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A VISION TOWARDS 2020

Fierce competition and a world changing at a faster pace than ever before is what Communications Service Providers can expect from the forthcoming years.

In fact, when looking ahead to the next five years – that is, until 2020 – mobile data traffic will nearly double each year, billions of devices will become connected, our homes will become networked device intensive spaces, digital content will play a central role in the society, while the so called digital economy will be a worldwide reality.

This evolution scenario, together with the ongoing demographic changes, a more demanding regulation, stronger peer competition and the OTT service providers pressure will force the traditional CSPs to rethink the way they will do business. Technology will be a strong asset and CSPs must be prepared to use it in its benefit by defining a clear vision, strategy and an execution path on how to leverage from existing and forthcoming technologies to build a winning value proposition for their customers.

This article summarizes the global contextual trends which all CSPs will have to address for the next five years, deriving from these trends a vision and a strategic positioning which should be adopted by a leading CSP.

Finally, some hints on a possible set of technological guidelines for a CSP running towards 2020 are suggested.

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Vision, 2020, Strategy, Technology

Setting the stage

The first thing anyone engaging on the elaboration of a Technological Strategic Plan thinks about is … technology, of course!

As a matter of fact, this should be one of the last thoughts. Technology is no more than a mean to achieve a result. A very powerful one it is true, but still no more than that.

Well, if technology is not the starting point, one might be tempted to focus on business. Business is often seen as the ultimate goal of any successful player in almost every industry, so this seems as a very good starting point for defining a strategy, even if a technological one.

Wrong! Business is important of course (in the end, the figures will have to make sense) but for an industry that handles communication between people, focusing pretty much on how to deliver quality content to those people and trying to be part of their daily lifestyle, both personal and professional, or even of the surrounding ecosystem, everything is all about people.

In fact, our customers are the real reason of our existence, the keystone of any CSP (Communications Service Provider) success or failure, and the real ultimate goal of this industry.

Peter Drucker is often quoted on the ultimate objective of a Business: "The purpose of business is to create and keep a customer." Please note the "keep" part, because it is often the most difficult one!

After they have their priorities set right, CSPs must proceed to understand what they need to provide to their customers in order to make them happy and successful during the target period and from that understanding derive a vision for the future.

Based on this vision, the technological strategic plan is prepared and the necessary tactical and operational guidelines leading to the fulfillment of this vision are built, and from then on the necessary technology investments can be timely executed.

Figure 1 illustrates the process of construction of a Technological Strategic Plan.

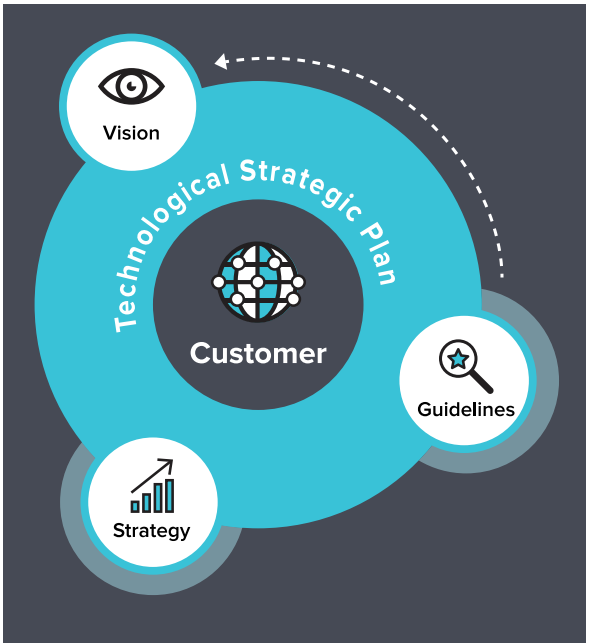

FIGURE 1 Key elements on a Technological Strategic Plan

The World in 2020

Analysing the customer of the future has a set of challenges that makes it a challenge by itself. First of all, customers behave quite differently depending on their socioeconomic surrounding, which by itself varies a lot all over the planet. Secondly, customers behave differently whether they are in their personal, family or professional lives. And finally new set of customers is arising: customers that are directly connected to the way humans will live their lives in times to come, even though these "customers" might be things.

Focusing on the geographical areas of the northern hemisphere, there are some key findings that are crucial to define our vision of who will be our customers in 2020.

Connectivity will increase its importance on citizen's lives, with **ubiquitous mobile connectivity** becoming an even more important evaluation point when choosing the service provider. Both present strong two digits growth rates forecasted for the next five years, and this should be taken very seriously as a key point to consider.

Another relevant aspect is that customers are not only humans anymore. As a matter of fact, more and more "**things**" are getting connected as part of the overall ecosystem that a service provider needs to address. With a five fold increase forecasted up to 2020, and a 3 digit on the Billion dollars span, this is certainly an area to address.

Attached to these two (to-be) realities, other key points must be surveilled. **Wearable** technologies are growing fast, and the so-called **digital economy** is contributing strongly to G20 growth, with a 2 digit growth forecasted to next year. Of course, not only easy and appealing things are expecting a CSP. The remaining industries are becoming more and more aware of the power of information, and they make use of it to introduce **new revenue generation streams**, while the **OTT** (Over-the-Top) service providers consistently drain revenue from traditional SPs sources in the years to come.

When looking into **Individual Customers** perspective, there are two main conclusions:

- The numbers will continue to increase, with smartphones leading the way to even more subscriptions and especially much more traffic (particularly mobile);
- Content will be a key asset in the future, with customers willing to pay for tailored offers, and OTTs leading the way.

If you look into those customers as **Home and Family Customers**, you get a quite different perspective:

- Devices and connected things will proliferate inside the house, either because the number of personal connected devices will increase or because the number of the home connected things will raise exponentially;
- Generation gap increase brings a wide range of needs to be served, from the bandwidth starved connectivity needs of youngsters to the simpler, but critical, needs of surveillance and care of the eldery.

Another big challenge comes from the business world customers where **SMEs** are seen as a huge opportunity for CSPs. In fact, IP business traffic is expected to grow exponentially, specially driven by the forecasted increase on the usage of Cloud IT solutions and IT spending. With this type of customers steadily moving into the digital economic space, challenges on security and privacy will be key to keep them.

Finally, probably the trendiest of all findings: **Cities**. With population increasing its movement into cities, an ageing population and a need to manage all this with scarse resources, municipalities are increasing the technology investments applied to Smart City management solutions. The main goal being to increase citizen's well-being, constitutes a great opportunity for SPs to leverage from their credibility as technology players.

Main customer challenges to SPs

The 2020 customer will be a demanding one, introducing a very interesting set of challenges to Service Providers.

Standing on top of an implicit ubiquitous way of accessing services, customers expect top quality of experience when accessing the network or interacting with the CSP services for any reason (by

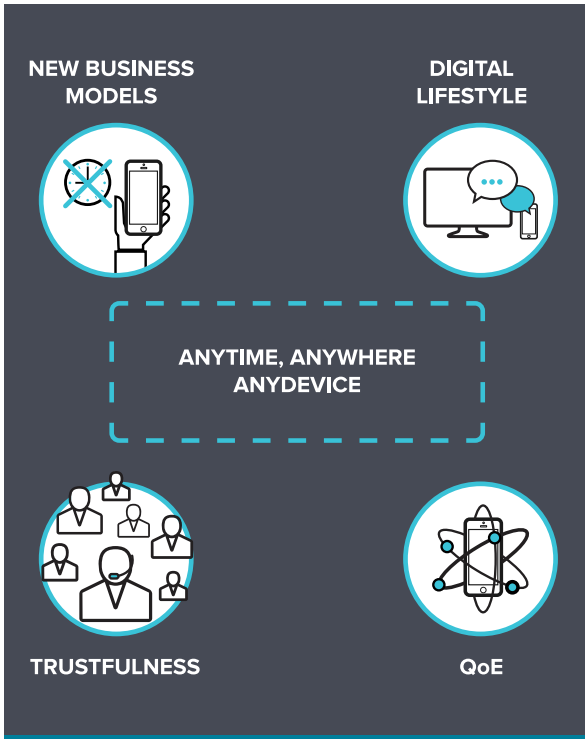

FIGURE 2 Main challenges to address

the way, the network, not a set of networks), with digital seen as the main path to achieve almost anything.

Being able to create new business models, capable of providing increased flexibility is also a required capability, while CSPs will probably be able to benefit from their credibility and strengthen their position on new revenue generation value-chains.

A Vision of Excellence

Based on a detailed understanding of the customer of the future, the CSP also needs to understand what it aspires to become in order to fulfill its customer's needs.

This "Vision of Excellence" is the basis for the construction of the Technological Strategy, presented afterwards. For ease of writing, we call this CSP the "CSP2020".

The CSP2020 will need to become an undisputed leader on its basic offers: connectivity, services and media. However, that will hardly be enough.

FIGURE 3 A vision for the CSP2020 Positioning

Innovating on the way content and entertainment is produced and delivered is a must, since content will be one of the most valued assets of the future.

Furthermore, with increasing importance being devoted to wellbeing (both for the individual, family life and in the cities) and to the B2B market, the CSP2020 will have to work to become a reference in those areas or risks being replaced by more aggressive competitors.

Last but not the least, CSP2020 will have to be able to achieve what is stated above in a highly efficient and effective manner, while keeping the focus on providing a first class customer experience.

Not an easy task, but this is a highly competitive industry on a fast track to commoditization, where only the ones aiming high and executing well will be able to become a part of the future.

A Technological Strategy driven by Customer and Vision

At this stage, having set up a Vision for the CSP2020 positioning in the market and having understood how customers will behave and what they will be expecting from any Service Provider, its time to focus on technology.

In fact, being technology a (powerful) tool, it would only be natural that we centred our Technological Strategy on the Vision, and then defined the most relevant **technological dimensions** that will bring us into that Vision.

Those strategic key technological dimensions define, by themselves, a set of technologies that are relevant to achieve those goals as well as defining a set of initiatives whose role is to set the foundation for implementing the strategy.

Getting a deeper look into those dimensions, we can see that one of the most relevant to achieve our Vision is **Customer Experience**. Targeting on providing high satisfaction levels to customers using the CSP service offers, this technological dimension focus on empowering customers as well as on the

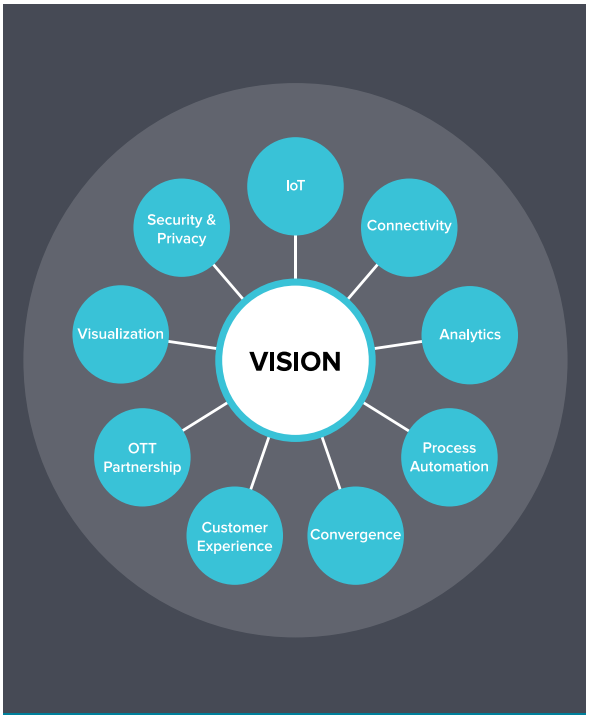

FIGURE 4 Strategic Technological Dimensions

network quality control. Those are strong enablers of experience for our customers, and a strong push must be made to achieve results in this area. We are not alone on this crusade, and being a mature concept on the industry, this is becoming a reality on most advanced Service Providers.

A key element on the experience equation, **Connectivity** solutions are the foundation of any CSP, and one cannot expect less than to excel in this matter. This area is currently under intense activity within standards fora, targeting how to increase networks capillarity by bringing fibre as close to the customers as possible. All this is accelerated by the huge traffic increase that is forecasted for the incoming years, as well as by the high number of connected devices. The key for succeeding on this dimension is to be able to perform this all-fibre approach in such a way that existing investments can be leveraged as strong contributers to it, while coexisting with new technologies.

Another key dimension contributing for the vision is **Process Automation**. Also being matured on the industry for some time, CSPs are starting to implement it, and there are good reasons for this. The definition of a common architecture for technology agnostic processes, which will be implemented both on business and operations, brings along high operational efficiency and agility when launching services. And with service lifecycle being ever and ever reduced, with customers willing to adopt and leave services at any time, this is a crucial contributor to success.

The customer studies also revealed that ubiquitous service **Convergence** is a must. Having the same experience when accessing the favourite service, regardless of the network required at that moment is something that will have to be simply natural in the future. Additionally, from the CSP point of view, having operational convergence is also quite desirable, since this will also contribute for a rationalized usage of CAPEX and OPEX.

Extending our strategy beyond the next two years, **Virtualization** is also an area to address. Moving into a cloud approach, both at the IT process level and at the network programmability will also become a key element for agility and rational use of resources (therefore increasing efficiency). There is still a lot to do in this dimension, with SDOs (Standards Definition Organizations) and open source communities still working hard to bring it to the light, while a strong industry movement is seen to contribute into it. Definitely a place to invest with hard work.

The dimensions addressing the new revenue streams that are expected to contribute to the raise of the bottom line in the future have another dimension in common. In fact, **Security and Privacy** perspective must be seen as a by-design characteristic of those platforms, and with customers increasingly becoming aware of it, and demanding it, a strong bet must be made in order to start having it present on everyone's mind.

With the number of devices expected to explode, defining a strategy to become part of the **IoT** movement is critical. In this particular dimension, the solution for that strategy is more than just technology! Technology is of course important, being mandatory to have an (also at this dimension) ubiquitous way of managing the devices, and also a way to deploy and manage new applications and services by enabling them to leverage from the assets

any CSP has at its own service. It is also important the capacity of generating a partnership ecosystem including partners from several industries capable to bring along new service areas alongside the ones that are closer to the SP "traditional" business.

Finally, acknowledging that this industry has a lot more players that are moving into it from adjacent industries is a sign of intelligence. In reality, boarding an **OTT partnership** strategy is mandatory if CSPs intend to do the same they have been doing: leverage from existing capacities to become better. Also here this stretches way beyond technology alone, with openness being the key to get there. Openness in technology means being able to expose into APIs the access to existing and forecoming assets, so that others in the industry can be seen as partners from the customers point of view. This will mean an automatic uplift of the portfolio, where services can be monetized both by the partners themselves and by the customers as well.

Defining where to start

With a wide set of technological dimensions that must be addressed in order to walk towards the defined Vision, a key point on the Technological Strategy is setting priorities.

It will not be possible to address everything at once and at the same time, so focusing on getting into the dimensions that will be the foundation to a new level of technology involvement is what we have defined.

Despite addressing the immediate and short-term dimensions first, attention must be also focused in starting the work for the mid and long-term dimensions. Starting research and projects on those areas is also important, in order to evaluate solutions and build know-how alongside with the remaining of the industry (Figure 5).

Guidelines for getting things done

Once defined the technological dimensions that

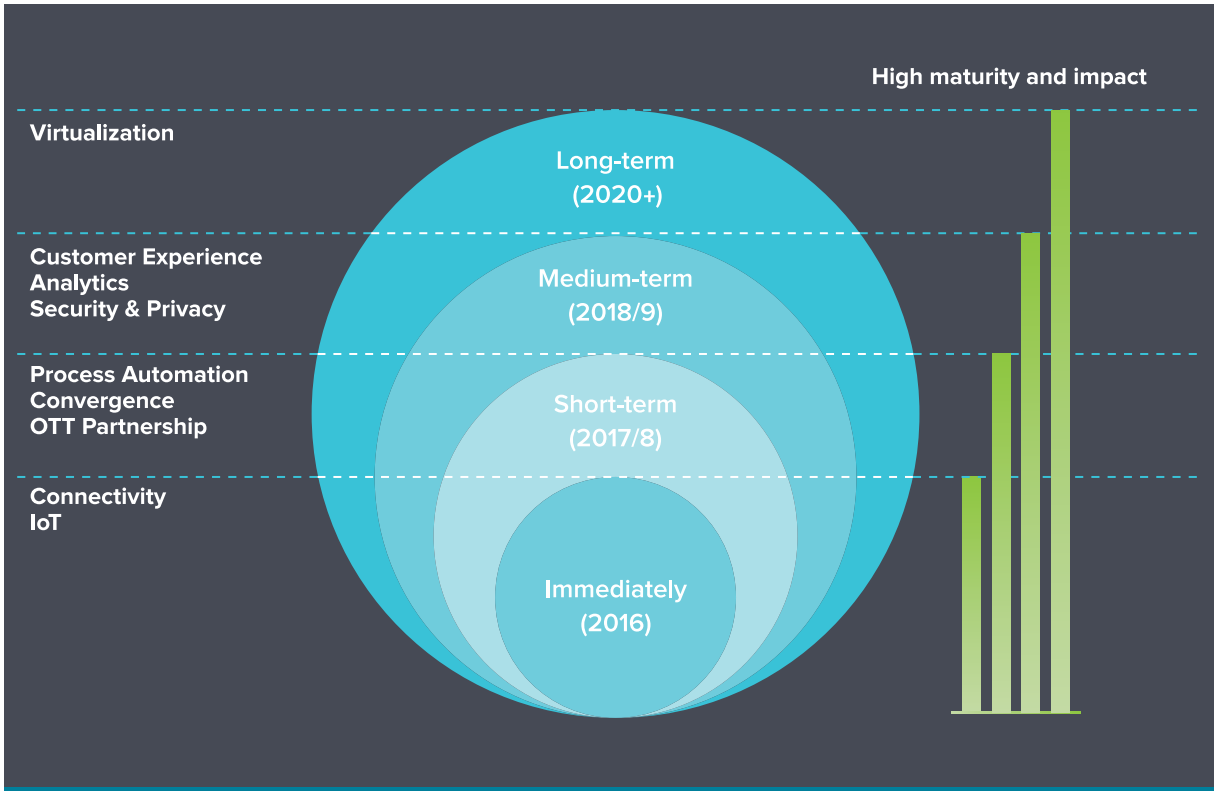

FIGURE 5 Impact on business and operations

need to be worked out and the priorities to achieve our Vision, the next phase is to define a set of initiatives that drive us into our goals.

Those initiatives will be the major guidelines to the CSP's operations, defining what aspects need to be addressed in order to achieve the relevant level of completeness on specific technological domains.

Depending on the urgency level of the technological dimension, the guidelines are more implementation project focused, when addressing immediate or short-term dimensions, or more research or experimentation oriented, when addressing medium to long-term dimensions.

Each guideline is defined as a set of features that will need to be implemented following a step-based roadmap, leading into a clearly defined value proposition. Blockers and enablers have been identified, so that it is clear what really has to be made available beforehand, and what could be considered as an ignition to each specific guideline.

From the immense variety of guidelines that could be implemented, the most relevant ones have been selected, having as criteria being as much effective as possible and producing results as fast as possible.

So, for the immediate initiatives, it is strongly believed that setting up what it takes to **bring fibre closer to the end-user** and at the same time **leverage existing, non-fibre, technologies** is the right path, while working on the **evolution of RAN** (Radio Access Networks) at the same time. Clear selection criteria has been defined in order to assist top management deciding on which technology to adopt in every situation.

Still on the immediate, addressing **IoT enablement** is an urgent need, especially if the group intends to benefit from the myriad Smart City opportunities arising everywhere.

Moving into the short-term, guidelines focus on achieving operational efficiency by implementing process automation protocols, with special focus on **business and operational process automation** and implementing afterwards a **Group-wide operations**

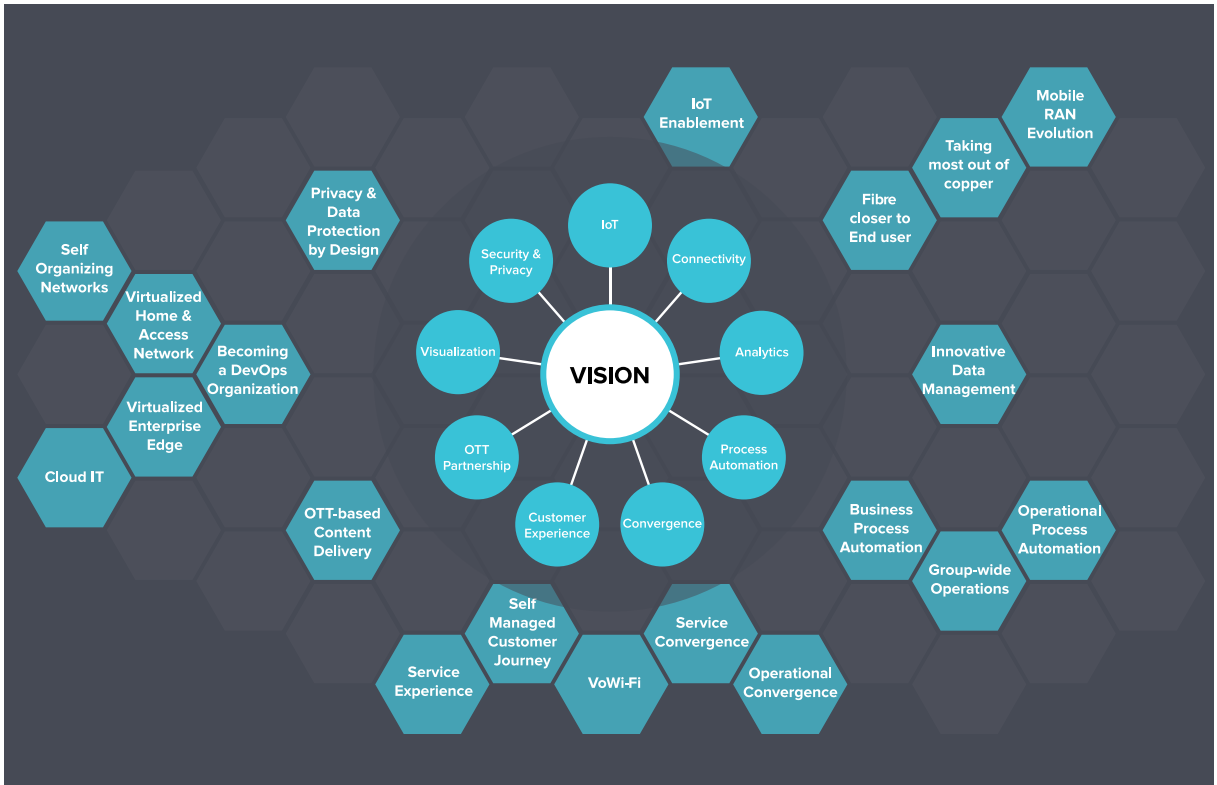

FIGURE 6 Guidelines per dimension

coordination centre. Another short-term guideline is to start moving into implementing what it takes to leverage OTT partnerships at its peak, focusing on **OTT-based content delivery** partnerships. To close the loop on the short-term guidelines, addressing convergence is also very important. That should be done by implementing **service and operational convergence**, as well as delivering **VoWi-Fi** as a quick service convergence example.

With those guidelines put into work, the baseline for getting real improvements in customer experience will be ready to use. Which means that implementing **Service Experience** and delivering a **self managed customer journey** experience is mandatory. Having this operationalized, Analytics and Security must also be assured, by implementing the **innovative data management** and **protection by design** guidelines.

Long-term guidelines will address Virtualization, covering **Cloud IT**, **self-organizing networks**, **DevOps** and **virtualizing** both on the **home** and **enterprise** environments, delivering results through proofs-of-concept and focused initiatives.

Now, what's next?

With the complete set of guidelines defined, there is also a roadmap proposal that closes up the Technological Strategic Plan [1]. The roadmap provides an indicative layout for achieving the goals defined by the strategy, while clearly defining the phases that should be pursued for each guideline.

Next steps would benefit from adjusting the plan to each group operation's local reality. There will be operations ready to start implementing some of the guidelines immediately, while others will take a while getting into a stage that allows starting implementing the Strategic Plan.

For some operations, the implementation of new technologies won't even be needed since they are not coherent investments. In other ones, a group-wide approach will bring huge benefits and economies of scale.

Summing up: the Technological Strategic Plan is not a recipe that applies to all, it is made of a set of guidelines that will now be worked in collaboration, always having customers as our main concern.

References

[1] Proposal for a Technological Strategic Plan- Altice Labs, November 2015