MOBILE WORLD CONGRESS 2016

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Factories of the future, automotive, health, energy, and media and entertainment will be the key drivers of 5G development in Europe. [Intel/Flickr]

Europe hopes to make 5G networks a reality by 2018

The European Commission will unveil its strategy to develop the next generation of mobile broadband network (5G) on Monday (22 February), EurActiv has learned.

The European Commission will unveil its strategy to develop the next generation of mobile broadband network (5G) on Monday (22 February), EurActiv has learned.

In the coming months, the European Commission, tech firms, and various industries will demonstrate European progress on developing 5G.

A Commission official told EurActiv that the intention is to come up with fresh ideas by July, in order to showcase the first results by 2018.

Key objectives of the 5G public private partnership (PPP), launched last year, are outlined in a Commission white paper on '5G: empowering vertical industries', that will be unveiled during the Mobile World Congress in Barcelona on 22-25 February.

The paper outlines "innovative" digital approaches in several industrial sectors in Europe, ranging from manufacturing, the automotive sector, health, energy, the media and entertainment.

It lists the most important performance targets 5G needs to achieve for supporting services in these five sectors. Those include a speed of data transmission below five milliseconds (latency), reliability and density (up to 100 devices per square meter) along with tight constraints on territory and population coverage.

The Commission's intention is not only to demonstrate the progress made by 2018, but also to come up with a credible plan to deploy the technology.

Commission officials say the EU wants to avoid the kind of mistakes made during the adoption of 4G. Though the previous generation of mobile broadband was mostly developed in Europe, companies and consumers did not immediately benefit from the new technology.

A 5G standardisation framework will be defined this year. The process will be driven by the needs of industry, in order to ensure a

successful deployment, the official said. "We hope that the European technology will be the chosen one during the implementation phase," he added.

"Europe had a success story with 3G," said Spanish MEP Pilar del Castillo. Now Europe wants to tap its traditional industry dominance to lead in what is seen as the main technological revolution of recent decades.

One goal, two visions

The disruptions brought by 5G extend well beyond the realm of communications. By allowing to connect multiple devices and sensors, the technology is also expected to transform our homes, our cities and industries.

But in contrast with other regions, where development is very much consumer-oriented, European efforts are focused on supporting one of the attributes of 5G: machines talking to machines.

By 2018, Europeans are expected to showcase their first achievements in the so-called Internet of Things, bringing about what some have branded the fourth industrial revolution, the Commission official said.

The automotive sector is seen as a "prime candidate" for pioneering the technology, due to the fast advances made in driverless cars.

China and Europe share an interest in the industrial applications of 5G, including in manufacturing, connected cars, robotics and precision farming.

Meanwhile, Japan and South Korea are prioritising video and gaming.

South Korea wants to present its first results during the 2018 winter Olympics. According to media reports, South Korea's KT will offer 360-degree virtual reality viewing of the games.

Before reaching the demonstration phase, tech companies and researchers still need to overcome important technical hurdles to use the full potential of 5G.

One of the most challenging obstacles is to reach a latency target of 1 millisecond. "This is extremely difficult, it is practically the speed of light," experts said.

The 5G standardisation framework will be defined by 2016. The process will be driven by the needs of the industry to ensure a successful deployment, the Commission expert said.

"We hope that the European technology will be the chosen one during the implementation phase," he added.

Ansip: 'I am strongly against any backdoor to encrypted systems'

Exclusive / European Commission Vice-President Andrus Ansip supports Apple's decision to refuse unblocking the iPhone of a terrorist, as requested by US authorities.

Andrus Ansip is Vice-President for the Digital Single Market and former premier of Estonia (2005-2014).

Ansip spoke to EurActiv's Jorge Valero during the Mobile World Congress in Barcelona.

What is your opinion about Apple's refusal to unblock the iPhone of one of the perpetrators of the terrorist attack in San Bernardino?

I don't want to talk about specific court cases. It is up to the US authorities to deal with this issue.

But my views in this field are pretty well known. Identification systems are based on encryption. I am strongly against having any kind of backdoor to these systems.

In Estonia, for example, we have an e-voting system. If people trust an e-banking system, they can also trust an e-voting system. This trust is based on a strong single digital identity guaranteed by the government, which is based on encryption. The question is who will trust this e-voting system if there are some back doors and someone has the keys to manipulate the results. The same goes for the e-banking system.

In other words, you will not force Apple or any other company under any circumstance to compromise these encryption systems.

I don't want to talk about Apple. Somebody said that terrorists in the Paris attack last November used high level encryption systems in their communications. Now, it seems, that there is no evidence about that. Thanks to the mobile found of one of the terrorists of the Paris attack, we know that they used open text messaging system.

I don't want to blame the Internet for all the bad things around the world. We have to protect everybody's privacy and also to provide security to our people, and to allow the free flow of data. I don't see a contradiction between these goals.

As it will be the case with connected cars, systems have to be based on strong encryption and (have) no back doors. This is my view, but I don't want to argue with the US government.

The development of the next generation of mobile networks is one of the key topics in the 2016 Mobile World Congress. Is the EU in a good position to win the race in the development of 5G?

We are not alone on this. We are working together with China, with Japanese companies and we will sign an agreement on Tuesday (23 February) with Brazil. We are also working on an agreement with the US. There is broad and deep cooperation, with many players involved. We have already made remarkable efforts in this field.

South Korea will show the progress made on 5G during the 2018 winter games. Commissioner Günther Oettinger said just before this interview that 2020 could be the year for Europe to test the first results, during the UEFA championship. Is this later than expected?

It will happen much earlier. Ericsson already stated that they will test 5G technology in two cities in 2018. Of course, we will not have the 5G standard yet. It means that they will test some elements of it.

The Digital Single Market will be the basis for this development. Are you satisfied with the progress made so far?

I am almost happy, because last May, we launched the Digital Single Market strategy. This is a real challenge for the EU. Our economy and our life are becoming every day more and more digital. Meanwhile, we observe how the barriers dividing the member states are higher and higher. Therefore, we have to create a digital single market. Everybody will benefit from it.

Last December we announced our two first proposals on contract rules and digital content for online sales. The other proposal was on the portability

Looking at the Estonian case, Ansip stressed that trust is based on a strong single digital identity guaranteed by the government, which is based on encryption. [European Commission]

of the content. As of June 2017 high roaming charges will be abolished in the EU. If people don't have to pay for these high roaming charges anymore they will start using more their mobile devices.

We first proposed to allow the portability of content, so that Europeans can travel with their subscriptions and legally bought content across the EU. We are now also working to help Europeans have legal access to content available in other EU countries.

MEPs and stakeholders complained about the delay in some of the proposals. How would you respond to them?

Democracy takes time in the EU. It would be really good to have all these rules already right now, or yesterday even better. But it takes time. We launched so many consultations and impact assessments.

On top of the two proposals I already mentioned, we also presented our plan for the spectrum band of

700 MHz. In this case, it is important to have predictability, because if you don't know the time you can use, the spectrum band is very difficult to make some investments.

The Eurpean Commission also intends to come up with some new ideas to change how spectrum is managed in the EU. It's a very sensitive issue, as member states are reluctant to share competences in this field. What exactly are you looking for?

Deeper cooperation in the field of spectrum is needed. Today, we are talking about 5G, internet of things, connected cars and many other things. We need deeper cooperation for example on the duration of the spectrum licenses or coverage. Otherwise, what would happen when connected cars cross a member state's border? This is a real issue for our car manufacturers, as they have to deal with 28 different types of rules and details.

Does the mobile industry have a future?

As the Mobile World Congress gets underway in Barcelona, Luigi Gambardella considers what kind of future the European mobile industry can expect and what can be done to improve services and consumer satisfaction.

Digital Commissioner Günther Oettinger (L) visiting the Mobile World Congress. [European Commission]

Luigi Gambardella is the founder of Broadband4Europe and is the former Executive Chairman of ETNO.

Currently, the mobile sector's optimism seems dented. The reason is simple: convergent fixed mobile offers will become the market standard, because fixed and mobile access providing services for end-users, as well as mobile and fixed operators, increasingly share the same backhaul networks. Mobile operators who cannot provide convergent offers, pure Mobile Operators, risk being marginalised.

If the mobile industry wants to remain innovative and generate growth as it has over the last two decades, the industry should urgently start reflecting on a number of questions: first, understanding the interplay between technology evolution, regulation and mobile data. Secondly, shift the view of the mobile industry from static margin and price focus measures to more dynamic measures that reflect the long term economics of the industry such as investments and innovation. And, thirdly, address critical market structure issues the mobile industry faces to enable it to monetise the booming demand for data.

Mobile data is expected to grow between 20% and 100% per annum for the next decade or so. In the highest growth forecasts, the impact on CapEx will be substantial. Much of this growth is likely to be driven by video. Some types of video traffic will be easier to monetise than others, e.g. movies and sport vs social media.

Regulators are increasingly attempting to prevent any type of traffic discrimination on networks. While their focus has generally been on fixed networks, the policies do not differentiate between access networks. This demand explosion will significantly alter the economics of mobile networks over the next decade and will either put significant pressure on CapEx or on service quality.

In that context, 5G and subsequent technology evolutions will be important beyond the technical standards of technology. If traditional voice and data networks are overwhelmed with traffic but are unable to invest CapEx to maintain service levels, 5G may enable the emergence of "thinner" networks focused on niches such as M2M which, unburdened by coverage and regulatory obligations, may be better able to deliver services.

Metrics to evaluate industry performance have created a view of the sector that focused on price and margins. This seems to be a static, often outdated, view. While these dimensions are important and must be observed, there are areas for improvement on these dimensions in some countries. Too much focus on these variables misses much of the underlying economics of the industry.

The industry is facing multiple demands from governments and policy makers to continue to increase broadband capacity, increase geographical coverage and improve quality of service standards. These demands require significant investments and imply a long-term, evolutionary view of the sector. But to shift the focus, the industry must develop an alternative set of metrics to catch a more dynamic view of the sector performance and reflects the industry's long-term economics.

This may be both an external set of KPIs (aimed at the general public, policy makers and regulators) and an internal one (aimed at standardising some views of industry performance for operators).

Some examples of metrics that could be used include measures of performance in saturated markets that go beyond ARPU, which has less relevance in hyper saturated markets.

Also, regulators shouldn't measure industry concentration just in the telecoms market, but concentrate on the broader eco-system, including suppliers and complementary markets such equipment makers, device manufacturers and OTT and media players.

Finally, the new metrics must not only be sensible but also intuitive and easy to understand. For example, it is

easy to compare pricing across markets and the immediate consumer benefit of lower prices. It is less clear to compare investment levels and medium-term benefits to consumers.

However, in the longer term, the growth in living standards will depend on a nation's or firm's ability to improve productivity. Productivity growth is determined by improvements in the quality and quantity of inputs and technological progress. In the absence of investment and dynamic efficiency, consumers will over time be confronted with obsolete services, less innovation and reduced choice.

Although growth has substantially slowed down, the sector's financial performance remains healthy. The industry's keys markets still benefit from the boom in digital communications. The underlying demand for mobile and wireless services is still strong. However, monetising that consumer demand for wireless services is critical to ensure the long-term sustainability of the sector.

In addition, there will be two critical drivers: a sustainable industry structure definition and a clarification of the role of spectrum in driving industry structure and performance.

The priority should be on guaranteeing a sustainable long-term industry structure. Defining the elements of a sustainable structure, articulating the benefits of such a structure, and communicating the costs of deviating from those structures is critical to ensuring the sector can support the growth in demand that is projected for the industry

As regards the role of spectrum in driving industry structure and performance, it is crucial to understand that spectrum's influence on the industry appears to go beyond just providing additional radio capacity and limiting the number of players. Large amounts of underused spectrum, accompanied by coverage obligations that ensure some operators will have excess capacity and "empty" networks may be playing a significant role in the downward

evolution of prices in specific markets.

Last but not least, the reputational image of the mobile industry in the broad public will be crucial. Mobile operators provide services to all segments of the population, making them "easy" political targets of price regulation. The mobile industry should be more vocal and air a much clearer message on the key contribution of the mobile industry to growth, technological progress and investment.

This needs to include a clear and easy to remember explanation on how the mobile industry interacts with other sectors to deliver the services we could no more miss today. The message also needs to rebut the current irrational fears against market concentration. The goal should be to obtain a shift in the perception of the sector by governments and regulators, from an industry that needs to be supervised and controlled, towards a partner in economic development. Such shift in perception by government will be supported by the efforts to better inform public opinion.

Europeans look for a plan to speed up the next mobile network

European Digital Commissioner Günther Oettinger said on Tuesday (23 February) that "Europe cannot afford to be left behind" on what he considers to be the most important issue of his mandate.

Our cities, our homes and our factories will face a constant and immediate exchange of massive data that will improve the performance of governments, companies and even our health. And the 5G network will be the key enabler of this upcoming future after

2020, he added.

EU senior officials and telecom companies agreed during the Mobile World Congress that the deployment of the network could represent a greater challenge than the ongoing technological development, on which the European Commission and firms are cooperating.

"Our task in the next five years is to make this technology deployable" and "economically feasible", said Hossein Moiin, chief technology officer (CTO) of mobile networks at Nokia, during a panel discussion. "We can do it" because "we know how to solve these problems", he told the audience of the MWC.

The huge amount of money spent to develop 4G emptied the industry's pockets, holding up its implementation in Europe. The result was that African cities enjoyed a better 4G network than European capitals.

"It's not only about leadership on

research, we need to learn from our failures, mainly of those made with 4G," Commissioner Oettinger, said during the same panel discussion.

5G action plan in the making

Oettinger stressed the importance of drumming up enough support across sectors and across member states to spread the 5G to guarantee a successful implementation. To that end, he announced that the European Commission will present by the end of this year a 5G action plan to unify the European efforts.

The Commissioner emphasised that this action plan should 'focus' on no more than five areas and count on a large cooperation of the telecom sector, operators and traditional industries.

This new roadmap would include a commonly agreed calendar for 5G trials and its deployment, a plan to involve vertical industries and to strengthen the cooperation across sectors, and incentives for investment.

The action plan would also incorporate concrete proposals on spectrum to address the needs that will trigger the generalisation of 5G from 2020 onward, and "measures to ensure that the next telecommunications framework will be fit for 5G," Oettinger insisted, including the virtualisation of the networks.

He stressed that Europe cannot afford to be left behind.

Ulf Ewaldsson, CTO at Ericsson noted that companies are starting to evolve against the backdrop of this new world of connected things. "Business model changes are already happening," as part of the so-called fourth industrial revolution.

"The question is about the vision: how can we make 5G the answer to the ongoing change of the business models," he added.

Joining forces for Industry 4.0

The global elite discussed at length the so-called Industry 4.0 during the 2016 World Economic Forum.

Ericsson, and Australian operator Telstra, will join forces to test 5G during the 2018 Commonwealth Games on the Gold Coast (Australia). This trial would come just a couple of months after the first 5G demonstration announced to date by the Korean operator KT during the 2018 Winter games.

Asked by Euractiv, Oettinger commented on Monday (22 February) that Europe needs to find a similar event to send "a clear message" to the citizens about Europe's readiness on 5G. He considered that the 2020 UEFA championship could be right stage to bring the 5G vision to reality.

"We have a lot to offer," Ewaldsson told the audience. "If we do it very well, we will be extremely successful, otherwise companies will find other ways [to progress on the digitalization of the industry] and it would not be so good", he stated.

Various industries are cooperating with the telecom firms and the carriers to meet the requirements of the world of interconnected objects that 5G is expected to power. The main features will be high reliability and density and low latency.

But the lack of clarity about the evolution of the so-called internet of things would add additional pressure to find the resources to support the roll out of 5G.

"The open question is whether the Internet of Things will take root in the consumer market (as it was the case with the smartphones) or in enterprises (as it was the case of the PCs)," Vish Nandlall CTO at Telstra explained.

"The key is that we don't really know what applications will take root," Nokia's Hossein Moiin described. Given that the 5G would be used "for things we cannot for foresee" it should remain "as flexible as possible".

In light of the high expectations triggered by the arrival of 5G and the outstanding challenges, Alex Jinsung Chou, CTO at SK Telecom warned that the "problem will be to deliver what we are promising". "I am confident that it is achievable," he concluded.

A Huawei representative in front of the company's 5G showcase at the Mobile World Congress in Barcelona. [Jorge Valero]

From left to right: Pierre Larouche, Bruno Liebhaberg and Alexandre de Streel, from the Centre for Regulation in Europe (CERRE). [CERRE]

Think tankers: Skype and telcos should be regulated in the same way

The EU should have just two sets of rules for telecoms: one for infrastructure, and one for services, argue Alexandre de Streel and Bruno Liebhaberg. When similar services are on offer, the same rules should apply regardless of the technology, they contend.

Alexandre de Streel and Bruno Liebhaberg are respectively academic director and director general of the Centre for Regulation in Europe (CERRE), a Brussels-based think tank specialised in network industries.

They spoke to EurActiv's Publisher and Editor, Frédéric Simon.

CERRE recently published a policy report on future regulation for digital networks, entitled An integrated regulatory framework for digital network and services.

The European Commission is considering regulating "online platforms" such as Facebook or Google Search. Do you see this as a protectionist move or, on the contrary, something which is long overdue due to the market dominance of some of these players?

Alexandre de Streel (AdS): So far, the Commission has just completed an online consultation. It is not yet clear which direction it is going to go. Our position on platforms, taken by my colleague Pierre Larouche and me in a recent CERRE policy report, is twofold.

First, it is not true to state that online platforms are not regulated. All digital services including online platforms are subject to competition law, consumer protection and data protection. The latter has even been recently strengthened. Therefore, what should be ensured today is that existing regulations are fully implemented and, in particular, that national institutions implement those rules.

Bruno Liebhaberg (BL): Second, the competitive dynamics of online platforms are not yet fully comprehended. The current level of technological and market development does not allow us to demonstrate convincingly whether or not there is, at this stage, a need for specific rules for online platforms.

Developing additional regulation on platforms today could be premature and slow down innovation. We are, however, not closing the door. The issue will certainly have to be revisited in a few years when we have a better understanding of the platforms' competitive dynamics.

Some would argue that online services like Google Search or Facebook should be considered like public utilities. You don't agree with that?

AdS: Again, for the reasons we just mentioned, it is too early to tell.

So where do you draw the line? From what moment can you consider that a platform has become big enough to deserve regulation in its own right?

AdS: The issue is not size, but understanding how the market functions. And the market looks to us as quite dynamic at this stage. There is clearly competition between platforms and we are not sure that any of them is overly dominant.

Not even on search?

AdS: If there is a problem with search, then it should be addressed with the existing tools of competition law, which has been in place for more than fifty years and has been able to deal with big players. So let us wait for the outcome of the current competition cases led by the European Commission.

Platforms such as Uber have been criticised for disrupting the labour market and bypassing legislation on taxation or social policy. Is that not in itself a sufficient reason to regulate?

AdS: Regarding Uber and other sharing economy platforms, existing regulations have to be fully implemented. Unfair labour market disruption or tax avoidance can be addressed with current labour and tax regulations. It would not be acceptable that the non-application, or more lenient application of such legislation, provide sharing economy platforms with a competitive advantage.

I note, however, that because of the transparency of their use (i.e. payment by credit cards) that platforms should make the law more easily applicable than with current practices.

In a recent study, CERRE recommends

regulating telecom networks separately from the services which run on them. This is very similar to what has been done in other areas, for example in railways, which has not been a success. So what makes you think it could work for telecoms?

AdS: First, we are not calling for a structural separation in telecoms such as what has been done with energy and, to a lesser degree, railways.

What we are saying is that a voice call through a traditional telecom operator should now be treated in the same way as one through an over-the-top player such as Skype or WhatsApp, if the latter fulfills the same functionality as the telco. Our motto is simple: same functionality, same regulation.

So to take a well-known example in Belgium, you are saying that Proximus and Skype should be regulated in the same way?

AdS: No, because Proximus is also operating a network infrastructure. And this network may have to be regulated. But on the service part, if the functionality is the same and the consumer expectations are the same, then yes, we think the same rules should apply.

So let's assume this gets adopted today. Keeping the same Belgian example of Proximus and Skype, how would I feel the difference as a consumer?

AdS: One of the consequences may be that consumer protection regulations which apply to Proximus will also have to be applicable to Skype if the latter provides similar functionalities.

Skype would call this red tape, I guess...

AdS: No because we are not calling for a regulatory regime which is the same as the one Proximus is currently subject to. For us, calls through Skype or Proximus should be treated in the same way.

But we also argue that the current

regulatory regime for telco services should be streamlined because the latter are now under strong competition from new services such as Skype or WhatsApp among others.

So what we are calling for is a streamlining of regulation for services which are identical in nature.

Big telcos would surely support such an initiative. Do you see any appetite at the European Commission or among the member states for doing something like this?

BL: The Commission is still currently in a listening mode. I have no doubt that at both services and cabinet levels, it is fully realised that the competitive landscape has changed. Consumers have a choice which is now significantly wider than when the current regulatory regime of 2002-2009 was developed. And choice is also now wider than it was only a few years ago.

Still, member states are keen to protect consumers. Do you believe such a deregulation agenda will be acceptable for member states?

AdS: Consumers will not be less protected than 20 years ago. At that time, regulation was needed because there was no competition.

Today, consumers are able to switch from their telco to Skype, WhatsApp, Viber or others, and therefore, one cannot deny that there is stronger or at least more vibrant competition than 20 years ago. In the new regulatory framework that we are calling for, consumers will not be less protected; they will be protected differently—and probably even better.

BL: We are convinced that the objective for EU regulators should now become the optimisation of the long term needs of end users and consumers. Today, when I want to look at a movie or make a call, I can indistinctively use my smart phone, my tablet, my desktop or laptop computer or my TV set.

So we recommend to the EU

institutions to abandon the silo approach with one set of regulation for telecom services, another one for cable, a third one set for platforms, for e-commerce, etc. Let us have a clearer, more homogeneous paradigm with just two sets of regulatory frameworks: one for the infrastructure and another one for services, with limited, additional provisions for segments such as audio-visual media.

So you believe such an approach is met with a positive reception?

BL: We presented our recommendations at a stakeholder seminar last January, which was attended by EU Commissioner Gunther Oettinger and Belgian Deputy Prime Minister Alexander De Croo. All participants agreed that our proposals were making a lot of sense.

However, some questioned their feasibility, mainly for institutional or "realpolitik" reasons. For example, we were told, different directorates within the European Commission deal with the regulation of media, electronic communications, e-commerce, etc. And in Parliament, there are different committees responsible – ITRE, IMCO, etc. Same in the Council, where you have the ministers in charge of competitiveness and others in charge of culture.

Therefore, some participants believed that our approach was too revolutionary to be feasible.

If those were the reasons, then we should really be concerned about Europe! Everyone agrees that the digital sector is the backbone of the EU's future development. I hope that policy makers will get their act together and adapt the (micro-institutional) set-up if and as needed.

Over the last ten years, regulation of telecoms has centred around access to network infrastructure for new competitors. And conversely, ensuring incumbents who

invest in the network get properly rewarded for doing so. With the technology fast evolving, is this debate still relevant today?

AdS: The debate is still very relevant and maybe even more relevant than before, because we need to invest in new infrastructures. Twenty years ago, when the liberalisation programme was launched, the idea was to open existing infrastructures to create more competition and be sure that the monopoly rent of the incumbents would disappear. That was the challenge twenty years ago—and it has now been met.

Is this really an achievement? Big telcos keep complaining that they were forced to share their network with competitors and that this acted as a disincentive for them to invest. So you disagree with them?

AdS: The programme of opening networks has been completed. The challenge now is to invest in the new generation networks, fibre, etc. For that, we need incentives to invest. The question is how to finance that. Is it through competition or through some kind of monopoly?

Our position is to say that if an operator is in a monopoly situation, it has to be regulated. But if there is competition, the operator does not need to be regulated. Our point is to focus on the long-term because more investment is needed than in the past.

BL: The regulatory framework that EU institutions will hopefully adopt within the next 18 months should bring clarity, stability and transparency for investment in the new networks. If that is not the case, then it will be very difficult to get those investments and meet the long-term interests of end-users.

Pascal Lamy recommended freeing up the 700 MHz band currently used by broadcasters for wireless broadband services of telecoms, in particular 5G. Could 5G spell the end of physical networks?

AdS: No, because what we see more and more is a 'hybridisation' between mobile and fixed networks. If you have 5G, data go 'on air' to an antenna and are then offloaded on a fixed infrastructure. So part of the network will be mobile and the other part will be fixed.

And you think the same set of rules can apply to these different networks? Satellites are quite different from fibre or cable networks, but you seem to suggest they can be treated in the same way.

AdS: If there are objective differences between networks, the latter must to be treated differently. For mobile networks, you need spectrum which is a scarce resource that needs to be allocated. This is not the case for fixed networks, which require a different type of regulation. It is not because networks become hybrid that each part cannot be regulated in its own way, according to its specificities and competitive conditions.

On spectrum, we are also in favour of enhancing policy coordination at the EU level. At a time when Europe is preparing for 5G which is a major industrial policy objective, mobile broadband development is essential.

One political question to conclude: the Juncker Commission has been in place for more than a year now. Regarding the digital sector, do you think it is on the right track?

BL: Before the Juncker Commission arrived, we said loudly that there was a need within the EU institutions for more coordination in the regulation of network industries, not least because there is a growing convergence between those sectors.

So we were very happy when President Juncker announced the nomination of Vice-Presidents to coordinate key policy areas, including the Digital Agenda. In addition, the Digital Single Market (DSM) strategy presented in May 2015 is robust. We will now have to see what proposals will follow in the course of this year.

The Commission has just made a series of public consultations. As you will understand in the light of our recommendations, we regret, however, that those consultations have not taken place in a more integrated framework: there was one for electronic communications, one for media, one for e-commerce, etc. That is not necessarily a positive signal...

AdS: Let us not forget that one additional challenge for achieving the DSM is to enhance the coordination among the national authorities in charge of regulating the digital value chain. In many countries —with the exception of the UK and Italy among others — you have separate telecom and media regulators. In addition, you have a data protection regulator whose powers have been reinforced recently with the General Data Protection Directive. You also have a competition authority, sometimes a consumer authority, etc.

It is therefore important that all those national authorities coordinate with each other to ensure that regulation is consistent. And then similarly, at the European level, you also need to coordinate the different regulatory authorities.

BL: The real question is whether the Commission, and then the Parliament and the Council will be up to the challenge and regulate for the long term, as they did during the 1985-2000 period. Back then, the Commission was very much forward looking in its proposals. With the emergence of the Internet, it understood for example that for e-commerce services and the media, you needed to have home country control system to facilitate cross-border trade and establish the single market.

President Juncker said that if Europe misses the opportunity of the Digital Single Market, it will find itself in a very difficult position for the future. We can only agree with him.

How to become a successful 'tech-nation' from scratch

Amid global concerns about economic growth, countries without natural resources like Estonia or Israel have converted technology into their main source of prosperity.

The Mobile World Congress held in Barcelona this week (22-25 February) offered tech giants like Samsung, Huawei and Nokia a global stage to showcase their latest gadgets and innovations.

But among the hundreds of stands with colourful devices, robots and crowds of people queued up to try out the virtual reality experience, others have brought to Barcelona something more discrete but far more desirable: the entrepreneurial spirit of a nation.

In Europe, digital has become a synonym for Estonia thanks to the impressive technological development seen there over the last 25 years.

"After we became independent in 1992, we had limited resources and a small population (1.3 million). Providing services for the citizens was challenging," says Anna Piperal, managing director of the e-Estonia showroom.

Today, the country is frequently cited as an example of how governments can deal with the downsides of the so-called sharing economy or how to support their local companies without too much bureaucracy.

The country's tax authorities are working with Uber to find solutions for the completion and submission of tax returns for partners of the company.

But above all, the robust ICT sector of the nation (6.8% of the economy) has benefitted from the full digitalisation of government. Local companies have developed the wide range of services offered by the public sector (e-health, smart grids, e-tax etc). This cooperative model has made Estonia a global reference in e-government and has given their companies valuable experience and has exported it to other nations like Finland, Moldova or Azerbaijan.

The backbone of the digitalisation of the public administration has been the electronic ID system, seen as the most advanced of its kind in the world. Thanks to this system, introduced almost fifteen years ago, Estonians have developed a close relationship with digital services, which is one of the secrets of the country's success, Piperal explained.

"People really use the electronic services, also thanks to the high internet literacy and the good public infrastructure of Estonia," she commented.

Today, 99% of tax returns are filed electronically and they take only three minutes to fill out. 98% of medicines are also prescribed electronically.

In 2005, Estonia became the first country to introduce internet voting in nationwide elections and in 2014, it was also the first nation to offer e-residency to foreign companies operating in the country (750,000 firms are already registered).
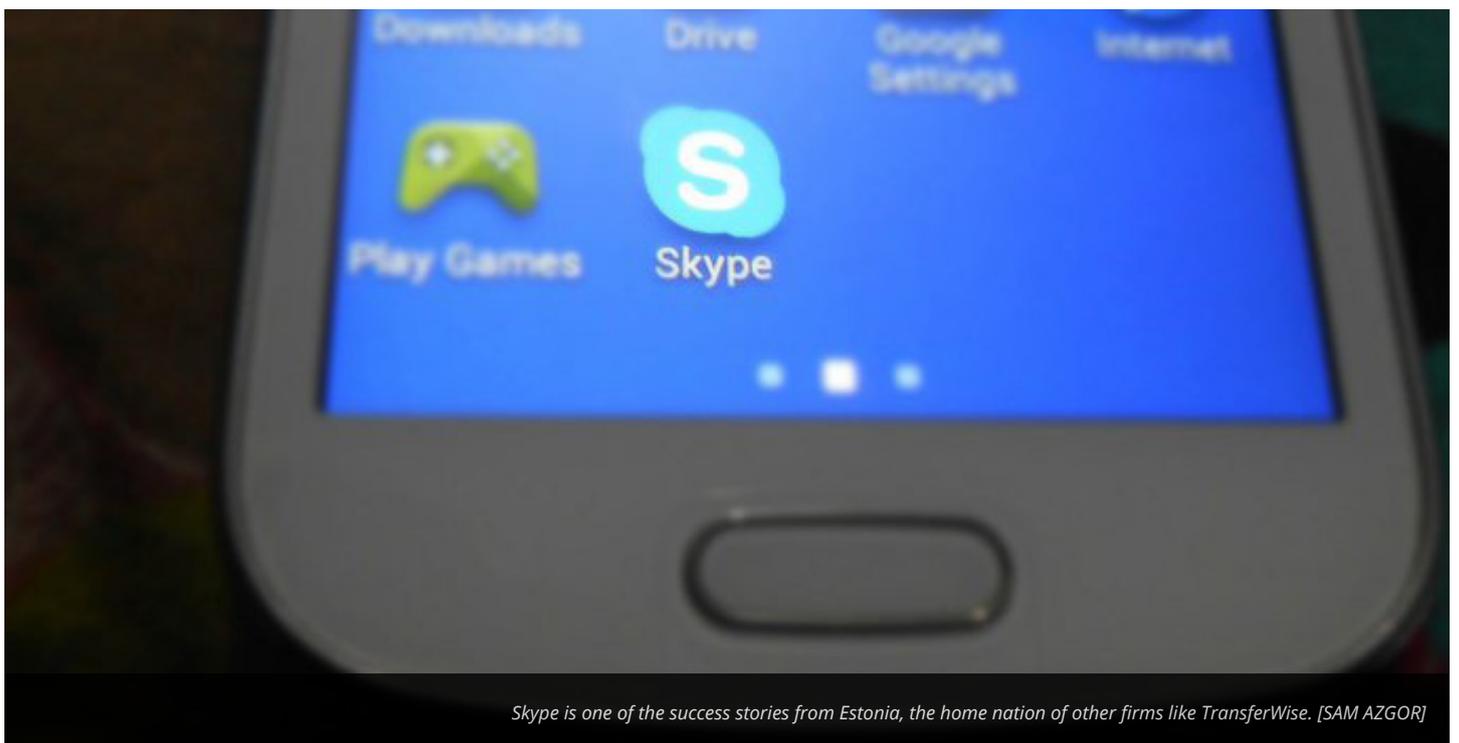
Skype is one of the success stories from Estonia, the home nation of other firms like TransferWise. [SAM AZGOR]

Technology as an ally

Small countries with scarce natural resources often find innovation is the only solution to survive. Israel, for its part, also proved that entrepreneurship was key to become a thriving economy in the middle of a less developed region.

"For security reasons, we have to develop a lot of technologies," said Michael Admon, director of the Hi-Tech department of the Israel Export Institute.

Since the early 1960s, Israel has built up considerable know-how and developed a robust link between academia, research centres and industry. It also has a high level of investment in R&D — number two in the world only after South Korea (4.1% of GDP last year). Taken together, all these factors explain why the country pioneered key technologies such as the USB disk, digital printing or, more recently, gesture control.

What is the recipe for this success? "The unique combination of well developed technology and a think-out-of-the-box approach," Admon said.

This creative thinking has been nurtured for decades by governments since the early stages of the school system. Besides, Israel is a country where "nobody is afraid of failing, because you may lose money but you will gain a lot of experience," Admon commented.

As Estonia and Israel claim to have two of the most important startup communities in the world, their envoys recommended other European nations also support entrepreneurship.

"Youngsters in Europe are more reluctant to be entrepreneurs," Admon said. In his view, governments must do something to reverse this, for example, by introducing tax incentives or fostering entrepreneurship during school years.

"Education is still a barrier for the penetration of more digital services across Europe," Piperal added.

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