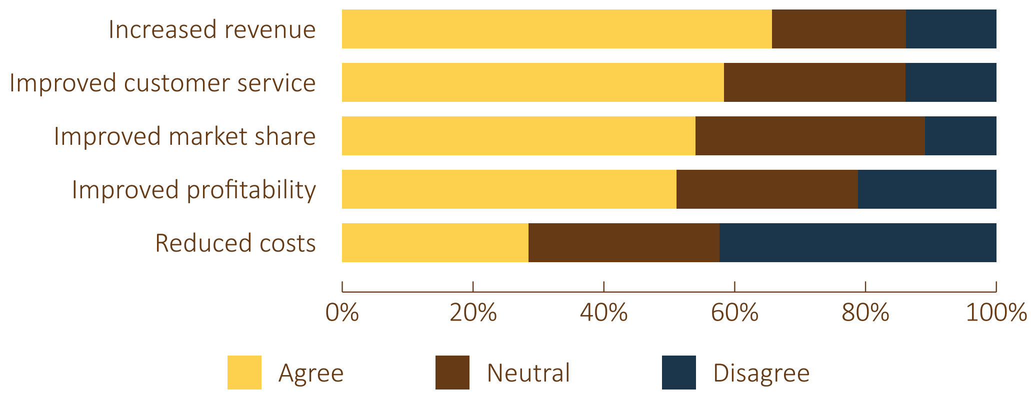
STRATEGIC IMPLICATIONS FOR MANUFACTURERS

Overcoming these challenges often requires incremental capital investment in new systems, processes, vendors, and infrastructure. The financial challenges of making these investments was also identified in the top challenges listed by manufacturers (see fig. 5). Despite the financial and budgetary challenges, the advantages appear to be attractive (see fig 6). Manufacturers have:

- Protected and increased their margins by negotiating favorable rates for drop shipment versus traditional replenishment;
- Redefined distribution strategies and introduced DTC strategies without fear of retribution from retailers, allowing manufacturers to keep more margin; and,
- Taken advantage of additional distribution opportunities with new and existing retailers, lowering the threshold of investment required to meet the obligations of participation in the retailer's endless aisle strategy and the willingness to list more expensive and slower moving products on their websites.

The changes in consumer buying behaviors create enormous new opportunities for manufacturers to grow top-line revenue and margin expansion, such as opening direct-to-consumer (DTC) strategies and exploring new avenues of merchandising with existing and prospective retailers.

FIG 6. FINANCIAL RESULTS ACHIEVED BY MANUFACTURERS HAVING ADOPTED DROPSHIP

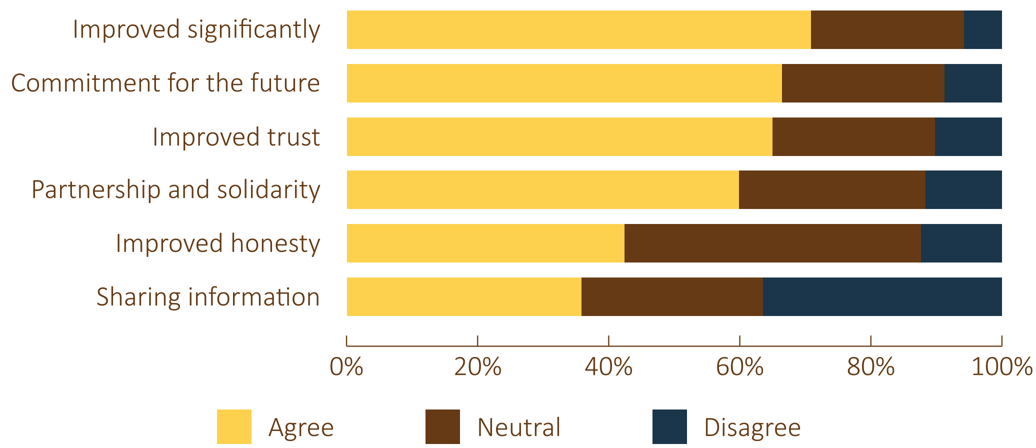


Manufacturers that fulfill dropship orders for 10% to 40% of retail customers enjoy greater revenue than those fulfilling for more than 40% of their retail customers. In the sample, 76% of manufacturers used dropshipping for fewer than 40% of their customers. Given the costs and challenges associated with fulfilling dropshipping orders, this would suggest that manufacturers see a higher return on investment when dropshipping is limited to a more manageable percentage of their total business.

Manufacturers have seen a dramatic change in retailer behaviors after bonding their systems with that of retailers, stating that their relationships improved significantly, there was an enhanced commitment to work together in the future, and an improved level of trust (see fig 7).

While dropshipping presents many challenges for both retailers and manufacturers, these can be overcome by increasing joint communication and collaboration, unifying order and fulfillment technology solutions, replacing outdated information systems, and determining the ideal number of dropshipping partners.

FIG 7. DROPSHIPPING RELATIONSHIP OUTCOMES FOR MANUFACTURERS



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Dr. Zach G. Zacharia is an Associate Professor of Supply Chain Management and Director of the Center for Supply Chain Research at Lehigh in the College of Business and Economics, Lehigh University where he teaches Graduate and Undergraduate courses in Supply Chain Operations Management and Logistics and Transportation. He graduated with a B.S. in Mechanical Engineering from the University of Calgary, received an MBA from the University of Alberta, and a Ph.D. in Logistics with a minor in Marketing from the University of Tennessee. His current research interests include Collaboration/Competition within the Supply Chain, Supplier Satisfaction and the Physical Internet.

Zacharia has over 24 referenced publications including two articles in the Journal of Operations Management, eight articles in the Journal of Business Logistics and articles in Decision Sciences, Journal of Supply Chain Management, International Journal of Production and Operations Management, International Journal of Logistics Management, Journal of Retailing, Journal of Business and Industrial Marketing, Marketing Management, Supply Chain Management Review, Journal of International Technology and Information Management, and Journal of Vehicle Design.

ABOUT DICENTRAL:

Founded in 2000, DiCentral is a leading global provider of supply chain integration services headquartered in Houston, Texas, with 11 offices worldwide supporting customers in over 33 countries. DiCentral's services and solutions are singularly focused on B2B integration and used by many of the Fortune 1000, processing over $500 million in transactions for over 30,000 organizations worldwide. The company's vertical expertise transcends Automotive, Retail, Distribution, Manufacturing, Pharmaceutical, Health Care, Energy, and Financial Services.

DiCentral provides turn-key Cloud based B2Bi Managed Services, which allows organizations to connect and exchange critical business documents with their trading community. The core components of the Managed Services offering include: ERP Integration, Secure B2B Communications, Data Transformation, Artificial Intelligence-Driven Business Rule Analytics, Inventory Management and Trading Partner Community Management.

DiCentral's 20+ proprietary ERP adapters enable customers to automate fulfillment, shipping and receiving processes, respond quickly to business process and ERP changes and improve supply chain visibility. The company develops and markets a complementary suite of supply chain applications, including on-premise enterprise application integration (EAI), mapping & translation, inventory management, vendor managed inventory, managed file transfer, warehouse management, and point of sale (POS) analytics.

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