The challenges of the digital world

Over the past 15 years, the DigiWorld Yearbook has become IDATE’s flagship report, with an annual analysis of the recent developments shaping the telecoms, Internet and media markets, identifying major global trends and outlining scenarios of what lies ahead.

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Smart thinking the DigiWorld

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- **DigiWorld Collaborative Research**: run by IDATE analysts with contributions from outside experts.
  Four main themes selected for 2015: “Verticals and the digital transition”, “SVOD”, “Africa and the digital promise” and “Platform strategies”

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Please welcome this 15th edition of our annual round-up of the outstanding issues and events that are shaping the digital world, and DigiWorld Future: the European roadshow exploring what lies ahead.

> The Yearbook is available in French and English, in print and electronic format.

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To mark the publication of the 15th edition of its DigiWorld Yearbook, IDATE is hosting a wide-reaching debate on the key trends that will shape the digital economy over the next 10 years.

Drawing on detailed analyses of the current situation and IDATE expert forecasts for the core digital sectors, the debates will focus on the disruptive trends and issues expected to shake up the industry between now and 2025.

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Foreword
Dear friends and colleagues,

Once again this year, I am delighted to introduce the latest edition of our *DigiWorld Yearbook*, and this for three reasons. In my capacity as IDATE chairman, I have been gratified to see just how powerfully it expands the reach of our Institute. It provides a chance to our inevitably specialised teams to explore market issues from a perspective beyond their usual expertise. And, of course, I never forget that this is an annual report requested by our members. So let me take this opportunity to offer them my sincere thanks. Their renewed commitment to this project is a tangible sign of how much they recognise the competence – and independence – of our teams and, ultimately, the value of the IDATE DigiWorld Institute.

Without bringing any dramatic change to the structure and content of the Yearbook, this year’s edition does contain several innovations. We have added new chapters to the sector-specific analyses. The traditional introduction by our CEO, Yves Gassot, has been completed with a resolutely forward-looking opening part which explores the trends that have shaped the past twelve months, followed by development scenarios foreseen by our experts for three sectors up to 2025: telecoms, television and the Internet.

We are already working on some new ideas for next year’s edition. We would, though, rather hear from you about yours. Please do send along your suggestions so we can make future editions ever more relevant.

In the meantime, I hope this 2015 *DigiWorld Yearbook* helps to fuel some lively debate worthy of the important and complex questions raised by the accelerating pace of digital innovation. They are questions that we shall ourselves continue to explore through the events programme and initiatives of the DigiWorld Institute: not only the DigiWorld Future conferences being held to mark the release of the report, but also our weekly Club meetings in Brussels, London and Paris, and the collaborative research seminars to be held for our members and public partners.

I hope you enjoy the report, and look forward to discussing these rich and fascinating topics with you when next we meet.

François BARRAULT
Chairman of IDATE
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Ten key trends
As always, in the second part of our DigiWorld Yearbook, readers will find the monthly chronicle of digital industry news for the year gone by, along with focus pieces on the main events that marked each month. For we here at IDATE, whose business it is to wade through the latest market developments on a daily basis, the process of looking back over the year’s events only confirmed the significance of certain game changers such as mobility, the cloud, the Internet of Things, big data and social media. Some would also add 3D printing and artificial intelligence to that list. The following chapters will explore these topics, and their impact on the markets.

But this first chapter is more of an opportunity to share a few trends and queries which, although each is different, are often closely intertwined, and inspired directly by the events and discussions that have taken place since the publication of the previous Yearbook.

We will punctuate this reading of recent events with development scenarios for the three main sectors up to 2025, drawing on the work of our teams of specialists.

1/ The great digital shake-up

Up until recently, reflections over digital innovation took place largely inside the confines of the individual sectors, and could be summed up in terms of growth, market share and new product rollouts: the various IT and telecommunications professions, a composite group that combines video games, consumer electronics, new media and, for some years now, the Internet. It is this group that continues to be the main focus of our work here at IDATE.

We nevertheless share the idea that, in recent months, we have entered into a significant new stage in our ability to identify in a more concrete fashion the great digital shake-up that is now occurring.

This means gauging not only the scale of the phenomenon, but especially how the transformation is playing out. Previously, we attempted to measure the pace of dissemination through the IT investments of top economic stakeholders. Today, new intermediaries are coming to shake up the status quo, many of them from outside the industry, taking advantage of new technologies and new consumer cultural behaviour to revolutionise the value chain. Everybody knows about how Uber has disrupted the taxi business, and Airbnb the hotel market. But finance, insurance, health and automotive industry leaders have all had to sit up to the risk of digital innovations shaking up their ecosystem, and forcing them to depend on external, unavoidable platforms.

While the expected upheavals will surely be anything but a smooth ride, they also raise a number of questions that we will reiterate here. Some market observers see all of the signs of a major period of stagnation. They expect to see the innovation model of digital technology peter out in the near future, having proven its inability to generate a new round of growth predicated on a rapid rise in productivity gains. Echoing the famous phrase from 1987 of Nobel Prize winner, Robert Solow: “You see the computer age everywhere but in productivity statistics”. Ever since then market analysts have sought to find the reasons for this paradox, in the limitations of statistical tools, or the time it takes for technologies to be fully appropriated. Others, meanwhile, do not deny the existence of the great digital shake-up, but do stress that because productivity gains also result in so many lost assets, and in such a polarisation of jobs and wealth, the virtuous circle à la Schumpeter – which leads to productivity gains being redeployed in favour of new investments and new markets – today seems problematic at best.
2/ “Software is eating the world”

The telecom example

Cutting right to the chase, Marc Andreessen announced a few years back that: “Software is eating the world”. Behind successful start-ups and the Internet giants we naturally find an idea, and mad software chops. A great deal of the fanfare over Netflix, for example, focuses on its investment in original programming, often overlooking the company’s technical culture. The same could be said about Amazon, and the algorithms that power the Google search engine or the Facebook news feed.

What may seem even less evident is the softwareisation of the telecommunications sector. It is not hard to visualise the transformation and the constraints involved in deploying new, physical fibre-based superfast access infrastructures, or new generation wireless systems. But a little less importance is given to the virtualisation phenomenon under way on telecom networks, using SDN and NFV – a phenomenon that could be compared to the decisive leap in computing when hardware was separated from software (and the computer’s operating system). In tomorrow’s telecommunications systems, we expect to see one plan for hardware and another for what is essentially software, in charge of operating and monitoring the network. As cost has become an essential consideration in the fiercely competitive environment in which telecom carriers operate, the main idea is to be able to alter and upgrade their network’s functionalities more easily, and without having to rely on their equipment suppliers. This idea goes hand in hand with operators’ adoption of more or less distributed cloud architectures, in line with the inexorable path that IT is taking in other sectors of activity. Along with cost effectiveness, the aim is to be flexible and agile, which makes it possible to unify fixed and mobile networks, and be able to adapt in real time to traffic conditions and to the demands of certain applications or customers.

The issues and challenges surrounding this softwareisation of telecommunications are still only nascent, but they will be considerable down the road. Leading providers
have legitimate concerns over losing mar-
ket share if interoperability is guaranteed,
and (once again!) over IT giants treading
on their home turf. But telcos also need
to see the advantages of this trend, which
will allow them to avoid being relegated to
the role of a dumb pipe. We cannot, how-
ever, entirely discount the possibility of see-
ing this scenario redeploied, reducing the
telco business to financing and installing
largely shared network infrastructure on
behalf of third parties. Meanwhile, service
providers, who will be more or less blended
in with the top OTT platforms, would take
over the reins as they seek to gain greater
in-house control over the telecom side of
their business, and the ability to capitalise
on the plethora of data being generated by
their products.

3/ Globalisation and consolidation

For a long time, the telecommunications
sector, despite being vital to global trade
and multinationals’ operations, maintained
a largely national structure, unlike the
Internet’s over-the-top (OTT) giants that
boast global brands and growing global
businesses. Explanations for this can be
found in the ties that incumbent carriers
have with the State, the fact of using nation-
al infrastructure, the diversity of regulatory
situations and in the, often restrained, suc-
cess of cross-border mergers in the past.
Despite this, the telecom sector’s consoli-
dation was a constant in the headlines in
2014. Once again this year, a distinction
needs to be made between the news out of
the United States and developments taking
place in Europe. Over in the US, the merg-
ers we reported on in last year’s Yearbook
are still being scrutinised by authorities.
Today, it seems more likely that, following
the FCC decision to classify broadband as
Title II service under the Communications
Act, the merger between the country’s
top two cable companies, Comcast and
Time Warner Cable, will get the green
light. This merger would consolidate the
leadership of Comcast, and of cablecos in
general, in America’s residential super-
fast access market. We can set this
fact against AT&T’s recent divestment of
landline network assets in Connecticut for
2 billion USD, and especially Verizon’s sale
of its landline operations in three states
to Frontier, for more than 10 billion USD.
It should be mentioned that these deals
covered not only the carriers’ copper infra-
structures but also their hybrid and fibre
ones. It is becoming increasingly hard to
predict the future wireline strategies of the
country’s top two telcos. This is certainly an
argument in favour of Google Fiber, which
in 2014 moved forward with its campaign
to work with cities to deploy 1 Gbit access
lines, with the support of the Chairman of
the FCC who early on stated his plans to
abolish the ban on municipal networks that
exists in some states.

Another major deal that is still pending in
the United States would see AT&T take con-
trol of DirecTV, the country’s leading sat-
ellite service provider and second largest
pay-TV provider. This takeover is at once
a partial response to the Comcast deal,
bolstering the company’s access to TV
programming, a reaction to the authorities
quashing the merger with Sprint (2013),
and the expression of AT&T’s interest in
Latin American markets. This interest is
focused especially on Mexico where AT&T
sold off its stake in America Móvil and took
control of the number three mobile opera-
tor, Iusacell, before announcing plans to ac-
quire its smallest operator, Nextel. These
deals will probably put an end to the ques-
tions raised in 2013 when Vodafone pulled
out of Verizon Wireless, over AT&T plans
to move into Europe. Also worth mention-
ing are the two merger attempts in the
US that fell through in 2014, both with the
same target: T-Mobile, the fourth largest
mobile operator, 67% owned by Deutsche
Telekom. In 2014, we saw confirmation
that the FCC and DOJ were clearly not ready to make the transition from four to three national mobile operators. Sprint’s failed takeover bid briefly appeared to be an opportunity for French success story Iliad (Free) to move up the ranks by taking control of T-Mobile USA. Deutsche Telekom found that bid decidedly lacking, bolstered as it was by the commercial – if not financial – success of its subsidiary’s ‘Uncarrier’ strategy. The German incumbent carrier is now on the lookout for proposals that would include spectrum and subscribers. Here, the unexpected outcomes of the recent AWS-3 auctions in the US, which brought in more than 45 billion USD, will no doubt have gone a long way to shaping the future market.

4/ Europe opts for fixed-mobile convergence

Here in Europe, the authorities finally gave the nod to the O2 (Telefónica) – E-Plus (KPN) merger in Germany. The deal, which will give birth to a new national leader, was something of a test case as it involved Europe’s biggest market. The goal was to find out whether authorities would agree to lessen market competition by allowing the operator population to decrease to three per country. Here, it is worth remembering that between 2008 and 2014, mobile operators in the five largest European markets saw their revenue shrink by 26%1. Of course, the remedies attached to this approval are not trifling, even if nobody yet knows for certain whether Drillisch Telecom will be able to make use of the frequencies that it is set to acquire from the new company. Other mergers in national markets have either gone through or are currently in the works: in Ireland (Hutchison/O2) and probably in Norway (TeliaSonera/Tele2) and Denmark (Telenor/TeliaSonera) as well.

But none of these were the big surprise in Europe in 2014. That was more to be found in the accelerated pace of fixed-mobile convergence, a topic which is not really on the table in the United States, aside from the WiFi strategies of leading cable companies. Beyond the fact that historically integrated operators have been working to promote their quadruple play bundles in recent months, it was Vodafone that introduced the model into the European landscape back in 2012, seeking to protect its mobile assets by backing them up with wireline infrastructure and products. To this end, the telco engaged in its successful takeovers of Cable & Wireless then Kabel Deutschland. In 2014, it continued to expand, methodically, acquiring the Spanish cable company ONO for more than 7 billion EUR, before going on to acquire the Greek wireline telco, Hellas Online. In France, where Vodafone has no operations, and where the market was expecting a merger between mobile operators, it was the small cable company Numericable (Altice) that eventually won Vivendi’s approval to take control of its subsidiary, the much larger SFR. Altice managed to capitalise on the cable momentum created by Vodafone and Liberty Global’s European saga to convince the markets and the banks, and to play upon antitrust authorities’ natural inclination to approve mergers that involve different relevant markets, in this case fixed and mobile. But the most spectacular deal of 2014 goes to BT, which had been required to divest itself of its mobile business in 2001, and which last year took control of the UK’s largest mobile operator, EE, from joint owners Deutsche Telekom and Orange. One year ago, there had been no overlap between the top four wireline carriers and the top four mobile operators in Britain. Other deals will occur in the UK in the wake of the BT-EE merger, combining

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1. Aggregate revenue, including wholesale income. Revenue earned on retail market services decreased by 17% during the same period.
internal mobile market consolidation and fixed-mobile convergence.
The question that now remains unanswered is whether these deals, which are driven largely by national market strategies and synergies, will lead to cross-border mergers. Our position up until now has been a cautious one. The potential synergies were much less significant in the past, and the state of European markets and operators appeared too fragile. Our current assessment is more nuanced, however. Circumstances are improving, and the decline in revenue and margins is slowing or has levelled off. There is no shortage of cash on hand to finance deals, and the banks are no longer put off by debt levels that are four times EBITDA – as proven by the recent announcement of the Altice takeover of Portugal Telecom. Finally, there are already enough multinationals amongst top European telcos for a domino effect to occur: mergers that began with national intentions will lead to other deals, which will lead to the emergence of pan-European operators. Market analysts also have a keen eye on the transformational potential of a deal that would see Vodafone take over Liberty Global, the small cable empire which John Malone has built in Europe.

In any event, it is impossible not to draw a link between the inexorable trend of national market consolidation and recent criticisms of the European regulatory framework, while the still hypothetical scenario of the emergence of pan-European operators would go some way to bolstering the work under way in Brussels to achieve a single market for telecoms.

As we shall see later in this chapter, in the development scenarios for telecom markets up to 2025, the ability of operators to appropriate network virtualisation and secure successful takeover deals will go a long way to determining the sector’s future hierarchies, as well as the degree of control that players have over distribution in what is now an online economy.

5/ Winner takes all, or platform economics

If telco globalisation continues to be a future likelihood, the Internet was quickly defined by the emergence of global brands and a handful of dominant players. Looking back at our chronicle for 2014 we can even conclude that, each in their own way, the members of the GAFA\(^2\) quartet saw their dominance grow in recent months. Google continues to dominate the search engine market, is still by far the largest provider of mobile OS, and is still the prime beneficiary of the growing online advertising market. It has continued to diversify, moving into sectors such as automobiles with Google Car and connected things with the acquisition of Nest Labs. Apple has considerably bolstered its top global ranking in market capitalisation and cash on hand, now close to 150 billion USD, thanks to the success of its eighth generation iPhones. Apple has sold more than 700 million smartphones since the first iPhone was released in 2007, on par with Samsung in the last quarter of 2014. Last year, it made its biggest-ever acquisition with the take-over of Beats, creating an opportunity to add a streaming service to its music business, and now it is working to gain a foothold in the mobile payment market. Facebook also made the successful transition to the mobile Internet; it no longer hides its video market ambitions, and it sewed up its take-over of WhatsApp in a deal finally worth more some 21.8 billion USD, before spending 2 billion USD for Oculus VR. Amazon suffered a resounding failure with its Fire smartphone, but still saw its revenue climb by close to 15% and higher still for its AWS division and its cloud products.

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2. Google, Apple, Facebook and Amazon
Even Microsoft – which has yet to prove its ability to find its footing in the mobile market after having taken over the Nokia handset business – has made two major decisions, under the impetus of its new CEO. Faced with Windows’ ongoing loss of market share in connected devices, the company severed the ties between Windows and Office by developing iOS and Android versions of its software suite. It is also working on changing the way its new Windows 10 operating system will be monetised: it will be free for a great many OEM and users of earlier versions.

Under these circumstances, a number of questions remain. What makes GAFA(M) so powerful? In what areas are they coming up against resistance and obstacles to their ongoing rise?

What naturally comes to mind when contemplating this second question is the impact that public policies will have in several arenas – including antitrust, taxation, security and privacy – and, more generally, how consumer feelings will change, which can be summed up by whether or not they trust digital market players. We will not delve further into these issues here, even though they are having a profound effect on the sectors, and debates on the matter are far from resolved. The likelihood of the scenarios below, which explore the future Internet over the coming decade, will be influenced a great deal by these parameters. The first question harks back to some degree to the expression ‘winner takes all’. Recent works by economists, including Nobel Prize winner Jean Tirole, apply this expression to the properties of platform economics which are based on the Internet giants’ business plans. An efficient platform, which constitutes a multi-sided market, develops crossover effects between the different clienteles. This ‘network effect’ – of which the leading search engines, social networking sites, OS and app stores are a perfect illustration – is combined with notions of economies of scale, singularly in the collection and utilisation of data, making it difficult for a competitor to emerge, let alone succeed. In digital sectors, platform efficiency is also fuelled by the trend of open ‘innovation’. Platforms are indeed very efficient means of capturing innovations from third parties and app developers, but also from Internet users. To do so successfully, they need to constantly engage in and adapt a subtle dialectic on open and closed systems. Antitrust policies can serve to limit the exclusivity agreements imposed by platforms, or discrimination between third-party applications and those belonging to the platform managers. But this cannot fully take away the true efficiency of platforms, either for end users or for young startups who often see them as the only way to gain access to the market. We will add here that, even if promising innovations are developing outside their platforms, the Internet giants have the means to acquire them, and fold them into their ecosystem. Areas of resistance to this seemingly inexorable rise nonetheless do exist, beyond the rivalries that may be spread out over several markets.

6/ China’s growing ambitions

We can start by underscoring certain limitations to global domination by the Internet giants. In Japan, South Korea, Russia and of course China, we find companies that are, more or less, emulating the main models that have made GAFA so successful. We know of the industrial titans that are flourishing in the Chinese telecom services market. The GSMA reports that four out of 10 new LTE users around the world in 2014 were in China. We have become accustomed to the inexorable rise of Huawei in telecom network equipment. We were not surprised to see Chinese ambitions in the device market confirmed, as perfectly embodied by Lenovo. Ten years after having taken over the IBM PC business,
Lenovo took over its server operations and, more significantly, acquired the Motorola smartphone business from Google. More astonishing still has been the meteoric rise of Xiaomi, which became the world’s third largest smartphone supplier in Q4 of last year, and which is valued at 45 billion USD after only three years of operation. South Korean market leaders should be justifiably concerned about the future security of their positions, as they may be poised to suffer the same decline they once triggered in the Japanese consumer electronics market. But several events in recent months tell us that we can no longer separate Asian or Chinese ambitions in the network equipment market from their ambitions in device markets. 2014 kicked off with Viber being taken over by the Japanese firm Rakuten, followed by the arrival of microblogging site Weibo – a spin-off from the veteran Chinese portal, Sina – and especially Alibaba’s much-talked-about IPO on the New York exchange, which raised a record amount of more than 25 billion USD. The GAFA quartet is going to have to get used to competing with their new Asian rivals for promising young start-ups, and for control over the finest talents in software development.

8/ Anything as a service… and ever-growing data

For some time, the digital shake-up did appear to apply chiefly to those products and services that could be digitised quickly – music being a prime example. One argument that we were likely to hear was the somewhat simplistic opposition of the manufacturing industry and policies that brought about the deindustrialisation of our economies. Recently, we have seen how the plethora of carpooling and car-sharing services can diminish the desire to acquire some material good, particularly amongst young people.

In this respect, the development of M2M and the Internet of Things, which attracted a great deal of attention in 2014, offers a good understanding of the many ways an area of activity can be incorporated into the new digital world, and the various positions that are possible. A sizeable percentage of connected solution rollouts today are capitalising on the revenue earned on earlier product sales. Such is the case today with the first wearables and smart watches. We can also identify a second business model, which will translate into the sale of services, as in the area of health-related or medical monitoring. As it stands, however, it is also clear that the ultimate target for some
players lies in collecting and utilising data, with a view to monetising them. Even if we need to recognise that such a prospect is still largely hypothetical, the Internet’s major ‘horizontal’ platforms hold a potential trump card here, as the diversity of data sources at their disposal gives them a real competitive advantage.

**9/ Content is king. Still.**

We have already mentioned Netflix once. But we could do it again when talking about globalisation – as there was a lot of buzz around the company’s arrival in Europe last year – and, for that matter, about virtually every other topic being covered in these pages.

But our aim here is to complete our snapshot of recent trends by pausing to look at the TV sector, which we could say is vertical before its time. The value chain in this sector, as in others, is being shortened by the advent of OTT distribution. Video on demand (VOD), both free and paid, threatens above all to cut TV networks out of the loop. The same applies to advertising companies as ad placement is becoming more and more automatic, and taking place in real time. But this trend of disintermediation is also being felt by telcos and cablecos. After faltering briefly, 2014 saw Netflix pen a series of deals with ISPs. And HBO, whose fate is closely bound up with that of America’s top cable companies, announced a stand-alone version.

If consumers can hope that competition will bring down prices, the prime beneficiaries here appear to be the production industry and content providers. High-quality content is becoming a scarce resource for TV service providers. In the United States, HBO, Netflix and Amazon are all vying for the best projects. Their global footprint allows them to invest in ever-increasing budgets. And, free from the fees that TV channels had to pay to have their programmes carried, they are able to devote a growing percentage of their income to producing original content.

At a time when providers of TV programming, who were typically network operators, had strengthened their control over the TV value chain, a new era of television began opening up: one where content is king. This has resulted in massive investments by veteran players, working to keep up with the times: 2014 saw Discovery and Liberty Global take control of the production company All3Media, along with a joint venture between the Shine Group (Murdoch group), Endemol and CORE Media. In addition to this trend of vertical producer-broadcaster integration, the underlying thrust of these deals is to create international production conglomerates. This was the impetus behind a series of deals last year: the acquisition of Dutch production company, Eyeworks, by veteran Hollywood studio Warner Bros., the takeovers by German heavyweights ProSiebenSat1 and RTL of, respectively, American production companies Half Yard and 495 Productions, and the purchase of American production company, Leftfield, by the British ITV network.

As in other vertical markets, the sector’s specialised companies are far from having lost the battle to giant Internet newcomers. All the same, European companies, which are multinationals at best, are having to rapidly globalise their business to keep up.

**10/ IP traffic growth in Africa will double that forecast for Europe...**

Africa is the second continent with a population of over a billion people. In many ways, it is hard to talk about Africa and the Middle East without resorting to clichés – be it bright optimism or crippling despair. The vast majority of the events and markets detailed in this DigiWorld Yearbook do not address the developments taking place in that region, even though Africa will no doubt have a growing influence on our digital
world. Which is what led IDATE to publish its first DigiWorld Yearbook devoted to Africa in 2014. And why we will conclude this introduction with this final trend.

One out of every three new mobile customers on the planet in 2014 lives in Africa. Everyone is aware of the extraordinary mobile surge on that continent, creating a market that has gone from around 15 million mobile users in 2000 to more than 500 million today – with penetration rates close to and even above 100%, as many users have multiple SIM cards. A number of reports have underscored the transformational powers of this surge, and the especially exceptional development of mobile payment systems. But it is also true that fewer than one in five users has access to 3G or 4G, and that wireline networks have penetration rates that range from below 1% to 10% at most. Under these circumstances, the ability to access the Internet is naturally very limited and difficult, even if the situation is much more nuanced in Nigeria, South Africa, Egypt, the Maghreb and the Gulf states.

More specifically, along with India, sub-Saharan Africa will be the chief source of growth for the Internet economy in the decades ahead. Without understating the obstacles created by the insecurity that reigns in many countries, the news from 2014 is cause for a certain optimism. We saw new submarine cables open up, and the construction of optical fibre routes across the continent. National markets are very fragmented, but we are witnessing the emergence of African-born, Middle Eastern, European and Indian multinationals in the region. We are also seeing a clear trend of infrastructure-sharing and outsourcing, to build out 3G networks and begin to deploy 4G: 29 LTE licences have been issued in the region, including 12 new ones in 2014. The transition to digital TV provides an opportunity not only to overhaul the television system, but also to free up low frequencies for mobile systems. In addition, smartphones and tablets are coming onto the market at prices that are affordable for a growing number of consumers. And it is not only telecom operators, but also satellite operators that have worked to lay the groundwork for the Internet in Africa. Leading Internet companies from the US see the continent as a new source of growth for their services: they were behind a series of announcements in 2014, along with pioneer trials of unconventional infrastructure solutions, involving balloons, constellations of LEO microsatellites, the use of white spaces for TV broadcasting, and of new pricing schemes, including Facebook’s zero rating.

Lastly, innovation will also lie in the vast metropolises that are springing up on the African continent: more than 50% of Africans will live in cities by 2050, and the still fuzzy notion of the ‘smart city’ is starting to trigger debates in such cities as Lagos and Johannesburg about the transformational potential of digital technologies. For all of these reasons, we expect to see the markets of Africa and the Middle East play an increasingly prominent role in the DigiWorld before the decade is up.

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In addition to these ten trends that shaped the industry during the year gone by, we wanted to introduce a new feature in this edition of the Yearbook, namely a more detailed exploration of what the future might hold in store. The following pages therefore deliver a variety of development scenarios for the three main sectors up to 2025, and some thoughts from our experts.
Internet, telecom and TV industry scenarios for 2025
The future of the Internet

The primary disruption of the Internet lay in its technically open environment, which enabled the rapid spread of standardised technologies in lower network levels. In more recent times, the conquest of new vertical markets has been drawing on the development of combinations of key technologies – cloud, analytics/big data, mobility, social networks, high-speed access and sensors. Now new technologies are being embraced, many of them heading towards real maturity, as with mobile interaction technologies, RFID and 3D printing. There is little doubt that they will take hold, and contribute to accelerating and expanding the potential of the digital transformation over the next 10 years.

To analyse how the Internet will evolve between now and 2025, we first need to take the major uncertainties into account. They are concentrated around two key issues: access to private data and the openness of ecosystems.

The first main uncertainty concerns the future attitudes of both users and regulators towards data privacy. Private data are a central ingredient in the business models of a great many service providers, while also being a real source of concern for the majority of users. Internet users are constantly having to weigh the trade-off between control over their personal data, with all the ensuing risks and inconveniences (security, privacy, sometimes intrusive sales targeting), and having access to innovative and usually low-cost or free services. Regulators are keenly aware of this ambivalence, even if they see in the newfound risks to public safety arguments for limiting the confidentiality of the data being exchanged. The combination of consumer rejection of having their data monetised and the growing restrictions imposed by public authorities, in the name of consumer protection and public safety, will force Internet companies to switch to much less data-centric business models.

The second main uncertainty is about how the value chain will be organised. The transition from an initially very open, network-centric universe (TCP/IP) for interconnecting a host of domains, to a more software-centric one has enabled the emergence of a few powerful players who capitalised on network effects, and the increasing returns from large platforms. Their proprietary technologies are tending to run counter to the original state of openness of the Internet ecosystem. All the same, the ex ante regulation of platforms or antitrust suits could bring open standards back to the fore.

‘Platform wars’ still the most likely scenario

The most probable scenario is a continuation of the current situation, namely ‘platform wars’. America’s Internet giants continue to dominate the Web. They are concentrating more and more data, without meeting any real resistance from consumers, or having brutal restrictions imposed by public powers. They are not entirely without rivals, though, whilst also standing out from the pack with their mix of business models that rely increasingly on advertising revenue, and the sale of devices and services to consumers and businesses. They benefit from their exceptionally fertile creative environment for software development, and are steadily increasing the value of their platform through diversification and acquisitions. Their main challengers will be other companies capable of transforming themselves into platforms: the new disrupters in vertical markets such as...
Netflix for video; Asian titans of the likes of Tencent and Alibaba who manage to expand beyond their national borders; a handful of major telcos; large retail chains; and heavy-weights from other sectors who have managed to reinvent themselves.

**The ‘low-cost islands’ scenario**

The most serious alternative to the platform war is a completely opposite trend: the ‘low-cost islands’ scenario. The lack of trust in platform initiatives, possibly coupled with more stringent regulation, will push Internet users to take back control of their data and to limit their dissemination outside those very economically-disruptive services exemplified by Salesforce, Airbnb and Netflix, offering major price reductions over existing services. Users are also turning to privacy-friendly companies, i.e. companies such as DuckDuckGo and Ello that have deliberately chosen to make very little use of private data, and which today are struggling to make a dent. As a result, the Internet market is smaller but continues to be sustainable, thanks to open standards that limit development costs.

Other scenarios are possible, but less credible in light of recent developments. We nevertheless need to keep in mind that the most likely future will involve some combination of the different scenarios described here.

**The ‘open innovation’ vs. ‘pay per trust’ scenarios**

The most optimistic scenario involves developments based on the precepts of ‘open innovation’. This would usher in a new wave of innovation, combining technologies and data (including sensitive ones) from multiple suppliers. A flexible but strengthened regulatory framework, coupled with schemes that enable users to monetise their own data (as with certain VRM systems) complete the model. It includes the development of open standards, possibly financed and instigated by the public sector, as is currently the case around the Internet of Things and HTML5, along with public authorities’ support for open data – despite...
current results being rather disappointing. This would lead to diminished power for the major platforms, even if search engines still enjoy a major role as points of entry to the plethora of innovations. Under this scenario, consumers accept targeted marketing, and ad-based business models are the most prevalent.

On the flipside, we can sketch out a scenario resulting from a clear deterioration in our social environment. An ever-increasing number of security breaches and scandals over the use of private data would open the way for a handful of players positioned as trusted third parties, boasting both strong brand equity that users trust, and advanced capabilities in security tools, particularly in the areas of payment and communications. In this ‘pay per trust’ world, the dominant business models are paid services and especially devices. Targeted advertising, and even cloud architectures, quickly lose ground.

Vincent BONNEAU
The future of telecoms

Telecom carriers have several challenges to tackle:
- more or less a commonplace in other sectors, increasing competition that is weighing on margins and tending to reduce market competition to a price war, to the detriment of investment and innovation;
- the challenges of the radical transformation of their environment brought by the massive switch over to IP-based systems. This transition has required them to overhaul their pricing schemes, which had traditionally been built around calling, and to invest massively in new superfast fixed and mobile networks to keep pace with the traffic explosion. It also means finding their place in a much more complex value chain, with applications and services dominated by the top Internet companies.

Telcos can take several courses of action to get back on a growth path.
By and large, substantial efforts have been made to bring down costs. This has gone hand in hand with a tendency to streamline pricing models. Despite which, the more or less rapid rollout of superfast access systems (4G and fibre) opens the way to differentiation strategies (low-cost/ premium) and forms of customer tiering that allow operators to better monetise heavy consumption and connection quality/speed. The fixed-mobile convergence trend, clearly under way in Europe, is expanding product lines to include quadruple play bundles, which are effective in securing customer loyalty.

On the VoIP front, services such as WhatsApp and OTT video offerings developed by the leading online platforms are undermining operator revenue streams. But operators can also respond by developing new pricing schemes, based on access and data traffic, by promoting their own OTT services, and by developing a B2B offer such as carrier billing or localisation aimed at Internet companies and businesses. The accelerated development of the M2M market, and the prospects recently opened up by the Internet of Things, are continuing to push out the boundaries of the connectivity market, and to foster new opportunities to generate new revenue streams in such vertical markets as connected cars, health or insurance.

Lastly, changes in the way the sector is organised through infrastructure sharing and outsourcing, and consolidation, can help operators rebuild their margins, by decreasing the ferocity of competition, bringing down prices and enabling economies of scale.

Based on these various trends – to which we can of course add more generic circumstantial elements, starting with changes in the economic climate and in regulatory orientations – we can sketch out a few variations on the development scenario for this market.

The ‘commoditisation’ scenario

A first scenario is ‘commoditisation’, which sees Internet companies taking control of product distribution under a smart cloud/dump device model, and by purchasing connectivity wholesale from operators. Under this model, operators are relegated to the role of wholesaler, with the resulting risk of ongoing tiny margins as competition remains fierce. Mobile operators lose control over SIM cards. This results in a steady decrease in telecom investments, and the top Internet platforms gaining increasing dominion over telecom ecosystems.
‘Enhanced connectivity’

A second scenario is ‘enhanced connectivity’, whereby operators are again not terribly well engaged in head-on competition with the top application and service providers. They can continue to bill their customers for connectivity. Thanks, though, to the investments they have made in their networks, they have transformed their systems into intermediation platforms par excellence, which are very attractive to large, and especially small and mid-size innovative Internet companies. In addition to the quality of network they provide for accessing their residential and enterprise clientele, application providers also enjoy access to a selection of high-end solutions including CDN, cloud, authentication, billing, localisation and targeted advertising.

The ‘digital mall’

A third scenario is the ‘digital mall’, with the emergence of powerful operators, most of whom are multinationals who capitalise on the size of their customer base to distribute most new digital applications and services themselves – both their own and those developed by other companies. This means that they are often competing directly against the top Internet platforms, small and mid-size Internet start-ups, and against integrators in the enterprise market. They invest themselves fully in areas as wide ranging as video, music, finance, healthy, energy, security, education, urban planning and transportation.

The reality would naturally be far more nuanced, combining several of these scenarios, while variations on each one are also possible. For instance, the ‘commoditisation’ scenario could be affected by how competition evolves – recreation of local monopolies, organised oligopolies, open competition – and which schemes prevail, whether private initiative or PPP.

The scale, and thus the evolution, of the consolidation that has begun in the telecommunications sector will certainly have a major influence on how this or that scenario plays out. By the same token, changes to the sector’s regulation – such as with respect to mergers and net neutrality, as well
as those governing cyber-security, privacy and top Internet platforms – will also decide the likelihood of the scenarios.

Finally, in terms of value, the different scenarios do not differ so much in the size of the target market, but rather in the share of the value chain which those we shall continue to call telecom operators manage to secure.

Didier POUILLOT
The future of television

Video is everywhere: on websites, on consumers’ high-definition cameras, on giant displays in public places, on our phones and other devices. Paradoxically, video HQ, namely the TV industry, may not benefit from this ubiquity. The challenges it is facing today are many. The first is the abundance created by the market’s fragmentation, which contradicts the very notion of media, and undermines television’s advertising model. The second, countervailing, is the emergence of powerful globalised companies that are capable of capitalising fully on the economies of scale generated by distributing programmes across the planet. The third is the relative demonetisation of TV content, due to piracy and a drop in prices resulting from increased competition.

As with any vertical market, the Internet is the chief culprit of the growing disruption, which has already materialised in a decrease in live TV viewers, crumbling DVD hard-copy sales, the decline (at least in Western Europe) of TV networks’ ad revenue, and the stagnation or decrease in pay-TV subscriber numbers. There is a trio of impacts:

- The first impact of the Internet: the simplification of the value-added chain. Agencies are cut out of the loop by automated and real-time bidding (RTB) systems for advertising space, as managed network operators may be by over-the-top distribution, and TV channels when sparring off with popular programme brands for on-demand viewers.

- The second impact is the newfound importance of customer relations, which is a far cry from TV networks’ longstanding model, at least for free-to-air channels, which only ever targeted a mass audience.

- The third impact the Internet is having is to force a rethink of nationally or linguistically rooted models, inherited from the public monopoly era but which also survived the sector’s relative deregulation. The technical barriers to global distribution are steadily being lifted, on-demand viewing makes it possible to do away with the disparate practices that justified programming grids that were proper to each country, and automated subtitling and even voice-overs will complete the process.

Slow erosion and redistribution of wealth

This is our first scenario. The changes that are under way in Western Europe and in the United States appear to herald a slow erosion of the TV sector’s revenue. The fundamentals of the TV industry are worrying: decreasing ad rates, a drop in pay-TV prices and budgetary restrictions weighing on public broadcasters. Piracy could precipitate the crisis if it continues to spread, and reaches a tipping point that drives advertisers to move their money en masse to the Internet and its ability to target consumers more precisely. At the same time, programming costs, which are the sole point of distinction between TV networks and on-demand services, are increasing, which creates the threat of a price squeeze for the sector.

This scenario can be tempered by the surge in productivity gains that can still be found in the TV value chain, particularly by moving distribution to the cloud. This would, however, also trigger a shift in the balance of power, with value travelling up the chain (to programme producers and content owners) and down the chain (with consumers enjoying cheaper services). The middle links, and
especially commercial distribution, would become the most vulnerable.

The ‘new golden age of personal media’ scenario

Watching videos will become increasingly on-demand and an increasingly individual pastime. The outlook of the TV market would be much brighter if this trend saw the market switch from a household-based market to one of individual customers. Audiences are of course measured on an individual basis, but it is not possible to monetise a TV viewer in the same way as a registered Internet user. And pay-TV subscriptions tend to be group/household subscriptions. In the same way that the telephone market has been sustained by the emergence of individual mobile plans, personal TV plans would allow the market to grow. But there is no shortage of obstacles to this scenario becoming a reality.

• First, it supposes that veteran TV market players manage to qualify their audiences, in the way that Internet companies do today; that they maintain control over the on-demand services whose programming they have financed to a considerable degree; that they master advanced CRM technologies; and, finally, that live TV networks are capable of delivering relevant data to service providers via return paths.

• The way pay-TV services are marketed would also need to change dramatically, to enable the emergence of individual plans, no doubt for niche products initially, before expanding to include all plans. Here again, success will require detailed knowledge of customers.

The future of this ‘new golden age of personal media’ in fact depends on the resolution of an oxymoron, namely to reconcile and optimise the power of television as a mass medium, while also being able to provide every subscriber with a customised viewing experience.

The globalisation trend

The scenario of the ‘new golden age of personal media’ would involve a threefold globalisation of the TV sector: that of services,
of content producers and, by extension, of rights negotiations. Optimising the return on programmes, pooling technological expertise, stemming piracy thanks to simultaneous release and imposing strong brands are all steps towards this consolidation. Contrary to popular belief, it is by no means certain that, in Europe, this will be achieved through the creation of powerful European conglomerates. Already, gateways are multiplying between these companies – which are acquiring production companies in the US – and their counterparts in the United States – which are coming to Europe to produce. So it is more a process of globalisation that is likely to emerge, rather than the creation of continental blocs of powerful local players. Within this environment, at least in Europe, the public TV sector will appear an essential asset for protecting cultural sovereignty. Despite financial restrictions, it will replace and develop through increased trans-national cooperation and co-production.

Gilles FONTAINE, Jacques BAJON
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