European Telecom Operators

4G – going faster, but where?

7 MARCH 2013

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This 12th edition of the joint annual report by Exane BNP Paribas and Arthur D. Little focuses on 4G LTE. We held 91 meetings in the telecom-media-technology arena, across 15 countries.

4G is unlikely to restore pricing power in the European mobile industry. We see no capacity shortage before 2020 and differentiation is elusive, with spectrum imbalances in favour of challengers.

European telecom operators' revenues to further decline: -1.8% pa until 2016e. Restoring growth would require LTE smartphones to add EUR7/month to data ARPU by 2016e – this is a stretch.

Five main levers for operators: 1) tariff structures, 2) partnerships on new services, 3) cost transformation, 4) small cells and WiFi offload, 5) network sharing.

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Contents

Executive summary

This 12th edition of the joint annual report by Exane BNP Paribas-Arthur D. Little focuses on 4G LTE. As European telcos gear up for 4G launches and with 2012 having been a particularly difficult year, is it finally time to change our bearish stance on the sector's revenue outlook? In particular, will LTE enable operators to finally monetise mobile data traffic, as their US counterparts have done?

In preparing the report, we held 91 company meetings in the telecom-media-technology arena and beyond, across 15 countries.

Our key conclusion is that the move to 4G is unlikely to restore pricing power in the European mobile industry. We see no capacity shortage before 2020 at the earliest, and it will be difficult for leading mobile operators to create sustainable differentiation:

– Spectrum differentiation - In most European markets, we actually find imbalances in favour of the challengers rather than the leaders — a key difference to the US.

– Cost differentiation - The cost of traffic will continue to fall, so other opex will become increasingly important. This is in favour of the leanest players, not the biggest.

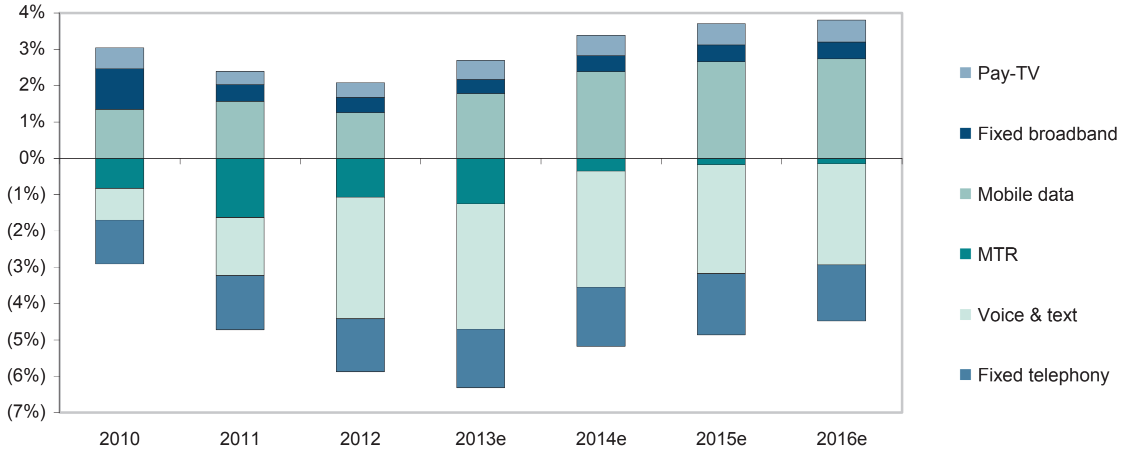
– Fixed-line ownership - Not essential from a network perspective, but absence from the quad-play segment creates a growing challenge for mobile-only players.

We continue to model revenue decline for European telcos: -1.8% CAGR through 2016e, including -2.6% CAGR in mobile. The sector could return to growth if LTE smartphones generated data ARPU of EUR17/month by 2016e i.e. EUR7 higher than today's data ARPU on 3G smartphones – this is a stretch.

Mobile internet services/apps are not a game changer for operators' revenues, but we see opportunities to create some differentiation and/or improve customer retention.

Finally, we identify five main levers for operators to improve their situation: 1) the tariff structure; 2) partnerships to develop additional services; 3) cost transformation, 4) small cells and WiFi offload; and, 5) if consolidation is not an option, network sharing.

Figure 1: Contributions to sector growth



Source: Arthur D. Little, Exane BNP Paribas estimates

We do not expect 4G to restore the industry's pricing power

We expect 4G to significantly boost mobile data traffic:

– Experience in the US, Korea and Japan has shown that traffic per device is higher on 4G than on 3G, driven by faster speeds, lower latency and data-hungrier devices;

– In addition, European operators should follow the lead of US mobile operators and push 'shared data' price plans (enabling a monthly data allowance to be used across multiple devices), which can accelerate the connection of more devices to networks.

Higher traffic should lead to higher revenues – assuming price levels stop declining.

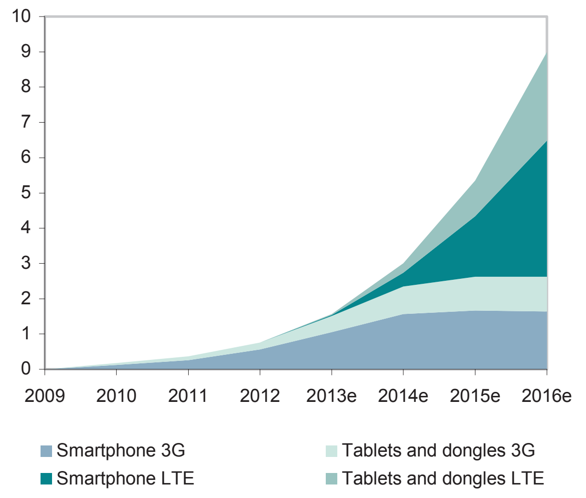
However, our analysis shows that the move to 4G is unlikely to restore pricing power in the industry, for two key reasons.

First, based on our proprietary traffic versus capacity model, for a typical operator in a large city, we conclude that activating LTE will remove capacity constraints until 2020–2022, depending on the operator's spectrum assets.

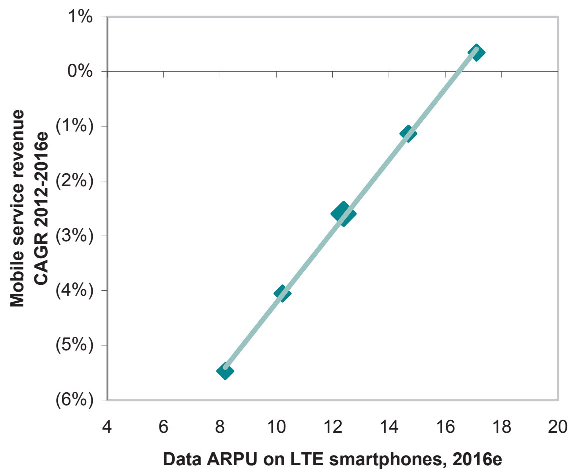
Second, we believe that unlike Verizon Wireless and AT&T, leading European mobile operators will struggle to sustainably differentiate themselves from challengers.

Figure 2: LTE to drive traffic growth, but revenue trend expected to remain negative

Mobile data traffic growth (000 TB/year)



Mobile service revenue trend vs. data ARPU on LTE smartphones



Source: Arthur D. Little, Exane BNP Paribas estimates

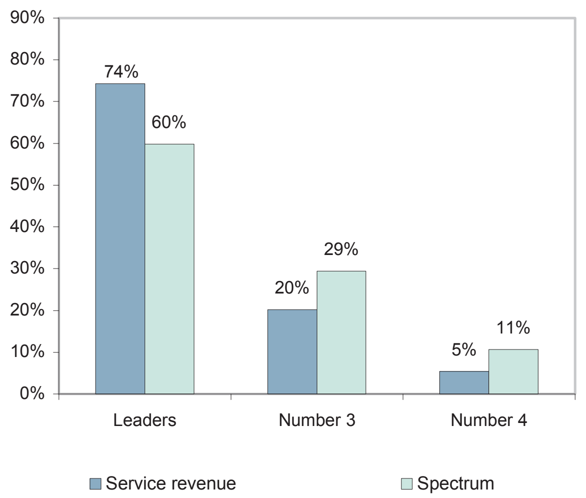
Differentiation is elusive

– **Spectrum differentiation?** We find challengers' spectrum assets to be far in excess of their revenue market shares, giving them room for growth; conversely, leaders have lower spectrum share than revenue market share and are hence more constrained. 800MHz ownership is a plus but those without it have alternatives.

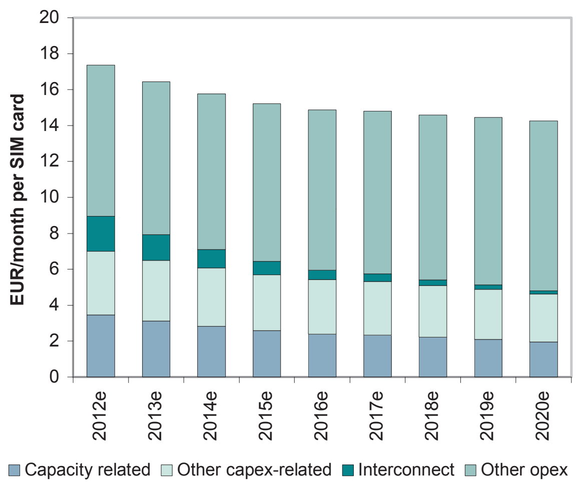
– **Cost differentiation?** Costs will be lower under 4G than 3G, but the decline will take time to materialise and we expect all parties to benefit eventually (4G is affordable for challengers, especially if helped by network sharing, which is gaining momentum). With 4G, network costs will become a smaller part of the total cost base over the long term; correspondingly, "other opex" will become an increasingly important factor to monitor — this is good for the leanest, not for the largest.

Figure 3: Spectrum and cost analysis suggests leaders do not enjoy advantages against challengers

Revenue market shares versus spectrum shares*



Total cost per SIM card for a typical mobile operator



** Including all relevant spectrum (800MHz, 900MHz, 1.8GHZ, 2.1GHz and 2.6GHz) - Source: Arthur D. Little, Exane BNP Paribas estimates*

– **Differentiation from owning fixed networks?** Fixed-line networks will be an increasingly essential part of mobile networks, with WiFi offload and small cells being a key part of future architecture. However, we conclude that, for mobile operators, there are alternatives to owning fixed-line assets.

– **Quad-play differentiation?** It is too early to say whether customers will prefer to bundle tablets with smartphones in shared data plans as is seen in the US or with fixed broadband in quad-play bundles as in some European markets. However, mobile-only players certainly have one less option compared with their integrated competitors.

Winners and losers

Overall, in this difficult environment, mobile challengers with large spectrum assets and a lean cost structure appear well positioned. Integrated fixed-mobile players pushing quad-play are also relatively well placed. The conditions are less favourable for mobile leaders with limited spectrum assets relative to their revenue market shares, and/or a heavy cost base and/or a limited presence in fixed-line.

Still, for operators, moving to 4G LTE is a no-brainer…

European operators' 3G networks will soon hit a "capacity wall" (on a typical 3G network this could happen some time in late 2014), and 4G LTE is a great tool to surmount this: 1) with the latest spectrum auctions in 800MHz and 2.6GHz bands, operators' total spectrum assets will have increased by 55%; and 2) 4G LTE is a better technology than 3G; the amount of traffic that can be carried on a given amount of spectrum is almost 70% higher on 4G than it is on HSPA+, the latest version of 3G.

European countries are in different stages of rolling out LTE but overall there is progress. Operators target coverage of between c.50% and 99% of their country's population by 2014-2016. This requires slightly higher capex budgets but the cost is very reasonable: our benchmark points to EUR16-17 per inhabitant covered (compared to EUR1,000 per home for FTTH).

Commercial launches of 4G services are gathering pace. Operators can count on a good line-up of devices, including high-end smartphones and tablets from the market leaders (Samsung, Apple) and from challenger handset vendors.

…and we expect customers to adopt 4G quickly

The US, Japanese and Korean markets, where 4G rapidly became successful, benefited from specific circumstances not shared by Europe. For Verizon Wireless customers, LTE represented a revolution compared to CDMA-EvDO. For European customers already surfing on HSPA+ (the latest 3G), LTE will only be an evolution.

Still, we believe that 4G will be a commercial success in Europe. Customers are growing increasingly frustrated with the 3G experience, a problem that will only get worse as usage increases. LTE will bring a better service, with download speeds 3-5 times faster (15-20Mbps versus 4-6Mbps) and response times five times shorter.

The take-up of LTE should accelerate from H2 13 and in 2014. We expect 100% of smartphones and tablets to be LTE-enabled from 2015, leading to 54% penetration of 4G-enabled devices in the population by 2016e.

Opportunities to generate value in services

Is there an opportunity for operators to sell services above and beyond connectivity? We do not expect mobile operators to become leaders in mobile-based value added or content services like maps, music, etc. The tech giants and content providers are now in tight control of the ecosystems via their mobile OS.

However, there are several opportunities for mobile operators to capitalise on the move to LTE by generating some value in services – for instance cloud-based storage – with the potential benefits experienced either directly (generating revenues) or indirectly (stimulating mobile data traffic and/or acting as customer retention tools).

Country by country: where could LTE make a difference?

For each country, we have looked at:

– Whether the environment is favourable, including the market structure and the current level of pricing on legacy services (voice & SMS);

– Whether LTE will change the current market environment, either positively or negatively: 1) is the market ripe for LTE or not: is mobile internet already advanced and are LTE networks being rolled out? 2) is spectrum allocation a differentiating factor for leaders or challengers? 3) could some players create network differentiation and could network sharing change the game?

Belgium and Spain are not ready for LTE roll-out; it is therefore too early to say whether there will be differentiation between the operators in each market. In Sweden and Portugal, LTE is already fully rolled out and it is not changing market dynamics.

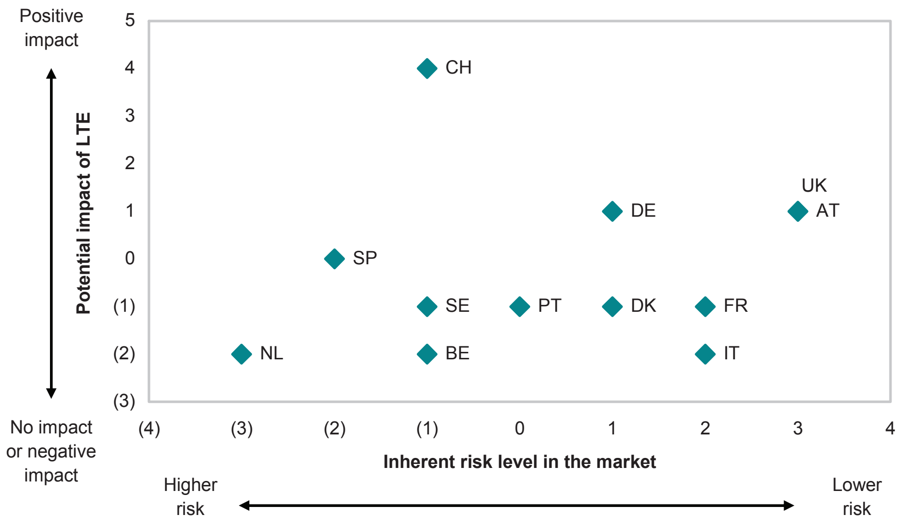
In France, we believe that the most likely scenario is that LTE will help the three mobile incumbent operators differentiate versus Iliad for a period of time, but visibility remains low on how Bouygues and Iliad will be able to play the 4G game – depending on regulation and potential partnerships.

In Germany, spectrum allocation is uneven as well but we could see network sharing between O2 and E-Plus, which would mean that there would be four credible competitors in LTE over the long run. We see LTE as broadly neutral for the market: revenue opportunity (current data pricing healthy) possibly offset by more competition.

In Italy, the ‘2+1+1’ market structure is likely to remain. Wind has a lot of spectrum and H3G remains aggressive hence we expect data revenue growth to remain capped.

Following recent spectrum auctions, the UK is the only market where the leader, EE, has a higher share of spectrum than peers, providing an opportunity to change market dynamics. However, double network sharing ('2+2') is likely – hence the status-quo.

Figure 4: Summary of country scorecard*



** The score attributed for the 'potential impact of LTE' is based on our assessment of 1) the current smartphone penetration (the higher the better for LTE to make an impact), 2) the level of data pricing (the higher the better for LTE to contribute to revenues), 3) current LTE coverage, 4) opportunities/risk associates with spectrum imbalances (if challengers have a lot of spare spectrum, this is a risk), 5) whether leaders have a LTE coverage advantage versus challengers, and 6) the risk that network sharing reduces potential network differentiation.*

The score attributed for the 'inherent risk level in the market' is based on our assessment of 1) the market structure (risk associated to new entrant and/or potential benefits from consolidation), 2) the risk that pricing of legacy services falls further (voice and text basket), and 3) the estimated level of return on capital employed of mobile operators in the country (higher returns risk being competed away by challengers).

Source: Arthur D. Little, Exane BNP Paribas estimates

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Acknowledgments

We want to thank everyone from outside Exane BNP Paribas and Arthur D. Little who contributed to this project. We would particularly like to thank all those that we interviewed at the companies listed below, including fixed, mobile, cable and satellite operators, internet companies and software developers, media groups, equipment manufacturers and regulators.

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Abertis, Belgacom, Bouygues Telecom, BT Openreach, Comcast, Deutsche Telekom, Drillisch, Everything Everywhere, Eutelsat, Fastweb, GTS Czech Republic, H3G Austria, H3G Italia, Iliad, KPN, KPN Simyo, Magyar Telekom, Mobistar, Numericable, O2 Telefonica Germany, O2 Telefonica CZ, Orange CH, Orange France, Orange Group, Orange Spain, Poste Mobile (Italy), Reggefiber, SFR, Sprint, Sunrise, TDF, Tecteo-Voo, Tele2 Sverige, Telecom Italia, Telekom Austria, Telefonica, Telenet, TeliaSonera, T-Mobile Netherlands, UPC Netherlands, VIPnet, Vivendi Group, Vodafone Germany, Vodafone Spain, Vodafone UK, Vonage

Equipment, infrastructure and IT

Alcatel-Lucent, Alcatel-Lucent Spain, Cisco, Ericsson Netherlands, Ericsson Spain, Ericsson Sweden, Ericsson UK, Nokia, Nokia Siemens Networks Netherlands, Nokia Siemens Networks Austria, Qualcomm, Samsung Electronics, Ubidyne

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Source: BNP Paribas

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