

Horizontal collaboration is often easier said than done. A new study sheds light on the rewards of getting it right.

Finding Profit in Horizontal Collaboration

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Horizontal collaboration—or the process of two or more companies cooperating at the same level on a certain market activity to realize benefits they could not achieve independently—is difficult to accomplish but hugely rewarding for those companies that do it successfully.

While horizontal collaboration (HC) can encompass a number of supply chain processes, freight transportation is one activity that offers vast potential for a profitable partnership. Take Carreras, a private, mid-sized logistics provider in Spain that is actively pursuing HC relationships to help it sustain or improve its 7% annual growth rate. “Horizontal collaboration has allowed us to expand our network and increase efficiencies without costing us significant extra effort or capital,” says Fernando Bermudez, Carreras’ director of operations.

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While Carerras is one of many companies around the world that are unlocking the value of HC in transportation, they represent a fraction of the shippers and logistics companies* that could be capitalizing on the strategy. To help more enterprises capture the benefits, a research team at the Zaragoza Logistics Center (ZLC) in Zaragoza, Spain, has developed a framework for creating effective HC projects. Based on current success factors as well as new business models, tools and practices, the framework paves the way for the wider adoption of horizontal collaboration (see About our research).

HC gains

Horizontal collaboration typically occurs between two or more manufacturers, two shippers or two logistics service providers (LSPs). It can take place between companies at the same level within a particular supply chain, such as two manufacturers in the same industry, or between companies in different value chains, such as two manufacturers in different industries.

There are a number of drivers of horizontal collaboration, ranging from the demands of globalization to a marketing advantage (Figure 1). The strategy can generate significant cost savings, increase service levels and reduce carbon footprints simultaneously. For example, a study of fast-moving consumer goods distribution networks in Belgium conducted by the European project CO3 (co3-project.eu)

* For the purposes of this article, shippers are companies that purchase logistics services from other companies on a given route, and logistics companies sell logistics services to other companies on given routes.

found that the deployment of HC strategies can cut logistics costs by up to 39% and CO2 emissions by 38%. That level of savings typically has a direct impact on profits. Similarly, Kellogg's and Kimberly-Clark recently reduced transportation costs by 7% and saved 30,000 gallons of diesel in a single year as a result of a HC initiative in Europe.

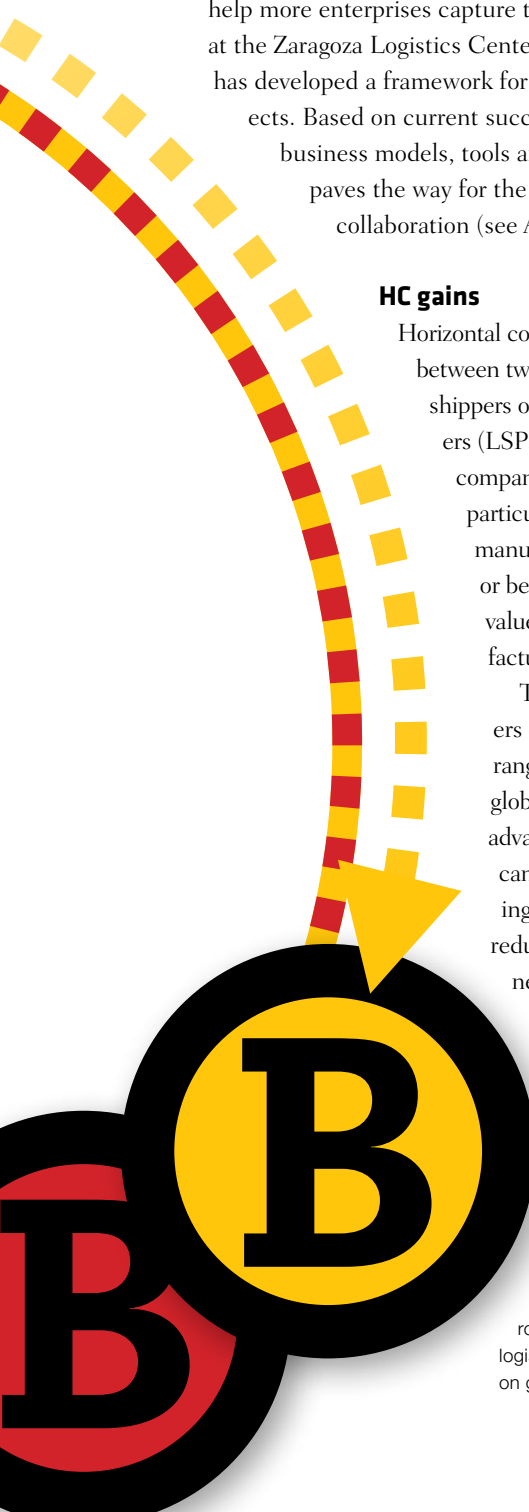
HC speed bumps

How does HC achieve such gains in the freight transportation space? In general, most of the value is created by lowering costs through the more effective utilization of transportation fleet assets.

More specifically, the strategy generates surplus value in a supply chain by optimizing capacities (weight-volume balance) and asset utilization rates. This is typically done through the active synchronization of load schedules and the reduction of empty miles, which lead to more efficient transportation and less variable load dispatches.

Despite these potential gains, HC adoption is not widely practiced, for a number of reasons (Figure 2). These include human fallibilities—primarily a lack of trust, and a fear of both failure and the effort required to implement new ideas—as well as operational difficulties. In addition, organizational barriers often get in the way; in some organizations the barriers are so high that this level of collaboration can't even take place internally between divisions.

The MIT-ZLC framework helps companies to overcome these speed bumps to effective HC. The research project that created the framework analyzed relevant differences between the United States and Europe. The researchers also identified horizontal collaborations in key sectors, documented how successful projects form and grow, identified key factors for improving HC outcomes and developed tools that can better facilitate future HC projects.



Current experience

The MIT-ZLC researchers found that companies in different sectors around the world have paired with each other to achieve new supply chain efficiencies. What's more, these alliances come in many shapes and sizes.

Consider, for example, the collaboration between Ford and GM dealers in the United States (see Figure 3). Schneider Logistics

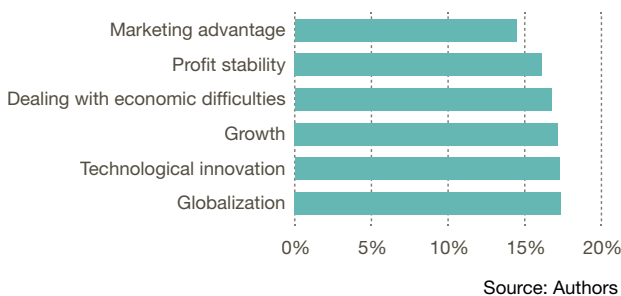
their parts networks and schedule orders.

The sharing of compatible route schedules is another variation on the HC theme. Land O' Lakes, one of America's premier food companies, used to ship a number of empty trailers along the eastern seaboard. Working with Nistevo.com, an online logistics match-maker that is now part of IBM, it was able to partner with other companies with similar transportation schedules. On one specific route, General Mills was sending its products from point A to point B on a similar schedule as Land O' Lakes was sending its products from point B to point A. Both were deadheading back with empty trailers. The two companies were able to synchronize loads and reduce empty miles. Through partnerships like this one, Land O' Lakes' was able to save over \$2 million a year.

Carreras, the Spanish 3PL mentioned earlier, launched a campaign to collaborate with localized 3PLs in an effort to reduce the total miles driven in its operations. Carreras typically looks for logistics companies that service small regions relatively far from its distribution centers. A collaborative agreement with these logistics providers allows Carreras to achieve a more efficient network. The company has established a framework for starting new horizontal collaborations that has enabled it to shorten the time it takes to set up partnerships from over two months to just a couple of weeks. In addition, the more detailed expedited process uses standardized contracts and improves Carreras' ability to identify the needs of prospective partners. As a result, the company leverages efficiencies from a network that is more dynamic and expansive.

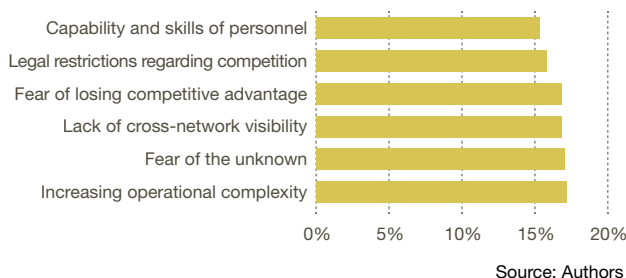
Kimberly-Clark has collaborated horizontally with a number of CPG companies across Europe to capture cost savings from an extensive distribution network. The initiative started in the Netherlands to meet customer requests for less than full truckload deliveries. After some research, Kimberly-Clark found that it shared a number of shipping lanes with Lever Fabergé (now Unilever). After setting up a joint logistics plan with Lever, the two companies worked with Hays Logistics to set up a new warehouse where both could store their products. Lever and Kimberly-Clark then worked with customers to receive orders for the same day, which were fulfilled by Hays. Customers benefited

FIGURE 1
Drivers of horizontal collaboration



was optimizing a Ford dealer's parts supply chain when it noticed that there was significant overlap between Ford and GM. In many instances, dealerships were located in groups. OEM supplier locations tended to be tightly grouped as well. Sharing these

FIGURE 2
Barriers to horizontal collaboration



OEM parts networks yielded significant cost savings and raised efficiency levels through better asset utilization and increased volume. It is important to note that in this case, HC happened between two dealer distribution networks that jointly agreed to share

because they were able to order twice as frequently with the same shipping costs. Kimberly-Clark was able to reduce inventory cycles, improve service levels and reduce its holding costs. As more companies joined this shared logistics hub, batch sizes came down even further and the process became even more efficient; eventually some 93% of Kimberly-Clark's product volume in the Netherlands was moved by shared deliveries, according to the CO3 Project.

After this initial success, Kimberly-Clark took a few years to find a partner it could trust in other locales. Eventually, it collaborated with Kellogg's in the United Kingdom. There, the two companies established a cross docking operation in southern England. Kellogg's products were sent from a northern facility to London where they were cross docked and shipped in smaller quantities with Kimberly-Clark's products to customers in southern England. The process quickly became permanent, and Kellogg's eventually began to cross dock Kimberly-Clark products in the north of the country for better distribution there as well. The fact that both companies were already working with the same 3PL, TGD, made the relationship easier to develop. The information flows were already set up with TGD and information sharing was quickly established. All three companies achieved significant benefits from this relationship.

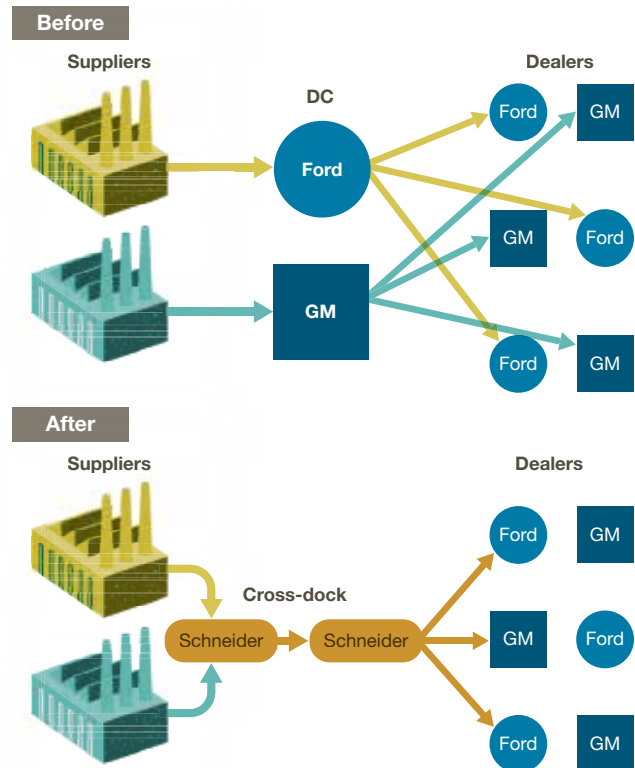
There are other examples of collaboration not only at the vertical or horizontal levels, but also at a multi-dimensional or "diagonal" level. For example, Walmart, Uber, Lyft and Deliv teamed up to implement a pilot for a last mile grocery delivery service that integrates the strengths of each participant. Walmart customers place online orders that are filled in one of the retailer's warehouses. Delivery drivers from Uber, Lyft and Deliv are equipped with GPS technology and mobile devices that enable them to access information on appointments. In addition to synchronizing the itineraries, the drivers also optimize route schedules using a suite of integrated applications.

A framework for success

The projects described above show that horizontal collaboration can take many forms. The MIT-ZLC research team grouped the different types of alliances into four frameworks:

FIGURE 3

Before and after horizontal collaboration—Representation of parts distribution networks



Source: Authors

- **Suppliers HC.** When suppliers get together to make joint decisions to coordinate the logistics flows associated with a particular customer.
- **Customer HC.** Collaboration between customers where the participants make joint logistics decisions to coordinate logistics from the producer.
- **3PL HC.** Where multiple 3PLs pair up to expand their networks and achieve greater efficiencies across their business models.
- **Inverse needs HC.** This type of collaboration happens when two companies with inverse logistical needs pair up to achieve savings (such as coordinating reverse load flows).

Although these frameworks differ in distinct ways, they follow a similar structure.

The process typically involves identifying the joint value propositions and gains that can be derived from a potential collaborative relationship. Having pinpointed the possible benefits, companies identify potential partners, pair with the chosen parties, establish a trustee, deploy a suitable contract and hopefully achieve their desired goals.

Using this basic structure, the researchers established a new framework for horizontal collaboration that takes into account the best practices identified in all of the aforementioned frameworks as well as the process for forming horizontal collaborations (see Figure 4).

In order to overcome the natural resistance most companies have to collaborating,

which HC can be improved, and then merges all of the current frameworks into one easy-to-use framework.

The role of a trustee

In this system, the process starts with the appointment of a centralized and neutral trustee. This party oversees the creation of HC relationships and adds value to every participant in the alliance. Third- and fourth-party logistics providers are uniquely situated to fulfill this role. They have connections with many clients, access to shipping information, the ability to drive the system and the financial incentives to make it happen. Sometimes they are not sufficiently incentivized to optimize all their customers' flows and cannot take a purely neutral role. But when they are able to participate, 3PLs and 4PLs can often sell the idea of horizontal collaboration to their clients; with their customer bases, they also have the ability to identify and create HC partnerships.

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Engineer the best routes

The trustee's first task is to cross engineer routes. This is a process that finds optimal systems of transportation between logistics providers before collaboration occurs between shippers (see next section Making matches). At this stage, HC happens between logistics companies.

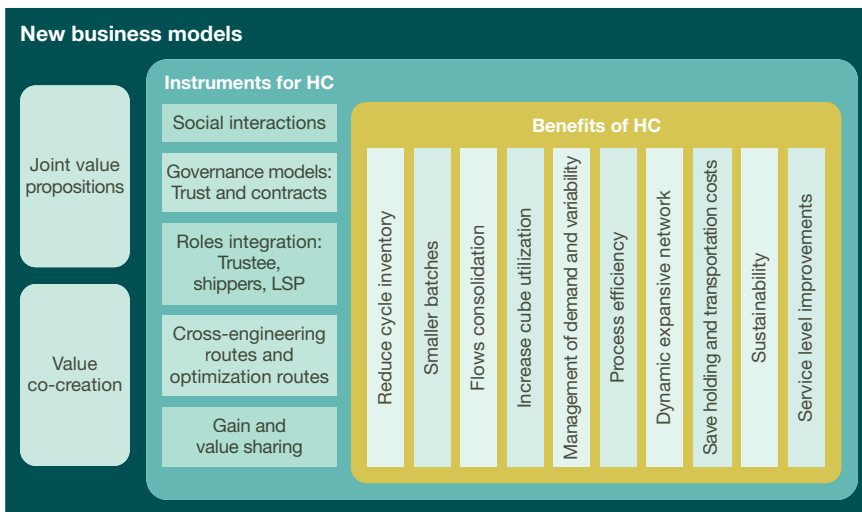
To fully understand the cross engineering routes, it is important to understand route engineering, a process by which logistics companies use dynamic

pricing of route times for given lanes. The logistics companies are able to maximize asset utilization by synchronizing flows, stabilizing demand and creating closed loop routes (see Figure 5).

For example, a logistics company may have shipments from point A to point B every Thursday and from point B to point C every Saturday. The company should naturally price route C to A lower on a day that allows them to get from C to A in time for the next round

FIGURE 4

Instruments for horizontal collaboration and its benefits



Source: Authors

the team analyzed successful horizontal collaboration relationships and created a market-driven system that will allow them to occur more naturally across multiple industries. This is offered as a complete system, but each part can act as a standalone process. It takes into account the drivers and barriers identified in Figures 1 and 2, what is working in horizontal collaboration today, the ways in

of deliveries. This creates a closed loop and prevents empty truck miles. Route engineering includes the development of incentives for shippers to change current structures. It is quite prevalent in the 3PL industry and serves to optimize the routes shippers use on a market demand basis.

Cross engineering builds on route engineering by taking into account the current routes of other collaborating logistics companies. The trustee then creates a pricing schedule that optimizes the asset utilization of all the participants. This may include sub-contracting or trading of routes to achieve the most efficient system. Naturally, cross engineering should also incorporate the logistics networks of companies that ship and store their own products. This system serves to connect many logistics providers together in a horizontal collaboration setting.

Once cross engineering happens, the trustee can propose route structures to the shippers in accordance with the most efficient pricing that takes into account multiple logistics providers systems. This step makes it easier for the shippers involved to collaborate because they can make decisions based on a common system. Achieving this level of commonality also streamlines the pairing process.

Making matches

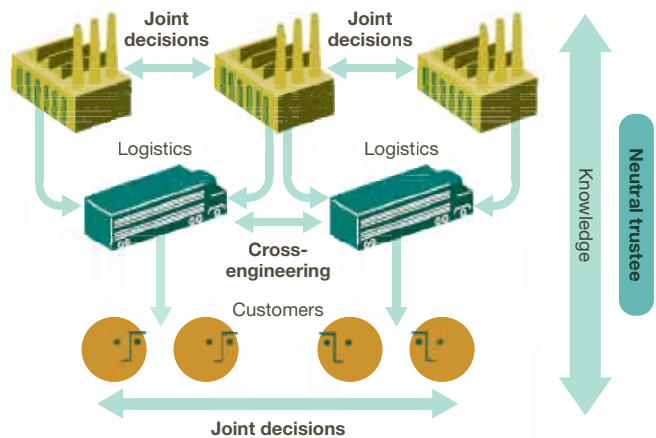
In order to expand the horizontal collaboration network, the trustee uses a statistical technique to identify additional potential shipping partner companies through a process we call smart recognition. Using data from current routes, companies that typically ship at the same times on a given lane can quickly be identified as possible pairs. In the case of the parts project involving GM and Ford dealerships, Schneider Logistics was able to recognize overlaps in supply chains and recommend pairings.

The statistical methods used in this stage of the process—basic statistical regression and time series analyses—should provide many insights into which companies are likely to establish successful pairings. The criteria used include: origins, destinations, delivery time-windows, frequencies of deliveries and their variabilities, compatibility of freight and handling, KPIs, information systems available or percentage of returns.

Smart Recognition should also take into account company organizational characteristics and past pairing relationships (after the system has been in use for some time).

FIGURE 5

Natural horizontal collaboration system



Source: Authors

Naturally, more data and more statistical analysis would help to predict better possible pairs in the future.

Next, the trustee pairs top potential partners, using a system of micro-pairing. This is a process of matching companies on only one route at a time. There can be multiple pairings on each route, and include large

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companies allied with each other as well as smaller players that are compatible in terms of the loads they transport.

When more pairs are available on the same lane, shipments can be more variable and higher levels of efficiency can also be attained. When many companies are paired

on the same lane with similar frequencies, one partner can deviate from the system without a having a large adverse effect on the other partners. However, when only two partners are paired on the same lane and one partner deviates, the other partner is at a much higher risk of losing the efficiencies gained through the partnership.

Key factors to consider when evaluating the compatibility of pairings are the partners' respective risk levels and flexibility.

Having identified and gained the support of likely partners, the trustee sets up a meeting to start the process of establishing a horizontal collaboration relationship. Key factors to consider when evaluating the compatibility of pairings are the partners' respective risk levels and flexibility. These two aspects are important from a gain sharing perspective—each participant must benefit from a relationship—and in terms of the synergies that can be captured by teaming up in this way. Baseline pricing and fee structures for the agreement can then be set, and the conditions for the partnership negotiated.

If the relationship is implemented, the trustee acts as an insurance company that charges fees to ensure that out-of-contract occurrences are properly compensated. The trustee also helps the partners manage risk through the most suitable diversification of horizontal collaboration relationships.

Systematic benefits

Horizontal collaboration can happen naturally in a system that is designed to foster the creation of such partnerships. But the collaboration model set out in this article has a structure that is founded on creating HC relationships efficiently and effectively at every level of the supply chain. In this system, all

About our research

This article is based on a research study conducted by the Zaragoza Logistics Center (ZLC, zlc.edu.es), an educational and research institute in logistics and supply chain management, established by the Government of Aragon in Spain in partnership with the Massachusetts Institute of Technology. ZLC is part of the MIT Global Scale Network (scale.mit.edu).

This study was developed in collaboration with Material Handling Industry (MHI), the largest material handling, logistics and supply chain association in the United States. The study aimed to identify horizontal collaboration practices today in the United States and Europe, show ways that horizontal collaboration relationships can be improved and develop a series of recommendations that serve to create a more natural system of facilitating horizontal collaboration in the future. The foundations of this research were based on current cases of horizontal collaboration, interviews with supply chain professionals and an analysis of an extensive survey conducted in 2015, which gathered 347 online survey respondents. The largest group of respondents was from Europe, Middle East and Africa (57%), 38% from North and South America and the rest (5%) from Asia and Australia. In terms of the respondents' position, 29% held executive level job positions, 50% at management level and 21% at non-management level.

players are incentivized to collaborate horizontally, which promotes benefits that build on each other.

The system is designed to facilitate the exchange of knowledge and value, and to increase supply chain efficiency through joint decision-making. In addition, the proposed system makes it much easier to find potential partners, pair up with them, improve profitability, gain market share and meet environmental goals.

Horizontal collaboration has been slow to take hold, especially in the United States. But, as companies as diverse as Kimberly-Clark, Walmart and Carreras have discovered, there are potential savings and efficiencies for those that take the time to do it successfully. ∞∞

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