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European mobile
network operators
– can 3G do the
business?

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The European mobile industry is at a turning point in its development. It is five years since the third generation (3G) mobile phone licences were auctioned. Yet most customers still don't really know what 3G is or why they should upgrade to a 3G phone. At the same time, established mobile network operators (MNOs) are threatened by the mobile virtual network operators (MVNOs) who piggy-back on their networks and target customers with low-cost offerings without the burden of infrastructure costs. Find out how MNOs can deliver on the 3G promise, and create sustainable value by making important choices about their future operating models.



April 2005 marked the fifth anniversary of the auction of 3G mobile phone licences. Against the background of the tech-bubble craze of the time, five companies parted with a total of £22.38 billion (see Figure 1) for licences. It is estimated that they will have spent close to £40 billion in total by the time their networks are complete in 2007 or 2008.

At the time of the auctions, 3G promised to transform telephone handsets into devices that could support video

calls and download music and film clips, as well as provide access to e-mails and the internet. Since then, the mobile network operators (MNOs) have had mixed fortunes in developing the technology and achieving its uptake by a mass market customer base. The latest statistics (see Figure 2) show penetration rates lagging behind other digital products, including those launched around the same time, such as digital radio and broadband. The hopes of the MNOs in seeing decent returns on their 3G investments in the short- to medium-term appear to be small.

Mobile Operator	£ billion
Hutchinson 3G	4.38
Vodafone	5.96
BT3G	4.03
One 2 One	4.00
Orange	4.01
Total amount raised	22.38

Figure 1: Licence fees from 3G auction (source: Ofcom)

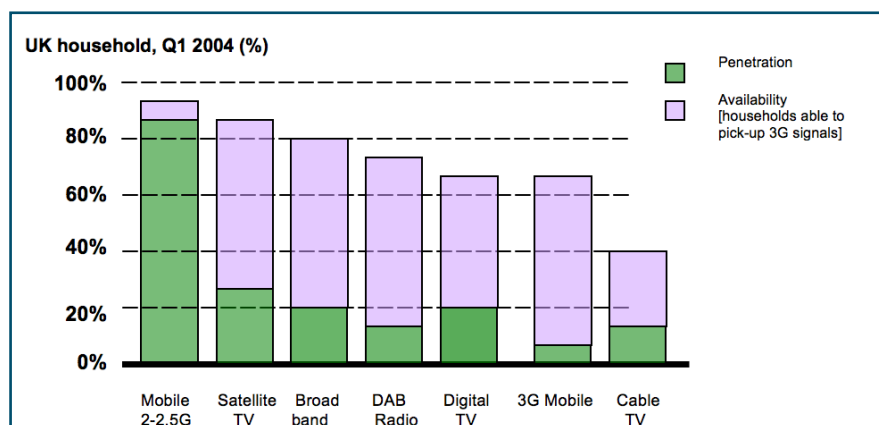


Figure 2: Availability and penetration of digital services
(Source: FT April 2005 and Sirius & Co analysis)

Promise is yet to be delivered

Some experts believe the consumer market is more of a natural driver of new services than the business sector, since consumer marketing is about emotional communication. Yet the same experts believe that the financial impact of 3G is likely to be far more significant in the business sector. However, neither market is currently delivering the returns that would justify the billions of pounds of investment so far made in buying licences and developing 3G infrastructures.

MNOs have certainly done their best to attract the “young, active, fun” people they think will be the early adopters of 3G. Handsets are stuffed with a multitude of features. Apart from the built-in camera and torch, you can download videos, songs and ring-tones, play games, and watch news and sports clips (often call *infotainment*). The clamshell design could also come in useful during the festive season: it is solid enough to crack walnuts. The MNOs are hoping at least one of the features will appeal to their target market, and even more desperately seeking the “killer application” that will drive widespread 3G adoption.

There has been little more progress in attracting business users. All the MNOs have introduced 3G data cards to allow business travellers to use their laptops to access e-mail and company intranets at speeds approaching those of office networks when on the move. But this is hardly the major

data revolution that many MNOs were promising when they invested huge sums of money buying 3G licences, and the majority of business users believe that there is a dearth of 3G services for them. MNOs are, instead, making more than £15 billion in revenues each year from refinements to their tried-and-trusted 2G networks.

With the market subject to so many uncertainties (see Figure 3), it's no surprise that analysts are forecasting widely varying levels of revenue for the 3G market. While the European mobile sector had a revenue growth rate of between 7.1% and 7.5% in the first quarter of 2005, the share prices of most European MNOs are at the bottom end of analysts' expectations. This pessimistic outlook amongst analysts is being shaped by doubts about whether the enormous investment in 3G was worth it, and how MNOs will be able to recoup it.

Where will growth come from?

Where can MNOs look for growth to balance the risks and uncertainties ahead? Nokia projects that annual worldwide revenue for mobile data will grow to €180 billion by 2007, more than quadrupling the current revenues from these services. We believe that sending short text messages, getting news, playing games and lotteries, watching sports, and sharing photos and video clips will be the top generators of revenue growth in mobile products and services in Europe

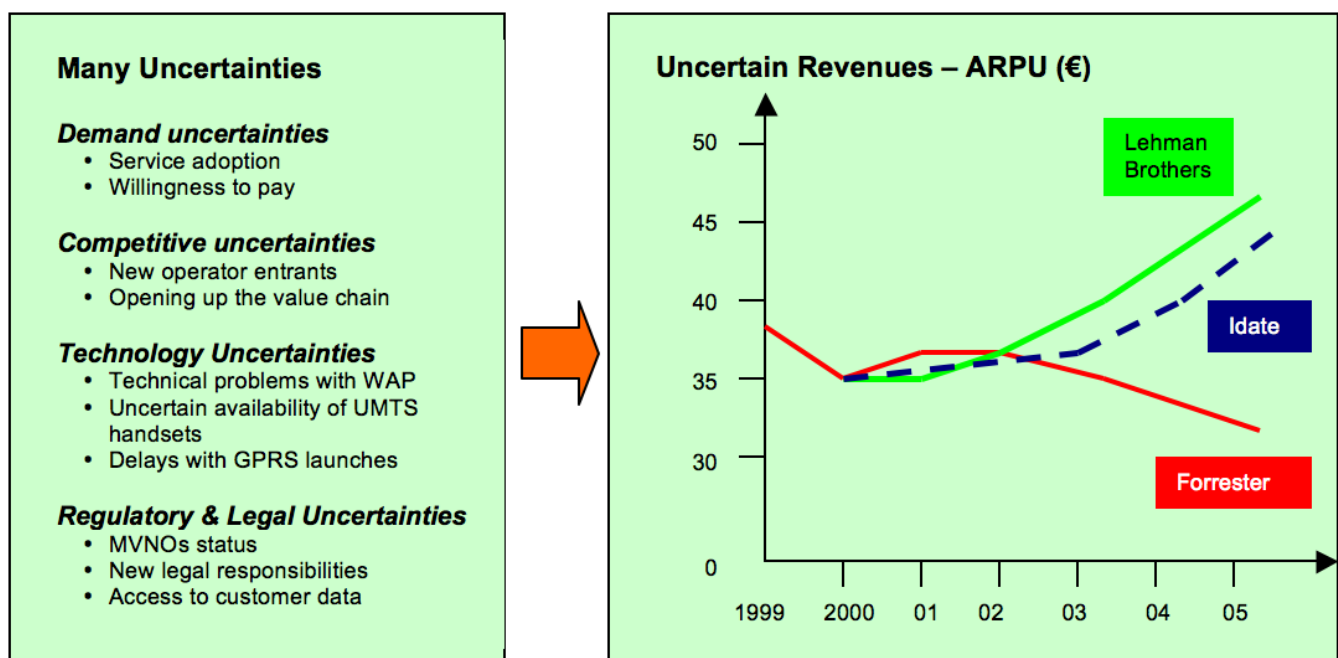


Figure 3: Uncertainties for European mobile network operators
(Source: Lehman Brothers, Idate, Forrester Research, BAH, and Sirius & Co analysis)

Total mobile revenue by services for the UK (1998-2010) in £ billion

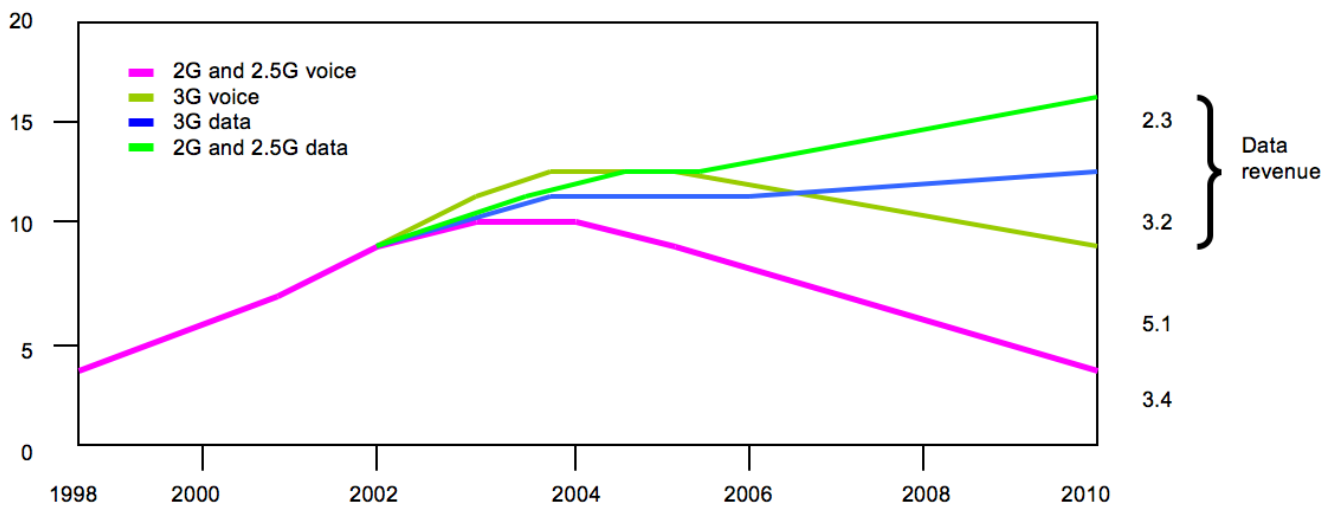


Figure 4: Total mobile revenue by service in the UK (Source: CIT and Sirius & Co analysis)

within 2007. To compensate for future losses in voice revenues (see Figure 4), MNOs need to exploit the wireless data market and develop operating models that incorporate both mobile voice and mobile data services.

MNOs therefore need to understand the paradigm shifts in the mobile market, particularly in the critical success factors (CSFs) needed to compete effectively in the wireless data market (see Figure 5).

We believe the elements of the value chain for MNOs are already in place: feature-rich handsets, content, distribution mechanisms and billing solutions. The challenge for MNOs is now to exploit that value chain to deliver revenues and profits.

Mobile Network Operators' Value Chain

Moving along the value chain from companies who produce content to those who interface directly with consumers, the industry can be grouped into eight distinct segments (see Figure 6). MNOs have traditionally focused on the last three elements.

By expanding along the value chain, MNOs can capture an increasing share of the industry value. In particular, MNOs must increasingly control the content supplied over their networks. If they can act as the gatekeepers



Mobile Paradigm Shift	Voice based	Mobile data/internet
Product/Service	<ul style="list-style-type: none"> Voice is dominating 	<ul style="list-style-type: none"> Hundreds of diverse consumers and business applications and services
Competitive Environment	<ul style="list-style-type: none"> Geographic oligopolies of multiple MNOs Some competition from infrastructure-independent service providers Within the boundaries of national borders 	<ul style="list-style-type: none"> Intense competition among a large number of application and portal providers with or without own infrastructure Some infrastructure-independent providers sell transport services directly to the consumer
Critical Success Factors (CSFs)	<ul style="list-style-type: none"> Network coverage Price Marketing 	<ul style="list-style-type: none"> Fast innovation capabilities Successful brand communication Ability to manage business partners in the value chain

Figure 5: Changing industry dynamics

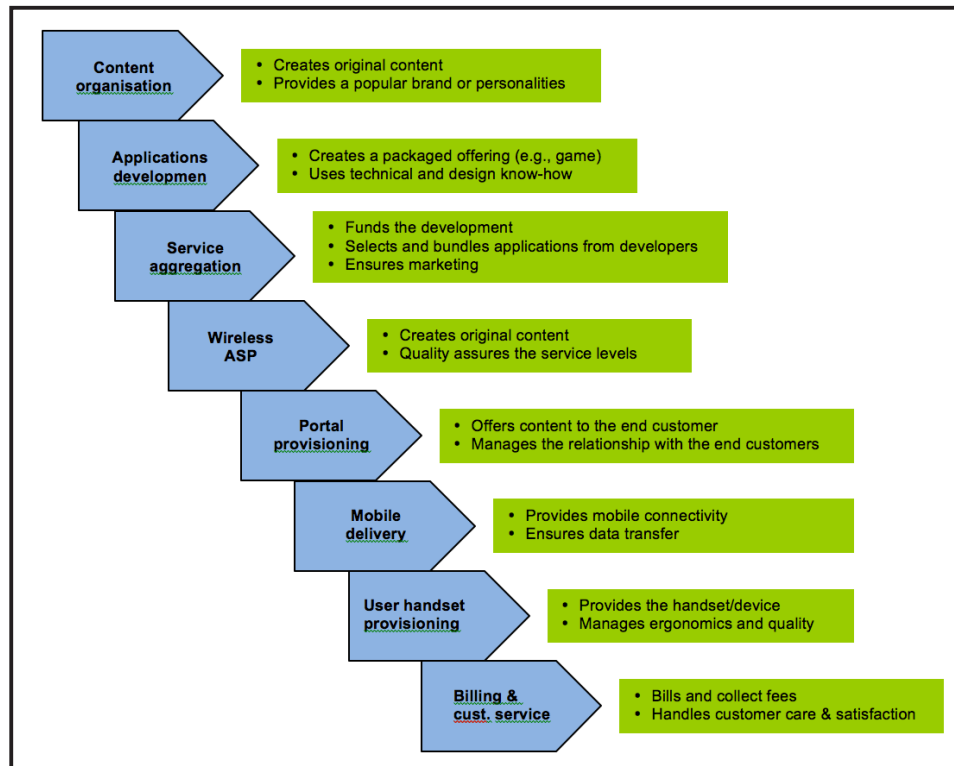


Figure 6: Value chain of the European mobile network operators

to mobile customers, they can extract a substantial percentage of all content revenues. However, if MNOs ignore consumer preferences or fail to make use of partners' expertise in content development, they will not generate revenues but only create apathy for their services amongst consumers.

MNOs must therefore partner closely with content owners to control a greater span of the industry value chain. The major risk for MNOs in this strategy is that they may over-reach their ability to execute and become takeover targets for better-managed competitors. MNOs, such as Vodafone, who have already established themselves as regional or global players will have more power than smaller operators if industry value shifts towards them in this way.

Potential threats from Mobile Virtual Network Operators (MVNOs)

The Mobile Virtual Network Operator (MVNO) model, which relies on using leased network capacity from an existing operator, is a relatively simple way of extending a brand into the mobile market without having to invest billions of pounds in infrastructure. In the 2G market, Virgin Mobile has already demonstrated the power of a strong brand: launched just over

five years ago, Virgin Mobile now has five million customers and was floated on the London Stock Exchange in July 2004. Virgin Mobile has been joined by Tesco, Easymobile and BT, which has re-entered the market following the demerger of its original mobile operation, O₂, in 2001.

MNOs appear to dismiss the threat posed by MVNOs whose services are hosted on their infrastructures. They insist they can afford to lose the low-usage customers targeted by pre-pay offerings from Virgin and others. It's true these customers typically spend just £10 per month compared with the spend of the average contract customer of a main MNO of more than £500 per year. Yet already, mobile operator 3 is hurting its four rival MNOs (Vodafone, Orange, T-Mobile, and O₂) by targeting their most valuable customers with keenly priced 3G tariffs. The fast growth rates of these companies and their brand strengths mean MNOs cannot afford to take lightly the potential impact of the MVNOs.

Mobile service providers face choice of operating models

In the face of these challenges within the European mobile industry, the question for mobile service providers is

straightforward: how can they prevent other players from profiting — at their expense — from the major investments they have made in 3G, and, at the same time, capture significant additional value from mobile data capabilities themselves, by providing customers with secure new services they are willing to pay for?

With the shift from voice to data in the mobile industry, we anticipate the emergence of two operating models for European MNOs:

1. A no-frill connection only model (NFCOM); and
2. An integrated service aggregation model (ISAM) with premium pricing.

Both NFCOM and ISAM represent a change to the current the economics of mobile operators. When executed well, they are difficult to replicate, and can create strong competitive advantage.

NFCOM is analogous to the low-cost model which has proved so successful in the airlines industry for companies such as Easyjet and Ryanair: offering a distinct value proposition at considerably lower cost. The objective of this operating model in the mobile world is to increase the volume of data transmitted over the MNO's wireless network. However, while the MNO may focus on growing traffic, it misses out on opportunities to capture value from the content carried over its network. This approach may be viable for companies with limited financial resources that can compete on the price of their services, rather than on value in terms of the breadth and quality of their offerings. The NFCOM approach will help MNOs defend market share and profitability in a saturated market, or increase market penetration in non-saturated markets.

However, ISAM offers MNOs greater value, although it does require significant reinvention for operators and their suppliers and partners. ISAM is similar to Virgin Atlantic's Upper Class: MNOs do not simply provide a connection; instead, they position themselves to directly influence and profit from the customer's total wireless experience, and pricing is determined on the basis of the value of content and the quality of services, rather than simply on the volume of data transmitted.

For MNOs who have invested significantly in 3G licenses and infrastructures, ISAM is the better option. With ISAM, MNOs play a much bigger role in packaging, promoting, and selling the content, subscriptions, and services offered by content companies. MNOs also work much more closely with handset manufacturers than they have in

the past, controlling more of the consumer device space and understanding how their services are delivered and displayed on those devices. They also work with device suppliers to tailor the user interface and other key device features to the specific needs of their service portfolio in ways which enhance both partners' brands. Such partnerships are crucial to the MNO's ability to expand revenue streams, grow market share, and increase the value of customer relationships.

MNOs could choose to continue to focus on capturing the basic value from owning the connection, but their ability to grow would be limited, because they' would always be one step removed from the customer experience. To achieve the desired return on past and future investments, MNOs can no longer pursue an operating model confined to running networks and providing connectivity while allowing others to capture the value created by the services running over their networks.

MNOs must establish stronger relationships with everyone who brings value to mobile products and services: content providers, mobile handset manufacturers, application developers, and system integrators. MNOs do not need to manufacture devices or generate content themselves, but they must increase their economic involvement and sphere of influence to strengthen their control over revenues and profits.

Designing an ISAM environment and ensuring Secure Access

The ISAM for a mobile device, which includes the user interface and the underlying software and security platforms, shapes the user experience in areas such as ease of use, reliability, and security. MNOs are well positioned to understand the complex requirements that go into creating that overall package, because they have oversight of all the relevant factors: the interface; pricing; security and privacy features; content discovery channels such as portals, word of mouth, television advertising and games; network quality; user content preferences, determined by what is most downloaded; and branding. In particular, they will need to take responsibility for managing the process of creating a secure access platform, because most participants in the traditional fixed Internet world have insufficient experience of the complexities of emerging 3G mobile technologies to take on this role (see [Case for investment in information security](#) by Pal).

Only a handful of other players, such as Nokia and Microsoft, currently demonstrate the potential to challenge the MNOs, through their own portals, content, user interfaces, and applications. MNOs need to work constructively with these rivals, while building their own capabilities so they can capture the benefits of their partners' expertise without sacrificing returns.

Technology implications

Boosting revenues in the face of slowing subscriber growth has become a priority for MNOs, and their strategy is to roll out numerous new services to consumers. Applications already available include games and convenient concierge services (which, for example, help business travellers find restaurants). But in launching these services, MNOs must deal with vexing operational challenges stemming from the structure of the technologies that support their businesses.

Many mobile operators find it hard to get to market quickly with new products is because their complex and inflexible IT architectures force them to develop many parts of each new product almost from scratch. Reuse of existing components is rare because speed was everything during the boom years of the late 1990s, and companies had neither the time nor inclination to consider how to develop components for reuse. The quickest way to get out new offerings was simply to patch the existing architecture by forging connections immediately between systems. The result was an increasingly complex, spaghetti-like architecture littered with incompatible stand-alone applications, operating on software from a large number of vendors.

It is difficult to bring these fragmented "silos" of processing and applications together to serve a customer base in a fixed location, let alone to do the same for mobile users whose demand for services varies over time and place (see [Why integrate, when you can aggregate?](#) by Pal). Moreover, in the mobile industry, IT not only supports the business but is also, to a large extent, the business itself: technology lies at the core of products and services and the way customers receive them. Modifying these complex systems or adding new ones to the mix is more and more costly and time-consuming.

Cutting IT costs without drawing blood

MNOs need to begin by looking at business priorities rather than worrying about the technology. They must redraw their IT architectures to support getting a continuous pipeline of new services to market quickly and cost-effectively. The way

forward is to remap today's jumbled mixture of IT systems into streamlined service bundles defined for business rather than IT reasons. Understanding the business transaction and where it comes from then allows the MNO to match processes to resources and allocate the appropriate service. The idea of packaging applications as services is not new, but moving to a service-based architecture enables easy re-use of processes.

In addition, MNOs must work on centralising their infrastructure to ensure secure access and to increase the ease and agility with which resources can be allocated to mobile users. MNOs must also look at virtualising their resources, using software products such as Citrix Presentation Serve and VMware (see [Taming the beast: containing spiralling IT infrastructure costs](#) by Sum). These solutions insulate applications from the supporting infrastructure used to deliver them, and allow the same infrastructure to be used to support changing service and business needs.

What does all this mean for mobile operators?

Delivering these services will be a challenging task for MNOs. They don't have a great record when it comes to providing voice services – dropped calls and poor coverage are still an issue in many areas – let alone a successful history of rolling out new more complex services. And because of the exorbitant costs of licences and infrastructure, the rollout of the high-speed 3G networks which will carry these new revenue-generating services is taking much longer than expected.

Against the background of the shift from voice to data in the mobile industry, ISAM will offer MNOs greater value and provide the opportunity to build long-term and sustainable revenues. But to implement ISAM, MNOs must undergo significant transformation. Instead of providing network connection and delivering a range of products over the 3G network to customers, they have to become *service makers*. In this operating model, customers describe what services they want, and where and how they want them, and mobile network operators deliver them, without compromise or delay. The role of the customer in this operating model shifts from passive recipient of standard services at standard prices to active shaper of customised services.

This fundamental shift in consumers from "product takers" to "service makes" will require MNOs to restructure product manufacturing, IT applications and infrastructure, and sales

and customer relationship systems. It is clear that the victors in this market will be those MNOs with the best designed integrated service aggregation capabilities, the most responsive partner networks in the value chain, and the closest customer relationships. Successful mobile network operators will use ISAM to actively solicit information from

customers about their satisfaction levels, buying intentions, and requirements and preferences. And by developing a business, service and technology strategy which can successfully satisfy those needs, MNOs will be able to make the high customer churn rate so common in today's mobile industry a thing of the past.

About the authors

Dr. Gina Sum is a member of the Leadership Team of Sirius & Company and Sukhendu Pal is the CEO & Managing Partner of Sirius & Company.