

## Chapter 6: Telecoms Market Structure

### The Rule of Three

In 2002, two management researchers, Sheth and Sisodia published a book called “*The Rule of Three*” [1]. In it, they analysed pretty much every market they could get data on (144 market sectors across the world) and found remarkable similarities. It turns out that in a naturally competitive and mature market, without excessive regulation, the market segregates into three broad domains (figure 1, after [1] p. 4).

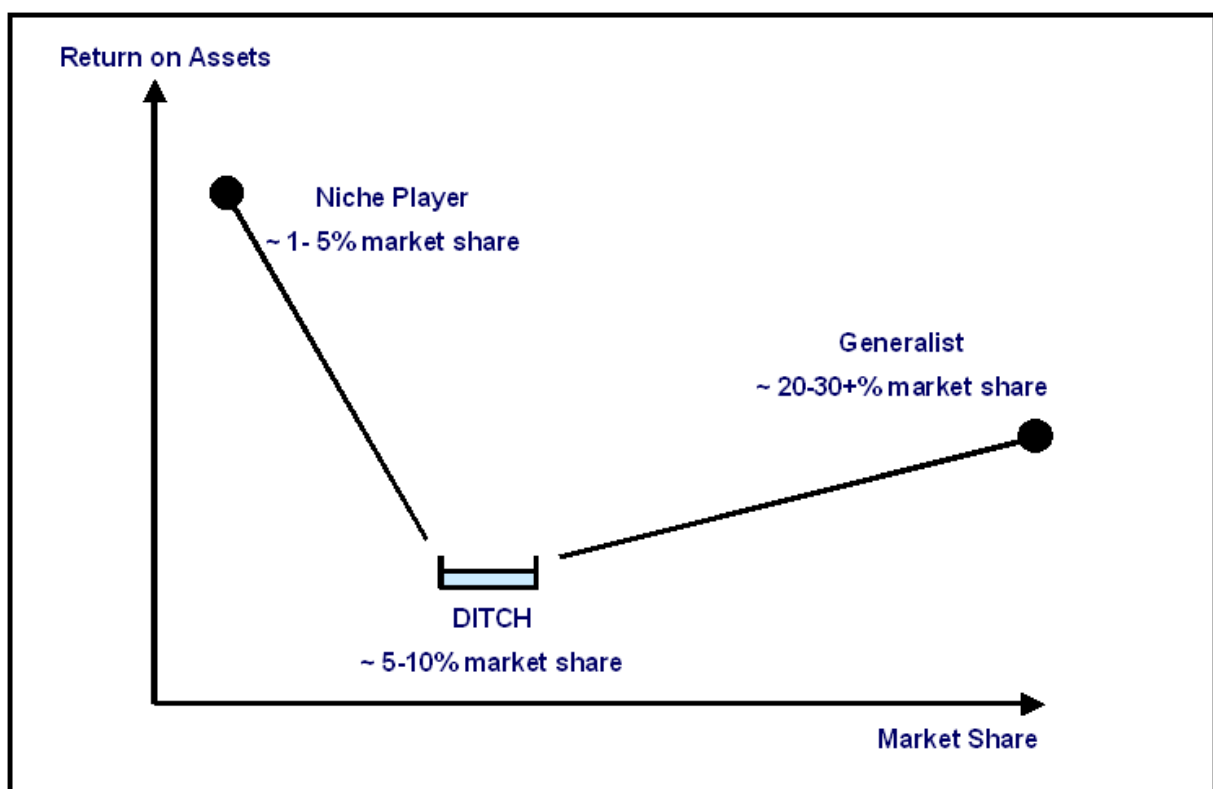


Figure 1. Market Structure

The first domain is defined by *three* major players, generalists who together control around 70-90% of the market. The second domain comprises niche specialists, each holding a monopolistic position in a tightly-defined product or sub-market category - each specialist typically has a market share of 1-5%, but makes high margins due to its niche-market dominance. The third domain is termed the ditch. It consists of those companies with around 5-10% of the market who lack the scale economies of the first group, or the niche focus of the second. The ditch can lead to bankruptcy or takeover. Consider the example of the shopping

mall, anchored by the major department stores, the generalists, but with many niche shops along the mall corridors connecting them, with some of them clearly struggling.

In economic textbooks we are told that more competition is always better for the consumer. Price is beaten down to long-term marginal cost, and all social welfare benefits go to the consumer. However, this is an idealised, steady-state model - it permits the producing company little margin for slack. In markets subject to uncertainty, discontinuities and continual innovation, companies need to bet on risky decisions and this requires capital reserves which conditions of extreme competition do not provide. Massive competition can also hurt the customer, as we see today in many consumer electronics markets where buying decisions are confused by excessive choice, and not every vendor will make enough sales to survive. The situation of hyper-competition, typical of early markets or markets emerging from a major market discontinuity, leads to shakeouts followed by the market structure defined by the 'Rule of Three', large-scale oligopoly plus small scale monopolistic competition.

Considering first the large oligopolistic generalists - why should there just be three? The authors argue that duopoly is unstable: the two players either attack each other destructively or collude, attracting regulation. With three players, any two can cooperate against the third, maintaining a balance of power.

So why not four? The authors speculate that consumers value a manageable choice between three suppliers, but that further choice just creates 'clutter', confusing the market. However, the dilution of market share with four major players can also lead to instabilities, driving the weakest into the ditch. The number one player should also be careful about gaining too large a market share, the authors argue: past 40%, regulative scrutiny becomes more intense, the proportion of underperforming customers increases and growth becomes harder.

The 'Rule of Three' therefore represents a compromise between sufficient competition and sufficient market share, but it can be distorted by factors such as regulated monopoly, major barriers to trade (e.g. in global markets), a high degree of vertical integration impeding consolidation, and a history of monopoly prior to deregulation. All these factors are clearly prevalent in the telecoms sector.

Sheth and Sisodia had advice for each of the generalists in the major, oligopolistic sector of the market.

If you are number 1 in your market, you should:

- Be a fast-follower - learn from the number three company, which tends to be more innovative.
- Make your standards those of the industry, (a well-known Microsoft tactic).
- Exploit your position with strong branding, (familiar from Cisco, Intel and many others).
- Grow market and focus on volume, not margin (exploit economies of scale).

If you are number 2 you should:

- Combat the market leader with better, more focused marketing.
- Cherry-pick the best customers.
- Compete on price and focus on value-added services.
- Either challenge the leader, or segment the market.

Finally, if you are number 3, you should

- Outflank numbers 1 and 2 by product and process innovation.
- Partner with suppliers or customers to defend your market share.
- Grow by acquisitions from 'the ditch'.

Conversely, if you are a specialist, in the 1%-5% niche part of the market, you should:

- Stay resolutely focused on the niche - do not be tempted to over-diversify and lose touch with your core market.
- Shun fixed costs - they can detract from flexibility.
- Create entry barriers, e.g. by negotiating sole rights with suppliers, by establishing local monopolies.

The authors noticed some general features across the many markets they reviewed.

- If a market leader has c. 70% of the market, there is no room for a second generalist, but the situation is unstable
- If the market leader has 50-70% of the market, there is no room for a third generalist, but one will eventually reappear.
- If a market leader has less than 40% of the market, there may be temporary room for a fourth generalist, but the ditch beckons.
- In a downturn, the battle between generalists 1 and 2 can send number 3 into the ditch while specialists remain unaffected.

### Application to telecoms

It is easy to see the relevance of this analysis to the North American fixed telecoms market. The authors themselves noted the historic long distance carrier structure of AT&T, MCI and Sprint. Recent acquisitions have led to AT&T taking the number 1 slot with Verizon as number 2. Given the power and market share of these two, there is scant room for a third player, and the ditch looms for Qwest and Sprint, as they seek a more profitable destiny through more creative and perhaps diversified business models.

In Europe, the continuing dominance of national markets, the consequences of deregulation in the 1990s followed by the Internet-boom investment in new facilities-based carriers and a history of monopoly has resulted in a fragmented market structure with too many small players. We are still in a hyper-competitive phase with shakeouts and further mergers and acquisitions to come. France Telecom (using Orange as its flagship brand), Telefonica and Deutsche Telekom have all used their financial muscle to aggressively expand within Europe, and to acquire both fixed and mobile operators. At time of writing, Vodafone and BT, both British-owned, stand out as respectively mobile and fixed pure-plays. Neither company's strategy seems stable for the longer term.

The UK is generally considered the most competitive market in Europe, due to the impact of early deregulation, yet its immaturity is shown in table 1 (revenue shares of a representative set of operators based on 2002/3 figures, but there have not been substantial shifts as the market has been flat).

<b>UK Operator</b>	<b>Percent Revenues</b>
BT	78.0%
C&W-Energis	10.4%
NTL-Telewest	7.1%
Verizon UK	1.8%
COLT	1.4%
THUS	1.2%
Fibernet	0.1%
<b>Total</b>	<b>100%</b>

**Table 1. Operator Share of Revenues - early 2000s**

It should be noted that these are aggregated figures, taken from annual reports. In particular markets, such as Broadband, BT will point out that the situation can be far more competitive. For example, BT's retail broadband product has been taken up by only a quarter of broadband subscribers, with Virgin (NTL-Telewest), Wanadoo (France Telecom), AOL and Tiscali all strong competitors. The entry of Sky as a major broadband player will transform the market further.

In the mobile sector, according to 2005 reports from the UK regulator Ofcom, the four major mobile network operators Vodafone, O2 (Telefonica), T-Mobile (Deutsche Telekom) and Orange (France Telecom) had roughly equal market penetration. Due to its economies of scale, and strong corporate presence, Vodafone is the market leader with around 30% of the revenue pie, with T-Mobile dragging at 19%. The 3G operator 3, relatively new to the scene, has grown its revenues to around 5%.

The 'rule of three' is violated here, with one of the reasons being the deep pockets of the owners of Orange, O2 and T-Mobile. Arguably the true market for these mobile operators, along with Vodafone, is Europe itself, rather than any one national market.

### **The consequences of market immaturity**

There are too many facilities-based carriers. The UK alone has at least 12 completely functional national fibre networks, mostly built in the 1990s deregulation and during the Internet bubble of 1998-2002. A partial list would include:

- BT
- Cable & Wireless
- NTL/Telewest
- Energis (National Electricity Grid network)
- Kingston Communications (Torch network)
- Thus (Scottish Power)
- Geo (Hutchison, 186k, Transco Gas network)
- Sky/Easynet (British Waterways network)
- Verizon UK
- Viatel (AT&T network)
- Global Crossing (Racal, British Rail network)
- Fibernet.

Many of these are part of a broader pan-European network. The inevitable consequence is that prices for many commodity network services, such as leased lines and Internet access, are closer to short-term marginal cost-to-provide than long-term incremental cost (quite a bit higher, as it has to provide for the next round of capital spending and cover broader overheads). With pricing set so low, the UK facilities-based market has split into three components.

- The former monopolist, BT, with economies of scale, a large inherited customer base and stable revenue streams, especially from its consumer business, continues to be profitable.
- Niche players, with lower operating costs and modern IP-based networks, which hang on in expectation of a rising market.
- The ditch, which now encompasses the other traditional carriers, such as Virgin-NTL-Telewest and C&W-Energis. Here, a higher cost base due to diseconomies of scale results in less profits, and less capital reserves to effect the transition to next-generation networks. It is no co-incidence that this is where we have seen recent mergers in a continuing M&A process, and much agonising about future business models.

### Next-generation network business positioning

It is possible to put together a map showing the next generation network by layer, the new services each layer supports, and the delivery mechanism to a segmented market (figure 2).

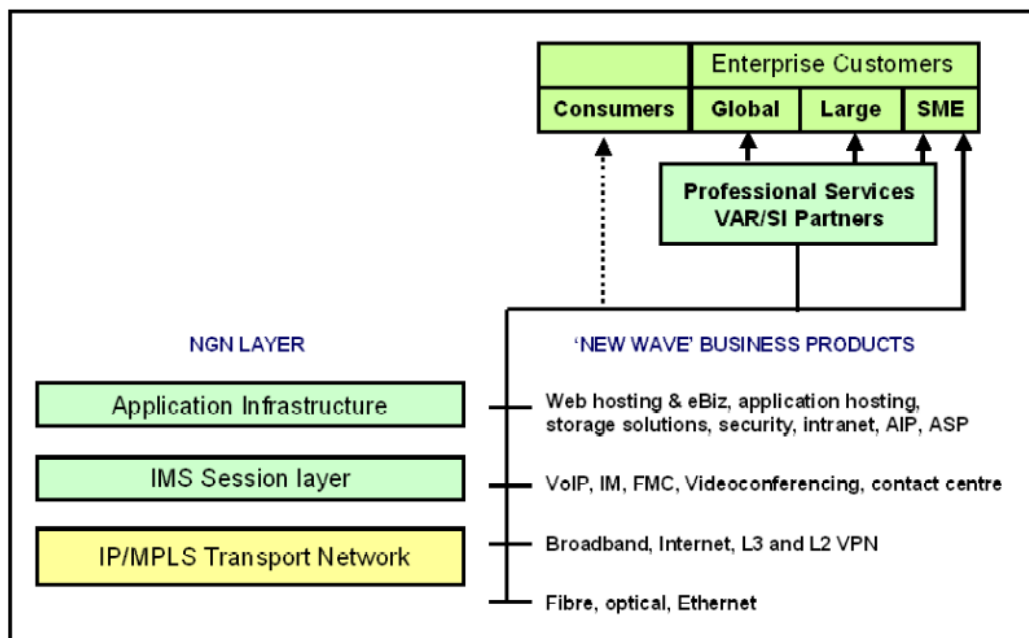


Figure 2. NGN layers and their 'new wave' services

If we start at the top, the standard telecoms market segmentation distinguishes consumers from business customers. The business sector is then, in its turn, further segmented into global enterprises, large national corporates and small to medium enterprises (SMEs). Sometime 'small' is distinguished from 'medium' in this last category.

Getting to consumers is always the problem with the residential market segment. Copper wire is normally owned by the incumbent. If cable has been dug, this is owned by the cable operator. Satellite works just fine, but is affordable only one-way. Wireless local loop has been tried many times, but has failed equally often - perhaps municipal WiFi and WiMAX will eventually break the spell but it is hard to get costs down. People *will* pay a premium for wireless access, but they are paying for ubiquitous *mobility*, not services delivered specifically to the home location (reception is frequently poor in the home).

Regulation has, in some cases, made the access 'last mile' link a level playing field for any operator by controlling wholesale pricing and exchange-access. Broadband via local loop unbundling is a case in point. But for many alternate operators, the opportunity for premium-return communications services to the residential sector are just too meagre, and they have abandoned this segment, or consigned it to a niche part of their businesses. (Content providers such as cable and satellite companies are in no such predicament - see chapter 15).

At the other extreme, global enterprises, as we will discuss in the final part of the book, are hard to service unless the carrier is also a global player, and profit margins can be very thin. This means that most alternative operators are focused on large corporates and SMEs.

### **Strategies for telecoms generalists**

A generalist already has scale and a large market share, typically in excess of 20-25%. This will support a full portfolio of products addressed to many market segments. In fact, incumbent carriers across the world tend to offer a similar portfolio, with a capability to colonise new opportunities as they arise. Quadruple play is particularly attractive, as it leverages the full revenue possibilities of high-speed broadband access (for voice, data and TV) and combines it with mobility. Across the world we see incumbent carriers, major cable companies and satellite-based broadcasters contesting this space.

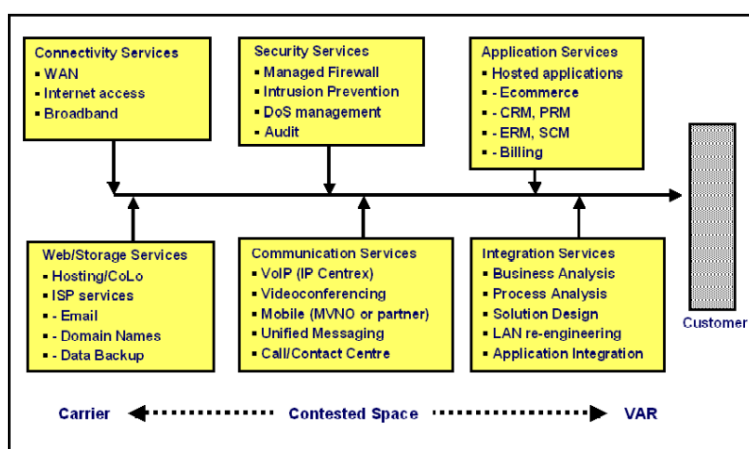
### **Strategies for telecoms niche players**

The broad sweep of the generalists creates major problems for smaller alternate network operators - however can they compete? As Sheth and Sisodia recommend, they have to specialise. Their choices

would appear to be either by product or by market sector, but this is illusory: horizontal telecoms products achieve their ubiquity through their commodity status. Not a place for premium returns unless the cost base is beneath the floor. So although there are a few companies out there which will sell undifferentiated, POTS, vanilla broadband, dark fibre or colo space to anyone at all, most specialists seek to service a specific market ecosystem: the sweet spots are corporates, or SMEs.

The next-generation network enables a combination of connectivity, communications and application services to be provided for the corporate and SME sectors. Connectivity services include various kinds of VPN and leased lines, while communications services include voice over IP, email, instant messaging, video-conferencing and contact centres. Application services include application and website hosting; data storage and backup; and value-added services such as security. Note again from figure 2 the important role of value-added resellers (VARs) and systems integrators (SIs) in delivering these services to customers. It is rarely the case that they can be bought like groceries from a supermarket. Essentially all of these services require careful configuration to suit the business’s needs, and integration with their existing networking and application infrastructure. This takes skilled people, either a professional services arm of the carrier, or a partner organisation which specialises in systems work. VARs and SIs exist on all scales from global companies such as IBM, EDS and Accenture right down to small companies operating within just one town.

From the point of view of a VAR or SI, their job is to analyse the customer’s requirements, to design a solution, to buy in commodity service components from carriers and telecoms/IT vendors and then to integrate everything together as specified in the solution design. There is a considerable overlap in this mission with the business objectives of the carrier (figure 3).



**Figure 3. Near-future services and the value network**

Carriers have wanted to ‘move up the value chain’ into professional services for a long time. Success has, however, generally eluded them. Professional services is a people and skills business, whilst telecoms is a process and routine business. Professional services tends to generate revenues based on idiosyncratic projects done, while telecoms generates recurring revenues on utility-delivered services. It is the recurring tension between hunting and farming, to use the sales metaphor.

Clients tend to prefer dealing with independent VARs. They welcome the emphasis on ‘personal service’ and the independence from any one telecom supplier. Businesses have been burned too many times by carrier lock-in.

From a carrier point of view, despite their aspirations to value-added services, they believe in their hearts that most of their revenues will come from telecoms services annuities. So they forbid their professional services arm from shopping around to their competitors, and throw their SI services in as a cut-price sweetener, or even for free, to clinch a deal. The professional services division is perpetually confronted by the dilemma: am I a profit centre, or am I a customer operations cost centre? They would like to be the former, but those carrier instincts keep pushing them to the latter position.

The imminent arrival of the next-generation network *investment step-function* accentuates this dilemma to an extreme degree. Insofar as alternate operators cannot afford to invest in full-scale next-generation networks of their own, they have the alternative of buying NGN services from bigger players on the wholesale market. But in doing so, they will be operating more like VARs and SIs than carriers. The trajectory from carrier-centricity through to VAR-centricity may be the most intelligent response to avoid being dumped in the ditch, but timing is crucial. The large incumbent generalists will not necessarily wish to offer key NGN interfaces in the wholesale market to protect their own investment in ‘new wave’ services, and regulation may be light for a whole period to protect that investment.

The best response might be to selectively invest in those aspects of the NGN which underpin the service portfolio being offered to the niche market. At time of writing, Kingston Communications in the UK is an example of a carrier which has acquired medium-scale VARs into its Affiniti division, aimed at corporates and SMEs. Affiniti has taken the view of a Systems Integrator and is prepared to buy telecoms services from a variety of suppliers, not just Kingston itself. It is likely, though, that they will see continuing advantages to retaining their own network, and in acquiring targeted next-generation network functionality as their clients come to need it, and insofar as the wholesale market is not providing it.

A further advantage of targeted, just-in-time investment in NGN components is that costs are likely to be lower. Most NGN technology is software, which is market-priced by the vendors (marginal cost being close to zero). The *incumbents* are forcing through their NGN programmes for strategic reasons, and in the process paying some/most of the vendors' development bills. But a small alternate operator should be able to bid prices down a few years out, at a point when NGN 'new wave' services finally become real. Chapter 14 covers alternate operator strategies in more detail.

### **The NGN ditch**

The next-generation network ditch will be defined by those carriers which invest in an NGN without a clear focus of what it will be used for. It is worth emphasising that the 'out-of-the-box' NGN is really a piece of middleware - generic IP transport, session management and application hosting functionality - which needs significant further investment to add specific products and services. A sub-scale player is going to have problems all the way along, and is likely to find they are haemorrhaging cash en-route.

If we take the UK situation at time of writing, we have two main ditch players, Cable & Wireless UK, (recently merged with Energis and Bulldog Broadband) and the NTL-Telewest-Virgin merger. The UK market is dominated by BT, and its 21CN evolution to a transformed NGN-based organisation, and the dark horse is Sky, with its potential to leverage the IP alt-net acquisition of Easynet.

Cable & Wireless UK has already retreated from almost all of its traditional market segments to concentrate on UK corporates (where it is head-to-head with BT Retail and Global Services). Its central problems of legacy and lack of scale continue to haunt it, and its eventual fate seems to be acquisition by someone with enough capital to fix it - a 3-5 year project. The present management seems to be clearing the decks to this end.

The NTL-Telewest-Virgin merged company has considerably more promise. It has an extensive cable access network in large parts of the UK which opens up numerous broadband possibilities. It has a consumer content business (cable TV) and with the Virgin acquisition it is now an MVNO. It is starting very much in the Sky/Easynet space but with more of a carrier culture, which could allow it to move faster into business services. It is well-placed for the number 2 slot behind BT as the second generalist, and taking Sheth and Sisodia's advice for a number two player, it should choose its battle carefully.

## **Summary**

In this chapter we have reviewed Sheth and Sisodia's concepts of market structure and applied them to the telecoms sector. The transition to next-generation networking, with its major capital requirements and dislocation to existing business models and processes, exposes the strengths and weaknesses of all the players. The future generalists need to understand their future portfolios, the future specialists need to understand what business they will really be in, not necessarily as carrier-centric as they have been in the past, and the ditch-dwellers need to decide if they can become future generalists, or if perhaps they don't have a future at all.

Many of the topics flagged in this chapter are discussed in much more detail in the fourth part of this book, which deals with business strategies.

## **References**

[1]. Sheth, J. and Sisodia, R., *The Rule of Three*, 1st ed., Free Press, 2002.