

The demand-driven supply chain: A holistic approach

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Preface

The demand-driven supply chain: a holistic approach is an Economist Intelligence Unit white paper, sponsored by Oracle. The Economist Intelligence Unit bears sole responsibility for this report. The Economist Intelligence Unit's editorial team wrote the report, and the findings and views expressed do not necessarily reflect the views of the sponsor. Rob Garretson was the author of the report and Debra D'Agostino was the editor.

The report was based on desk research and in-depth interviews with executives from around the world about the challenges and opportunities they face in developing more demand-driven global supply chains. Our thanks are due to all interviewees for their time and insight.

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Executive summary

Now more than ever, businesses must improve the efficiency of their supply chains in order to maintain competitive advantage. But the principles of lean manufacturing and inventory control that famously helped companies like Toyota, Dell and Wal-Mart to rise to the top of their respective industries are no longer enough. Companies must apply new technologies and sophisticated analytics not only to make their supply chains more responsive to customer demand, but also actively to shape demand towards more profitable business.

Today's demand-driven networks must enable companies to be flexible in applying the full array of levers at their disposal—including pricing, sales incentives, promotions and other marketing tools—to stimulate demand for their highest margin products and to maximise business with their most profitable customers.

This holistic approach to building demand-driven supply chain operations requires:

- Improved demand forecasting tools that help to fine-tune base-level forecasts—based on historical sales data—to eliminate anomalies and other “noise”, before incorporating larger deviations and less predictable variables.
- Integration of new forecasting and demand management tools with existing supply chain and logistics systems to allow visibility of supply and demand all along the network in real time.
- A collaborative approach to sales and operations planning that brings sales and marketing together with supply chain operations to develop a comprehensive plan.
- Profitability as the prime objective, above simple cost cutting or revenue enhancement, in measuring supply chain performance. Companies must target their most profitable customers and promote their most profitable products and services.



Introduction

Facing economic uncertainty, volatile energy prices and intensifying global competition, large multinational corporations are seeking strategic and operational advantages more than ever before. Among the key operational components most demonstrably tied to business success is the efficiency of global supply chains: the network of people, technology, activities, information and resources involved in supplying a product or service to a customer. The proof is apparent on Wall Street. At the end of 2007, and for the third year in a row, the 25 companies identified by Boston-based AMR Research as maintaining the top supply chains among the *Fortune* 500 enjoyed market-beating stock performance, with an average total return of 17.9% compared with 6.4% for the Dow Jones Industrial Average.

For years, the world's leading companies have been wringing inefficiencies from their global supply chains, shrinking excess inventories and speeding order fulfilment, thus utilising cash more efficiently and better matching the supply of components and end-products with customer needs. Over the past several years, companies across a wide range of industries have adopted demand-driven supply networks, using the "pull" of actual customer demand rather than the "push" of available supply to manage their network of suppliers, materials and components from manufacturing to distribution. The principles of lean manufacturing and just-in-time inventory management famously helped Toyota leapfrog General Motors as the world's largest vehicle manufacturer, and vaulted Wal-Mart to the forefront of global retailers, with US\$379bn in revenue in 2007.

Yet in today's fiercely competitive environment, it is not enough simply to streamline global supply chains and eliminate excess costs. Leading companies are applying new technologies and sophisticated analytics to make their supply chains more responsive to customer demand, rather than letting availability of supply drive the chain. They are also taking steps to shape demand based on product availability and profitability, linking storefront marketing efforts to back-end logistics to help keep inventories lean and boost profit margins. This paper explores the opportunities, challenges, risks and rewards of creating a holistic, end-to-end approach to supply chain management.

In today's fiercely competitive environment, it is not enough simply to streamline global supply chains and eliminate excess costs.



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Key points

- Fine-tuning base-level forecasts is a critical first step.
- Some firms apply algorithms to determine changes in demand based on weather and current events.
- Eliminating “noisy” data to focus on key indicators can greatly improve forecasting efforts.

Basic forecasting: setting a solid foundation

At Tesco, a UK-based global grocery chain with revenue of roughly £52bn in fiscal 2007, product availability is naturally a key competitive driver for success. But with more than 50,000 products on its shelves, six different store formats and operations in 14 countries, determining appropriate inventories can be extremely difficult. Stocking too many perishables, such as fruit and dairy items, leads to waste and can cost the company hundreds of millions in lost revenue annually. “It’s not good enough to say how many chicken thighs we’re selling for the company,” says Bruno Monteyne, Tesco’s supply chain development director. “We need to know exactly by store and by day how much we’re going to get and sell.”

According to Mr Monteyne, the projection of sales based on historic patterns—the “base-level” forecast—is more complicated than it seems. Although predicting sales based on historical data is nothing new, the complexity of global retail operations such as that of Tesco makes refining such models a continuing challenge. “If you’re trying to measure and forecast the run rate of sales for a product day-by-day, you’d be surprised about how noisy the data are,” Mr Monteyne says, referring to variations in the pattern of sales that are hard to correlate to specific variables, much like static that interferes with a radio transmission.

Eric Winn, senior director of procurement operations at C&S Wholesale Grocers, a US-based grocery wholesaler with revenue of around US\$20bn, knows how difficult it can be to create accurate forecasts. A temperate spike at a store near a beach, for example, could cause a leap in sales of a particular bottled water that does not match the forecast. That is why C&S does not use real-time point-of-sale data to recalibrate its forecasts and manage its supply chain, and instead aggregates sales data twice daily across the 20 different retail chains—more than 5,000 individual stores—that it serves.

“We’re planning for warehouse-level shipments, so point-of-sale data are too noisy for us,” Mr Winn says. “Because at an item level we’re going to sell 10,000 units today, it’s not as critical to know if one store orders 200 or 20. What matters most is how many the stores will order in total.”

C&S has more than 2 million combinations of stock-keeping units (SKUs) and customers. The sheer complexity of creating daily forecasts that incorporate all the significant variables that can influence demand has required the company to move from a largely manual process using simple spreadsheets to an automated system that collects and correlates relevant data from customers and other sources. The system incorporates data on holidays and seasonality, promotions (which drive 50% of its business),

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-Bruno Monteyne, supply chain development director, Tesco



Forecasting demand at Dow Chemical

Forecasting demand that drives a global chemicals supply chain poses an extremely complex challenge for US-based Dow Chemical Company. The US\$53bn firm is a network of interconnected businesses that produce chemicals and products that are themselves often used as raw materials to manufacture other products downstream. For example, Dow produces basic hydrocarbons, such as ethylene and propylene, that are used to make specialty products that Dow and its customers produce, such as resins used in coatings and adhesives. Considering the complexity of the business, forecasting and sensing the demand that drives its supply chain is no small task for Cathy Budd, director of Dow's new demand-driven business operations programme.

"We have businesses that feed other businesses, and within those we have this huge integrated chain," she notes. Her programme is charged with helping demand drive supply chain decisions across the interconnected businesses, even when they "may not be the best decisions for an individual business".

Forecasting and mapping downstream demand for its products can be very complex. For example, when attempting to create forecasting algorithms for its fabric and surface care market segments, which include an array of surface cleaners, fabric softeners, dishwashing detergent and similar household products, Ms Budd's team analysed more than 100 data inputs—from GDP and disposable income to the number of households with a bath or shower in different markets—before isolating the indicators that accurately drive its forecast.

Nevertheless, forecasts are inherently inaccurate, admits Ms Budd. As a result, Dow is building new flexibility into its supply chain that allows it to delay production of finished products until the last possible moment. This means that it can be truly responsive to customer demand, a practice known as postponement. Even after production, Dow is postponing packaging and labelling to give it maximum flexibility in matching finished products to customer orders. "If you can incorporate concepts like postponement," adds Ms Budd, "you don't need to rely singularly on an accurate forecast."

prices, store display data, and even the size and placement of advertisements in retailers' weekly promotional circulars. "Getting these data from our customers requires a lot of active, everyday real-time collaboration," Mr Winn adds.

As part of their strategy, grocers like C&S and Tesco are working to apply a series of complex algorithms to determine how other factors, such as current events and weather patterns, might also affect sales. "The difference between barbecue meat sales on a sunny day compared with an overcast day could be a factor of three," notes Mr Monteyne. "So we could be selling 300% to 400% more or less, simply based on the weather." The key is to filter out any misleading variables, such as an unexpected temperature spike, and isolate predictable sales patterns, such as sales of rock salt during a snow storm or customers stocking up on non-perishables before an approaching hurricane.

Yet even as supply chain professionals look at the big, unanticipated events that wreak havoc with their forecasts and attempt to build those events into their models, executives agree that the largest benefits still come from simply fine-tuning the base-level forecast. This can yield huge savings over time. Tesco has shaved tens of millions in pounds sterling from its annual expense for product waste as a result of its efforts to improve its base-level forecasting.

Base-level forecasts are also vital in retail distribution of DVDs and videos, where studios and distributors use ever-more sophisticated cataloguing of film titles and their attributes—including



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genre, stars, topics, locations and so on—to forecast sales down to the individual store level. It is a delicate balancing act to ship enough stock of a film on DVD to gain preferential display in the store, but not overstock to the point where this creates costly returns of unsold units.

“There’s a penalty to pay if you put the units in the wrong stores,” notes an executive in retail operations at a video distribution business, who asked not to be named. “We run out of stock or lose adequate presentation at the stores, so we don’t get the unplanned impulse sales. When you lose your presentation, you lose anywhere between 10% and 40% of your sales.”



Key points

- For firms that have a limited inventory of products or services, demand shaping is critical.
- The most successful companies are those that effectively practise “customer segmentation”.
- Firms must consider how to shape demand, and connect those data back through the supply chain.

Beyond forecasting: shaping demand

But accurate demand forecasts are just part of the equation. Today, companies must use the full array of levers—including pricing, sales incentives, promotions and other marketing vehicles—to shape and manage demand. The goal is not only to match supply and demand, but also to do so in a way that maximises profitability.

According to Dr Larry Lapide, director of demand management at MIT’s Center for Transportation & Logistics, all companies match supply with demand, but many do it in ways that hurt rather than help the bottom line, for example by selling off excess supply at distressed prices or letting customers go elsewhere when supplies are short. The most successful companies are those that effectively practise “customer segmentation”, maximising sales to customers who are less costly to serve, or who buy a firm’s highest margin products or services. “All customers are not created equal,” he says. “Some customers are going to be more profitable than others.” As an example, Dr Lapide cites a supplier in the automotive components industry that analysed its high-, mid- and low-volume customers, and found that the high-volume customers were not as profitable to service as its mid-volume customers. The firm now focuses on increasing business among mid-volume customers, which also represent its fastest-growing segment of the business, to maximise its profit margins.

In the high-stakes world of casino gaming, it takes more than playing the odds to succeed. Harrah’s Entertainment, the world’s largest casino operator with resorts on four continents and revenue of around US\$11bn in 2007, uses sophisticated data analytics to optimise everything from the most profitable location of slot machines to variations in hotel room rates to attract guests who are more inclined to gamble. The primary supply chain for casino operators is not so much a network of suppliers as the inventory of rooms at their hotels, and the gaming capacity of their tables and slot machines in the casino. Just as a retailer needs to keep inventory on shelves for customers and avoid waste of product that goes unsold, casinos maximise their revenue and profit by keeping hotel rooms booked and gaming tables busy, and must avoid overstaffing tables not occupied by players.

Two keys to Harrah’s competitive edge—protected by no fewer than 18 company-held patents—are its renowned Total Rewards customer loyalty programme, which collects data on customers’ gaming activity, and its revenue management system, which helps to maximise the profitability of its hotel rooms through a combination of projected gaming revenue and room rates for individual guests. During boom times for leisure travel and entertainment, Harrah’s turns away twice as many reservation

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requests as it books. Thus the gaming chain's ability to shape demand not only allows it to keep occupancy rates high, but also helps the company to book a higher percentage of its most lavish spenders than would be the case with a more first-come, first-served system.

After recently applying analytics to its vast data warehouse of customer information, Harrah's made an important discovery. Guests who visit multiple Harrah's properties within a single trip to a location such as Las Vegas or Atlantic City are as much as 200% more profitable than those who visit just one, according to Tim Stanley, chief information officer (CIO) and senior vice-president of innovation, gaming and technology. As a result, the company is creating new promotions through the Total Rewards programme designed to entice guests at one casino to dine or see a show at another. Customers booked at one Las Vegas hotel, for example, will automatically receive promotional offers of discounts on dining or gaming at another of the company's properties in town.

"We now have eight properties in Las Vegas, with seven of them literally across the street or within walking distance of one another," confirms Mr Stanley. The new feature of its revenue management system, called "market daily values", tracks the amount a customer spends across Harrah's properties on a given day and helps the company to maximise the profitability of each customer.

First rolled out in 1997, Harrah's Total Rewards programme has been used exclusively to track gamblers' gaming activity. Now the company is in the process of extending the system to other hotel amenities such as restaurants, gift shops and non-gaming entertainment. "Obviously people get value for using [Total Rewards], and that's going to further improve our ability to understand [customer behaviour] and turn these dials," Mr Stanley adds.

Building a global brand at Diageo

The supply chain for Scotch whisky, a product that gets better with age, cannot be too nimble. Johnnie Walker, the flagship Scotch whisky brand of Diageo, a UK-based US\$14bn brewer of spirits and beer, must be aged a minimum of 12 years for its Black Label blend and up to 25 years for its ultra-premium Blue Label. Thus the burden on Diageo to shape demand aggressively to match its long-range forecasts is great. The company has almost doubled sales of Johnnie Walker over the past seven years—it sold more than 15.6m cases in 2007 compared with 4.4m cases for its closest competitor, Pernod Ricard's Chivas Regal—and is now aiming for continued double-digit sales growth over the next three years. Its plans include an investment of US\$200m in a new distillery capacity aimed at tapping the BRIC markets (Brazil, Russia, India and China) and Mexico.

To achieve such ambitious growth targets, Diageo employs a proactive strategy to create

and shape demand for its products, according to executives polled. Using what it calls a "global segmentation model", brand managers identify consumer consumption patterns, analyse profit opportunities in each market, and determine which sales and marketing levers to pull on that brand in each geography, says the company's chief marketing officer (CMO), Robert Malcolm, who retired at the end of 2008.

The campaign aims to deliver one basic message, but uses different nuances and incentives in different markets, depending on the results of the analysis of its consumer data, including the introduction in 2004 of a new premium Green Label blend that has grown popular in Asia, a key battleground. In China, for example, Johnnie Walker trailed Chivas Regal, with only a 31% market share compared with 47% for Chivas at the start of 2008.

"If we find there is a huge opportunity that can't be met with one of our brands, then we will search for alternate solutions," confirms Mr Malcolm. "We will create a new brand entry if that is the best way."



Key points

- Executives should work with sales to co-ordinate efforts to make supply chains more demand-driven.
- Consider how operational changes might improve communication and data sharing.
- Supply chain flexibility can help maximise profits.

Short in supply

Cross-functional collaboration between supply chain executives and sales is the centrepiece of a two-year effort by Lenovo, a Chinese computer maker, to overhaul internal processes to make its supply chain more demand-driven. Like other manufacturers in high-tech markets, the maker of desktop and notebook computers needs to make frequent additions and enhancements to its product lines in order to keep up with rapidly advancing technology. To do that, Lenovo needs a highly flexible supply network to keep pace. In addition, because many of its products feature cutting-edge components, supply shortages are common, creating added incentive to manage demand to avoid delivery delays and maintain customer satisfaction as well as maximise profitability.

“We’re extremely elastic in our demand shaping,” says Gerry Smith, senior vice-president of supply chain management. He confirms that this is a daily operational battle. Fires at a number of Asian battery manufacturers within the past 12 months perpetuated a global shortage of laptop batteries; LCD screens were in short supply industry-wide in 2007; and in May this year Intel, a US-based chip maker, postponed its latest line of processors for laptops. “There’s always a parts shortage,” Mr Smith says.

In an effort to leverage their understanding of sales and operations planning, Lenovo has set up marketing teams responsible for demand management and maintaining margins across its product lines. The teams monitor the supply chain and meet daily with members of the company’s fulfilment department to ensure availability of components and products, and to recalibrate pricing and promotions as necessary. In addition, the company has installed a range of new software tools to help analyse and correlate data from various sales channels and the supply chain, creating instant visibility for teams in sales and marketing, advanced planning, fulfilment and procurement. The systems allow the company to make real-time decisions on pricing and order fulfilment—all the way back to parts procurement—by integrating all the relevant information.

In addition to the traditional benefits of demand-driven supply chain management—better inventory management, more accurate order fulfilment and better cash utilisation—Lenovo’s improvements have delivered a boost to the bottom line, improved customer satisfaction, and accelerated the development and delivery of new products and services. In fiscal year 2007 (ended March 31st, 2008), Lenovo reported a 17% increase in sales, to nearly US\$16.4bn, and a 30% increase in gross margins, to nearly US\$2.5bn.

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A key goal of Lenovo's supply chain organisation is to fulfil all orders within eight business days (four days for building and four for shipment). A little more than two years ago, before it launched its demand-driven initiative, the percentage of Lenovo's desktop shipments, for example, was only hitting the eight-day target somewhere between 34% and 37%, Mr Smith admits. Today, more than 70% of Lenovo desktop orders are filled within eight days. "We've doubled our efficiency over the last two years," he says.

The initiative has also paid off on the cost side of the supply chain equation, which is particularly critical for technology companies such as Lenovo that switch frequently to newer, more advanced components. The company's notebook factory in Shenzhen, for example, has seen a 96% decrease in excess material costs over the last two years. "If we're not doing the demand shaping right, we're going to have a ton of excess material write-offs as we transition to new technologies or new product lines," says Mr Smith. "There are still challenges, but we've come a long way."

Maximising profitability at Dell

Despite the obvious benefits, shaping demand and the resulting cost savings are often not enough to ensure profit. Dell, a US-based computer maker, for years an icon of supply chain excellence, is renowned for its ability to shape demand. Its build-to-order model and web-based sales allowed the firm to adjust prices and promotions daily based on components available in real time from suppliers. The company maintained almost no finished goods or parts in its inventory, and enjoyed a negative cash-to-cash cycle (customers pay for products before Dell pays parts suppliers).

Yet Dell has slipped from its perch as the world's leading PC maker, and suffered several years of volatile earnings and lower margins that disappointed Wall Street, in part because its famed build-to-order supply chain layers unnecessary costs into low-end models that make up an increasing proportion of the maturing PC market. Dell's demand shaping had been aimed primarily at keeping its inventory levels low and manufacturing lean, rather than maximising profit by building and promoting its highest margin products, notes Dr Lapide at MIT. By allowing online buyers to customise systems when ordering, Dell was building systems that support a

wider range of components, which squeezes profit margins at the low end of its product line.

Also, as the PC market has continued to mature and high-growth segments such as consumers and emerging markets have forsaken more costly customisation in favour of cheaper, preconfigured models, Dell has lagged.

"Our supply chain needs to change dramatically," admitted Mike Cannon, Dell's president of global operations, at a gathering of Wall Street analysts in April after the company announced that it would close its legendary Texas-based manufacturing plant and largely abandon its build-to-order model. "We have to evolve our model because our competitive environment is evolving and changing." Dell is now developing new distribution channels that require a more conventional supply chain, including manufacturing in lower-cost countries.

For Dell and other companies, demand management is no longer limited to matching supply and demand, but must now include encouraging demand for high-margin products through low-cost sales channels. To do that, companies must not only analyse and manage pricing and promotions to optimise their effectiveness, but must also bring sales and marketing together with supply chain operations to develop a comprehensive strategy.



Key points

- Addressing cultural hurdles is critical when re-engineering supply chain strategies.
- Technology can help, but not without proper leadership and careful execution.
- Be careful not to rely too heavily on automated reports; focus on key indicators.

Overcoming obstacles

Revising classic supply chain management to make demand the driver undoubtedly requires radical organisational, cultural and technological change for most companies. However, according to Dr Lepide, although companies have begun to deploy software tools to help implement sales and operations planning, the internal business processes are often still lacking. “That’s where companies are moving, but it’s going to take time,” he says. “Until you put these processes in place where marketing and sales have a dialogue with the operations side—like sales and operations planning—the systems themselves aren’t going to do anything.”

Changing the way large supply chain organisations work and how they interact with sales and demand-planning teams are among the most critical challenges for businesses implementing new demand-driven systems, agrees Ms Budd of Dow Chemical. It is critical for supply chain executives to anticipate the cultural, structural and technical obstacles in implementing such new systems, and to have a solid change management plan in place, she stresses. It is also important to engage any related functions within a company—product development, sales and marketing, customer support and so on—and secure senior sponsorship from those disciplines.

“You need a real awareness of change management, and an expectation that you’re going to run into obstacles,” Ms Budd warns. “That’s why you need business sponsorship.”

The cultural resistance to change has been the biggest challenge for IBM, the global technology company on track to eclipse US\$100bn. The company has revamped one of the world’s largest supply chains into a collaborative matrix that integrates sales, marketing and product development with supply-chain functions such as procurement, global logistics and manufacturing. “Inside of IBM the number-one inhibitor is getting the team to understand that the axis of power has moved from the hierarchy to the matrix,” explains Tim Carroll, vice-president for global operations for IBM’s Integrated Supply Chain Supply (ISC) organisation.

The complexity of the analytics necessary to forecast, sense and manipulate demand is another key challenge for executives interviewed for this report. Enhancement of Harrah’s revenue management system and related software over several years have improved the casino operator’s ability to optimise profitability across a range of operations, but have also made its systems increasingly complex. “Frankly, there have been some real challenges,” admits Mr Stanley, the company’s CIO. “It’s a lot of technology, and it’s very finicky.”

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- Cathy Budd, director of demand-driven business operations, Dow Chemical



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In addition, the sophistication of new demand forecasting and planning tools can lead to an over-reliance on the numbers and a failure of executives to apply human expertise, notes the video distribution executive. His company is desperately dependent on the tools it uses to catalogue film titles and forecast sales down to the individual store level, because of the massive amount of data involved that can no longer be manipulated manually. Yet the key to using the tools is knowing when to rely on the analytics alone and when to apply some “common-sense heuristics”, he says. “This is where the art comes in. If Day One was twice what you thought it was going to be, you don’t just take the whole forecast for the next three months and double it.”

“There is definitely a tendency once you get into this process to overdo it a little bit,” agrees Mr Winn at C&S. “You don’t need every piece of data; you need the important pieces of data.”

A related challenge is integrating new forecasting and planning tools into existing systems for managing procurement and logistics. At Tesco, Mr Monteyne’s team is working to add tools to manage demand using pricing, promotions and other customer incentives. “Because these tools are quite new, it’s taking some time to integrate them fully into the supply chain,” he says. For now, Tesco is running its newest tools in parallel with existing supply chain software and manually moving data between them until it completes the arduous integration. “Hopefully, by about next year we should be ready and should be fully integrated.”



Conclusion

Today's demand-driven networks must do more than shave costs; they must enable companies to apply the full array of levers at their disposal—including pricing, sales incentives, promotions and other marketing vehicles—to shape and manage demand to maximise profits. As the stunning retooling of the supply chain at Dell has shown, it is no longer sufficient to maintain an efficient supply chain that keeps inventory levels low and manufacturing lean.

Truly demand-driven operations require organisational as well as technical advancements at most companies. Real-time visibility and accurate information are key, as is cross-functional collaboration across the entire enterprise. Effective sales and operations planning should span product development through all components of the supply chain—procurement, fulfilment, manufacturing and distribution—to the customer through sales and marketing. The demand-driven supply chain starts with accurate, granular and flexible forecasts, includes real-time sensing of actual demand, and incorporates collaborative sales and operations planning that lets companies both react efficiently and influence that demand towards its most profitable products, services and channels.

Yet achieving such dramatic changes, particularly in global organisations, is challenging. To survive and prosper in today's hyper-competitive and tumultuous economic climate, companies should adopt the following best practices:

- Create solid, base-level demand forecasting tools, fine-tuned to eliminate anomalies and other “noise” before incorporating larger deviations and less predictable variables.
- Integrate new forecasting and demand management tools with existing supply chain and logistics systems to allow visibility of supply and demand all along the network in real time.
- Develop a collaborative sales and operations planning process that extends from customer-facing sales, marketing and service departments through fulfilment, procurement and logistics all the way into product development, to allow customer insight to inform all aspects of the business.
- Prepare a comprehensive change management plan to foresee and deal with organisational, cultural and technological obstacles.
- Make profitability the prime objective, above simple cost cutting or revenue enhancement. Effective demand shaping helps companies to target their most profitable customers and promote their most profitable products and services, boosting the bottom line from both sides.
- Maintain real-time demand visibility. Companies can shape demand towards more profitable business only if they have timely and accurate information on customer behaviour.

Whilst every effort has been taken to verify the accuracy of this information, neither The Economist Intelligence Unit Ltd. nor the sponsor of this report can accept any responsibility or liability for reliance by any person on this white paper or any of the information, opinions or conclusions set out in the white paper.

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