

The background of the image is a stylized digital stock market display. It features a grid of numbers in green and red, with green numbers indicating an upward trend and red numbers indicating a downward trend. The numbers are arranged in a pattern that suggests a dynamic and fluctuating market. The overall aesthetic is high-tech and data-driven.

Dynamic pricing

2.5 million – prices altered by Amazon every day

20% – of prices of Amazon's total inventory changed daily

Dynamic pricing

The algorithms of Amazon and Uber cross over to affect more businesses, from energy use to parking. Real-time transparency allows better purchasing at the same time as margins and yields are automatically enhanced.

In the past, prices of things, whether the cost of a loaf of bread, a litre of petrol or a train ticket, have changed on a regular but not constant basis. By contrast, in the world of trading stocks, commodities or currencies, prices and rates have always been in constant flux, moving up and down by the millisecond as buyers, sellers and increasingly automated trading platforms around the world vie for advantage. Now an increasing transfer of technology applications across different sectors enables consumers and providers alike to see and act on fast changing prices in many areas – be that taxi fares, sports tickets, electricity supply, hotel rooms or training shoes. For the consumer, greater transparency of pricing is allowing better purchasing; while for providers, margins and yields are being enhanced as automated algorithms optimize dynamic pricing by the second.

Supported by an overlay of predictive data analytics, flexible business models and more data, better matching supply-and-demand and improving yield is becoming possible in a host of new areas. While profit maximization is a primary driver for many businesses, this has the capability to help improve resource utilization, reduce waste and optimize system efficiencies.

The area where most of us have experienced dynamic pricing most directly has been in booking air-tickets.

Five years ago, one of the big areas for future application of dynamic pricing was seen to be in the provision and consumption of utilities. The advent of smart meters would not only allow households to have more accurate views of their consumption, but prices could be changed in real time to better balance demand against supply. Consequently, it was argued, demand could be smoothed away from high and low peaks and so better fit with energy generation and water supply. In some markets, this has now started to happen. In others the connected infrastructure that enables it is still being rolled out.

Today, perhaps the area where most of us have experienced dynamic pricing most directly has been in booking air-tickets. Using Expedia, we see a host of different fares and choose the one we want, only to find that the cost has changed when we return to the site a few minutes later. On their own websites, airlines, and especially low-cost flyers, track the IP address you are using and use that to nudge prices at the key moment in the booking process. The same principles are true in the hotel sector, although less obvious.

Less well known, but more widespread, is the way that companies like Amazon have embraced dynamic pricing. Not only does the company alter its prices more than 2.5 million times a day but it also changes the price of around 20% of its total inventory every day. Wal-Mart can, by comparison, currently only change the price of 50,000 products per month. As well as, allegedly, showing higher prices to Mac users than PC users, Amazon monitors customers' behaviours to determine the best time to raise or lower prices to get the sale, and amend prices by what else is already in a customer's basket.

Changing business



Currently only a few companies have the ability to combine data collection and analytics in such a way, but others, so-called pure-play analytics companies, are providing the capabilities across the board with the aim of benefiting both consumers and suppliers. One such example is Qcue that focuses on providing analytics for pricing of sports events; ticket prices may be adjusted on a real-time basis, either upwards or downwards, based on market demand. Rather than having a set price, tickets for less popular games drop in response to demand while those for others rise, allowing the business to fill their stadium to capacity.

Transit systems across the world are increasingly connected and will be soon able to use variable pricing via apps to nudge users onto, for example, the next train to decrease congestion. In several cities, smart parking is being rolled out. Following successful pilots in San Francisco, parking rates are altered in real-time with the objective of keeping parking spots 60 to 80% full. Rates are adjusted by time and location with the aim of offering the lowest possible hourly rates but high enough to make sure that there is always a free space.

However, in the transport area, it is Uber that has, somewhat controversially, been one of the major adopters of dynamic pricing. Uber is, at one level, just another Internet marketplace where prices vary against demand – just as on Airbnb and Google’s Adwords platform. Changing the price of a fare to be more competitive than the competition is evidently a core part of the value proposition. The more contentious area is in the use of surge pricing. At peak times, when there are more potential passengers than available Uber cars, the company’s algorithms change prices to better match supply and demand. Prices go up so that more of the freelance drivers are incentivised to be on the roads and available for passengers. The balance is in having the prices high enough to attract the drivers without alienating customers; the real-time analytics that sit behind the system are key to maintaining this. Economists term this ‘responsiveness to price elasticity’ but Uber is pushing the dial of what behaviour changes can be orchestrated. When Uber

Parking rates are altered in real-time with the objective of keeping parking spots 60 to 80% full.

first tested dynamic pricing in Boston in 2012, it was able to increase on the road supply of drivers by 70 to 80%. Clearly there is a push back from some customers as well as from competitors who have fixed rates, but for most users, paying extra at peak times for a guaranteed car is part of the trade-off.

Moving forward, many expect that more organisations keen to optimize their business models and revenue models will further embrace dynamic pricing. For some it is clear all about profit maximization, but for others it is just as much about resource utilization. While the airlines and retailers will seek to make an extra penny wherever they can, the advent of smart grids in the energy sector provide an opportunity for more socially beneficial applications. The past few years have seen dynamic pricing technologies evolve and be tested by suppliers keen to maximize profits, but smart meters connected to distributed renewable energy systems will be where the greater overall impact is made.

Uber is pushing the dial of what behaviour changes can be orchestrated.

Related insights

Currencies of meaning



New trusted currencies of exchange and meaning emerge to better facilitate transactions, trade, authentication and validation. Money is complemented by new systems to which we attach greater significance.

Data ownership



Individuals recognize the value of their digital shadows, privacy agents curate clients' data sets while personal data stores give us transparent control of our information: We retain more ownership of our data and opt to share it.

Full Cost



Increasing transparency of society's reliance on nature, intensify requirements for business to pay the true cost of the resources provided by 'natural capital' and so compensate for their negative impact on society.

The increasing value of data



As organisations try to retain as much information about their customers as possible, data becomes a currency with a value and a price. It therefore requires a marketplace where anything that is information is represented.