

Swarming the shelves

How shops can exploit people's herd mentality to increase sales

A TRIP to the supermarket may not seem like an exercise in psychological warfare—but it is. Shopkeepers know that filling a store with the aroma of freshly baked bread makes people feel hungry and persuades them to buy more food than they had intended. Stocking the most expensive products at eye level makes them sell faster than cheaper but less visible competitors. Now researchers are investigating how "swarm intelligence" (that is, how ants, bees or any social animal, including humans, behave in a crowd) can be used to influence what people buy.

At a recent conference on the simulation of adaptive behaviour in Rome, Zeeshan-ul-hassan Usmani, a computer scientist from Princeton University, described a new way to increase impulse buying using this phenomenon. Supermarkets already encourage shoppers to buy things they did not realise they wanted: for instance, by placing everyday items such as milk and eggs at the back of the store, forcing shoppers to walk past other tempting goods to reach them. Dr Usmani and Ronaldo Menezes of the Florida Institute of Technology set out to enhance this tendency to buy more by playing on the herd instinct. The idea is that, if a certain product is seen to be popular, shoppers are likely to choose it too. The challenge is to keep customers informed about what others are buying.

Enter smart-cart technology. In Dr Usmani's supermarket every product has a radiofrequency identification tag, a sort of barcode that uses radio waves to transmit information, and every trolley has a scanner that reads this information and relays it to a central computer. As a customer walks past a shelf of goods, a screen on the shelf tells him how many people currently in the shop have chosen that particular product. If the number is high, he is more likely to select it too.

Dr Usmani's "swarm-moves" model appeals to supermarkets because it increases sales without the need to give people discounts. And it gives shoppers the satisfaction of knowing that they bought the "right" product—that is, the one everyone else bought. The model has not yet been tested widely in the real world, mainly because radio frequency identification technology is new and has only been installed experimentally in some supermarkets. But Dr Usmani says that both Wal-Mart in America and Tesco in Britain



Customers also bought onions

are interested in his work, and testing will get under way in the spring.

Another recent study on the power of social influence indicates that sales could, indeed, be boosted in this way. Matthew Salganik of Columbia University in New York and his colleagues have described creating an artificial music market in

which some 14,000 people downloaded previously unknown songs. The researchers found that when people could see the songs ranked by how many times they had been downloaded, they followed the crowd. When the songs were not ordered by rank, but the number of times they had been downloaded was displayed, the effect of social influence was still there but was less pronounced. People thus follow the herd when it is easy for them to do so.

In Japan a chain of convenience shops called RanKingRanQueen has been ordering its products according to sales data from department stores and research companies. The shops sell only the most popular items in each product category, and the rankings are updated weekly. Icosystem, a company in Cambridge, Massachusetts, also aims to exploit knowledge of social networking to improve sales.

And the psychology that works in physical stores is just as potent on the internet. Online retailers such as Amazon are adept at telling shoppers which products are popular with like-minded consumers. Even in the privacy of your home, you can still be part of the swarm. •

AIDS The fighter within

NEW YORK

Gene therapy shows some early promise

ONE of the most fashionable treatments for disease, gene therapy, has so far made little headway in tackling one of the most modish of illnesses, AIDS and the human immunodeficiency virus (HIV) that causes it. The idea of gene-therapy treatment for HIV/AIDS would be to create a gene that, when placed in an infected person, would make all of the offspring of the cell into which it was inserted resistant to the virus. Even if the virus continued to destroy the patient's immune cells, new ones that could not be infected would replace them. Eventually, the disease would no longer threaten the health of the patient.

A first step towards this has been achieved by researchers at the University of Pennsylvania and VIRXSYS, a biotechnology firm based near Baltimore. Rather than inserting a gene directly, they removed the immune cells from people and replaced them with versions that had been modified to resist the virus. The results were published in this week's issue of the *Proceedings of the National Academy of Sciences*.

The team treated five infected patients who had not responded to at least two different programmes of treatment using conventional anti-retroviral drugs.

They removed from each patient's blood the cells called "helper T-cells" that would normally mobilise the immune response to the virus. These were purified and stuffed with a form of HIV that had been altered to carry a mirror image or "antisense" version of a molecule that enables it to multiply. This genetic fiddling disrupted the reproduction of the virus inside infected cells.

Such a small experiment was designed merely to establish whether the approach was safe. But the researchers were pleasantly surprised to find that the number of viruses in each patient dropped. This suggests that the treatment was tackling the disease effectively in difficult patients for whom conventional drugs had failed. According to Carl June of the University of Pennsylvania, their immune systems responded "as if they were on a vaccine" and it appeared as though their bodies were "vaccinating themselves" against HIV.

The researchers are now moving to the next phase of study, which will involve more patients, including those whose disease is in its early stages. If later trials confirm the early positive results, this approach could prove a useful complement to existing drugs or a future vaccine—and may even replace them.