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Is the French case illustrating that competing operators and regulatory strategies force telecom services to become a commodity?

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Abstract:

Voice services were the main source of revenue for French fixed and mobile telecommunications operators in the early 2000s. This situation has progressively changed. Nowadays broadband services are the main source of revenues for fixed line operators and the same phenomenon is taking place in the mobile sector. As operators launch new services, they maintain the existing ones in their commercial plans, while allowing consumers an unlimited usage of the feature for no extra charge. We refer to this trend as commoditization. In order to explain the rationale behind this phenomenon, we will study the causes and effects of fixed and mobile voice services commoditization on the various operators by examining the links between market structure, regulatory decisions and operators' corporate strategies. Our goal is to determine to what level commoditization process is the result of operators' corporate strategies, and to assess the role played by regulatory decisions in the process.

Key Words: Commoditization, telecommunication industries, strategic choice, public policy, regulation

Introduction

The introduction of technological innovations and new features in the telecommunications industry leads to the commoditization of the previous generation of features.

An example of this phenomenon can be observed in the mobile industry. In the early 2000s, GSM customers purchased the ability to talk and send SMS to other service subscribers. The 3G technology in the mid-2000s gave access to data content such as emails or WAP information; while current 3G+/LTE networks give access to OTT contents and services such as OTT calls, HD video etc. Each wave of new features hasn't implied the disappearance of the ancient ones. However, as new features appear the consumption of previously existing features tends to stagnate. The natural response of operators to this problem comes in the form of lowering prices, or creating plans in which the user is able to consume an unlimited amount of the feature at the same price. It is well known that technological progress leads to a decline in prices "we practically always find that in the long run prices do not fail to adapt themselves to technological progress – frequently they fall spectacularly in response to it" (Schumpeter, 1942). A decline in revenues has a dilutive effect on operators' margins, and pushes them to introduce new features that are expected to be sold at higher margins as part of new plans. Adding new features implies new capital intensive investments that not all operators are able to finance at same pace. Operators that are able to roll out new networks at faster paces should therefore be able to obtain quasi-rents.

We consider that in the telecommunications industry, commoditization occurs when a product or service reaches maturity and it is not used anymore by the operator as the main feature allowing to meter the user's consumption (unlimited use for a given price). The commoditized product is present in all of the operators' commercial offers and cannot be used as means of differentiation. Consumers continue to value its presence within the plan they purchase, but are not willing to pay a price premium for it. Commoditization is the consequence of both technological innovation and the level of competition existing in the market. We would expect new features and technologies to be introduced at a slower pace in markets with low competition or few regulatory measures aiming at promoting innovation.

Our first thought would be to assume that commoditization has negative effects for operators, as it implies lower margins, and could lead to an increase in operators' capital expenditures if the response to commoditization comes in the form of new services. However, in the French market some operators

seem to deliberately practice a commoditization strategy. Our goal is to determine whether operators intentionally practice a commoditization strategy or if it is the result of regulatory policies seeking to lower entry barriers. We will also try to determine if, under certain circumstances commoditization can have a positive impact in the performances of some operators depending on their positioning and market power.

In order to conduct our study we will perform a qualitative analysis of the information and data issued by the French telecommunications regulator ARCEP and from operators themselves. We will analyze the activity reports, financial statements and press releases of each of the main operators and the decisions taken by ARCEP and try to reconstruct the sequence of actions and reactions of different operators and the French regulator.

The French telecommunication market had five major players between 2003 and 2014. Orange-France Telecom is the incumbent operator. Its strategy is centered in offering the best products in terms of quality and technical features, and its prices are in general higher than those of competitors. SFR is the second largest provider of mobile services, after its acquisition by cable operator Numéricable in 2014, it also owns the second largest fixed broadband network. SFR fixed line and mobile strategies have overall been similar to those of Orange. Bouygues Telecom has historically been the third largest mobile operator. Its mobile services were rated as the best in terms of quality between 2007 and 2012. It also owns a fixed broadband network which is smaller than that of its competitors. Bouygues Telecom's has engaged an aggressive pricing policy in fixed and mobile segments since 2012. Iliad is the fourth operator, it has traditionally challenged its competitors with offers containing innovative features for a price lower than that of its competitors.

We will focus on fixed and mobile voice services, which passed from being the core product offered by operators more than one decade ago, to a complementary service offered almost for free. In the fixed segment we will study the replacement of PSTN by voice over broadband, while in the mobile segment we will study how unlimited voice plans became part of the standard entry level plan.

1. Theoretical and conceptual framework

Our analysis will be inspired on Clayton Christensen 'Disruptive innovation' concept (1997), which establishes new entrants using technologies with initially inferior performances can displace incumbents. This occurs due to the fact that incumbents focus on providing services for high value

customers, while ignoring the fact that inferior products could be sold to consumers having lower expectations at a lower cost.

This phenomenon occurs in telecommunications, where technological capacities expand at a faster pace than client needs. Since telecommunications market is usually organized as an oligopoly, it is not unusual for operators to focus on high value clients, which provide high margins. The same technology is generally available for all operators, since network equipment is not produced by access providers. However resources and positioning are unequal among operators, which can give rise to disruptive commercial offers. Therefore a commercial plan providing a certain level of services at a minimum threshold quality can find a large number of clients if it fits their needs and has a lower price.

Our twofold goal is to determine if the commoditization process is the result of regulatory authorities' choices, the result of operators' strategy or both; and what are the outcomes for telecom operators depending on their resources and market position. Regulatory authorities' decisions can provide a competition framework that allows the launch of new services, as it was the case with unbundling, or allow the entrance of new access providers thanks to asymmetric regulation. Along with regulatory decisions operators can adopt more or less aggressive commercial and investment policies.

Our main hypothesis is that companies with modern networks and vast financial, spectrum and network resources will proceed to high end incremental innovations, while new entrants with fewer resources will prefer low-end disruptive innovations. As mentioned above, due to a relatively homogenous technology among operators these disruptive innovations can also be of commercial nature.

2. Commoditization of fixed voice services, PSTN services substitution by VoBB.

In 2001 the French Telecommunications local loop became open to competition. As a result the local loop of PSTN network, which is owned by the incumbent Orange – France Telecom could be unbundled by alternative telecommunications operators in order to provide fixed telephonic and broadband services. ADSL clients have the choice between partial and total unbundling. In the case of partial unbundling the client continues to pay its phone subscription to France Telecom and keeps his PSTN line. In the case of total unbundling calls are made using the alternative operator's network, which therefore receives a call termination rate. Telephony services provided by fixed broadband service providers and included in a broadband internet access plan are known in France as Voice over

Broadband, that we will call VoBB. The objectives of local loop unbundling, as stated in Regulation No 2887/2000 of the European Parliament, were to “help bring a substantial reduction in the costs of using Internet” by “enhancing competition, ensuring economic efficiency and bringing maximum benefit to users”. In France, the decree n° 2000-881 made unbundling offers available to any network operator offering retail services.

In 2003 Iliad launched a fixed telephony offer included in its 29.99 euros Freebox package which included, in unbundled areas, ‘unlimited’ calls towards any other fixed line phone in the country. After 2004 the offer was expanded to areas where ‘unbundling’ was unavailable. In 2006 the offer was enriched with unlimited calls to 46 foreign countries; the number of countries has continued expanding ever after¹. Before launching this offer, the group had already committed to lower its retail ADSL prices, if market conditions became more favorable in the ADSL wholesale market. The group considered that the 29.99 triple play offer was made possible by a decision made by the ART (former name of the telecom regulator ARCEP), concerning France Telecom ADSL wholesale offer named ‘Option 5’². Unlimited ‘free’ national calls from unbundled broadband lines were made possible by ART’s decision n°03-905, which stated that France Telecom should charge its users calling a line belonging to Iliad network the same price of a local call.³

Fixed broadband plans including unlimited national and international calls have gradually replaced PSTN services. In Q4 2004 PSTN had a 97% market share in terms of number of lines and 96% of total traffic, by Q1 2014 it represented 39% of total lines and 28% of total traffic. Since Q1 2013 the number of totally unbundled lines exceeds that of PSTN lines.

PSTN progressive replacement by VoBB satisfies our definition of commoditization. Even if VoBB services are not the main feature of fixed broadband plans, this has not implied the death of fixed telephony. The number of fixed lines has slightly increased since the market was open to competition. In Q1 2000 there were 34.339 million fixed lines, by Q1 2014 there were 35.788 million fixed lines⁴. Total fixed line telecommunications market value in terms of revenues remained almost flat between

¹ Iliad : Management Report and Analysis 2006.

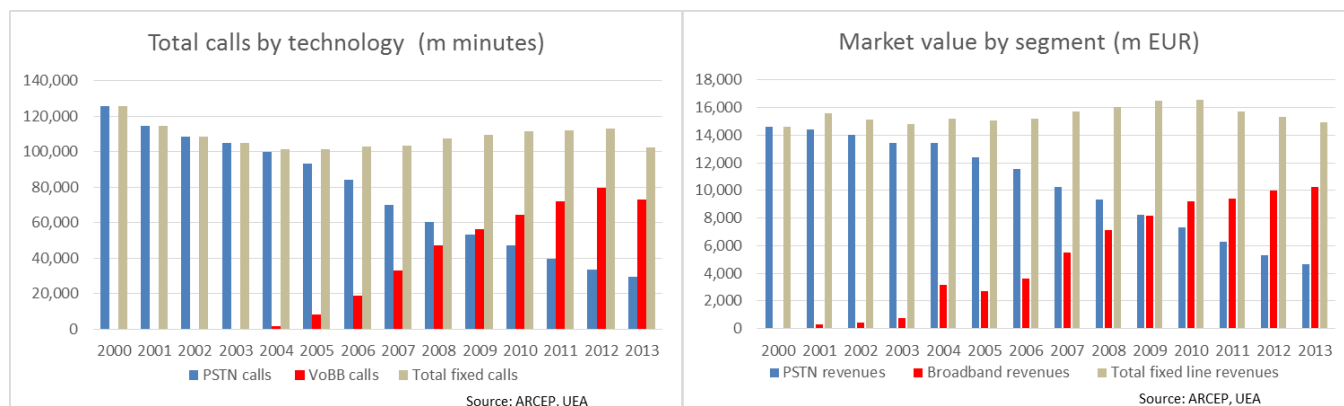
² Iliad : Press report of December 12 2003.

³ Source : ART (former name of ARCEP) Décision n°03-905? http://www.arcep.fr/uploads/tx_gsavis/03-905.pdf

⁴ Source: ARCEP Observatoire des communications électroniques, séries trimestrielles.

2000 and 2013 as shown in the chart below. While in 2000 total fixed market revenues were of 14.63 billion euros, in 2013 they were of 14.92 billion.⁵

Charts 1 and 2



2.1 Explanatory factors

The major explanation for PSTN substitution by VoBB can be found in the launch of unlimited calls plans which made having to pay for a fixed telephone subscription unattractive in the eyes of customers.

Before the launch of VoBB services by alternative operators, France Telecom benefited from a monopolistic rent in the fixed telephony segment. Monopolistic rent was defined by A.A Cournot (1863) as the revenues issued from an economic activity provided by a unique actor at a price that maximizes its revenues. Fixed line to fixed line national calls were the main source of traffic when the first fixed to fixed unlimited calls on VoBB were launched in Q1 2003, representing 86% of total traffic⁶. This segment was therefore the most appropriate target to diminish the above mentioned rent.

Launching attractive telephony services as a complement to broadband could therefore be seen as a strategy by alternative operators to lower France Telecom's advantage from owning PSTN network. In consumers' minds, plain fixed line telephony services could now come at zero cost, making difficult to justify charging for them.

⁵ Source : ARCEP Observatoire des communications électroniques, séries trimestrielles.

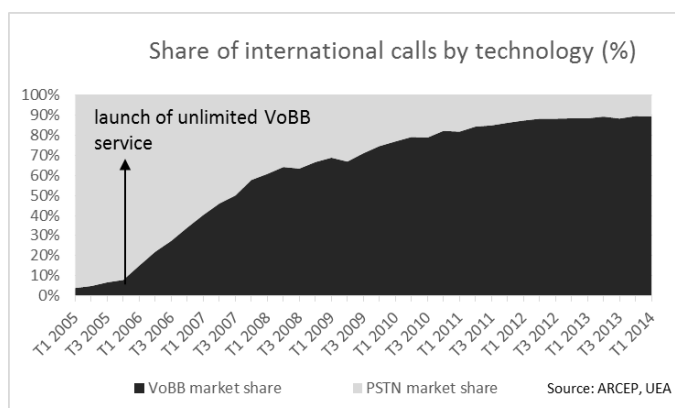
⁶ ARCEP: Observatoire des communications électroniques, séries trimestrielles.

The success in the adoption of Voice over Broadband can be explained by E Rogers' works on the diffusion of innovations (1995, 1990). According to Rogers (1995) an innovation's rate of adoption depends on its relative advantage, its compatibility, triability and observability. The relative advantage will depend in part on the "degree 'systemgood' components (such as terminals, networks, contents) work together" (Mahler et Roger, 1999). The fact that VoBB had no compatibility, triability or observability issues explains well its rapid adoption. In terms of compatibility, VoBB customers were able to call any national or international phone number. Since clients could choose between partial and total unbundling they were able to try and observe the service without abandoning their PSTN line. VoBB relative advantage came from 'free unlimited calls' and the fact that technology is as easy to use as traditional telephony, since traditional phones could be used for VoBB. As shown in graphs 1 2 and 3 the diffusion of Voice over Broadband followed the same S curve distribution described by Rogers for interactive innovations.

Eventually, even France Telecom launched an offer including naked ADSL services in Q2 2006. By Q2 2008 FT naked ADSL net adds started to exceed the group's total ADSL net ads, which implies that traditional ADSL packages with a separate telephone line were progressively being abandoned.

The effect of unlimited calls on abandoning PSTN can be clearly observed in the fixed to international calls and in the fixed to mobile segments as shown in the graphs below.

Chart 3

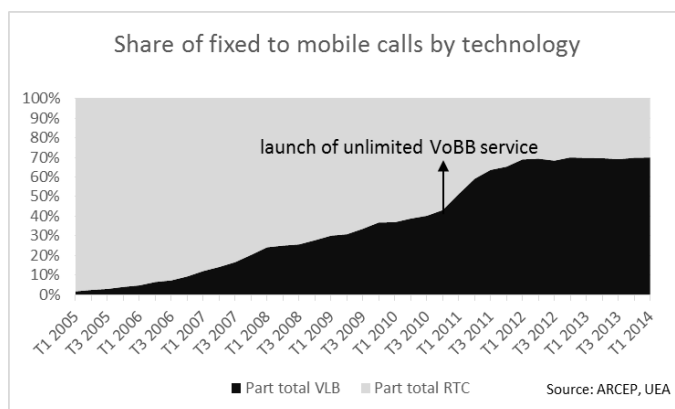


We can observe that the introduction of unlimited call services to international numbers in 2006 generated a rapid increase in the VoBB traffic. In 2005 PSTN traffic represented 75.6%⁷ of total

⁷ Computed using ARCEP numbers

international calls. After fixed to fixed calls, international calls were the second largest usage of PSTN services, and therefore the second target in which to encourage VoBB to PSTN substitution.

Chart 4:



The same phenomenon can be seen in the fixed to mobile communications segment. Despite continuous decreases in mobile termination rates, fixed to mobile communications remained extremely expensive until 2011. The price of fixed to mobile calls remained higher than that of pre-paid cards or out-of-the-package calls until 2010.

In December 2010, Iliad, that at the time had not a mobile service, launched an unlimited fixed to mobile call service, followed by SFR in February 2011. This measure was not followed initially by Orange, which considered that “fixed to mobile traffic was only close to 25 minutes per month and that to unlimited mobile calls were not a desirable market standard”⁸. The result of this measure was an increase in fixed to mobile traffic as it can be seen in chart 4.

Launching unlimited fixed to mobile calls can be explained as a deliberate strategy by Iliad both to maintain its market share and to lower other operators’ revenues from mobile termination rates. All of the other major operators had launched by Q4 2010 4play offers that Iliad was unable to provide; unlimited mobile calls can therefore be seen as a way to counter these offers from a commercial point of view. In the regulatory field, Iliad argued to ARCEP that Bouygues, SFR and Orange benefited of

⁸ Le Figaro, January 11 2011. ‘Les dessous du téléphone illimité ‘

positive network externalities thanks to their mobile network, since they could keep the mobile termination rates from calls generated in their fixed network. The rationale behind this initiative would be to push ARCEP to lower the on-net interconnection revenues of mobile operators, and can therefore be seen as a strategy in order to lower competitors' revenues and margins.

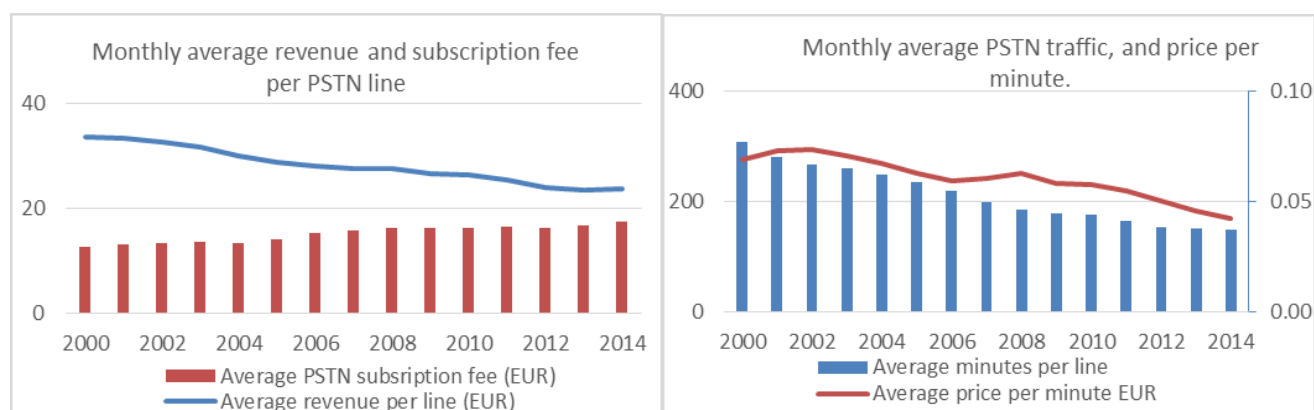
In ARCEP's Decision number 2011-0483 of May 2011, the Regulatory Authority decided to cut mobile termination rates from 3 cents for SFR and Orange and 3.5 cents for Bouygues to 2 cents for every operator. One of the rationales behind this MTR cut was that the Authority wished to increase fixed-mobile integration. MTR cuts would help to promote integration by facilitating the launch of unlimited fixed to mobile calls offers⁹.

2.2 Impact of traditional (PSTN) telephony commoditization on consumers

Impact of VoBB on consumer prices.

Traditional fixed line subscription fees and call prices per minutes have followed opposite trends since the early 2000s. As we can see in chart 5 the average traditional telephone subscription fee steadily increased between the years 2000 and 2015. During the period, average call prices per minute have decreased 46%; combined with lower traffic per line, the overall result is a significant decline in average revenue per line, as shown in chart 6.

Chart 5 and 6: Monthly average revenue and subscription fees per traditional telephone lines (Left), and monthly average PSTN traffic and price per minute (right)



Source: ARCEP.

⁹ ARCEP, décision n°2011-0483 en date du 5 mai 2011.

Beside lower traditional telephony prices, VoBB had an impact on blended (traditional and VoBB) fixed line consumer prices in two ways. The availability of total unbundling enabled broadband consumers who chose this technology to avoid paying a PSTN subscription fee by subscribing to naked ADSL services which became increasingly popular. While in Q1 2006 naked ADSL represented only 10% of total ADSL lines, by Q1 2015 its share had reached 90% of total ADSL lines¹⁰. Second the blended fixed line call price per minute (combined VoBB and PSTN voice revenues divided by total fixed voice traffic) strongly decreased between 2000 and 2015 since most of VoBB calls come at no extra cost.

Finally, it is important to highlight that according to ARCEP, the availability of unlimited international calls from VoBB lines limited the use of voice over the internet services such as skype to foreign countries where unlimited calls were not available. As a result these services have a limited impact in the French market¹¹.

Factors limiting a total replacement of PSTN by VoBB.

As Chart 3 and 4 show us, VoBB expansion follows an asymptotic growth. According to ARCEP, if PSTN offers have not been totally replaced by VoBB technology, it is mainly due to the preference for PSTN technology in corporate segments. This is due to the fact that PSTN is believed to be a service of higher quality, more reliable and with fewer security risks. In the residential segment, consumers that still own PSTN networks are often afraid of losing their phone number and need services that can only be provided by PSTN such as home alarm connections¹².

2.3 Impact on operators

We will proceed to analyze the effect of PSTN commoditization on the two operators that were at the main actors of the phenomenon, France Telecom and Iliad.

2.3.1 France Telecom

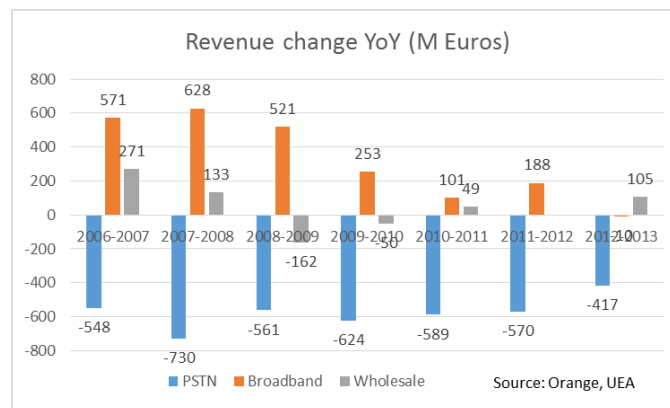
The commoditization of fixed voice services had a negative impact for France Telecom. Since the opening of the market to competition the group had to face with decreasing revenues from the fixed

¹⁰ In Q1 2015 there were 22.1 million ADSL lines and 19.9 million naked ADSL lines, of which 11.67 million were fully unbundled lines owned by alternative operators. Source Arcep series trimestrielles.

¹² ARCEP: Bilan et perspectives des cycles de régulation des marchés de la téléphonie fixe. February 2014

telephony service. Before 2010 this decline could be compensated by an increase in revenues from ADSL services. In terms of revenue, fixed line activities decreased on average by 4% per year between 2004 and 2011, while EBITDA decreased in average by 2.1% per year during the period. As shown by the chart below, this can mainly be explained by lower PSTN revenues rather than a lack of growth in the fixed broadband segment.

Chart 7:



We can infer that France Telecom was a victim of commoditization of voice services, as network monetization and the revenues generated by new services were not enough to compensate the decline in PSTN services.

2.3.2 Iliad

In the case of Iliad the commoditization of fixed mobile can be seen as a strategy that intended to put an end to FT's monopoly rent. The group gave up fixed telephony revenues in order to attract customers to its fixed broadband offer, which included other value added services that were not present in competitor's plans.

As a result the commoditization of the PSTN service had globally a positive impact. The company had a traditional fixed telephony activity that represented around 40% of turnover in 2002. However the rapid development of broadband activity more than offset the decline in 'traditional telephony services'. In our view, the group actively promoted the commoditization of fixed line telephony by adding every year after 2006 an increasing number of foreign countries available for unlimited calls with no extra charge, before being also the first to launch unlimited fixed to mobile calls. VObb

services are counted as part of internet data transfer services, while the main component of the offer is IPTV, which represents 55% of overall generated value by the broadband access service. Fixed telephony unlimited offers were part of a coherent strategy implying a progressive increase in the number and share of unbundled network lines, an increasing number of available television channels and progressive increases in maximum available speed connections.

Expanding the number of available unlimited destinations had a negative impact in revenue generation, which was offset by broadband organic growth and increasing use of value added services. Iliad's strategy core component was achieving an average operating margin close to 20 euros per customer thanks to a continuous increase in the number of unbundled clients and enriching the variety and quality of value added services. Value added services such as IPTV, Video on Demand and Online HD gaming contributed not only to generate extra revenues but also to make the offer more attractive than that of competitors by having more extra features. These services contributed to differentiate Iliad offer from that of competitors by being in general the first in launching these features. According to J.A Schumpeter (1942) this type of strategy can give birth to monopoly rents, which are the result of "superior methods available to the monopolist which are either not available to all the crowd of competitors or not available to them so readily; for there are advantages which, though not strictly unattainable on the competitive level of enterprise, are as a matter of fact secured only on the monopoly level".

Overall, the strategy proved successful since turnover grew at an average rate of 20% per year between 2004 and 2011, while EBITDA expanded at an average rate of 33% during the period. Unbundling strategy proved successful as EBITDA margin passed from 27% of revenues in 2002 to 39% in 2011; allowing to finance the group's expansion with a very low indebtedness, by maintaining a leverage (net debt to EBITDA ratio) close to 1x.

2.4 Overall effects of fixed voice commoditization and fixed broadband

Voice over broadband managed to replace PSTN as the main fixed line telephony technology in the French market. Voice over broadband technology and unlimited calls to fixed, mobile and international destinations included in broadband access plans became the market standard. As we previously mentioned, total fixed line market revenues remained almost flat between 2000 and 2014 as it can be seen in chart 2. This has two major implications. Since the market counted until 2014 five major competitors instead of one, this implies that France Telecom's monopoly rent faded. The second

implication is that customers benefited from the development of fixed broadband, unlimited calls and unlimited voice services for the same price they used to pay for only PSTN services. In order to improve their fixed broadband ARPU, and to differentiate their offers from competitors, operators preferred to develop value added services such as IPTV, video on demand, and online storage services. In the case of TV, operators have expanded the number of channels of their standard offers; and introduced complementary thematic TV channel packages available at an extra price.

Competition, combined with the launch of new fiber offers has lead the four current major operators to increase their differentiation efforts during the last two years, by launching entry level, mid-level and high end packages. Differentiation is based on complementary services such as the number of available TV channels, or cloud storage capacity. SFR-Numéricable launched entry level packages with limited or no TV content at prices close to 20 euros per month, while maintaining its premium 'La Box' offer starting at 37 euros a month. Bouygues has repositioned as the cheapest operator, offering its legacy ADSL services at 20 euros per month, while developing a new triple play service called 'BBox Miami' that uses Android OS. Free also launched a new 'box' that uses Android OS for 32 euros a month, while keeping its premium 'Freebox Révolution' starting at 36 euros a month. In the case of Orange, pricing strategy is based on the bandwidth chosen by the client, with entry level offers starting at 20 euros per month. Although standard triple play offers are still sold at a price close to 30 euros per month, competition has led to greater market segmentation.

3. Commoditization of mobile voice services.

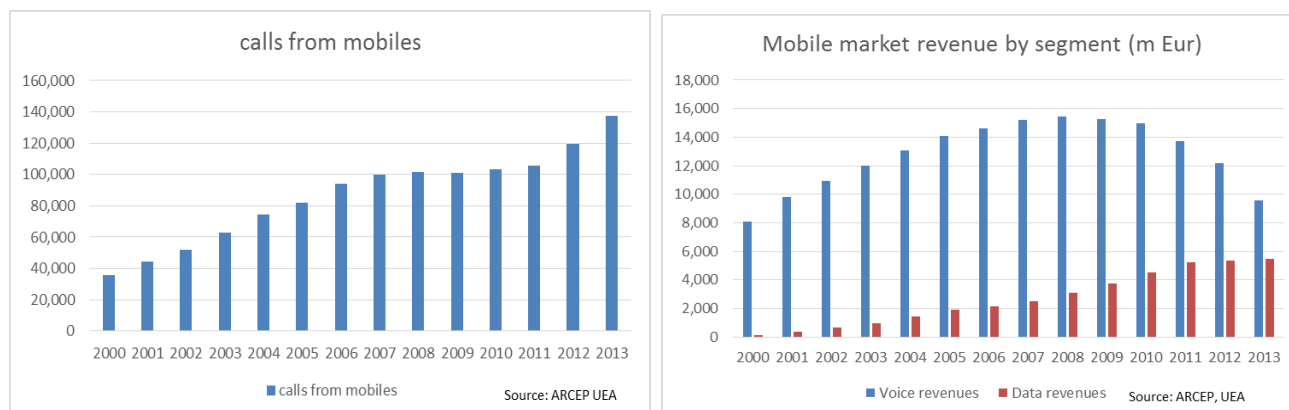
Mobile voice services, which were at the center of mobile telephony services for more than twenty years, also became victims of commoditization in the early 2010s as the market reached maturity. However mobile voice commoditization differed from fixed telephony in two major aspects.

Mobile voice commoditization is more related to marketing choices than to technological changes. While in the fixed line case PSTN telephony was replaced by VoBB technology; voice services remained the main feature of mobile 2G and 3G plans before 2012. Voice commoditization can be related to marketing decisions explained by increasing competition, and was made possible by progressive MTR cuts decided by ARCEP.

The second major difference between fixed and mobile voice commoditization can be explained by market segmentation. Fixed broadband operators offered until recently quite homogenous offers at a

similar price e.g. a triple play service for around 30 euros, while mobile offers largely differ in terms of features and price range. Mobile terminal subsidies and contract duration also made difficult to measure the price of different features included in the voice plan. We can consider that the competition in the mobile market is close to monopolistic competition, a type of market structure where a large number of firms sells a variety of differentiated substitutable products (Chamberlin, 1933).

Charts 8 and 9



The generalization of unlimited off net plans allowed to generate an increase in the volume of calls after 2011, as we can see in chart 8. This was however insufficient to offset the decline in voice revenues (chart 9). Until 2010 there was a strong positive correlation between voice consumption and revenues, after 2011 this correlation is lost as an increase in consumption occurred in a context of diminishing revenues. Therefore, we can consider that the commoditization of voice services began in 2011, when the positive relationship between voice consumption and price began to disappear.

3.1 Explanatory factors:

We can distinguish two different stages in the commoditization of voice services, which can be related to market growth trends. During the first stage, prior to actual commoditization, plans which included unlimited voice calls were sold at a price premium compared to plans where voice was metered. Initially, unlimited calls were only available during the evening, or within the same network. These features were destined to premium clients and allowed to boost ARPU. The first unlimited voice plan, Neo by Bouygues Telecom was launched in 2006 provided an ARPU 20 Euros higher than the group's blended mobile ARPU¹³. In the case of Bouygues, unlimited voice plans aimed at improving the

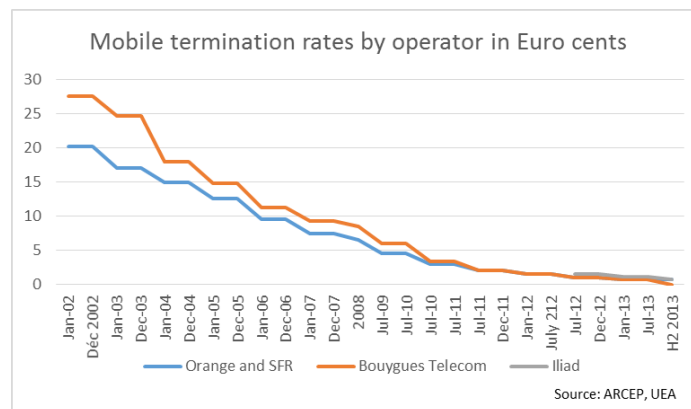
¹³ Bouygues Telecom: Investor Presentation Q2 2006

contract mix, by increasing the share of high value contract plans. These plans were aimed at young and valuable clients. Progressively time and network restrictions disappeared. In Christensen's disruptive innovation model this phenomenon corresponds to the market situation where companies focus on high value clients by progressively improving the features of their plans while charging for these improvements.

Regulation also played a major role in mobile voice commoditization by fostering competition and lowering interconnection costs. Mobile termination rates decreases are known in advance by operators, and were one of the reasons given by operators when justifying the launch of unlimited voice plans.¹⁴

Chart 10 shows us the decline in mobile termination rates (MTR)

Chart 10



Regulation also helped increasing competition by lowering customers switching costs, which can be considered as a barrier to entry. “Switching are fixed costs that buyers pay when they change suppliers”, “The larger the switching costs, the harder it will be for an entrant to gain customers” (M Porter, 2008). The Chatel law of 2008 made possible for customers to cancel a telecommunications contract after twelve months, and lowered the notice period to ten days instead of thirty. By lowering the number portability delay from three to one days starting January 2012 the ARCEP went in the same direction and allowed to make the market more fluid.

We consider that actual voice commoditization came with the entrance of Iliad in the market in Q1 2012. In 2011 operators were looking for ways to pass from voice metered to data metered plans which would enable them to monetize growing data traffic while maintaining high margins. Iliad's entrance

¹⁴ Source: Bouygues Telecom Investor presentation Q2 2006.

allowed to switch to data metered plans, at the price of accelerating revenues and margins decline. Iliad's offer was not innovative from a technological point of view, nor in terms of quality or content. Its success came in providing services that were widely available at a lower prices than competitors. Innovation resided both in the price of the offers, their simplicity (web only, SIM only with no commitment period) and the fact that they covered almost all of the existing consumer consumption profiles¹⁵. The fact these factors are related to pricing and operational efficiency make us consider that Iliad's entrance in the mobile market can be viewed as a low end disruptive innovation.

The granting of a fourth mobile license was made possible by the decision made by ARCEP in November 2006 to reuse for 3G services frequencies previously destined to 2G; the availability of a fourth license that was not granted during the initial auction, and the fact that 'several players expressed interest the fourth 3G license' in November 2006¹⁶. However the final decision to grant a fourth license was made by the government, and followed three main objectives. First objective was to increase investment in telecommunications services, second was to lower retail prices and third to foster innovation¹⁷. The government believed that these three objectives could be achieved by an increase in competition, and that in the near future operators would compete offering quadruple play packages. This point of view as shared by former ARCEP president Paul Champsaur who declared in 2008 that in view of increasing fixed-mobile convergence, granting a fourth mobile license to either Numéricable or Iliad would allow these operators to compete in the same conditions as Bouygues, Orange and SFR¹⁸.

3.2 Impact on operators:

In order to determine the winners and losers of the commoditization process, we will compare the evolution in a series of key performance indicators (KPIs) for the four major operators between 2011 and Q1 2014. Finally we will examine the impact of commoditization of mobile voice services in operator's corporate strategy.

¹⁵ Source: ARCEP Evolution des prix mobiles en France, Résultat pour l'année 2013. March 2014. Large data consumers spent on average 708 Mb of data per month. Market average data consumption was of 220 Mb. Since voice and text are unlimited we assume that all market segments are covered for these features.

¹⁶ Source: ARCEP Press Release of November 23rd 2006.

¹⁷ Source: French National Assembly, Speech made by Deputy Minister for Industry and Consumption Luc Chatel, February 5th 2009.

¹⁸ Référence article les Echos.

3.2.1 Commercial Performance:

Overall between Q4 2011 and Q1 2014 the mobile market grew by 13.1% in terms of number of mobile subscribers. In the case of the three major operators the number of clients remained almost flat during the period. Orange client base decreased by 0.5%, SFR's by 0.8% and Bouygues' by 2.1%. On the other hand Iliad-Free gained 9.1 million customers during the period. However, Orange remains the main mobile operator with 26.9 million clients followed by SFR with 21.4 million, Bouygues with 11 million. Despite the strong market growth in terms of number of mobile subscribers each operator maintained its ranking.

3.2.2 Revenue Generation:

Total market revenues decreased by 27% between Q4 2011 and Q1 2014. Operators had unequal performances in terms of revenue generation. Orange over performed the market, with a revenue decline of 19.9%. Bouygues performed slightly better than the market, showing a revenue decline of 25.7%. Until Q3 2013 when the last SFR revenues are available, the operator had performed worse than the market in terms of revenue generation. In terms of revenues, the ranking remains is the same as the one in terms of number of clients.

In terms of ARPU the three established operators performed better than the market. Between Q4 2011 and Q1 2014 market ARPU declined by 35.5%. Among the above operators SFR had the worst performance (-25.4%) while Orange had the best performance (-21.1%). Before the entrance of Iliad Bouygues had the highest ARPU (35.9 EUR), followed by SFR (32 euros) and Orange (30.5 euros). By Q1 2014 Bouygues remained the leader with an ARPU 27.25 euros, followed by Orange (24 euros) and SFR (23.5 euros). Iliad's ARPU showed a 10% increase between Q1 2012 and Q1 2014. However, after peaking in Q2 2012 (+64% compared to Q1 2012) ARPU has steadily declined, reaching 14.3 euros in Q1 2014. Iliad's ARPU is ten euros lower than that of its competitors. Mobile activity had a dilutive impact in Iliad's margins, while EBITDA margin passed from 39% of sales in H1 2011 to 31% of sales in H1 2014.

3.2.3 Voice commoditization impact in corporate strategy

Orange

The incumbent's marketing strategy goes by covering all the different segments of the market, from entry level to premium. Entry level market is covered by a new brand called Sosh which sells web only SIM only plans; while premium market is covered by Orange, in plans that provide subsidized mobile terminals and access to value added services. In both cases the group expected to take advantage of its network quality, enhanced by value propositions for the premium market¹⁹. Orange signed a roaming agreement with Iliad, which allowed to partially offset the decline in voice revenues generated by the new entrant. The roaming agreement is supposed to generate 'a billion euros over six years'²⁰ starting in 2012.

In terms of operating strategy, the group decided to engage in a cost reduction policy that allowed to lower operating expenses by 799 million euros for the French market in 2013. Although the group had already engaged an operating savings policy, it decided to double its pace for 2013 in 2012. According to the group, in 2011 operating expenses savings helped offsetting 17% of revenue decline, in 2012 23% of revenue decline and in 2013 57% of revenue decline. Between 2012 and 2013 the average cost per mobile customer declined by 8.7% in France.

Another consequence has been the change in capital expenditures allocation. The group allocates more than 0.5 billion euros in the development of very high broadband (4G and FTTH) in France. Concerning 4G investments increased by 233 million euros in 2013 compared to 2012. This was accompanied by a 444 million decrease in traditional activities capital expenditures.

Overall, France Telecom reacted to the increase in competition by becoming more efficient and investing in new technologies. This enabled the group to reduce the pace of decline in Free Cash flow. The group maintained its' leadership in the French market in terms of cash generation and very high speed broadband network coverage both in the mobile and fixed segments. Although FT has suffered from increasing competition it is in a good position to maintain its leadership.

SFR

SFR positioning is close to Orange's, covering all the segments of the market. Offers range from web-only SIM only plans such as Red and Prix eco to offers with mobile subsidies called 'Les Formules

¹⁹ Orange: FY 2012 results presentation.20 February 2013.

²⁰ Orange: FY 2012 Registration document.

Carrées'. Like Orange, the group also had a 4Play plan, called Multi-Packs. SFR commercial objective is to increase ARPU by increasing client's data consumption.

Since the year 2012, SFR has suffered from a strong decline in revenue and margins. The operator has strongly criticized regulatory agency ARCEP and the government provided "unconditional support" to Iliad for entering the mobile market. Like Orange, SFR engaged in 2012 in an operational expenses reduction plan, aiming at reducing operating costs by 500 million euros by 2014. This passed by the redundancy of 856 employees. However under Vivendi ownership, the operator was unable to improve its cash generation. Between the first semester 2013 and the first semester 2014 Free cash flow decreased by 41%, this despite a slight reduction in capital expenditures. SFR was finally sold by Vivendi to the fixed broadband operator Numéricable.

After SFR's purchase by Numericable, the operator's performances have shown a slight improvement. The group has simplified its fixed and mobile offers, which should help to reduce operating expenses. Fixed and mobile ARPU increased during Q2 2015, however both fixed and mobile customer base has continued declining. Cost saving efforts show positive results as EBITDA margin increased 19% between Q2 2014 and Q2 2015. The new group remains highly indebted, with a leverage higher than 3x in Q2 2015. The group's commercial strategy is based on simplifying and unifying SFR and Numéricable fixed line and mobile offers and prices, and increasing the number of 4play customers. In the fixed line segment, the group has been successful in migrating part of its ADSL customers to Fiber.

Bouygues

Bouygues offers cover mostly the same segments as Orange and SFR, excepting the top of the premium segment. Indeed, Bouygues premium plans do not include cloud storage services and 4play offer should have limited impact due to a significantly smaller proprietary fixed network. Indeed, most of its fiber network is rented to Numéricable.

In the SIM only web only segment, the group launched B&You in July 2011. Bouygues took an aggressive pricing policy both in the mobile and fixed segments after Q2 2012. Its stated strategy is to "democratize 4G and broadband access"²¹. 4G commoditization strategy expected success factors are network size and spectrum availability. Currently, the operator has the second largest network and

²¹ Bouygues Q3 2013 results investor presentation

available spectrum. This will enable the group to launch a new service called ‘Ultra large speed mobile’ by Q1 2015. Bouygues believes that its significant spectrum licenses, close to one third of total spectrum, and developing the best network will enable it to obtain a competitive advantage in the long term. However the commoditization of ADSL (Iliad’s core asset) and aggressive 4G plans seem to be measures intended to fight Iliad.

This 4G and ADSL commoditization strategy has been accompanied by a reduction and simplification of the available mobile offers and is part of a larger cost cutting plan. Total cost savings of 300 million euros are expected by the end of 2016 compared to 2013. Previously, in 2012 the group had already engaged in a cost saving plan aiming at saving 300 million euros in operational expenses, and engaged an assets disposal program for an amount of 265 million euros.

Bouygues Telecom seems to have suffered the most from Iliad’s entrance to the market in terms of profits. Its net profit attributable to the group passed from 370 million euros in 2011 to -16 million in 2012 before recovering to 13 million in 2013. The operator’s profitability continues diminishing, having shown negative operating profits since Q4 2013. In July 2015 SFR-Numéricable made a takeover bid which was rejected by the company’s board of directors. The Minister for Economic Affairs disapproved this potential merger as he considered it would have a negative impact for consumers and investment.

Iliad.

In terms of commercial strategy Iliad has two SIM only, web only mobile plans. A 2hour/month calls, unlimited SMS and 50 mb of data for two euros; and an unlimited voice and text plan including 3 Gb of data and unlimited calls to several foreign countries. The latter plan has become the standard offer in the French mobile market for the past two years. Since the margins generated by the 19.99 euros plan are higher, the group is trying to find ways to encourage clients to shift to this plan. As mentioned above, these mobile plans cover most of the various existing consumption profiles, which allows the group to have low operational expenditures. The unlimited voice plan features were improved with the “Pass Destination” that includes roaming with no extra charges in 32 countries and an increase in the internet faire use allowance for 4G users to 20Gb in December 2013 and 50 Gb in September 2015.

According to Iliad, the margins generated by customers located in zones covered only by the roaming agreement with France Telecom are lower than those from customers in zones covered by its own

network. Therefore, the group relies in accelerating the rollout of its mobile network to increase its mobile margins.²²The group suffered from a negative free cash flow in 2011 and 2012 before recovering in 2013. This can be explained by an increase of 77% in investments in 2011, related to its mobile network rollout. Excluding 2012, the group has shown an increase in its operating cash flow. The profitability of mobile segment is hard to assess as the group does not publish data on its customer mix, average mobile ARPU or EBITDA margin.

Iliad seems to be replicating the strategy applied in the fixed broadband market, which consists of commercially attractive offers and an increase in margins thanks to the progressive rollout of a proprietary network. By entering the mobile segment, the group expected to be able to compete on the same conditions as its competitors, and ‘become an actor of fixed-mobile’ convergence.

3.3 Overall effects of mobile voice commoditization

Our analysis shows that mobile commoditization had a negative impact for most of the operators. While Orange has managed to resist the decline in revenues, SFR and Bouygues seem to have suffered more heavily from commoditization. The first was sold to by Vivendi to Numericable, while the second is facing negative operating profits. In the case of Iliad, the launch of mobile services which were certainly a remarkable commercial success have led to the dilution of operating margins, even if the activity seems to have reached its breakeven point in the second half of 2013.

Even if on paper market structure remains the same in terms of number of operators and relative position in terms of market share, the financial weakening of most of the operators leads us to consider that the market has not reached equilibrium yet. On the one hand, if Bouygues’ current low price strategy proves successful we can expect current situation of low prices and low margins to continue. On the other hand, if the operator is bought by Iliad or Orange, we can expect prices to stabilize or eventually increase.

The major winners from the commoditization process are the consumers, which saw their average mobile expenditures decline by 35.5% between Q4 2011 and Q1 2014.

4. Conclusion

²² Iliad: Management report H1 2014.

Both in the fixed and mobile segments commoditization seems to be the result of operator's commercial strategies. In the case of fixed voice commoditization, the launch of unlimited voice calls can be seen as a strategy decided by alternative operators to reduce the incumbent's advantage from owning the PSTN network. The process of fixed to mobile voice commoditization, which became sustainable thanks to mobile termination rates cuts can be seen as an example of how the regulator can intervene in the market to achieve its goals, in this case increasing fixed – mobile convergence.

On the other hand, mobile voice commoditization can be seen as a strategy by the new entrant to gain clients in an already mature market. While mobile voice commoditization was made possible by the regulator that authorized the entrance of a fourth operator, there is no evidence that the regulator encouraged the fourth operator to take an aggressive pricing strategy.

In terms of market structure, although commoditization strategies do play a role by helping some operators to outperform others in terms of net ads, their effect doesn't seem to be important enough to change overall market structure. In the fixed market, although France Telecom suffers from a decrease in telephony revenues, it was able partially offset this decline thanks to revenue growth in the fixed broadband segment and remained the leader in the fixed segment. However it could also be argued that fixed telephony decline in revenues allowed alternative operators to develop, by weakening France Telecom. In the mobile segment, a stronger competition seems to have played a deeper role in market reconfiguration, since the country's second largest operator SFR was bought by fixed line operator Bouygues. However the market continues having four operators which will probably maintain prices low in the foreseeable future. The failed acquisition attempt of Bouygues Telecom by SFR-Numéricable shows that further market consolidation is unlikely in the near future.

The major winners from the commoditization process have been the consumers, which as previously mentioned, pay equal or lower prices for continuously improving services.

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