In their landmark 2001 *Harvard Business Review* article, “Skate to where the money will be”, Clayton Christensen, Michael Raynor and Matthew Verlinden outlined the process by which evolving industry value chains unbundle, and the wrenching challenges and turmoil that this process causes for industry incumbents. They linked this evolutionary process to the concept of industry disruption whereby the pace of technological evolution inevitably outstrips the ability of highly integrated incumbents to absorb it, creating opportunities for new entrants.

Our research into the emerging strategies of mobile network operators (MNOs) in Europe, as well as teaching and consulting work with both mobile operating companies and other industry participants over the past three years, supports and extends the theories of industry value chain evolution and profit migration. We believe the dominant firm-level MNO value chain is ripe for unbundling in response to product/services evolution, and that future success within the industry will go to those competitors with foresight enough to “skate to where the money will be”.

### Mobile evolution

In the early days of the mobile industry, technologies, business processes and channels to market were not yet established. While companies, such as Nokia and Ericsson, developed the network infrastructure and handset hardware to support the infant industry, they did not typically extend their roles into network management. At that time vendors sold boxes and base stations to end clients, who were then responsible for network roll-out and management. Mobile network operators, such as Vodafone, Orange and T-Mobile, employed dedicated armies of network engineers to build and manage industry infrastructure. Network quality and geographic footprint were critical sources of competitive advantage, but there were few vendors able to offer ongoing network management, even if there had been demand from MNOs. Network coverage and capacity management were focused on voice-based services, which accounted for almost 100 per cent of customer demand until the late 1990s.
Similarly, while vendors provided handsets they did not typically offer extensive technical support. Again, this often fell to the network operators themselves and led to the eventual emergence of (voice-focused) service organisations and supporting call centres. In many European countries, the network operator also controlled the distribution channel, managing everything from supply chain strategy to sales and marketing. Operators acquired broad retail footprints, as well as extensive agency networks, and frequently worked with vendors to build and manage their own billing systems and other supporting technologies. Simultaneously many operating companies built direct sales forces to service the important business segment. MNOs even built and managed their own billing systems because vendors, such as Amdocs and Convergys (an IT spin-out from Cincinnati Bell), were not yet delivering the breadth of off-the-shelf software and services required when the industry was in its infancy.

To deal with the incredibly rapid growth of the industry during the late 1990s, MNOs needed to scaling up the capacity to support rapid acquisition of new voice subscribers.

To stitch together a mobile operating company at this time through a series of partnerships or alliances might have been possible but, as Christensen and his colleagues noted, stitching together a system of other partner companies is extremely difficult when the subsystems and expertise that those companies provide are interdependent. Not surprisingly, the operational processes of both large and small mobile operating companies tended to extend to extremes of the value chain. The extent of this integration has deepened for many firms as complex product and service offerings have broadened the typical MNO value chain (see Figure 3). For example, some operators, appreciating the role of handsets as drivers of consumer choice, have pushed into earlier and greater control over device and interface design through partnerships with Far Eastern-branded vendors (Vodafone and Sharp); original device manufacturers (O2 and HTC XDA); and operating system sponsors (Orange, and Microsoft SPV2).

One of the key drivers for value chain unbundling
in the mobile industry has been the emergence of technological standards in maturing formats (such as SMS and WAP), not just for network infrastructure but also billing enablement, IT and other business critical processes. The interfaces between 2G (second generation) access networks, operations and business support system components and subsystems have become increasingly standardised and reliable, in many ways reducing operational complexity and change.

Furthermore, as both vendors of and customers for core industry technologies, such as networking equipment, have faced difficult economic times as the 2G industry has matured, some have looked for vendors to extend their role into value-added services rather than simply selling technology products to clients. The core technological components of the 2G industry have become modularised and vendors with core competence in network infrastructure design and maintenance have looked to diversify their service offerings.

As a result, it has become questionable whether network operators are best positioned to be the most efficient managers of their own networks, unless this is required to offer cutting edge data and multimedia services. As 3G technology rollouts take place in many mature 2G markets it is also questionable whether operator weighting of direct end-to-end control (including infrastructure) is reflected in the relative value associated by customers with handset design, operator branding, relevant choice and pricing, and service (including voice) management.

**Outsourcing down under**

For its Australian mobile businesses Orange and Hutchison 3, Hutchison Whampoa Group outsourced its entire network infrastructure to Ericsson, largely exiting the traditional operator company activity of network management. (Furthermore, to allow its customers wide network coverage Hutchison 3 partnered with Vodafone for roaming on to its competitors’ existing 2G network.) Under the agreement Ericsson takes care of build-out and day-to-day network operations, operating Hutchison’s 2G, 3G and paging networks, as well as the services platforms. Hutchison retains ownership and full control of its network assets, and continues to have responsibility for strategic design and planning, as well as equipment purchasing decisions.

The Hutchison initiative provides a new approach for network and IT support in mobile communications, including the technologically sophisticated multimedia services environments (2G and 3G). It is expected to reap cost benefits for Hutchison of 25 to 30 million euros over seven years. A specialist unit will be established within Ericsson dedicated to managing services for Hutchison, with about 240 Hutchison technical and IT staff transferred to Ericsson to complement the existing Ericsson team already devoted to Hutchison business in Australia.

Hutchison believes that this will allow its management to focus on key elements of its business strategy, such as branding, sales, marketing and customer service, rather than technology management. But in other elements of its business model, Hutchison 3 Australia looks much like other industry incumbents – it has its own retail network, agency partnerships and an enterprise segment sales force. Ericsson has indicated that it plans to extend upon this experience with Hutchison to build a global business in network infrastructure management and, as of the end of 2003, had won seven managed service contracts around the world.
Other recent industry entrants, widely known as Mobile Virtual Network Operators (MVNOs), have been even more radical in their approach to the typical industry value chain. There are a range of MVNO models, but a key similarity is their typical lack of ownership of network infrastructure. As a result, the services offered by an MVNO are to a degree dependent upon the commercial agreement with the MNO and the amount of infrastructure controlled. In theory pure MVNOs are able to offer highly differentiated services as they can control some of their own technical platforms. But the typical MVNO market entry strategy is to own as little infrastructure as possible. As a result, MVNOs usually provide basic voice and data (SMS) services as the primary offering, operating over an established 2G network with spare capacity. This is typically where processes, interactions, costs structures and usage scenarios have stabilised so that commercial agreements and service level agreements give a high level of confidence in the management of outputs to the MVNO, and a high degree of confidence in margins and utilisation impact for the MNO. Both the MNO and MVNO operate within acceptable risk/reward areas in foreseeable cost structures.

From a technical point of view, connecting a pure MVNO to an incumbent network operator is straightforward, and operates on the same basis as international roaming arrangements. However, within Europe, pure MVNOs are only typically found in countries where there is strong national regulation to overcome the incumbent MNO’s reluctance to form such arrangements, and where a business case can be created that justifies the initial capital cost. But this situation is changing, with regulators placing increasing pressure on incumbents to provide access to their network infrastructure for new entrants.

Virgin Mobile is the most-often cited MVNO. It is a 50:50 joint venture between Virgin and the German mobile operator T-Mobile. As a result, its product is integrated with T-Mobile’s UK service (formerly One2One) with billing and customer service provided by T-Mobile. Virgin Mobile has been successful due to Virgin’s very strong brand and distribution channels and its ability to integrate mobile telephony with Virgin’s other products and services, while owning virtually no network infrastructure. The Virgin Group has historically well developed procurement functions and capabilities in service level agreement negotiation. Previously Virgin has successfully negotiated operations deals with incumbents in both music and gaming carrier production and distribution. The company reports more than three million active customers making it the world’s largest MVNO. It has been the fastest growing mobile service operator in the UK since 2001.

In the US, the retail convenience store giant 7-Eleven has launched its own brand MVNO mobile service. It began selling mobile services in 1,400 stores in April 2004 and announced plans to offer mobile phones in the majority of its 5,300 stores by July. The pre-paid service offers customers a flat rate for calls, a bilingual automated customer care system that includes automatic balance notification, voice mail, caller identification, call waiting, three-way calling and text messaging, and is managed by Ztar Mobile, an MVNO enabler company. Ztar has partnered with MNOs, such as Cingular and Sprint, to offer wireless solutions that enable retailers, affinity groups and brand name labels to deliver private brand wireless services to their subscribers. Other MVNOs include Scandinavia-based Tele2, a pure MVNO with its own billing system and tariffing structure; Sense Communications and CBB Mobile, also in Scandinavia; and China Motion.
The basic Danish

Arguably the fastest growing MVNO is Telmore, a Denmark-based service provider. Telmore is as an internet enabled company with an aggressive price strategy targeted at the discount or low-end segment, a segment where many strategic innovators have discovered block-buster businesses. Like many low-cost airlines, it offers a basic service and primarily deals with customers over the web. It has no high-street shops, nor does it own a network. Instead, it resells airtime on a network owned by TDC, Denmark’s incumbent, and customers check their balances via text messages. There are no subscription fees or paper bills.

After less than three years on the market Telmore has 400,000 customers and, during the third quarter of 2003 alone, more than 100,000 new customers chose the company. The company was forecast to reach 500,000 customers by the end of 2003, with Telmore moving past Telia as the fourth largest mobile network operator in Denmark after TDC, Sonofon and Orange. Telmore has captured 7 per cent of the Danish market for voice, and 15 per cent for data. The company has fewer than one hundred staff, which compares to some national MNOs in Europe that have roughly the same number of customers but up to ten times the employee headcount.

MVNO entrants like Telmore have recognised that value chain integration is no longer crucial for a company’s success in the mobile industry.

Value chain integration is no longer crucial for a company's success in the mobile industry, and by aggressively lobbying regulators these upstarts have been able to gain access to industry subsytems such as network infrastructure.

Telmore has also taken advantage of the fact that as incumbent network operators have moved to bring more and more sophisticated services to market they have overshot the needs of many customers. And to deliver all things to all customers, most of these incumbents (both large and small) have built high-cost and bloated organisational structures spanning the breadth and width of the value chain.

In this respect, and just like the budget airlines Ryanair and easyJet, a company such as Telmore is a classic disruptive innovator. It brings non-complex, cheap services to market which are on many measures not as good as the services offered by incumbent firms, but which are good enough value for customers who are interested in a simple offering. These services are supported by a low-cost structure that reduces or eliminates those processes needed by full-service vendors, but not required to service the low-end of the market. It is a cost structure that allows Telmore to deliver mobile voice and data services at prices that are virtually impossible for the incumbents to match with their existing full-service business models, single brands/cultures, and supporting infrastructure.

This is not to say that MVNOs, such as Telmore, will take over the industry tomorrow, but their value chain models are optimised for simple voice and data propositions. As in the airline industry, many customers will still want the more complex services offered by an integrated operating company. But their low-cost model is likely to capture a sizeable niche in markets where the regulatory environment is conducive to MVNO entry. The real question is whether the incumbent operators will continue to fight over the low-end of the market in countries open to MVNO entrants, just as the full-service airlines attempted to do, or recognise that value-chain unbundling is creating business models better suited to serving this segment. They need to focus on the customer segments which value the more complex data and multimedia services that can only currently be delivered through an integrated value chain.

The incumbent operators might well find procedural, legal and technical reasons for being slow in allowing these competitors to grow, but many European telecoms regulators have made it clear that they will act to ensure equal access for new entrants. The largest Danish incumbent, TDC, bought a 20
As O2 has discovered, launching such a new and disruptive channel that competes with existing channels and channel partners generates internal and external debate and conflict. But the company recognises the future potential of this new value chain model and has protected the business from internal and external pressures. Research indicates that managing the launch of new and disruptive value chain models that require significant business architecture changes and/or conflict with or cannibalise existing channels is extremely difficult for incumbents. So it remains to be seen if other MNOs are able to successfully replicate O2’s initiative.

A portal opens

Another opportunity for incumbent mobile operating companies with extensive network infrastructure might be to establish themselves as the wholesale provider of choice for these new entrants, rather than trying to compete at the retail level for price sensitive consumers. Mobile operators, which have spent billions of euros on 3G licences, might be eager to recoup their investments by selling large chunks of airtime. They have also shown increasing preparedness to share investments in 3G infrastructure. This approach could be particularly appealing for the third or fourth biggest operator in a country, encumbered as most are with a tough competitive environment and significant debt burdens. This would, however, create new competitors at the service level and lead to possible friction between MNOs and their suppliers such as Ericsson who are also examining the feasibility of network infrastructure management.

Operator portals – such as Vodafone’s Live!, T-Mobile’s T-Zones, and Orange’s Orangeworld – also reflect the current prevailing strategy of developing single, multinational brands (and replacing national brands such as Spain’s Airtel; Ben in the Netherlands; and Itineris in France). The single brand addresses lucrative cross-border roaming traffic, and campaigns employing well-known sports stars, and co-marketing deals with the major content owners are intended to address many consumer segments with the blockbuster content titles.

However, just as content owners will need to re-examine ways of providing/pricing content to consumers under new and creative models, so mobile operators need to develop more effective and efficient means of matching a mushrooming volume of content and services to splintering segments, within the constraints of a mobile device screen and menu if they are to avoid losing profitable customers to more tightly customer-focused MVNOs.

Misguided strategies

Our work and research in the mobile industry over the past five years suggests that the current strategies of many large and small mobile network operating companies are misguided. The strategies of these companies continue to target virtually all customer segments (with CRM departments uncoupled from service, brands, and network), and are focused on where the profits have been in the

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![Figure 5: Telmore’s low cost model](image)

1. Cost optimising via the internet
   - All interaction via the internet
   - Subscription and cancellation to the service
   - Invoicing via text messages
   - Other self-service (FAQ / trouble shooting) via text menus

2. Cost optimising via the concept
   - No subsidies on handsets
   - Minimal marketing budget
   - Minimal organisation
   - All subscribers pre-pay

3. Internet key point of contact
   - Simplicity – 20 øre (€0.03) per SMS, and 1 kr. (€0.135) per minute everyday, anywhere
   - No subscription fee
   - One product for all – One tariff all the time
   - One primary point of contact, the internet

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![Figure 6: The Telmore value chain model](image)
The current strategies of many large and small mobile network operating companies are misguided.

past, rather than where profits might well be in the future. Many of these companies are continuing to pursue a single brand, integrated business model, despite the fact that the past conditions that required integration for competitive advantage have shifted. The delivery of complex multimedia services will continue to require integration, at least in the short-to-medium term as standards continue to evolve, but this is not the case for simple voice/data services that are now the target of MVNOs.

While the early days of 3G might again appear to justify extension of control in the value chain, in the longer term the complexity of backend service and network management faced by all operators would suggest that they should focus on industry standardisation in this area and focus on developing and testing the key differentiators for different customer segments-specific handsets, brands, services, pricing and propositions.

There are already examples of fragmentation as new entrants figure out where to target their efforts to maximise profitability. This process is likely to continue. These entrants may have an interest in applying disruptive services and technologies, the most obvious threat coming from various internet models as already demonstrated by digital music/video distribution, messaging, Voice Over Internet Protocol (VOIP) and wireless broadband technologies such as 802.11b. The question is whether incumbent operating companies will adapt to this changing competitive environment and align their value chains with customer differentiators, or continue to cling to increasingly outdated organisational designs with their technology focus.

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Jamie Anderson (jamie.anderson@esmt.org) is Lecturer in Strategy and Innovation at the European School of Management and Technology, Berlin, and visiting Programme Director with the Centre for Management Development, London Business School.

Bryn Williams (brynw1@yahoo.com) is a director of London & Cambridge Associates, a European consulting firm. He was previously a vice president of Pinpoint Networks and has also worked for Vodafone, Virgin, Sony, AOL Time Warner and Vivendi Universal. He has an MA in economics from Cambridge University.