

**Business life**

**Make sure you have your Christmas stock in**

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Published: December 18 2005

Predicting demand for Christmas trees, crackers and men's socks is usually not too difficult at this time of year. But forecasting sales of the hottest new electronic gadget or the must-have Christmas toy is quite another matter.

Every year, much-hyped products disappear from the shelves long before most people have done their Christmas shopping, leaving fashion-conscious consumers and frazzled parents wallowing in disappointment and frustration.

This year, Microsoft's Xbox 360 game console sold out soon after its late November launch in the US and its early December launch in Europe. Its scarcity has been reflected on Ebay, with consoles selling for as much as \$1,000 at auction, compared with the official price of about \$400. Even Steve Ballmer, Microsoft's chief executive officer, has said he has had problems obtaining one for his children.

Last year, it was Robosapiens toys and iPods that failed to appear under the solidly predictable tree. Supplies of Sony PlayStations got held up in a supertanker in the Suez Canal and the company had to charter Russian cargo aircraft to make deliveries.

Supply disruptions are not confined to toys and consumer goods. UK supermarkets stopped taking orders online for Christmas grocery deliveries in mid-December this year because of extraordinarily high demand.

Even festive specialities can run out because of spikes in demand, as happened when Delia Smith, the celebrity television cook, used cranberries in her *Winter Collection* series. Her chocolate truffle torte also caused a European shortage of liquid glucose.

Forecasting the right quantity of a product and getting it to the right place at the right time is a - notorious challenge for business, especially when the item is new.

"It is the exciting products that are difficult to predict," says Martin Smith, head of the manufacturing industries practice at PA Consulting. "If you get it right, you have guessed well."

The persistence of pre-Christmas sell-outs, despite the use of sophisticated forecasting tools, has led to suspicions that companies ration or withhold hot goods to feed the consumer frenzy.

Yossi Sheffi, director of Massachusetts Institute of Technology's Centre for Transportation and Logistics, says it is not uncommon for companies to announce expected shortages when launching a new product. "People want more of something that is scarce. Most manufacturers will feed newspapers with these stories because they help future sales."

The danger is that actual shortages, especially in the run-up to Christmas, will alienate customers, as well as lose potential sales. But Prof Sheffi believes brand disillusion is not a big problem with toys and games. “Kids have short memories and parents have even shorter memories. There is very little downside. It is more the case with adult consumers that if a brand disappoints, you switch off.”

Others argue that there is a substantial downside. “I don’t believe for a minute that companies try and create a market by going out of stock,” says PA Consulting’s Mr Smith. “That won’t help them to maximise the profit they can generate from the new product. But they may try in the very short term to create some excitement.”

As evidence of the dangers, he cites the 1980s craze for Cabbage Patch dolls, which ran out before Christmas. When supplies resumed after Christmas, the fad had subsided and the price of the newly abundant dolls dropped.

Mr Smith agrees with Prof Sheffi that getting it right is not so much about perfecting forecasts as about building flexibility into the supply chain. Where possible, that means broadening the supply base so that production can be stepped up quickly in different locations, and using components from different sources.

“If you find demand is explosive, you are prepared to press lots of buttons and expand production massively,” he says. “That will be going on at the moment without a doubt. As soon as you see demand growing, which you can probably judge from pre-orders on the internet, you press the buttons.”

One example of this kind of multi-sourcing is Hewlett-Packard, as Prof Sheffi explains in his book, *The Resilient Enterprise*. HP makes Deskjet printers for North America in plants in Vancouver and Singapore. The former is more flexible and closer to the market, but more costly. So HP assigns stable, high-volume production to Singapore and uses Vancouver to satisfy temporary surges in demand.

Flexible contracts with suppliers are another solution, enabling companies to increase or decrease production rapidly as part of normal service. Jabil Circuit, a US electronic manufacturing services company, requires suppliers to be able to boost deliveries by 25 per cent with a week’s notice, and by 100 per cent with four weeks’ notice.

Forecasting can be made more accurate by pooling predictions of customer demand across a wide region rather than responding on a store-by-store basis, according to Prof Sheffi. By using common components in different products, companies can also aggregate their forecasts for these products to give a more accurate picture of demand for the parts.

A company that has concurrent production processes – performing many development tasks in parallel – can react faster to changing demand. “This also means that it can recover faster from a disruption because its business processes are concurrent and the various functions are accustomed to co-operating with each other,” he says. A responsive supply chain depends on good communication and co-operation between all its participants. “It is only as strong as the weakest link. That is why it is so difficult.”

Companies that do it well have an in-built culture of flexibility, with a free flow of information, says Prof Sheffi. “Toyota displays continuous production reports in its plants. Dell updates managers hourly on production. UPS keeps the vast reaches of its network in constant cellphone communication.”

Communication between buyers and sellers can help companies avoid the “bullwhip effect”, whereby minor variations in consumer demand create bigger and bigger fluctuations in orders and inventory levels further up the supply chain. This can be caused, say, when a company does not inform a supplier that an order increase is due to temporary disruption at another supplier. The first supplier assumes customer demand is growing and overreacts by increasing capacity or ordering more from its own suppliers in anticipation.

When new products such as the Xbox 360 are in short supply, a different mechanism can start the bullwhip effect. Aware they may be allocated a fraction of what they ask for, retailers double or triple their orders even though they may not need the additional stocks. The manufacturer, apparently facing even greater demand than anticipated, ramps up production for what turn out to be “phantom” orders.

“Unfortunately it is bound to be disappointed when supply catches up with real demand and the phantom orders disappear, leaving the manufacturer with extra product that needs to be sold at lower margins,” Prof Sheffi says.

His theory will be tested in the new year. Microsoft, which denies it is rationing the Xbox 360, says its three manufacturing plants in China’s Pearl River Delta “are running at full capacity and churning out as many consoles as humanly possible... by early next year, supply will catch up with the demand.” Meanwhile it is advising customers to check with retailers when the next shipments are due.

Prof Sheffi believes Microsoft will end up with too many consoles. In February, he predicts, they will be selling at a discount in retailers and at half-price on Ebay. But of course, some forecasting is notoriously difficult.

## **FLEXIBILITY GIVES POWER TO THE PEOPLE**

Companies that react faster and more flexibly to changing customer demand often give frontline employees the power to make decisions without seeking approval from above, says Yossi Sheffi, a professor at the Massachusetts Institute of Technology.

He cites Zara, the Spanish retailer operating in the notoriously fickle business of fashion, saying it needs only three weeks’ production lead time against an industry standard of six to 11 months.

“A critical ingredient in their success is the empowerment of the product development, production and marketing teams to tackle challenges immediately and without headquarters approval,” he writes in ‘The Resilient Enterprise’.

“Managers from these departments meet every day to plan reaction to daily sales figures. They have the power to change product designs in order to respond to sales trends and solve component shortages.”

Dell offers another example of supply chain flexibility. When Steve Herrington, a production control manager, arrived for work one day in October 2003, he was told the factory had to build and ship 9,000 PCs, twice the normal run. Maximum capacity was only 8,000.

Without consulting senior management, the team quickly met and decided to reconfigure the printer production lines to make PCs instead and to modify the shipping lanes for the added volume, Prof Sheffi relates. After a long night, during which a specially assembled team monitored the situation every 15 minutes, the factory had built 9,100 PCs.