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The use of innovation and intrapreneurialship techniques at telecommunication providers while competing with Over the Top service providers

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Affidavit

I, **ALEXANDER BORISOV DIMITROV**, hereby declare

1. that I am the sole author of the present Master's Thesis, "The use of innovation and intrapreneurialship techniques attelecommunication providers while competing with Over the Top service providers", 59 pages, bound, and that I have not used any source or tool other than those referenced or any other illicit aid or tool, and
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Abstract

The telecommunication industry especially in Europe has suffered significant downfall in the past five years. Two of the main reasons being, corporate complacency associated with great focus on organic growth and core services, and the emergence of Over The Top players that have introduced new business models. In particular, OTTs take advantage of the mobile and fixed networks, built by the traditional telecommunication providers, to offer all of their IP-based services on top of the internet connectivity. It has been evaluated that the telecommunications industry for the period between 2012 and 2018 would lose $386 billion of revenues to all IP-based services, from mobile applications for voice/video/messaging over IP such as WhatsApp and Skype to entertainment on demand and pay-tv offered by Netflix and Amazon. Hence, when missing corporate foresight and long-term strategy in order to sustain corporate growth it is difficult to compete and remain relevant as an organization over the decays ahead.

The leaders on the executive level need to steer their organization towards building diverse knowledge by promoting exploration activities supported by lean and streamlined internal product development processes and procedures. In addition, large organizations need to evaluate the potential and the benefits of new ideas and business opportunities from external sources. Most often working with external party on new product or service provides faster time to market and lower risk of entering new market. Therefore, establishing innovation and entrepreneurial environment could help telecoms build corporate value and growth perspectives in the long-term. Amazon Inc. the e-commerce leader is one of the great examples for how to set-up effective long-term corporate strategy. In particular, strategy designed to produce results in adjacent and distant sectors compared to its core industry of operations. Further, making decisions to explore such new opportunities has to be done with the full understanding that some new business models require time to produce results and become viable.

Executive Summary

The telecommunication industry is significant contributor to the World economy. As of 2014 it provides more than 13 million jobs and enables another 11.8 million jobs in its ecosystem. The main payers in the industry are mobile operators and full telecommunication providers that offer mobile and fixed services to residential and business customers. Over the past five years especially mobile operators have experienced great financial performance downfall that could be related to industry development trends as well as corporate strategy and vision. There are two major industry trends: market saturation for core services and emergence of new business models developed by technology companies. Whereas the majority of telecoms in particular Europe have internally focused on short-term goals without putting too much weight on potential opportunities beyond their core services and their general arena of operations or even. Hence, this paper evaluates the above stated facts and considers the place of innovation and intrapreneurialship at traditional telecommunication providers.

It has been evaluated that the telecommunications industry for the period between 2012 and 2018 would lose $386 billion of revenues to all IP-based services, from mobile applications for voice/video/messaging over IP such as WhatsApp and Skype to entertainment on demand and pay-tv offered by Netflix and Amazon. Moreover, these type of Over The Top players, who do not need their own network infrastructure, introduce new service that could have been foreseen and design for market implementation by telecoms by taking full advantage of their technical proficiency and assets. For example, Amazon Web Services known for great flexibility in the field of IT outsourcing in particular cloud and compute services require IT infrastructure that most telecoms poses for their own needs. Therefore, it is important to examine what has lead for telecoms to neglect new market opportunities and what could be done in order to build corporate structure with long-term growth perspective in mind.

Most of the telecommunication providers have looked into the direction to expand their customer bases by offering similar service or bundle mobile and fixed services together as part of their strategy to become one stop shop for telecommunication services. For example, moving

from pure mobile voice to mobile data and voice also known as “smart” service for smartphones, and pushing standalone mobile broadband service. In a way over short period of time they have turned into pure connectivity players with services that are more or less the same across the industry with limited differentiating features. Paying attention to the bigger telecommunication needs of business customers has been a natural priority for most of them, but few have succeeded to develop services with added value on top of the mobile or fixed connectivity. The field of Information and Communication Technology has provided the opportunity for telecoms to create new revenue streams by addressing the needs of corporate clients.

Being able to execute new long–term strategy even within the boundaries of the core service portfolio requires change of the corporate culture on several levels. The leaders on the executive level have to be the driving force with new methods and management approach in order to draw the guidance for the technical and operational cultures within the organization. Understanding the roles of the different type of people as part of an organization is key for driving change and building corporate foresight. The later calls for several corporate horizons that help one company sustain growth, evolve as an organization and avoided complacency in the long-term. Being focused for long period of time on what you do best gradually forces the organization to follow the core product lifecycle that sooner or later reaches the maturity stage and in turn downfall. Hence, one company needs number of opportunities to source new different ideas internally or/and externally through collaborations.

Especially for telecommunication companies it could be useful to set-up the organization with two main streams with different dedicated focus. Since the market of any telecom is quite large there is need to have dedicated structure to nurture the core services market. While the second stream of people to have diverse professional background with solid understanding of the telecommunication environment in order to establish entrepreneurial and innovation environment within the organization. Moreover, being aware of developments in adjacent sectors on the bases of their professional experience would help the transition to exploration of new business opportunities and building heterogeneous knowledge within the organization.

Other than developing an organization structure with two streams focusing on exploration and exploitation the executives need to establish number of new supporting policies especially for the new field of exploration.

New lean product development procedures and the dedication of sufficient resources to support the process need to be part of the overall corporate strategy in order to set-up the organization for success. Otherwise there would be significant time spent on solving internal barriers by the employees responsible for new ideas. Also, longer time to market for new service or product due internal barriers could affect its' market potential and success. Further, to great extent Bill Joy, co-founder, Sun Microsystems is right in saying "Most of the bright people do not work for you – no matter who you are. So you need a strategy for innovation to occur elsewhere." It is possible, similar to Deutsche Telekom, to establish a strategy that promotes partnerships with any type of people and organizations that would like to see their ideas commercialize with the full support of a large organization prepared to embrace them. Becoming Innovation Mall where ideas are sourced from different origins should be the organizational model for any traditional telecommunication provider, who would like to stay relevant in the long-term. This particular strategy requires significant resources dedicated to idea and product screening while also having firm understanding of the areas, sectors and fields of interest for future product development.

Amazon Inc. the e-commerce leader appears to be an organization that most companies around the world could learn from how to set-up effective long-term corporate strategy. In particular, strategy designed to produce results in adjacent and distant sectors compared to its core industry of operations. Further, making decisions to explore such new opportunities has to be done with the full understanding that some new business models require time to produce results and become viable. Therefore, it is much easier process to enter in new market when the core business of the company is either still growing or stable compared to the times when it is experiencing market pressure. In general, it is never too late to explore new opportunities, but timing is important. For example, Deutsche Telekom has not been ahead of the curve, similar to Amazon by investing in new business models, but when the sense of urgency was evident across

the telecommunication industry the company instantly dedicated time and resources to iron-out new long-term strategy with corporate growth and evolution in mind. The advantage of large organizations around the world is their general scope, market reach, and in most case financial stability that would allow for nurturing new ideas.

As far as the telecommunication industry is concern, it appears that there are two types of organizational direction adopted by the providers in the sector. On one hand, there are players such as Telekom Austria Group present in eight European markets that try to focus greatly on products and services within their core mobile and fixed competencies with limited resources dedicated to exploration. Hence, similar companies in the industry have significantly less opportunity for corporate growth and evolution in the long-term. One measure that supports this statement is the company valuation, which most often is considerably lower compared to the other type of players. Therefore, on the other hand there are large telecommunication providers such as Verizon Communication Inc. and Deutsche Telekom, who first have looked to further their revenue opportunities within their core market by establishing new services for corporate customers and second to promote innovative and entrepreneurial environment open to internal ideas and external opportunities from partners. Similar corporate strategy has greater value in the company potential for growth, which in turn contributes to higher market capitalization compared to the first type of organizations in the industry. Still, the measuring stick for product diversification and long-term corporate foresight are companies such as Netflix Inc. and Amazon Inc. while vertical product focus is beneficial for nurturing core operations and exploitation activities.

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List of abbreviations

1	ARPU	Average Revenue Per User
2	APP	Application
3	AWS	Amazon Web Services
4	DT	Deutsche Telekom
5	GSMA	Groupe Speciale Mobile Association
6	GPON	Gigabit Passive Optical Network
7	IoT	Internet of Things
8	ICT	Information and Communication Technology
9	ICQ	I Seek You
10	IP	Internet Protocol
11	IPTV	Internet Protocol TV
12	IT	Information technology
13	M2M	Machine-to-Machine
14	LAN	Local Area Network
15	LTE	Long Term Evolution
16	OTT	Over The Top
17	R&D	Research & Development
18	TTP	Traditional Telecommunication Provider
19	VoIP	Voice over Internet Protocol
20	VPN	Virtual Private Network
21	Wi-Fi	Wireless Internet for Frequent Interface
22	3G	Third Generation
23	4G	Fourth Generation

1. Completion between Traditional Telecommunication Providers and Over The Top service providers

1.1. Overview of the Telecommunication industry and recent trends and developments

The world telecommunication industry in its part of mobile communication is a major driver of the World economy. In 2014 it contributed 3.8% of the Global GDP, while amounting to a total size of $3.0 trillion (GSMA, The Mobile Economy 2015, page 2). The World GSM Association with more than 800 members, mobile telecommunication companies, foresees the GDP contribution to reach a level of around 4.2% by 2020 (GSMA, The Mobile Economy 2015, page 2). The industry employed 13 million people in 2014 as well as helped create another 11.8 million indirect jobs by the same year (GSMA, The Mobile Economy 2015, page 3 & 5). By 2020 the forecast is for the industry to employ 15 million people (GSMA, The Mobile Economy 2015, page 3). In the core of this particular sector of the industry lie number of fundamental services that have enabled the World population to evolve over the past twenty years. Mobile services have become part of our lifestyle and have contributed to the improvement of the standard of living of people around the World. Hence the stability in the sector is tied to the future well-being of everyone.

Regular mobile voice, text messaging, and internet access (handheld device access and dedicated mobile broadband subscriptions for laptop or tablets) are the major three core services offered by mobile operators. It was first mobile voice for general communication on the go with limited need for text messaging and mobile internet. In the early days the later lacked application and reliability as it offered 9.6 kbps connection speed compared to the average global connection speed in 2014 of 1,233 Kbps, which is expected to grow four times by 2017 (GSMA, The Mobile Economy 2014, page 19). This particular development was driven over the years by the emergence of companies that focused on utilizing the mobile networks for filling the Internet space with abundance of content and internet based services. In turn everyone using smartphones or pure mobile broadband subscription could access the content and make use of it. Mobile device vendors are another sector of the telecommunication industry that have contributed to the overall development of the industry. They have driven the evolution of the

mobile phone and its capabilities to the point where smartphones have become tool of everyday life.

From service prospective mobile operators have focused on variations of their core services and limited improvements through new features that are usually delivered by network upgrades or third party platforms. The mobile voice service for example is used for domestic and international calls, and when in foreign country (roaming). These three different destination are seen as different revenue streams by mobile providers. This fact is also applicable for the text messaging service while mobile internet access only could be used nationally and in roaming. Further, third party features such as voice mail, picture messages (MMS), HD voice, video call using GSM/UMTS voice technology are perceived as innovations and value adding services. Therefore, the development and growth of this sector is founded on these three core services as well as new opportunities to use them for different purposes and in different industries.

Over the first fifteen years the industry growth was driven by the adoption of the mobile services by more and more people around the World. This trend has continued to the point that in 2014 the Global mobile penetration has reached 95% and foreseen to reach 119% by 2020 (GSMA, “The Mobile Economy 2014”, page 11). All while in developed countries it has already surpassed the 2020 estimation and it stands at 124% as of 2014 (GSMA, “The Mobile Economy 2014”, page 11). This means that one single customer in developed country has more than one mobile service subscription and by 2020 this fact would be also true for the Global use of mobile services. Hence the sheer volume of the customer base, predominantly mobile subscriptions, has helped the telecom sector to gain such strength, importance and value.

Table 1: Mobile penetration

Region	Penetration Q2, 2005	Q2, 2010	Q2, 2015
World	**30%**	**72%**	**98%**
Northern America	63%	89%	101%
Canada	51%	69%	83%
United States of America	64%	91%	103%
Europe	**80%**	**127%**	**134%**
Eastern Europe	62%	135%	153%
Northern Europe	103%	122%	127%
Southern Europe	94%	130%	122%
Western Europe	84%	114%	119%
European Union	**90%**	**123%**	**125%**

Note: *Total connections at the end of the period, expressed as a percentage share of the total market population.
Source: www.gsmaintelligence.com

The increasing services adoption, competition, market regulation and World economy trends have shifted the demand and supply curves for mobile services to a point that prices are very affordable in most markets around the World. In Europe the market is very fragmented with more than 120 mobile operators. Naturally, when there are limited product/service differentiators the focus falls on pricing when telecoms would like to gain or retain market share. Such trend is evident through the evolution of Average Revenue Per User (ARPU) industry specific measure, total recurring revenue generated per connection per month in the period. Within Europe for a period of five years between Q2, 2010 and Q2, 2015 ARPU has dropped on average by 27%. When looking at ten year period the ARPU has dropped from €23.39 to €11.17 by Q2, 2015, which is 52.30% revenue decrease per user.

In the United States of America there are four major players (AT&T, Verizon, T-Mobile, and Sprint) and much more liberal market without major regulatory intervention. As it is shown in the table below the ARPU decline for a period of ten years is 14.96%, which is quite modest negative development compared to the European market with intensive competition and strong regulation focus. On average in Europe each country has three to four domestic operators, which is the same as in the United States market, but with significantly lower domestic customer base. It is interesting to acknowledge that the Canadian telecoms (Rogers Wireless, Telus Mobility, Bell Canada, Wind Mobile, and MTS Mobility) have managed to achieve positive ARPU trend over the

past ten years. Even though there are six major players on the market the mobile service penetration as percentage of the total population is at 83% as of Q2, 2015.

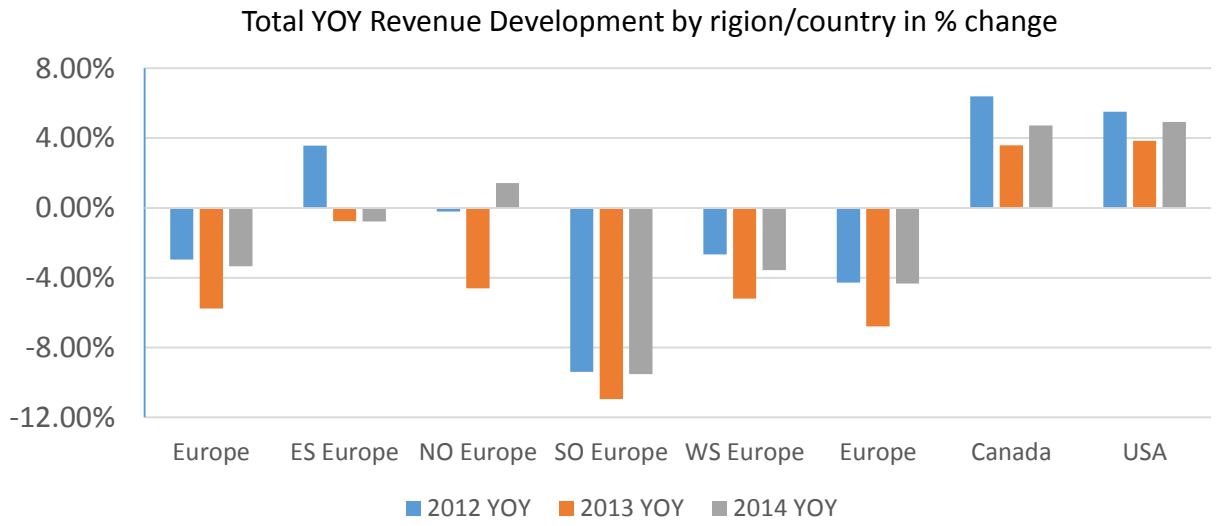
Table 2: Average Revenue Per User

	Average Revenue Per User				
Region	Q2, 2005	Q2, 2010	Q2, 2015	5 yr. % change	10 yr. % change
World	**€ 21.60**	**€ 11.82**	**€ 9.06**	**-23.36%**	**-58.08%**
Northern America	€ 47.00	€ 43.62	€ 40.79	-6.49%	-13.22%
Canada	€ 38.39	€ 41.54	€ 42.79	3.01%	11.46%
United States of America	€ 47.74	€ 43.78	€ 40.60	-7.26%	-14.96%
Europe	**€ 23.39**	**€ 15.29**	**€ 11.17**	**-26.96%**	**-52.27%**
Eastern Europe	€ 9.09	€ 5.63	€ 4.81	-14.54%	-47.07%
Northern Europe	€ 30.01	€ 25.51	€ 21.53	-15.60%	-28.25%
Southern Europe	€ 28.12	€ 18.91	€ 11.71	-38.08%	-58.35%
Western Europe	€ 31.72	€ 23.96	€ 17.28	-27.85%	-45.51%
European Union	**€ 27.49**	**€ 20.32**	**€ 14.36**	**-29.32%**	**-47.76%**

Source: www.gsmaintelligence.com

Admittedly the US and Canada markets are behind the European markets for mobile services penetration (see table 1 above), which could be perceived as positive perspective as their respective markets have still organic growth potential. This particular measure has high correlation to the revenue or ARPU development. It explains to great extent the positive ARPU development in Canada and the modest decrease in the US for the past ten years compared to the significantly higher declining ARPU in Europe. Furthermore, the limited possibilities in recent years to continue selling standard mobile services in Europe has impacted significantly the total revenue generated by the operators in the region (see figure 1).

Figure 1: Revenue development



Most operators have looked in the direction to become mobile connectivity experts as their major assets are their mobile network infrastructure and developed customer contact. Therefore, it is straightforward for them to develop for example "Machine-to-Machine" (M2M) service, which is pure mobile connectivity between two machines with relatively low ARPU compared to other services. This service is not associated with added value on the part of the telecommunication provider. The perspective for the M2M service is in industries such as automotive, security, utilities, health and smart cities, which have supported the growth of the M2M service in recent years. By the end of 2014 there are more than 243 million M2M connections globally (GSMA, The Mobile Economy 2015, page 50).

"Internet of Things" (IoT) also known as "Connected Living" is estimated to have large market potential in the coming years as another possibly for mobile connectivity. It includes mobile connectivity for wearable devices (Samsung Gear, iWatch) and smart home (sensors for lighting, security systems, kitchen appliances) from adjacent industries that focus mainly on linking the digital and physical worlds. Therefore, this could an opportunity for the telecommunication providers for collaborative innovation that produces services with added value. In addition, it would help them utilize further their tangible and intangible assets: telecommunication and marketing expertise, supply chain, network infrastructure, point of sale network, creditable and loyal customer base, etc.

Especially in Europe in the past several years telecommunication operators have begun to seek market consolidation through mergers within the mobile sector. Reducing competition is seen as part of the solution to curb the recent negative financial development. When there are fewer payers on each market, but not less than three, it is very likely the price to stabilize and in turn the financial performance. The long-term goal would be to have four to seven major Telecommunication Groups that oversee operations within each country in the European Union. Such consolidation would also allow companies to harmonize their cost structure, organizations, and market effort similar to the US and Canadian markets. Moreover, it would be possible to stabilize or improve the current EBITDA margins. As of end of 2014 operators within the European

Union achieved EBITDA margin of around 25% while in Europe the margin is around 30% lead by Eastern Europe markets at about 39%. Few markets in this region are not within EU such as Belarus, Ukraine and Russia where margins reach a level of around 45% for 2014. These particular markets have not experienced high regulatory intervention compared to the European Union while still managing to achieve high penetration rates for mobile services as shown above in table 1.

Table 3: EBITDA margins by region

	EBITDA Margin		
Region	Q1, 2010	Q1, 2012	Q1, 2015
World	**36.93%**	**33.75%**	**32.79%**
Northern America	34.13%	32.54%	35.46%
Canada	43.15%	42.60%	43.40%
United States of America	33.49%	31.84%	34.89%
Europe	**35.18%**	**30.20%**	**28.81%**
Eastern Europe	41.86%	37.80%	38.44%
Northern Europe	26.77%	22.13%	25.46%
Southern Europe	36.90%	32.56%	29.97%
Western Europe	35.78%	31.16%	24.90%
European Union	**34.54%**	**29.08%**	**26.43%**

Source: www.gsmaintelligence.com

Table 4: Telekom Austria Group, mobile termination rates glidepaths by country

Glidepaths for mobile termination rate
in Eurocents

	Jul-12	Jan-13	July-13	Nov-13	Jan-14	Jul-14	Sep-14	Jan-15	Jul-15
Austria	2.01	2.01	2.01	0.8049	0.8049	0.8049	0.8049	0.8049	0.8049
Bulgaria	2.70	2.35	1.18	1.18	1.02	1.02	1.02	0.97	0.97
Croatia	4.00	2.61	2.54	2.54	1.69	1.69	1.69	0.83	0.83
Belarus	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Slovenia	3.52	3.24	3.24	3.24	1.05	1.05	1.05	1.05	1.05
Republic of Serbia	4.68	4.20	4.20	3.72	3.46	3.46	3.46	3.01	3.01
Republic of Macedonia	6.50	6.50	6.50	1.95	1.95	1.95	1.46	1.46	1.46

Source: 2014 Annual Report Teelkom Austria Group & Q2, 2015 Report

Mobile regulation proves to be another field of concern for telecoms around the World particularly in the EU. It is evident that it has negative correlation to the overall financial performance of the sector. In general, regulation framework focuses on low termination rates

between mobile and fixed networks. This way the base cost of each service decreases to low levels, which also has to be past a long on to the retail pricing for regular mobile service users. The latest development in this field is targeting the roaming pricing structure for mobile usage in foreign countries. The EU commission has approved this year new regulation that would achieve network neutrality within the European Union by June, 2017. Therefore, mobile operators would have to cope with substantial decline of roaming revenue in the coming years as customers would be able to use their full domestic/national allowance (minutes, mobile data, SMS, etc.) while being abroad within the European Union. The preliminary evaluation for potential revenue losses of telecommunication group of companies similar to the size of Telekom Austria Group, with four EU based operations, is more than €170 million per year revenue loss after the full regulation is enforced in 2017 (Telekom Austria Group, Controlling Division July, 2015 evaluation).

Table 5: EU Roaming glidepaths per service

EU Roaming glidepath

Retail (in Eurocents)	Before	July-12	July-13	July-14	April-16	July-17
Data (per MB)	none	70.0	45.0	20.0	domestic tariff + 5*	domestic tariff
Voice-calls made (per minute)	35.0	29.0	24.0	19.0	domestic tariff + 5*	domestic tariff
Voice-calls received (per minute)	11.0	8.0	7.0	5.0	weighted avg. MTR*	domestic tariff
SMS (per SMS)	11.0	9.0	8.0	6.0	domestic tariff + 2*	domestic tariff

Wholesale (in Eurocents)	Before	July-12	July-13	July-14	April-16	July-17
Data (per MB)	50.0	25.0	15.0	5.0	5.0	TBA
Voice (per minute)	18.0	14.0	10.0	5.0	5.0	TBA
SMS (per SMS)	4.0	3.0	2.0	2.0	2.0	TBA

Notes:

1. * Sum of the domestic retail price and any surcharge applied for regulated roaming calls made, regulated roaming SMS messages sent or regulated data roaming services shall not exceed EUR 0,19 per minute, EUR 0,06 per SMS message and EUR 0,20 per megabyte used. Any surcharge applied for calls received shall not exceed the weighted average of maximum mobile termination rates across the Union.
2. ** Upon entry into force of the new Regulation, the Commission shall initiate a review of the wholesale roaming market with a view to assessing measures necessary to enable abolition of retail roaming surcharges.
3. Source: 2014 Annual Report Teelkom Austria Group & Q2, 2015 Report

In addition to the on-going consolidation in the sector mobile companies have looked to acquire fixed services operators or alternative converge players. The former cluster of companies offer regular fixed services such as voice, internet (LAN or optic fiber), and cable TV. These are usually domestic fixed incumbents previously stated owned with well-developed national fixed infrastructure, which is one of their biggest assets. While the later type of enterprises focuses on

providing IP based services utilizing mobile and fixed networks. For example, IPTV, IP voice, satellite TV and many specific services for business customers (Software As A Service, WiFi based localization services, data VPN, etc.). Therefore, in order to offset the financial underperformance in recent years mobile operators have targeted to acquire both types of companies. New products and services for their residential customers and solutions that are usually customized for the business market. As a result of this effort mobile operator are trying to position themselves as full telecommunication providers with wide range of mobile and fixed services.

Due to having variety of products, services and solutions telecoms saw the opportunity to increase customer "stickiness". It became very popular term over the mergers and acquisition period of time since 2010. This means that one customer acquires several different mobile and fixed services from one vendor for a period of one or two years. This is relatively straightforward process for mobile operators as they have already established relationship with their existing mobile customer base. Therefore, buying mobile voice and broadband data together with fixed fiber optic internet with IPTV service help customers satisfy their telecommunication needs with one stop at the local full telecommunication provider. The most common marketing tool for such set-up is bundle of several different services together for one fixed monthly fee for a period of two years. That way the telecommunication company achieves high service stickiness as well as high opportunity cost for the customer to leave its full telecommunication provider.

Overall on one hand, there are number of large telecommunication groups, who adopted the above outlined strategy for their international operations in order to begin the transformation into full telecom provider. One such example in Europe is Telekom Austria Group, which began offering fixed services in addition to their mobile positioning on their Austrian, Croatian, and Bulgarian markets. While on the other hand, several companies with good financial stability and the right market situation moved forward with investment in fixed infrastructure with gradual fixed footprint growth. Deutsche Telekom is one prime examples that selected to invest billions of euros in new modern fiber optic infrastructures for its home market Germany. It covered within three years 10% of the domestic market households with a target to achieve five million

IPTV customers by the end of 2015. (Deutsche Telekom web-site: http://www.telekom.com/media/company/60526).

The first strategic approach offers the benefit to gain fast market entry and to realize substantial operational synergies. Therefore, there are number of major considerations that have to be evaluated and planned carefully. One being the corporate culture and organizational set-up of the two entities. Usually traditional telecommunication providers are enormous structures with great appreciation of procedures, process and order. While alternative converge players tend to be very agile and fluid organizations. Being responsive to customer needs and having quick turnaround of service delivery has helped them achieve double digit growth for better part of their existence.

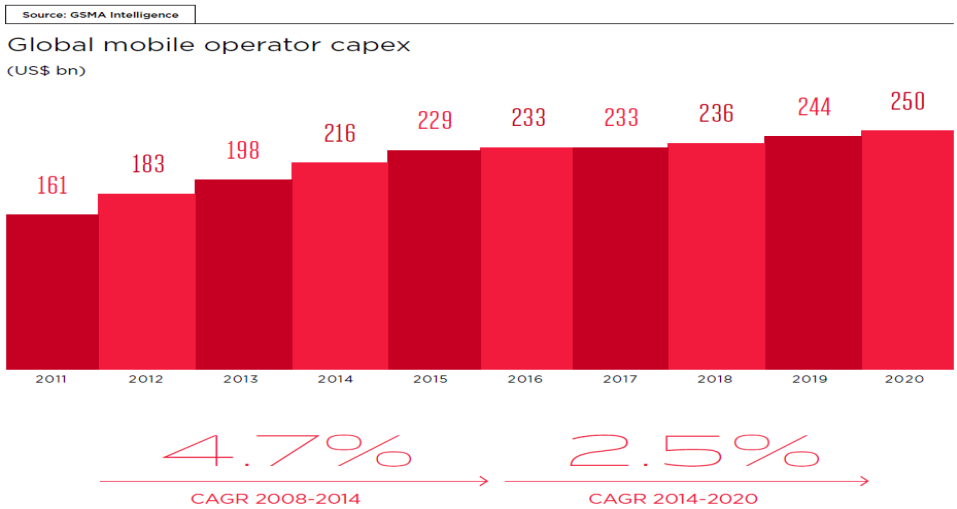
The other strategy is more tactical with more focused long-term planning on the bases of gradual learning and development. It transpires from the understanding that mobile services are operated and managed completely differently compared to fix and IP services. Also, the nature and set-up of these new business lines demand different organizational structure. Hence, targeting areas with known potential for fixed services, region/area with high customer density, would justify the initial investments into fixed network infrastructure and could be used as a pilot to understand and establish best practices associated with the new operational model. Another consideration would be that IP based services require high bandwidth, which is provided by modern IP networks such as GPON fiber optic or advanced LAN networks. Both technologies are not available within the fixed networks of state owned incumbents, which would require significant funds for modernization on-top of the acquisitions cost. While alternative converge players with well-developed advanced IP networks would be acquired at a premium prices because of their combination of market presence and technology.

Over the past ten years the great positive trend of e-commerce and the ever growing content on the Internet space has created a need for mobile customers to have also mobile broadband service as part of their standard mobile voice offer. The abundance of information and content

in scaled format for mobile devices as well as the constant innovation in the field of smart devices (phones and tablets) have ignited this need for mobile internet access. Moreover, the quality of the mobile experience from device stand point of view has become equal or even in some cases better compared to laptops and desktops. Even though computers could not be fully substituted by these smart devices for some activities such as document processing there are a lot of software companies dedicated to developing software for such activities on the go. Overall without any exception mobile broadband for smartphones and tablets steadily became new revenue opportunity for telecommunication providers.

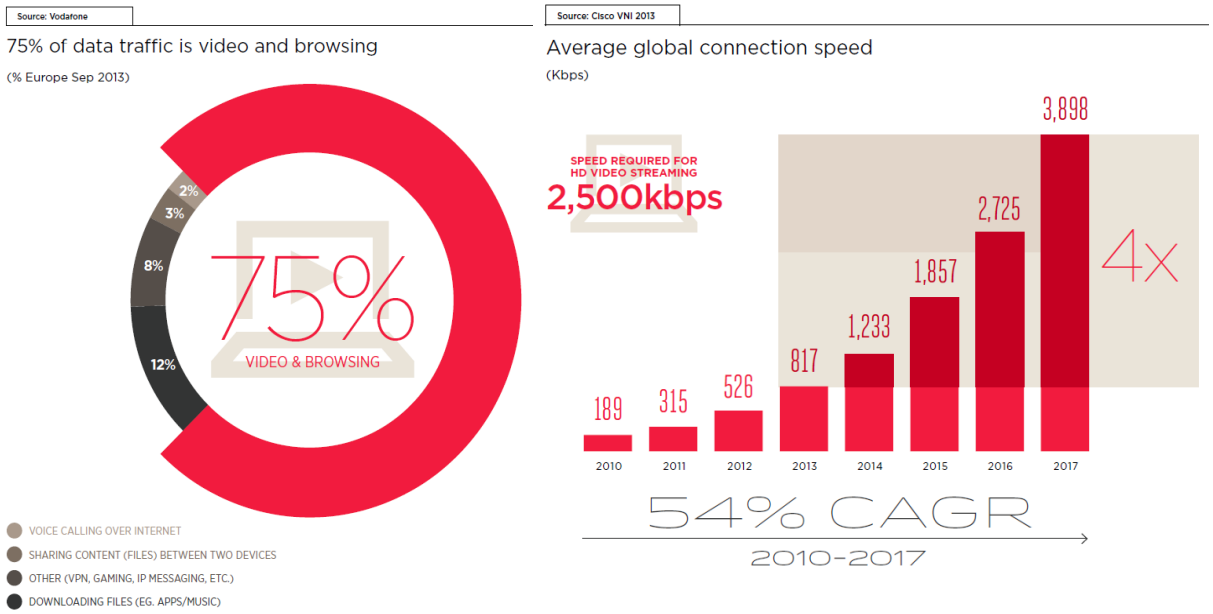
Monetizing the mobile network capacity for data usage was a straightforward process at the beginning of the new trend as there was minimal data usage. Unfortunately, telecoms quickly were faced with need to invest heavily in new technology and spectrum capacity, because of the increasing interest and data volume per user. Moreover, availability of radio spectrum and advance network technology have significant influence on the customer experience and satisfaction. Having competitive mobile network is continues process that involves long-term strategy, dedicated funds and careful financial planning. Similar to the mobile devices evolution the mobile network technologies advance with short innovation cycle therefore quick become outdated. The general goal around the World is to have the fastest and most reliable mobile network with the best overall coverage. The latest trend in this field is deployment of fourth generation mobile networks that could provide Internet speed around 100 Mbps.

Figure 2: CAPEX forecast



The growth of the mobile coverage has added more people to the potential target market for mobile broadband service. Meanwhile, internally mobile operators or by now full telecom providers have restructured their mobile service portfolio. The main mobile proposition offered "smart" tariffs that include regular mobile voice service and mobile broadband allowance (megabytes or gigabytes depending on the needed volume by the customer). In turn, the strategy is to convert pure mobile voice customers to "smart" mobile customers by using the unique selling propositions of different innovative device and the sheer content available on the Internet. The two most popular content types are media/video streaming and general web browsing, which make-up large amount of the total mobile data usage by customers. It is also important to note that they are the most volume heavy data types as the quality and size varies from one video or website to another. Websites are built to use high resolution images that also contribute to the exploding mobile data usage. Hence, the recent analysis by Vodafone shows that these two types of content represent 75% of the customer data traffic mix within their customer base (GSMA, The Mobile Economy 2014, page 18).

Figure 3: Data traffic & connection speed



The new potential mobile broadband market was also interesting to telecoms as it demanded higher price compared to the core voice service. It is still the case that customers using smart tariffs generate up to three times higher monthly bill compared to voice only users. The trend

defers between operators, which mainly depends on the state of the domestic market. Similar to the development of any other service in the industry it endures increasing competition and regulation especially while roaming. Hence, smart ARPU also has seen a negative development trend, but the significant customer growth has contributed to overall total smart revenue growth across the industry.

1.2. Effect of Over The Top enterprises on Traditional Telecommunication Providers financial performance

Admittedly, the internet and the steady growth of e-commerce and m-commerce ("m" for mobile) over the past fifteen years have aided to the emergence of the OTT industry. In the heart of each Over The Top company lie services that are based on the communication between people using modern Internet (IP) based platforms (applications/software) and content for sharing and viewing. On the other end of the spectrum full telecommunication providers provide the communication infrastructure with limited customer related content. TV related services are the only proposition by TTPs that offers some content, which it is quite often region specific (rights to different channels and films). Library of films and music videos as part of a video on demand services is the only content available to customer in IPTV offering, but it is static and most often old. Therefore, mobile operators in particular have become the enabler for OTTs to grow on top of the regular mobile services offered by them exploiting the mobile and fixed connectivity evolution over the years.

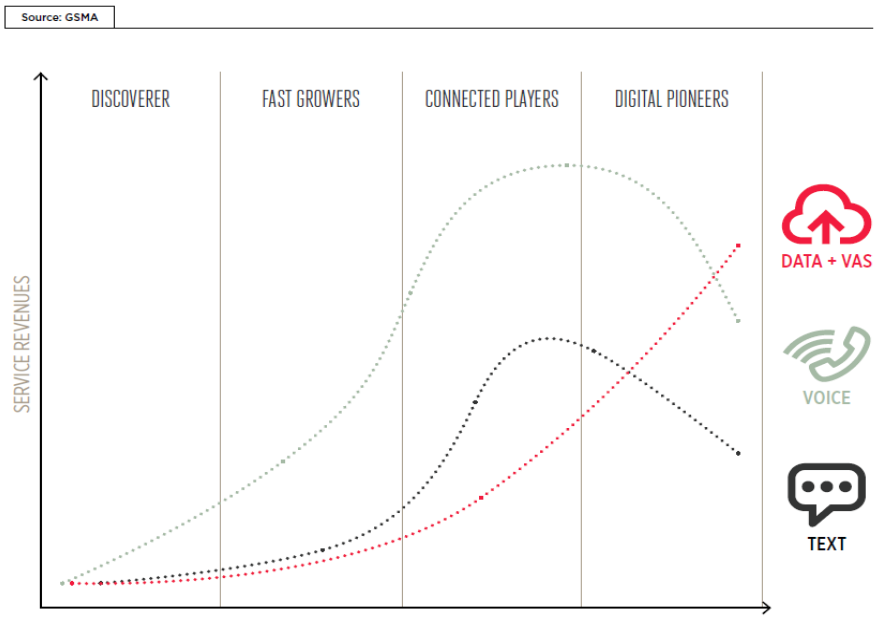
It is safe to say that everything began in the mid-90s where an Israeli company developed instant messaging computer program ICQ (I Seek You), which provided one-to-many messaging/conversation environment under different groups based on people interests. Since then number of new platforms or software based applications have entered in the instant messaging area. Initially the goal was to offer different and appealing method for messaging between people using computers. Connecting people around the World in the convenience of their homes or work place was the core service that effected little the mobile or fix services

operators. Possibly there was some minor effect on revenue from international calls on the part of TTPs, but it was not significant enough for them to pay close attention to this development.

Once the platforms for messaging services were in place OTTs focused and dedicated a lot of resources to make them more appealing and different to the traditional ways for communication. Hence, the innovation of IP voice on top of the messaging platforms followed soon after where two or more parties could establish voice connection using their home or office internet access as pure connectivity. Again it was initially limited to computers in stationary environment (home or office). These services had the same core features as sending a regular text message or making a voice call, but eventually the appeal part of the OTTs focus came into play. Options for personalizing, sharing content and being able to express real life emotion are the driving force behind the success of Skype, Viber, WhatsApp and Facebook Messaging. As competition grew these services advanced over a very short period of time and IP based video calling was next natural step forward.

Meanwhile, the full reliance of telecoms on mobile network vendors saw them spend a lot of funds in the mid-2000s on third generation networks. The flagship feature of these networks was video calling, which mainly was used to promote the new networks and to recuperate some of the initial investment. Hence, the cost of video calling was significantly higher than standard mobile voice service. In addition, people had to purchase the first generation of smartphones again at relatively high price compared to other “feature” (basic) mobile phones. This particular set-up, service pricing and device limitation, for several years dragged along the adoption of the third generation networks and the service never took off as mainstream proposition. The networks were designed for higher Internet speeds that could be used for new services such as video calling and pure mobile broadband connectivity.

Figure 4: Service revenue development

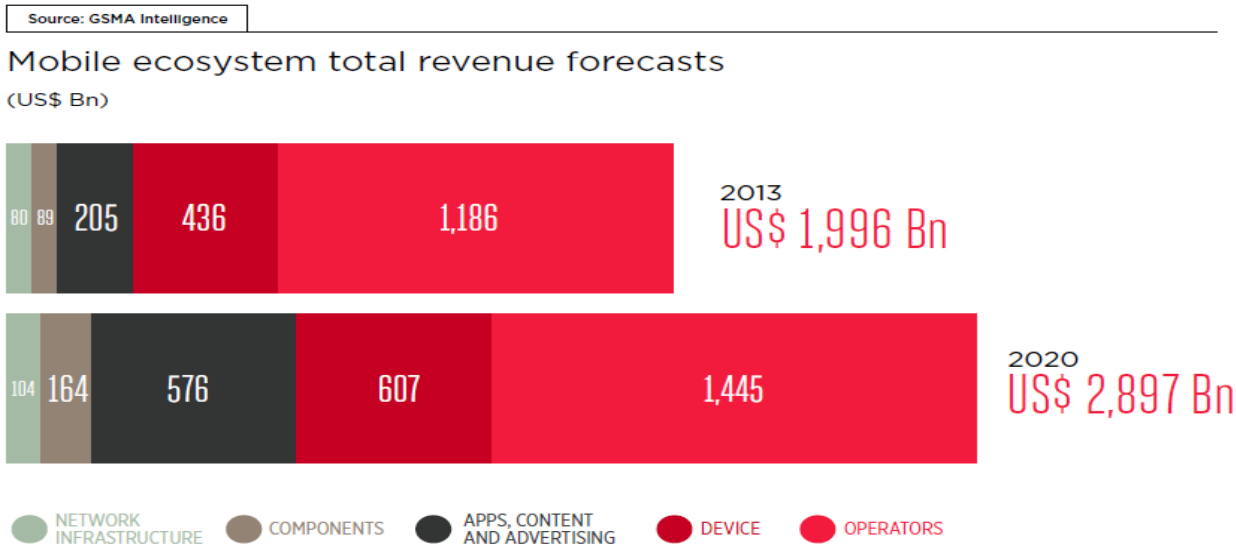


The technical capabilities of third generation networks were the foundation for all Internet content to be optimized and offered on the small screen of smartphones and tablets used by mobile end-customer. While the mobile devices were evolving from technical and pricing perspectives it was very easy for telecoms to focus and push pure mobile broadband connectivity (data SIM cards) for laptops/notebooks. This was the opportunity for Over The Top companies to add some mobility perspective into their stationary solutions that demanded relatively good Internet connection offered by fixed Internet providers. For example, Skype could be used on the go as well as all video content available at YouTube could viewed beyond the desktop at home. The lack of strategic evaluation of the broader mobile ecosystem and the fixation on providing great mobile connectivity helped telecoms fall behind the market trends and become connectivity pipelines.

There are three main revenue pillars of the broader mobile ecosystem, advertising, content, and software for mobile devices (applications) all part of the core strategy of any OTT. The later pillar has the biggest growth potential, from one side the developers of this applications part of the computer science industry and from the other side the content that it is offered using the applications. Therefore, this particular trend has further contributed to the e-commerce

evolution and the transition to m-commerce. On one hand applications could be offered for free as supplement to regular services (e.g. banking and insurance) or free with some particular content that could generate significant customer traffic (e.g. Skype, Viber, YouTube, Facebook). That customer traffic in turn could be monetize through third party advertisements and/or customer data gathering for future product and service targeting. On the other hand applications are developed with particular revenue generation model in mind. Moreover, they are used as a portals for offering different products and services (e.g. Amazon, eBay, Apple AppStore). According to the GSMA Intelligence division revenue in this particular sector of the overall mobile ecosystem would grow at 16% rate per year by 2020 to reach a total size of $576 billion (GSMA, "The Mobile Economy 2014", page 32).

Figure 5: Mobile ecosystem revenue forecast 2020

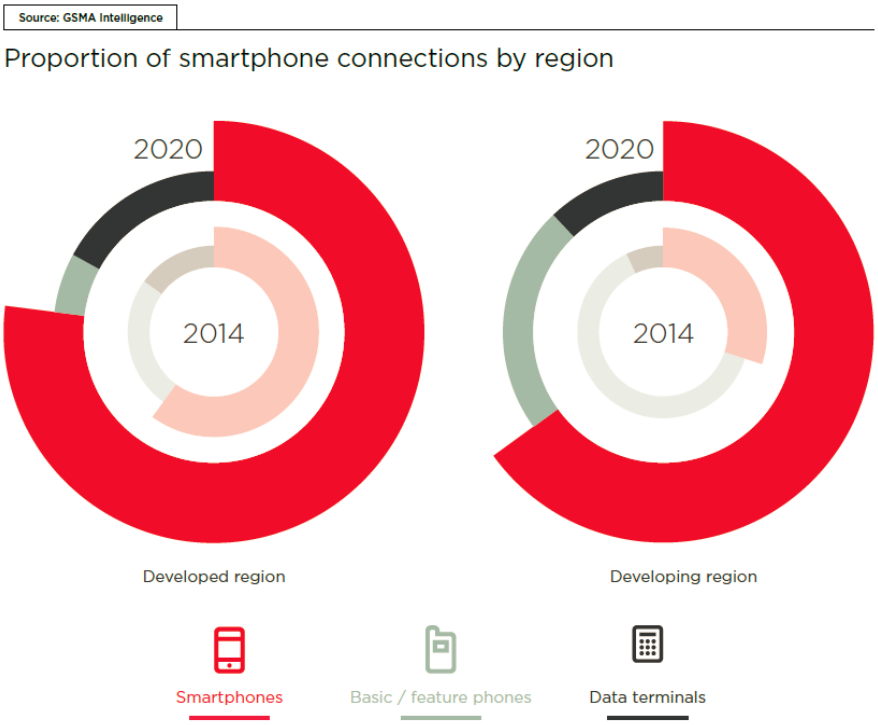


As previously outlined most markets around the World have reach high penetration for mobile services with pure mobile voice being the driver. Having reached saturation levels for voice services in developed countries, around and in some countries well above 100%, operators have looked in the direction to sell standalone mobile broadband connections and smart tariffs with higher ARPU as way to monetize data services growth. Mobile broadband connections have rapidly evolved from over 200 million subscribers in 2008 to over just under 2.5 billion by the end

of 2014 (GSMA Intelligence database). Penetration of these services is slightly below 40% for 2014 with projection to reach a level of around 70% by 2020 (GSMA, "The Mobile Economy 2015", page 10). This trend could be perceived as double edged sword for traditional telecommunication providers as they try to increase revenue from new services and to pay-back their huge investments in new third and fourth generation networks, while growing exponentially the approachable market for over the top companies, who with their services cannibalize core revenues of traditional telecommunication providers.

For a period of six years before 2015 mobile operators around the World have invested more than $1 trillion to roll-out networks with high Internet speeds, more capacity, and better territorial coverage (GSMA, The Mobile Economy 2014, page 20). Mobile device vendors, who continuously tried to offer very affordable devices also support telecoms to further expand the Internet data connections market. At the end of 2014 in Europe smartphone adoption rate is 51% and in North America it is at 70% (GSMA, The Mobile Economy 2015, page 13). According to a survey done by CISCO in 2014 smartphones generate 37 times more data traffic compared to regular/feature phones, while smartphones in the most advanced fourth generation networks generate three times more data traffic compared to smartphones in third generation networks (GSMA, The Mobile Economy 2015, page 15).

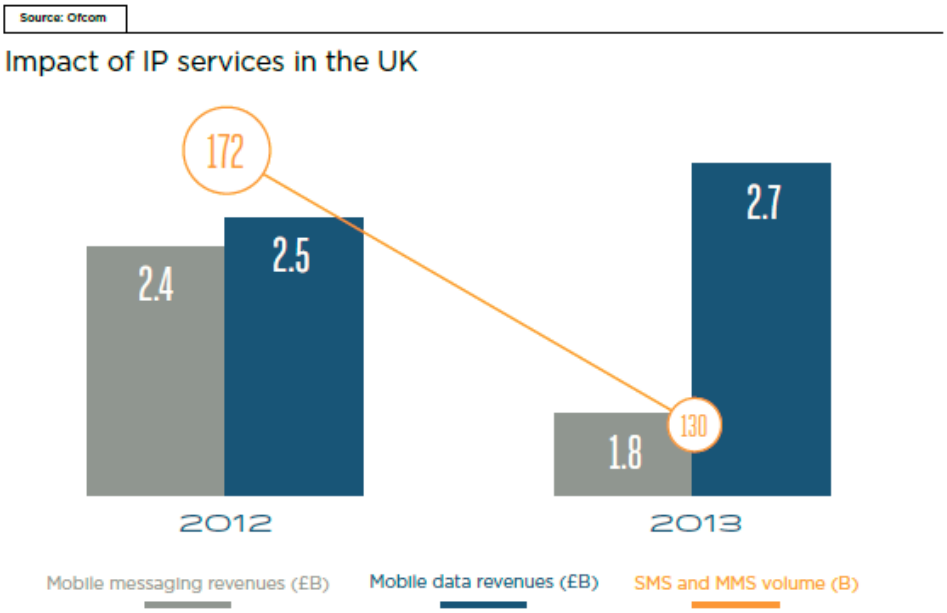
Figure 6: Smartphone connections growth 2020

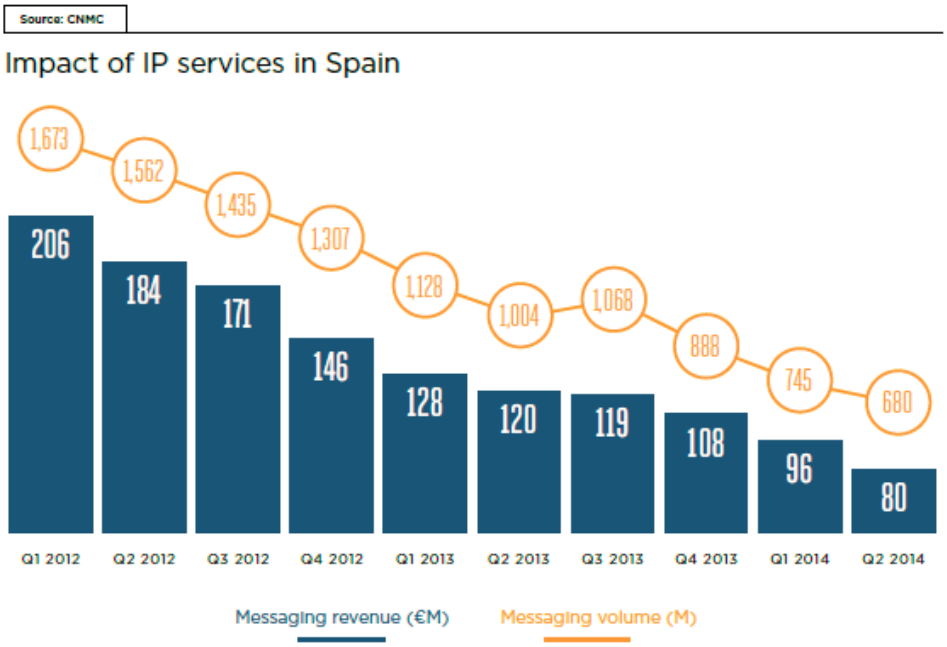


It is IP-services (voice, messaging, and content) by Over The Top companies also known as Order Management System providers (OMS) that have taken full advantage of the era of the smartphones and tablets together bundled with advance mobile and fixed networks for great broadband connectivity experience. For just over five years WhatsApp instant messaging and file sharing application for smartphones has achieved more than 800 million monthly active subscribers with more than 30 billion messages sent every day. According to Ovum research and analysis report "Consumer OTT VoIP Outlook: 2013 to 2018 forecast" the global telecommunications industry for the period between 2012 and 2018 would lose $386 billion of revenues to all IP based services offered by the likes of WhatsApp, Skype, Viber, Facebook and others. The main impact comes from International and roaming calls that have higher profit margins compared to basic services such as text messaging and domestic calls, but as well under major jeopardy. Mainly due to the fact that basic services have higher volume with high overall revenue contribution. "In the UK, Ofcom reported that messaging volumes fell 24% in 2013 and messaging revenue slightly more (25%), a loss of revenue terms of about £600 million only

partially compensated by higher data revenues of £200 million. In France, ARCEP data shows that despite a modest 3% annual rise in messaging volume in the second quarter of 2014, revenue attributed to does messages fell by 4.4%. In Spain CNMC reported the messaging volumes fell by 32% YoY in the same period, with messaging revenues falling by slightly more that 33% YoY." (GSMA, The Mobile Economy 2014 Europe, page 25)

Figure 7: Mobile revenue UK & Spain





2. Strategy design for innovation and intrapreneurialship[1] at established companies

2.1. Sources of innovation: corporate foresight, collaboration strategy, exploration and exploitation

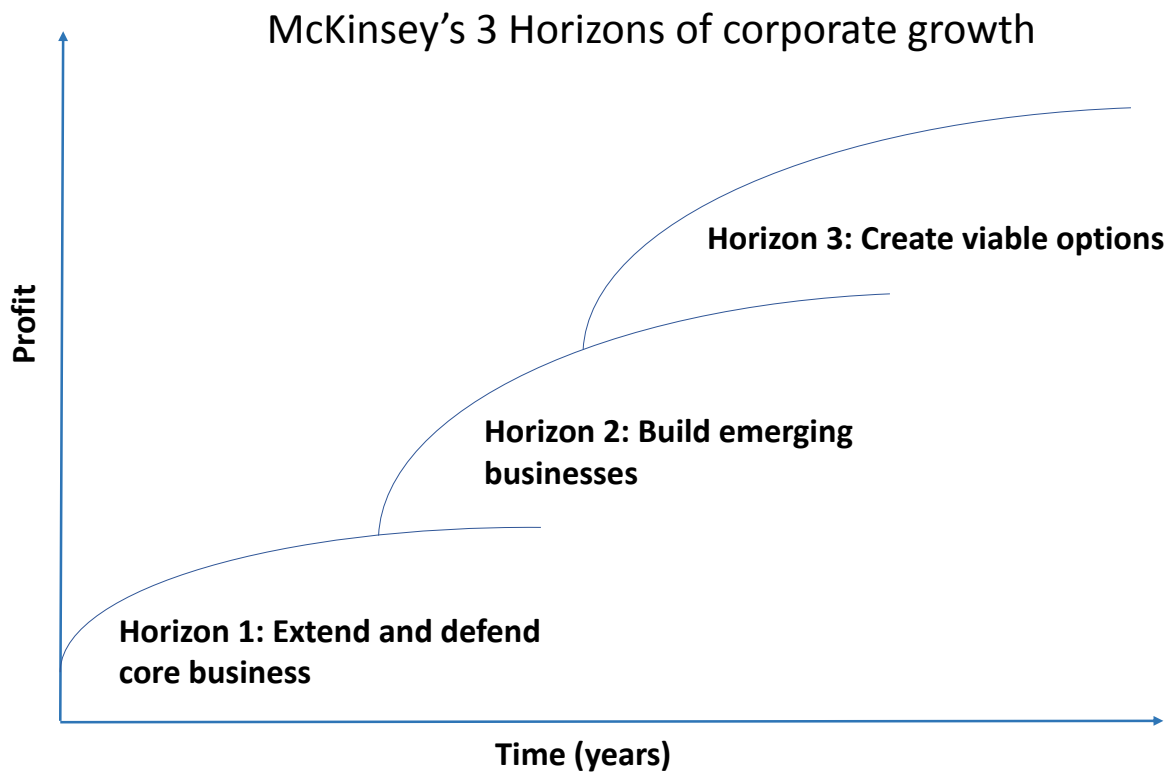
The process of building awareness of the environment or the arena one company operates in and not developing complacency over time closely relates to the evolution of an individual's life. People physically grow and transition as they mature while along this process they learn and enrich their inner sole to develop as unique individuals. In both communities of the World society, companies and individuals see their existence and life take different turns as way to realize their beliefs and potential. To great extent the telecommunication industry is on the other end of the spectrum where it has focused fully on its' core services and products, which limits the opportunities for diversification, growth, and evolution. Moreover, it is by many perceived to have silo nature with limited vision about the future that does not correlate to the outlined evolution process. Hence, the industry as a whole is missing long-term strategic view or corporate foresight that could look 10 years or more into the future. There are many reasons that have contributed to these qualifications, some of which were covered in the previous chapter, but the more obvious reasons are the general management stereotypes or "executive culture" driven by focus on short-term financial performance and the second one being the "engineering culture" that dictates the core technologies. According to Edgar H. Schein (Sloan Management Review/Fall 1996) the third corporate stereotype is the "operator culture", which is developed over time, but mainly influenced by the other two and the success of an organization. Therefore, there is a need to develop new awareness and competencies in the "executive culture" and the "engineering culture" in order to reposition the telecommunication industry on the evolution path.

The executive level does not need particular new competencies to foresee the market needs or trends in the near or far future. It needs to build a corporate strategy and organization that would generate the needed information to make a strategic decision with the long-term perspective in mind. Also, it has to be clear to the top managers that the rules associated with a long-term strategy are different to the short-term financial goals that drive most mature industries. In other

[1] Intrapreneurship is the act of behaving like an entrepreneur while working within a large organization.

words, short return on investment and high margins, similar to the core telecommunication services, should not be always used as benchmark for new products or services that in some case may not even have clearly identified or sizable market. At the same time large organizations could take advantage of their large scale of operations that provide an opportunity to achieve better economic terms for the new products and services. In addition, such awareness should help them provision for potential downfalls and to build into their new long-term plans longer time tolerance for each new opportunity on the bases of their current stable core market and revenue. In other words, companies need to embrace uncertainty by acknowledging that not all new ideas would be successful immediately or even ever after market introduction. All these concepts are completely different to the current approach in the telecom industry that fully relies on market or customer pull for mobile or fixed services. Therefore, over the past twenty years the industry has fully avoided collaborations and partnerships with companies from adjacent industries for possible technology or product push with long-term perspective in mind.

Figure 8: McKinsey's 3 Horizons of corporate growth



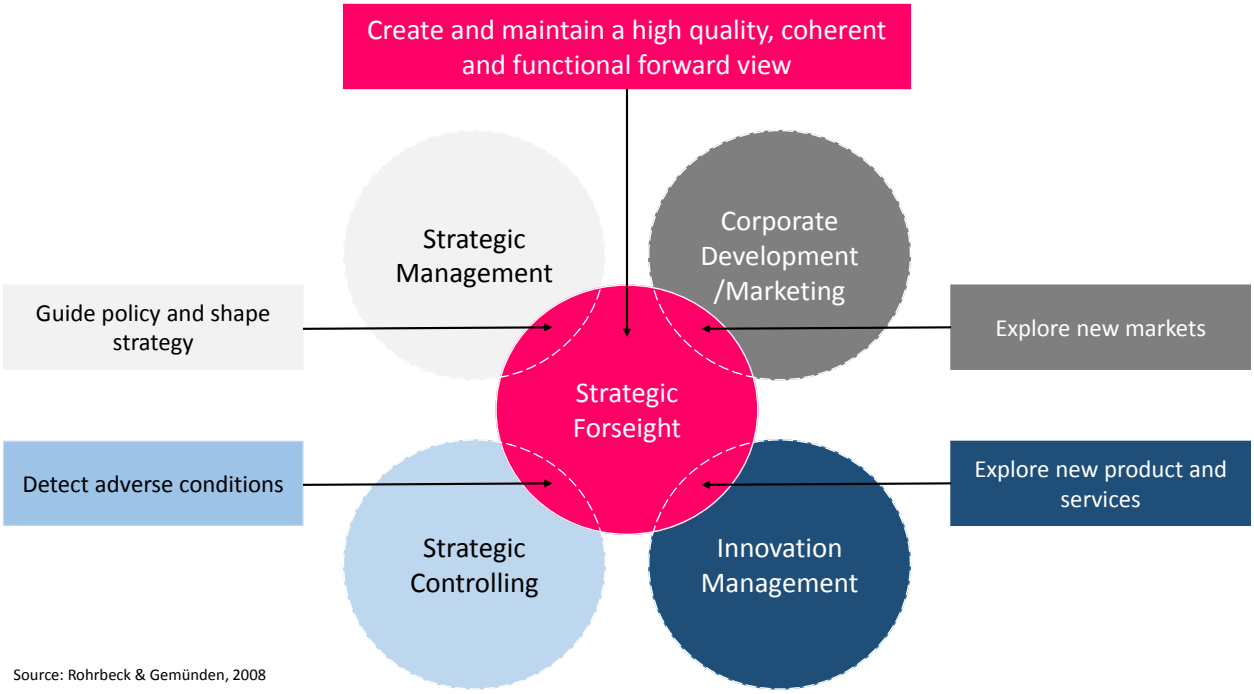
Source: The alchemy of growth, Baghai, Coley & White (1999)

The principles of corporate foresight and building into the strategy time periods or horizons as shown in the "McKinsey's 3 Horizons of corporate growth" builds corporate awareness for future growth or evolution by uncovering new opportunities in addition to the core focus of one company. All three horizon periods should be identified and considered with equal weight at the beginning of the process of developing the long-term strategy of any company. The approach and tools needed for each individual horizon may be different and depended on the industry of operations as well as the goals set by the company. While there are common themes associated with each horizon that define the time period focus.

Horizon 1:

This particular horizon has the main focus to avoid potential discontinuation of the core products and services offered by one company by optimizing its operations and managing actively the financial performance. Usually, due to intensifying competition or maturity of the product revenues are decreasing and with limited growth perspectives. It is at this stage that I believe one company masters the concept of market or customer pull. For example, telecoms are in the mobile or fixed connectivity business where they are led by customers to offer machine-to-machine services as a new market for their core connectivity service. Moreover, it is a service that possible requires minimum additional investment and other resource to have new proposition on the market. Similarly, Internet of Things is the next such wave where telecoms would expand on their current premises to offer pure mobile or fixed connectivity without adding significant value to these services. Third party vendors, who are usually corporate customers of telecoms, are the drivers behind the designed and developed of these new services in the growth field of Internet of Things. Such services at this strategic horizon most often bring marginal profitability due to the maturity and competitiveness of the market. Nevertheless, it is at this stage that one company has to approach strategically the next horizon for building fit organization for the future.

Figure 9: Source of perspective



Source: Rohrbeck & Gemünden, 2008

Horizon 2:

For mature organization it is a challenge to plan and dedicate resources that may not produces profit within short period of time, for example building knowledge about adjacent markets as well as to seek smaller players in the general ecosystem that could help them add corporate value. The above illustration presents the potential new and additional perspective that current corporate streams need to develop. More importantly the need to create new corporate fields that would drive the new strategy forward such as “Strategic Foresight” and “Innovation Management”. It is within this particular horizon with mid-term timeframe that one company needs to give an opportunity to its employees to build knowledge about the broader ecosystem of operations as well as to persuade intrapreneurialship mentality. Due to the size of most traditional telecommunication providers it could be useful to split its organization in two. One focuses on exploitation of the lean core services structure in order to sustain its current revenue and profitably. While the other organizational unit has firm understanding of the core business and its specifics with focus on exploration of new ideas and business opportunities. Such

approach is also known as “Structural ambidexterity” where the roles are clearly defined and employees have more focused and specialized experience while the company overall achieves the right balance between exploitation and exploration.

For current employees is usually difficult to move away from the overwhelming focus on nurturing mature services. Furthermore it takes time to trigger the generation of new ideas when knowledge is homogeneous. Therefore, at the beginning there is need to give freedom to these employees to explore new ideas either on their own within dedicated time or particular exploration project. Adopting such ambidexterity methods would support long-term processes such as cognitive flexibility and mental framing that would help promote exploration. When people are exploring beyond their industry boundaries and receptive of new ideas the source of these new opportunities do not influence the decision making process. Hence, the source of a new opportunity could be internal pipeline with exploration dedicated resources or from external collaboration. Being flexible to share potential new revenue streams that create corporate value is very important for one large organization that is on the path of building long-term corporate foresight. Hence, it is vital to set-up an operational model that in some cases allows for external partners to be the drivers of the design and development of new products. The telecom company could play a secondary role in some products, but still take advantage of its size, market and experience.

There are number of benefits associated with collaborations with external partners that could broaden the large company knowledge and horizons. Diversifying knowledge and perspective could lead to uncovering of new markets and more applications for existing or new services. Therefore, it is important for any large organization similar to most telecommunication providers to develop collaboration platform or environment that allows current and future macroeconomic, arena and product trends access its domain of core operations for further evaluation that takes place in the next horizon.

Table 6: Collaboration with external partners

Collaboration with external partners	
Pros	**Cons**
1. Shorter time to market process 2. Lower entry cost 3. Shared risk for product entry 4. Knowledge build-up, learning from partner 5. Increase flexibility 6. Diverse product portfolio	1. Share control 2. Share profits 3. Smaller companies/partners lack corporate history and are vulnerable to external effects such as economy downfall 4. Product/service technology expertise could be focused within few people

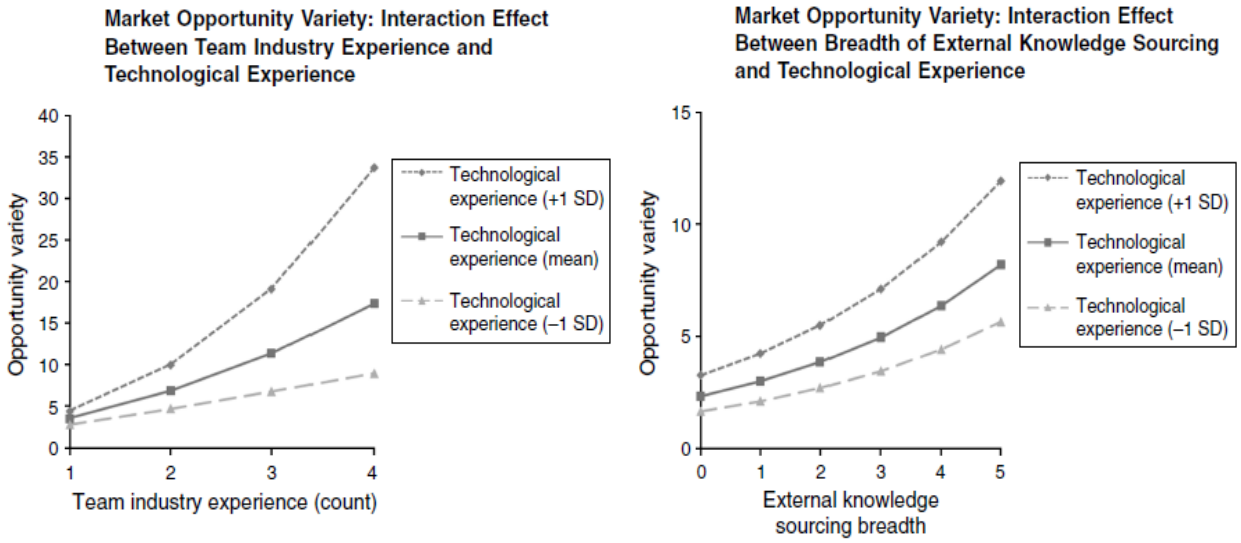
Horizon 3:

It is at this stage in time that one organization begins evaluation of potential new product and service ideas (internal or external). Usually the process is associated with building comprehensive business plan including the financial model that could consider the involvement of external partners. The evaluation should consider all general topics from the set-up of the operational model and the product development to market introduction. Going through this lengthy process and managing to develop a new product/service that sees market introduction could on its own be perceived as major achievement for any large organization. Moreover, it would be a product of long-term corporate planning and foresight set-up that most often than not contributes significantly to the corporate value growth. Also, companies gain competitive advantage that usually is difficult to replicate over a short-period of time by their core market competitors. Another possible advantage could be that there are few initial entrants in the new market, who may not have the support and market reach of a large organization in order to have a sustainable competing proposition.

Through the process of new product/service evaluation and project set-up for market introduction major role would play the particular experience of the responsible teams at the large organization as well as the experience of the external partners/entrepreneurs. In particular, high industry and technology diversity of the involved people has positive relationship with identifying more and variety market applications for one particular product. This relationship has been reviewed in detail by the study of Gruber, MacMillan and Thompson: Escaping the Prior

Knowledge Corridor, 2012 where, the bellow graphs "…clearly indicate a positive moderating relationship between team industry knowledge/external knowledge sourcing breath and technological experience."(Organization Science, Articles in Advance, page 13, INFORMS 2012). In other words, the external partner may have focused understanding of the base technology behind particular product with the belief that its application is limited to one particular customer need. While involving other people in the technology or product evaluation with diverse professional experience would help identify additional product applications and market opportunities. Therefore when setting-up new organizational structure with new innovation management stream and exploration focus it is necessary also to carefully consider team set-up from professional experience perspective.

Figure 10: Market opportunity variety, industry and knowledge



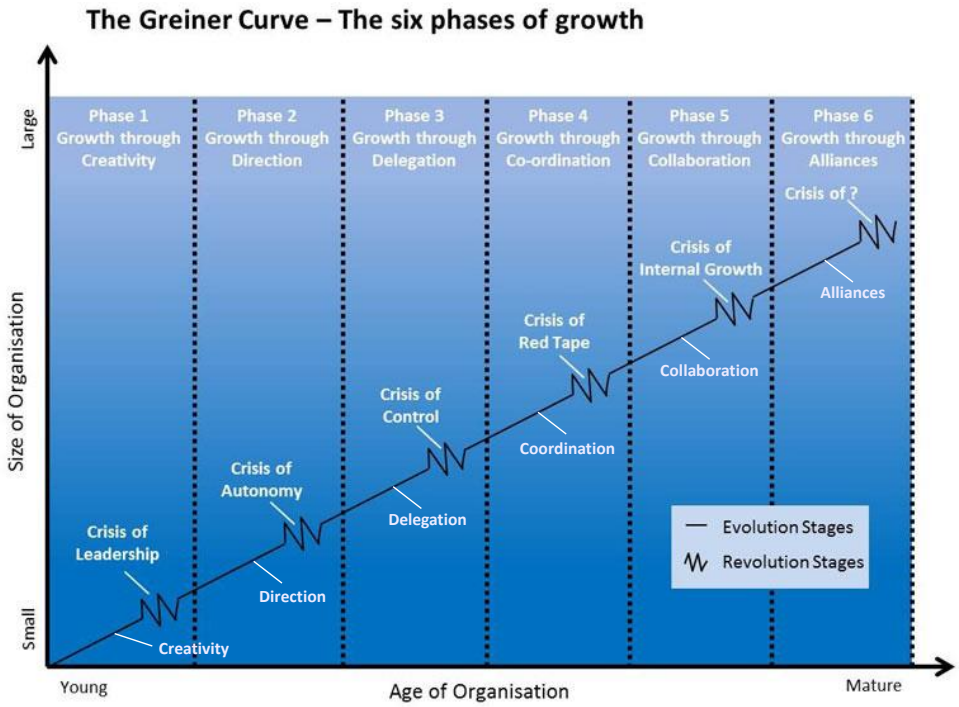
2.2. Organization practices for innovation and intrapreneurialship with agile focus

There two major groups of organization design variables that have impact on the development of one company. The previous section for the most part covers structural components of the organizational design. In particular, variables such as goals, strategy, and structure. On the other hand there are human components of an organization design, processes, people, and incentives that actually have great influence on making one organization move forward. It is correct to say that people are also involved in the set-up of the structural components. Usually these people

are the founders that have initiated the business and the first impulse of the company. Therefore, to great extent it is the responsibility of the executives, of an enterprise with particular purpose, to have vision for the future. The focus and foresight is built into the structural components of the organizational design while the execution is found within the second group of variables (processes, people, and incentives).

According to Greiner Growth Model (1998) along the development of an organization the structural and human components are influenced by number of different dimension. In particular, the age and size of an organization, the industry development as well as two different phases “evolution phases” and “revolution phases” that dictate change in the organization design variables over time. Moreover, the “evolution phases” are associated with undisturbed organic growth while the “revolution phases” are related to facing crises and changing requirements from any perspective or possible change in any of the other dimensions. The later type of phases demand change and new overall organizational practices for running the business in order to approach the next period of corporate development. Hence the executives have significant responsibility to oversee the overall evolution of their organization in the ever changing and evolving surroundings for which they also have to be fit and ready to evolve. As far as the telecommunication industry is concern, the industry growth and the general ecosystem/arena development have had major influence on the organization related trends and effect on the financial performance over the past several years.

Figure 11: The Greiner Curve



"The Greiner Curve" above illustrates organization development as a sequence of six different phases. Each of these phases is associated with particular management style that could contribute to the growth of the organization. As pointed-out previously executives are faced with specific management problems at each stage of the organization development, which need to be solved in order to continue with the organizational growth. The extreme scenario would be for the management of one company to ensure its survival, but such scenario for most part is applicable to small and medium enterprises. It seems that the telecommunication companies have entered into phase five "Growth through collaboration", but are still struggling to overcome the major problems in relation to the revolution crisis "Crisis of internal growth". This particular phase could also be connected to the corporate foresight horizon two where it is necessary to adapt the organization structure, internal process and procedures in order to be fit operationally to compete with the emerging competition from Over The Top players. Struggles to change the employee mentality from formal methods and coordinated systems of operations to flexible and cross-functional team-work have prolonged the evolution of the telecoms.

The following are most of the characteristics of Phase 5 evolution, which focuses more on flexible and behavioral approach to management.

- A matrix-type structure is frequently used to assemble the right teams for the appropriate problems.
- The focus is on solving problems quickly through team action.
- Formal control systems are simplified and combined into single multipurpose systems.
- Teams are combined across functions to handle specific tasks.
- Staff experts at headquarters are reduced in number, reassigned, and combined into interdisciplinary teams that consult with, not direct, field units.
- Educational programs are used to train managers in behavioral skills for achieving better teamwork and conflict resolution.
- Economic rewards are geared more to team performance than to individual achievement.

All of these characteristics and actions of Phase 5 of the Greiner Growth Model all tackle the evolution of one company into an established large enterprise and its' associated organizational disadvantages. It is necessary to go through this process in order to become more flexible and fast similar to the emerging new competitors that are or behave as start-ups.

Characteristics of large companies and most telecoms:

- Strategy: top-down without sufficient involvement of second tier managers and expert employees
- Focus: efficiency increase and cost minimization, while missing on innovation opportunities
- Hierarchical organization, bureaucratic and long decision making process
- Over time the company has accumulated expensive and influential administration
- Incentive systems are focused on operational excellence without rewards for new and innovative ideas
- General staff is frustrated and demotivated due to inflexible process, routines and little leeway for own ideas

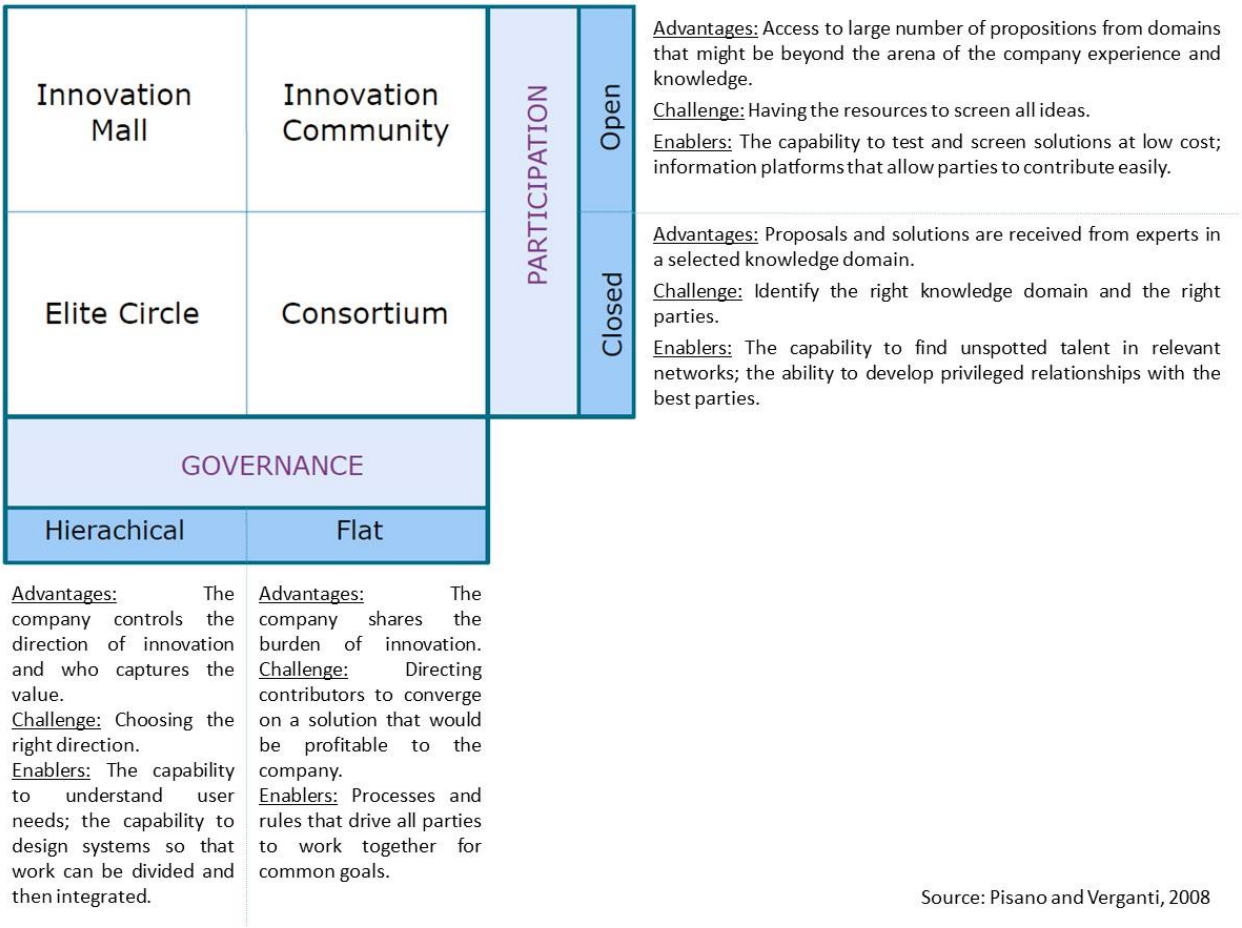
There number of possible routes one company can take in order to evolve and survive the internal crisis revolution moment. Interestingly, all of these routes have the common theme, the need for the organization to open-up to new ideas, internal or/and external, and to be prepared to execute them in swift and responsible manner. Creating intrapreneurship environment and attracting employees with similar traits could speed-up the process of change and corporate growth. “Intrapreneurship is entrepreneurship within an existing organization. It can be defined as process by which individuals inside organization pursue opportunities without regard to the resources they currently control.” (Svenson and Jarillo, 1990) Therefore, the structural components of the organization design require a mission statement that focuses on new opportunities and ventures in order to build organizational practices to create and nurture intrapreneurship environment. For example, 3M Worldwide has defined its organizational focus by stating, “Corporate policy and processes create a climate of private freedom and trust, mistakes are not punished.”

3M Worldwide is a good example of a company that has managed to overcome the crisis of phase five of the Greiner Growth Model and establish growth foundation for the next phase. It has applied several organizational practices that have helped the process of change and corporate evolution. Similar to Google and other large organizations it has promoted a rule that its employees need to dedicate 15% of the work time to their own business ideas and projects. All within the corporate environment and also with the support of the corporate resources. Second best practice that reinforces the mission of 3M Worldwide is to have dedicated budget to finance ideas that evolve into business opportunities over time. For example, the 3M Genesis grant program is built to finance employee ideas with investment between $35,000 and $65,000. Some companies drive the process by incorporating in their annual corporate goals new venture specific targets. For example, in the form of percentage share of revenues derived from new products/services or particular number of new products/services being introduced to the market. Adopting similar organizational practices nurture intrapreneurship environment and show the dedication of the executive management.

There are other organizational set-ups to drive generation of new business opportunities, to acknowledge the importance of intrapreneurship and to stimulate employee involvement in the overall process. For example, company-wide gatherings that are solely based on the concept of exploration and problem solving could be an alternative to the other practices. Moreover, it is an event where all employees of particular company come together to share their ideas, evaluate them with their peers and possibly develop a business plan for commercialization. One such example is “The IBM Innovation Jam” where more 150,000 employees from 104 countries participated to contribute at the end of the program to ten new IBM businesses with seed funding of more than $100 million.

Putting together new strategic foresight, organizational practices, and direction to collaborate with external agile partners positions a company to identify new business opportunities and market trends that would support long-term sustainable growth and competitive advantage. Therefore top management has to decide on particular organizational structure that could support the actual execution of the new goals associated with this collaborative environment. According to the work done by Pisano and Vergati from 2008 there are four possible structure that could enable collaborative innovation, ”Consortium”, “Elite Circle”, “Innovation Mall”, and “Innovation Community”. Therefore, on the bases of the industry, company size, and type of crises faced by telecoms it would be suitable to consider implementing the “Innovation Mall” structure. It would provide them with number of ideas and trends that need to be evaluated by their own resources while maintaining hierarchical structure and focus.

Figure 12: Collaborative innovation structures



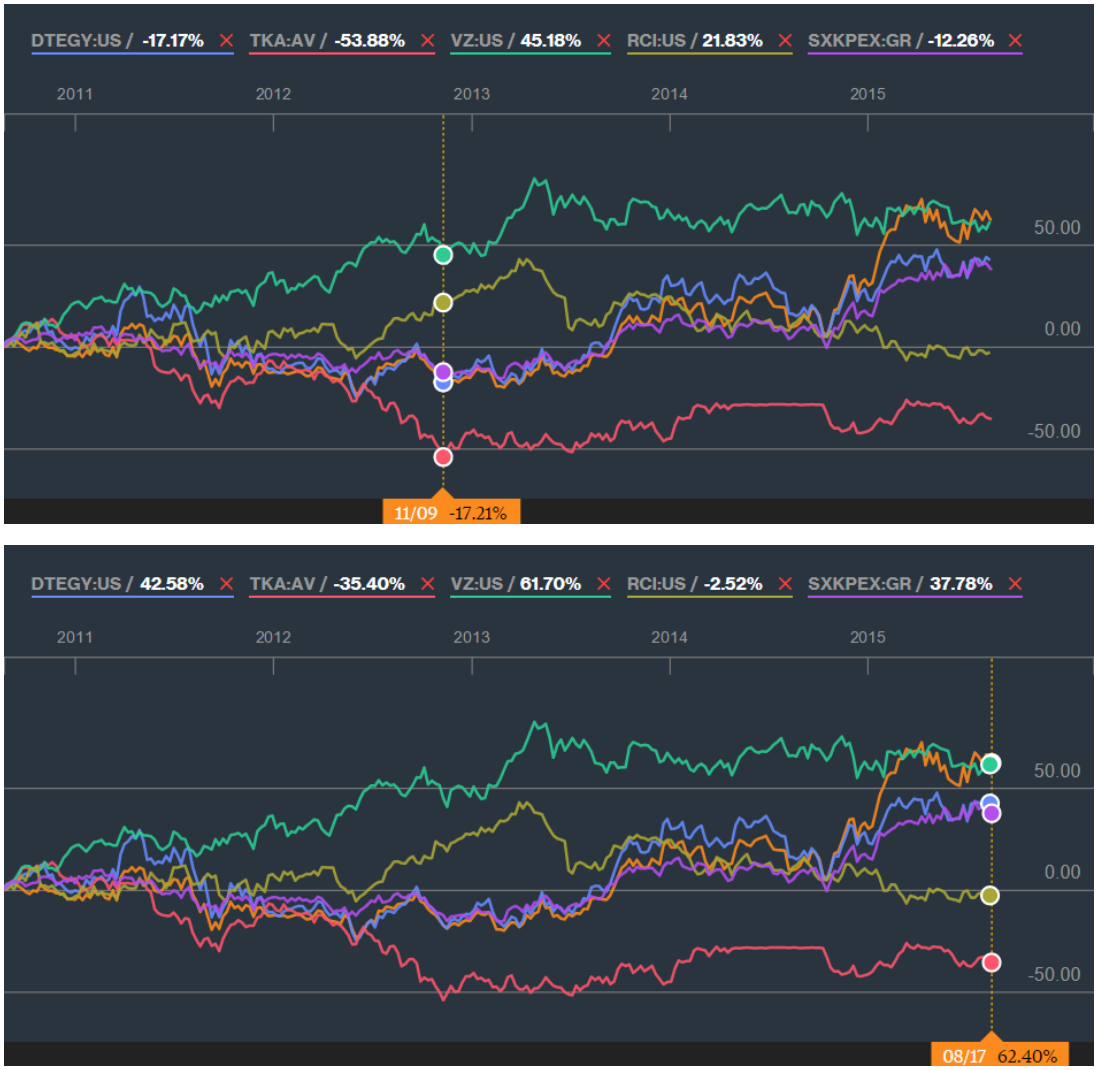
The focal point of the "Innovation Mall" structure is dedicated unit to innovation and execution of the corporate strategy. This internal body should include experts from the commercial and technology areas, who initially need to focus on detailed review all product related internal process and procedure in order to streamline and simplify the journey for developing new products and services. In addition, it would be necessary to establish straightforward procedure for interaction with external partners that could guide and focus all involved employees through such particular process. Once having in place the right procedures this new established unit should become the source for idea generating (internal and/or external), collecting, sharing and supporting through the process of implementing.

High percentage of the success of this new approach lies behind the already mentioned new procedure and process. The idea evaluation and selection criteria should be well defined and made as transparent as possible in order to build process credibility and encouragement amongst employees. In addition, the new business unit should create and oversee cross functional teams that fully support on operative level the evaluation and implementation of the new ideas. Moreover, the business and product experts in the "Innovation office" would have the responsibility to act as gatekeepers of the innovation funnel process. Further, as part of the initial effort to implement the new strategy the company could consider setting-up number of workshops for current employees to understand the new corporate focus and to encourage their involvement in the future process. Financial dedication to the new process would also be strong signal to all stakeholders that the long-term future of the company is considered and valued today. As a result the new governing body would have the financial resources to support innovations and ideas that may turn in time into new cash cows for the company.

3. Traditional Telecommunication Providers Vs Over The Top service providers

3.1. Innovation effort of researched TTPs and financial overview

Figure 13: Stock price development of telecommunication companies



Source: http://www.bloomberg.com/markets/world

The above graphs illustrate the stock development of the four telecommunication companies under review (Deutsche Telekom, Germany; Telekom Austria Group, Austria; Verizon, US; Rogers, Canada) as well as industry specific index for benchmark (iShares STOXX Europe 600 Telecommunications UCITS ETF DE) for e period of five years. Two different time periods are considered in order to provide different perspective of company development and possible effect of emergence of strong over the top players from 2012 onwards. It is obvious that three of the

companies have used the period after 2012 to increase corporate value represented in the positive development of their stock price. While Rogers, Canada and its stock price have produced negative trend for the same time period, 21.83% growth by November, 2012 followed by stock price decrease to -2.52% by August, 2015 for the period of five years. There could be number of reasons for such performance, but overall it has been positive period for them as well.

3.1.1. North America: Verizon Communications Inc. & Rogers Communications Inc.

Verizon Communications, Inc.

The Chief Executive Officer of Version Communications Inc. Lowell McAdam summarized very-well the recent development in the telecommunication industry: "As I read it, the conventional wisdom goes something like this: New entrants are disrupting the wireless and the broadband space. Competition is putting pressure on prices and margins. Customers are relentless and confused about the avalanche of competing claims and pricing plans. All this suggests to investors that growth will be more challenging going forward, and they're trying to figure out which companies have the strategic vision and financial strength to invest, grow and profit over the long term." (Verizon Communications Inc., 2014 Annual Report, page 3) To notice and figuring-out what are the current market trends is relatively straightforward process for any size company, but acting upon these findings draws a line between successful companies and mediocre companies in the long-term. Admittedly, in the telecommunication industry companies have to account for different circumstances such as political and economic environment that may have different impact on the market for their products and services. The North American markets such as Canada and US may have slight advantage over European based companies as their domestic market is relatively large with stable overall environment compared to the major differences between markets/countries in Europe. Nevertheless, telecom services have become a necessity not luxury that dictate the standard of leaving of people and development of businesses around the World.

Verizon as any other telecom has put great emphasis on offering best in class mobile and fixed network infrastructure. This fact is supported by their technical budget of over $16 billion per

year for the past five years used for fourth generation mobile network (LTE) and fiber-optic fixed infrastructure that would support 200 gigabit internet speed. The long-term strategy is to have all around IP-ready mobile and fixed infrastructure that could offer great customer experience. Therefore, as a first step Verizon has developed extensive service portfolio for corporate clients on the bases of the recent technology and industry trends, their technical experience and assets that could be further utilized. This type of customers usually have broader needs related to communication and technology services that in the early stages of development demand higher spending and in turn additional revenue for telecoms. The company has developed dedicated business customer services web site http://www.verizonenterprise.com/ that presents all these new services. For example, application services such as cloud and security; infrastructure services such as data center offerings and contact center solutions; other solution-based services using the IP-networks such as Private IP, PIP Wireless and managed WAN. Having such large service portfolio Verizon positions its self as technology consultant that can take-over the management of all IT and IP related activities of any size company that is looking to focus on its own core business. Moreover, some of these products have been developed on the premises of the company experience and assets. In particular, data center offerings and contact center solutions are a product of the Verizon's knowledge of running their own customer care call centers as well as having their own protected data centers around the World that could be offered to business customers. This is part of the overall operational excellence process where one company has to be well aware of its' tangible and intangible assets in order to put them to work and generate additional corporate value.

It is interesting to point-out that Verizon does not shy-away from industry specific opportunities that could require relatively high investment and partnership with other companies in order to provide new service. The source for similar ideas could be their two Innovation Centers in Boston and San Francisco where they work with product, software and application developers that in turn could take advantage of their network capabilities and assets to produce new generation solutions for regular private consumers or business customers. The face of their innovation effort is the "Verizon Innovation Program" with dedicated micro site www.innovation.verizon.com used

as a platform to share their focus, goals and experience. Their focus has been to identify solutions in fast growing markets such as mobile video, digital media content delivery, data analytics and Internet of Things. The "Verizon Grid Wide Utility Solutions" are interesting industry specific solutions for the Energy and Utility sector that have been developed in partnerships with other smaller companies with sector specific knowhow. Hence, exploration and collaboration allowed Verizon to gain heterogeneous knowledge that contributed to development of new cloud-based smart grid solution for an industry distant to the telecommunication sector.

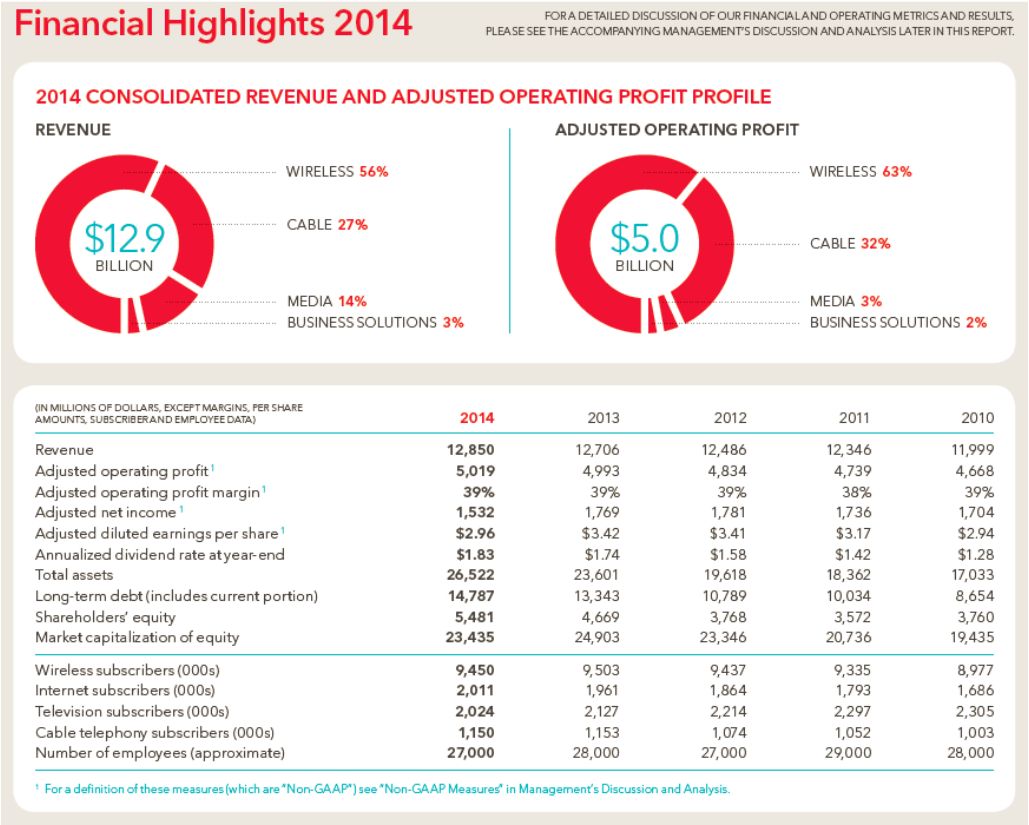
Through number of acquisitions and in particular Hughes Telematics, Inc. in 2012 for about $600 million Verizon has established dedicated service portfolio for telematics and Internet of Things. The related revenue has grown by 45% for 2014 and has allowed the company to establish long lasting relationships with car producers such as Mercedes-Benz and Volkswagen for new connectivity and telematics services. Overall the company has managed to balance between product development in association with external partners and acquisition of new business lines with growth potential. Further, Verizon strives as any other big company to achieve operational excellence therefore through this process it has found an opportunity for its assets to generate additional corporate value. In particular, "On February 5, 2015, we announced an agreement with American Tower Corporation (American Tower) pursuant to which American Tower will have the exclusive rights to lease and operate over 11,300 of our wireless towers for upfront payment of $5.0 billion." (Verizon Communications Inc. 2014 Annual Report, page 10) Such business dealing is relatively hard to achieve on the European market as it is over regulated despite the fact that it proves to be economically and operationally viable. There have been efforts to establish similar approach in Europe under different set-up called "Network Sharing" where two or more operators come together to use one mobile network in particular country while sharing all associated costs.

Verizon Communications Inc. has taken full advantage of the market size in the US and the associated opportunities for organic growth. Having modern and future proof network infrastructure allows them to build long-term strategy that takes into an account the recent

trends and potential future developments. It seems that the future is embraced at Verizon as they are making great effort to gather external experience thought partnerships and target acquisitions in sectors beyond their immediate arena of operations. Moreover, it is supported by dedicated organizational structure and lean product development process.

Rogers Communications, Inc.

Figure 14: Rogers Communications Inc., 2014 financial highlights



Financial Highlights 2014

FOR A DETAILED DISCUSSION OF OUR FINANCIAL AND OPERATING METRICS AND RESULTS, PLEASE SEE THE ACCOMPANYING MANAGEMENT'S DISCUSSION AND ANALYSIS LATER IN THIS REPORT.

2014 CONSOLIDATED REVENUE AND ADJUSTED OPERATING PROFIT PROFILE

REVENUE

ADJUSTED OPERATING PROFIT

(IN MILLIONS OF DOLLARS, EXCEPT MARGINS, PER SHARE AMOUNTS, SUBSCRIBER AND EMPLOYEE DATA)	2014	2013	2012	2011	2010
Revenue	**12,850**	12,706	12,486	12,346	11,999
Adjusted operating profit [1]	**5,019**	4,993	4,834	4,739	4,668
Adjusted operating profit margin [1]	**39%**	39%	39%	38%	39%
Adjusted net income [1]	**1,532**	1,769	1,781	1,736	1,704
Adjusted diluted earnings per share [1]	**$2.96**	$3.42	$3.41	$3.17	$2.94
Annualized dividend rate at year-end	**$1.83**	$1.74	$1.58	$1.42	$1.28
Total assets	**26,522**	23,601	19,618	18,362	17,033
Long-term debt (includes current portion)	**14,787**	13,343	10,789	10,034	8,654
Shareholders' equity	**5,481**	4,669	3,768	3,572	3,760
Market capitalization of equity	**23,435**	24,903	23,346	20,736	19,435
Wireless subscribers (000s)	**9,450**	9,503	9,437	9,335	8,977
Internet subscribers (000s)	**2,011**	1,961	1,864	1,793	1,686
Television subscribers (000s)	**2,024**	2,127	2,214	2,297	2,305
Cable telephony subscribers (000s)	**1,150**	1,153	1,074	1,052	1,003
Number of employees (approximate)	**27,000**	28,000	27,000	29,000	28,000

[1] For a definition of these measures (which are "Non-GAAP") see "Non-GAAP Measures" in Management's Discussion and Analysis.

Source: Rogers Communications Inc. 2014, Annual Report, page 5

On the bases of the financial performance between 2010 and 2014 it appears that Rogers Communications Inc. has progressed and grown as corporation at steady pace. There are no major areas of interest that stand-out that may have potential impact on the operations of the business, but there are several questions that could explain the below average performances compared to the industry. Mobile penetration in Canada as of Q2, 2015 stands at 83% (table 1), which is far below the World average for developed countries of 124% as of 2014. (GSMA, "The

Mobile Economy 2014", page 11) Hence there is still great potential for organic growth within the core wireless services offered by Rogers. The wireless segment revenues have been stable at $7.3 billion for the past three years despite even the fact that Rogers has lost just over 50,000 wireless subscribers between 2014 and 2013. Similar the television subscribers have seen a decrease of 103,000 subscribers for the same period. The only positive on the subscriber front would be the Internet subscribers that have seen marginal growth compared to previous years. The company positions its' self also as media player with more than 14% of its' total revenue coming from related services and content, which should support the effort to grow now and in the future. Unfortunately on a first glance it appears that the company is struggling to achieve synergies between its different streams. "For example, better integration of our Media assets with our core Wireless and Cable communication assets can provide better customer value and drive higher loyalty, better customer experience and strong growth." (Rogers Communications Inc., 2014 Annual report, page 14)

Rogers similar to Verizon targets growth in the business market with dedicated corporate solutions such as networking, hosting, managed services and IP solutions for any size organization. The company made it a priority in 2014 to improve its operations in this area. Therefore, "In 2014 we brought previously separate enterprise-serving teams together. This single unit has a full array of business-focused solutions from across Rogers' various product sets, greatly enhancing our ability to attract and serve business customers." (Rogers Communications Inc., 2014 Annual report, page 2) Meanwhile, in their eyes it is interesting to notice that the definition of "Innovation" to great extent is associated with "Network Leadership". It is true that all new products and services, such as the once for the business customers, require innovative network technology, but sometimes having such great focus on one particular area could lead easily to overlook market trends and future opportunities. "Rogers has always led the industry in innovation and our wireless and broadband networks are some of the most advanced in the world. We will double down on innovation, by providing more "oxygen" to fewer but higher impact projects already well underway. We are known for deploying world-class networks and

that will not change either, as we continue investing to stay ahead of the game." (Rogers Communications Inc., 2014 Annual report, page 2 & 3)

It is evident that Rogers are internally reorganizing in order to improve product development and the customer experience, but seems that the company is missing long-term strategic vision and focus on exploration related activities that could further broaden its' perspectives. Even though for them innovation is fully related to network technology it has made an effort to enter in the Intern Of Things arena by developing Smart Home Monitoring service. In particular, it is an innovative home security and automation system that offers connectivity to any fixture in the customers' house or office. Further, the service is developed in partnership with "ZigBee Alliance" that have the knowhow to create personal area networks with low-power digital radios. The focus to introduce the Rogers Smart Home Monitoring service is fully in line with the recent growing trend of connected life concept. More and more people are looking to have more or less every electric appliance or fixture connected through IP protocol in order to be able to control it over wireless or broadband networks. Building dedicated product portfolio under separate brand and organizational structure allows the company to be more flexible and focused on growing this particular market. For example, Rogers has teamed-up with Allstate insurance to bundle its Smart Home Monitoring proposal with home insurance where for the first year customers receive 25% discount of their annual premium. It is important to for any similar product to offer additional value due to the fact that most newly developed products have higher price level at the beginning of their lifecycle.

On the bases of the recent corporate development Rogers Communication Inc. is in phase five "Growth through collaboration" as part of the "The Greiner Curve – The Six Phases of Growth" model where the companies face revolution crises of internal growth (several examples were evaluated). While, development of innovative products such as Rogers Smart Home Monitoring proposition and other solutions are part of corporate strategy that allows the company to evolve and enter into the next phase of "Growth through alliance". Therefore, the company needs to

focus on ironing-out its' overall corporate long-term strategy within Horizon 2 of the corporate foresight theory for building further operational models that could sustain emerging businesses.

3.1.2. Europe: Deutsche Telekom & Telekom Austria Group

Deutsche Telekom

"Architecture of the digital future" is the claim and goal of Deutsche Telekom. "We see ourselves as architects of the digital future, and we have big plans. Our exciting services and practical solutions will offer best customer experience. We want to create virtual spaces for our customers – spaces for entertainment, for working, for playing, and for living." (Deutsche Telekom, 2014 Annual Report, p. B2) It could not be more suitable place or earlier in its annual report for Deutsche Telekom to clearly communicate what is and would be their long-term strategy. The company seems to have shared well its diverse experience between its international operations. In particular, from its biggest operation in the US where the company holds majority stake of 66.29% in T-Mobile US. The people and businesses in the United States of America are the pioneers of the digital age and potentially the future ahead of the World. Most of the radical new ideas, business models and technology advances happen there. Moreover, the overview of Verizon Communications Inc. and its' market approach support this statement. Having access to the US market DT has a great advantage to its European based competitors such as Vodafone and Orange.

Figure 15: Deutsche Telekom, 2014 financial highlights

Name and registered office	Deutsche Telekom share Dec. 31, 2014 %	Net revenue [c] 2014 millions of €	Profit (loss) from operations [c] 2014 millions of €	Shareholders' equity [c] 2014 millions of €	Average number of employees 2014
Telekom Deutschland GmbH, Bonn, Germany	100.00	21,760	4,597	4,223	12,423
T-Mobile US, Inc., Bellevue, Washington, United States [a, b]	66.29	22,408	1,405	14,060	37,858
T-Systems International GmbH, Frankfurt/Main, Germany	100.00	6,472	(517)	997	21,590
Hellenic Telecommunications Organization S.A. (OTE), Athens, Greece [a]	40.00	3,918	365	3,591	21,903
Magyar Telekom Public Limited Company, Budapest, Hungary [a, b]	59.23	2,013	262	2,137	14,559
T-Mobile Netherlands Holding B.V., The Hague, Netherlands [a, b]	100.00	1,551	360	2,508	1,439
T-Mobile Polska S.A., Warsaw, Poland [b]	100.00	1,492	328	2,395	4,641
T-Mobile Czech Republic a.s., Prague, Czech Republic [a, b]	100.00	874	228	1,588	3,419
Hrvatski Telekom d.d., Zagreb, Croatia [a, b]	51.00	905	148	1,964	5,359
T-Mobile Austria Holding GmbH, Vienna, Austria [a, b]	100.00	815	59	973	1,113
Slovak Telekom a.s., Bratislava, Slovakia [a, b]	51.00	768	98	1,956	3,752

[a] Consolidated subgroup.
[b] Indirect shareholding of Deutsche Telekom AG.
[c] IFRS figures.

Source: Deutsche Telekom, 2014 Annual Report, page B10
Note: T-Mobile Macedonia is 100% owned by Magyar Telekom Public Limited Company, Budapest, Hungary

Out of eleven international markets (Germany, United States, Greece, Hungary, Macedonia, Netherlands, Poland, Czech Republic, Croatia, Austria, Slovakia) the US market is the biggest revenue contributor for 2014 with €22,408 million followed closely by the German market at €21,760 million. Nevertheless, the domestic market for DT brings almost three times more profit of €4,597 million compared to €1,405 million by its US operations as presented in figure 15 above. There could be number of reasons for the lower profitability of the US operation, one that is quite obvious is that T-Mobile US has more than three times more employees compared to T-Mobile Germany. Meanwhile, the most intriguing subsidiary of Deutsche Telekom is their Information and Communication Technology hub for corporate customers T-System registered in Germany. This particular subsidiary has supported the development of new ICT products and solutions at all DT operations and contributed in 2014 €6,472 million revenue. This unit is in the middle of all major IT and IP related dealings of Deutsche Telekom in the past several years as well as part of external partnerships for new business and consumer offerings. For example, cloud services for ThyssenKrupp, system integration services for Daimler and winning the bid for setting-up and operating a satellite-based toll system for trucks in Belgium. In addition, strategic partnerships with salesforce.com for joint offering of cloud software as a service proposition, IT and cyber security service with FireEye, CISCO Systems for cloud services, and working with Siemens on Industry 4.0 strategy.

Despite the focus on gaining knowledge from other industries, introducing new products with shorter time to market, and long-term strategic focus on innovations Deutsche Telekom suffers from its multinational size and limited flexibility in some areas. In particular, the company has designed long-term Human Resource strategy with six main pillars that could support their strategic vision. The long-term focus being to make DT fit for the future and alternative competition from beyond the immediate telecommunication ecosystem.

HR Big 1 – Continue business-driven total workforce management

HR Big 2 – Encourage leadership and performance development

HR Big 3 – Foster employability of our workforce

HR Big 4 – Increase organizational effectiveness

HR Big 5 – We make lean and simple, (Deutsche Telekom, 2014 Annual Report, p. 128)

HR Strategy 2015

HR Big 1 – Manage workforce transformation

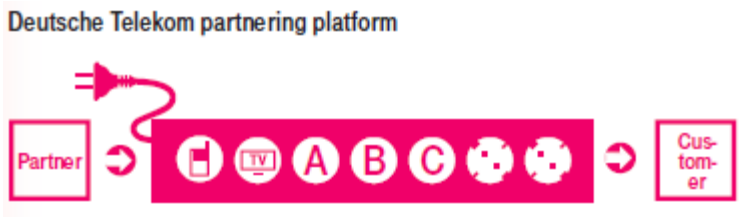
HR Big 2 – Develop talents and strategic skills

HR Big 3 – Encourage leadership and performance development

HR Big 4 – Foster global culture and collaboration

(Deutsche Telekom, 2014 Annual Report, p. 131 & 132)

Figure 16: Deutsche Telekom partnering platform set-up



Source: Deutsche Telekom, 2014 Annual Report, page 71

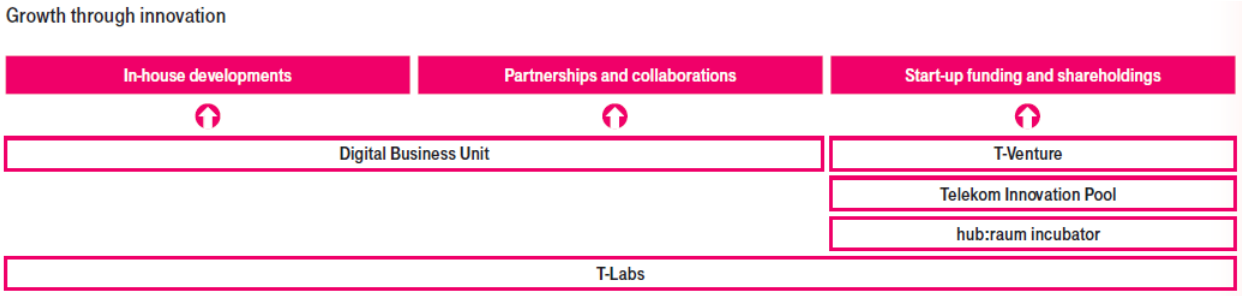
"We want to be the preferred telecommunications provider when it comes to innovative partners selling their products. During the reporting year, we began to establish a technical and commercial platform to which we connect partners and their products quickly, flexibly and at a low cost." (Deutsche Telekom, 2014 Annual Report, p. 71) It is planned for the partnering platform to be fully functional for all European operation by 2016 while for the German market by 2017. This is another evidence that Deutsche Telekom have understood the power of collaborations and alliances with the necessity to invest in the short-term in order to have a platform for sustainable long-term corporate growth. Further, it is also important to state that DT has recognized that it should avoid turning into pure sales machine of products through partnerships, acquisitions and alliances. In particular, adding value to existing or new products is key. For example, being part of the "E-Mail made in Germany" that achieved encryption of all e-mail traffic contributed to "… around 50 million German consumers, customers of Deutsche Telekom, freenet, GMX and WEB.DE, automatically enjoy encrypted e-mail communication, regardless of the e-mail program they use." (Deutsche Telekom, 2014 Annual Report, p. 63) Also,

agreeing with Netflix to offer exclusive digital media content as part of the DT consumer pay-tv proposition distinguishes the company from its main competitors.

Other notable Deutsche Telekom collaboration and solutions

- Industry 4.0, cooperation with Siemens to drive industry digitalization, open to new partners, pilot project for three years "…to clarify how communication in real time without delays and the security of data can be guaranteed." (Deutsche Telekom, 2014 Annual Report, p. 125)
- Farming 4.0, collaboration "…with CLASS, agricultural machinery maker, to demonstrate how ICT can significantly improve production and energy efficiency in farming and, at the same time, reduce employee workloads." (Deutsche Telekom, 2014 Annual Report, p. 125)
- The largest seaport in Europe, port of Hamburg becoming smartPort, through number of ICT solutions and web-based portal provided by Deutsche Telekom the Hamburg port manages to improve "…flow of goods, avoid truck downtime, and congestions, keep track of the situation on the ground 24/7." (Deutsche Telekom, 2014 Annual Report, p. 38)

Figure 17: Deutsche Telekom, Innovation model



Source: Deutsche Telekom, 2014 Annual Report, page 124

Indisputably Deutsche Telekom is turning into "Innovation Mall" under the classification of Pisano and Vergati from 2008 as well as entering into phase six "Growth through alliances" of the Greiner growth model. The company has an innovation strategy that is fully supported by clear organizational transformation vision including dedicated structure (T-Labs & Group Business Development & Digital business units), funds, assets, and other tools such web-based hub and partner product platform. Moreover, especially in Germany the company has its' sights on the

start-up scene by nurturing start-up support environment (Telekom Innovation Arena) and offering seed financing. In particular, the company announced in November, 2014 that it is committing over €500 million for venture and innovation investments for a period of five year on top of its existing plans for investments in T-Venture. For that purpose Deutsche Telekom has established separate autonomous investment management company Deutsche Telekom Capital Partners in order also to maintain strategic focus on identifying and evaluating new business opportunities. All of this activities are on the premises of the company's great effort and financial investment to transform its' mobile and fixed networks into IP-based future proof harmonized infrastructure ready to support new products and services.

Telekom Austria Group

Telekom Austria Group operates in eight countries: Austria, Slovenia, Croatia, Liechtenstein, Belarus, Bulgaria, Republic of Serbia, and Republic of Macedonia. Five of the countries are within the European Union and have their local regulators that oversee implementation of all European Commission proposal pertaining to regulation of the telecommunication markets. In addition, most of these markets have experienced over the past several years economic downfall that has directly impacted all operations of Telekom Austria Group. Together with increasing competition pressure these two areas appear to be the major concern from Telekom Austria Group stand point of view. It is evident in the first three pages of the "2014 Annual Financial Report" as it is fully dedicated on these three topics. Compared to Deutsche Telekom the company annual reports are fully focused on financial performance and the reasons behind the recurring year after year underperformance.

Table 7: Telekom Austria Group, 2014 financial highlights

Summary: Financial performance Telekom Austria Group					
	2014	2013	2012	2011	2010
Revenues	4,018.00	4,183.90	4,329.70	4,454.60	4,650.80
EBITDA comparable	1,286.10	1,287.40	1,455.70	1,527.30	1,645.90
EBITDA margin comparable	32.00%	30.80%	33.60%	34.30%	35.40%

Source: Telekom Austria Group, 2013 Annual Report & 2014 Annual Report
http://www.telekomaustria.com/en/ir/annual-reports

In the past two years the group has rarely talked about innovation and new business opportunities. Annual reports prior to 2013 presented some focus on these two vital perspectives for a large organization facing saturating core services markets. In 2011 there was an effort to put together "Cloud Strategy" and mobile applications focus by setting-up "Creating App Platform". The later was trying to close the gap between app developers and the particular needs of the end-users. Unfortunately, there is very limited trace of these initiatives now in 2015. The "Cloud Strategy" included Information and Communication Technology services that have been fully focused to service the Austrian market, but with mediocre success over the past several years. As any other Traditional Telecommunication Provider Telekom Austria Group has focused on "Converge Strategy" that includes offering bundles of mass market mobile and fixed products. Through number of acquisitions of fixed IP-based providers particularly on the Croatian and Bulgarian markets the company has tried to offset the decreasing mobile revenue. Unfortunately, the group does not report revenue split, which could provide clear picture of the mobile segment performance as well as services such as ICT and cloud.

Telekom Austria Group has provided services with limited opportunity for the company to add value to the offered services in order to expand revenue perspectives. For example, it has utilized its' data center particularly in Austria where it has managed to become the market leader in desktop outsourcing with more than 55,000 managed workstations. In addition, it has made strides on the M2M market with its' dedicated platform that enables services such as fleet management and smart meeting with pure mobile connectivity functionalities. Again, acting as a pipeline for services developed by third parties and used by business customers. The only benefit coming from the M2M market is the sheer volume and potential market for end devices needing mobile connectivity.

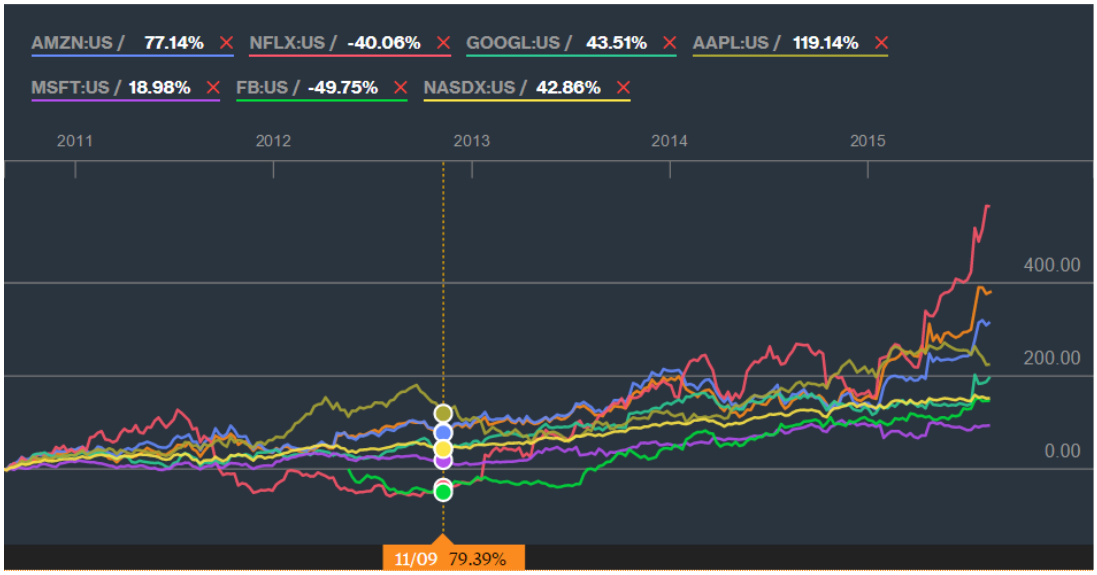
The group embraced for several years the concept "more for more" where it offered more volume of its core mobile services (voice and data) for higher fixed revenue in the form of monthly fees. This particular commercial strategy helped slightly the declining trend of the mobile market contribution to the overall performance. It was short-lived success as the

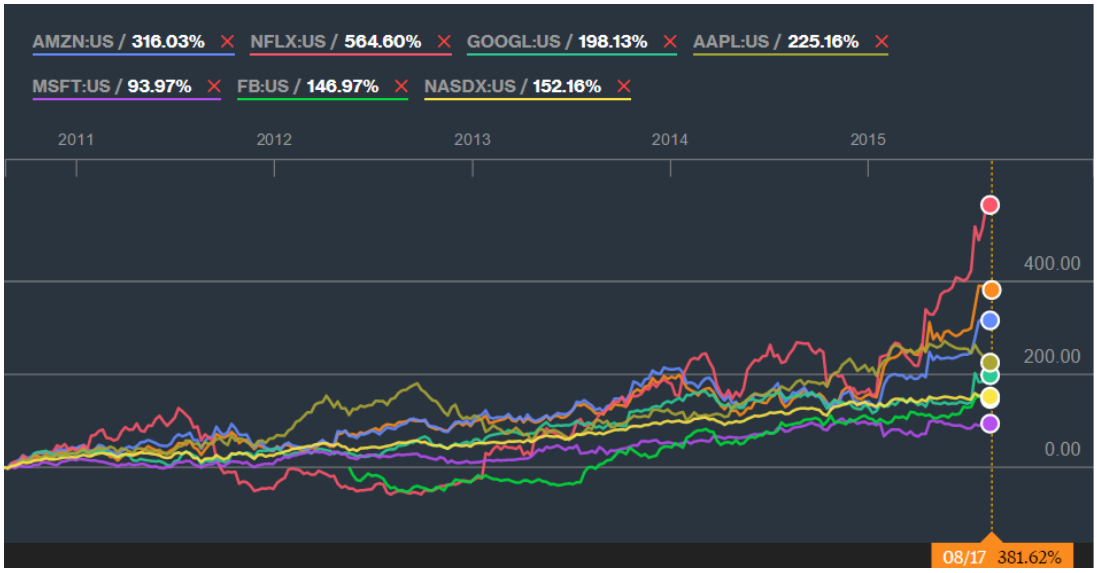
consumer mass market traditionally seeks low monthly fees. Therefore, Telekom Austria Group looked in the direction of adding additional content to its mobile service through partnerships with players from the telecommunication ecosystem. For example, striking a group wide partnership contract with Microsoft for offering Microsoft Essential (web-based Microsoft Office suite and other services) and OneDrive (cloud storage service) packages for small and medium enterprises. These services are offered with smart (voice & data) tariff plans with high monthly fees that could accommodate the license model per subscription of Microsoft. With the additional service content the company tries to persuade business customer to migrate to smart tariffs with relatively higher monthly fees. Further, partnerships with Facebook and Viber have added content to the consumer mobile services as well as competitive edge. Unfortunately, all new features at a major cost, first offering dedicated data volume for these additional services costs money and second potential service cannibalization that in the long-term would have negative impact on mobile revenues as these partners have competing IP-based services. In particular, both companies have fully-fledged communication platforms for voice, messaging and video calling. In other words, through the dedicated data volume, for example 2 gigabytes per service, customer could adequately fulfill their needs to communicate with their friends and family in addition to the voice volume included in the smart tariff.

Possibly the decrease of EBITDA by €359.8 million for a period of five years was achieved with great focus on operational excellence activities in order to compensate the decrease of €632.8 million of revenue for the same period of time. This particular focus must have contributed to losing sight of the overall development of the industry and the associated ecosystem, which in turn could have helped draw adequate long-term corporate growth strategy. Therefore, having implemented cost optimization and organization redesign, and adopting the particular market strategy outlined above could explain the mediocre financial performance over the past five years. Telekom Austria Group is missing long-term corporate foresight as well as developed corporate growth horizons that could guide this large organization in the future.

3.2. Product overview of OTTs and financial performance

Figure 18: Stock price development of technology driven companies





Source: http://www.bloomberg.com/markets/world

The graphs above present an overview of the stock performance for the technology based companies that have driven the Internet revolution in recent years and have challenged the traditional telecommunication industry payers. In addition, NASDX: US index is included as industry benchmark for trend guidance. Microsoft and Facebook are included in the review as they have recently acquired two of the biggest IP-based communication companies Skype and

WhatsApp respectively. The former was acquired for $8.5 billion and the later for $19 billion. The deal value for WhatsApp recently has gone up to $21.8 billion due to the structure of the deal that included $15 billion in stock while the Facebook stock price has steadily increased over the past 18 months. In addition, at the time of the deal WhatsApp employed only 55 people making it the biggest deal per employee. Both Skype and WhatsApp have full-fledged instant messaging platforms with exceptional voice service functionalities for computers and mobile devices.

3.2.1. Voice service alternatives by WhatsApp/Facebook and Skype/Microsoft

Skype and WhatsApp were privately owned companies until their acquisition by Microsoft and Facebook respectively. There is limited information regarding their respective corporate strategies. Moreover, in the case of WhatsApp the company was established in 2009 and it was acquired by Facebook in February, 2014. Therefore, over its short existence the company fully focused on improving the customer experience related to its only product an interactive messaging platform for mobile devices (smartphones and tablets) with new features and content. As a result the mobile device application was launched in November, 2009 in the Apple App Store exclusive for the iPhone. Due to the fast pace of the technology industry the company has had limited time for long-term strategic planning as it tried to keep-up with its customer bases growth that demanded high investment in R&D as well as support infrastructure. As the popularity of the application grew the company was forced to make a change in its proposition model. In particular, switching from free to paid service in order to suppress its natural growth as well as to take control and cove minor cost associated with messaging between users. Further, it gave the company opportunity to look in the future in order to scale its operation more adequately.

Having vertical focus only on one product helped the company excel at developing and introducing radical innovations in the traditional communication environment. For example, WhatsApp developed different features for their communication platform taking advantage of the Apple's notification functionality for developers to encourage use of their application when they have not been used for a period of time. In particular, new feature that allowed everyone in one user's network to be notified when he or she changes its status as well as if one message

has been viewed by the recipient. From the original days of the SMS/text messaging there is a notification for “delivered/received” text message, but there was no feedback whether this message was viewed by the recipient. Many other new features/services were developed that distinguished the communication experience with WhatsApp from the traditional way of communicating over mobile networks. For example, group chat, rich multimedia file sharing, profile personalization and many others. As anything else in the fast moving industry of application development within short period of time WhatsApp added traditional features such as voice and video calls that were free around the World without need to worry about additional charges. Soon, as a natural growth process all other mobile operating systems (Android, Symbian, Blackberry) were covered with dedicated mobile application, which further increased the addressable market for the WhatsApp application for mobile devices.

Through the process of planning for their dynamic future the company identified mobile advertising as possible revenue stream that could support its growth and the associated operational costs. The incorporation of mobile advertising was done in very scaled and targeted way in order not to alienate its customer base while providing sufficient funds to move forward. In addition, WhatsApp brought back the application for free to the Apple App Store and other virtual market places, but with $1 fee per year after the first year of use. Still, the company reached over 800 million active users in April, 2015. Such success was mainly possible because the proposition built significantly different product image compared to similar services offered by traditional telecommunication providers, which is heavily threatening the revenues and performance of telecoms around the World. Just recently in 2015 WhatsApp introduced a web-based client that could be used on laptops and desktops similar to what Skype developed at the beginning of their corporate life. Further, it has heavily contributed to the development of the Facebook messaging application that has all of the same core features.

There are number of interesting aspects to be considered when viewing the acquisition price of Skype and WhatsApp. The former company was a mature organization with developed structure, assets, workforce, and monetized product portfolio. All important considerations that have

influence on company valuation. Further, it evolved in different technology era with different growth pace that was as not as dynamic as the current trend of mobile devices and advanced mobile networks. In particular, due to the environment in the early 2000's Skype first developed a desktop client (software) for personal computers and laptops. At that time people and business were transitioning to the world of computing and Internet. Moreover, the price point for one personal computer and laptop was in the several hundreds and even thousands of dollars even on developed markets such as the US market. Therefore, growth of the possible addressable market was not as rapid as the current smartphone market where one relatively good device could be bought for around $150. Hence, it took careful and long-term planning in order to sustain growth in those years. Especially to a point where company such as Skype has built significant customer base that could allow for more flexible customer propositions such as free calls. Next was the utilization of the existing transmission networks (fixed and mobile) that on their part were experiencing steady advancement while having major influence on the quality of the service offered by Skype and the other virtual communication providers.

The product and strategy of Skype is not much different to what WhatsApp is offering today on the market. Great focus on one product that has turned-out to be disruptive innovation impacting heavily the telecommunication industry. Skype voice and video calls between users have always been free, but calling mobile and fixed phones around the world were charged. Nevertheless, advancement in the communication technology lead to the development of VoIP (Voice over Internet Protocol) services that allowed to bypass termination rates between mobile and fixed operators. In addition, it allowed to transmit calls over the Internet to mobile or fixed phones at much lower price without the need to invest in mobile or fixed network infrastructure. This is where Skype became a direct competitor to TTPs by offering cheaper international and domestic calls. However, security is one major disadvantage from customer stand point of view when using VoIP calling that is heavily dependable on third party network quality. Moreover, this type of service is an easy target for hackers that seek personal data of any kind. Over The Top players have dedicate resources to minimizing this particular threat, but are making marginal

improvements as their customer bases grow exponentially and see that people are either not aware of it or not concern to the point of stop using the core IP-based services.

Even though Skype was steadily becoming large organization with number of offices around the World it did not make a great effort to evaluate and consider new opportunities beyond its core services and arena of operations. The environment and financial position might not have allowed it to look in a new direction that could add corporate value thought long-term growth similar to Apple Inc., who also experienced the same growth path in the 2000's with its core software and hardware portfolio. Still, Apple dedicated time and resources to evaluate the future by foreseeing industry and technology trends that helped the company drive the future and be prepared for emergence of mobile device era. Moreover, the company is positioned on the forefront of new technologies that would further impede the position of the telecommunication companies in the coming years. For example, it has designed technology that allows customers of mobile services (voice and data) to use their Wi-Fi routers at home or at their office as micro base stations to transmit their calls when the mobile coverage offered by the TTPs is not sufficient. This is simply known as calls over Wi-Fi.

3.2.2. Video on Demand by Netflix

Netflix Inc. has three main market segments of operations: domestic streaming, domestic DVD and international streaming, where domestic is the US market. The company delivers entertainment content over the internet using most often the fixed infrastructure of traditional telecommunication providers. Their objective is "winning moments of truth" when consumers have free time for entertainment. (Netflix Inc., 2014 Annual Report, page 2) They have diverse group of competitors that offer entertainment content of any sorts while the natural competitors are pay-tv providers. The main goal is to have abundant amount of content that is accessible on any type of device. TV sets are the traditional way to view any entertainment content wile in recent years smartphones, tablets and personal computers have become alternatives that have also pushed the development of new features such as multiscreen viewing, content archiving or "record and view", interactive rating of content, etc.

In order to build long-term sustainable business model Netflix has identified the area of content as one of the main areas that could distinguish its' company form the competition. Hence, gaining competitive edge it required out of the box thinking and entering into uncharted waters such as investment in production of original content. Being able to steer-away from industry trends and purely focusing on operational excellence it allows Netflix to be a head of its competition and to add value to its customer proposition. The company has invested in different genre of original programming content from comedy and drama to documentary and feature films. Few of its productions such as House of Cards and Orange Is the New Black TV-series have achieved world-wide popularity and won number of awards in the past couple of years while distinguishing the company by offering exclusive content.

As it is evident in figure 18 for a period of five years Netflix Inc. has managed to contribute to the growth of its stock price with more that 546% as of August 17, 2015. What is even more impressive is that the turnaround took place for less of three years. In particular, toward the end of 2012 the stock price had decreased by 40.06% reflecting the company performance at the time. Therefore, the overall improvement in the following period of little less than three years by August, 2015 saw the stock price rebound by more than to 600%. This would not have been possible without long-term strategy for corporate development and willingness to approach external to the company and industry opportunities.

The company focused on operational excellence for the domestic market where contribution margin has improved by 10% from 17% to 27% for a period of three years between 2012 and 2014 respectively. Also, entering more than 20 countries for a period of five years offered growth opportunities, which as any new venture come with higher costs compared to lean domestic operations. In particular, the high marketing and customer acquisition costs associated with building new international customer base from scratch have affected the profitability of the international operations. Still, the contribution margin of the international operations has improved from -135% in 2012 to -12% in 2014. Possibly, one main strategic decision that has

contributed to this improved is the willingness of Netflix to enter into partnerships with other entertainment providers. For example, as already pointed-out Netflix has standing partnership with Deutsche Telekom where the Netflix proposition is part of the pay-tv service offered by the telecommunication provider. Such approach is beneficial to both parties as one gains easier access to new international market with lower entry costs and the other receives distinguishing content for gaining competitive edge over its local rivals. Netflix has similar agreements with Dish Network in the US, Virgin Media in the UK and Com Hem in Sweden where the Netflix interactive platform is directly integrated into partners' TV set-top box used for their pay-tv proposition.

3.2.3. Cloud and bundle of service by Amazon Inc.

Amazon is great example for a company that carefully has evaluated the market trends not only in its core industry of selling books and other consumer goods, but also the advancement of Internet and related technology. In addition, it has considered its core competencies in the field of e-commerce and the related ecosystem in order to project its potential overall contribution to future new business models. More than ten years ago on the bases of strong and stable core business Amazon has decided to build corporate strategy that would drive product portfolio and industry diversification. Presently, the company is a technology company that develops new services such as Amazon Eco similar to Apple's Siri, hardware from smartphones to IP-based TV setup-box all complemented with content related services, and cloud solutions and compute resources that could support any startup around the world.

Amazon Fire TV is a virtual pay-tv service that is similar to the core service of Netflix being accessible over the internet through the network infrastructure provided by telecoms. This service competes directly with other pay-tv providers and TV propositions of telecoms while offering exclusive original content produced by Amazon and seamless integration with Netflix, Hulu and other on demand content databases. The Information and Communication Technology services offered by telecoms to business customers are also challenged by Amazon with its dedicated cloud and computing services know as Amazon Web Services. This array of services target to optimize and scale the IT needs and expenses of any size organization. It was launched

in 2006 while traditional telecoms were riding the wave of growing revenues through customer acquisition and pushing core services market penetration to levels beyond 100%. This is another evidence of the complacency telecoms developed over the years blinded by the positive market trends they were experiencing in 2000's. It is at this time that organizations need to consider and evaluate their long-term strategy. It is much easier to step aside to consider the future when business is booming compared to the time when there is financial performance pressure and saturate market.

Figure 19: Amazon Inc. Gross profit & margin overview

Consolidated gross profit and gross margin for each of the periods presented were as follows (in millions):

	Year Ended December 31,		
	2014	2013	2012
Gross profit	$ 26,236	$ 20,271	$ 15,122
Gross margin	29.5%	27.2%	24.8%

Source: Amazon Inc., 2014 Annual Report, page 28

The importance of long-term corporate strategy has provided Amazon in recent years with positive improvement of the company gross margin, "Gross margin increased in 2014, compared to comparable prior year periods, primarily due to service sales increasing as a percentage of total sales. Service sales represent third-party seller fees earned (including commissions) and related shipping, digital content subscriptions, and non-retail activities such as AWS, advertising, and our co-branded credit card agreements". (Amazon Inc., 2014 Annual report, page 28) Also, it has enabled the company to be one of the technology leaders in the field of IT solution with its AWS portfolio, "We've increase our pace of innovation as we've gone along – from nearly 160 new features and services in 2012, to 280 in 2013, and 516 last year. … Aurora's performance is up to 5x better than typical MySQL database, at one-tenth the cost of commercial database package." (Amazon Inc., 2014 Annual report, page 5) Setting-up from scratch AWS requires substantial investment and resources in a field completely different to the Amazon core business, but the company must have been guided to great extent by the trust and believe in the internal evaluation and knowledge of the internet market place. In addition, for some of its' new business ventures Amazon has tried to minimize the risk by moving forward with competent external

partners or through acquisitions of rising businesses in interesting to the company sectors. The stock performance also supports the decision making process and the current strategy of Amazon as it has grown by 316.03% for a period of five years as it is illustrated in figure 18. It is the second biggest positive stock price change after Netflix compared to the other innovation driven organizations such as Apple, Facebook and Microsoft.

Table 8: Amazon Inc. products & services portfolio

Overview of Amazon products and services portfolio	
Type of product	**Description**
Retails goods	Using www.amazon.com the company resells media products such books and DVDs, wide range of consumer goods such as apparel, jewelry and electronics, and specific goods such as garden related, automotive items and toys.
Consumer electronics	Amazon kindle (connected e-book), Kindle Fire (tablet), Amazon Fire TV, Fire phone (smartphone)
Digital content	Amazon music, Amazon games, Amazon Instant video
Amazon Art	Marketplace selling original and limited edition of fine art from selected galleries.
Amazon Web Services	Cloud computing, networking, storage and content delivery, database, deployment, application services and analytics
Amazon Wireless	Web based dealer for mobile/cellular services offered by Verizon Wireless, AT&T, Sprint and T-Mobile
Amazon Echo	Software (cloud-based voice service) and hardware (communication device) bundled together to provide answer to any question similar to Siri from Apple, information, music, audiobooks, news, weather, traffic, sports, and more—instantly

4. Conclusion and overview of findings

Table 9: Company valuations

Company name, stock symbol	Market valuation as of August 24, 2015 (billion)
Verizon Communications Inc., VZ:US	US$ 186.473
Rogers Communications Inc., RCI:US	US$ 17.745
Deutsche Telekom, DTEGY:US	US$ 74.766
Telekom Austria, TKA:AV	US$ 4.073 (€3.523 exchange rate €1 = $1.1562)
Amazon Inc., AMZN:US	US$ 222.845
Netflix Inc., NFLX:US	US$ 45.852
Facebook Inc., FB:US	US$ 234.463
Apple Inc., AAPL:US	US$ 595.562
Source: http://www.bloomberg.com/markets/world	

4.1. Adoption innovation and intrapreneurialship by telecommunication providers

The market size and the local economy of one country have great influence on the long-term strategy of any size company. The European Union and other similar trade unions around the world allow for companies to overcome geographical boundaries in order to grow internationally and become multinational organization. Most often organization look abroad when they have a sound business model that has proven its value on the domestic market. In other cases products and services know no boundaries as they are initially designed with the international market place in mind. All these aspects are part of a basic strategy to increase corporate value by having new perspective for growth. Some companies look to become multinational organization by offering their established core services in a new international market place. Others through the process of establishing their current business model abroad try to gain market insights and understand what other new opportunities there are beyond their core competencies. Further, this type of companies have also established processes for gaining similar type of knowledge on their market origin, which indicates that they are willing to evolve as an organization long-term.

It seems that for way to long traditional telecommunication providers have focused to grow within the boundaries of their industry and the associated mobile and fixed network technology. They have not used their market stability and organic growth in mid to late 2000's to prepare for the next 10 to 20 years. Similar to company such as Amazon, who have laid-out corporate growth

strategy years before it established it's Amazon Web Services in 2006 for cloud and compute services. This particular product portfolio has just in recent years began to realize its growth potential, almost ten years after being established. Aiming to establish corporate foresight in stable times is more beneficial and efficient compared to when one company is going through tough time and operational resizing in order to maintain short-term performance at expected levels. Everything begins at the top one company with the executive culture and the ability to understand and foresee that each product and market has its life cycle. The mobile and fixed services offered by telecommunication providers have very limited features that could be updated, refreshed or replaced in order to have different product in comparison to the competition. Hence, the operators need to look beyond their core industry and consider the whole ecosystem that has developed around them.

It is possible to take advantage of your own knowledge in order to foresee new opportunities by using number of methods that could be established within the corporate organization. For example, reorganization with focus on ambidexterity and heterogeneous knowledge, evaluation of market and industry trends, and to stimulate internal ideas through entrepreneurial environment. Unfortunately, all of this processes and techniques usually take time to develop. Time is a scares resource at any mature large organization, which is driven by short-term performance. Therefore if a company such Telekom Austria or Rogers Communications is behind the process of long-term vision and corporate strategy the fast and most efficient way would be to bring in external experts/partners that could share their ideas, visions and business models for new products and services by further utilizing the company strengths and assets. Despite the fact that time to market is significantly improved by relying on partnerships or even acquisition of new businesses/startups still telecoms and large organizations in general need to seek short-term opportunities within their grasp. For example, enhance services portfolio for business customers that have many more needs compared to regular private users of mobile and fixed services. It is similar to what Verizon and Deutsche Telekom have used as strategy to establish a foundation for growth in the long-term. Further, partnerships within the core services offered by telecoms,

such as the partnership between Netflix and Deutsche Telekom for pay-tv, are also possible and beneficial in the short-term.

Looking at the market valuation and overall financial performance of Verizon and Deutsche Telekom in recent years compared to Telekom Austria or Rogers Communications there seems to be two different tiers of companies in the telecommunication industry. The first tier of telecoms is made up of companies that have been able to master their immediate environment and push new services as part of their core competence while being open to new opportunities within their overall ecosystem. The second tier being group of telecoms that have fully focused on exhausting all possible options concerning their core services without considering external opportunities for growth.

Considering Netflix Inc. market capitalization at $45.852 billion (table 9) and its core product mix that is somewhat focused and limited to TV/video entertainment it is difficult to understand how the valuation could be almost three times more than Rogers market capitalization of $17.745 billion and more than ten times more compared to Telekom Austria capitalization of $4.073 billion. Both telecommunication companies have in their product portfolio pay-tv propositions in addition to significantly wide range of products and services that allow for bigger revenue and market potential. Also, Telekom Austria is present on seven international markets in addition to its domestic market Austria, which is one of the European Union strongest economies. Still, Netflix through partnerships even with direct competitors manages to grow and overcome new market barriers. Further, it is quite interesting to consider that Amazon originally a book reseller is located in 11 geographical regions around the World with dedicated network infrastructure offices (data centers) to support its effort to lead the cloud services market through its Amazon Web Services venture. In addition, through acquisitions and partnerships it has developed new products and services that compete directly with the core product portfolios of traditional telecommunication providers without being slowed down by international boundaries. For that reason alone on the bases of establishing long-term corporate vision and willingness to invest in

new venture with potential long-term return Amazon has a market capitalization of $222.845 billion, which is almost three times more than the one of Deutsche Telekom (74.766 billion).

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