UNIVERSITA' DEGLI STUDI DI PADOVA

DIPARTIMENTO DI SCIENZE ECONOMICHE ED AZIENDALI "M.FANNO"

CORSO DI LAUREA MAGISTRALE IN BUSINESS ADMINISTRATION A/A 2015/2016

TESI DI LAUREA

"MARKETING OF INNOVATION: THE ULTRA-BROADBAND AS MAIN BASE FOR FUTURE INNOVATION, THE VODAFONE CASE"

Relatore:
Prof.ssa Silvia Rita Sedita

Laureando: Vittorio Orlando

Matricola:1080595

To my family and my two best friends.

Il candidato dichiara che il presente lavoro è originale e non è già stato sottoposto, in tutto o in parte, per il conseguimento di un titolo accademico in altre Università italiane o straniere.

Il candidato dichiara altresì che tutti i materiali utilizzati durante la preparazione dell'elaborato sono stati indicati nel testo e nella sezione "Riferimenti bibliografici" e che le eventuali citazioni testuali sono individuabili attraverso l'esplicito richiamo alla pubblicazione originale.

Firma dello studente

_____

Contents

Introduction

The world of today is changing face, structure and substance. The global economy is getting more and more based on digital platforms; that is why I can tell that the whole global economy is undergoing a total dematerialization of every single product and service, sustained by ubiquitous connection and internet-connected-devices.

Because of this phenomenon companies cannot ignore the digital trend that started few years ago; the main sources of revenue of the firms are changing driven by the demand of the individual customer who desires a customer-centric experience, a digital approach to the business and convergent interconnected platforms.

A deep modernization process due to the digitization of the economy is approaching most of the industries; a dematerialization of products and services is happening.

Especially the telecommunication industry is being touched by the digitization in almost every aspect. The rising of digital marketing platform and digital customer assistance services are just the beginning of a different type of customer needs.

It is undeniable that a shift in the way operators do business represents a chance for a big forward leap in the differentiation of services. Embracing this new digital and industrial revolution is the way for better responding to the new needs of customers that ask loudly for innovative, ubiquitous and reliable connectivity services.

In this this new digital and innovative contest, the broadband technology, specifically the ultra-broadband is becoming increasingly and important issue. New advances and greater convergence of wireline and wireless technologies allow for faster communications and more applications that oblige telecommunication operators to provide new ways of communication with higher speed of transmission

In this thesis the UBB (ultra-broadband) technology and phenomenon will be analyzed from different perspectives in order to fully understand its entity in the modern world.

The first point of view to be evaluated will be the one related to the conception of the UBB as main innovation for telco operators, source of infinite potential and new service for their customers.

The second perspective will be related to regulatory policies for UBB in Italy, the country object of the assessment of the thesis. How the government with its Digital agenda is addressing the new needs of UBB and optical fiber wires, and who are the main investors determinant for the present and future development of the country. All this will be evaluated, taking into account the challenge that Europe launched, in order to cover the so-called districts in "digital divide", geographic areas with no mobile or fixed coverage network.

The third perspective will be mainly composed by an analysis of the Italian market through the eye of the most innovative operator, Vodafone. What will be illustrated is its approach to customer, renewed after the price war happened few years ago, and its organic investment, called "Project Spring" that allowed a surprising development of its optical fiber network and related customer-assistance services.

If ,in the 60`s, the highways represented the accelerator of a fully material economy, today the availability of UBB network represents the critical factor for the growth of a digital economy. The availability of optical fiber through the country has the chance to produce additional PIL because it gives the companies the possibility to process a total re-thinking of their way of doing business. The redesign of the production cycle is real if a firm decides to implement in the whole process a solid UBB (Ultra-broadband) connection; this new technology allows the firm to implement a new way of communication between machines, called M2M (machine to machine) A synchronized and symmetric communication system between all the machines of a single implant has two consequences for a firm: an increase in the productivity and savings in costs. In this way companies set resources free for new investments to process a new way of modelling the relationship with their customers, making it more solid and stable.

Nowadays the Megabit society is coming to an end and a new era is approaching, that one of Gigabit, made of UBB lines and 4/5G mobile networks.

This is a future closer than anyone expects, where a deep transformation will shape the upcoming sharing and digital economy and it will help Italy to reach the objectives posed by the European digital agenda

Chapter 1

1.1 Innovation, what is it?

Innovation, a process that, through changes, allows firms to be more effective, to create products or services with distinct features, to improve themselves, giving them the chance to gain a competitive advantage. Innovation is related to diffusion, diffusion is related to the people and people, so-called "customers", in capitalistic terms mean piece of market, mean earnings and, in the end, mean profit. Still wondering why is there so much concern about the diffusion of innovation. The answer is in front of us. We are living an era of changes where uniqueness is the foundation of every new idea; while the ongoing acceleration of technological progress is increasing, we find ourselves close to "technological singularity", a turning point in technological progress that represents a revolution beyond human understanding.. Our lives are on a springboard ready for a leap qualitative forward into the "Age of Wonders".

Nowadays there is a wide gap in many fields, between what is known and what is actually put into use. Many innovations require a long period, often of some years, from the time when they become available to the time when they are widely adopted. Therefore, a common problem for many individuals and organizations is how to speed up the rate of diffusion of an innovation.

Diffusion, formally, is "the process by which an innovation is communicated through certain channels among the members of a social system. In the message are explained new ideas" **Rogers**(1997).

Communication, on the other hand, "is a process in which participants create and share information with one another in order to reach a mutual and common understanding" **Chuck Williams** (2015). Therefore, this implies that communication is a process of convergence as two or more individuals exchange information in order to move toward each other in the meanings that they ascribe to certain events. Such a simple conception of human communication may accurately describe certain

communication acts or events involved in diffusion, such as when a change agent seeks to persuade the mass to adopt an innovation.

In the end, we can say that diffusion is the result of communication where messages are merged with ideas never seen before or simply observed from a different perspective; it is the newness, the uniqueness, the contrast between what there is and what there could be that give diffusion the "diverse" idiosyncratic trait.

"People fear what they don't understand" **Neil Perlin (** 1985)

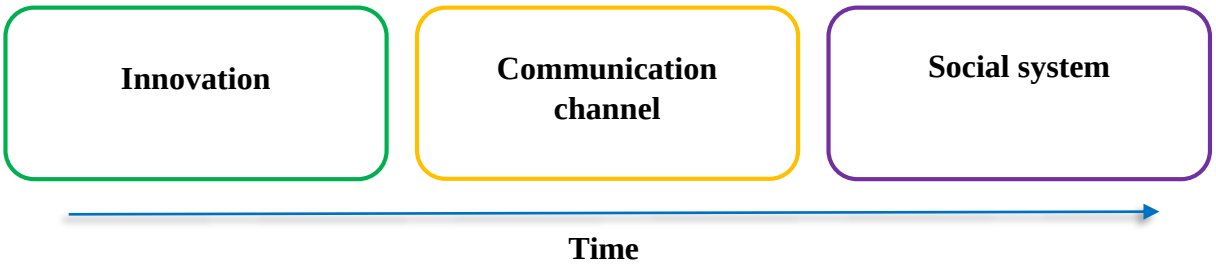
The newness, the unknown bring uncertainty, instills doubt about the effectiveness of what has just been communicated and this influences the rate of adoption of the innovative idea. It is easy to understand that diffusion of innovation and the innovation itself are social phenomenon , strictly related to

1. **How** the diffusion happens and the innovation is adopted by the mass
2. **What** the substance of the innovation stands for

The diffusion itself is a social change, branched in the alteration of structure and social system.

1.2 The four elements of Diffusion

Fig 1 the four element of diffusion



Source: Rogers M.E. (1981)

Previously we formally defined the diffusion as the process by which an innovation, over time, is communicated through different channels among the members of a social structured system; the following are the four main elements through which new ideas spread throughout society:

Innovation

"The art of welcoming risk" according to Kuczmarski (1996) or "A mindset, a pervasive attitude or a way of thinking focused beyond the present into the future vision" always according to Kuczmarski (2003) ; so what is the innovation? A process? A strategy? Is it the result of the job of a cross-functional team? The answer is that when innovation is done well, it is all of the above and more. Innovation is a pervasive attitude, an ongoing commitment to newness. A set of values represents a belief in seeing beyond the present and making the vision a concrete reality.

Two are the core, strictly entwined concepts embodied within the innovation:

- **Newness**: something new, never seen before, something that has been invented or reinvented. Novelty in an innovation it is not just related to knowledge. The matter could be develop a favorable or unfavorable attitude toward it, nor have adopted or rejected it. The "newness" aspect of an innovation may be expressed in terms of knowledge, persuasion to adopt, or a decision to adopt
- **Uncertainty**: something that has not a well-defined outcome and therefore it represents either a risk or a potential full-bodied payoff. Nevertheless, this advantage is not always very clear-cut or spectacular, at least not in the eyes of who decide to adopt the innovation. They can seldom be certain that an innovation represents a superior alternative to the previous practice that it might replace. As we know, change, drastic or not, is always tough to manage and handle against the force of uncertainty; so a technological innovation creates uncertainty in the minds of potential adopters (about its expected payoff), as well as representing an opportunity for reduced uncertainty in another sense (that of the information base of the technology). The potential uncertainty reduction lies in the core of the technological innovation, the information within it. Of course, the aforementioned information is not given, but it can be obtained through an information-seeking activity that could reduce the uncertainty about the innovation's expected consequences to a tolerable level for the individual, in order to turn him into an adopter or a rejecter of the innovation. If the individual uses the new idea, further evaluative information about the technological innovation is thus obtained

and uncertainty about its effects is further reduced. Going beyond the uncertainty is all about seeking information and creating an awareness in the mind of the potential adopters, in order to erase most of the doubts about the innovative idea. Thus, the innovation-decision process is essentially an information-seeking and information-processing activity in which the individual is motivated to reduce uncertainty about the advantages and disadvantages of the innovation.

We have to make a distinction between two different types of information:

- **Software information**: within the technology itself with the function to reduce the uncertainty about the cause-effect relationship in obtaining a desired payoff.
- **Innovation-evaluation information**: related to the uncertainty about the expected outcome of the innovation

Information are strictly related to the rate of adoption of the innovative and not only them. The adopters, individuals or even organizations, clusters within society or countries, will represent our minimal unit of analysis for the rate of adoption of the innovation.

The rate of adoption is represented by an S-curve proposed by Rogers (1981); the main variables that influence the shape of the s-curve are the following:

- **Relative Advantage**: the incremental value the innovation brings with itself compared to the previous one it takes the place of. It can be measured with different unit of analysis, but most above all it depends on the individual perception of the novelty as something advantageous. The perceived relative advantage influences the beginning of the s-shaped curve and the rapidity of the rate of adoption
- **Compatibility**: how congruous the trait of the idea are with the current values, needs and experiences of the social system. If not congruent, if not adaptable, the idea requires a new value system, which is hard to implement in a well-consolidated society.
- **Complexity**: the innovation must be comprehended in order to be used; the complexity is related to the difficulty in doing it. The more intuitive the use of the innovation, the higher its rate of adoption.
- **Trialability**: the extent to which an innovation could be tested; the testability influences the process of convincing themselves that the innovation is real, immediate and could supersede what there was before.

- **Observability**: using what pretend to be innovative must lead to concrete, evident results; otherwise, the rate of adoption would be flat-lined. What is observable, what leads to improvements and better results is more likely to be adopted.

In the end, the higher each one of these variables of innovation, the higher the rate of adoption explained.

Aside, analyzing the innovation from a corporate perspective: who is able to be a dynamic innovator, gains tremendous payoffs. These organizations/individuals begin with a corporate culture that nurtures those who take risk and think creatively, which leads to astonishing growth through radically new products, services and competitive strategies. Of course, this mindset takes time to develop and it rarely lead to the aforementioned reward if there is not a continuous commitment of the company. Though a commitment to innovation is considered a value driver of success and growth, the level of uncertainty involved and the related risk deter corporations from committing themselves totally to its implementation.

Communication channel

We already defined the diffusion as a special type of communication process, where the message is related to the innovative idea; here lies the core of the diffusion, its main assumption. It is as elementary as complex.

If the innovation is the content, the communication channel represents the tool through which the innovation can be spread around; it connects two or more potential adopters.

The main defining feature of the communication is that it provides knowledge, giving units the information they need in order to be aware of the innovative trait of the idea expressed. The source of the information transmitted is crucial for the rate of adoption; the nature of the transfer of information determines its efficacy, related to the status of awareness- knowledge created within the unit.

What has been show from different studies through history is that units/people do not evaluate the innovation on a scientific basis, although this kind of evaluation is anything but irrelevant, and for its intrinsic trait. The assessment is made on the basis of the “word of mouth”; people who already adopted the innovation and spread their experience with one or more potential adopters.

This suggests us that the core of the diffusion is the modelling and imitation by potential adopters, part of their network, who already experienced the innovation before.

Communication is not devoid of problems; the more distinctive is represented by the heterophily, which indicates a big difference between the two units the communication process is going on and then, another relevant issue, sequential to the heterophily, is represented by cognitive distance, intended as "the mental distance between an individual, the most rational of a group and the rest of a group" explained in this way by Curseu P.L. (2014).

Cognitive distance influences communication in a group, touching what is intended to be the collective rationality; how? Blocking the creation of group synergies and making them weaker or unable to develop properly. If an individual is particularly high on rationality and the average rationality of the group is not elevated, the most rational will be disengaged from creating synergies and cohesion with the rest of the members. This will inevitably effects the communication between the members.

In few words, the higher the average rationality of the group, the higher the chance that the singular group will create strong synergies, camaraderie behaviour and will take rational decisions through a proper and effective communication method.

Besides rationality the difference can also be found in certain attributes like personality, education, race and beliefs. The degree of heterophily between two individuals is related to the aforementioned variables. Homophily, on the other hand is when individuals are quite similar or they are part of the same group, with same interests. It is easy to deduct that the communication process is more facilitated between two homophilus than two heterophilus, because of the absence of difference.

The learning curve in the case of heterophily is certainly higher than that one related to homophily; in the former case, you learn more in terms of knowledge gains and attitude formation, but, if the degree of difference is wide and deep, this could lead to ineffective communication with no results at all.

Time

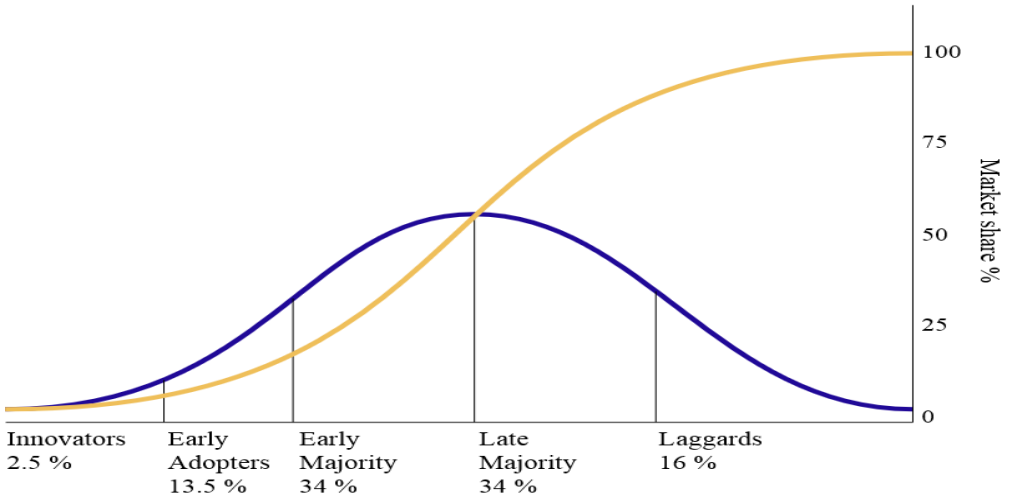
Including time as main variable, as strength for the diffusion of innovation is a critical point. On one hand, it is essential, because it is related according to Rogers (1981)

1. To the speed at which a potential adopter turns into an adopter, the so-called **innovation-decision process**, compared with other members of its social system. We can formally

define the innovation-decision process as the mental process through which an individual, passing by five different steps, after the "first knowledge" about the innovative idea, switches to the implementation and then to the confirmation of its decision. The 5 mental steps of the individual are (1) **Knowledge**, in which the person become aware of the existence of the innovative idea, developing some sort of concept in his head, (2) **Persuasion**, in which it develops an attitude toward it, (3) **Decision**, engaging an activity which turns it into a rejecter or an adopter, (4) **Implementation**, innovation put into use and, in the end, (5) **Confirmation**, assessment of the produced results.

2. To the concept of **innovativeness** related to one or more units. It can be defined as the degree to which a unit arrives to the adoption of the innovative idea than other members of its social system. We split the adopters into 5 categories and assign their related market shares , (1)**Innovators**-2.5%.(2)**Early Adopters**-13.5%,(3) **Early majority**-34%,(4)**Late majority**-34% and (5)**Laggards**-16%
3. To the **innovation's rate of adoption**, measured as the number of adopters that pop up in a social system, taken a specific window of time. We redirect it to the five perceived attributes of the innovation; the rate of adoption is a function of them.

Fig.2 The rate of adoption of an innovation



Source: Rogers M.E.(1981)

Social system

The border, the perimeter within an innovation pops up and spread around. It is made up of interrelated units committed to solve joint problems in order to accomplish a mutual, common objective. The units that create a network within the social system can be organized in different ways: individuals, formal and informal groups and organizations.Rogers (1981)

The system has a structure, formally defined as the patterned arrangements of the units, that can influence either positively or negatively the spreading of the innovation.

Inside the social structure, behaviours are regulated by norms, informal rules of conduct of behaviour that are considered important by most of the society and are not put into writing. Norms are related to a particular social system, they are not general. When members share a common idea of acceptable behaviour, they can monitor each other's behaviour to make sure everyone is following the norms. Units/members conform to norms for three main reason, (1) Compliance, (2) Identification and (3) Internalization, but between conformity and deviance, balance is needed. Too much conformity represents a barrier to change and refresh norms, a barrier to new ideas; too much deviance reflects a loss of control within the society.

However, which is the origin of the innovation? The right question is "Who" is the origin of the innovation? The opinion leader, an individual capable of influence and exercise control over the

others in a desired way, who is fully aware of the innovative idea and put effort for spreading it to many. The opinion leader is, therefore, an innovator, representing the essence of the social system itself.

1.3 TALC, Technology Adoption Lifecycle:

Who you have to reach... and what you should consider when marketing them

To understand what happens in an industry when an innovation is introduced and starts to spread into the market, the significance of Talc can provide us some clue about the conditions for the innovative product and a flash into what will be.

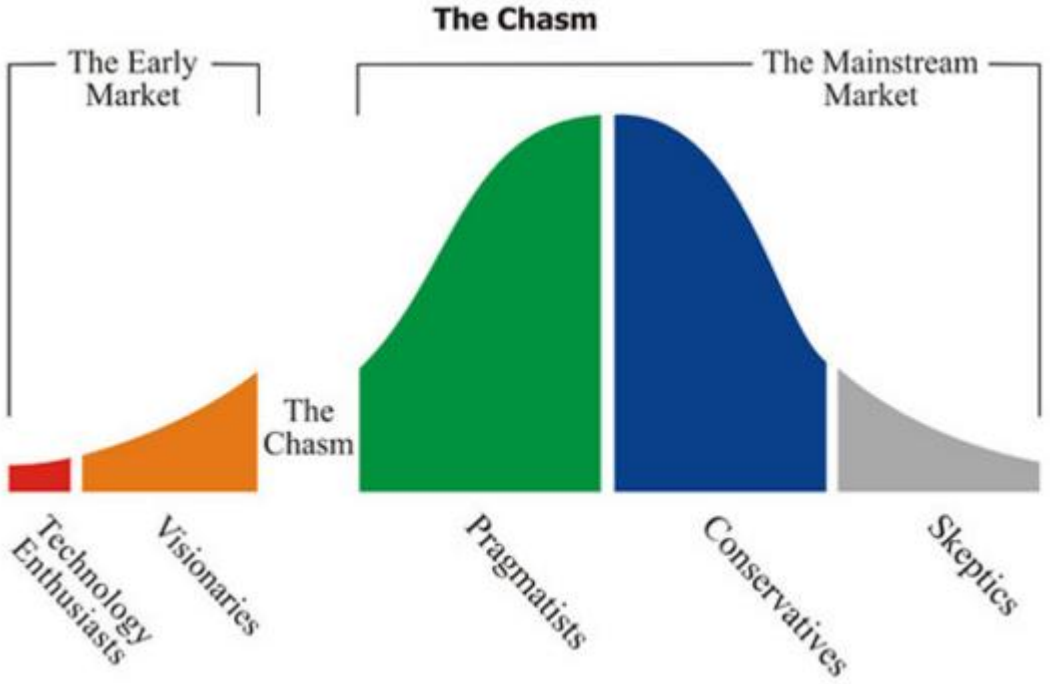
The Talc, Technology Adoption Lifecycle, is a sociological business model created by Joe Bohlen, George Beal and, mainly, Rogers Everett. The model has been proposed for the first time in the book "Diffusion of Innovation" by Rogers

The Talc allows understanding whether a product, an innovative product presented in the market, can be accepted or rejected by the demand. Therefore the basis of the model is primarily represented by capturing who is agent of the hypothetic demand, categorizing the individuals and understand which percentage of the entire social system, each category represents.

Before going into the detail about every category of the social system, we have to understand practically their meaning into it. The focal point about the innovative idea is represented by the temperament toward the technology acceptance, at least from a marketing point of view; every time a consumer is presented to new products; it faces a potential change that disrupts our habits, routines and behaviours. This phenomenon is the so-called **discontinuous innovation,** led by **change-sensitive products**. The opposite term idealizes a situation where a normal upgrade of the product occurs normally and it has not disruptive consequences; it is the **continuous innovation**. In an industry, the presence of the discontinuous and continuous innovation depends on the type of products traded inside; on one hand, there are industries where the continuous innovation is ordinary and the discontinuous extraordinary, on the other hand, the latter is introduced rarely and it is followed by great hype.

The Talc is a descriptive model that permits to understand the market penetration of an innovative product .It follows a normal distribution, well represented by a Gaussian curve, whose two dimensions are the quantity of adopters in the market (y) over time (x). Usually the curve is based on a "bandwagon effect" that makes the next group willing to buy the adopted technology.

Fig. 3 the TALC, Technology adoption lifecycle



Source: Rogers M.E. (1981)

Every group has a peculiar way of responding to the new product determined by the **psychographic profile,** mix of psychology and demographic

- Innovators: the first people to adopt a technology are those who represent the technology itself because they use it for their own advantage. They are to first to appreciate the whole structure of the new product, trying to make that work spending time and energies to do that. The adoption process starts with the willingness to take risk, an unbeatable desire of venturesomeness, energy, creativity and ideas. Innovators are technology enthusiasts, aggressive followers of new technologies who strive for catching and assimilating what is innovative, providing access to an upgraded segment of products. They are the first to experiment what is going to be potentially new into the industry, why? Just for interest,

they are technology passionate, intrigued by any technological advance. At the same time, they are the most critics, but because they truly believe in what is new. Everything they do is done in order to move technology forward. Converting them to the new product is the key to trigger the bandwagon effect; the other segment will see that it works. Because of this, we can define techies or nerd or more clearly inventors, the gatekeepers for any innovation in the market; as such, they represent the tiniest share in a social system. Some important affairs must not be absolutely ignored when a product is bound to the techies:

- **First**, they require the truth, no tricks neither bluff,
- **Second** they must have the possibility to speak to the most knowledgeable person in terms of technology in order to defog any doubts,
- **Third,** they want pre-emption in obtaining new stuffs to study on.
- **Fourth** they want everything cheap

You can reach techies being direct and explicit as we said before; putting in your strategy compelling and involving advertising will not be functional at all, because they will know, it would be just marketing hype.

In the end we could say that this psychographic segment, because of their limited share of market do not represent a proper breakthrough in the business, enough powerful to bulldoze the buying decision of the others. Instead, they are a benchhead, a secure initial position that can be used for further advancement, through tests and feedback to implement in the design circle. **Catch phrase: "This is cool technology"**

- Early adopters: they are driven just by intuition on the base of future perspective of benefit. Not being technologists, they rely on imagination and insight, bounding an emerging technology to a strategic opportunity; once

  Found a bond between what they are looking for and an aspect of the innovative idea, they embrace and appreciate the intrinsic value added of the new product. They are strongly motivated by a dream, a vision they had and that constitutes the main reason why they could be supportive to any emerging ideas. We can say that they are a hidden source of venture capitals. The main gist of the dream is a goal concerned to the business, not concerned to the technology itself; it includes a disruptive leap forward in the way the business is led in the industry. What is not usual for this kind of personality, is that E.Adopters decide to embrace something that is still prototypical, ready to be committed,

if a match is present between their concern and the aforementioned advantage, to fulfil the gap and make the technology working. All this involves a willingness to take business risk in order to obtain the aforementioned breakthrough in the business logic and in the market (and, of course, a great return on investment). It is not the improvement what they look for, but a boost, a revolution, which enables the producer to deliver higher value in the market. There is a fundamental difference between innovator and visionary, the former delivers value through a new technological structure/product, whilst the latter aims to the leap we spoke about, that the new product enables. E.A represent the primary point of impact of the new idea upon the market, making them the keystone of the market. If a product has such a penetration to go beyond the innovators, it has the potential for being a truly innovative product in the market. What about their profile? They have dreams and visions and they see potential in what is up next, therefore they are no price-sensitive; they are aware of deviating from the ordinary path, but they accept it due to overcoming the competition. What they provide to the industry is a great up-front of money to support the project they are interested in. Beyond doing this, they are effective in warning all the market about the rising of an innovative technology.

Of course, they cover the role of investors and buyers as well; as buyers, they are not so easy to satisfy. Why? Because of their role of investors that brings them to buy a vision, something intangible against which there are millions of probability of concrete realization. In sum, visionaries are a big opportunity for generating a boost in the revenues, because of their long-term perspective and willingness of investing, but most of all an opportunity of great visualness for spreading the word about the upcoming technology. On hand, it is hard to plan for them, satisfying every desire and request linked to their dream, but on the other hand is almost impossible to think about the diffusion of an innovation without them and their capabilities. As we already said, they are the Kingstone of the innovation.

Catch phrase: “I can see the impact”

- Early majority: starting from the assumption that the new technology leaps the chasm (we will talk about it later), it may create a well solid customer base that constitutes the main reason why early majority exists. However, who are they? What can be said, it is they do not have the same inclination to be protagonists as early adopters are. They do no rely their logic on visions or dream, they want --something practical, tangible, measurable and observable. In fact, early majority are also well known as pragmatists and methodical in their approach: the leap over the chasm happens if there are proven data and fact that constitute the main base of their safe investment. If the logic of the visionaries is based on a vision that will bring a quantum leap in the market panorama, that one of the pragmatist aims to obtain a measurable, concrete and foreseeable improvement. They are totally risk adverse, looking for something proved, stable references that have already made this investment decision. What are the value drivers of their logic? They care about the firm they are buying the product from, its quality, but most of all the reliability and the authenticity of the product itself. The way of thinking behind all this, is the long-term perspective driven by a strong sense of practicality. Because of this long-term mind-set and because they control a large amount of money in the market (they retain the biggest market share as a social class) the prize of building a relationship with them in order to create a sense of loyalty will always make the effort worth.

  In the end, remarkable is a trait of pragmatist buyers, they like a red ocean market for the following reasons:

  - Lowering costs
  - Being certain of the presence of more than one alternative to fall back on, should anything go wrong
  - Being certain that they are buying from a proven market leader. This is a crucial aspect because pragmatists know that competitors will try to build up complementary and supportive products around a market-leading product. From here a market-leading products create an **aftermarket** that other producers will serve. This brings to a drastic reduction in the pragmatist customers' burden of support. Market leadership is crucial, therefore, to win pragmatist customers. **Catch phrase: "Show me"**

- Late majority: Conversely, to the early majority, L. M are conservatives and they are not able to manage a new technological product. Against the discontinuous innovations, they can be imagined as followers, insecure of the investment they are going to make; so they proceed to make a purchase when the product is starting to have the traits of a standard thing. Even when they embrace the innovative product and are aware of what they want, they need support anyway through thorough and demonstrated information. Because of their incompetence about technology, when the innovation approaches, they are just able to follow the crowd and think according just to the common way. That is why L.M are conservatives. The products they understand the best are those who work in just one sense and have only one function. In order to market them you have to take into account one factor; the producer should have thought to a complete solution to a final customer's need within the package itself. If we think about it, it is controversial, because it is as if the producer provides a sort of after-selling assistance that does not bring him any kind of profit margin, but thanks to this, the unknown product to the customer can be used without any type of difficulty. Here lies most of the pragmatic logic of pragmatists. Nowadays they are considered something that is still developing, something that has its core in the future more than in the present, where it is considered a burden than a convenience, an opportunity. than **Catch phrase: "Everyone else is doing it, so I guess we have to"**
- Sceptics: always open to criticize almost everything, these laggards are diffident of everything new. They criticize, blocking the purchase instead of being part of the marketplace. They are the last one to embrace "the change"; the role they play in the game of the diffusion of innovation, is to arrest it. They are literally the brake of the diffusion of a new technology pointing out that what is new in the market will not maintain the selling proposition. Change for them is disruptive and scary. What they do is taking even the smallest discrepancy in the new product and stretching it in order to make the market understand that the claim of the product does not correspond to its function, but most important, its quality and therefore adopting the change, could be not only disruptive but also a worsening. In all this, the word of mouth can foment the hypothetic disappointment of the market about the new product and this will result in a loss of market share. **Catch phrase: "It will never work, what's old is good"**

Each of this segments presents different characteristics to which correspond different way of approach. It would be crazy thinking that you have the chance to address them all, because the innovation and behaviours have one thing in common: they grow gradually.

The Gaussian curve showed before show a smooth and linear trend toward the acceptance of the new product intended as an innovation. In the reality, things are not as the model describes; we did not consider the "chasm". With this word, we identify a disconnection, a missing ring in the ongoing process, but what does that mean? Literally, the chasm is an abyss, a sudden interruption of a continuity. Here we mean chasm as a state of chaos, compelling and instrumental for building up a bridge among the adopter personalities and make the transition to the next segment, real. Every two psychographic groups there is a stage of dissociation caused by the adversity of accepting something disruptively new in the buying habits. Each of this stage represents a moment where the innovation can deviate from the diffusion path, be missed and never heard from that point on.

The origin of the chasm, the first crack at least, is the contrast between the buying routines of innovators (visionaries) and the early majority (pragmatists); the former accept the innovation, revolutions in the paradigm, discontinuous innovation and fragmentary solutions, whilst the latter require safeness, certainty and exhaustive solution, judging what is new on a standard base. The logic the transition can go unnoticed is that pragmatists are not able to recognize the true value of the just introduced product. On one hand visionaries are **change agents**, representing the first big share of market being hit by the new product; because of this, they expect to have a big advantage in the competition than the others. Something rooted in whatever could be a business advantage: lower production costs or a better working logistic. The expectations of early adopters are met when the innovation represents a break point with the old logics of business, creating a discontinuity aimed to a big improvement. On the other hand, early majority want evolution, not revolution, enhancement, not disruption, integration and not substitution. It is a more specific desire the one they have just related to a productivity improvement.

Being the pragmatists the keystone of the market, bridging the chasm is essential in order to guarantee that smooth and continuous progression of a new product through the psychographic segments. How to do so? Delivering a whole **solution,** represented by a product that extinguishes and addresses every questionable issue, being solid and unassailable. Aside than this, compliance between the product traits and the pragmatist interests is strictly required; the expected benefits must not show glitches or malfunction at all in order to minimize the risk of using a new technology

and creating an improved continuity. This is the starting point for capturing the mainstream market with a leap forward, appealing the non-technologist.

A summary of the aforementioned situation could be told in the following way, according to the Zen proverb:

First, there is a mountain

Then there is no mountain,

Then there is.

- *First there is a market* populated by technology enthusiasts and early adopters, a premature market, based on funds aimed to reach important business goals
- *Then there is no market*, where the chasm is embodied; the early market strives for metabolizing the innovative and disruptive idea, whilst the mainstream market still waits for having proofs about the quality and safeness of it.
- *Then there is;* if the new technology/product is completely absorbed by the mainstream market, a new whole market will come out made up of pragmatists and conservatives that retains the biggest shares among the psychographic clusters and represent the ultimate chance of prosperity and growth.

The chasm is dangerous because represents a crucial standoff for the lifecycle of a new product; here the visionaries adopt the products and experience a period of rapid growth and acceptance. Immediately after either a sharp decline begins and the product falls out from its predestined path, or the high expectations created around it match with the needs and desires of the mainstream market; revenues and continuity are around the corner.

So far, we have just spoken about the first crack in the Gaussian curve; what if is there another one? According to the theories, another instable moment is present, specifically between the pragmatists and conservatives. In this moment the product, we are imaging of, is well spread in the market and involves always more and more customers. The changeover is between two deeply different psychographic classes; pragmatists are practical and willing to learn always more and more about the innovative product in order to become technologically proficient, while the

conservatives not so much. In the standoff, it is all about how accessible is the usability of the new product in order to penetrate the remaining targets of the market and keep being successful. If the product is complex, will not cover the next segment of the curve and the transition won't take place. The difficulty in having access to this product, will bring the conservatives to not use the main features of it; as the main consequences firms will not be able to invest in R&D because the end user cannot join the gain.

After this general overview about how the diffusion goes on through the different social classes within the market and what the chasm can be inside the process of development of the innovation, it is time to understand specifically how to capture the attention and the interest of every of them through a marketing strategy. I would call this phase **enlightment.**

1.4 The dynamics of the different markets

In this context, we could define marketing as the set of actions for entering, conquering, improving and defending one or more markets. The main aim of the marketing is to carve something substantial and not, to create an illusion to the customers. Marketing is not about what, but about how you present your product to the market and sell it. Of course, defining marketing has the consequence to bring us the burden of defining what a market is: it is made up by a set of potential customers, who have set of common needs and wants and, now of the purchase, they confront each other in order to create a sense of awareness about the product. Unfortunately, this definition of market brings us in front of an undeniable truth: it is not a single isolable object, it is not specific and it cannot be the focus of the marketing (according to the aforementioned definition). How to come around to this problem? Segmenting the market into portions that represent different type of customers. It is all about disrupting the natural boundaries of assembled potential sales. On the other side a marketing strategy cannot be based on hitting every marketing target made; the so-called self-referencing factor must be taken into account. Every plan has to consider the word of mouth effect, because the more self-referencing the market will be, the more strictly linked will be all the communication channels, the easier will be the diffusion of the innovation. A marketing plan, in few words, should also be based on a **chain-reaction effect**.

Early markets

What we got so far? In order to start an early market an innovative product is required, a product capable of making the others think, and "This is going to be a revolution". This product should lead to new applications, showing all its superiority to the main classes who are the protagonists of this market: the innovators and the visionaries. The target can be split in two parts, capturing the attention and the interests of techfans that will start to spread the word if the product maintain its promises of guarantying a quantic leap forward and matching the interests of wealthy visionaries that decide to invest on it because of their longstanding perspective.

This is just the starting point of a process that will see the market flowering. If the market opens up to the product as it should, everything we have spoken about innovators and visionaries should happen. For the former cheap copies of the new product and a total reserved assistance and, in the meanwhile, for the latter a compelling explanation of the vision behind the product itself. This is just the top of the iceberg and, of course, it shows the best case-scenario possible. There are others cases where things do not go so well, for example:

- Because of the high inexperience of the producing company, the product is not brought in an ideal way to the market. It is a matter of expertise; they are missing, therefore the distribution channels is not properly chosen, for example, because marketing and sales people are not competent. The target is not well hit or it is made in a place that does not attract interests and attentions. This happens because usually the new company wants to be the best, the biggest, the most captivating in the market; to the lack of expertise follows a lack of awareness about the real potential the company currently has. You cannot be the one with the largest market share because of your innovative idea that, for the records, you are introducing now into the market. Remedying to this is not hard; it is just about pointing to a self-referencing market segment, establishing a leadership and let the word of mouth being the trigger of the growth. Underestimating the powerful effect of a chain reaction is the biggest mistake you can make in the long-run of diffusion of innovation
- Going too fast could mean delivering to the visionaries a product that is still not a complete product. This is the so-called **vaporware** problem: the producer preannounces and premarket a product afar to be suitable for being released. Operating in this way leads to a creation of hype in the main customer; hype leads to expectations and expectations must be satisfied, but the matter is that the product is not ready for fulfilling its main function. The

credibility and the reputation of the product itself, even if it has not yet been completed are already damaged. This discourages the potential investors who could decide to withdraw their support, despite the great job made until this point. At this point, the only choice remaining for the producing company is to take all the resources spent in the marketing campaign and lead them to the production process, in order to make the product **marketable.** Mainly this error is caused by one common unrealistic belief: the managerial hubris.

- Sometimes there is a crack between innovators and visionaries that can be amplified by the fact that the product is not shown in a way to result innovative. The true compelling application of the innovation does not bring a real quantic leap forward in terms of gain. When this happens, the product is not inserted at all in the planned roll out because of the risk it takes; it does not offset the promised rewards and therefore it brings a lack in terms of reliability. From this lack, the producing company can decide either to shut down the entire project or to sell it as a wastage.

  The remedy in this case is to assess accurately all the alternatives and resources the company has and to take a rational decision. Usually there are two main alternatives:

  - If the product does not represent a true improvement, then it cannot be considered innovative and an early market will never be created. Notwithstanding the product can play the role of supplement in an already existing mature market? If so, than the company has to debunk future expectations and submit the product to another one, for which it will represent a support.
  - If it is an authentic breakthrough for that industry but the company is bugged down in trying to start the early market, then the approach must be more practical. This means not focusing on different applications of the single item, but going further and concentrating all the effort on just one of them; preferably the one that is compelling to the visionaries , possible crucial funders of the project.

  Fortunately all the possible committable mistakes during this phase are recoverable and there all always different alternatives for acting. Sadly, the most common is tied to contrast between great expectations around the new applications and the fundamental matter of the **undercapitalization.** Jargon talking when “your eyes are bigger than your mouth”

Mainstream markets

As we said before, the driving class of the innovation in the early market was the one of the visionaries because of their resources applied to their long-term vision of the product. They represented the key for entering the market.

Here this role is well played by the pragmatists who does not only represent the keystone of the market, but one of the largest psychographic classes in the completely social context. Getting them means dominating the market, but only in the short term. In the long term, the competition erodes your leadership and your advantage. In order to do so, the product should be at least good and the company must at least keep the pace of the competition. This means that if a competitor proposes something highly disruptive to the market, the company we are talking about should be enough resilient to respond with a proper idea.

Never underestimate the competition, thinking at the market as granted forever. The leadership position is something you fight for every day, never sitting back and resting. The innovation and the improvement must be the base of company's main task.

On the other side what are the most common ways that bring the company to lose its position into the market? Resting is the keyword for defining the phenomenon, but it has different declinations related to different cause:

- Imagine the funds as the water; the flow stops to fuel R&D (which is crazy, because it is the main base for maintaining a leadership position), therefore the investment in the market are stalled. Most of the times company takes this decision is in order to invest in something else, shifting most of the effort on another **application/project/market**. Letting the managerial hubris taking the control is the biggest mistake a new company, in the mainstream market, can commit (yes, also here). As a young company, your focus cannot be redirected to different projects, because you do not have such expertise to do so. That is the main consequence of being intoxicated by the hubris, **biting off more than you could chew**.
- The other extreme is to invest so much on your flagship product to make a terrible mistake and ruin it, because of pushing too much to reach a whole new level of improvement. This is caused by too much commitment on the product, that is not, of course, something wrong, but it must be controlled and driven in the right way in order to avoid to fall apart. Another

reason can be found in a wrong marketing model. The truth is that customers in the mainstream markets despise discontinuous innovation because brings to a fundamental lacks in the sense of stability and reliability the products should give them. If a producing company falls into this error, it means that it is too much focused on the early market, hungry of disruptive innovations, and too negligent toward the mainstream one, needy of quality, certainty and guarantee.

Keeping in mind these two possibilities, a question rise: "What about the transition between pragmatists and conservatives?"

The leading way is articulated in two distinct actions: maintaining a good affair with the pragmatists allows the company to keep the door open for something new, while renewing constantly the product makes conservatives happy. It is a constant work of harmonization of the actions between these two classes, but if well done, it can reward the effort; how? With great earnings, deriving from the sense of loyalty the company has been able to build up among the customers. As mature, the mainstream market hides a great potential.

An interesting trend can be observed about what the firm offers, a core product, with breakthrough benefits, and additional services regarding the product itself. If we observe the importance these two things have in the whole diffusion of innovation process, differences will rise according to the different social classes. While for the innovators the intrinsic characteristics of the product shine like gold in front of their eyes (it is easy to understand, they are techno-fan), the auxiliary services around it assume great importance moving on toward the mainstream market and in particular speaking of the conservatives. Consequently, the latter are extremely service oriented, while the former are product oriented and they are involved about everything that concerns its core.

The logic behind this fact is that the more mature the product becomes, the more the service around it assumes importance because of the aforementioned sense of stability it can give. Between the pragmatists and the conservatives there is one crucial element for not falling into the chasm and that one are the services around the product. Conservatives are basically shy in admitting that they are not able to make an upgrade in the technology, embracing the innovation. They are not incline in supporting themselves, therefore they need services tailored around the product; it does not look like, but this is one differentiating buy factor between the two classes. The ignorance of conservatives in terms of technology is the greatest threat to the lifecycle of the product. The role

played by the marketing campaign here is to make the transition between every class, smooth through the creation of awareness around the product for every social class. Triggering the bandwagon effect is the key for taking them all. That is the core of the technology adoption life cycle model.

Back to the chasm

Now is clear what could happen in the different markets and how the different situation can be sorted out through the creation of a rational solution. According to this, we can say that TALC is essentially a guidance, which illustrates the psychographic trait of every social classes, permitting to the company to have some guidelines about including them in planning a marketing campaign, suitable for each of them.

The aim of the model is to make the diffusion of an innovative product, fluid and smoothly. The criterion, on which it is based, is the adaptation: every time a company accomplishes to market a segment, then it has to renew its strategy in order to adapt it to the new one. If we think about it, is stressful and challenging, because it happens when the company becomes most comfortable with the current segment. The experience here works conversely: usually is a situation that teaches you how to behave in the future, but in this case what you learn in the previous segment is useless and not functional for the next one.

Beside the difficulty of the "approach", one important issue is tied to impossibility of creating a big enough customer base that would represent a solid reference for the next one. The reference for a social class is an indicator of solidity and reliability of the product, therefore it represents a factor that contributes to make the transition smoother among the classes. The most uncertain classes need a reality check; if the customer base is not solid enough, the gap between the classes can become critical.

The factors related to the reference are different; sometimes classes creates relationship because of their affinities, deriving from the fact that they are part of the same industry, sometimes they just want a reference from who knows more than them. Ex. conservatives look at the pragmatists because of the affinity but also they are more confident with the technology and, so, are able to give better reviews than anyone else is. Because of their practicality, they gain great awareness embracing the product and using it.

There are different filters through which a class watches another class:

1. As industry companion
2. Business people
3. Purchasers of technology.

We can recognize a lack between every social classes that can be fulfilled just by the references. We are talking about a weakness that nowhere can be seen well than between visionaries and pragmatists. This is the chasm.

Going into further details about this rift, there are four identifiable elements, peculiar of the visionaries in contrast with pragmatists:

1. **Strong sense of superiority**, given by the first try of the new product. Because of this, visionaries are the first to discover the potential behind the product. They think to be more clever than the others because of their ability to see things first (and this is, of course, a good element in the game of competition), and this brings them to discard any other opinions about the experience with product. Conversely, the pragmatists give great importance to the other's experience; it helps them to fuel the awareness they are building up around the product.
2. **Too much focused on the technology and not on the industry,** in some occasions like conferences about technology, or special event where they like to make forecasts about the upcoming technological products and trends. Visionaries are easily bored in speaking about the present, but extremely excited and interested in speaking of the future. On the other hand, pragmatists because of their great sense of practicality do no find useful speaking about the future, because what they have in their hand is the present. It is also a decision about where and if to invest in a specific technology. They are industry oriented, whilst the visionaries are product oriented.
3. **Not giving proper credit to the importance of the already existing infrastructure;** because they see the first architecture of the product, they build up the product from nothing, according to their opinion. What they accomplish is to concretize their vision, making it real, no matter what has already been done. They ignore the presence of an already existing project for the product. This shows how they operate according to the belief that nothing has been done around the product and nothing exists: procedures, support

groups and marketing plans. Conversely, pragmatist build their expectations on all these elements, being aware that they want what has originally been created. This sort of deviation initiated from the visionaries shows how they are not advisable as a reference for the pragmatist. This is a concept similar to the managerial hubris: a strong belief combined with a univocal view. The potential chasm here is not caused by technical issues, but from the immovable presumption that the already existing infrastructure actually does not exist.

4. **Being disruptive** tied to an attributional bias called "**self-serving attribution**", the tendency to take credit if the product accomplishes to reach the established goals and to avoid blame in case of failure. In the former case visionaries take credits and leave the scene, leaving pragmatists to deal something they basically do not know how it works, whilst in the latter case, visionaries look like to have foreseen the disaster and vanish. In any case, notwithstanding their long-term view, they do not plan to stick around so much time; pragmatists on the other hand are committed for long time because they will live with the consequences of what they have chosen to purchase and embrace.

It is not so hard to understand why pragmatists are not so excited to take into account the experience of the visionaries as reliable for their purchase; this leads to the chasm. According to the theory expressed by Moore in its book "Crossing the chasm", this one is strongly influenced by the variable of time. Once the process of diffusion has started, the vendor wants to sell as soon as possible (it would be better to say it needs to sell) whilst the pragmatists asks for time to make their evaluation and to proceed to purchase. Everyone has its own good reason for behaving in such a way. Using a metaphor reported by Moore: "The clock is ticking, now it is all about who blinks first".

So far, I have illustrated what nowadays is the innovation, a relative idea inside the world we live in, but extremely flexible and complex at the same time. Everything arises with an idea, that wants to be disruptive because of the breakthrough it imports in the whole market; sometimes so disruptive to create a new need between the customers, sometimes so fallacious to fall apart. Spreading what is intended to be an innovation is an extremely risky road, because it is a novelty, a deep change in the logic of the business and in the buying routines of the customers. Change it is never easy to accept because of its uncertain nature; that is why in order to proceed toward the right direction, the TALC is a useful tool for redirecting the effort of a producing company into a profitable strategy. As we saw, there are different segments in every market and not everyone can

be approached at the same way. Differentiation in the marketing campaign is the key for understanding deeply what the customer wants and expects, in order to make the last changes for creating a perfect suitable product.

The terms through which an innovation spreads into the market are now clear, but what kind of brand-new product is this thesis about? An extremely advanced, but still prototypical product, notwithstanding the number of years we took advantage of it and the applications we developed with it: the optic fiber.

Chapter 2

2.1 This is what is happening in the world: the IoT

Before introducing what is the real subject of this thesis, it is important to describe the reference context in which we are from a technological (and not only) perspective. As I anticipated in the first rows of the first chapter, the world is getting more and more connected because of the great technological improvement. We are becoming more connected with what surrounds us: through the smartphones, we are able to do a myriad of actions just touching a screen, for example sharing of contents, payments, turning on the radio, or even checking our house alarm. Quoting Manuel Castells: "'We live today in a period of intense and puzzling transformation, signalling perhaps a move beyond the industrial era altogether, and this creates disorientation" Castells (2010)

Castells thinks that the era we are living is determined by the presence of network society, a society whose social structure is a pure network made of informations about us.

As emphasized, the network is made up of nodes where the curves created by informations intersect themselves and create communication. There is no center, not a bigger node than another one, there are just nodes. The only difference between nodes is the degree of information they can accumulate and the information itself is the unit of measurement of node`s utility.

Of course useless nodes are reconfigured by the network itself in order to be different but every node is the center of the network, every node is important because the network exists in function of the single node.

This is the concept of interconnectivity.

The base of this interconnectivity is the internet, or even better a reliable connection that allows people to do different things through one device. All these facts are just a single part of something greater, a project that not just one industry is running into, but most of existing industries. I am talking about the **IoT,** in three words: **Internet of things.**

The Internet of Things (IoT) has reached many different players and gained further recognition. Beside the potential Internet of Things application areas, Smart Cities (and regions), Smart Car and mobility, Smart Home and assisted living, Smart Industries, Public safety, Energy & environmental protection, Agriculture and Tourism, part of a future IoT Ecosystem have acquired high attention. Following this wave of improvement, most of the governments all over the world think about the Internet of Things as an area of strong innovation and great growth. Although there are still areas and applications to be discovered and whose the potential is evident in some areas, the majority of the leaders in this context listens what is happening and sometimes push the pace of the development, adding additional components to the IoT world. Moreover, most of the end-users have nowadays acquired a significant competence in dealing with smart devices and networked applications because of their usefulness combined with their intuitivism.

As the Internet of Things keeps spreading, further potential is estimated not by discovering new segments, but exploring synergies between related technologies and existing concepts such as Cloud computing, the Big data concept and future internet networks, such as the 5G coverage and the optic fiber, parts of a bigger but specific universe: the Broadband and Ultra broadband segment.

Fig.4 Internet of Thing Ecosystem

,

Source:*Vermesan O. (2013)*

The IoT is playing and will play a twofold role:

1. It brings a boost in the economy because of the stimulation in the competition, not only between multinational companies but also between startups with new and creative applications
2. It improves the citizen's daily life and it makes it easier or more interconnected with few gestures. Remarkable is the concept of interoperability, the capacity of a device to operate different functions through the connection with other software. This is the so-called **communication M2M** or **machine to machine**.

The IoT is something still growing, not prototypical neither advanced because of some elements, limits and obstacles that impede the full exploitation of the IoT potential. Some of them are: difficulties in creating business that are fully IoT based, fear of violation of the privacy connected to the concept of Big Data, great amounts of data treated by the largest Telecommunication and technologic firm in the market and a not-so-intuitive approach to the innovation the IoT world is bringing into our world.

Given this premise, now it is time to analyze on what is based the IoT, which is the shared infrastructure that hold all the shack and which industry is related to it. It is time to see from a closer point of view the Broadband, but especially the Ultra broadband world.

2.2 The Broadband and Ultra broadband market: inside the TELCO world

In the last year, the landscape of Telecommunication world has changed deeply. Despite the great mole of acquisitions, mergers and the enormous amount of economic transaction made in the market the number of the operators is getting even higher and those who are historical player, are consolidating their market share and position into the market. Just think about as the simplest and most recent example, the mergers between two Italian operators **Wind** and **H3G,** involving 33 millions of customer base, 33% of the market share of the entire mobile broadband market and 16% of the fixed broadband one, aims to enable synergies for 5 billion euros and revenues for 6.4 billion. As it is observable, the telco market plays with great amount of moneys; why? Their activities have consequences in our daily life and as the opportunities of providing a better service grow because of the tremendous technological advancement, the amount of money the operators invest, in order to show to the public that they are customer-obsessed and that is evident the willingness to provide always a cutting-edge service, rise and rise….and rise. Inter-platform competition is getting more and more accelerated: in the 90's the only thing that allowed people to call in mobility was a mobile phone with a sim (subscriber identity module) card. Nowadays we do not have just phones, there are smartphones in which the most important component is internet, not calls neither texts, there are tablets, there are mobile routers, internet keys and even the fixed line has changed its aspect. This last one is not a tool imagined for calling mobiles or other fixed lines anymore; fixed line today is equal to unlimited internet, something you take advantage of in order to use all its potential through different applications, from internet call to instantaneous chat, to social networks and a hundreds of other functions. We are in an era of fully-fledged mobility across different network technologies.

The market of the broadband and ultra-broadband is becoming increasingly competitive, always larger and it is evolving constantly. Nevertheless, there is an important distinction to make while the mobile broadband market is almost saturated competing on the price side and now, only now, on the contents (Spotify and Netflix the most famous), the greatest margin of growth is perceived in the broadband and ultra-broadband market. Here the speed reached by the optic fiber is the

greatest challenge to the operators, and the countries are facing in order to realize the aim of a full digital world.

Especially in the ultra-broadband segment the key value drivers of the offers are

1. **Quality** of the service
2. **Reliability** of the line
3. **Security** of data
4. **Bundling** of different components

Especially about the last one, there is a lot to say because it is related to a specific part of the greater ultra-broadband offer: this latter is called the **convergent offer**, to which I will dedicate an important part of this thesis for analyzing how operators structure their marketing campaign using this advantage.

In the last few years the Telco industries have evolved a lot; think about the WLAN, wireless local area network is no more just related to a neighbor but to entire cities or even countries. Everyone who in the past believed that the mobile broadband was the market with the highest margin of growth, has been disproved by the present where the focus of the greatest Telco MNE is to bring a reliable and qualitative fixed line service to every house in the country. The main motivation of this great focus is because the house has become the center of most of people devices: for every normal family (supposing made up by three people) there are at least three smartphones and three laptops. Phones and pc are no more device used just for working, making calls or make calculation and the barriers between all the devices are falling down because of cloud services; contents are owner of the life of everyday. Contents such as music, streaming services and multimedia services are getting always closer and closer, thanks to the convergence, to the Telco world. It would be restrictive imaging phones just as tools for making calls and communicating with other people.

Is it true that this industry is evolving at a tremendous rhythm, increasing the potential of wireless connectivity and mobility connection ‘til the greater deployment of wireline and wireless ultra-broadband technologies (**UBB**)?

The superiority of the fiber optic technology is evidenced by its speed and effectiveness in shaping the communication infrastructure in the last few years. Nowadays the fiber optic represents a real bandwidth breakthrough, a twist on data transmission because of its abnormal capacity to carry

data at the maximum speed. Nevertheless, since the evolution is so accelerated and the innovation is strictly entwined with this new technology, the pace of an adequate fine-tuning cannot stand it; therefore some main problems cannot be ignored. First, the limited coverage of the ultra-broadband service that is not able to reach some areas that currently have been defined as incompatibles because of their conditions. As a new technology, there is still a very big room for improvement.

UBB has been proclaimed as the winning choice for increasing firm's productivity, but most of all to contribute to the economic growth of a whole country. As it observable, it is not just an innovative product, but also something, that will reach the root of every economy in the world and will shake them, modifying them and guarantying a better worldwide connectivity, that can have thousands of applications everywhere. All over the world, regulators have promoted the development and the roll out of the UBB differently. Every operator adopts strategies that allows it to take the biggest share of this emerging market. In the meantime the investment on it are quite expensive and here is explained why there are problems of coverage in some areas inside every country: if it is not guaranteed that there will be enough demand to make the investment worth, then it is better not to make it. Strategies and investment in the UBB will be a core part of this chapter when Italy will be the main subject of the analysis.

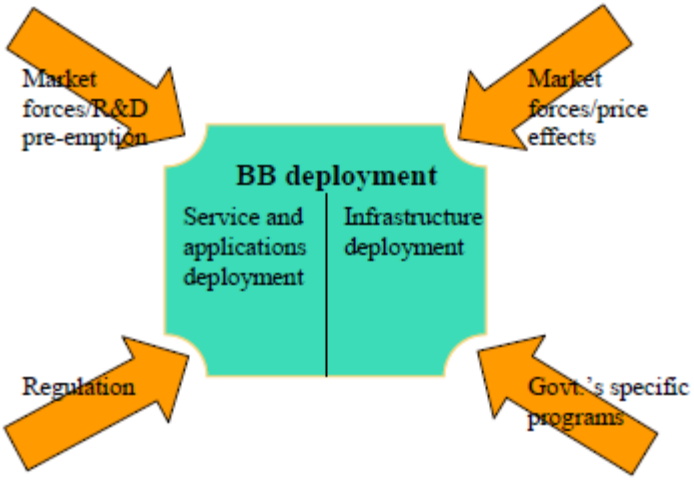
What about the demand? In the first chapter I analyzed how a product, conceived as innovative, spreads into the different social classes that represent the demand of the whole market. Everyone of it reacts in a different way and must be marketed following different approaches. The demand, following the Roger diffusion model and the TALC is not just one, but it is a relative concept. It does not rise at the same moment for every social classes and the value of the product in the eye of the components of the different social classes is deeply contrasting. Anyway, various models have been created for predicting the demand of the UBB services, but the truth is that the real innovative facet of this product it is not related to its speed or to its capacity to carry big amount of data, but it is about its functionality. How these speed and capability can be used in the everyday life? How can they import an improvement through different applications? The most significant example is the **resident application**. The main demand for UBB is for a residential use; the coverage is expressed in terms of households covered, so that can be defined as the main concern of the UBB services. About the applications, on one hand it can be used in order to enjoy the contents most of the times embedded into the offer (streaming or music), on the other hand it can be functional for improving the productivity of the labor force, for ex. Through the **smart working**, the so-called new frontier of the job which is working from a place which is not the main office, taking advantage

of the UBB connection. Another aspect could be the social one, fueling the **sharing mentality** that nowadays is so well spread that economists say that in a while we will speak of **sharing economy.**

After having spoken of the demand, it is appropriate to talk about the forecasted diffusion and spreading in the market of the fiber optic technology. There are different theories about the diffusion inside the market of the UBB service; on one hand, the market forces are one of the best means to encourage innovation and increase the distribution of these services, whilst on the other hand some theories imagine that a monopoly structure is the ideal habitat for make the UBB deployed well. Fueling the competition or restricting the number of competitors have repercussions on the pace of the UBB diffusion. That is why a relationship between the market structure and the innovation exists. Recent theories and findings show how a monopoly structure is an ideal market for the deployment of the innovation, but why? The industry leaders are involved in the preliminary R&D investment and because of the monopoly; there is only one leading firm in the whole industry. Market structures essentially monopolistic or with just one dominant firm show a higher proclivity to R&D investments and the predominant firm has more chances to survive in the long-term then those less innovative.

The following scheme can resume the value drivers of the diffusion of the UBB into the market

Fig.5 The Broadband development and deployment system



Source: Gentzoglanis A., (2008)

The preemptive investment strategy could be applied to a product that spreads quickly; that's because the cost of preemption are of short-duration and cannot be sustained in the long run. This model of deployment can be applied to the UBB industry because of its rapid diffusion and because the industry shows the predilection to be adapt to this kind of market structure.

The truth is that the broadband market is not monopolistic. The monopoly can be kept under three conditions:

1. Presence of a single seller
2. The replacement of the product does not subsist
3. The entry and exit barriers are quite high

The Telco market has the tendency to pass from competition to an oligopolistic structure. A competition is believed to give companies stronger incentives to offer customers what they want on prices and quality products. Innovation is promoted through competition, as it offers companies the opportunity for short-term gains. Just look back at the situation in the 90's in Italy; there were plenty of Telco operators in the mobile and fixed market. Nowadays there are three main companies (Vodafone, Wind and TIM) followed by the so-called **MVNO** (mobile virtual network operator), a minor share of the market that offer mobile connection notwithstanding the absence of a shared

infrastructure of repeater. The MVNO offer a broadband connection that usually is based on another operator infrastructure in order to reduce substantially the cost of retaining their own network. Being active both in fixed and mobile segment, as I said before they own just a small piece of the entire market share:

- Fixed segment market share: **3%**
- Mobile segment market share: **7.1%**

The current situation is a result of a consolidation and reinforcement process went on for years with players entering and getting out of the market. As mentioned before, the perfect example of the consolidation is the merger between Wind and H3G, made in order to strengthen their respective position into the market.

The process that leads to the oligopoly starts all with the competition that pushes companies to offer customers what they want on prices and quality products. In this way, innovation is promoted through competition, as it offers companies chances for short-term gains and new ideas to develop for the long term. Going on more and more the product start to get specialized, qualitatively high and differentiated, in this case the entry barriers would become high. Even if a player would enter, it would face a tough competition pressure, which will lead it to take the tiniest share in the market (this is the case of MVNO).

One of the dilemmas of the oligopolies is whether they have to cooperate or to compete; if they decide to compete, which most of the time is the chosen one, as we know two model of strategies can be pursued, differentiation or cost leadership. The latter would be the worst choice a Telco company could take, because it would lead to a price war. A vicious circle that has two main consequences:

- Erosion of **valued delivered** to the customer
- **Disruption** of revenues

One remarkable example of what happened in the price war, specifically in the mobile segment is strictly related to TIM. The Italian operator, at that time the so-called Telecom, before the current rebranding, decided to create a great value bundle, sold at the lowest price on the market. From there, a waterfall effect followed with every Telco operator offering bundles with always higher and higher value at a low price. The main consequence for every operator has been a loss in the

revenues; especially for Vodafone this loss, was a shocking event where more than 3billions of euros has been burned. I will talk about this episode later.

What can be understood is that the price is not the element on which the Telco market should be based. The competition on services is the main key value driver of the offers; if the competition is based on them, the final customer will only benefit of it even if it fast and continuously dynamic.

Vittorio Colao, CEO of Vodafone Italy was one of the first to reveal its deep interest in such a competition. He thought the main road the firm is running on is based on a simple concept: the difference can be made if the competition is made on services and contents. Think about how the smartphones re-shaped our life-using internet. Once internet was a no man's land, not the main driving element of a buying decision. Everything was given free, videos, music and newspapers. Today there is the right alignment of factors in order to improve and make the competition healthier and **service/contents based**. Every operator that will enrich its own offers with different services and contents will have the chance to monetize through and thanks to them. Think about the integration of the streaming services (Netflix & Spotify). Nowadays people are willing to pay if the contents are based on a reliable, qualitative service like the internet. They must be integrated in a way to add always more and more value to the offer itself, in order to show what can be done thanks to an outstanding connectivity and stability of a shared network.

From here, it is useful to make a simple and intuitive draft of what a broadband (and ultra-broadband) connection must be in order to provide a fully satisficing service and experience to the customer. There are elements objectively recognized:

1. Real **speed,** here it is all about **latency,** the time the computer take to establish a communication with the internet. However, how much bandwidth you are really getting?
2. Guaranteed **bandwidth** and it determines how many bytes and information can be downloaded/transmitted in predefined unit of time, but it is deeply different from the speed. It is strictly determined by how many devices are connected to the same router; the higher the number of the devices, the lower the bandwidth you are getting. Every device can be defined **bandivorous** or band consuming.
3. **Reliability** and quality of the service: nowadays contents are getting more and more important if we look at the substance of the offer. Most of the Telco are using contents to drag in their customer base more and more clients, matching their interests and passions. Think about Spotify, Netflix, Sky online platform, everything is done in order to converge

to a common point: locking the client showing how powerful can be the convergence and the integration between two deeply different industries can be. Nowadays the convergent offer is a keystone for accessing a larger customer base, offering a differentiated service of higher value in which there are different components; the Telco industry would not survive for a long time offering just minutes, text messages and gigabytes for staying connected to the internet. All the operators are changing face, becoming more than they are created to be, offering highly differentiated services that 10 years ago no one would have thought that would have been offered by a Telco operator. That is why it is possible to speak about **transformation.** A transformation made possible because of the high rate of digitalization and dematerialization of every single product and service (and later of the whole industry). A transformation that follows 4 lines

a. **Network functions virtualization,** a technology that brings a revolution in the architecture of the network following the cloud technology. What does it mean? Building a network free from the hardware component, agnostic software accessible from everywhere. That is the logic under the cloud, and ubiquitous service that is not based on something physical and this is the main benefit. The forecast of the analyst are directed to an agnostic device view, dominated by an open platform to which you can access from everywhere. Of course, this hypothetical (or maybe prototypical...?) context lies on a reliable and qualitative connectivity. The benefits deriving from the cloud are contributing to the digital transformation is happening in the Telco industry, which is leading to the so-called "**Telco cloud"**
b. **Software defined networking,** which will allow a better **orchestration** of all the services in terms of IT (information technology). Launching new products and services would be a completely automatized process that nowadays represents a big problem in terms of system. Most of the time when a product is launched, the system crushes.
c. **Automatization** in order to optimize all the platforms through which new services are launched, making it univocal and reducing the operating cost
d. **The operative agility ,** through which operators would be able to provide services rapidly and automatic, with reduced development and implementation time (hours, not event weeks)

Considering all these benefits, the introduction of the Telco cloud paradigm it is no more a matter of **if,** but of **when** it will become a reality, the modern one. The possibility of integrating the cloud as a service would improve efficiency and efficacy of all the operators, and it will allow them to answer elastically to the needs of the market.

Huawei, in occasion of the Mobile world congress expressed its willingness to contribute in the digital transformation of Telco Company adopting a long term and wide ranging strategy, spacing from the internet of things, streaming services, the new prototypical 5G network and, in the end, the security of the whole stream of data that travels on the network. Huawei will focus its strategic investment in order to integrate all Telco operators into the developing digital economy. It is just the beginning of a more innovative economy where the convergence between contents and services will represent a pillar. More than contents and services it is more adequate to talk about contents and users, concentrating the core of the business into the customer experience. Streaming and music services related with a good and fast internet connection will be the core of the convergence offer of the next years. According to the thought of Huawei, being **proactive** in knowing the phenomenon that will affect our life in the long term, is the keystone for adding more and more value to the business and make the leap to differentiate the offers.

Beside this, Huawei will base its investment on the IOT, because, thanks to the possibility of improving the ultra-broadband connection, a completely new connected and shared network will be possibly created. This network will be constituted by four elements: smartphones, smart homes, smart buildings and smart cities. One connection that rules one world. However, .what about the security? What about our privacy? With such a big amount of data that travels in the flux, the network needs higher protection in order to not be attackable. Breaking the wall of security of a network means revealing the life of billions of people to everyone.

4. Privacy, **neutrality** and censorship; before introducing the concept related to the privacy and neutrality, there is a big premise that must be done. The one related to the **big data**. Nowadays we are in an era of big data, every day, we create 2.5 quintillion bytes of data — so much that 90% of the data in the world today has been created in the last two years alone (and that explains also how much the consume of data has grown up in the last years). This data comes from everywhere: sensors used to gather climate information, posts to social

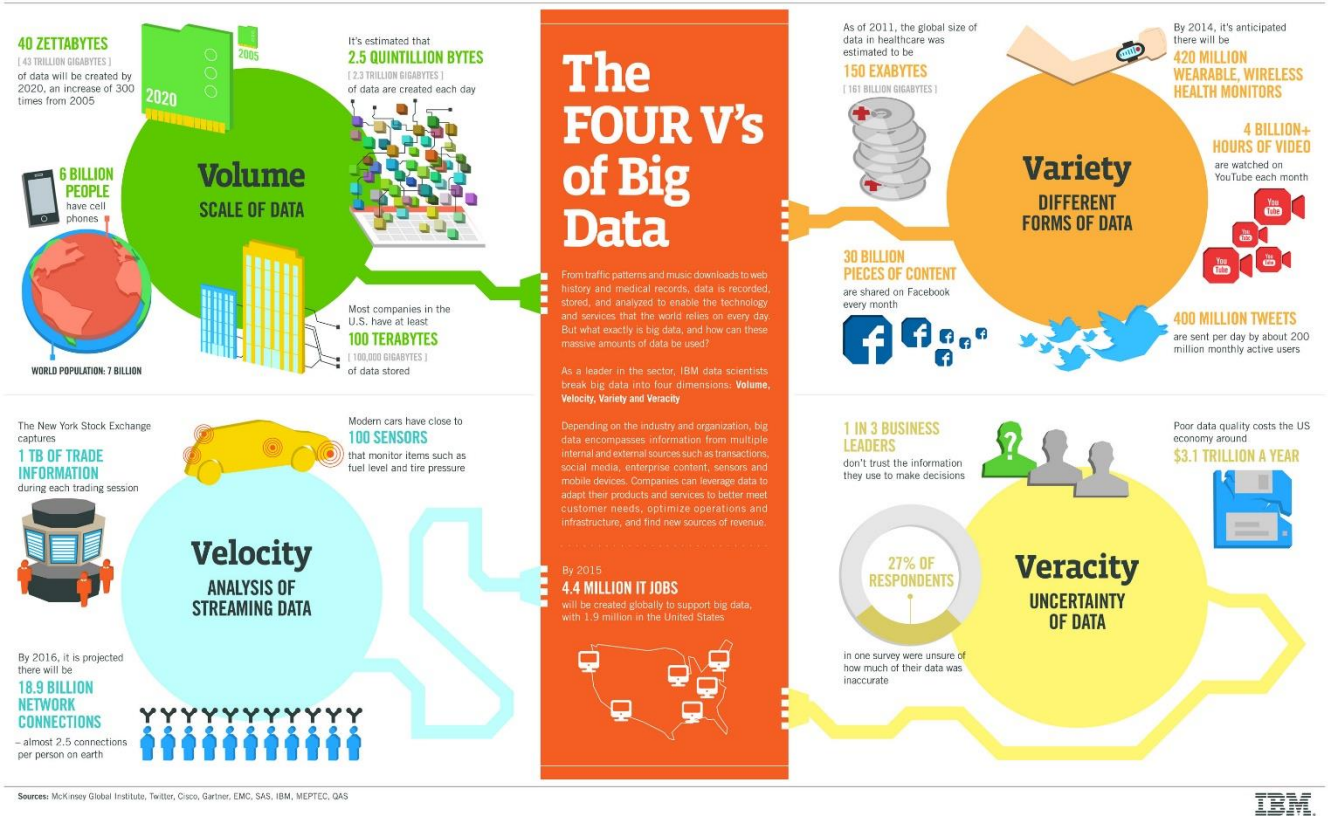
media sites, digital pictures and videos, purchase transaction records, and cell phone GPS signals to name a few. This data is **big data.**

From traffic patterns and music downloads to web history and medical records, data is recorded, stored and analyzed to enable technology and services that the world relies on every day. In order to better understand what big data is, I will follow a classification made by IBM data scientists that split the data according to four dimensions:

a. **Volume**, scale of data
b. **Variety**, different forms of data
c. **Velocity**, analysis of streaming data
d. **Veracity**, uncertainty of data

Down below an info graphic which explains the aforementioned classification with practical example

Fig.6 The four V`s of Big Data



Source: IBM and McKinsey global institute on Big Data (2014)

This entire premise for saying the Telco operators are the biggest aggregators of data all over the world and because of that, they need to protect them, constituting the foundation of their business. On one hand this stream of data can be used to better understand the needs and preferences of the customer base, offering them a more personalized and convincing offer and reducing the **churn** (the percentage at which the clients withdraw from their offers and operators), while on the other hand it must be protected. In this sense, the operator must be neutral in using all the data in a responsible and functional way. The $50bn+ digital identity market represents one of the last major access points in the digital economy that is not conclusively owned by a small number of technology players, and for which operators could realistically stake a claim. What they have access to, it is a kind of treasure, because it gives them access to connected life of every customer. It is an indirect way for customizing better and better marketing strategy and campaign and matching the interests of the customer: how? Extrapolating the important data from the mix. However, operators in the ultra-broadband sector must move in order to not be anticipated by who, today, represents and opportunity such as Facebook and Google, and tomorrow could be a threat. Beside this, privacy is necessary have in this segment. Concluding this part concerning the privacy of the customers, an interesting evidence resulting in the 2013 must be shown: **Albert Hitchcock**, once CIO of Vodafone group, said that this flow of big data has already delivered early learning and improved understanding of customer behavior and needs, and enabled some useful trials to improve the overall customer service experience. Further, with the appropriate trust frameworks for customer privacy, it could also enable significant improvements in the types of personalized information services available, including more relevant advertising and more secure mobile money services.

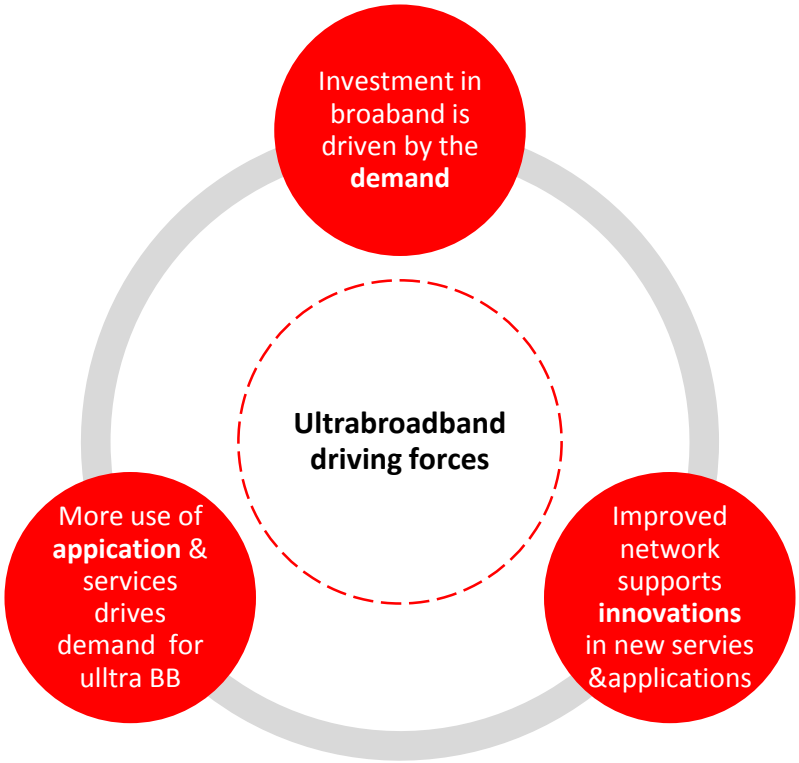
2.3 The Ultra-broadband diffusion worldwide

As I explicated in the first chapter, a lot of progress has been done and many theories and empirical analyses have been performed but still very little is known about the **diffusion of new technologies**. There are different theoretical and empirical studies dealing with the subject but it is difficult to find a predefined model that can be used to explain the process of diffusion and of rapid deployment of innovations. In most cases, economists and business analysts suppose that the deployment of ultra-broadband follows a similar pattern like other technologies. Recognize two key facts

1. At first, it is important to recognize that investments in access networks and in ultra-broadband are **driven by demand**. Following the demand, a focused investment plan on what will be the structure of your net would be more precise and custom made. The demand leads the service offer.
2. Then as **networks** become **more sophisticated**, they support more innovation in new services and applications as in any existing and improvable products and services (and industry), there is no time to rest. The competition force will always erode the advantage of one, therefore the basic of an UBB network, after the reliability and quality, is how it can be used for providing innovative services. The network becomes just a catalyst for providing value to the customer in many different ways (services and applications). As I said before, the demand leads the offer, but the demand is increasingly attracted and progressively augmented by the applications implementable on the UBB network. This brings more investment on the network and an almost never-ending room for improvement.

The following are the driving forces for broadband diffusion

Fig. 7 Ultrabroadband diffusion driving forces



Source: Gentzoglanis A., (2008)

Telecommunications operators are increasingly facing important regulatory, technological and competition-related challenges. This is an industry that never stops characterized by a furious dynamism. Not all firms react the same way to these challenges though. Some invest in broadband faster than others (gaining **first-mover advantage**), while others wait till technology is well established and forcefully cheaper (**second-mover advantage**). Investments in new technologies made at a later moment bring higher capacity per dollar spent than investments made earlier. Therefore is easy to understand that not always the first would be the winner of the competition challenge, not in the long-term at least.

Performance has thus been different across industries and countries. Apparently the next generation digital divide is becoming ever deeper among nations. Industrialized countries like the European Union and North America have long enjoyed the status of being ahead of developing nations in terms of bandwidth capacity, but recently, some developed and developing countries (Korea, Japan, China, etc.) are increasingly taking over the leadership in this area.

What are the factors that may explain these differences in country performance? Does the **industry structure** play a determinant role in the telecommunications sector performance? Or the **regulatory regime** is more important in guiding the investment decisions of telecommunication firms in ultra-broadband technologies? Do investment decisions are **demand** driven, **technology (cost)**-driven or **regulation-related** driven? What affects **broadband household penetration** and demand for ultra-broadband? Although theoretically competitive markets are indeed conducive to innovation, it is not clear in broadband markets whether such competition works the same way as in traditional commodities. Why do I speak of commodities? Because nowadays having a fast and reliable internet connection at home is no more a luxury but not even a commodity. That is what Telco operators are "fighting" against, a homogeneous standardization of this product in order to avoid the erosion of value this would bring to the industry. Strategies and expectations about future prices and technological standards may retard investment in broadband or in some cases may accelerate them. Combining these markets with the uncertainties emanating from future governmental regulatory policies concerning unbundling and access prices, the picture becomes more blurred. It is important to identify what is the unbundling, specifically what is the **unbundling local loop** because this one will be really important in describing the Italian case we are going to speak about in the second part of this chapter.

Unbundling may take many forms. One can be in the form of sharing facilities and with this I mean **infrastructure** with competitors. Since there has been the liberalization of the Telco market, some operators in the world have started to use other's infrastructures in order to offer a service to their customer, paying the "rent" of that structure. Indeed, telecommunications are required to make available parts of their network to competitors at **regulated rates**. At the local loop, unbundling requires that telecommunications allow competitors to get access to the "**last mile**" (the one they pay the rent for) and connect to customers' homes and compete head to head with incumbents. This is called **service-based competition** as opposed to facility or **infrastructure-based** competition when entrants build their own facilities and compete with incumbents on a number of attributes (quality, reliability, etc.). At the service-based competition, the entrant's service is identical to the incumbent's. The idea of having service based competition is that it allows entrants to eventually build their own facilities once their position is entrenched and have a sufficient number of customers.

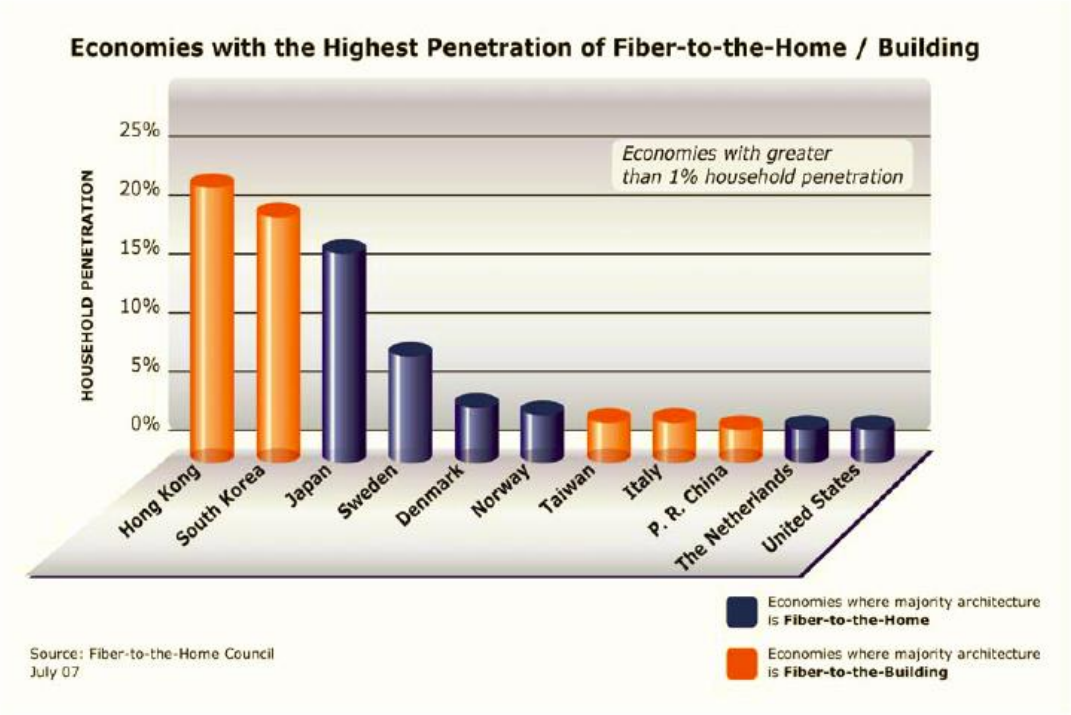
The access network represents a "**stepping-stone**" before entrants build their own network and move to facility based competition.

The argument advanced by many is that the unbundling explains the gap between all the countries in broadband performances. Sharing facilities with new entrants reduces the expected ROI, discouraging investments on the network infrastructure. This is not the Anglo Saxon way of thinking that is focused on a basic concept: competition in retail market and in wholesale access markets are **prerequisites** to stimulate growth and unbundling was one of the means to achieve that.

The effect of the ULL on broadband deployment is not the same in all countries; that is why the unbundling requirements are not alike in all the countries. A study conducted by Thomas W. Hazlett in 2005 about the nature of the broadband deployment led to an undeniable truth: cable companies outperformed telecommunications in broadband deployment because the former were not regulated and invested faster in broadband networks than telecommunications which were obliged to share their networks with new entrants. This study was about Germany, Australia, New Zealand, USA and UK.

But the greatest surprise of the broadband history is represented by Korea and Japan: it has intrigued many economists who tried the investigate the reasons for this abnormal performances with respect to broadband deployment and speeds. In fact in these countries the speed is above 1 GB/s, which allows to download a movie in 4K quality in less than a minute. Over there experimentations are never-ending stories: they are installing right now air and submarine fiber optic, chances to save money for installation on the ground.

Fig 8: panorama in the new millennium of optical fiber around the world



Source: Banca d`italia (2008)

How is that possible? Many explanations have been advanced. Population density is higher in Korea and Japan compared to other countries making broadband deployment more **attractive**, the natural inclination of Koreans and Japanese for broadband and their demand for online applications (requiring more bandwidth) and the government policies, such subsidies to broadband providers, especially in Korea. The most convincing explanation of all is probably the difference in regulations, especially in unbundling that prevailed in Korea and Japan compared to other countries. Indeed, it seems that the regulation there played a predominant role in broadband deployment. It is mandatory to say that here the facility-based competition was developed before the service-based one; this move in the short-term had great effects, but many economists doubt about its efficacy in the long-term (it has already been surpassed by Iceland and Swiss).

The history of Korea started in 2002 when it proceeded to unbundle its local loop when the network was completely full developed. In this way a facility-based competition was created before the service-based one. Whilst for the Japan, it is considered one of the pioneers to unbundle fiber optic

facilities and in 2001 the unbundling of FTTH, the fiber to the home, nowadays the fastest form of an ultra-broad band connection, was a reality.

Given the contrasts and the controversy that exists on the theoretical ground, economists have turned their attention towards the empirical investigation of the relationship between unbundling and broadband deployment, meant as the regulatory plan for the roll out of the optic fiber in every country. Before doing such a thing, it is fundamental to introduce the core topic of this thesis, the Italian case.

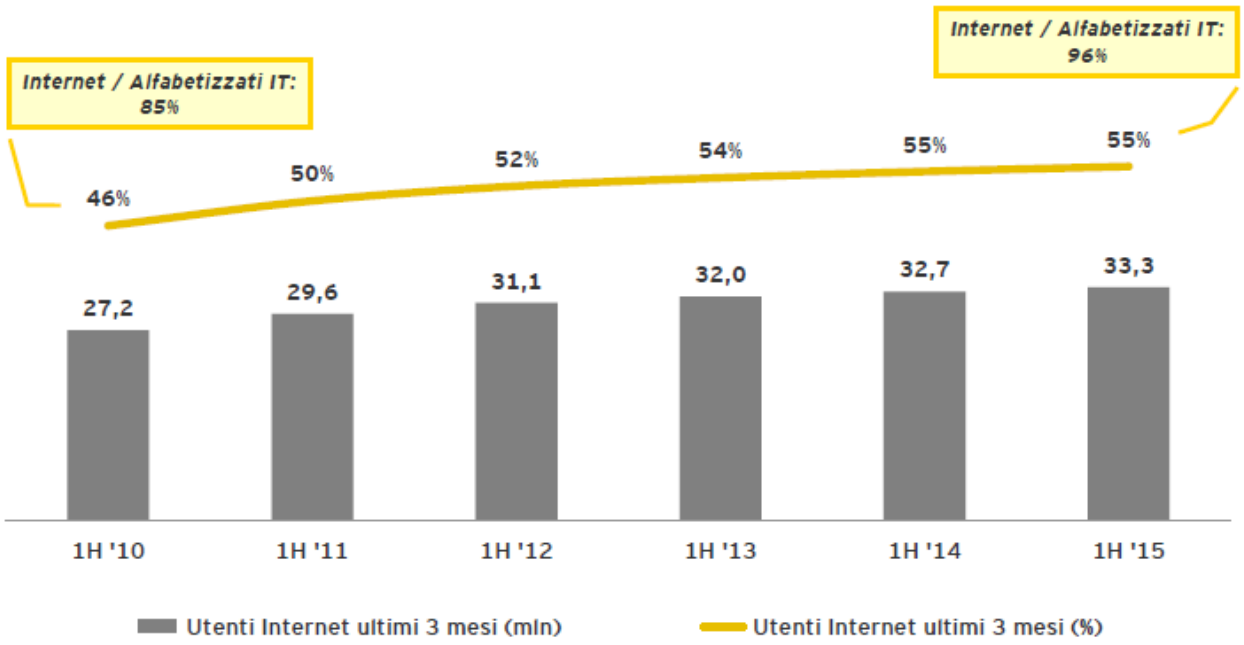
2.4 The Italian Job

In the whole worldwide panoramic scenario of the ultra-broadband connection, Italy represents a controversial and problematic case. Our country has always been one of the most arrear in the world. Maybe arrear is a wrong adjective; perhaps laggard should be more appropriate. But which is the reason for such a delay? The main elements contributing to the weak diffusion of the so called broadband phenomenon are about both sides of the market. On one hand, the demand driven by a poor **informatics literacy** while on the other hand a **poor infrastructure**, the **"too much convenient" strategy** of every operator that did not let them investing on the infrastructure and a total disincentive to higher the price against the **dominant position of Telecom Italia.** This was the situation in the 2007, as reported by Banca d'Italia in the 2007, 9 years ago. What happened in the meanwhile? The operators went out the price war, the investment on the infrastructure started to become aggressive in such a way to be regulated by the government and the strategy adopted by every single operators tuned to the one of the differentiation (on services).

Let's see some data; we have spoken about the informatics literacy. It has grown up a lot in these years, especially between 2007 and 2015. According to a study conducted by Banca d'Italia, the penetration of the computers, the so called informatics literacy, into the Italian population was around 48% of it. Nowadays according to a study conducted by the Ultra broadband observatory, the afore mentioned penetration passed from 85% to 96%, almost the entire population. That means that a revolution is about to come and its fundamentals are being built by two kind of players into the market:

- Government
- Telco operators

Fig.9: Italian Internet users in 2015



Source: EY advisory (2015)

From this picture it is evident that what is changing now is the demand; we were talking about the informatics literacy, being low, about the infrastructure of the whole network, being old, but the panorama is changing, definitely. This shift in the demand is caused by the innovation brought by the ultra-broadband connection inside every house; more and more services are converging into the Telco industry, proceeding toward a full integration of markets that 10 years ago, no one would have thought that would have been key value-drivers of the main offer. A mention of these:

- Movie streaming services
- Music streaming services
- Digital newspaper subscription
- Online gaming
- E-books

Nowadays the main offer wouldn't be made up by a single fixed line component. The convergent offer is what is spreading around in the market, creating an awareness in more and more people.

Being honest Italy is still behind compared to the other OECD countries in both broadband penetration rate and average available speed, but what is happening now is going to change the shape and the concept of the Italy in the UBB world.

The fixed-line telecommunications Italian market continues to see a significant decline in voice revenues due to the reduction in rates and the progressive shift of voice traffic to mobile. In recent years all the operators have attempted to at least partially counter this phenomenon by concentrating mainly on the ability to innovate their offering by developing the penetration of Broadband and introducing bundled voice, broadband and services deals (**double play**), in a highly competitive environment with consequent pricing pressure.
The evolution of the competitive product offering has also been influenced by consolidation, among competitors, of an approach based on the control of infrastructure (above all Local Loop Unbundling - LLU). The main fixed operators are now also offering mobile services, also as Mobile Virtual Operators (MVOs).
In 2014, the migration of customers from fixed-line to mobile telephony services continued, as well as the migration to alternative communications solutions (Voice over IP, messaging, e-mail and social network chat). For years, both for private consumers and small and medium businesses, mature traditional voice services have been replaced by value-added content and services based on the Internet protocol. This shift has been facilitated by the use of the Internet and changes in user preferences, by the spread of broadband, personal computers and other connected devices, and by the quality of the service.

At **December 31, 2014**, fixed accesses in Italy totaled approximately 20.6 million (including infrastructured OLOs and Fixed Wireless Access), down from 2013. The growing competition in the access market has led to a gradual reduction in Telecom Italia's market share. And the trend is still going on; Telecom share of market is losing the path because of Vodafone and Fastweb that are growing fast and stealing the scene. The brand and the marketing campaign are also a pillar over which they are building their own superiority.

2.4.1. The players

Before introducing the main protagonist of the Italian regulatory, it is right to introduce to you the protagonists of the market. Let's give a look to the Italian broadband world as we know it.

Introducing the main players:

- **Tim**: represented by a strong brand, the oldest Telco company present in Italy. More a symbol to the old generation, just made a rebranding which unified the fixed and mobile business unit in one whole thing, switching the name from Telecom Italia to TIM. As the CEO, Marco Patuano said, this switch is an epic turning into the future; through their industrial plan Patuano announced that the coverage of the UBB and the LTE line (4G) will be the focus of the firm. They will go on not thinking the firm is just a Telco operator, but an **industrial operator**. Even here the convergence is the main topic, the convergence toward TIM, the new identity of the company. The leap forward is also notable by the nature of their TV spot, ATL and a whole renewed marketing campaign. As I said Tim represents for the most of Italy a symbol of reliability because of its strong brand reputations

Fig. 10: Tim Logo

Source: Tim website

- **Fastweb**: the company owned by Swisscom, provides landline, broadband Internet and digital television services. Fastweb is also one of the prominent companies in Italy providing FTTH connections. By implementing the internet protocol on its alternative Optical Fiber Network, Fastweb provides a Triple-Play Offer of Landline, Internet and Television services, available simultaneously on a single connection, for residential and business clients. Today the Fiber Network of Fastweb is the most extended in Europe.

  In September 2010 and for the first time in Italy, Fastweb launched a broadband connection up to 100 Mbit/s for residential customers and small enterprises in the cities of Milan, Rome, Genoa, Turin, Bologna, Naples and Bari.

  The convergence with the video is what they aim to.

Fig. 11: Fastweb Logo

Source: Fastweb website

- **Wind Infostrada**: gotten out from a history of mergers and acquisitions, considering Infostrada in the UBB would be brave, but useless. Its case is borderline, because of its strong prototypical UBB investment project. The UBB line of Infostrada is still embryonic and it's not well spread except for some cities; moreover its marketing campaign is not focused at all on it, but on the broadband line only. Infostrada has never been an innovative company, focused on the future investment made for improvement nor directed to a strong red-ocean strategy. In the average Italian mind, Infos. Is a friendly-user company that focuses on **value for money**. Its marketing campaign has always been focused on capturing the attention of the customer through the creation of sympathy and humor.

Fig. 12: Wind Infostrada Logo

Source: Infostrada website

- **Vodafone:** memorable as the company that made Europe reaching the highest mobile penetration rate in the world at 80% at the end of 2014, Vodafone is mainly aimed to the growth through investment on the innovation field. Through the years the focus of the firm have always been the 4G (LTE) coverage and the diffusion of the UBB as a tool for pushing IOT in Europe and all over the world. Being specific, Italy is the second largest European market with
    - **2 millions** of client in the UBB segment
    - **276 cities** covered by the optic fiber
    - The highest speed reachable by a Telco operator net inside the market, equal to **500 MB**

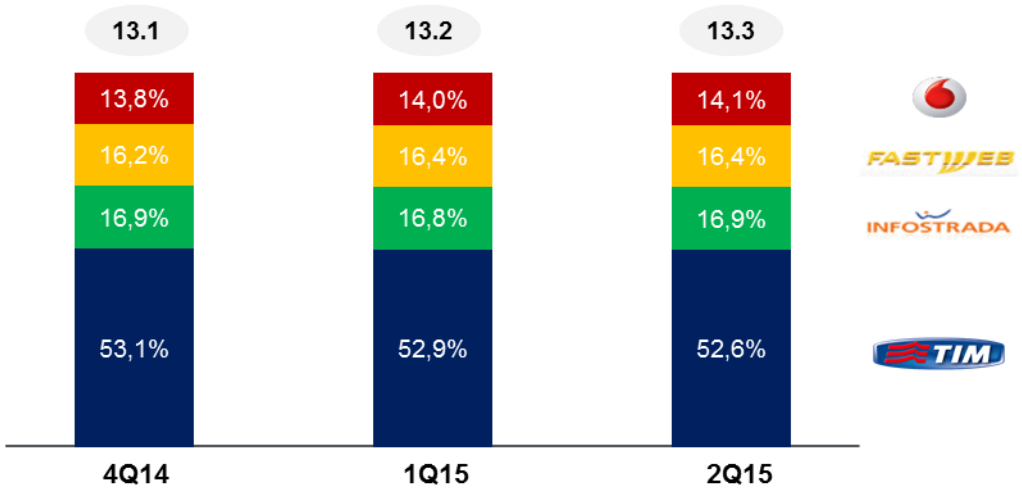
  The positive trend has started 2 years ago with the so-called **Project Spring,** an investment project lead by the demand from individuals and businesses for ubiquitous high speed data. This need created attractive growth opportunities for Vodafone in mobile and unified communications services. The transition to 4G and unified communications makes this the right time in the evolution of the sector for Vodafone to pursue further development and differentiation. Vodafone started in 2013, after a deal with Verizon (which will be illustrated later), executing its Vodafone 2015 strategy to address these opportunities, and now plans to make significant additional organic investments to enhance further its competitive positioning, leading data networks and compelling branded customer experience over the next few years. The investment made thanks to the deal with Verizon, in order to reach the unstoppable positive trend that is ongoing today was of 3.6 billion of euros.

Fig. 13: Vodafone Logo

Source: Vodafone website

These are the main actors of the Italian market, but what is the situation right now?

Fig. 14 Fixed segment shares



Source: Vodafone Marketing Family Team

As mentioned at the beginning of this paragraph, times of revolution are coming with new project aimed to digitalize the whole country. The main protagonist of this chapter is the regulamentory plan to achieve pre-determined european standards and it is the **Digital Agenda.**

2.4.2 The Agenda

One thing that I did not mentioned in the first part of the chapter is it about another key value driver of the UBB network, the **governmental regulatory policies.** Government's intervention in a market can take various forms to stimulate interest in a new technology judged to be essential in terms of economic growth and prosperity. In this case for reaching standard settled by the so-called European Digital Agenda. In the broadband area, governments can intervene following two ways:

1. By adopting public promotions policies in the diffusion of broadband networks, stimulating competition and growth of the market
2. Leaving regulatory agencies (in our case the **AGCOM**) to determine which are the most determinants and sensitive variable to the customers in the purchasing decision of the UBB service.

Of course there is still the doubt about the efficiency of the aforementioned methods for the promotion of the UBB; it is continously questioned wheter they have success or not. Government policies can be conceived to affect either the **demand** side or the **supply** side or both. On the demand side, government policies may make the ultra broadband services more attractive by either **aggregating demand** or employing simply by promoting the use of these services. On the supply side, government programs may be viewed as facilitator in the process of **migration** form "older technologies" to new platforms at attractive prices. Or if regulation is used, the government may limit or expand the level of competition in the industry or decide to fix the terms and conditions for new entrants to access incumbents' infrastructure and the level of flexibility incumbents have to react to changing market and industry conditions.

Industry strategies and government policies may be determining factors in the diffusion of these technologies. Government policies may thus guide consumers to develop specific patterns of behaviour, and then these patterns guide the governments to promote the diffusion of ultra broadband technologies; or, simplerly, they can invest with the telco operators in the physical diffusion of the UBB network through the territory, creating a digital country. It is thus appropriate to investigate the relationship between **government diffusion policies** for broadband technologies and **service penetration** (efficiency).

The Digital Agenda presented by the European Commission forms one of the seven pillars of the **Europe 2020** Strategy which sets objectives for the growth of the European Union (EU) by

2020. The Digital Agenda proposes to better exploit the potential of Information and Communication Technologies (ICTs) in order to foster innovation, economic growth and progress.

The main objective of the European digital agenda, is to reach the following objectives in every country of the European Union, thanks to tailor made plans: unifiying the digital markets in order to create smart, sustainable and inclusive growth the whole Europe. About telecommunications services should be/ will be unified. The network that will be created will be just one for the whole Union. Europe needs competitively priced fast and ultra fast internet lines for everybody ; that's why EU is establishing parameters for the whole Union and it is using funds in order to finance investment in broadband and ultrabroadband lines. Innovation and research on it will be a natural consequence.

Another smart move will be about the literacy in the digital environment. Althoug internet is a daily reality for most of the european citizen, some categories of people are still excluded from media literacy in the digital environment. In order to overcome unequal access to digital literacy by European citizens, Member States should promote **e-accessibility**, making it more intuitive and user-friendly.

In the end the IOT is the core of this digital agend, covering the gap with the other countries and be a digital Union. We are in an era of digitalisation and this must be the direction for the future.

Implementation of the actions described above will require a sustained level of commitment at both EU and Member State levels (including at regional level). This will be coordinated by a group of Commissioners and will involve Member States and the European Parliament.

Progress on implementing the Digital Agenda will be charted annually and will give rise to the publication of a scoreboard and the holding of a Digital Assembly.

Let`s focus on the particular, the **italian digital agenda.** It is mostly based on an UBB plan of roll out which aims to reach to bring an ultra fast connectivity to all the households in Italy, reaching at least 30megabite of speed and assuring that the 50% of the entire population, surfs at a speed of 100megabite. This is the step forward to the next generation of connectivity that will bring new functionalities into the life of everyday. The problem that must be faced, except the informatics literacy and the construction/upgrade of the network, is to reaching those areas that are defined **digital divide.** Before the digital agenda, telco operators as Telecom (once) and Vodafone developed plan to filling up the digital divide in Italy:

- **The plan against** the Digital divide: initiated by Telecom italia and Alice in the 2006 that aimed to bring the ADSL to the 80% of the households
- **1000 cities program** by Vodafone that invested 1 billion euros for filling the digital divide up, with the speed of 1 city per day. The initiative started in 2010 and finished before the Spring had started (around 2012).

The italian strategy expects the the use of 6 billions of euros deriving from the **FESR, FEASR and FSC**, public european funds . Of course these money are not enough for making the afore mentioned leap forward into the next generation network and connectivity; operators will play a key role as catalysts of all this amount of investment. On one hand the public investment will be the main base for developing the next generation network, while the operators, everyone on its own, will sell customized offers to the customers for the diffusion of this innovation. The brain and the arm.to

But which are the areas that the initiative is going to hit?

Clusters have been created to differentiate properly the intervents: there are three types of area and two main declinations for them, broadband and ultrabroadband. The digital agenda of course is about both of them, therefore is useful to identify which is the distinction in order to fully understand the direction of the plan itself

Broadband

- White: in here there are no infrastructures for the UBB network and it is unlikely that they will arrive there in the near future. These areas are, of course, a common interest for the country, being the hardest to reach, but still a good potential.
- Grey: here there is still one main dominant operator and it is unlikely that others will arrive in the near future. Here is fundamental to understand why there is still one operator and which choice should be taken wisely. Here, a consistent help coming from the funds can be present only if a "market failure" is the current situation. A deep analysis in required before proceeding and making the move, having a complete assesment of the circumstances.
- Black: here there are or there will be two or more operators in competitive circumstances. Here no helps will be admitted because functionals to violate the rules of the competition.

Ultrabroadband, talking about NGA, a **new generation access** to the internet

- White: areas empty of nga networks (UBB networks) and it is unlikely that in the next three years, private investors will proceed to a concrete development of them. Therefore they are a target of the initiative.
- Grey: no nga in the next three years and not an operator will build its own one. Even here a deep assesment is required.
- Black: there are already nga or they will be developed in the next three years by private investors or telco operators. These are not a target of the initiative because of the risk of distorting the competition.

The Italian strategy for Next Generation Access Network aims at developing a high speed optical access network throughout the country to create a future-proof telecommunication infrastructure, reaching the objectives of the European Digital at the same time.

In concrete what does “future-proof” mean?

"Future proof" means not to build two-lane highways when it is already clear that before you complete them there’s already need for four-lanes ones. Telecommunications of the future will be something very different from what they are born to be, even more important than they are now, delivering services that no one would have thought 10 years ago. They will provide services mainly through wireless and mobile broadband technologies, including (and here is the difference) high capacity live video streaming services, next generation HD video, with a number of devices and applications connected wirelessly ten times greater than it is now. That`s it what is meant for “digital”. Today digital means anticipating the future, not just creating it.

This is why South Korea is upgrading its network bringing it from the range of speeds of 100Mbit/s to speeds of a gigabit per second, as is the case in the US, in entire metropolitan areas and in local communities, in Japan, Israel, Slovenia, Romania, South Africa, UK, as in many other parts of the world. The plan will be updated and reviewed annually on the basis of the achieved results. From now on we will face the convergence of many industries (telco, entertainment, digital experience, alarms and gaming) that will shape the way telco operators tailor their offers.

At first blush, operators considered the objectives of the agenda too challenging and ambitious but, during time, convinced themselves that the whole plan represents the greatest opportunity in the telco market since years. The effort required to make the aforementioned leap forward is huge, but worth it. There is no certainty that both the target of the agenda will be reached but with the effort

combined by the implementation of public resources and telco tools, it is more likely to accomplish the mission.

In order to build up NGA the way forward is a mix of new measures and regulations that will results in a progressive, directioned and coordinated migration from the broadband access to ultrabroadband. An upgrade to the **new optical networks.** Migration, of course, is just a part of the plan and it will be executed in the final phase of it, according to the private strategies of the operators.

What about the expected coverage and the actual one?

The situation in the "Bel paese" is quite critical; as mentioned before and according to the data provided by the European UBB observatory, we are the last In terms of ultra-fast broadband coverage, and not only, the supply situation is the worst. There is the highest concentration of market failure areas (the white areas for NGA).

The situation has improved in the latest years, reaching a coverage of **43.9%** for the NGA and **99%** for the broadband networks. The agenda has started to deliver its results, but its not enough. We **miss** another **57%** to cover with the optic fiber. Notwithstanding that, is recognizable that the spending power of the italians is still below tha average of the Europeans, but there is a great share of italians which would go for premium prices for UBB connections. So why is their penetration still low? Matter of informatic literacy and a lack of confidence toward telco operators.

It is important to see which are main focus point of the strategy, which is currently on going, through a **SWOT analys**:

OPPORTUNITIES	THREATS
• Definition of an italian strategy for **digitisation** with an integrated program of actions for synergic development of infrastructure, digital services and access services to the population • Start of a new season of programming for both the European structural funds and the fund for development and **national cohesion** • Structural characteristics of the italian fixed access networks • Possible midterm technological and **synergies** between mobile and fixed strategy • Synergies with government plans to **modernize** infrastructure and digitisation. • Application of the **modern digitisation to every scope**: school, health, education, justice ecc. • Partnership agreements with telco operators from now til` 2020 • Initiatives in order to stimulate **investment sharing**	• Investment needs to cover the **entire population** • Uncertainty related to possible **consolidation** of the telecommunications industry • Coordinating initiatives with local authorities could result in a strong **heterogeneity** in **interventions** and inefficiencies • **Slow evolution** of the digital culture of the population • **Limited propensivity** to buy UBB connectivity services of more than 100 mbps • Possible substitution of fixed lines with mobile ones.
STRENGHTS	WEAKNESSES
• Centrality of the infrastructure and of the network in the digital agenda strategy • Existence of a **Strategic Ultra wide Broadband plan** and existing initiatives with different intervention models is in line with **E.U. guidelines** • Continous monitoring of the the development of communications infrastructure either by **private and public** sector • Existence of a special purpose entity (**Enel Open fiber**) to facilitate the roll-out of the optical networks	• Availability of UBB infrastructure • **Penetration rate** of UBB connectivity • **Poor sharing** of infrastructure projects between telco operators • Reduced presence of **alternative infrastructure**

Opportunities

- Definition of an italian strategy for digitization: the digital agenda allows the creation of the next generation access, leaving to potential investors freedom to public and private investors tocontribute to the development of the country through synergies created by with their investment
- Start of a new season of programming: the digital agenda is not a local initiative, we do not have to forget that, it is international, it is european. Proceeding in the same direction of the whole continent, there is the chance to create an international identity strong and renewed.
- Synergies with mobile strategy: the main focus of the digital agenda is the strong improvement of the network and the commercialization of what is the UBB (ultra broadband), but, thanks to the intervent of operators, it would be possible to boost further the plan of the agenda, matching the mobile network development plan (4G and 5G networks) with the fixed one, in order to delete the phenomenon of the digital divide
- Synergies with government and application of digitization: as already said, the possibilities of application of the UBB are thousands but must be totally discovered. With the support of the government, together with the development of the network,it would be possible start thinking about the possibile applications of the optical fiber in diverse segments. This action in order to bring modernization not only commercially, but capillary to most of the public service
- Investment sharing: stimulating other investors to assist the digital agenda with their funds. The perfect example is represented by Vodafone and Enel Open Fiber

Threats

- Covering all the country: the main problem of the digital agenda could be reaching the districts where operators have no interests in there, because of the poor profitability they would have against their investment. This is not just a matter of money, but also geographic; there are some districts where rolling wires out is almost impossible (Alps for ex.)
- Consolidation of Telco Industry: the plan could stimulate too much the operators and brig them to war for assuring one territory with their own network. This risk is mainly related to TIM that decided to proceed on its own, not following the digital agenda.
- Coordination with local authorities: dealing with every common and local authorities could result in an exhausting process of bargaining and bureaucracy that will slow the process of

improvement within the 2020 of the agenda. The speed, here, saw from a double perspective is essential: speed of the network, the main objective of the plan, improving the network, but as soon as possible for respecting the deadline imposed by EU.

- Slow evolution of digital culture and limited propensivity to 100mbps fiber: what brought Europe to design this plan was a total renewal for every country, and in the italian case was not just a renewal, but a reborn. It is not a secret that we are one of the last country in Europe fro UBB diffusion, this mainly due to lack of investment and missing informatics literacy. This could also slow the propensivity to subscribe offers with higher speed, therefore making harder reaching the objective imposed by EU. Most of this will depend on how the operators will pack and present offers for customers
- Cannibalization of the fixed line: the trend is showing that digitisation is an ubiquitous process that hits both fixed and mobile broadband. Given the presence of OTTs and always more apps and differentiated services for mobile, smartphones could really cannibalize UBB offer and making the agenda null

Strenghts

- Centrality of the infrastructure and presence of a dedicated strategy for the UBB: one of the key point of the digital agenda is the infrastructure itself, an already existent, capillary infrastructure, that must be improved and diffused in those district in digital divide. There are guidel-lines esablished by the EU about how to intervene on the territory
- Costant monitoring of roll-out: the plan and the roll-out are under constant observation and assesment by the Italian government with the help of Enel Open Fiber.
- Presence of a special entity: Enel Open Fiber, made stronger by the acquisition Metroweb, is the company chief of the project, thanks to its already existing capillary structure

Weaknesses

- Availability of a UBB infrastructure: this is what is missing and it is the main reason of the digital agenda. Enel Open Fiber, despite its capillary presence on the territory, possess a broadband structure, not an UBB one. This will require to create, or better, upgrade the copper wires with the optical fiber
- Poor penetration of UBB: the potential of the new technolgy is real, but it must be marketed in the right way in order to make the creation of a huge capability of customers possible

- Poor sharing of infrastructure among operators: any operators will be focused on creating its own network or in contributing to the development of the one of Enel Open Fiber. In both cases there won`t be a propositive spirit for sharing the network with competitors, paying ingent fee and not being indipendent to manage their own network.
- Reduced presence of alternative infrastructure: either Enel Open Fiber structure or no structure? Sad but true, this is the context. There is no potential alternative structure except the one TIM is creating on its own, but it is not capillary enough to guarantee the objectives imposed for the deadline in 2020.

After an analysis of what can be positive and what negative in the overall project, which is the strategic plan that has been implemented (and it is about to start this month)? Let`s give a look to it.

2.4.3 The strategy

The approach enstablished by the Government is to create a synergy between fixed and mobile access in order to stimulate the demand for wireless connections. As we saw in the datas from the UBB observatory, there is market trend that shows a shift towards the use of the mobile and , especially, of weareables GPS integrated , all elements of the Internet of things.

The whole agenda will be pushed on by the Council Presidency through a specific Committee named COBUL (Committee for the Spread of Ultra-fast Broadband) and every intervention and coordination of it, will be ruled by this committee. The COBUL will be cohadiuvated by the Ministry of Economic development, Infratel and AGID (agency for digital Italy).

On the other side the Italian communication Authority, the so-called AGCOM, will control that everything will be made according to the objectives that must be reached within 2020 (speed in all the regions, cities and the fair conduct of all the operators). It will ensures regulation of competitors access to all broadband infrastructure facilities available on an equal and non-discriminatory basis. Periodically, AGCOM will assess the performances and the penetration rate of the UBB technology.

AGCOM nowadays plays an important role, not just In the digital agenda, but in the whole telco market. Sadly, in our country the brand reputation of every operator, but in general of the telco operator, is not good at all. People have to tendency to consider almost everything due and every

single problem as the origin of a tentative of theft. This is changing, slowly and deeply but we will see it in the last chapter.

Another important actor in the strategic plan will be played by the Agency for cohesion; it coordinates and controls the public expenditure and directs the regional plans, as well as monitoring the implementation of the initiative. Within all this project, Regions and local authorities have already planned their own roll-out for the fiber, defining their operational programs and priorities in the intervention.

The main protagonist of this challenge is not just one single entity or organization or operator: is the whole market. It is called to invest in a strategic architecture in order to make a country`s development possible. The investments of the State will be made, not substituting those of market players, but with them, in parallel , encouraging them to do more and more. What operators have done, are doing and are going to do, will be the main topic of the third chapter.

2.4.4 The tools

To be able to reach the 85% of the households with connection speeds above than 100 Mbps and to guarantee a solidity in the network infrastructure, increasing at the same time the "overall" customer base that surfs at 100 mbps as 50% of the population at least, the public action will be based on three pillars:

A. Encouragement to lower the entry barriers of cost of infrastructure: regulatory semplification, measure to reduce costs, periodic reviews of the efficiency of the network and facilitated regulatory network
B. Facilitating access to economic resources: tax-exempt investments in UBB infrastructures, benefits for the region and incentives for building the UBB network up
C. Demand stimulation: it is a major challenge. The trend, nowadays is negative , because there is a hugh switch to mobile lines. But, according to market research there is room for development where 60% of users show interest in UBB connections and the 33% is willing to pay a premium price for and upgrade to the UBB network, instead of a simple broadband connectivity service. By the way, considering the competitive environment and the conditions of the domestic market, with the objective to make most efficient and performing telco networks, all the incentives would only be provided to allow the migration from simple broadband connection to ultrabroadband, optic fiber, one.

In conclusion this strategy is part of a bigger project that brings in international objectives of the European digital agenda. A new vision is approaching in Italy, aiming to the future, to the digitization, innovation, continous improvement and development on a large scale. The true objective is the one of having a less bureaucratic country in which the digitization will make everything simpler, more accessible and faster.

In parallel to reaching the objectives enstablishe by EU , there`ll be the task of the Strategy for Growth Digital, aiming to stimulate the demand and the supply of digital services, making them more attractive to use.

This strategy includes different intervention models and solutions to promote the growth of UBB infrastructure, reducing costs and facilitating access to credit. About the socio-economic situation and orographic conditions of Italy are such that make it unavoidable to adopt different solutions according to the targeted area features, thus minimizing the public investment necessary and tailoring it at the best.

As said before the main actor of the strategy is the whole market that is called upon to invest in infrastructure considered strategic for country`s development. Therefore public intervention is subsidiary to private investment in order to arouse them.

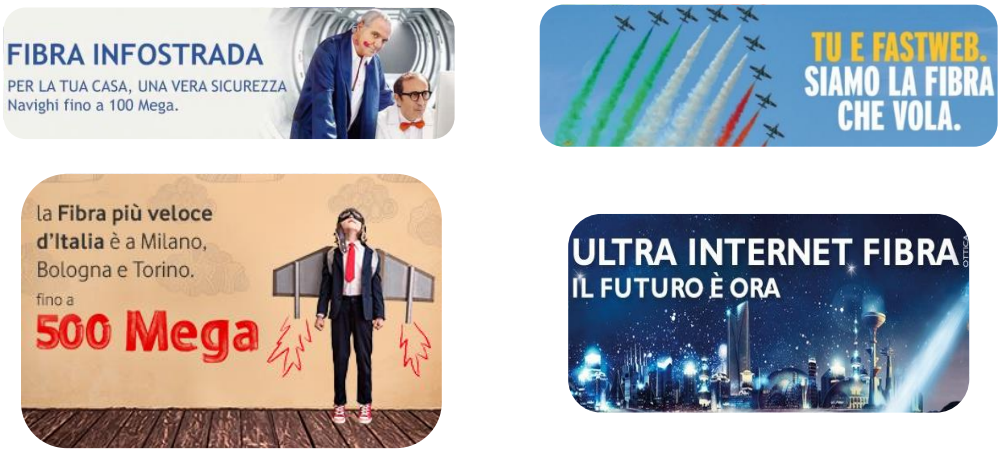
The next chapter will face how the different operators are responding to the public regulation, stimulating the demand and how Vodafone, the practical case of this thesis, is shaping the facet of the market with its Spring project and the initiatives deriving from it.

Chapter 3

3.1 Proactivity, inertia and conflict in the journey for an innovative country

It is not a secret that reaching the objectives settled by the EU is challenging. This is not due to a lack of potential, but a lack of digital literacy and culture. As spelled out in the first chapter, Italians seem not to be affected by distrust of a digital world, but laziness. Laziness in shifting to a more modern structure that brings innovation and improvement, laziness in spending time, effort but, above all, money for building up a more digitalized world and, finally, laziness in having a long-term view about the benefits that a development of the UBB network could bring to us. "Fortunately" here I am talking about people who receive this service, the customers, not about the providers. Most of the population does not have an awareness about what is going on for the roll out of the optic fiber, but they are aware that something woke up thanks to the operators. Why? Because with their marketing they are literally bombing customer`s heads with this new way of surfing on the internet, watching and listening contents at the highest speed possible. Let`s make some example about the "different" claims nowadays pushed, before analyzing how operators are reacting , from an investment point of view, to the Agenda:

Fig.15: examples of banner of Italian operator



Source: Operators websites

This is just a preview of what will be faced in the second part of this chapter, strictly related to the marketing part of the UBB offer.

One outsider protagonist that has not been considered in the initial phases of the agenda, has now became a pillar of it, the one who has the key for bringing everything on in the right way. I am talking about **ENEL;** the main Italian company that provides electrical services is fully involved in the plan for the roll-out of the optic fiber. That is why it is the main provider of the whole structure, through cables, cabinet and stations. It is the governmental instrument for "bringing the future as soon as possible everywhere". The UBB network is a strategic objective, but the government is not the one that has to build up and industrial plan, but ENEL does. Wiring the Italy is and will be its main task until out standard would be fully sorted to those of the EU. If, the first impact was not good at all from a financial point of view, causing a down on the shares of Enel (-1.8%), now the role of protagonist for the development of the future in Italy, is covered by this company. This is a chance for the State to give back to ENEL the control of the great "telematics strategic highways". ENEL represents the **accelerator** for building up the NGA, improving the current situation dominated by TIM with its private network. ENEL has already a capillary diffusion through all the country and, with its plan, it is determined to bring wires even in the most impervious places (like touristic places or isolated small towns). The time of course is one of the main variables in the context: ENEL has 3 years to bring the new structure, literally, everywhere, retiring the old coppered one, without **intervening on the competition**. ENEL is the author of the deep restructuring process for the TELCO market that will leave the structure in the hand of the State and not in those of private operators. If at the beginning, the State wanted Metroweb for the roll-out, Vodafone through a partnership and Telecom, the dialogue with the last one worn down because of its intention to proceed building up its own networks, making it private to everyone. The strategy of TIM is unacceptable because of its slowness and antiquity. It is a strategy not compatible with the objectives of the EU.

The value added by ENEL can be articulated in a shortlist:

- It is a **provider**, not a Telco company. Costs are reduced because the network is already posed
- Creation of a **public infrastructure** and not of a private one
- No creation of sites for posing the network, because the network is already posed and thanks to the advanced technology ENEL makes available for spreading it.

- Creation of **synergy** with the already existing networks.

ENEL covers the role of catalyst for the digital revolution is going to happen, but how will is it proceeding?

The last November, ENEL decided to build up a new company, called NEWCO and renamed **ENEL Open Fiber.** Creating on purpose a company that will manage the posing and the roll-out of the network in the next years. Giving the aforementioned fact that ENEL has already a capillary structure through all the country, the saving in costs for the expansion of the structure would be **around 40%**. The partnership that has already been created is with **Wind** and **Vodafone**. They are the one that expressed interest in investing, with ENEL Op. Fib., to the building up of the next generation network.

In the meanwhile Tim is going on with its plan, rolling out its own network, called "Italia Connessa". It is trying to seal a deal with Metroweb that, from its side, it is interest in entering in the newco of Enel. There is a bargaining process currently ongoing that sees Enel Op. Fib. Proposing 800 million € for the acquisition of the majority share of Metroweb. This move, from the latest days, is something that hits Tim very hard.

Beside this, it is right to talk about the new plan presented in these days by the board of directors of Enel Op. Fib.

The company will play the role of a wholesale seller only, therefore not altering the competition inside the market but just selling the infrastructure to the other operators. The definition of all the objectives and of the UBB plan is a further step for development of the country. Thanks to its capillary network, the Fiber will reach the households of 32 million of Italians. The first move of the plan will be to cover 224 cities, covering around 7.5 million households, with an investment of 2.5 billion euro and assuring the maximum connectivity speed thanks to the FTTH, fiber to the home. Conversely to the private plan of TIM, EOF with its plan is fully sorted with the path designed by the digital agenda. This is the first step for dispelling the ghost of the **digital delay.** The plan, sealed in this days, will proceed through a series of different steps, not been defined yet. About the investment must not be excluded the hypothesis of another investor`s entrance.

A partnership with Vodafone and Wind has been sealed in the beginning of May, will still uncertain is the role of Metro web. About TIM, as said before, the dialogue has been interrupted months ago because of the main interest TIM has in the most remunerative districts of Italy, the so-called

cluster A and **B,** in which the builder of a new infrastructure would gain a great margin. In fact, the aforementioned partnership aims to cover those districts and represents an optimal starting point for the plan for both EOF and Vodafone/Wind. These two operators will touch the share of TIM that owns 45% of those district (with the old infrastructure) and would be reach the 84%. The keystone will be Metroweb; going with EOF or with TIM? It will be seen in the month of June.

In all this panorama, the government endorsed the plan sealed by EOF, Wind and Vodafone because it is fully sorted with the digital agenda; the plan is considered the key for unlocking "digital operas" in the next 30 years and EOF is the one, with the operators, that will draw the lines for the future. If on one hand EOF is endorsed and it is the chosen one, on the other and the government keeps TIM into the game but more cautiously because of its **private perspective**.

In conclusion of this first part of the final chapter, must be said that the digital, nowadays, in our society has an intrinsically, inexhaustible power and potential. The digitization is our reality, where most of the things are getting, with their pro & cons, intangible and tangible (when it is needed). The UBB is an essential part of our country, for a lot of reason that are related for both the simple consumer and the small/medium/large company. The greatest challenge is to pass from a **digital divide** to **digital dividends.** We are in front of the fourth industrial revolution and as part of this revolution, we must adapt to the consequences of it. From the kid to the half-aged man, everyone will learn the proper skill in order to bring a revolution in its life and accept or listening contents thanks to the streaming, it is about the way of approaching a new and advanced world.

We know toward which direction Italy is proceeding to, we know that Enel is the chosen one for bringing the revolution in our country, but how the UBB will be sponsored and commercialized by the Telco operators

3.2 Spreading the news: marketing among the Telco

Marketing in the Telco sector is a particular case; as provider of a specific services of connectivity, the communication with the final user must be strong, direct and, of course, quality-inspiring. Who would have a mobile phone that is not connected to the line, a fixed phone that does not allow you to make daily calls to parents, siblings, sons and friends? The Telco marketing and the communication deriving from it is based on

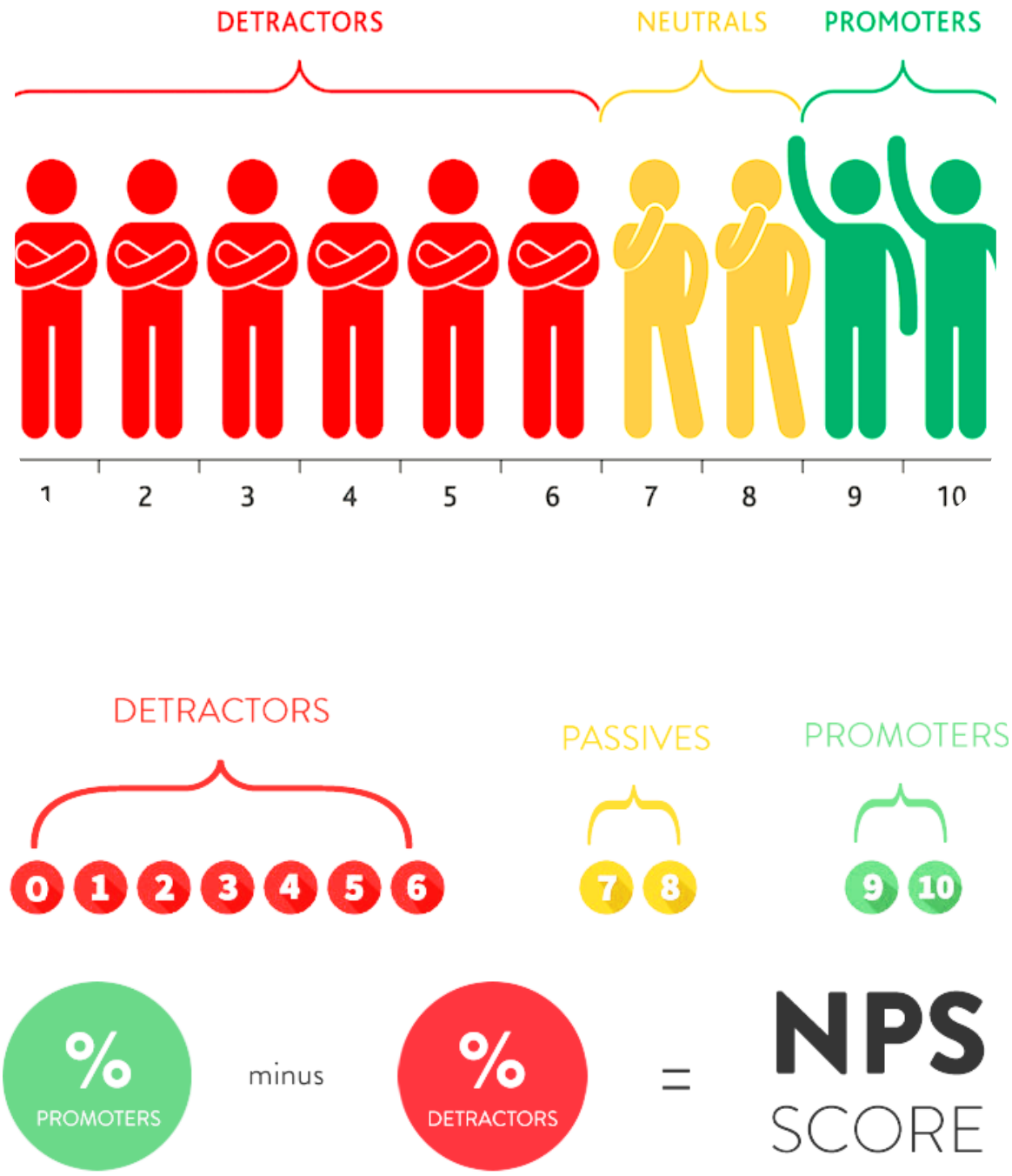
1. **Reliability**
2. **Cost control**
3. **Loyalty**

These are the value driver of the demand and consequent choice of the customer in a Telco market.

The service provided is not something that must be understood from the final user; it simply must be used. People do not care what there is behind, they care about what they hear when they make a call, at what speed their Wi-Fi goes, how fast can I download a song, a movie or even watching it.

As a sector in continuous development that provides **discontinuous innovation,** the fear to be isolated with the phone or to not be able to surf the internet for making a research could be overwhelming for the typical Telco customer of nowadays. This is not due just to a not reliable service, or a temporary problem related to maintenance or upgrading of the structure; this is due to the reputation that Telco operators have in the mindset of the user. In technical terms it would be better to use the proper term for measuring the satisfaction of the client regarding the service; I am talking about the **NPS**, **net promoter score** that basically measures the satisfaction of the customer on a scale that goes from **1 to 10.** Three are the segmentations, the clusters for assessing how well or bad a company is going

Fig.16 Nps system



Source:Ballard (2016)

The NPS is nowadays a standard for understanding how satisfied could be a client of the customer experience. Improvements or worsening could be easily tracked and a benchmark for understanding what the drivers that operators must pay attention to are and which are the leverages that must be pulled or pushed in order to create a satisficing customer experience. Sad but true Telco operators did not improve their positions during the years, besides exceptions, and made some arguable moves, driven by necessity, that wore out the relationship with the customer. Few but significant example could be the shift happened in the latest month that changed the period of the monthly fee into a 4weeks fee; there is a huge difference because through it, a single operator in a period of 12 months is able to take 13 "monthly payments".

3.2.1 Market dynamics introduction

Beside the introduction to the main evaluation system used in the Telco market, before starting to talk about the main dynamics and trends of Telco marketing, the frame reference, the macro context must be analysed. In particular I will do that answering to two questions:

1. What is happening in the market right now?
   The trends in the market are undeniable
   - **Commoditization** of the products itself: everyone considers a fast service of connectivity fundamentals both in the fixed and mobile segment. The latter is already consolidated, whilst the first, thanks to the convergence, the full integration of multi devices, and other peculiar features strictly connected to the IOT continues to innovate, even if in a **discontinuous way.**
   - **Saturation,** few acquisition led growth but slowly
   - **Rising** of **alternative** product and business models (MVNO)

   These are the three main macro-trends in the market. Specifically the trends must be seen in a tripartite points of view that I resumed in the following framework

Fig. 17 Telco market dynamics

Market dynamics

Customer

Challenges:

-**Loss of velocity** due to slow growth led by declining acquisition

Opportunities:

Differentiation and loyalty-building through **CXX** (customer experience excellence) **program**

The **huge digital divide** offers immense potential for the next wave of growth

Leveragin the UBB available potential for **ensuring and managing partnership**

Organization

Challenges:

-**Decreased agility** induced by years of legacy

-Fragile revenue market share with new business model popping up

Opportunities:

- Merging governmental interest with private operator interests

Ecosystem

Challenges:

-Cost pressures mounted by advancing network technologies (the UBB)

-Unknown competition with the advent of digital

Opportunities

-Became enabler champions in the new digital advent for the entire ecosystem

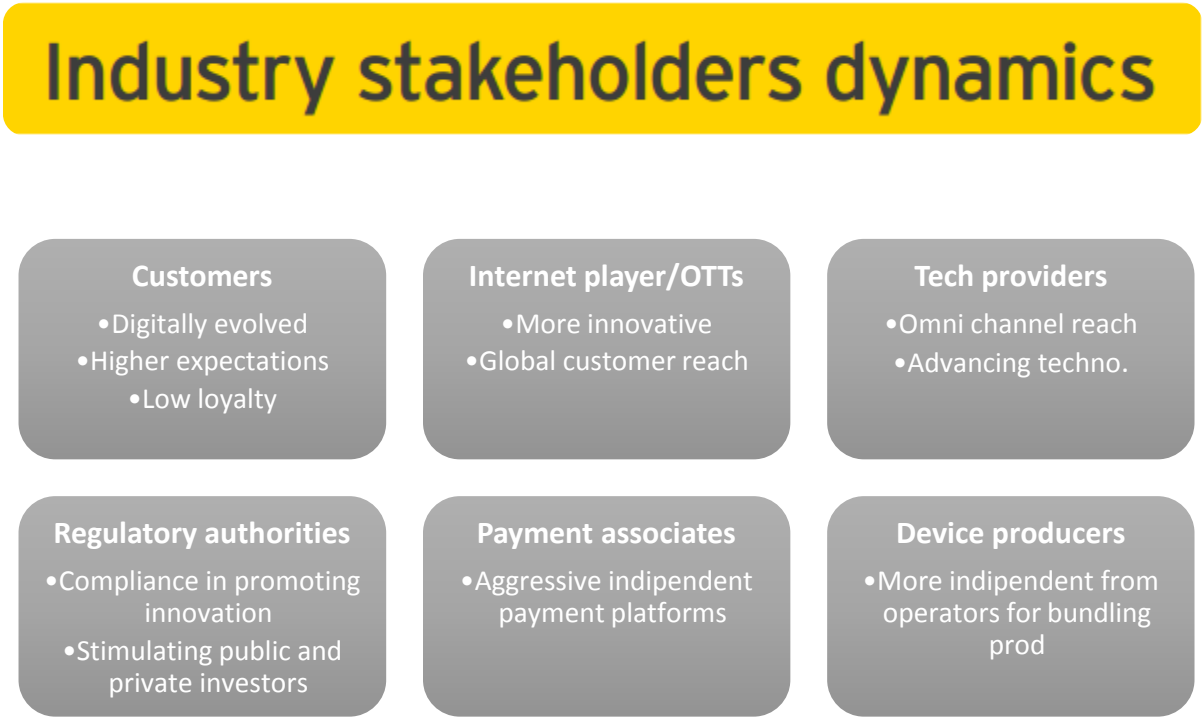
Source:EY Advisory (2015)

This is the first point of view related to the market dynamics. The second question is about the industry stakeholder dynamics, deeply tied to the actors of the market

2. Which are the players directly and indirectly involved in the Telco market?

   As the ages go on, the players involved in the market are and will be always more and more because of the convergence of many industries into the Telco one. The stakeholders involved in the macro environment of Telco are the following

Fig. 18: Industry stakeholder dynamics



Source:EY Advisory (2015)

Profiling what is happening among the players of the Telco, it is time to introduce what is changing in the way of marketing customers in Telco industry.

The telecommunications industry has been critical to the process of digitization across a range of other sectors. From retailers to financial services, firms depend on telecom networks to provide customers with compelling online and mobile experiences designed to capture their interest and keep them coming back. Yet the industry's own efforts to transform the way it interacts with

consumers to market, sell, and support its products and services, have lagged. It's time for that to change. Consumers are rapidly learning the value of digital through their experiences in other, more advanced industries, and they are coming to expect the same from their telecom operators. To meet this objective, operators must offer an integrated, Omni channel user experience: on the desktop, on mobile devices, on the phone, and in stores. That, in turn, will enable them to build a portfolio of new products and services designed to match the requirements of each customer. Together, these two elements — **an Omni channel experience** and better products and services — will allow operators to boost value. Operators, nowadays are about to make the **digital transition**, and therefore they must follow a path articulated in the following points:

1. Defining their ambition in taking advantage of digitization, creating a truly Omni channel experience, and developing the digital products and services that customers want
2. Building the operating model and information technology needed to support these ambitions.
    a. Designing a strategy for creating the digital experiences that customers will expect three years from now, not today.
    b. Working closely with customers and collaborating across business unit and functional boundaries in creating digital experiences, constant experimentation, and a willingness to learn from mistakes — all with an eye on the ultimate goal of **creating value**.

E-Consultancy recently made a survey for analyzing the last trend in the Italian Telco industry in order to better understand how companies approach the **digital marketing.** The following will be a report of what are the key **trends**, the **opportunitie**s and **sector-specific issue.** In the next year most of the Italian operators will invest 84% of their marketing budget for digital marketing. The current investment, compared to the other industry is of 48%. But have these investment an established direction? If yes what are the opportunities? The digitization brings with it the matter related to **big data.** Telco operators, according to this report, are twice as likely as other companies **to view big data as an exciting opportunity** in the next years. Looking at the pictures, telecoms are both consumer and provider of Big data services.

Big data will do three primary things for telco operators:

1. Deliver smart services that generate new sources of revenue. Just watch at the internet of things with the UBB as its base for future innovation

2. Transform operations to achieve business and service excellence
    a. Evolving and adapting customer experience excellence program
3. Build smarter networks to drive consistent, high-quality customer experience, that is what is happening in Italy.
    a. Network experience optimization
    b. Proactive data strategies
    c. Targeted product and marketing offers

Everything in order to be more efficient, more competitive, agile and innovative. The exponential growth happening in the big data dimension is creating huge opportunities for future innovation

Beside the big data, there is another component to not underestimate, the **video one.** It is one of the priority in the marketing strategic plan and it will represent the keystone in the next 12 months. Video, especially in the last year, has had a great impact because of the diffusion of smartphones and the possibility to see whatever customer wants on the small screen. The integration of the video marketing allows company to be "ubiquitous" and omnipresent on every device. This allows companies to create a digital awareness between the different targets. It is enough to think that half of the traffic that an operators receives it comes from mobile devices. Strictly related to the devices and not only there is another element to consider and it is the one of the **customer experience**. Every operators strives for differentiation, but those who really are able to differentiate the experience are not so many in the Italian market. Creating a memorable customer experience is increasingly complex; the mass is always more and more desensitized and obtaining a **wow effect** it is a tough task to accomplish. Customer expectations are growing and the Telco sector isn`t yet meeting those. It is not so easy to fulfill a gap that grows day by day. A great opportunity is to create a fluid movement from one device to another, letting your fixed line and your desktop always connected to your mobile devices. Creating not just one device per need, but an aggregate of devices among which you can switch easily. This is strictly related to the concept of convergence, but what is it?

3.2.2 Convergence, a source of innovation

Convergence in the telecommunications industry is *the coming together of devices, services, and ubiquitous connectivity* to provide consumers a seamless communications and entertainment experience. It includes a mobile connection and a Broadband connection, but think if the convergence can be based on an UBB convergence. Would not be better interconnecting faster our devices? Nowadays the convergence is reality even if not well spread from a commercial point of view. The benefits that operators can reap through convergence will include more **loyal customers** and **higher revenues** from new consumer services, including those made available through partnerships with companies in financial services, healthcare, and energy. But to capitalize on the opportunities, operators must transform their businesses to offer better, higher-quality network services, more choice, and greater customization and opportunities for interactivity. For years, it seems, the term "convergence" has been bandied about by executives, technology gurus, industry analysts, and journalists as the next great thing in telecommunications. The many elements of the telecom universe, they assured us, would soon converge, linking **voice with data**, **fixed with mobile**, and **data with television** into a **seamless conjunction** of networks, platforms, devices, and services. Now, however, advances in technology and changes in consumer behavior have recast the issue of convergence. Consumers have begun to appreciate a wide range of converged products and services that can enable their mobile, always-connected lifestyles.

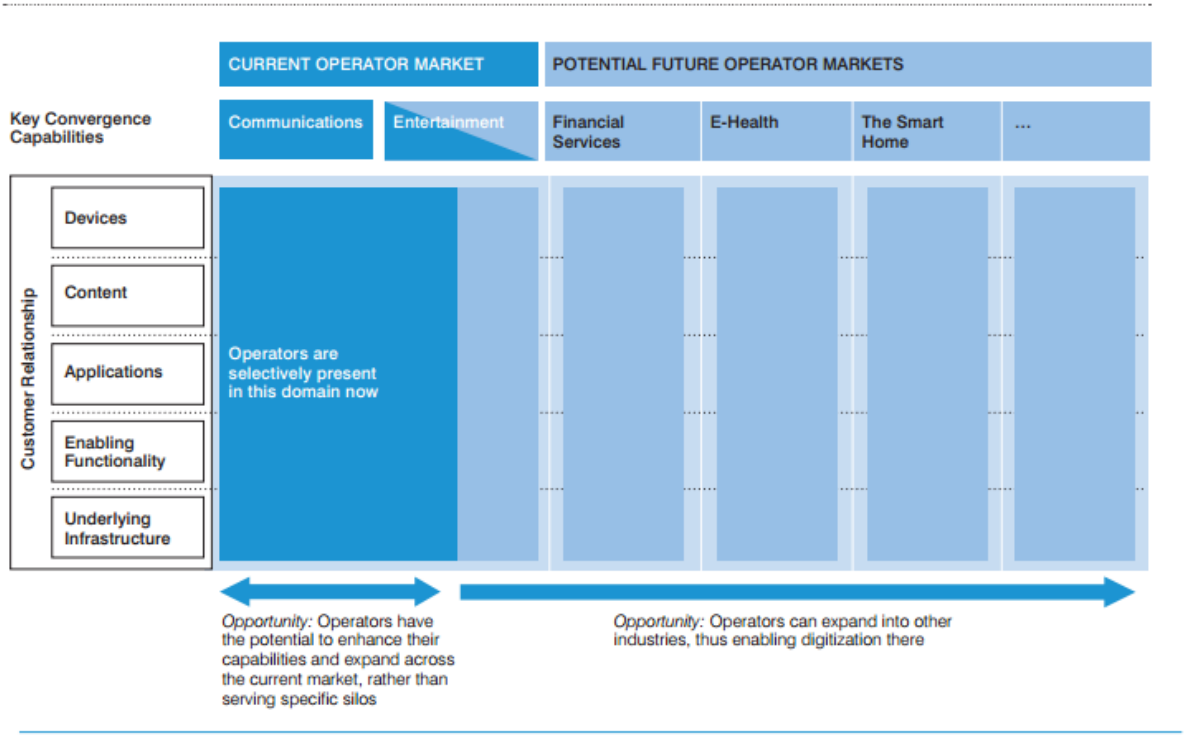
Analyzing specifically the convergence:

- **Technological point of view**, convergence is about the bringing together of devices, software and applications, and connectivity into product offerings designed to meet a possibly unproven consumer demand.
- **Consumer point of view,** is about services they can use and enjoy regardless of which device they prefer and without having to worry about the technologies involved in delivering those services.

The goal of convergence is to **enable** the further **digitization** of customer lifestyles, and all the accompanying benefits of greater connectivity, mobility, flexibility, and efficiency. Only when the two aforementioned visions come together felicitously—when the actual products and services offered do indeed match demand—can it be said that convergence is happening. And it`s happening, right now.

The premises for a big source of innovation are present, but sadly, something is not working right now. Italian telecom operators have not taken advantage of the recent convergence trend, either because they don't want to incur the cost of being the first mover, because they believe it is beyond their traditional capabilities, or because they have yet to see adequate results from earlier efforts. Involving all the psychographic classes into this process is not so easy. The convergence, notwithstanding its potential, must be communicated in a proper way in order to show to late majority and laggards what can be done thanks to a functional connectivity among different devices. If on one hand the innovative can be involved, the early adopters are cooperators and consequences of the innovative, from the early majority on the communication represent the pivotal element to introduce the convergence into the market. Lately, the problem has been to operate outside their traditional strengths and outside the traditional telecom industry way of communications. The lack into the communication has been related to not showing the multiplicity of connection they can enable. If they were, they would be benefit from the so-called **convergence trend**

Fig.19 Expanding opportunities in the Convergence Space

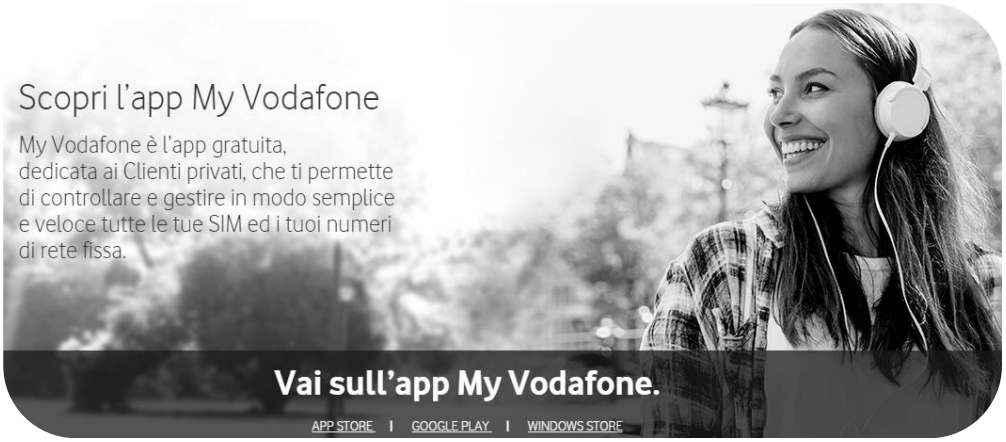


Source: Booz & Company (2014)

What is, then, the strategy that operators can do in order to meet the demands for new technologies and breakthrough services? Operators possess a key advantage in the move to convergence, their relationship with customers. In order the push the concept and show the potentiality of the convergent offer they must intervene in those areas where they have huge capabilities and expertise in order to differentiate their go-to-market efforts from those of competitors. Because of this they would be able to position themselves Vis-a'-vis their customers as the **enablers of digitization.** Let`s see the areas:

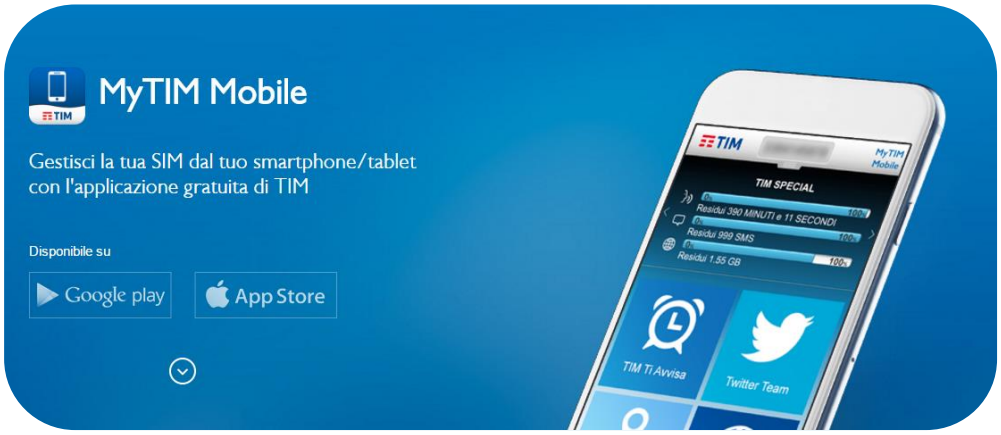
- Applications: it is doubtless a great challenge for the operators and a great investment at the same time. They are not born as app producer and the largest share of the market have already been taken by players like Google and Apple or other app developer. These are global players, so getting into this market is pretty risky. The ambition is not to compete globally where there would be certainly a competitive disadvantage, but to compete locally on a national level. The game would be about developing selected and specific apps in areas where their expertise would give them a concrete advantage. The following are examples of Italian operators that created apps for managing fixed and mobile line through the same platform

Fig.20 My Vodafone app



Source: Vodafone (2015)

Fig. 21 My Tim



Source: TIM (2015)

Fig.22 My Wind

Source: Wind (2015)

- Enabling functionality: the aforementioned apps permit to create links with other devices or applications. This is the core, the capability to extend software platforms further in order to offer unique, attractive services and to differentiate themselves from the other providers. Through With the aforementioned app I have the possibility to manage
    - My counters related to my mobile offer
    - I can see the next billing for the fixed line
    - Make a speed test of my connection
    - Chatting with an operator for assistance

As we can see even the assistance is changing nowadays, thanks to the chat installed in the app you can freely download. And it does not require waiting time at the phone. The digitization is this, renewing what was old and make it better. From here it comes the relationship with the customers

- Building on the aforementioned capabilities, operators should be able to acquire more customers while increasing their impact on existing ones by improving the customer interface. Innovation here is differentiation of service; innovation here is a more complete and intuitive interface; innovation here is finding the answers you are looking for through an app; in the end innovation is finding simple and clear solution that allows the customer to have total control on the provided services

There are other aspects to be considered in order to have additional advantage compared to others:

- Striving for predicting the future, collecting all the insight in order to manage at their best the actual CB. Doing so they would be able to predict future needs. The base is to use their current solid customer relationship as a foundation.
- From a product and service point of view, changing the ordinary business model. The long-term, infrastructure oriented product life cycle is not a model that can survive in a future where the competition will be fast and implacable. Either internally, but better with continuous partnership and acquisitions, operators must build the capabilities needed in order to bring new products and services to market quickly and flexibly. Just think at the main partnership made during the last year from Tim, Vodafone, Fastweb and Wind.
  Contents are the main value driver for the new convergent and fixed offer.

Fig.23 Panorama of past and present partnership in Italian Telco industry

Source: web sites of telco operators

Doing so is a good move toward the convergence, not just in communications and entertainment but also in the diffusion of the convergence. Once all the aforementioned capabilities are in line the operators should be in a better position to compete in the convergence area and to spread the word about it. This new upcoming segment where to compete for, is one of the key for future innovation but in order to take fully advantage of it, operators must attract players from other industries creating a **B2B2C network**. Telco are the base for future innovation, they have the structure from which everything starts, the network thanks to which connectivity is possible and they have data about customers for a more efficient marketing. Perhaps capabilities must be developed and extended in order to create further customer offerings and sophisticated business services. This includes investing on it, bringing true innovation beyond the border of the main core business and gaining a premium for the superiority. Sad but true Telco spend just 1.4% of their revenues on R&D, nothing compared to the new digital entrants in the market that spend around 10.8% of their sales on it. Striving for stemming the new entrants is not the key; for example…blocking VOIP and therefore **whatsapp** and **Skype call** is not right way to walk on. These are not problems, there are opportunities instead.

The core markets of Telco are already mature and they are growing day by day with the diffusion of higher speed networks, so it is time to move forward, thinking to all the infinite applications,

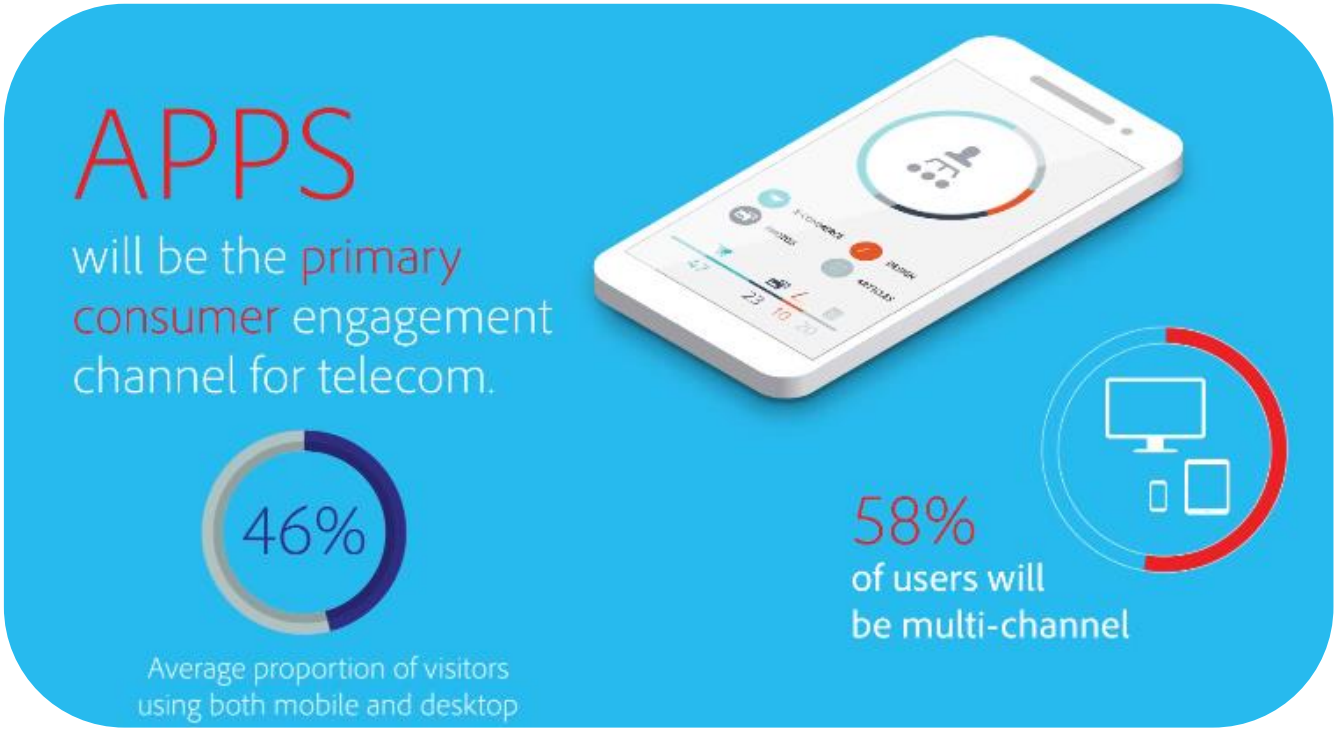
source of innovation, that can be implemented; the trend to the convergence of devices, apps and services is a reality boosted by the ultra-broadband, source of innovation and tool for ubiquitous connection. Operators are well positioned compared to the most digital competitors, but they have unique assets like

- Customer relationship
- SIM technology
- Billing tendencies

But what can determine a "**make or break**" capability is the one about providing desirable services to the customers, enabling other, converging , industries to do the same. Telco have the role of aggregator of services and this makes them superior in the market where they have real potential succeed (entertainment, healthcare or banking). Partnering is the keystone for opening the door that leads to a new dimension of competition in a faster market than the usual one.

Before I spoke about the digitization through Omni-channel strategy; Omni-channel is about putting yourself into your customer, thinking how it thinks and delivering seamless, integrated experiences across all channels. In the recent years with the rise of digitization, thanks to internet and faster data speed, Telco decided to work in order to reach one goal: providing a seamless customer experience across every single touch point. But this goal has the declination to not reach just the tech savy customer, but the whole customer base in order to create a proper informatics literacy. It makes sense for operators to strive for meeting customers' preeminent expectations with a support strategy that combines their multi-device, modern, on-the-go lifestyles. The prerequisite to winning the hearts, minds, and loyalty of the eternally connected telecom consumer, or even better digital consumer, is to provide them with an easy, seamless Omni channel experience, which includes ensuring the same, fast and fluid service through a combination of every possible touch points like **web, mobile, social media self-service options** etc. Specifically apps are getting the primary consumer engagement channel for operators

Fig 24. Statistics about diffusion of multi-channel strategy



Source: Econsultancy (2014)

Operators are experimenting different ways in order to engaging more and more customers through apps thanks to some peculiar features named **like moments** like competitions inside the app, gamification processes and sweepstakes**.** Everything to make the experience engaging, intuitive and consistent

On the other side having all this potential and not taking advantage of it in a proper way could lead to disconnected and incoherent platforms that represent barriers to an integrated type of marketing.

In the end what is happening today in Telco marketing is basically a transformation toward a more digital world and customer. Digital has clearly proven to have a substantial effect on operational efficiency across the full Telco value chain. It is time now to make an alignment with what is upcoming; being digital in order to serve a digital generation and be more customer-centric. Increasing customer care and collaboration through organizational silos. But companies are now focusing also on creating integrated marketing platforms in order to build up marketing ecosystem

and increasing the ability to engage more and more customer. Individual and targeted point's solution are no more sufficient to operate marketing initiatives in an Omni-channel world.

Integrated and interconnected marketing platforms will allow telecom to

- Acquire
- Engage
- Convert
- Retain

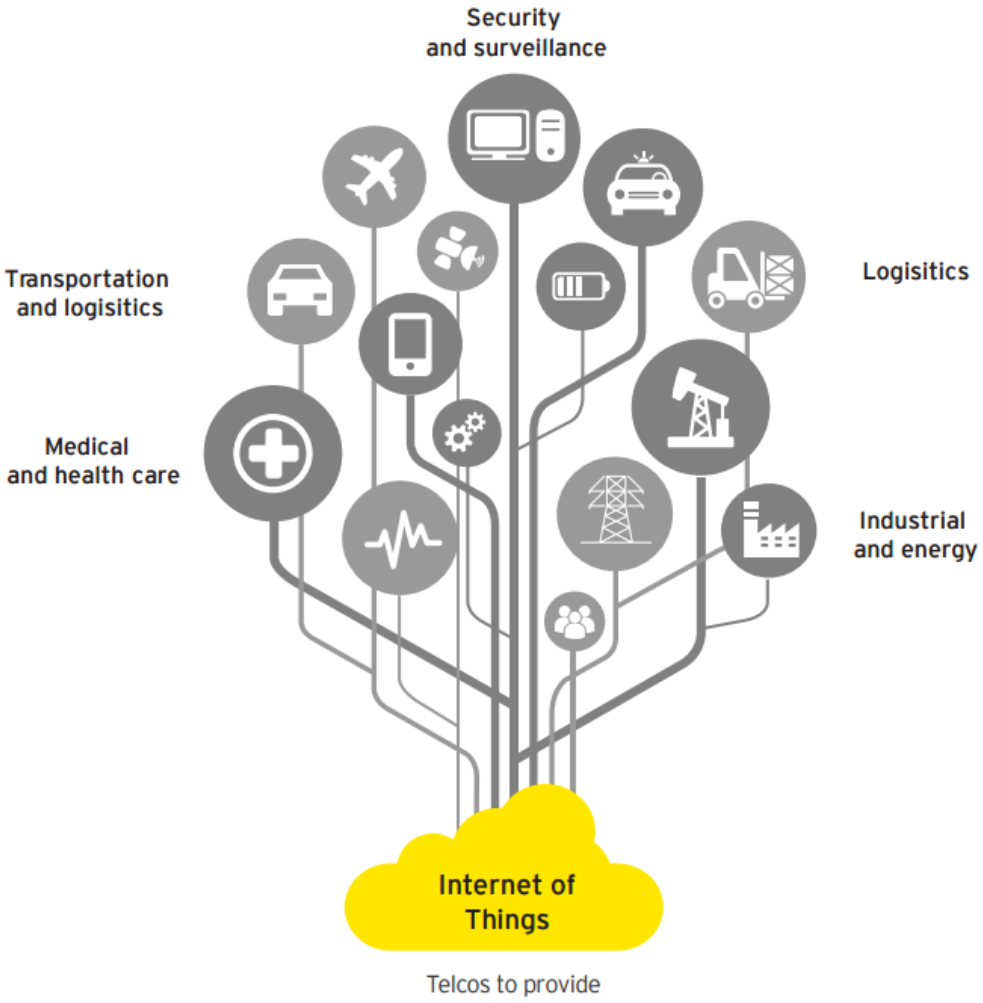
their customers inescapable and efficient manner across all touch points of the customer journey. In this era of customers, Omni-Channel is a strategy through which operators are providing the finest level of customer satisfaction through every single channel. Omni channel has indeed become the symbol of businesses that are committed to improving the customer experience and differentiating themselves within their market space. Now that there are tools for making everything interconnected such as the ubb technology it is time to embrace the innovation coming and shaping what Telco will be tomorrow. As first thing, operators must not be just communication service providers; not anymore. They must turn into **digital service providers**, **DSPs.** Globally, key digital trends have triggered the digital transformation:

- The presence of OTT, Over the Top, companies that provide contents (video, audio and other media) over the internet without necessarily the presence of an operator responsible for diffusion
- Big Data, but the matter has already been illustrated
- E-payments, approaching the market in the latest year, force operator to adapt to the new way of payment and finding smart solution related to that.
- The IoT and the M2M, consequences of an ubb system that connects multi devices and let them work in unison.
- Cloud computing, infrastructure that give the opportunities to acquire large –scale flexibility in a faster way.

Related to the hard push to became DSPs, there is the advent of the **Customer 2.0**. The new suit of customers is forcing players to provide what they were used to provide but under a digital perspective. The experience with the connectivity service must be qualitative, consistent and

reliable. But what customer 2.0 cares more is the friendly aspect the system has. The easier it is to have access to the content, the more transparent the conditions at which it subscribes the contract, the happier and satisfied the customer 2.0 will be. Being more digital means being more transparent, friendly but innovative above all. Providing an innovative digital service means building up a unique experience that is the finest, friendliest and engaging experience they could have in the market among all the operators. Consumers are the core of the ongoing digital transformation, especially in the Telco sector. They are the driver of the demand for entertainment, premium services, new ways of interaction with the others and ubiquitous connectivity. Addressing new needs is the key for taking advantage of the digital transformation and gaining a differentiation advantage on the competitors. It is all about rethinking the marketing mix and creating a new portfolio of digital products designed for fulfilling present needs. In this digital transformation the conception of value must be deeply reviewed. Priorities are shifting toward ubiquitous interconnected systems such as the ubb, the main base for a new portfolio of digital services such as the IoT. The following is an example of what UBB could be in a fully digitized world; here there is the **Iot potential tree of development**

Fig. 25 IoT tree of development



Source: EY advisory (2015)

That is why the UBB must be intended as the main base for future innovation; it is the base for the development of all the branches of IoT and not only. The UBB allows company to create new portfolio of digital services and responding to those uprising needs of the digital customer. The fixed line is just a component of a wider dimension still in development but with great potential.

3.2.3 Consideration about digitization process

In conclusion about the digital transformation happening in the Telco industry, must be said that is not enough understanding how a Facebook page works; the digitization of the company hits hard every aspect and dimension of it, from commercial operations, to IT, to marketing, to sales department. Embracing digitization means embracing a new suit for the company that is going to operate in a completely different way, affecting the relationship with partners and customers. But what is the playbook for embracing the digitization? PWC in its report about the strategy for becoming digital designed a 5 step-process where it is indicated where and how to act:

1. Determining ambition, related to the company capabilities and capacity in order to decide whether to disrupt its entire business models or just rethink the customer experience. Here what matters it to achieve a differentiation advantage given by digitization.
2. Creating an Omni-channel experience: digitization means providing not just an engagement through a single channel, but creating a whole Omni-channel experience in order to fully engage the customer to the vision of the company itself. The experience must be consistent, compelling and fully integrated.
3. Define a proper customer proposition in order to capture value across all the targeted segments of customers .and permit them to embrace the digital revolution too.
4. Adapting the organizational structure and the operating model to the upcoming digitization, in order to create a digital literacy inside the firm. This allows to carry the digital proposition out better. Especially the channel management approach should be touched by this revolution in order to redistribute resources better and allow sales force and customer care having the digital skills needed.
5. IT must be fully integrated with the whole process of commercialization of new products in order to create a synergy with marketing and sales. IT, in the upcoming era, must be customer obsessed as much as marketing is.

Of course becoming digital will not be a straight, easy process; following some steps will not be enough to redesign the whole way of doing business for a Telco operator. In order to approach the digitization in a proper way, the focus of the company should be on 3 elements: **customer experience**, **products and services**, and **business models**. Every of aforementioned elements with the tips provided by PWC will be a powerful tool to embrace not just digitization, but innovation on a larger scale.

It is not a secret that Telco operators have been slow to shaping their structure in order to digitize themselves, but now, with the shift happening in the customer, digitization comes to be critical for the success of tomorrow. The traditional business will not work anymore because the value perceived today is not the value perceived in the past (recent and years ago). The risk of not doing so is to lose market share and going out of the market; a market that today is fully saturated with stagnant growth. The digital ecosystem already exists, the question is…will operators be part of this system?

3.3 Vodafone, its approach to the market and the UBB diffusion

As we got in the previous chapters, the world of Telco Communication has been changed in the latest years. Mobile, fixed and digital communications have transformed the lives of hundreds of millions in ways we in past could barely have imagined.

Europe originally was the crucible in which the modern mobile and fixed industry first took shape. The world leaders in telecommunications were here; device producer, revolutionary operators, driving technological innovation and investing billions in digital networks and development.

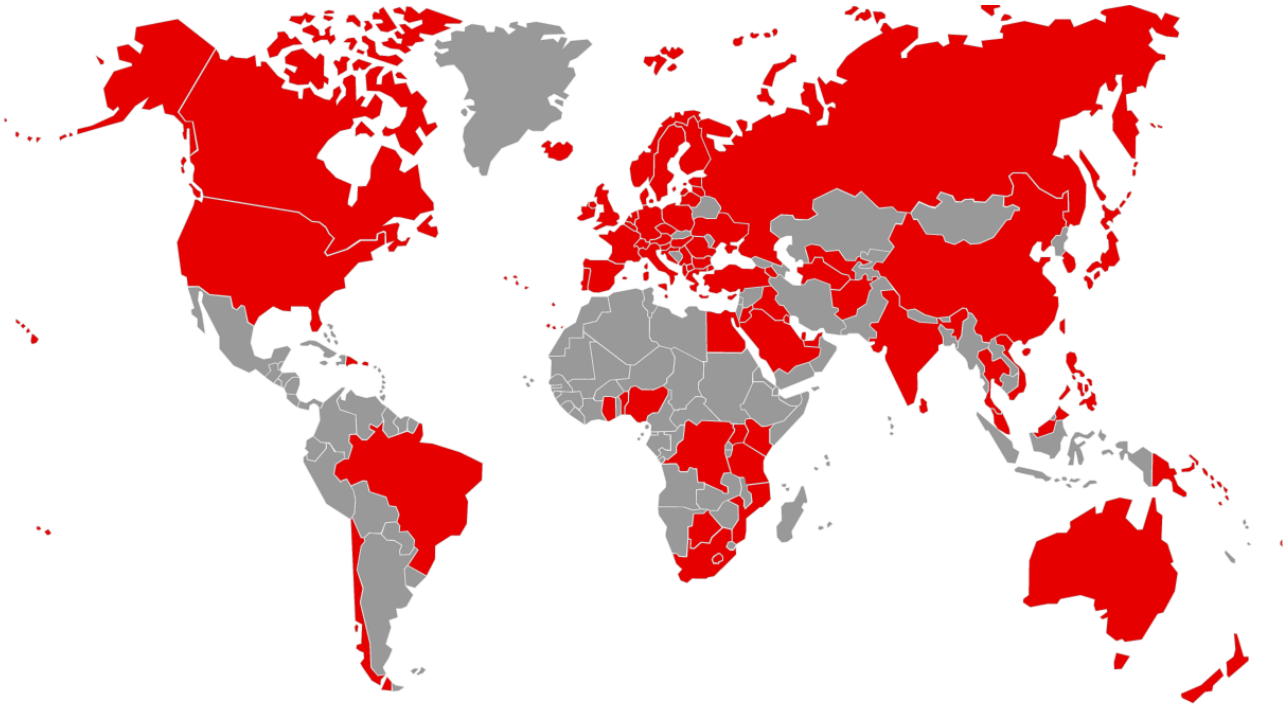
Today the frame we stand in front of is deeply different, watching most of the value industry generated across the Atlantic or in emerging economies such as China and Emirates.

In Europe, people demand for faster connectivity services and ubiquitous data connections; and it is a constant growing demand, given the fact that, with the presence of OTTs, data consumption is quadruplicated. That is why the digital agenda plan has been created; in order to take advantage of the new digital era coming and to bring harmony in the value produced by Telco industry.

In the European context, Vodafone directly and indirectly affects economically the continent through the activities in the 12 EU members state in which it operates.

The following is the map of countries in which Vodafone is present, directly (OPCO, operational country) or indirectly (with a partnership)

Fig. 26 Vodafone presence around the world



Source: Vodafone (2015).

More than 125 million people in Europe rely on Vodafone networks and services, including 30 million business customers.

Vodafone contributed, through the impact in 12 EU member states, to make Europe the region with the highest mobile penetration in the world equal to 78% at the end of 2014.

The aim is to keep expanding in order to respond to the growing data demand for both mobile and fixed segment. In the latter is not just about the quantity, because it is unlimited the amount of internet you gain at home, but it is all about speed and reliability of the line itself. Improving and upgrading the network, the data service offering in both mature and emerging markets, this is what Spring has done.

If on one hand, the mobile one, we have the **4G,** on the other, the fixed one, there is the diffusion of the UBB, pretty more complicated because of the huge investment required. About it, should be said that huge investment have been made for acquiring fixed-line broadband business across all Europe and that an optical fiber network is being developed in Spain, Portugal, but Italy above all, and this will be the main topic of the final part of the chapter.

As said by the CEO, Vittorio Colao: "*Our future in Europe lies in convergence: bringing mobile and fixed-line together to provide households and businesses with content, services and applications integrated across multiple networks and multiple devices"*

The emergence of the IoT, thanks to the use of the new technology connection-based M2M (machine to machine), presents an important opportunity for an exponential growth; the M2M as said in the previous chapter will shape every aspect of life but it has to have a reliable connectivity service as its fundamentals. Vodafone, in fact, as innovative as it is, is considered leader in the segment of M2M, a global leader. Much of the innovation proposed today has a source and it is called "**Project Spring**"

The mentioned project started in the 2014; Vodafone, made strong and solid, by leaving its share of Verizon, an American Telco operator, gained 130 billion dollar. Decided to get out of the American Telco market, a new organic investment raised, made of 8.2 billion euro in capex (capital expenditure) in different EU member states. Vodafone decided to boost its investments in mobile, but above all in the UBB networks in order to boost the differentiation strategy on all its segments, providing to customers new, innovative and reliable services. Among all the countries, the one that has been touched more (there has been a doubling in the euro invested) is Italy. Notwithstanding the hard context in which the country was at that time, going out from a price war with constantly decreasing revenues, Vodafone strongly contributed to the growth of the country, showing undeniable commitment and deep trust for the potentiality of Italy. Vodafone, then and now, is one of the most important investor in digital infrastructure, spending around 900 million in the network and services. The investment made at that time was of 3.6 billion euros, the highest among the EU member state, and it lasted two years. It represented the largest and fastest network development in the whole Vodafone history and it finished in March 2016.

Italy represents the second largest European market for both mobile and fixed segments. From the UBB point of view the main objective of Spring in Italy was to cover the 150 main cities with the optical fiber and launch, progressively, with constant R&D effort, faster connections

After what happened because of the price war years ago, the financial performance of Italian opco has never been positive, together with the NPS of the firm itself, the lowest in the market. The reputation together with what the company was passing through was not positive at all. The last 31 December 2015 Vodafone Italia closed the third quarter FY 15/16 (Fiscal Year) with positive results at the voice **service revenue;** the value driver of this positive result have been two:

- The ARPU (average revenue per user) of our mobile customer has raised
- The revenues coming from the UBB segment reached 201 million euro

After 23 quarters, approximately 6 years, positive results start to raise up thanks to an extended fibre coverage, comprehending 3 million of families, 5 million reached by still delivering its results. If we think that the original objective for the UBB was to cover just 150 cities with the optical fibre, we can recognize that the reality is pretty different: 383 cities with optical fibre and 3 with the maximum speed one, the 500 mbps. Together with these unexpected and incredible evidences, the brand reputation, from the worst in the market as I said, has arrived to the second place. The customer satisfaction is tangible thanks to Spring and different actions initiated for showing how reliable is the whole pack of services Vodafone is providing.

Having made the investment on the network (on the NGA), it had been just the beginning of positive consequences for Vodafone Italia, which passed through hard periods due to the price war begun by, at that time, Telecom Italia. This event caused a strong down in revenues, transforming the Telco market e bringing operators to lose revenue, market share, brand reputation, but above all the **value provided and perceived** in the **eye of their clients**.

The pivotal elements of the investment made In Italy has been different:

- The extension and improvement of the mobile networks bringing the 4G to the 95%, almost, of Italian country, providing customers with available devices also the 4G+ service.
- Building up the next generation fixed-line infrastructure, depositing optical fibre through all the country, creating a partnership with Enel Open Fiber with the objective of reaching as many cities as possible and working with the government for the digitization of the country
- Development of M2M products suitable for both consumers and business clients.
- Investing in our stores in order to be more **digital**, **engaging** and **modern**

The challenge in Italy was (and it is not over yet) to re-create a properly designed figure of Vodafone, not just as an operator, but as a provider of different and digital services, transparent and disruptive at the same time. This is the way through which Vodafone could rise again from a war that left his scars all over the market. Especially the NPS, years ago was the worst in the market, being considered as "arrogant", "dishonest" and "rude", everything due to a mix of thing, but basically the approach to the individual customer through different channels: store and after-sale services.

Project spring matched perfectly (and increased) the growing interest of all the types of customer for higher speed connection services thanks to the new structure of optical fiber. If once, one year ago, we were merely able to see a draw of what is the true potential of a fast and reliable internet connection at home, then now the awareness of what can be done with such a connection is spreading around the minds of customers. The optical fiber is just the beginning, a solid base from where Vodafone started to build higher value products, more appealing, thanks to the convergence with contents and additional services. Covering 6.4million households it is a results that create the base for a powerful acquisition of new clients that will represent the most fertile cb on which Vodafone must work. Applying the Spring has been made in a long-term view, not just about for creating a solid base for the future, but for being part of it. Before the plan, Vodafone was not such a good operator to deal with for a fixed home interconnection. The speed was not the best one, the marketing did not help the brand reputation with the worst testimonial choice in Vodafone history and there was not the **customer obsession**, core interest of today.

Vodafone changed its face in the last two years and it all started, before the project Spring, with the substitution of Paolo Bertoluzzo, once CEO of Vodafone Italy, with Aldo Bisio. A new strategy was approaching combined to the launch of Project Spring, a strategy for passing from a "megabit society where M is for medieval to a gigabit society, where customers want more contents and data to use them, where G is for growth".

Two years ago while voice and messaging were still crucial to customers, the demand for data, given the rising of OTTs, was unceasing, both in the mobile and fixed segment. This, seen as a threat in a first time for the presence of OTTS, like Whatsapp, Skype and Viber, war a great opportunity to work toward the finest data experience to provide to customers instead. But the story is not just about the mobile segment; two years ago, during the shift, a new portfolio of fixed offers has been created in order to meet the demand of the customer for convergent plan such as:

- Fixed, mobile and contents such as TV
- Fixed and contents like TV series, Spotify or sport premium subscription.

As Vodafone became a proper (and larger) fixed operator, the expectations of the customer kept rising, therefore a disruptive and innovative components, never thought before to be offered with a Telco service, was the one of contents: Spotify, Mediaset premium, Netflix and Napster. 10 years ago no would have thought an operator could offer a bundled package of internet home connection and TV series or sports event. Vodafone has never been Sky or Netflix, but the digital trend of today is bringing customer to leave television to adopt a more digital-based lifestyle where data is the main component. In order to add value to the fixed offer, contents is crucial because could bring in the acquisition process, other types of customer. Contents therefore are a powerful leverage in order to make the offer more appealing. We are living in an era where content is king but distribution is queen. It is fundamental not just to select a random content and put it in; must be understood how contents influences the demand.

Together with new portfolio of fixed offers, a network keep rising thanks to the Spring reaching, as I said before 386 cities, of which 3 with the maximum speed of 500 mbps; the last offer with the highest speed has been released recently, beating the rest of the current offer in the market; of course it includes content, fully enjoyable with such a speed. The following is the main result of the Project Spring, the current Italian coverage in terms of fixed offer

Fig. 27 Current Vodafone fixed coverage network

Source: Vodafone monthly coverage update

There is no doubt that the optical fiber represents the main base for future innovation and an innovation itself for the possibilities it gives to Vodafone for bundling different kinds of offer through continuous partnerships. As an innovation must be marketed in order to push further its differentiation strategy based on a project launched exactly 1 year ago named **Project "We C.A.R.E."** The differentiation strategy goes beyond the differentiation of the product itself and it is about the approach of the product to the customer. That is why C.A.R.E. is born; beyond offering a qualitative product for the market, it is fundamental to work in contact with the customer for improving its experience and interaction with products. C.A.R.E is one of the initiatives, beyond Spring, that helped Vodafone rising up from that stagnant situation deriving from the price war and it is articulated in the following way

CONNECTIVITY: in order to let customers have a reliable service, a qualitative home connection that assures the full **usability** of all the contents related to it. Being reliable in the daily use of internet and, above all, in case of emergency, responds to an important current need of customer 2.0, always connected; beside this, the connection reliability plays a more important role in an era of dematerialization of products inducted by a more digital lifestyle

ALWAYS IN CONTROL: it is not a hidden matter the fact that Telco are perceived as thief, ready to steal money in every moment to their customers thanks to not so clear contracts conditions. This has consequences on different elements

- Word of mouth: the acquisition of new clients is made harder by having such a reputation and it would be like a domino effect
- Churn: the more turbid the contract conditions, the higher is the risk of churn of the current customer base. The market share and the NPS would be the first two elements to be touched by this
- Bad debt: customers who decide not to pay, leading to a loss of revenues.

REWARD LOYALTY: in order to have a more solid customer base and reducing the risk of churn toward other operators, the concept of reward must be well integrated in the approach to the single customer. That is why since one year, Vodafone pushes mostly the valorization of rewarding for the historical customer instead of those just arrived.

EARLY ACCESS: CARE aims to upgrading the customer service too; early access means having always a handy tool to require the support of after sale service through mobile app, desktop, phone calls and even chat. My Vodafone app is the flag of this big improvement imported to all smartphones, beside My Vodafone Casa which allows you not only to manage your fixed line under different aspects but also to contact the call center 24/7. The objective is to create a homogeneous experience through all the touch point, but at the same time personalized and as much simpler as possible. This exalts the push of the firm to make customers **worry-free**

CARE is one of the pillar of Vodafone NPS strong improvement among the customers, showing a differentiation not only in the simple quality of the product, but in the approach to the customer. This initiative goes into the widest world of digital initiatives Vodafone started to show to the market how disruptive it could be, in an era where customers can be overwhelmed with WOW initiatives only.

Going beyond the approach to the customer, let`s watch the approach to the UBB in Italy and how Vodafone, from a mobile operator only became the second largest fixed operator in the country. On what is based Vodafone strategy? Which are the leverages of the market it touches in order to

realize the diffusion of the UBB? And how does it market the psychographic classes illustrated by Roger in its diffusion of innovation model? All the answers are in the next paragraph.

3.3.1. The Approach to the UBB

Considering the UBB as innovation is controversial; if on one hand the fixed line is something that exists since long time, on the other hand, after decades of invariance it is deeply changing due to the context where we live and the current digital transformation. Together with it, operators are changing and redefining the strategy related to something renewed by a powerful source of potential: the internet connection. This latter has infinite versatility in the upcoming digital world, where everything, services and products are connectivity-based. Together with the world, customers always want more and more access to their music, photos, contents, whatever devices they are using, from the mobile ones to the fixed ones such as TV and computers. Since the needs in Telco segment are changing because of the digital transformation. Operators must adapt to the new context, changing their strategy and re-discovering that thing called "fixed-line"; the core of this service are not the calls; nowadays there is the mobile phone for those, but the internet connection instead.

Today the customer 2.0 is agnostic about the network used for staying connected, mobile or fixed does not matter; what truly matters is the reliability of the service itself. That is why the convergence is the keystone for tomorrow innovation; in Italy the demand for mobile and fixed bundles and fixed with TV packages is growing. This requires data and high speed connections; given to that, the growing demand for data requires the implementation of a capillary and fast structure made of optical fiber. That is why the optical fiber is one of the main focus of Vodafone. Strong of the achievement of Project Spring, Vodafone builded up a strong network that is being reinforced month by month in order to provide a solid and qualitative service through the 28 million Italian households. A development project supported by the government to in order to acquire customers until reaching the 2.5 million (of broadband and ubb customer) and, approximately a market share of 17%/. Thanks to Project Spring, the revenues coming from fixed services reached 826 million with a growth in percentage points of 1.2% year on year. The most significant result is represented by the fiber cb, growth by 470% in one, single, year. Spring consolidate well the position in the market of Vodafone Italia, differentiating it from the competitors, with a positive brand reputation and high customer satisfaction.

What Vodafone pursues is the concept of "Unified communications"; creating a flow of communication that does not take into account where the customer is, but the possibility of giving him data in order to surf the internet. Unified is ubiquitous and ubiquitous is convergent, today. That is why the new portfolio of offers includes one convergent offer at least, in order to respond to those customer who consume more and more bundled fixed and mobile offer which provide better value for money. During the latest year in Italy competitors started to launch their convergent offer, first of all Fastweb with its partnership with Sky Italia; as a consequence Vodafone responded designing its own offers. The logic behind this kind of offer is not related to individual revenues: not about the revenues coming from many individual customers that compose the ARPU, the average revenues per user, but it is based on a wider and strategic key performance indicator, named **ARPA, average revenues per account.** The logic behind the convergent offer is to cover more customer profiles with one single offer: providing a fixed telephone, an internet connection, a smartphone with and offer included and a TV package inside, an operator is able to target and market one whole family, locking in more than one single customer and generating more than simple individual revenues. Everything to reach the goal of pushing the data usage, monetizing on it and generating more revenues. Vodafone share of market in this segment is just about 14%, therefore it represents a great opportunity for future growth. The bundling offer has been a feature of the enterprise segment for many years, given the inclusion of the M2M and Iot, but now it is becoming increasingly important for consumer market too.

For Vodafone it is critical to keep working on broadband offer and bundling alongside the mobile market in order to create a differentiated bundle in the market and gaining the largest market share, given the quality and the differentiation of the product itself.

The focus on the UBB for Vodafone is one of the primary concern for 4 reasons:

- Sustaining the promise made to customers about the **network superiority,** showing a deep, but above all, appealing differentiation to the competitors. The network superiority was the main aim of the organic investment made in 2013 and it is fully realized, even if speaking of complete realization is a mere illusion. This is not due to the fact that it not true, but to the fact that the real potential of UBB must be discovered in a full digital culture and awareness by the customer. This is why this thesis considers the UBB as the base for future innovation and, so, it is innovation itself.

- Adding value to the convergent platform for family, promoting the concept of convergence; today with fixed line and smartphones, tomorrow with different devices than smartphones and router, fully interconnected. The concept of convergence can be seen from two points of view: devices and contents. The former is the one i am talking about. The reason of composing such an offer is to create demand for what will be the **machine to machine market** related to the consumer segment. The problem of the diffusion of such an is offer is the missing of the demand.
- Supporting the launch of streaming services that add value to the bundle, following the latest digital trend of the TV series. This is a way to
    - Attract more people using trends as main leverages and partnership as catalysts
    - Showing the true potential of what can be done today with a developed infrastructure in order to create demand in the market
- Growing in the fixed market not just as a mobile operator anymore, but as a digital one.

The strategy behind the focus of the UBB is providing, of course, high speed and reliable connectivity services through all the Italian territory, never sacrificing the coverage for the speed, but working on parallel axes. The approach adopted for the diffusion of the network is to build its own one and the evaluation behind it is on a market-by-market basis, taking into account the costs of building up the network, the market development and the possibility to make good acquisition. This approach is not being used just in Italy but in most of the OPCO where there is room for improvement for the UBB service. Plus the chance of the digital agenda allows to create a further improvement for the footprint of UBB coverage. The results are tangible, because an increasing number of customer is getting more and more TV bundles and broadband packages.

The Italian market right now can be described as mostly price driven; the commoditization of the connection at home is already consolidate but what Vodafone offers is a premium price service; Italian customers want just an internet connection at home, reliability is accessory and secondary, because what truly matters is the price. The reputation of the Telco combined with a high price sensitivity make most of the customer skeptics and hard to market. At the same time the skepticism present a risk for the already existent customer base because it makes the risk of churn, higher.

This is why is important, in order to proceed to the diffusion of the UBB, **profiling** and **segmenting** the market in the proper way. How to make cluster of customer? The diffusion model of Roger is

of course a valid method but let`s analyze how Vodafone is proceeding right now in profiling the Italian customers.

The first important distinction to make is to identify the prospect clients, so called **new acquisition** and the the **customer base.**

In a Telco like Vodafone, the management of the customer base drives the marketing strategy. In order to approach the customer base of broadband segment, there is one variable that must be taken into account: striving for augmenting the **ARPU** of the single account, **ARPA** if we talk about a convergent offer and the reduction of **churn.** These two action have the rational to increase the **Customer lifetime value.**

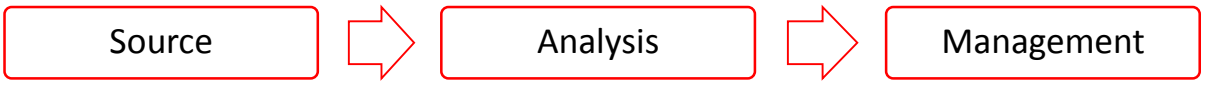
Given the aforementioned variables there is a huge work of profiling and segmentation to be done in order to:

- Identify the potential "churners" that can be **cb destroyer**, especially because of the word of mouth
- Maximize the **customer satisfaction**, an action that has positive impacts for both the reduction of churn and the maximization of the **customer value**
- Profiling the target for cross and up selling, even if it's harder to make this type of move in a rather new market. That is why addressing the skepticism of the most needs qualitative alternatives and there are no such alternative right now yet except contents. There is still a huge room for improvement.

Here in the scene enters one of the most important actor of the show, the customer relationship management, or so-called **CRM approach.** The customer relationship is a key element of the company as network and offer are. Having a good CRM approach could constitute one of the best practice to apply in the market. The CRM goes through the knowledge of the customer. This is why the first step in order to create a best practice in the market is to identify the customer; if you identify, you realize and then you put into practice activities to guarantee a permanent and constant process of attention and care of the customer. This latter is guided not just to appreciate and be loyal to the product, but to the firm itself and to its approach to every customer. Higher customer satisfaction and loyalty maximize the opportunities of business through the constant satisfaction of needs. The identification is made through the profiling of the single customer, the phase where the firm gains all the informations and data that will guarantee a full knowledge of the targeted

customer. A targeted customer is more likely to redeem a suited offer on him and his needs. Big data are fundamental right now because allow Vodafone to fully interact with important information of the target.

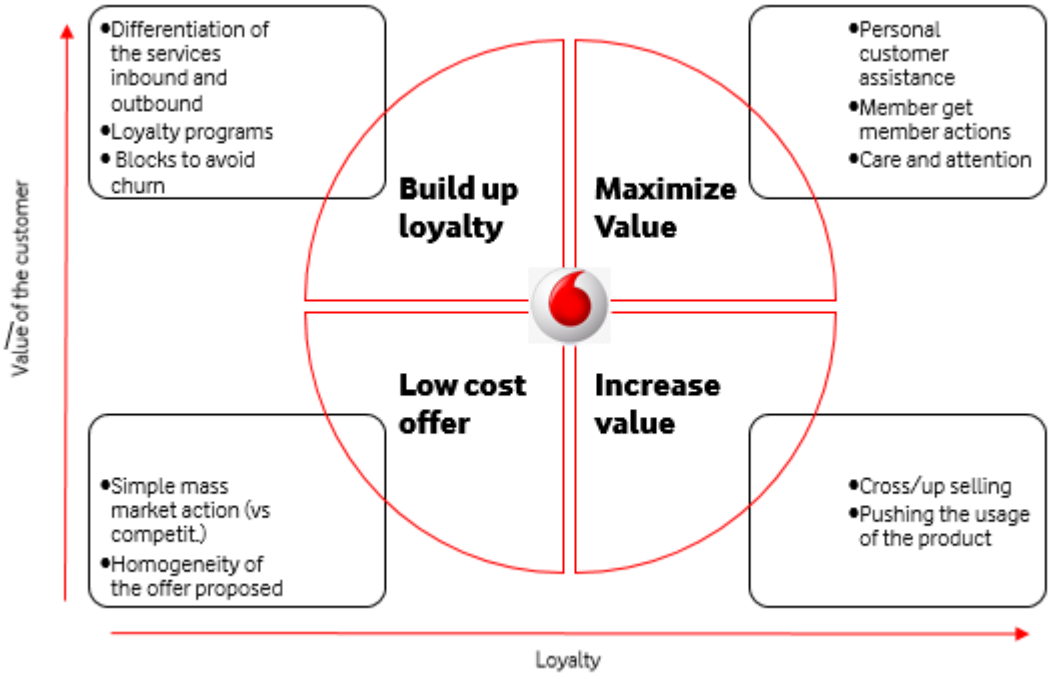
Fig. 28 Profiling of the customer in Vodafone



Source: Vodafone internal marketing mass market

In order to build up a proper segmentation for the fixed line Vodafone approaches it with the following method that I resumed in a technical matrix:

Fig. 29 Value matrix for Vodafone fixed line



Source: Vodafone internal CVM team

It is important, indeed, to divide customer for value classes, but how? Thanks to a function of profitability that allows Vodafone assign a specified value to the single customer according to 3 axes: simplicity, intuitiveness and stability in the long term. After having defined a value for

broadband and ultra-broadband customers, different sub-classes are made in order to understand where and how to hit them with the proper promotions. This allows Vodafone to fully understand which are most profitable customers and which are not and to work on them. Defining value in an important step of the CRM approach.

Now let`s watch the CRM approach of Vodafone into every phase:

- Big data in action: not only personal data of the individual customer, but being concerned in discovering habits according to the data received. From data Vodafone, as Facebook and Google does, is able to extrapolate, of course with a filter, the life of the customer according to the interest it needs. Thanks to big data Vodafone is able to extrapolate pattern of usage (phone calls made, websites viewed, service used), psychographic data (habits and routines) and socio-economic data. Even the reason he contacted the after sale service is useful for defining the customer. From here there is the analytic passage
- Analysis: segmentation and micro-segmentation are now possible. Defining the customer according to what has been collected in order to create an experience suitable for his specific profile. This allows to play in a proactive way toward the customer and no more reactive. The efficiency of the customer care is positively impacted by the knowledge of the individual customer
- Action: from here is "easy" to define a strategy for those clients under the same cluster/segment. Generating new campaigns, loyalty programs, and suit services to their needs. This fits perfectly with the R of We C.A.R.E.; creating a pure sense of exclusivity for customer in order to give them more value and make them more satisfied. Beside this, marketing these people is easier because the company is able to intervene exactly on the nerve of the customer
- Reaching objectives: in this way Vodafone highly increases the satisfaction of customers and then understands how to market them on different points of view (ex. the most preferred channel to interact with the firm). Cross selling and up selling here play an important role in order to increase ARPU/ARPA.

Beside the process for gathering as many data as possible, there is the digitization process that must not be forgotten; today Vodafone, with 60 million of interactions, recognizes the 70% coming from mobile and web. This need brought to the creation of the aforementioned app for both the mobile and fixed line, in order to make everything more digital and simpler. It is naturally hard address

needs of the oldest target; combined with a missing informatics literacy there is a strong scepticism toward everything that is material but the strategy is to make, according to C.A.R.E., the whole experience (in and after sale) as simpler as possible.

At the same, after having seen how to increase the value of the single customer, it is important to understand what are the leverages to pull to reduce the risk of churn. The possibility of deactivation of the single customer (extended to the whole customer base), but be modelled in order to act proactively. Building up a model for the prediction of the churn is important in order to understand the behaviour, current and future, of users according to different values. The aforementioned possible model describes the customer from different points of view and allows Vodafone to analyse every move he makes in order to dispose actions and strategy for that cluster of customers and, above all, measure the efficacy of marketing strategy and customer operation.

The source for having relevant informations are different:

- Company tools (in my case DVH or **data warehouse**), info about complaint to the customer care (call center or chat integrated in the app or in the website), past marketing actions and bills.
- Market insight like market research and interviews

The objective of such a model, builded up with all the information Vodafone gathers about the customer are different: building up an index for determining propensity to deactivate, forecasting it, identifying actions that will retain the customer and verifying the efficacy of marketing action. The actions for retaining the customer form a specific index measured for both fixed and mobile offer, named **retention**. The higher the retention, the more efficacy is the marketing strategy adopted for the customer.

In the end, the model provides an estimate of **who**, **when** and **why** someone is going to deactivate. This is a powerful, one of the most, tool for defining the future marketing strategy and to make an assessment of the previous one.

In conclusion, CRM approach and the creation of a model for predicting the Churn, are the two main tools for defining the way Vodafone is going to approach the customer. To all of this reconnects the importance of big data.

About what has been told about the fixed offer marketing, was just about the knowledge and value of the customer for Vodafone; the way the company determines and clusters its own customers.

But what about the diffusion of the UBB offer as innovation? It is mandatory to illustrate how Vodafone approaches, being the UBB something strongly determined by the geography and physiognomy of the territory, how Vodafone spreads the news about the fibre. This is going to be an analysis of the **Go-to-market** vademecum Vodafone strictly follows for the diffusion of the UBB around Italy. What I am going to analyse is a proper premise of how Vodafone is addressing the demand of UBB.

It is highly notable that, as I said before, the UBB is one of the two main focus of the firm; it is notable by the organic investment on the network by Spring and by how many are the departments of the firm involved in the launch of a new city and into the diffusion of such a technology. The logic is to create an alignment through all the departments of the firm in order to act in sync.

Everything is strictly connected to the coverage of the city; there are thresholds under which the marketing campaign does not start at all, logically, because of the missing capability. There are two main thresholds:

- **5%** of total households coverage: after an intense planning related to the city, everything starts with the education of sales force and the transformation of every shop, in order to create harmony and uniformity. After that, in order to create more awareness in the potential customer, press articles follow. Going public hits a large share of potential customer; then it starts the true outbound campaign with calls and text message for giving customers the possibility to test and realize the potential of the upgrade they could make. The communication with customers is both **below** and **above the line** .There is a double perspective to take into account: on one hand the one related to the acquisition of new customers, realizing a lock in, and the other hand, the one related to the customer base and the increase of ARPU (in order to increase the value of the single customer passing from a single Broadband connection to an Ultra broadband one). This latter is the so –called migration process.
- When the coverage of the city goes beyond **25%** of total households the marketing campaign starts properly through a series of initiatives:
    - **Brandization** of different elements in the city
    - **Events** in order to promote the fiber in the districts where it has been rolled-out
    - **Massive mailing** campaign

- **OHH** (Out of home), billboards to announce the arrival of the fiber in those specific district, often assisted by a geo-marketing support strategy based on postal code of potential customers

These actions are made in order to bring more value in and they are not related just to the acquisition of new customer, but to the development of the customer base too. Therefore the direction of the main marketing campaign has a double purpose; the criterion according to which it is developed is uniform and homogeneous regardless of the circumstances. Of course, after the main marketing campaign is over, there are further boost to the communication in order to analyse how much boost they can cause.

The aforementioned vademecum is fundamental in order to understand the next section related to the diffusion of UBB conceived as innovation: as said before, the UBB it is an innovation not because of its intrinsic characteristics, but because of its potential connected to the upcoming digital world. Vodafone, in order to be a digital company in a digital world is facing a digital transformation under all the aspects of the firm, internal and external. Beyond the adaptation to the new way of doing business, especially for the mobile segment, the digital approach to the business allows the firm the better understand the customer and their needs. Specifically the following will be an analysis of how Vodafone is approaching the different psychographic classes illustrated by Rogers in its model related to the diffusion of a new technology intended as innovation.

It is important to define first, according to the Roger`s model, the main qualities of an innovation that influence its rate of adoption

- **Relative advantage**, the degree to which the new technology is conceived in a better way than the old idea it supersedes. In this case the optical fibre results as a natural evolution of the old connectivity system copper-wires based. It is better in terms of speed and reliability, two important and pivotal elements for the application of this innovation in different fields and offers. Once was not possible to connect 5 devices contemporarily when more than one person was at home without risking a line drop; now it’s possible and every one of them is able to enjoy the contents (streaming TV series, music and other contents) sold inside the offer. Beside enjoying the contents, it is possible to choose and download contents at customer`s own choice, providing also a sense of freedom of choice for the person. The

perception of the customer for the UBB line is improved mainly because of its reliability and because of its multiple application to the offer. The real relative advantage of the UBB system and offer is to be polyhedral.

- **Compatibility with existing values and practises**: there is a high rate of compatibility with current needs of customer. Given the fact that a domestic internet connection has already became a commodity, the upgrade is the next step of demand`s evolution. What the UBB creates is a disruption, a breakthrough with past experiences, therefore represents an idea that better answers to current digital customer needs. The match between the current needs and the upgrade brought in by UBB connection is crucial in its rate of adoption.
- **Simplicity**: quite a controversial point, given the fact that an UBB connectivity system is as much easy to use as it is complicated to understand. That is why Vodafone created customer-assistant centres dedicated to UBB assistance only. Customer is not interested in how it works, but it must work, that one is the main concern. This could limit the rate of adoption but the creation of aforementioned centres can harmonize this limit
- **Trialability**: the offer created by Vodafone is based on a **try&buy** logic, according to which customers can enjoy the full speed for 12 months and after that, following an **opt out approach**, they can decide to pay a premium price and keep it or staying with the basic speed and leave it. The trialability is tangible in Vodafone fixed offer, in both plans, the semiflat (voice calls excluded) and the flat (calls included).
- **Observable results**: results are already implemented in the UBB offer; customers are able to connect more than a single device with losing a line drop and enjoy HD and 4K contents without losing speed or waiting for buffering. In the next future, the IoT will be the most tangible results customers will be able to enjoy.

From this framework is easy to understand how Vodafone processes its new fixed offer in a way to maximize the rate of adoption and be as clearest and supportive as possible to customers. The diffusion could not happen if the base is not solid enough to support the weight and the risk of a new technology. The fact that the UBB is approaching the market just from few years does not mean it is not a well consolidated innovation itself, but what is truly embryonic is its real potential. The UBB constitutes the base for future digital innovation and it is an innovation itself. The application, like the IoT, are infinite but they are still prototypical except for the enjoyable contents and the convergence between different devices.

After the analysis of the UBB as innovation diffused by Vodafone and its main characteristics, it is important to underline how the company is working in order to address the demand among the different Roger`s psychographic classes. The digital component is crucial in this migration or even adoption of UBB lines. The digital attitude and inclination of the demand and its beliefs about a faster and reliable internet connection invest, crucially, the rate of adoption. This is an element to be considered in the diffusion of such an innovation.

Innovators

An already addressed psychographic class, years and years ago when there has been the launch of the optic fiber. The work made with them was before the effective launch of the first optical fiber offer, in the 2013. The main aim, at that time was to follow the trend of the modernization of the country. There was a pure spirit of venturesomeness, like today with the constant upgrade of the network.

As we know innovators are mainly tech-fans and that is why, before the launch of the optic fiber, big groups of people, in the most populated districts of Italy, with informatics and digital competencies have been involved in testing for months, the new network of Vodafone for giving a concrete feedback of the experience. Any lack or drop was fixed and the final product has given with priority to all the participants, employers and not, that contributed to make the product valid and with the chance of creating the capability for a fixed, optical-fiber-based, offer. The only way of addressing the demand of the innovators was to work with them and this is what happened 3 years ago. They saw the product naked, from a prototypical status to the complete one when it has been launched.

Naturally spreading such an innovation among people with such a digital and informatics literacy has been easy and it represented the beginning of what Vodafone accomplished today: creating a huge customer base of more than **300K customer** for the fiber. The fiber, entered in the social system and the demand started spreading.

Early Adopters

As said in the first chapter, innovators represent a cosmopolite class of the demand, which is why they are perfect for introducing the innovation inside the social system. Of course this is not enough for the diffusion of such a product. Early adopters are more integrated in the social system but, conversely to innovators, they are localites. Because of their infinite potential related to their leadership in expressing opinions they are the keystone for entering in the market. It sounds like a paradox but the early adopters in the market for Vodafone have been, and they still are today, the business customers. They have been the key for entering in both the consumer and the business segment; the potential of M2M (machine to machine) with the UBB represented the ultimate innovation, even if not so well consolidated, has been implemented in all their implants and had great success. The UBB applied to the machine to machine allowed companies to increase the productivity with no support of human hand. Thanks to connected devices with the same fast connection, Vodafone gained visibility between the most famous companies all over Italy (and not only).

Nowadays the project **Ready Business**, created in order to launch more and more Italian firms in the world of M2M and IoT, is having great success and it is considered the most innovative one.

The Ready Business project gave and it is giving a huge boost in terms of digitization to the Italian country; some examples of Ready Business are Pagani, Illy Caffe`, Garofalo, DHL, Eataly and Kenwood. They needed something more productive, innovative but there was not an operator able to offer a M2M service. As perfect Early adopters, they had vision and dreams and they saw a benefit from adopting Vodafone M2M based on the optical fiber network.

Thanks to the incredible success in the business world, the optical fiber, because of a huge word of mouth effect, started to grow in consumer segment as well. But the IoT is not yet fully developed as it is in the business market, therefore the priority has not been the M2M, but Vodafone decided to take advantage of the exploded demand for digital streaming services.

It is useful to say that with the Early adopters initiated the process of digital transformation that Vodafone is facing today.

Early Majority

As just said, the exploded demand for digital streaming services has been crucial and it still is for the diffusion of UBB among people belonging to this social classes. IoT is still embryonic and

costful for becoming a commodity, therefore it was not the leverage to pull in order to gain the wanted results. Five years now, the digital trend of contents streaming literally exploded; TV is no more followed as once; movies are not watched on the couch watching the daily palimpsest, but it happens with a Chromecast connected to our pc or just with our laptop. Smart TV has been created in order to manage the trend of digitization and making it more usable to customers. Because of this Vodafone decided that a simple home connectivity system could not involve this share of social system that strictly follows mainstream fashions. Beside they are cost sensitive and risk averse so a low wall of scepticism must be passed. What they needed is doing what they were used to do, but better. The UBB, as I already showed in all its characteristics responded perfectly to these needs, but the main digital trends was a crucial component to insert. That is the main reason Vodafone, at the end of 2014, launched the first convergent partnership with Sky Italia, being the first operator to promote the new, digital, online service of Sky, Sky Online. A mass market logic was required for involving the social class that retains the 34% of total social system. They have been convinced mainly by the partnership with Sky that brought in a huge share of new acquisition subtracted to Fastweb, once the only one with a partnership with a media company. Then the customer service created on purpose for supporting only the UBB customers has been the final move for convincing early majority that the new digital and convergent offer of Vodafone, was what responded to their needs. Simplicity, constant assistant and digital have been the main components that allowed Vodafone to gain credibility and a large share of new acquisition in the new media-convergent market.

Late majority, Sceptical

Giving the high rate of scepticism that permeates this class, a different strategy needed to be used. Representing a huge social class as early majority was, addressing its needs was not so easy at all and the help did not come from Vodafone Italia. In order to address the needs of sceptical Vodafone needed to show that a huge job of customer acquisition was done; the whole social system was going to adopt Vodafone new convergent offer and this represented a valid reason to increase the pressure on them , deriving from the fear to be left behind. The rate of adoption of sceptical was not influenced by the need of following the main digital trends, but, instead, by the certainty of utility related to the new technology. Therefore the company needed something beyond the digital streaming services, not a relevant variable for marketing sceptical. A further refining of the product was needed in order to make it more useful, convenient and more laggards-proof. At that time in Spain, Orange Telco operator was the first to launch a new kind of offer, always named convergent

but not between media contents and home connection, but between mobile and fixed segment. The concept behind was to hit different targets in one: the whole family, providing a solid internet connection for father and mother, a media platform for enjoying TV series and shows for the whole family and a brand new 4G mobile for the son/daughter in order to generate an acquisition on 3 different levels:

- New fixed customer
- New mobile customer
- Higher redemption of media contents

Behind all this, for the first time, was created the concept of ARPA, revenues coming not from one individual customer, but from a group of them under the same account. It was innovative, practical and the utility reached its maximum; Vodafone took this concept as first operator in Italy, promoting the imagine of a worry-free customer giving a special name to the new offer created: **Relax Casa-Edition.** This represented the first step for further innovation in the IoT, connecting, thanks to one single offer more devices and contents, enjoyable on every platform.

Laggards

The chasm, notwithstanding the perfect profile of UBB as innovation, is right here. Vodafone is not yet able to address scepticism of laggards. The reasons are not missing. Laggards is represented by the whole target over 50 years old and their scepticism derived from here; they are diffident on the whole line of innovation. Change is drastic for them and they spend all the time to be critical toward the innovation. Convincing them is almost impossible because they conceive change dramatically risky and the traditional element is what they care most. For most of them event the internet connection is a pain point, thinking about the fixed line as what truly is, a phone for communicating. That is why addressing needs of this social class is easy on one hand because of the creation of a single play (single because there is just a phone, double is the one with internet and phone) offer, concentrated just for the telephone, but hard on the other hand because they do not trust the advancement in technology and probably because they do not need it. There are two points of view to be taken into account

- The chasm Is present and it is here: addressing the needs of this social class will always be impossible because of their missing informatics literacy

- The chasm is fictitious: the laggards are not truly interested in having an UBB connection at home, therefore they are not part of the demand that must be addressed.

Both the opinion are valid but I would personally go for the second one; if the informatics literacy is missing because they are not interested in having one, then there is no need to address, no laggards in the demand, no innovation to be pushed for most of >50 years old target.

This is the complete picture of how Vodafone, in these 3 years, addressed the diffusion of UBB as innovation, adapting the offer for each psychographic social class except for the laggards, an open point left to the mind of the reader.

By the way, beyond the classification of the demand of UBB according to Rogers, there is another way to classify Vodafone potential customers, not focused on psychographic traits, but strongly related to digital attitude.

As said before Vodafone is facing a huge digital transformation that is hitting the whole firm under all the aspects, sales force, commercial operation, marketing and finance. A digital classification of customers is therefore needed in order to understand who the new customers Vodafone is working on are. Customers are migrating to the digitization with different speed and they represent different values to Vodafone.

The current is a matrix of the new digital customer that is approaching the market related to its price sensitivity and digital attitude.

Fig 30: digital and pricing attitude matrix for Vodafone customers

vodafone

Pricing attitude \ Digital attitude	Reclutant	Digital shopping and service	Full digital lifestyle
Premium	Premium non-digital They need guide for being introduced in the upcoming digital world	Premium digital experience A premium digital experience is mandatory	Premum digital lifestyle Keep providing new digital services and channels to satisfy them and their digital lifestyle
Low-cost	Low cost non-digital Mass market and low cost offer, contacted with non-digital channel	Low cost digital experience Use digital channel to reduce cost-to-serve	Low cost digital lifestyle Simple digital services and leverage digital channels to reduce cost-to-serve

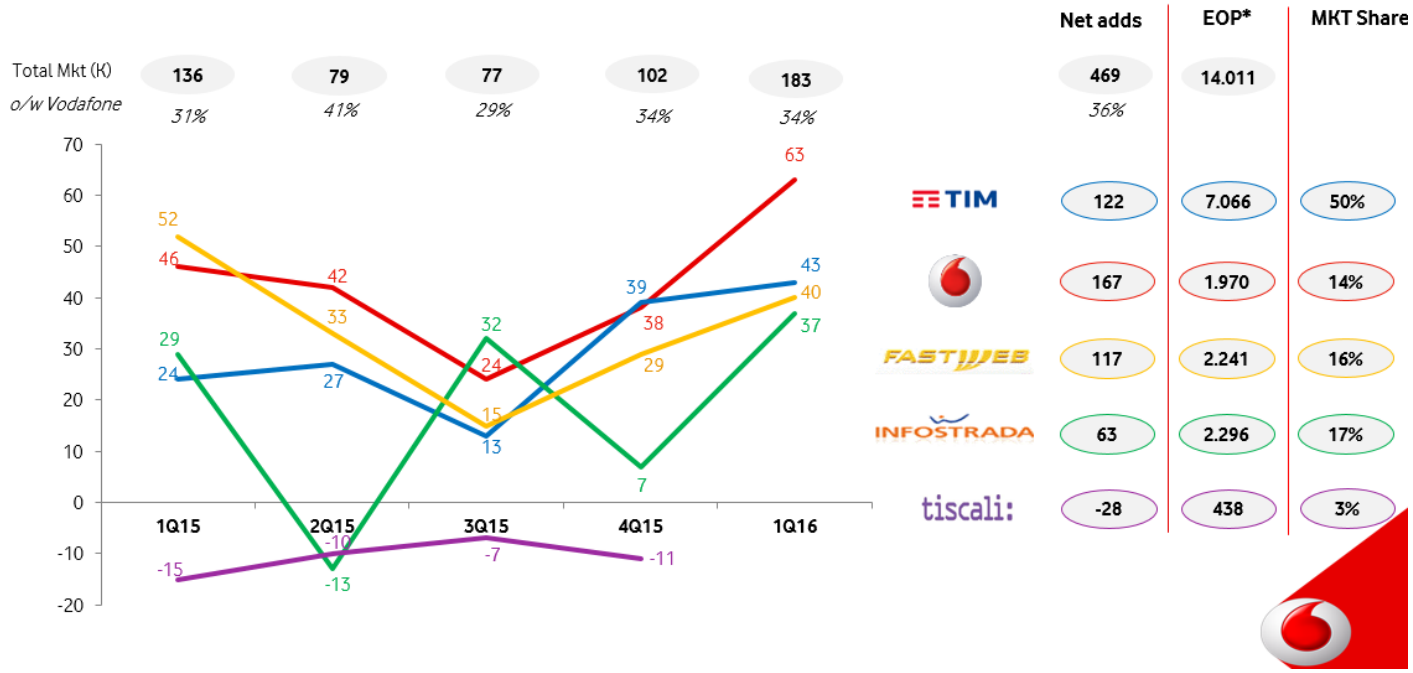
Source: Vodafone internal marketing mass market team

3.3.2. A Brief snapshot of the market

Before starting the conclusion of this thesis it is right to illustrate a snapshot of the market and of the latest trends in the Telco Italian industry.

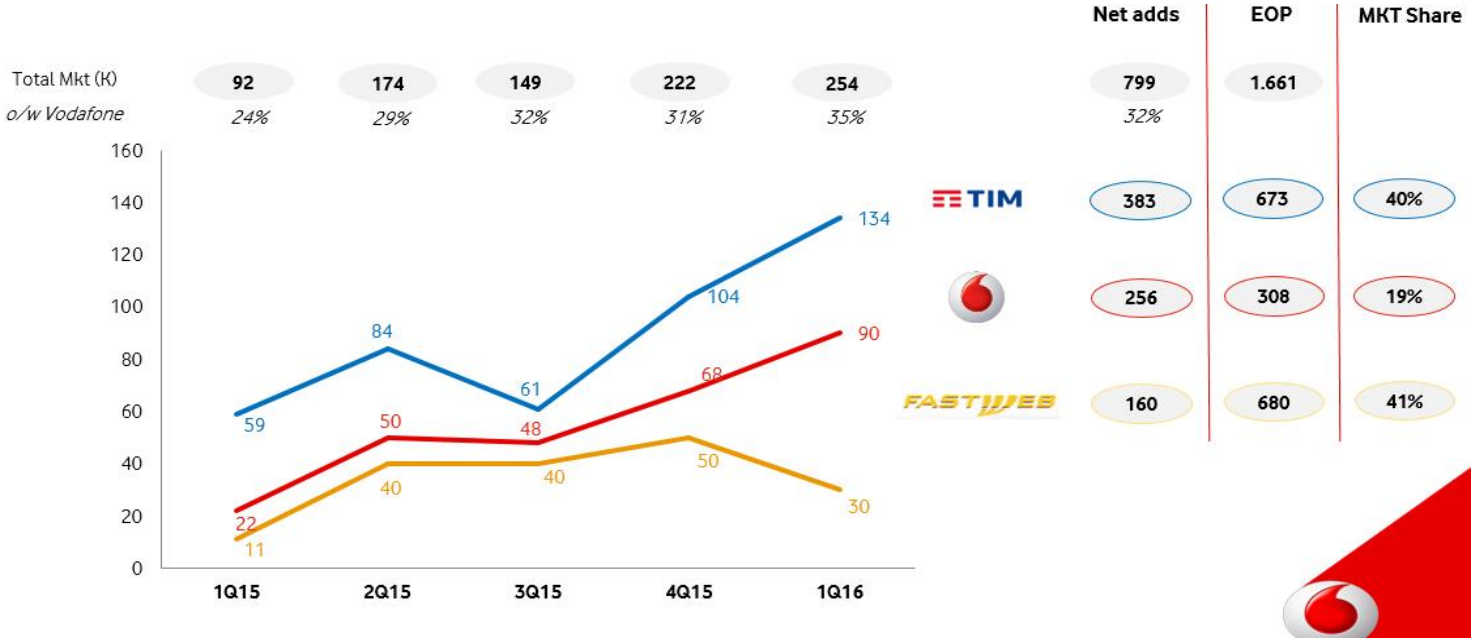
The following is the current situation, updated to march 31 with quarterly public results. In the graph is mainly showed the amount of net acquired customers progressively in every quarter and on the right the total EOP, the end of period customers today with the related market shares. The two graphics are differentiated for the broadband and ultra-broadband EOP.

Fig.31: Quarterly Broadband net customer ads and market share



Source: public quarterly results

Fig.32: Quarterly Ultra-Broadband net customer ads and market share



Source: public quarterly results

From the end of 2014, the organic investment made by Vodafone are bringing results. It is observable how in the broadband sector it gained 3 percentage point in the last year total broadband speaking, passing from 11% to 14% and reaching 2 million of customer. The trend shows that the percentage is being subtracted mainly to Italian Telco industry leader, TIM that, because of the choice made and described in the second chapter, is no more able to retain customer as once in time. Because of a too much traditional and not innovative way of proposing broadband offer, it is losing its share in favor of Vodafone, mainly, and Fastweb. This effect is strongly increased by the digital transformation Vodafone is passing through and the reinforcement of Fastweb with Sky Italia that results appealing to a huge piece of market.

Tim uses its brand as main asset but, without innovation, is not able to support the digitization happening in the market. It cannot be ignored and the result is to keep losing share behind Vodafone and Fastweb.

Beside this the broadband share of Infostrada is quite unstable as it is observable from the graph; Wind is not investing on the network and it optical fiber is still a prototype. Its net ads are slow because more and more people require advancement in technology that does not arrive, if not with other operators. The problem of Infostrada is that it keeps pursuing a value for money strategy with no improvement of the service and, if years ago people were more price sensitive and care less for the quality of the line, now it is not like that, not anymore. People are willing to pay, as observed in matrix for digital services, premium prices for having good and reliable connectivity services and enjoy digital contents, because this is the trend of the demand.

Being stuck in the old network and antiquate market beliefs will not have positive results for Wind Infostrada and it will bring it down to the latest place in the market. Quality is what is considered, not money, not anymore. And if on one hand Tim relies on an enviable quality of the service and the strongest brand in the market, Wind does not. Tim recognized the digital trend of the market and it started to follow it but with poor innovative spirit; on the other hand Infostrada is still stuck in an old, qualitative poor network and its only asset is the value for money strategy.

On the UBB perspective, the main battle is between Vodafone and Fastweb; the former is showing strong acquisition skills, because it is fully embracing the digitization in the whole process, whilst the latter is strongly sustained by its convergent offer with Sky Italia that keeps maintaining good

acquisition rhythm, now decreasing. This last trend is showing also how Vodafone moved right in selecting the proper content to offer to customers, relying on Netflix, targeting, beyond a mature public, the youngest one.

Conclusions

We have analyzed every aspect of the diffusion of an innovation; in a theoretic perspective in the first chapter, regulatory in the second chapter and practical in the third one.

Theoretically and practically the diffusion of innovation is a process that takes into account many variables, mostly related to the demand, fragmented in its psychographic classes and characteristics of the new technology, without excluding the world where we live.

The main antagonist of the diffusion of a new product is the fear of not understanding what truly is the innovative product and what are the benefits it can bring; this could lead the product not to be marketed or to finish into the chasm. This latter a real danger but it is the ordinary risk of bringing something new and never seen in the market.

In a world dominated by frantic rhythm of new products, differentiation and digitization represent the two keystones for innovation. The first in order to increase the value perceived in the ye of the customer and the second because it is the modern trend of the demand, applied to most of the industries. Vodafone represents the ideal and most practical case that can be taken into account in the Italian Telco industry, considering the strong digitization trend in the upcoming world and economy. It is undeniable that digitization plays a key role in shaping the future of Italian economy (and not only). Needs of people are changing and consequently the demand does. The revolution in the Telco is approaching right now, ready to change what will be the main assets on which operators will rely. As it is observable, a huge change already happened; if we think to the Telco perceived 10 years ago and the Telco now, there are sources of revenues that no one could have imagined (media contents).

The competition in the latest years after a bloody price war shifted to completion in services and this shift mixed with the digital trend caused a shift in the whole market.

Digital is now defining the new floor where competition is and it is influencing how super-fast services like ultra-broadband connectivity lines are proposed to customers and approach to market.

The upcoming revolution will base everything on the UBB because it represents the base for future digital innovation. This superior qualitative service allows a permanent inter-connected (and digital) lifestyle.

It is useless to say that with the approach of the OTTs, this is the main need people has right now and that they will have always more in the future. Beyond the OTTs, another great revolution is approaching, the Internet of things, an undeniable trend that still has to grow. If on the one hand the UBB is consolidating in its quality and reliability, on the other hand, the thousands of applications are still prototypical and embryonic. This affects the rate of adoption of an UBB offer; it is true that digital contents play an important role for proposing UBB offers to customers, but they are just scratching the surface. The real potential of UBB must be discovered with complete applications in every aspect of economy and the M2M (Machine to machine), now diffused just in the enterprise business will be one of the keystone of future consumer market.

Vodafone was able, after a having suffered from a painful reputation in 2012, to reborn under a new light, the one of the innovation, embracing the digital transformation and transmitting the improvements coming from project Spring to all customers. The perception of this company changed drastically in the last 4 years, thanks to all the aforementioned initiatives, not only on the network, but, especially, in the approach to the customer.

What Vodafone accomplished was made thanks to a well designed strategy born in Vodafone group and then extended to Vodafone Italy

The first step, in the long-term optic of diffusing innovative and differentiated products was to invest on the main weakness: the structure. The network needed to be improved in order to build a solid and unassailable base up. With the reinforcement of the network, a wind of revolution blew all around the company.

In order to make the diffusion of the innovation real, Vodafone approached the customer from different perspectives, eliminating every doubts or fear:

- Transparency, eliminating and dispelling any doubts about the new UBB product commercialized and promoted. It went against the trend of the whole industry, that always navigated in murky waters,. But in order to not create crucial doubts in the mind of the customer, being clear has been the main approach of Vodafone.. Communication has been univocal
- Ideal management of after sale service, creating a worry free customer ideal to compose and respect. This has been a complementary element for Vodafone with transparency. The

CRM approach played a key role in the management of UBB customer base together with the creation of a dedicated after sale service

Beyond the approach to the customer, Vodafone accomplished to realize a differentiated service, taking advantage of the strong digital trend and implementing it in its offer.

Digital became the new Vodafone way with digital real-time marketing, digital and virtual customer assistant, convergent offers and a deep engaging differentiation for both customer base and new acquisitons.

Vodafone turned into a customer-centric obsessed company and this allowed it to change its shape into a better Telco operator and digital service provider. And this align with the future role of Telco operators, which are moving to being full digital services providers.

The IoT will be mostly provided by Telco operators that will play an always more and more important role inside the economy of the Italian country.

Digitization is mandatory if operators want to survive in this era and, at the same time, it represents the biggest opportunity ever for changing the way they operate and provide services. The opportunities to take advantage of are thousands, but they need investments and support to R&D departments, otherwise they will be just victims of bandwagon effects, following the trend and responding to the demand of customers.

Proactivity is the key of Telco industry of tomorrow; the trend must be created, not followed, innovation must be brought into the market, not waited for it and, in the end, R&D is the keystone for the differentiation in the market.

Tomorrow industry will be fulfilled by cutting edge technologies, all relying on an UBB connection; tomorrow the differentiation of services and products related to the UBB will determine who will be the leader in the market; tomorrow the leader will be who does not provide just communication services, but products for shaping the whole global economy.

References

Ballard J. (2016), *NPS- The Good, The Bad… and The Angry,* University of Oxford

Baudisch, A.F. and H. Grupp,(2006), *Evaluating the Market Potential of Innovations:A Structured Survey of Diffusion Models*, Fridrich-Schiller-Universitat Jena

Brough, T. W. (December 2003), *State Economies Can Benefit from Broadband Deployment*:CSE.

Castells M (2004), *The network society: a cross-cultural perspective*, Edward Elgar Publising Inc.

Castells M (2010), *The rise of the network society, (2nd ed)*, Wiley-Blackwell publication

Ciapanna E., Sabbatini D.(2008). *La banda larga in Italia , 34*,,Milano: Banca d`Italia, 9-28

Curseu L.P, Krehel O., Evers M.H. J., Muntean A. (2014), *Cognitive distance, absorptive capacity and group rationality: a simulation study*, Frederic Amblard

Econsultancy advisory (2014), *Digital marketing in Telecom sector*. Econsultancy

EY advisory, (Lug. 2015), *L`evoluzione della domanda consumer, Rapporto 2015:* Osservatorio Ultra Broadband

EY advisory, (2015), *Global digital telecoms playbook,:* India. EY

Friedrich R., Peladeau P., Toumi M.,(2014) *Becoming a digital telecom, be bold, move fast,* Booz & Company , 6-14

Gentzoglanis A., (2008), *Regulation and innovation: the case of broadband technologies*, Shebrooke (QE), Canada: University of Sherbrooke, 5-15

Hirst, E. (1989) *Reaching for 100 percent participation in a utility conservation programme*, The Hood River project, Energy Policy Vol 17(2) pp155-164

Kuczmarski, T. D, (2003),"What is innovation? And why aren't companies doing more of it?", Journal of Consumer Marketing, Vol. 20 (6) pp. 536 – 54

Kuczmarski, T. D, (1995), *Innovation: leadership strategies for the competitive edge*,New York: Mc graw-Hill/ Contemporary books

Kwasnicki, W. (1996), *Innovation regimes and market structure*, Journal of evolutionary economics , 6. 379-409

Lynn S. G., Morone J., Paulson A., (1996), *Marketing and discountinous innovation: The Probe and learn process,38(3):* California management review,8-12

Mccarthy C., (Jul. 2014), *A new Approach to telecom digital marketing: Effectively engage, retain and monetize subscribers,*: Ovum, 5-13

Mccarthy C., (May 2013),*Big Data Analytics and the Telco: How telcos can monetize customer data*: Ovum

Moore A. G., & McKenna R. (2001), *Crossing the chasm, Marketing and selling high-tech products to mainstream markets*, New York: Perfect Bound.

Osservatorio delle telecomunicazioni, (2016), Vol.1/5: Autorita` per le garanzie nelle comunicazioni

Perlin N. (1985) *Business technology for managers*: *an office automation book,* :G.K. Hall, 311

Peterson M., Stuart C., Hannes G., (March 2014), *Convergence reloaded: how telecom operators can best capture consumer opportunities:* Booz & Company, 2-13

Presidenza del consiglio dei ministry, (2014), *The italian strategy for next generation access network:* Agenzia per l`italia digitale

Rogers. M. E.,(1981) *Diffusion of innovations, (3rd ed).* New York: Macmillan Publishing Co. Inc.

Scarpa B., (March 2003), *Customer profiling, segmentazione e strategie di marketing nelle telecomunicazioni:* Universita` degli studi di Pavia, 5-20

Vermesan O.m Friess P., (2013), *Internet of Things: Converging Technologies for Smart Environments and Integrated Ecosystems:* River publishers

Vodafone group Plc. (2015),*Vodafone and Europe: Investing for the future,* Newbury, England: KPMH

Vodafone group Plc (2013) ,*Vodafone annual Report 2013,* Newbury, England: Vodafone

Vodafone group Plc *Vodafone annual Report 2014*, Newbury, England: Vodafone

Vodafone group Plc *Vodafone annual Report 2015*, Newbury, England: Vodafone

Vodafone group Plc *Vodafone half year results 30th September 2015*, Newbury, England: Vodafone

Vodafone group Plc, *Sustanaible business 2015-2016* , Newbury, England: Vodafone

Vodafone group Plc, *Sustanaible business 2014-2015*, Newbury, England: Vodafone

Vodafone Italia Plc, *Vodafone quarterly results 31st December*: Vodafone Italia

Vodafone group Plc, *Vodafone quarterly results 31st March*: Vodafone Italia

Williams C.(2015),*Principles of management*,311

Wohlers associates, Inc, (2002), *Technology adoption lifecycle*: Wohlers associates, 1-3

Zadeh R. (1996), *Evolution of Innovation: Fiber optics and communication industry. Northridge (CA):* Sloan School of Management, MIT, California State university,1-8, 55-65