

## Bubble trouble

Is the “Wi-Fi” wireless internet boom about to turn into a bust?

It all sounds ominously familiar. A new technology emerges and is rapidly embraced by technology enthusiasts. Hundreds of firms spring up, hoping to cash in on its expected breakthrough into the mass market. Profits, or having a sensible business model, are forgotten in the rush. But demand proves elusive, a painful bust ensues, and only a handful of firms survive. It happened during dotcom mania and is now about to happen again, albeit on a smaller scale, to Wi-Fi, a popular way to surf the internet wirelessly.

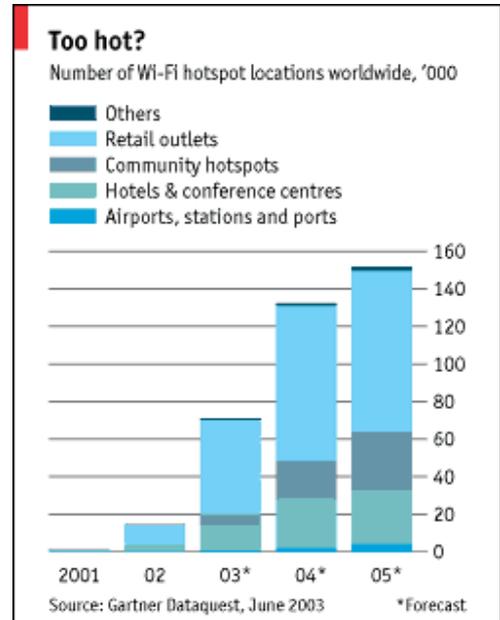
Wi-Fi is mainly used in homes, schools, universities and offices. People with Wi-Fi-capable laptops can get online via access points that can link computers within 50 metres or so to the internet. Gartner Dataquest, a research firm, estimates that 15m Wi-Fi adaptors for computers were sold worldwide last year, and 4.4m access points. Alongside this boom in the private use of Wi-Fi, many firms have rushed to set up public “hotspots” in airports, hotels, shops and restaurants, hoping to charge for Wi-Fi access.

Public hotspots are outnumbered by private access points, but their numbers are growing fast. There are expected to be more than 70,000 this year (see chart). Consortia in America, Europe and Asia have announced ambitious plans to build tens of thousands of hotspots over the next few years, even though there is little evidence of any demand for them. Meanwhile, private-equity investors are throwing money at Wi-Fi firms—over \$1.5 billion since 2000, according to Rajeev Chand of Rutberg & Company, a San Francisco investment bank. In short, it all looks like a bubble. As a recent report from Forrester, a consultancy, notes, “it’s as if the dotcom boom and bust never happened.”

Perhaps the best-known network of hotspots is that operated by T-Mobile, a wireless operator, in over 2,000 Starbucks coffee shops in America. Around 25,000 people access the hotspots each week, which works out at an average of less than two users per day per hotspot. But the cost of connecting each hotspot to the internet is several hundred dollars a month. The Wi-Fi hotspot at Amsterdam’s Schiphol airport is used by only a dozen people each day. Operators are gambling that demand will pick up as they build more hotspots—eerily reminiscent of the “build it and they will come” approach taken by many firms during the dotcom boom.

Users may be deterred by high prices. Even after a recent round of price cuts, using T-Mobile’s network of hotspots costs \$6 per hour, \$40 per month, or \$360 per year. Other operators in America charge \$40-70 per month. Prices in Europe are as high as euro130 (\$150) per month. A study by ForceNine Consulting found that demand for Wi-Fi hotspots was highly price-sensitive, and that further cuts might boost demand. Only 3% of tech-savvy American consumers surveyed said they would pay \$2 per hour for Wi-Fi access, but 20% said they would pay \$1. However, a subscription to one network of hotspots does not entitle you to use others, so you may need one subscription in the airport, and another in the coffee shop.

But there are more fundamental challenges facing public hotspots. The number of people who carry laptop computers around is quite small. Daniel Sweeney of Forward Concepts, a consultancy, points out that travelling businesspeople and other “road warriors” have proved an illusory market for wireless-data firms in the past. Unless Wi-Fi is added to mobile phones, most people will not carry a Wi-Fi-capable device. And unlike a mobile phone, which can be used



anywhere, any time, Wi-Fi hotspots depend on casual usage. "That's a shaky foundation for a communications business", says Mr Sweeney.

The coming shake-out in Wi-Fi will force operators to identify which of their many hotspot locations make sense. They should concentrate on business users, advises Andrew Cole of Adventis, a telecoms consultancy. The bubble, he says, is in consumer Wi-Fi. Hotspots in coffee shops, cinemas and malls will mostly prove uneconomic. Gartner predicts that the number of hotspots in retail outlets will peak in 2005, and then decline, as uneconomic hotspots are switched off.

But for "real-estate owners, hotels, airports and convention centres, you can build a business case," says Mr Chand. Such venues may, however, choose not to operate hotspots themselves, but instead delegate marketing, billing and roaming to incumbent telecoms firms. Either that, or they will give away free access to attract customers. Neither model bodes well for the hotspot-operator start-ups now trying to capture the Wi-Fi market.

The outlook is equally grim for the dozens of start-ups making Wi-Fi chips, systems and equipment. A few may get lucky, and be bought out by a larger equipment-maker, such as Cisco, says Mr Chand. But most will fail. Already, though sales of Wi-Fi equipment are booming, prices have tumbled, and margins are now wafer-thin. Wi-Fi will continue to spread, and will remain popular. But, rather like the internet, it may disappoint many investors who hoped to make their fortunes

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