

# A new perspective on cross country synergies

New technologies open up the opportunity for real international telecom production

**Intro:** Deutsche Telekom Pan-Net will integrate DT's production model across the European footprint and thereby enable synergies, assure technology leadership and foster collaboration across Europe. From Bratislava, this Company will be the first point of contact regarding all overarching matters of the national companies with respect to the pan-European production model

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## Today the telecommunication carrier business is rather multinational than global

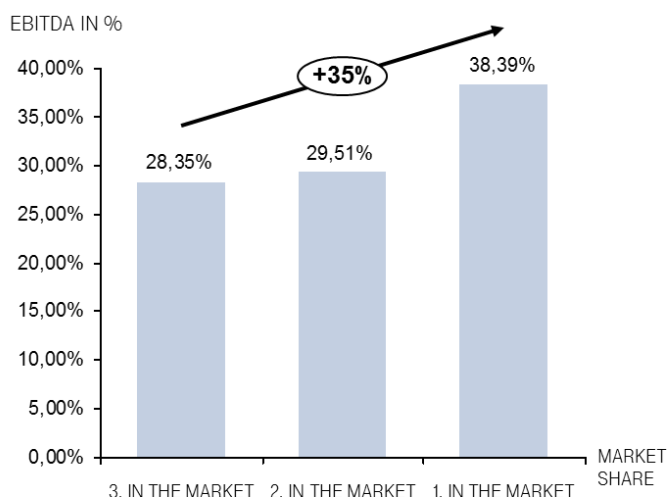
What is the biggest difference between an Over The Top Player (OTT) and a telecom operator? Why have many global OTTs like WhatsApp or Netflix been so successful in the last decade and telecoms not? Regular answers are the innovation power, the mindset and genius of the entrepreneur or young and highly motivated staff. But there is one answer that is not so much recognized in the public domain but plays a crucial role: OTTs work and produce international and use big scales and size to their advantage while telecoms don't.

If a global OTT like Netflix enters the European market it uses one logical production platform, one product design, one CRM system to serve multiple countries. Local customization is limited to language and partly content. Telecoms usually have national production platforms, own IT, own product development, local product managers and you name it in every country they are invested in. If a Telecom wants to bring a new offering to a broader scope of countries it means full scale implementation projects for each of them.

Telecoms are working "multinational". International telecom groups like Deutsche Telekom, Vodafone and Telefonica are well known in the global telecom space, but they produce and operate networks and services as an accumulation of national businesses with very limited scale effects across countries. Talking to executives in the industry, biggest synergies still come from supporting processes like joint procurement, building "reporting factories" or consolidated HR operations.

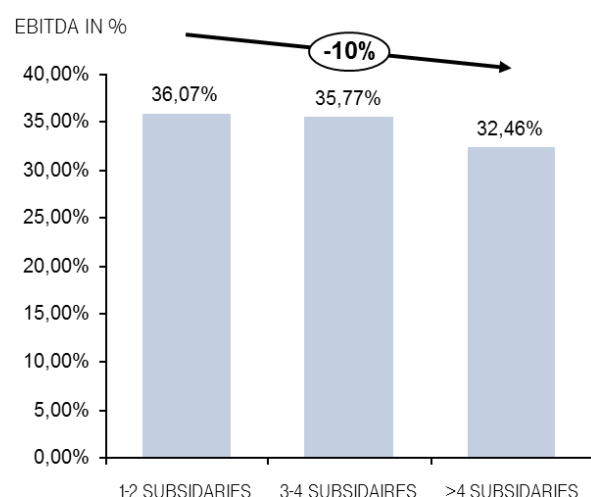
### EBITDA DEVELOPMENT WITHIN AND ACROSS MARKETS

#### SIZE MATTERS WITHIN A NATIONAL MARKET...



AVERAGE EBITDA MARGIN WEIGHTED BY REVENUE (2012-2014), ALL EUROPEAN OPERATORS INCL. INTEGRATED, MOBILE AND FIXED ONLY, SORTED BY NATIONAL MARKET LEADERSHIP IN EUROPE

#### ...WHILE IT IS NEGATIVE ACROSS MARKETS



AVERAGE EBITDA MARGIN WEIGHTED BY REVENUE (2012-2014), 31 INTEGRATED EUROPEAN TELCO GROUPS SORTED BY NUMBER OF INTEGRATED SUBSIDIARIES IN EUROPE.

This is also reflected in the numbers. If you look to profitability in relation to size of an operator there is a clear effect within national markets: The average telecom market leader in Europe has an EBITDA margin of 38% while the average 3<sup>rd</sup> biggest player has only 28%. Looking across national borders the picture is different. The average

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telecom group in Europe with more than 4 subsidiaries has an average EBITDA Margin of 32 %, while a small players with only 1-2 subsidiaries have an average of 36 %.

The conclusion is clear: Looking at profitability – on an international - scale size doesn't matter! Size only matters within national markets today. Transferring this statement exemplarily to the automotive industry it would mean: A small national car manufacture is in average more profitable than a big, global automotive giant. Sounds odd.

Nevertheless, the industry has tried to yield benefits of internationalization and size. Since almost a decade, experts in telecommunication group headquarters are trying to create "group effects". Shared Service Centers, Knowledge centers and international brands are "must haves" on the leading CEOs agendas of the industry. Only success is limited so far. Key driver for profitability is still the market environment. Tight regulatory regimes and markets with multiple players squeeze profits and vice versa. In contrast, "group effects" play only a subordinated role. Given the pictured numbers it's even worth: Big means less profitability!

The underlying key reason is simple: The benefits created in groups do not compensate for the resulting increase in the management of organizational complexity that accompanies multinational telecoms. As said, synergies are mainly created in supporting areas, such as procurement. The heart of telecoms – the network and service production, products, sales and customer service – are so far not part of synergies beyond best practice sharing.

Due to the national set up of the business, the effort required to centralize network and service production is immense. The telecom business is nationally grown all over the world. Looking even in central Europe - 20 years ago Telecom's where run as governmental infrastructure agencies. The "national roots" are not only still inherent in the culture of the operators, but also in the technology, processes and products.

Even if products and services look very similar from country to country at the first glance, features, production platforms and processes are quite different. For example, systems and the process to perform a simple call are historically grown and significantly differ between countries. It is simple for the car industry to centralize production, while having similar boundary conditions and market requirements in all countries. However, for telecoms, requirements, products and thus service production are national. Differences in processes and systems cause immense complexity if it is tried to centralize them on multi- or international scale.

The missing benefit to work in an international group structure leads to a scattered industry. Small companies serving relatively small markets can survive well in local markets. Only in Europe, more than 160 fixed and mobile players are competing today in the local markets, while 87% of them serve less than ten million customers in total. Taking into account that advanced services like IPTV require an estimated minimum market size of 20-30mn customers to compensate development and integration costs, the challenge the industry has is obvious.

In contrast the situation below and above service providers in the value chain looks different: the supplier and over-the-top player (OTTs) market is significantly more consolidated. Using resulting scale effects, these players can use their market power to more and more increase their share in the value creation.

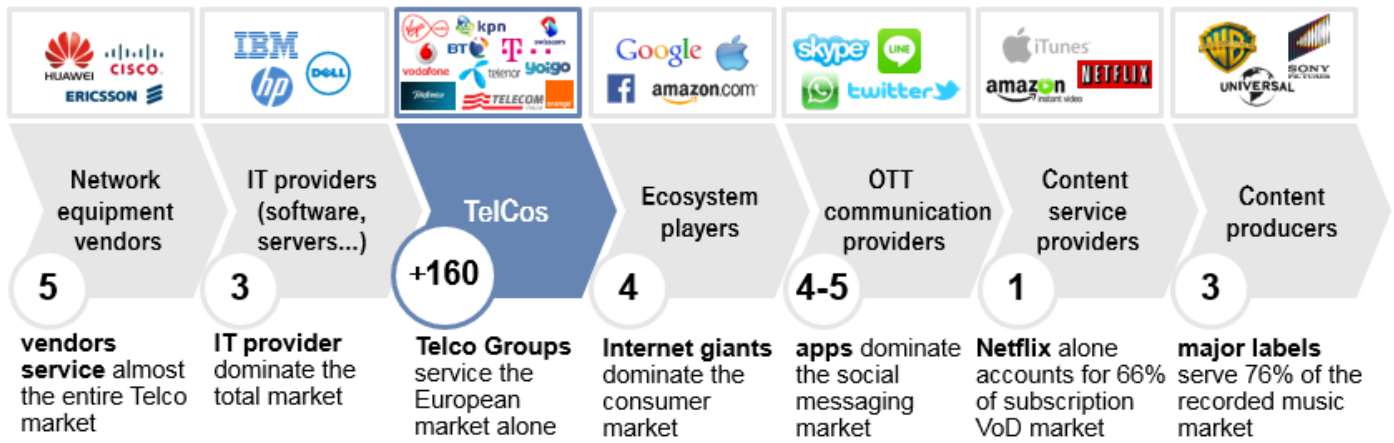
Upstream, equipment and service suppliers actively drive consolidation and globalization since the past decade. Nobody would consider Cisco, Huawei or Ericsson to operate like regional or even national market players, following local market requirements. Their products are developed, produced and sold on a global scale, allowing suppliers to effectively leverage their market power to create global market entry barriers. Currently ongoing mergers and acquisitions will intensify market concentration across all segments. Prominent recent examples are on the one hand Nokia's 16.6 billion<sup>1</sup> \$ acquisition of Alcatel-Lucent that has put 80% of the market for radio access networks (RAN) in the hands of only three vendors. On the other hand two of the most dominant players in the market – namely Cisco & Ericsson – are currently under discussion to form a strategic partnership that is supposed to generate an incremental revenue of 1 billion \$<sup>2</sup>. The rationale behind these two examples remains the same: the ability to spread cost on a global scale has become detrimental for the success of a company.

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<sup>1</sup> <http://www.finanznachrichten.de/nachrichten-2016-02/36409171-nokia-to-hold-91-in-share-capital-of-alcatel-lucent-after-offer-settlement-020.htm>

<sup>2</sup> <http://www.forbes.com/sites/greatspeculations/2015/11/10/heres-what-cisco-and-ericsson-could-gain-from-their-alliance/#28aec4046f0f>

UP- AND DOWNSTREAM PLAYERS OPERATE ON GLOBAL SCALE



Downstream, OTTs worked from the beginning with the ambition of global scale. The main wisdom to judge an investment opportunity in “the valley” is the scalability of the business model: To just name a few operators such as Facebook, WhatsApp and Google offer the same service beyond any local market requirements with little customization worldwide. The only market customization that is usually done is language. New features developed are rolled out internationally. Once they are centrally implemented, in principle “the light goes on everywhere”.

The difference to the national approach of Telecoms can't be attributed only to the genius of the entrepreneurs in the new economy. Telecoms facing a regulatory and legal regime that has created the scattered industry structure in the first hand. In contrast to most OTTs, telecommunication companies have to comply with national laws, license obligations and rules. Many services offered are directly regulated in price and scope; specific interfaces and processes need to be provided to cope with national Telecom Operator obligations which forces Telecoms to have national productions. Regulation, once set up to increase the efficiency of the industry, is now an obstacle for cross country synergies. On top, Telecom operators are often publicly owned or governments still have a (veto) say. The stories of local governments intervening if Telecom groups try to consolidate production of selected services like voice are well known in the industry. Reasons are not only the fear of cutting back jobs, but also concerns of national security and data privacy. Autonomy and direct access to the telecommunication services is regarded mandatory by many governments and intelligence services to ensure control in case of crises and supporting law enforcement agencies.

**“Pan” or why the telecom business must become international eventually**

History shows, the starting point for change is often a combination of pressure, vision and new technological opportunities. In case of the telecommunication industry, it seems that everything is in place. If not to say the change is mandatory to survive.

In Europe, pressure comes from the regulatory side and from OTTs entering “Telecom terrain”. The EU commission, has put forward a regulatory framework for electronic communications that is comprised of a series of rules which apply throughout the EU Member States. The common goal is to establish a “cross-national telecommunication markets”, opening the door for European Telecoms to make European offerings. The most prominent example is probably the abolishment of the roaming business starting on June 15th 2017. However aside the negative impact on revenue this will create on the customer front end what is so far missing in the production and operations of a telecom: A Pan European market.

Besides, OTTs are entering with their services the “classical telecom terrain”. For example voice and messaging are pushed by WhatsApp and Apple and other players. The eSIM adds to the cocktail. Compared to Telecom operators these players have today a significant structural advantage if it comes to services: They can leverage their size. With a team of 50 engineers<sup>3</sup> WhatsApp develops features and services that are rolled out step by step worldwide. WhatsApp doesn't need individual technical implementations in each country and handle different legacy systems. WhatsApp implements it once and seamlessly 1 billion<sup>4</sup> customers will benefit from the new feature. That makes them agile and efficient.

<sup>3</sup> <http://www.wired.com/2015/09/whatsapp-serves-900-million-users-50-engineers/>

<sup>4</sup> <https://blog.whatsapp.com/616/Eine-Milliarde?>

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The shackle for Telecoms is their heterogeneously grown network and service production and the corresponding national processes and service portfolios: For example, Deutsche Telekom AG alone uses in Europe more than 10 different platforms for messaging and operates more than 50 data centers. The picture in the other major Telecom groups looks similar. Investments needed today to keep this heterogeneous technology portfolio up to date is immense. New features and services need to be implemented “country by country”, while benefits of the “national customized approach” are marginal.

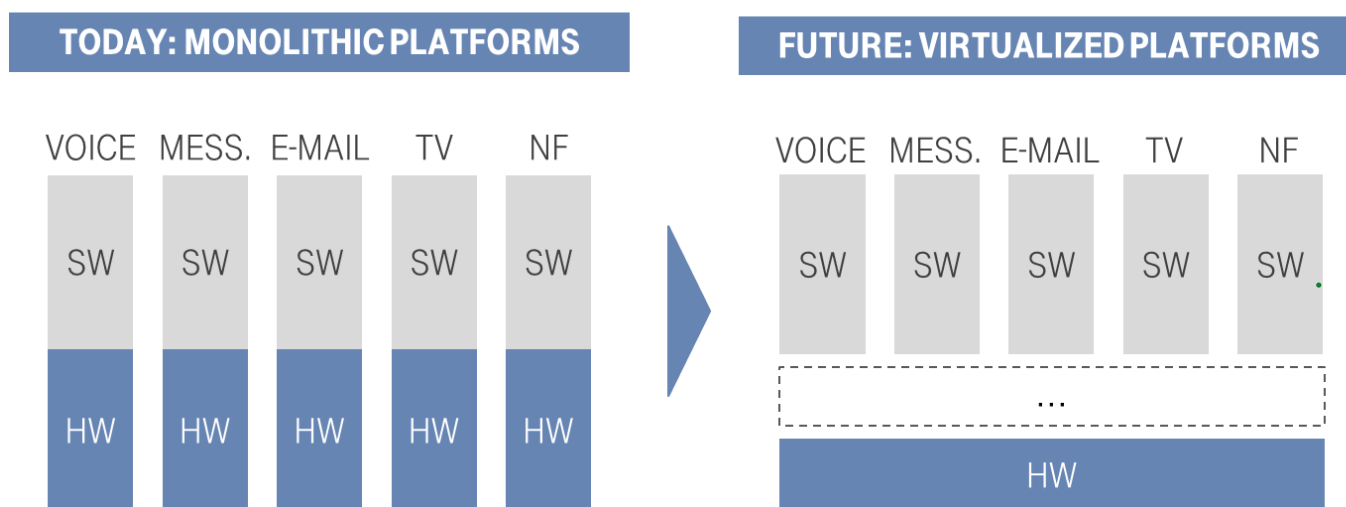
It’s clear that Telecoms – with all the advantages they still have over the OTTs – need to get structural on eye level with those competitors to still have a say in high scale services like voice, messaging or TV in the future and have the chance to establish new ones. Telecoms need to build up international productions if they don’t want to withdraw from the service business and become pure bit pipes.

### Telecom production on the journey towards software, standardization and international scale?

Today, telecom production is set up as monolithic pieces of hardware and software. Vendors deliver individually configured appliances satisfying the requirements that are maintained through software updates over the lifecycle. A senior manager of Deutsche Telekom puts it this way: “Data Centers of Telecom Operators - the heart of service production – often look like big garages with all kinds of cars from Kia, Toyota, Audi and Ferrari. All cars have different colors, are differently parked and need different fuel. Going to Google, we see VW Golfs all having the same color, having the same engine, using the same fuel, all parked precisely”

Exemplary, the integration of new or interconnecting between services - such as connecting the TV platform with messaging service to enable “on TV messaging” - is complex and resource intense for telecoms. The disadvantage becomes clear when transferring the situation to the consumer world. Imaging of owning and maintaining a dedicated laptop for every application that is used today on a laptop: One device for preparing documents, presentation, tax reports, emails etc. In order to send an email directly from your text application you first have to build and maintain a dedicated interface and involve an integrator, potentially suppliers of both application.

### VIRTUALIZATION CHALLENGE



Unsurprisingly, the one current big technology trend in the industry is “softwareization<sup>5</sup>” better known as Network Function Virtualization or simply virtualization. Telecoms want to use “common of the shelf” hardware that is independent from the applications running on top and available as shared resource pool for all applications. Applications and their instances are automatically managed and provisioned according to resource needs. The advantages of this approach are clear:

- **“Fast and cheap” introduction of new products and features:** New services can be easily introduced at low costs. In case the service fails commercially, licenses are canceled and hardware is used for other services. In doing so, Telecoms can test more innovate services and implement a fail fast approach

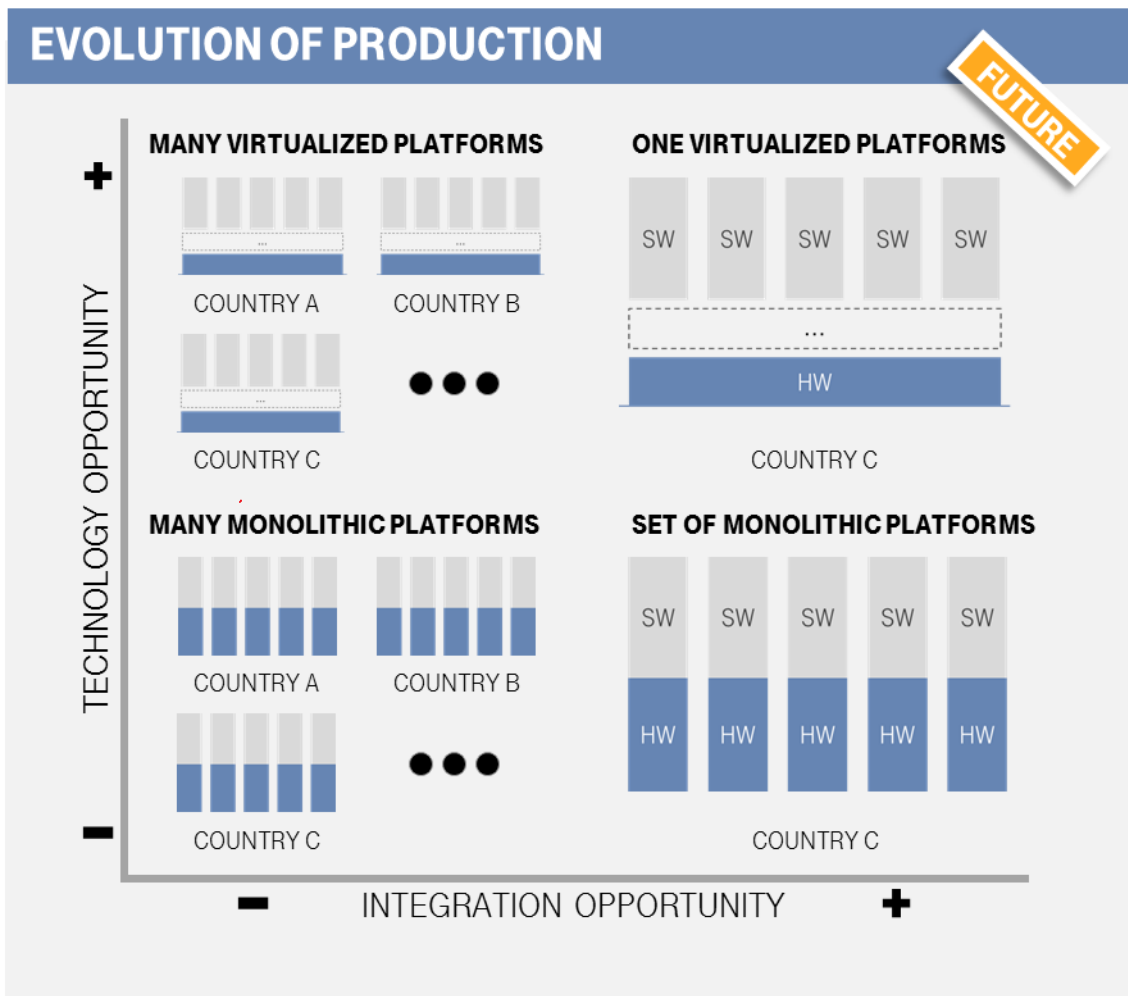
<sup>5</sup> Also called Software Defined Networks /SDN and Network Function Virtualization / NFV).

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- **Load peak optimization:** Having a common hardware basis, the utilization of resources can be optimized across all services. In case of a load peak, for example 12am on New Year for messages, resources that were used a few hours before to produce other services, such as TV, can now be used for the service with peak load.
- **New production schemes:** Using the same resources, Data Centers can be over-dimensioned. In case hardware breaks, components are simply deactivated and replaced in later, large maintenance cycles.
- **Reduced cost for computing power:** Using standardized hardware, same computation power can be bought at significantly lower costs
- **More competition on supplier side:** Building service as software lowers the market entry barriers for new vendors. This reduces production costs, enable new licensing models and innovate services.

This could solve many problems telecoms are facing today, especially in the competition to OTTs. Time to market and cost for new products would be reduced significantly. The easier integration among services makes automation of multiple processes possible that are manual today. And most important: The “cost for failure” gets smaller and therewith innovation easier.

## INTEGRATION & TECHNOLOGY OPPORTUNITY



As transparent as the advantages as big is the transformation challenge. To integrate the today scattered, monolithic and vendor specific systems in cloud based, software driven factories means to execute standards and harmonization. To simply transfer the very individual and customized telecom production of today into the new scaled, softwareized “factories” would mean a hugely complex development exercise. Everything existing today would need to be rebuilt as software.

Telecom operators must understand that the “bouquet” of national customizations is not required. Nobody would expect “Skype” – a famous OTT messaging and calling service – to look different in Athens than in New York – except the language. Looking exemplary at the different IPTV services within Deutsche Telekom: Local customizations exist even in the smallest countries. The result is very limited customer impact but huge cost.

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## **This vision for telecom groups: Agile and internationally scaled as an OTT, but with the strong trust and credibility coming from the national roots**

With this need of simplification to get to the “software age” comes a huge opportunity for telecom groups. The need for simplification eliminates the mayor hurdle for “international production” in the past – complexity. All operators want to get the benefits of moving towards software. But for telecom groups the chance is to use this step to integrate across countries (having to anyway standardize services to move to the software world). It would be a revolution since size and being truly international could suddenly matter in the telecom operator space.

Having telecom groups producing services centrally (e.g. TV) the development cost could be reduced dramatically, since services need to be developed and implemented only ones instead of for each country. The speed to scale (time from idea to having service launched in multiple markets) would be a fraction of what it is today. Cost to maintain and operate services can be expected to be reduced significantly. But most important, Telecom groups get over the production disadvantage they today have compared to OTTs and get in the position to attack.

Furthermore one additional opportunity is opening up if going this direction. Cross country synergies in the cost and resource intense telecom customer processes always failed in the past, because the underlying complexity in the production made efforts like process standardization and joint outsourcing across borders merely impossible. For example a trend to build joint CRM systems in big telecom groups did not yield the expected benefits exactly due to this underlying complexity in the production. Having integrated production factories is opening up a huge space of further optimizations that can bring telecoms group a significant scale advantage in the future.

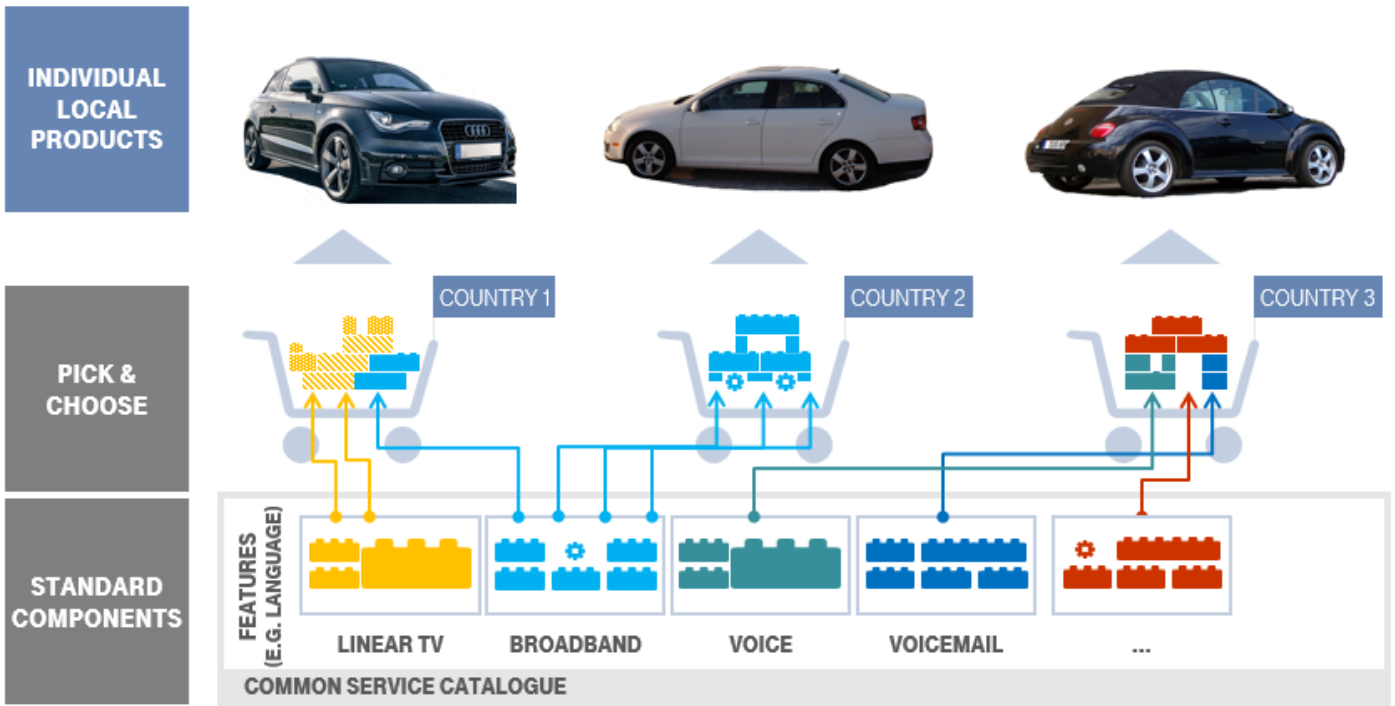
## **But change will not come “just like this”. Executives in the industry need to drive the organization towards international**

Talking to Telecom CxOs about transformation you can feel a very common, narrow understanding of quite narrow terms: benchmark driven cost cutting, outsourcing, process optimization and automation, simplification are the common terms. The topics are well known, executed repeatedly and the organizations have learned how to deal with them.

Telecom organizations especially in mature markets have been squeezed in the last decade. But the optimization is still driven in functional silos by cutting scope and increasing efficiency. The way how Telecoms “think” efficiencies is driven by this experience. In the technology domain for example the biggest efficiency trends in the last years was the outsourcing of maintenance and engineering services to former equipment suppliers that drive a “forward integration”.

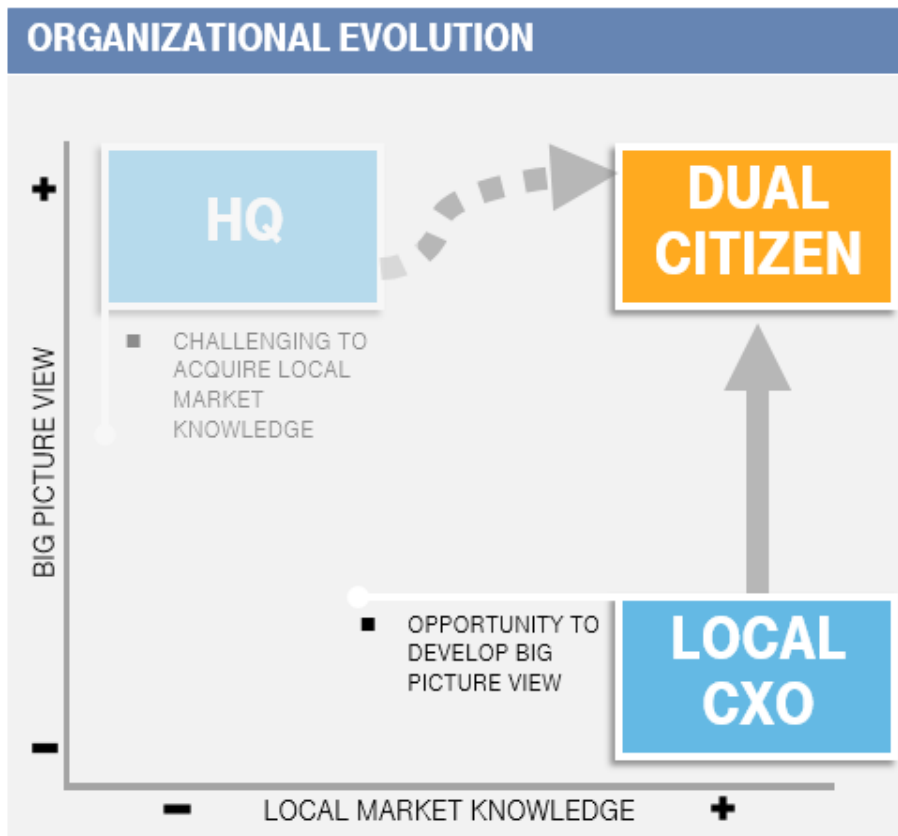
To become “international” Telecom executives need to transform first their thinking patterns. Bringing Telecom from multi-national to international means to overcome “thinking improvement in the function and country”. You cannot centralize one function without pivotal impact on other. If for example, like Deutsche Telekom does, the network and service production is centralized into one factory, the impact on commercial is tremendous. You can only sell what comes out of the factory – meaning if you centralize the production of ten countries into one, the freedom to sell in every country different services is gone. So the challenge is how to align between central production and local market demand. To be more specific: The marketing and the technology side need not only to find a common language, but also a common structure to steer what is produced and sold.

INDIVIDUALLY CUSTOMIZED PRODUCTS STILL SERVE LOCAL CUSTOMER DEMANDS



Production-structure wise there is a lot to learn from other industries that managed to serve markets “customized”, still having international scale in the production. Modularization is the key in the automotive industry that enables the Volkswagen’s and Toyota’s of this world to build different products out of the same components. The way to internationalize the Telecom production points in the same direction. Producing centrally components that can be used in multiple different product bundles with different configurations is the way to enable centralized scale and keep the local ability to customize towards market needs.

TRANSFORMATION CHALLENGES



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## Transformation from “national to international” needs the combination of “big picture” and local business knowledge

The governance to lead the change is trickier. The real business – in terms of producing and selling services – is national today. This means also the pivotal business knowledge is local. In here comes one major mistake that we have seen multiple times in our careers that needs to be avoided: Looking across industries the usual reflex of big corporations centralizing activities is: The central builds the central!

The challenge is to drive the conception and implementation by having both ingredients equally: The strategic “big picture view” of a head quarter and the local market knowledge. A “combinatory role” is needed that is integrating both views. The way is to go from “local business knowledge” to the strategic view. The learning and experience effort needed to make strategist understand the national challenges and structures is much higher than vice versa.

Deutsche Telekom approached the challenge by making CxOs from national subsidiaries “dual citizens”. The leader role to build a part of the “central factory” was added to their regular role as a functional leader of a subsidiary (e.g. CTIO for Hungary leads also a part of building the central production). This solved several challenges that a Telecom faces on the journey from national to international production:

- Prevent “**Not invented here syndrome**”: The acceptance of a central factory in local subsidiaries – that actually do to the business – is success critical
- “**Pragmatism and speed**”: Local business leaders know what is needed in the markets and they prioritize “implementation” over “conception”
- “**Perspective**”: Local leaders need the perspective to get a role in the “central”. By the nature of things – centralization means take something away from the local. The fear to lose power on the local side is given

## A tactful approach towards national governments is key to get their support

Talking to national authorities and agencies one can get the impression that centralization of telecom assets is an impossible undertaking. Two concerns are repeatedly raised when talking to government officials:

1. **Lawful interception (LI)**<sup>6</sup>: Having the production of telecom services (e.g. voice) outside national borders authorities fear to lose the access to data that is pivotal for their national security. Besides, countries hosting the production for many countries could have access to traffic data from other countries (e.g. location of data center producing the services)
2. **Critical Infrastructure**: The control over telecom services are of special importance in case of a national crisis. Having not full control of telecom services in the case of war for example could be a critical disadvantage

National governments are in a dilemma here. Almost all mature telecom markets are liberalized. Regulators foster competition, in Europe even roaming charges get abolished at all and one European market is created commercially.

In a nutshell, telecoms are pushed commercially to tear down national borders and therewith loose roaming revenues, at the same time OTTs steal more and more of the classical telecom service business. National authorities prevent telecoms from reacting adequately and to shift towards scaled production. Keeping this direction it is foreseeable what will happen: Telecoms will be reduced to be pure “bit pipes” and primarily the dominant American OTT giants will dominate the former classical telecom service business.

But – and this is the dilemma for the national governments – the briefly described scenario can be the last thing local authorities want. Having Telecoms at one point really giving up on their classical service business means for national governments the access and control over telecom services is gone. Not because it’s moved to a close by country, but rather because it is terminated at all. The beginning of the process can be already observed in countries with low ARPUs and strong competition. Discussions if it makes sense to continue services like SMS for or to better terminate the service at all and simply offer an OTT alternative get more and more common.

Rational acting national governments should be therefore open to negotiate and agree on trades that secures them control, but doesn’t prevent telecom from reacting. That this will not happen without education, pressure and intense

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<sup>6</sup> Lawful interception (LI) is obtaining communications network data pursuant to lawful authority for the purpose of analysis or evidence.



lobbying from the telecoms side is also clear. Telecom executives are still the master of their destiny. But they have to start acting on this right now. The time window is not endless and the sooner these hurdles are settled, the better are the chances that the industry is not reduced to a “pipe with bits in it”.

**The centralization and internationalization of the telecom production will have a bigger impact on the telecom organizations than the mega trend “IP” had**

Standalone telecom operators and small groups will be hit by the structural change of the industry. They are facing a more difficult situation compared to today. The pressure from the OTTs on their service production will stay but at the same time the telecom groups are about to gain a structural advantage as well. The result will be a further reason for accelerated consolidation in the telecom business.

The big telecom groups will transform and centralize their productions in the next decade and close the structural gap to the OTTs. With this will also come a revival of the telecom operator as a service producer and innovator: The key asset a telecom has today – the long lasting customer relationships – will exponentially increase in value when telecoms have services in the portfolio on eye level with the global OTTs.

But the transformation the big telecom groups have to undertake are a challenging endeavor. It's not less than creating international organizations out of multi-national ones. It needs brave and powerful leadership to drive the change and new approaches how to overcome the transformation hurdles (e.g. “Dual Citizenship”). But eventually big telecom groups will have a say over “the water in the pipe” as well.