



UNIVERSITÀ POLITECNICA DELLE MARCHE
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Master's Degree in International Economics and Commerce

**The Business Model of Open Fiber:
a strategic and industry analysis**

Il Business Model di Open Fiber:
un'analisi strategica e di settore

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Index

Sommario.....	3
Abstract.....	5
Introduction.....	7
1. The Wholesale only business model.....	12
1.1 Introduction to the wholesale only business model	12
1.2 Wholesale only in Europe.....	14
1.2.1 AB Stokab (Sweden)	15
1.2.3 Amsterdam Citynet (Netherlands).....	16
1.2.4 Reggefiber (Netherland)	17
1.2.5 SIRO (Ireland)	17
1.3 European and Italian strategies for the implementation of the ultra-broadband.....	19
1.3.1 EU 2014-2020 strategy	21
1.3.2 Gigabit Society and EU 2021-2027 strategy	24
1.3.3 Italian Strategy for the ultra-broadband (BUL)	30
1.3.4 Strategic objective of the Italian BUL strategy	32
1.3.5 Clustering.....	34
1.3.6 BUL strategy today	39
2. Introduction to the Open Fiber Business Model.....	43
2.1 Enel Open Fiber	44
2.1.1 Enel S.p.A.	46
2.2 Open Fiber	55

2.2.1 Process & Technology	57
2.2.2 Services For Tlc Operators	61
2.2.3 Benefits of the services deployed	63
2.2.4 Sustainability of the services deployed.....	65
3. Open Fiber Strategy implementation.....	68
3.1. Research methodology.....	68
3.2. Open Fiber Strategic Plan.....	70
3.3. Financial Statement Analysis.....	75
3.4 BUL strategy Analysis.....	88
3.5 Main Results	100
Conclusion	103
Bibliographic References.....	107
Sitography.....	111

Sommario

L'obiettivo della tesi è fornire un'analisi strategica e di settore di Open Fiber.

Il focus dello studio saranno le strategie, utilizzate per superare la forte concorrenza nel settore delle utilities, considerando le azioni intraprese nel campo delle telecomunicazioni.

Punto focale sarà anche l'utilizzo del modello wholesale only, di cui Open Fiber è uno dei protagonisti in Europa.

Per completare l'analisi della strategia, esamineremo i bilanci del periodo che va dalla fondazione di Open Fiber, nel 2015, fino al 2019.

Questo, guardando all'aspetto finanziario di Open Fiber, ci aiuterà a delineare le principali implicazioni delle scelte strategiche adottate sulla redditività, sulla solidità finanziaria e sulla liquidità dell'azienda.

Inoltre, analizzeremo anche l'andamento della strategia BUL (Ultra Broad Band) in Italia, per capire come stanno andando i lavori sulle aree bianche e in base a ciò analizzeremo la posizione di Open Fiber in questo periodo di innovazione, se sarà uno dei principali protagonisti del futuro del Paese, o se è solo una piccola realtà che verrà prima o poi surclassata dall'incumbent del mercato (TIM).

L'esame della strategia BUL ci darà informazioni sulla realizzazione degli investimenti realizzati dell'azienda e se tali investimenti verranno rimborsati abbastanza presto da superare il costo o troppo tardi per gestire il peso delle ingenti uscite.

Abstract

The thesis will provide a strategic and sector analysis of Open Fiber.

The study focuses on the strategies that Open Fiber use in order to affirm its position in the utilities and infrastructure sectors.

The focal point will also be the use of the wholesale model, for which Open Fiber is one of the protagonists in Europe.

To understand the implication of investment in this industry, we will look at the balance sheets for the period from the foundation of Open Fiber, in 2015, through 2019.

Looking into the finances of the company will help us outline the main choices of the strategies adopted in order to balance the high cost that comes with entering and remain in this sector.

To understand how the works in “white areas” are progressing, we will also analyse the trend of the BUL (Ultra Broad Band) strategy here in Italy, understanding the position of Open Fiber in this transition and topic moment for the country.

It will be one of the main protagonists of the future of the country, or it is only a small reality that will sooner or later be outclassed by the incumbent of the market (TIM).

A final analysis, based on the elaboration of the BUL strategy will give us insight into the realization of the company's investments made and whether those investments will be repaid early enough to exceed the cost or too late to handle the burden of large outflows.

Introduction

The objective of the thesis is to provide a strategic and industry analysis of Open Fiber.

The focus of the study will be the strategies used to overcome the strong competition in the utilities sector, considering the actions undertaken in the field of network deployment.

A focal point will also be the use of the wholesale model, for which Open Fiber is one of the main subjects in Europe.

To complement the strategy analysis, we will look into the financial statement of the period that goes from the foundation of Open Fiber, in 2015, till 2019.

This look at the financial aspect of Open Fiber will help us to outline the main implication of the strategic choices adopted for the company's profitability, financial solidity, and liquidity.

Furthermore, we will analyse also the BUL (Ultra Broad Band) strategy's progress here in Italy, in order to understand how the works on the white areas are progressing. Based on that, we will analyse the position of Open Fiber in this period of innovation and ascertain if it will be a main protagonist of the future of

the country, or if is only a small reality that will be eaten by the incumbents of the market.

The exam of the BUL strategy will give us insights of the investment of the company and if those investment will be repaid soon enough to overcome the cost or too late in order to manage the weights of the outflow.

The starting point of the thesis is that Open Fiber is still a new entrant in the telecommunication market, that is a market that requires high investment and long awaiting of return of profits; a market that is dominated by the incumbents (especially TIM) and where acquiring new customers is difficult, due to the high switching costs existing for customers.

The analysis will start with a context overview, talking about the wholesale only business model that characterizes Open Fiber.

The peculiarity of this business model is that Open Fiber does not sell the service directly to the consumer but rents the infrastructure to the telecommunication (tlc) operators that then will offer the service to the final consumers.

In other words, the strategy used by wholesale only operators is not based on price, which is largely regulated, but on the quality of the infrastructure.

This type of approach is really welcomed by the market because it favours the competition between the operators and, furthermore, allows the company to focus

on the quality of the services offered, instead of the price offered to the final consumer. The latter is an approach typically used by the incumbents of this sector, that brought these companies to reduce the investment made on the improvement of the infrastructure in order to reduce the final price offered to the final consumer and overcome the high competition of the market.

We will see the use of this business model in all Europe and understand why it became so relevant in Italy with Open Fiber becoming a landmark of this kind of approach across all Europe.

The position that Open Fiber reached in Italy was allowed, of course by the huge support that Enel give to the company at the beginning, as one of the main characters of the infrastructure and utilities in Italy.

With its knowledge and experience in those sectors, Enel landed a big hand in the planning and strategy of the company that lead to the application of the wholesale only business model, so well seen by the market, and incentivized by the regulators in the tenders.

In this way Open Fiber managed to win all the public tenders of the BUL strategy, that implies to cover with BUL infrastructure all the white areas of the country, also becoming an important player for the black and grey areas, competing directly with the largest incumbent of the Italian market, Telecom Italia (or TIM). For a 7 years old company, this is quite an achievement.

In chapter 1, we will provide a brined introduction to the business model “wholesale only”, introducing the major operators that pioneered the use of this business model in the telecommunication, although remaining marginal players in the European market.

Then we will introduce the European and Italian strategies for the implementation of the ultra-broadband, given the context of the European strategy for the 6 years spanning the period 2014-2020 and that 2021-2027, together with the Italian strategy and the objective fixed for the BUL strategy. We will understand why for all these programs, Open Fiber is so important for Italy in order to cover the infrastructural divide and reach a relevant position in the Gigabit Society and the 5G prospective.

Chapter 2 will be an introduction into the company itself, understanding its history and future prospective thanks to the services offered.

We will talk about Enel, its role in the creation of Open Fiber, but also its history and position in the Italian market that was one crucial point that allows Open Fiber to become so important and relevant first in Italy and then in all Europe.

Then, we will put the focus on Open Fiber, the management, the service offered and the pioneering of the wholesale only business model in Italy in its sector.

Chapter 3, which represents the core of the thesis, will introduce a strategic analysis of the company, cover both the financial and economic statements of the company, together with the achievement reached in the BUL strategy construction status.

This empirical analysis will also illuminate the financial position of the company, that have to sustain a lot of costs due to the expensive investment on the coverage of the Italian territory with its infrastructure.

In detail, we will investigate the complementary relation between the Open Fiber strategy and the status of the public works in white areas, to analyse to what extent the two elements influence each other.

To do so, the BUL strategy will be analysed through concatenated index elaborated in order to emphasize the relationship between the different phase withing the completion of a construction sites, and highlights the difficulties in the process of the digitalisation of our country.

1. The Wholesale only business model

1.1 Introduction to the wholesale only business model

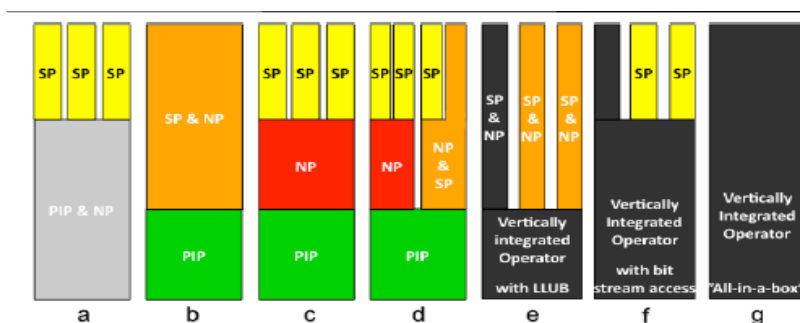
The wholesale only business model occurs where the provider offers only wholesale services and does not provide retail broadband services (Godlovitch & Gantumur, 2018).

Operator following this model are usually not traditional tlc operators, but public entities or infrastructure investors.

The advantage of using this model goes both way from the operator and to the final consumer, that is because the wholesale only business model allows to access a fair competition, due to the fact that the operator does not have any advantage in discriminate between the service providers.

To better understand the difference between the wholesale only business model and the other Next Generation Access (NGA) we can use this graph (figure 1) that divide them by degree of openness.

FIGURE 1: NGA DEPLOYMENT MODELS BY DEGREE OF OPENNESS



SOURCE: WIK CONSULT, 2018

LEGEND: LLUB – LOCAL LOOP UNBUNDLING; NP – NETWORK PROVIDER; PIP – PASSIVE INFRASTRUCTURE PROVIDER; SP – SERVICE PROVIDER.

Wholesale only business model typically refers to the option b and d, defined as a Passive Infrastructure Provider model.

Like we said before, the main feature of this type of model is the complete separation, between the physical (passive) infrastructure from the services offer by the retail operator. However, in some cases, the infrastructure provider can also offer network services (option a), like we will see with TIM.

As mentioned above, the fact that the wholesale operators are non-active at the retail level, means that they do not have any advantage in discriminate against the service providers, therefore do not have any preferential relationship with any retail service providers.

This is also recognised by the EU Electronic Communications Code that acknowledge that the competition risk may be lower from companies pursuing the wholesale only business models, respect to the vertically integrated firms.

Another major difference with the NGA operators is that the wholesale only operators do not own legacy infrastructure, that mean that they do not have an old infrastructure that may not free them to pursue the latest technologies, on the contrary of the incumbents of the market that have incentives to not invest in order to maintain their cashflow and revenues, in some cases also to pay their past debts.

An incumbent which lies under the same corporate ownership as a retail service provider, may still face pressure to prefer the service provider which lies within the same group.

1.2 Wholesale only in Europe

Since the 1990s, wholesale only model initiatives have become more widespread in Europe, especially in this last years, where thank to the various policies and strategies of the EU and also of the single countries, that embrace the benefit that this business model gives to competition, is becoming more and more used with several new initiatives across Europe (Godlovitch & Gantumur, 2018.).

Let's see some of the new reality that founded their business on the wholesale only business model.

However, it's important to affirm, that the wholesale only initiative mentioned below remain residual players of the telecommunication market, on the contrary of Open Fiber that managed to acquire a prominent position in this industry in Italy and also in Europe.

FIGURE 2: WHOLESALE ONLY INITIATIVES - PAST, PRESENT, AND FUTURE



SOURCE: WIK CONSULT, 2018

1.2.1 AB Stokab (Sweden)

The first in Europe to embrace the broadband and understand its importance were the Swedish municipalities.

290 municipalities were covered by fiber-optic networks, boosting the fiber coverage objective pointed out by the Swedish government already in the 2000, when they deploy the first broadband strategy for Sweden.

*AB Stokab*¹ was the first example of the Sweden's wholesale only municipal strategy, its network offers a passive fibre network, offering a point-to-point dark fibre², to any customer that demands it: the operators specialised in providing wholesale active services, service provider, vertically integrated operators (fixed, mobile), businesses, public institutions, and housing association.

1.2.3 Amsterdam Citynet (Netherlands)

Citynet is another great example of how municipalities pushed forward the deployment of fibre.

The difference between Amsterdam Citynet and AB Stokab comes from the ownership of the initiative, in Sweden was a fully public initiative, in this case was formed by a public-private partnership (PPP), between the Amsterdam municipality and the incumbent KPN³, that decide to invest in passive fibre infrastructure, recognizing the importance of high-speed connectivity.

¹ <https://stokab.se/en/stokab>

² Dark Fibre is simply a length of fibre optic cable which has no equipment connected to it and is not transmitting any data. A business will lease or buy this fibre from a network provider and then fully manage the equipment, deployment, security, traffic, and maintenance themselves.

³ <https://www.kpn.com/>

1.2.4 Reggefiber (Netherland)

After this success example of Amsterdam Citynet, another largest player in the deployment of broadband and fibre in the Netherland was Reggefiber.

To enter the market and attract more customers they used a smart method, now used also form other operators, that consisted in organising a television offer with Glashart Media⁴ for all service providers active on its network, leveraging the combined subscribers' numbers in negotiation with content providers.

The business model of Reggefiber was based on layered open-access approach.

Reggefiber provide the dark fiber networks, then the network operators install active equipment on the passive fibre network and deliver wholesale fibre services to services providers, that finally deliver the services to the end user.

1.2.5 SIRO (Ireland)

On the other hand, an example closer to Open Fiber, that we will see more in depth later, is SIRO in Ireland, that as OF, is an example of co-operation between utility and telecom operators.

SIRO has a partnership with the electrical utility operator ESB, active in transmission, distribution, generation, and supply of electricity.

⁴ Glashart Media is an Analog and IP Television provider for the fiber networks from Reggefiber

ESB is a 95% owned by the Irish State and 5% owned by capital stock held by the Employers.

SIRO primary activity is provision of wholesale network infrastructure access service, offering FTTB (Fiber to the Building) network on a commercial, open, and non-discriminatory basis.

To do so, SIRO has to pay a fee for using the distribution network of ESB for deployment of the FTTB network.

1.3 European and Italian strategies for the implementation of the ultra-broadband

After some examples of the usage of the wholesale only model in Europe, let's now see why it is so welcome by investors and countries.

Franco Bassanini, CEO of Open fiber, in an interview for the Corcom⁵, talk about the wholesale only model as a futureproof model.

That's because, due to the high development cost of 5G new technology, only few big operators will be able to give birth at an infrastructural competition on the mobile networks.

The wholesale only networks, both for FTTH and 5G, will be one of the most interesting opportunity for the investor of the sector⁶.

Not only for the immediate future, but also in the recent past, the wholesale only model was selected by the EU as the model to enable the creation of the ultra-broadband network.

⁵ <https://www.corrierecomunicazioni.it/telco/la-rivoluzione-fiber-to-the-home/>

⁶ <https://www.milanofinanza.it/speciali/ue-punta-sul-wholesale-only>

The EU Commission think that the ultra-broadband connectivity networks are a fundamental element to make the most of the growth potential of the digital economy in terms of employment and competitiveness.

For this reason, it has set some ambitious connectivity goals for 2025, capable of bringing Europe closer to the goal of a real "Gigabit Society" and has launched a new European Code of Electronic Communications.

The document recognizes the urgent need for infrastructural investments, in particular on FTTH (Fiber to The Home) fiber optic networks, the only ones able to reach the connection speed of 1 Gigabit and therefore ensure the performance required by the Gigabit Society.

The Code also defined, for the first time, the wholesale only model, encouraging the spread of this business model through a favourable regulatory framework, because the EU believes that the wholesale only operator can devote itself to the development of an increasingly effective network to offer to operators who are seen exclusively as customers and not as competitors.

In Italy the only operator that has adopted this model, like we mention before, is Open Fiber, which is also the largest FTTH wholesale only operator in the world.

The evolution of European legislation has therefore enabled the Member States to accelerate in the direction of the Gigabit society on two fronts: on the supply side,

and therefore of bandwidth availability, and that of demand, facilitating the use of the infrastructure (Godlovitch et al., 2020).

In the first case, Italy, which is trying to reverse the trend from a position of serious delay, has launched the Ultra Broadband Plan (BUL) to guarantee ultra-fast fiber to about 7,000 municipalities and bridge the digital divide.

On the demand side, countries such as Greece and the United Kingdom have decided to provide an incentive to citizens who intend to activate connectivity services with very high transmission capacity for the first time, through non-repayable financing instruments.

Let's see more in depth what were the plan for EU and for Italy about the digital growth 2014-2020 and then take a look to the nowadays situation, with the Covid-19 situation and see how the EU decide to adapt the next EU 2021-2027 strategy, according to this major event that change drastically our need of fast and efficient digital infrastructures.

1.3.1 EU 2014-2020 strategy

The 2014-2020 European Union strategy for development and occupation, Europe 2020 (European Economic and Social Committee, n.d.), provides, among the other initiatives, the European digital agenda, that EU plan to achieve through the implementation of fast and super-fast Internet access for all.

All this has repercussions in each EU state, including Italy, which in turn has developed an Italian digital agenda (in line with the European one) which, to allow a fast access to the Internet on the national territory.

The Italian digital agenda includes the Italian strategy for the band ultra-wide (BUL). More specifically, the most relevant plans are the following:

- The *Europe 2020* strategy promotes smart, sustainable, and inclusive growth. Its aim is to improve the competitiveness of the EU, while at the same time maintaining its model of social market economy and significantly improving its effectiveness the use of its resources.

To achieve this aspiration, the EU had set itself five major goals to achieve by 2020 also supported by seven flagship initiatives, the third of which is the European agenda of digital.

- The digital agenda presented by the European Commission proposes to make the most of the potential of information and communication technologies (ICT) to foster innovation, economic growth, and progress.

Among the seven actions to be taken to carry out this initiative, the fourth is promotion fast and super-fast Internet access for all: Europe must have an Internet fast and superfast, accessible to all and at competitive prices. With this in mind,

the EU must create Next Generation Access Networks (NGAs) and strengthen its spectrum policy radio. In particular, quantitatively, the targets are:

- Arrive in 2013 with basic broadband coverage of 2 Mbps for 100% of EU citizens;
- Achieve 2020 with fast broadband coverage of 30 or more Mbps for 100% of EU citizens;
- Arrive in 2020 with ultra-broadband coverage equal to or greater than 100 Mbps for 50% of EU citizens.

For the implementation of this plan the Commission used European funds (from the ERDF or the EAFRD) to finance investments in broadband.

All these actions set by the EU digital Agenda, required a constant commitment at the level Community and individual Member States, as well as at regional level.

A periodic review of the progress made in the context of the digital agenda was made every year with the publication of an evaluation framework and the organization of an assembly on digital.

1.3.2 Gigabit Society and EU 2021-2027 strategy

EU set even more ambitious connectivity objectives for 2025⁷ that could be briefly summarized in:

- 100 Mbps networks reaching all European households by 2025, with the possibility to upgrade those networks to reach much higher speeds;
- Gigabit connectivity connecting all main socio-economic drivers - such as schools, universities, research centers, transport hubs, hospitals, public administrations, and enterprises relying on digital technologies - should have access to gigabit connectivity;
- Uninterrupted 5G coverage should be available in all urban areas and all major terrestrial transport paths to connect people and objects;
- Access to mobile data connectivity everywhere, in all places where people live, work, travel and gather.

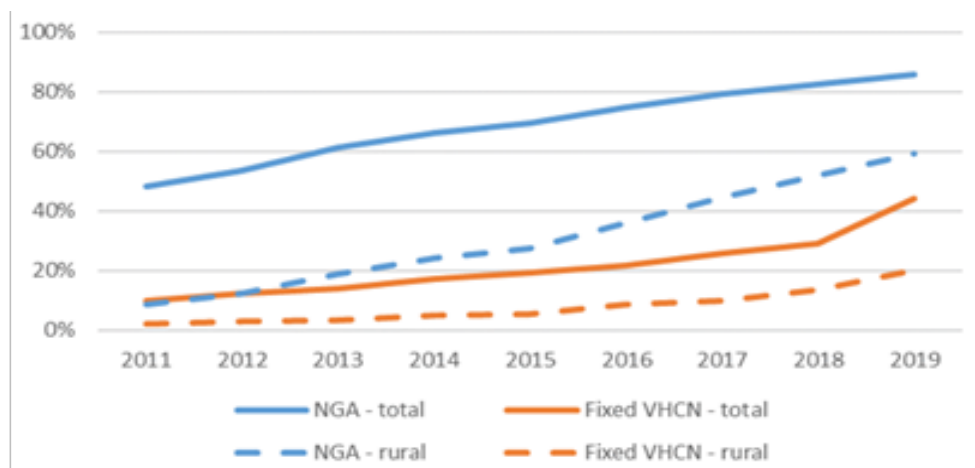
Looking to the nowadays situation with data available of the 2019:

- 99% of households were covered by at least one 4G mobile operator in Europe.

⁷ <https://digital-strategy.ec.europa.eu/en/library/connectivity-european-gigabit-society-brochure>

- All EU households had access to broadband and 86% of EU households to a fast broadband connection of at least 30 Mbps;
- More than half of the European households were not covered with very high-capacity networks (44% of the households in July 2019), and the coverage with FTTP was even lower than 34%;
- There were important differences between EU Member States, as well as between urban and rural areas.
- In rural areas:
 - 4G coverage went up from 38% in 2014 to 98% in 2019;
 - Only 59% of households had access to a fast broadband connection of at least 30 Mbps;
 - Coverage of households with very high-capacity networks reached only 20% of the households, while a poor 18% of the households were covered by FTTP.

FIGURE 3: NEXT GENERATION ACCESS (NGA) AND FIXED VERY HIGH-CAPACITY NETWORK (VHCN) COVERAGE AT EU LEVEL (% OF HOMES), 2011-2019



SOURCE: BARCLAYS EQUITY RESEARCH, 2018

Action taken by the EU guarantee competitiveness in the telecom market.

The quality and the coverage of networks is on an increasing trend, while the operators' revenues have remained stable, and the price of at least 100 Mbps bundles are even decreased by 35% between 2014-2019.

Like said in the beginning of the chapters, the regulations of the wholesale broadband market encourage the competition and investments in high-capacity networks, ensuring access at high-speed internet to more EU citizen.

The conversation between the national telecom regulators and the Commission, on the plan for the future is helping both of them to regulate telecoms markets in advance.

Furthermore, the Commission aims to regulate only those market that would not be effectively competitive without such intervention.

Since 2003, the committee has analysed more than 2,000 draft regulatory decisions to provide guidance to the National Regulatory Agency (NRA) and ensure harmonized regulatory approaches. The committee works closely with the European Electronic Communications Regulatory Agency (BEREC), and in some cases, after receiving BEREC's opinion, the committee has blocked some measures that either do not comply with EU law or constitute an internal market obstacle.

Over the years, with the continuous development of the competitive market, regulations for specific industries have been greatly reduced. According to the latest market proposal, since December 2020, there are still only two wholesale markets that are considered vulnerable to EU-level pre-regulation.

It is clear that Telecom operators are considered by the EU the main driver in the deployment and upgrade of broadband networks.

The problem is that business investment is usually concentrated in areas with higher potential demand and higher concentration of profits. In some areas, especially rural areas, public financial support may be needed to ensure that no Europeans are left behind.

The EU financially supports member states and private investors, using a variety of tools to correct the imbalances in EU countries.

During the period of 2021-2027⁸, the Commission has included broadband infrastructure in areas where national and regional authorities can invest in ultra-high-capacity networks with the support of European structures and investment funds. In addition, the Commission proposes to continue to support EIB broadband network lending activities through the EU Investment Plan.

Talking about the new Connecting Europe Facility programme 2021-2027,

The new Connecting Europe Facility (CEF2 Digital) will provide funding for ultra-high-capacity networks including 5G. CEF2 Digital will provide connectivity to ensure that digital services and capabilities funded by the Digital Europe Initiative are widely used throughout Europe, such as supercomputing and artificial intelligence.

The total budget proposed by the committee is 2 billion euros.

⁸ <https://digital-strategy.ec.europa.eu/en/policies/connectivity>

CEF2 Digital will provide funding for the following projects:

- 5G corridors along transportation paths, including those used for interconnection and automated mobility.
- Gigabit connectivity for socio-economic drivers and 5G-ready communities: education and medical centers; public buildings; business parks; families in surrounding areas.
- Key strategically important backbone connection networks, such as: submarine cables; terabit capacity connections for high-performance computing; cross-border interconnection of strategically important European cloud infrastructure.

To achieve these objectives, due to the Covid-19 tragedy, the EU decide to allocate even more funds than to the NextGenerationEU plan⁹.

NextGenerationEU is a €750 billion temporary recovery instrument to help repair the immediate economic and social damage brought about by the coronavirus pandemic.

⁹ https://ec.europa.eu/info/strategy/recovery-plan-europe_it#nextgenerationeu

The aim of this inedited plan is to help post Covid-19 Europe to be greener, more resilient, and also more digital in order to be ready to face the current and forthcoming challenges.

In particular Italy, managed to obtain the 28% of the 750€ billion that converged into the PNRR¹⁰ (Piano Nazionale Ripresa e Resilienza) that has the digitalization of the country as one of its strategic missions.

1.3.3 Italian Strategy for the ultra-broadband (BUL)

Like mentioned, the European Digital Agenda was imported into the Italian context and with the PNRR, the Italian Digital Agenda has even more money support than before the Covid-19 tragedy.

Italy has developed its own national strategy, identifying priorities and methods of intervention, as well as the actions to be carried out and in what measure on the basis of specific indicators, in line with the scoreboards of the European Digital Agenda.

In particular to achieve the goal of the European Digital Agenda of access to Fast and super-fast Internet for all has developed the Italian strategy for the ultra-broadband.

¹⁰ https://www.governo.it/sites/governo.it/files/PNRR_3.pdf

Looking ahead, in a word that is approaching to do things more and more rapidly, the networks of telecommunications will be even more important: they will connect millions of people, dozens of millions of computers and billions of objects.

The ultra-broadband will be the raw material of our future, for the entire economic system and social.

It will be the essential resource on which to build the country's future competitiveness and it will decide our chances of remaining one of the most advanced nations on the planet.

The aim of the Italian BUL strategy¹¹, that was approved in the 2015 by the Government, is to speed up Italy, opening up the access to the most advanced digital services and the opportunities offered by an increasingly interconnected world to the Italian citizen.

In particular, it aims to develop an ultra-broadband network across the entire territory national to create a "future-proof" telecommunications infrastructure, in order to be sure that what they are going to build will not be obsolete in the near future.

¹¹ <https://bandaultralarga.italia.it/en/>

The network is developed according to the principle of technological neutrality with an integrated approach (fixed and mobile, wired, and wireless access, satellite) and is open, guaranteeing access to fair and non-discriminatory conditions.

The plan based on the synergy between the public and private operators, which is essential to be able to achieve the strategic objectives set: the main player is the market, while public intervention is subsidiary to private investments in order to stimulate them and get where they don't come.

The strategy is conceived as a dynamic measure that will be periodically updated adapting it to the evolution of technology, services, and demand but which it will represent however the compass in terms of actions, methods, organization, and tools implemented.

1.3.4 Strategic objective of the Italian BUL strategy

Strategic objectives that should be achieved by 2020:

- Coverage of at least 30 Mbps guaranteed to the totality of the Italian population;
- Coverage of at least 100 Mbps up to 85% of the Italian population;
- Coverage of at least 100 Mbps of public offices and buildings (in particular schools and hospitals), areas of greatest economic interest and

demographic concentration, industrial areas, main tourist resorts and logistic hubs.

As can be seen, the Italian strategy has more ambitious objectives than the targets set by the European Commission, as if individuals invest to the same extent as coverage of 85% of the population would be achieved compared to the minimum of 50% foreseen by the European digital agenda. The strategy involves the use of tools both to incentivize the supply and to incentivize the demand.

Incentives to the supply:

- facilitations to lower infrastructure cost barriers:
 - measures to simplify the legal framework and regulation of sector, aimed at accelerating infrastructure investments by reducing costs;
 - realization of the Cadastre of the under and above ground of the access infrastructures to the Internet, as a tool capable of guaranteeing transparency, efficiency, and coordination;
 - rationalization policies of the frequency spectrum.
- facilitations for access to economic resources:
 - tax exemption from ultra-broadband infrastructure investments;

- establishment of a pole of attraction for funds to facilitate access to credit granting of credit at subsidized rates with any public guarantee;
- non-repayable loans;
- facilitations for local administrations.

Incentives to the demand:

- migration accompanying voucher: a voucher is provided for all users that migrate to the new infrastructure, differentiating its amount in relation to the underlying network architecture;
- prior aggregation of the application;
- development of the digital services envisaged in the digital growth strategy.

1.3.5 Clustering

Clustering was carried out in order to maximize the effectiveness of public intervention compared to the limited economic resources available; in fact, it made it possible to identify in based on the characteristics of each area, hedging objectives, instruments and financial needs differentiated. The investment planned

to achieve the complete implementation of the plan strategic was 12.4 billion euros.

The Italian territory has been divided into 94,000 homogeneous sub-areas (based on the relative concentration of the population, the characteristics of the territory, the density of businesses and to the offer of infrastructures for ultra-broadband already implemented and those planned) that are been grouped into 4 clusters (A, B, C, D). Each municipality is made up of several sub-areas attributable to one or more clusters.

- CLUSTER A:

It is the cluster with the best cost-benefit ratio, where private operators were really interested to invest.

It includes the top 15 black cities (those cities where there is or will be more than a network operator with more than 30 Mbps: Rome, Milan, Naples, Turin, Palermo, Genoa, Bologna, Florence, Bari, Catania, Venice, Verona, Messina, Padua, and Trieste) and the main industrial areas of the country and constitutes 15% of the national population (about 9.4 million people).

In this cluster it is possible to make the leap in quality required by EU legislation by bringing the link speeds from 30 to 100 Mbps by 2020 and in fact it is just that the objective that the plan sets itself with respect to cluster A.

The tools that were intended to use in order to achieve the goal are financial tools, for access to credit on favourable terms and at low risk and / or measures of tax exemption on investments. So, the intervention will be carried out in this cluster exclusively from the market.

- CLUSTER B:

It is formed by the areas in which operators have built or will build networks with connections at least 30 Mbps, but market conditions are not sufficient to guarantee acceptable returns at market-only conditions for investing in 100 Mbps networks.

It includes 1,120 municipalities, some in black areas and others in grey areas (those in which there is only one network operator and there are no plans for one second) for multi-network networks of 30 Mbps and 45% of the population live there (about 28.2 million people).

The cluster is divided into two sub-clusters:

- B1: in which network operators invest directly;
- B2: which includes the areas where public plans have been implemented or are in progress for the creation of networks with connectivity of at least 30 Mbps.

The goal set with respect to the cluster is a coverage by 2020 of 100 Mbps of all the population included in the areas affected by the cluster (starting from one initial coverage of 2 or 30 Mbps).

The tools that will be used to achieve the goal are in addition to tools financial for access to credit on favourable terms and at low risk and / or measures tax exemption, including grants for the upgrade of networks from 30 to 100 Mbps limited to what is strictly necessary, with possible public participation in the realization of the works. So, the intervention will be carried out in this cluster mainly from the market with a minimum use of public resources thoroughly lost.

The financial needs foreseen for the use of the tools provided and the reaching a coverage of 100 Mbts in clusters A and B is a total of about 7.6 billion.

- CLUSTER C

These are marginal areas currently in market failure, including rural areas, for which it is estimated that operators may gain interest in investing in networks with more than 100 Mbps only thanks to state support.

It includes about 2,650 municipalities and some rural areas not covered by networks at more than 30 Mbps and there are about 15.7 million people (25% of the population).

The goal set for the cluster is a coverage of 30 Mbps by 2020 guaranteed to all the population included in the areas affected by the cluster, up to reach 100 Mbps in some of these (from an initial coverage of 2 Mbps)

The tools to be used are financial instruments for accessing debt at preferential and low-risk conditions and / or tax exemption measures and contributions a limited non-repayable fund, but proportionally greater than that of cluster B with possible public participation in the realization of the works.

So, in this cluster the intervention will be carried out mainly by the market with the use of non-repayable public resources proportionally larger than cluster B.

The financial needs foreseen for the use of the tools provided and the reaching a guaranteed coverage of 30 Mbts and for some areas at 100 Mbts is approximately 4.8 billion.

- CLUSTER D

They are typically market failure areas for which only public intervention can guarantee the resident population a connectivity service at more than 30 Mbps.

It encompasses the remaining approximately 4,300 municipalities, mainly in the South, including some rural areas and about 15% of the population live there (9.4 million people).

The goal set for the cluster is a coverage of 30 Mbps by 2020 guaranteed to all the population included in the areas affected by the cluster (starting from initial coverage of 2 Mbps).

The tool to be used to achieve the goal is, especially in the South, the public incentive granted to a greater extent non-repayable, considering the strategic ultra-broadband infrastructures for the purposes of cohesion policies for the development of particularly disadvantaged areas, with a per capita GDP of less than 75% of the EU-27 average (€17 thousand).

So, the intervention will be carried out in this cluster entirely through the use of public resources, as the state will intervene directly by building an infrastructure of its own and giving incentives to operators for the provision of the service.

The financial needs foreseen for the use of the tools provided and the reaching a guaranteed coverage of 30 Mbts is around €1 billion.

1.3.6 BUL strategy today

In 2016, Infratel Italia announced the first two tenders for the award of a concession for the design and construction as well as fixed-term maintenance and management of an infrastructure publicly owned passive Ultra Broadband, also through the use of infrastructure components already existing, and the simultaneous provision of passive and active access services in wholesale mode.

Finally, in 2017 the third tender was launched, for the regions of Calabria, Puglia, and Sardinia with a mechanism of tender similar to the previous ones.

The invitations to tender were first submitted to the opinion of all the competent authorities on the subject (AGCOM, ANAC and AGCM) and obtained their respective positive opinions.

The procedure foresees for a pre-qualification phase for operators with the requisites required and a subsequent selection phase to be completed through invitation letters addressed to qualified operators and aspiring dealers.

In this second phase, the criterion applied is that of the economically most advantageous offer.

After the pre-qualification phase, which saw the admission of all participants, the qualified operators were invited to formulate their best offer.

After the deadline, the Infratel Italia Board of Directors appointed the selection commission which started and completed the works, appointed Open Fiber S.p.A as the winner of all 3 tenders.

Since the operational launch of the BUL Plan¹², 2,060 municipalities have been on the market (329 more than in December 2020), 1,086 municipalities that have

¹² <https://bandaultralarga.italia.it/piano-banda-ultralarga-i-dati-sullo-stato-di-avanzamento-al-31-maggio-2021/>

been tested positively (409 more than December 2020), 4,494 construction sites (779 more than in December 2020).

In May 2021, the cumulative amount of the works ordered from the start of the Plan amounted to 1,492,637,691.80 €, of which 20,072,628.54 committed in the month of May.

In the same period, Infratel verified 99 projects, of which 79 approved and 20 rejected.

The municipalities completed with CUIR¹³ were 59.

As of August 31, 2021, Infratel has successfully tested 1.371 FTTH municipalities and a further 106 with prescriptions. In addition, 352 FWA sites and another 7 with prescriptions were positively tested.

¹³ CUIR: Certificato Ultimazione Impianto di Rete

FIGURE 4: STATO AVANZAMENTO LAVORI BUL

STATO AVANZAMENTO LAVORI BUL



SOURCE: [HTTPS://BANDAUSTRALARGA.ITALIA.IT/EN/](https://bandaultralarga.it/it/en/)

2. Introduction to the Open Fiber Business Model

The Barclays report on European Telecom Service (Barclays Equity Research, 2018) talks about Open Fiber defining the situation that occur in Italy the “perfect storm” that create the opportunity to pursue a different path and create an alternative infrastructure.

The key success factor that enables Open Fiber to take a hedge on the incumbents (in particular Telecom Italia) were:

- No incumbent of the FTTH side at the beginning, because on the limited investment on FTTH by Telecom Italia.
- The key partnership with Enel, the major utility provider of the country that helped providing existing infrastructure.
- A fertile competitive retail environment with retailer, as WIND and Vodafone, very keen to support alternative infrastructure.
- Italian and European policies, that full support alternative broadband infrastructure for competition and for achieving the future objective of their strategy, of which we talked about before.

Let’s explore the business model of Open Fiber, and understand, from the beginning, the investment made by Enel and Cdp (Cassa Deposito Prestiti) and if this investment was the start for a brighter future for Open Fiber or just a non-

sustainable investment, given that nowadays, Enel is renouncing at its participation on Open Fiber in favour of the Macquary's group¹⁴.

2.1 Enel Open Fiber

Open Fiber (OF) was first introduced into the Enel strategic plan presented to the Enel board of directors in 2016 but was already established in December of 2015.

The aim of the new born society was installing, supplying, and operating high-speed fiber optic electronic communication network throughout Italy.

To the realization of this project in 2016 the shareholders' meeting appointed Tommaso Pompei as Chief Executive Officer and Franco Bassanini as Chairman.

Shortly after, in 2017, following the integration with Metroweb¹⁵, Open Fiber was founded with 50/50 shareholding structure divided between Enel S.p.A. and Cdp Equity S.p.A, a company belonging to the Cassa Depositi e Prestiti Group¹⁶.

The merge with Metroweb was a turning point for OF, because it allowed to take advantage of the larger FTTH fiber network in Italy, reaching 1.2 million of users between the cities of Milan, Turin, and Bologna.

¹⁴ Macquarie Group Limited is an Australian multinational independent investment bank and financial services company (<https://www.macquarie.com/uk/en.html>)

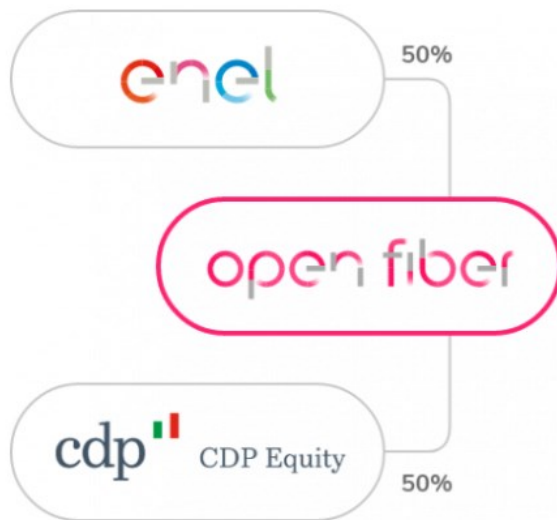
¹⁵ <https://openfiber.it/mondo-open-fiber/news/metroweb-diventa-open-fiber/>

¹⁶ https://www.cdp.it/sitointernet/en/cdp_chi_siamo.page

Other advantages brought by this merge were given by the know-how of Metroweb, that speed up the development of the optic fiber network and, most importantly the improvement of the financial profile of the project, that allow OF to expand possibilities of financing and achieving a higher score on the tenders that they won for the implementation of the network in the Italian territory.

Nowadays, Elisabetta Ripa, former Director of Open Fiber, is the company CEO replacing Tommaso Pompei in 2018.

FIGURE 5: OPEN FIBER COMPANY STRUCTURE



SOURCE: [HTTPS://OPENFIBER.IT/EN/CORPORATE/COMPANY/STRUCTURE/](https://openfiber.it/en/corporate/company/structure/)

2.1.1 Enel S.p.A.

Enel is a multinational company producing and distributing electricity and gas, was established as a public body at the end of 1962 after the nationalization of the electricity system.

Was then transformed into a joint stock company in 1992, and finally privatized in 1999, after the liberalization of the electricity market in Italy, in the same year was also listed into the Milan Stock Exchange.

The Italian State remains the main shareholder of the company also after the liberalization of the electricity market.

Enel operates in 48 countries on four continents (Europe, the two Americas, Asia, and Africa), with over 850 controlled companies.

The Group's vision and mission for 2025 is: "seeks to solve the greatest challenges in the world, bringing energy for more people through new technologies, stimulating new ways of managing it for the consumer, opening it to new uses and forming a network of research, technology and development collaborators that will bring new solutions to build a future of progress for all"¹⁷.

¹⁷ <https://www.enel.com.ar/Home-Enel/about-us/a201612-vision-and-mission.html>

The commitment of Enel goes all around the words “openness” and “sustainability”.

Their purpose is to open access to energy to more people possible, using new technologies, new way of using it, and through new partnership.

They are committed to promote and increase innovative and sustainable use of energy.

The Enel Group Business structure is divided into a matrix that consider¹⁸:

- Global Business Lines: entrusted with the task of managing and developing assets, optimizing their performance and the return on invested capital, in the various geographical areas where the Group is present; the Business Lines are also entrusted with the task of improving the efficiency of the processes managed and sharing best practices worldwide.
- Global Power Generation: was born in 2019 from the merger of Enel Green Power and Global Thermal Generation to confirm the leading role of the Enel Group in the energy transition, through an integrated process of decarbonisation and sustainable development of renewable capacity.
- Global infrastructure and networks: through the infrastructure development and management enabling the energy transition, the Group

¹⁸ <https://annualreport2019.enel.com/en/enel-organizational-model>

guarantees reliability in the supply of energy and quality of service to communities through resilient and flexible networks, leveraging on efficiency, technology, digital innovation, and ensuring adequate returns on investments and cash generation.

- Retail: with sales to customers, the Group interfaces locally with millions of families, industries, companies.
- Enel X: enables the energy transition by acting as an accelerator electrification and decarbonisation of customers, assisting them in a more efficient use of energy, also leveraging the assets of the Enel Group through the offer of innovative services.
- Countries and Regions: entrusted with the task of managing relations with institutional bodies and local regulatory authorities within each country where the Group is present, as well as the sale of electricity and gas, also providing support in terms of staff activities and other services to Lines of Business.

To this matrix, are added in a role of business supporting:

- Global Service Functions: have the task of managing information & communication technology activities and purchases at Group level.
- Holding Functions: entrusted with the task of managing the governance processes at Group level.

In particular, the Administration, Finance and Control Function is also responsible for consolidating the analysis of the scenario and the management of the strategic and financial planning.

FIGURE 6: ENEL ORGANIZATIONAL MODEL



SOURCE: [HTTPS://ANNUALREPORT2019.ENEL.COM/EN/ENEL-ORGANIZATIONAL-MODEL](https://annualreport2019.enel.com/en/enel-organizational-model)

For understanding the strategic advantage of the Enel group for Open Fiber, let's also talk about the territory cover of the Enel network.

The Enel Group network cover 2.230 million of km and has a net installed of over 84.3 GW composed by a 50-50 between traditional sources and renewable sources.

Produce over 229.1 TWh of electric energy reaching 73.3 million of final users.

In the previous chapter we talked about this major advantage in infrastructure coverage as one of the points that brought Enel with Cassa Depositi e Prestiti to create Enel Open Fiber back in 2015.

As already mentioned, Enel is now stepping aside from the Open Fiber Project, indeed in the final days of the 2020 was announced the decision on the selling to the Australian Macquarie of its stake in Open Fiber.

In fact, last Thursday 17 December, the Board of Directors of the group resolved to start the procedures aimed at the sale of a minimum of 40% and up to 50%¹⁹ of the share capital of Open Fiber spa to Macquarie Infrastructure & Real Assets (MIRA).

Today, we can affirm that the sale to Macquarie will be of the 40% of the share capital of OF, with a sale amount of 2.12 billion euros, including of Enel portion of the shareholders loan granted to Open Fiber subject to transfer to Macquarie, equal to 80%, and the relative value on 30 June 2021 estimated at approximately 220 million euros.

¹⁹<https://www.enel.com/content/dam/enel-common/press/it/2020-Dicembre/Cessione%20a%20MIRA%20dal%2040%20al%2050%20per%20100%20di%20Open%20Fiber.pdf>

In addition, if the closing of the transaction is after 30 June 2021, the above consideration is increased at a rate of 9% per annum, calculated from 1 July 2021 and up to the closing itself.

The offer also provides for the recognition of two different earn-outs in favour of Enel:

- an earn-out linked to the positive conclusion, with final judgment, of the dispute initiated by Open Fiber against TIM for anti-competitive conduct by the latter, with an earn-out for Enel equal to 75% of any compensation to Open Fiber;
- the second earn-out linked to the creation of value deriving from the possible creation of the single broadband network between Open Fiber and TIM, so in the event that a transfer transaction of the stake in Open Fiber held by Macquarie occurs that determines a rate of return on the investment (IRR) greater than 12.5%, a share equal to 20% of the value realized by Macquarie exceeding this threshold is paid to Enel, up to a maximum amount of 500 million euros in the event of sale of 50% of the share capital of Open Fiber and of 400 million euros in the event of the sale of 40%.

Furthermore, in the last days of April 2021, Enel announce the finalizing of the deal to sell the last 10% of share of Open Fiber to Cdp Equity for 530 million and

includes the transfer to CDPE of 20% of Enel's portion of the shareholder loan granted to Open Fiber.

We can speculate a little on the reason of the departure of Enel from this project.

One reason could be the last years turmoil's on the single national network project.

Indeed, last August, Tim's Board of Directors approved the agreement with KKR Infrastructure and Fastweb relating to the establishment of FiberCop, the newco in which TIM's secondary network (from the street cabinet to the customers' homes) and the developed fiber network will be transferred by FlashFiber, the joint venture owned by TIM (80%) and Fastweb (20%).

The agreement may also involve other operators, for example there is an interest in Mediaset and RayWay²⁰, while a possible involvement of Tiscali is already foreseen, as shown in the memorandum of understanding signed by TIM with Tiscali last August²¹, and will allow Tim, Fastweb and other operators to co-invest

²⁰

https://www.ilmessaggero.it/economia/news/rete_unica_anche_la_rai_vuole_sedersi_al_tavolo_-5456220.html

²¹ <https://bebeez.it/private-equity/e-ufficiale-anche-tiscali-potrebbe-entrare-in-fibercop-con-tim-krk-e-fastweb-nel-quadro-del-progetto-di-rete-unica-che-coinvolgera-anche-openfiber-ieri-ok-del-governo-al-piano-cdp-tim/>

by completing fiber coverage plans in the black and grey areas of the country and accelerating the adoption of Ultra- Broadband (UBB).

The agreement constitutes the first step for the implementation of the broader project to establish a single national network company, necessary for the digital development of Italy, which will also involve Open Fiber.

The Boards of Directors of TIM and Cdp in fact approved, at the end of August, a letter of intent between TIM and CDP Equity²² aimed at integrating FiberCop with Open Fiber, to create AccessCo, a company also open to other investors and destined to manage the single national network.

AccessCo will be established through the merger of FiberCop, a company including TIM's primary and secondary access network, and Open Fiber.

Even though this was the envision of the last Italian government, guided by the Prime Minister Giuseppe Conte, and strongly suggested by the former MEF (Ministero dell'Economia e delle Finanze) minister Roberto Gualtieri, that

22

https://www.cdp.it/resources/cms/documents/Comunicato%20stampa%20n.%20101%20del%2031%2008%202020_TLC.pdf

basically suggest to Enel to take a position in favour of the sale of the shares to MIRA²³.

Unfortunately, EU vice president of the Commission, Margrethe Vestager, was never in favour²⁴ and with her, the new government guided by the Prime Minister and ex-president of the European Central Bank Mario Draghi.

The new government, with the words of the minister Giancarlo Giorgetti (Minister Of The Economic Development) and Vittorio Colao (Minister For Technological Innovation And Digital Transition) just doesn't see a single player (TIM) running the digitalization game with all the funds granted by the new Recovery Plan (PNRR)²⁵.

Even if TIM and Cdp are still trying the option of a co-investment for the coverage of the grey areas (characterized with the presence of network operators, which usually have a monopoly and are not threatened by interested competitors), the solution for the new government is to maintain the infrastructural competition

²³

https://www.repubblica.it/economia/2020/11/23/news/braccio_di_ferro_tra_governo_e_starac_e_su_open_fiber-301046689/

²⁴ <https://www.key4biz.it/rete-unica-vestager-chiude-alla-proposta-di-tim-chi-fa-wholesaler-non-puo-fare-retail/325693/>

²⁵ <https://www.key4biz.it/rete-unica-colao-stato-garante-dei-cittadini-non-di-singole-impresre/363521/>

between the two operators, and to accelerate the full coverage of the country by 2026, with the relative switch-off of copper²⁶.

Returning to Enel, the CEO Francesco Starace declared that these 5 years were a blessing for Enel and that they will treasure the experience gained through Open Fiber and look forward to applying it to other countries around the world, in line with Enel strategy based on the 'Stewardship Model'²⁷.

2.2 Open Fiber

The beginning strategic Plan for Enel Open Fiber (EOF), now called just Open Fiber (OF), presented to the strategic board of directors of Enel, started saying that:

EOF will bring ultra-broadband direct to customers' home (Fiber To the Home, FTTH) through several phases in 224 Italian municipalities.

The plan through these phases will provide an investment of about 2.5 billion euros to be gradually approved with the support of other investors.

²⁶ <https://www.key4biz.it/rete-unica-altro-che-co-investment-evitare-qualsiasi-alterazione-della-concorrenza-tra-tim-e-open-fiber-nelle-aree-grigie/369498/>

²⁷ "As for the investment under the Stewardship business model, the Group is expected to invest, approximately, an additional 10 billion euros, while catalyzing around 30 billion euros from third parties, enabling an overall amount of some 40 billion euros of investments, mainly related to Renewables, alongside Fiber, e-transport and flexibility."
<https://www.enel.com/media/explore/search-press-releases/press/2020/11/enels-2030-vision-in-20212023-strategic-plan-a-decade-of-opportunities->

The goal of OF is developing a new pathway that will lead all Italians, from small towns to major urban areas, towards new digital services, guaranteeing them full access to the opportunities offered by an increasingly interconnected world.

Francesco Starace, CEO and General Manager of Enel said: “the articulation of Enel Open Fiber’s strategic plan is a major step towards achieving the targets set out in the European Digital Agenda, as well as in the Italian strategy for ultra-broadband. Installing fibre cables through our electricity network, which reaches the businesses and homes of 32 million Italians, will enable wide-ranging coverage of the country at competitive costs, creating value for Enel and for all players that will want to use this new, important infrastructure.”

Indeed, this operating choice meets the goals of the Digital Agenda for Europe, the Italian Ultra Broadband Strategy, and the Gigabit Society, that aim to bridge the infrastructure gap in Italy as quickly as possible.

Open Fiber features the most extensive Italian FTTH network entirely in optical fiber with a connection speed of up to 1 Gigabit per second (Gbps).

With FTTH, homes and companies are connected to the OF power plant thanks to an infrastructure made entirely of optical fiber.

Furthermore, Open Fiber it’s a wholesale only operator, so it does not interact with the final customer, but sells the use of the infrastructure to the various

partner operators²⁸ (Wind, Vodafone, Getby, etc.) allowing access to the network on fair and equal condition, easing the market competition.

We will now understand the process under the implementation of the technologies used by Open Fiber for achieving the FTTH connection and the business plan behind the society.

2.2.1 Process & Technology

The optical fiber cabling process starts with the signing of an agreement between the municipality interested in the construction, management, and maintenance of a latest generation ultra-broadband optical fiber network infrastructure and Open Fiber.

The agreement, signed with the local administrations, defines working methods and times (which may differ depending on the Municipality), technical and safety standards to minimize inconvenience for citizens during the works, excavation methods for the laying of the optical fiber.

Traditional excavation will only be envisaged where none of the other solutions can be used.

²⁸ <https://openfiber.it/en/operators/partner-operators/>

After obtained all the permits and administrative authorizations, OF proceed with the activities that will bring the optical fiber home.

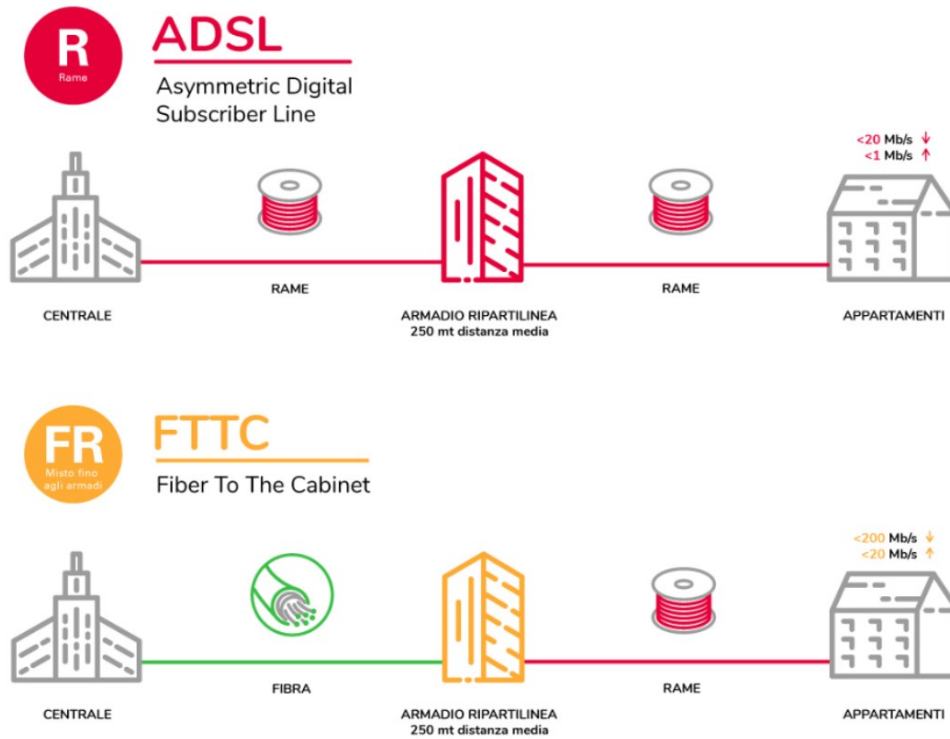
The entire route, from the control unit to the customer's home, is in optical fiber, exploiting the full potential of this medium: a much faster, more efficient, and reliable data transmission.

The connection to a fixed network takes place through the laying of an underground cable that connects the user's home or company to the so-called "distribution cabinet", also connected, by a second cable, to the control unit.

The type of cables used to cover these two sections (from the user to the cabinet and from this to the control unit) defines the type of connection which is therefore indicated with different terminologies.

For example, in the case of ADSL, the cables used in the two sections are entirely in copper, while, in the case of FTTC technology, the two connections are one in copper and the other in optical fiber.

FIGURE 7: ADSL AND FTTC CONNECTION



SOURCE: [HTTPS://OPENFIBER.IT/TECNOLOGIE/FTTH/TECNOLOGIA-FTTH/](https://openfiber.it/tecnologie/ftth/tecnologia-ftth/)

On the contrary, FTTH technology is the only one capable of guaranteeing a transmission speed of up to 1 Gigabit per second, both in download and upload, thus allowing maximum performance, not achievable with copper (ADSL) or fiber / copper (FTTC) networks.

FIGURE 8: FTTH CONNECTION



SOURCE: [HTTPS://OPENFIBER.IT/TECNOLOGIE/FTTH/TECNOLOGIA-FTTH/](https://openfiber.it/tecnologie/ftth/tecnologia-ftth/)

The total fiber connection allow to achieve all the speed and connection needed to be in line with the European plans, that we mention above.

Those are the advantages that fiber offer:

- the fiber connections are more stable and productive because they are less subject to breaks in service and technical problems than copper, so reducing maintenance costs and guaranteeing a better quality of service for the end customers;
- assure higher performances, like “a 100-lane motorway” in which the fiber optic networks enable the information to travel at a higher speed;
- fiber optics supports the telecommunications networks of the future (Next Generation Network - NGN) making the infrastructure last longer and increasing the transmission speed more than the traditional technologies;

- is the only “future proof” solution with a transmission capacity that can reach up to 40 Gbps;
- it is energy saving, indeed a fibre access network (FTTH) would enable, for the same number of connected customers, greater energy savings compared to a copper access network, with benefits for the environment and much faster returns on the investment.
- all the benefit of the speed available with this technology will improve P.A. services, healthcare, internet of things and in general enable the existence of smart cities and an efficient smart working without connection problems.²⁹

2.2.2 Services For Tlc Operators

The services that OF guarantees to their customers are characterized by a top-notch infrastructure and great flexibility to offer the market and at the end user the best solution possible:

- Housing at the Open Fiber POPs³⁰ ad Points of interconnection: useful to allow the operators to use their own devices for the connection at the OF infrastructure to allow their customer the access to the fiber connection.

²⁹ <https://openfiber.it/en/open-fiber-world/press-kit/>

³⁰ <https://openfiber.it/glossario/p/>

- MAN (Metropolitan Area Network) connection: dedicated networks for the cities.
- Passive-PON links³¹: for the tlc operators that own their own infrastructure, for make available the FTTH with dark fiber that connect the POP to the locations of the final users.
- Point-to-point³² - passive connections: to connect in dark fiber, in point-to-point technology, the premises of end customers, whether they are companies or Public Administration, or to connect network infrastructures;
- FTTH active services: for operators who do not have their own infrastructure or prefer not to make direct investments on the access network, they provide a turnkey service by delivering the traffic of end customers in an aggregate manner both to its POPs and through its national backbone to Regional or National POPs.

Thanks to the extensive network of optical fibers, Open Fiber is able to offer its customers many advantages:

- Immediate availability of all the resources needed to allow professionals,

³¹ A passive optical network (PON) is a fiber-optic network utilizing a point-to-multipoint topology and optical splitters to deliver data from a single transmission point to multiple user endpoints. Passive, in this context, refers to the unpowered condition of the fiber and splitting/combining components.

³² A point-to-point connection is a closed network data transport service which does not traverse the public Internet and is inherently secure with no data encryption needed.

companies and the Public Administration to develop services through fiber optic networks;

- Large savings in the investments required to activate and maintain a fiber optic network;
- Guarantee of an infrastructure that is constantly maintained in perfect condition, which also includes excellent after-sales customer service.

2.2.3 Benefits of the services deployed

Thanks to fiber connections, the territories concerned are able to be more competitive in several areas, from innovation to start-ups, teleworking to telemedicine.

The spread of fiber optics will accelerate the country's digitalisation process, simplifying and improving relations between citizens and the public administration, between students, schools, and universities, increasing the productivity and competitiveness of businesses and the efficiency of government.

The deployment of fiber optic enables citizens to access advanced public administration services such as online government, SPID (digital identity), citizen service portals, administrative simplification, mobility, and e-government.

Optical fiber favours the digitalisation of the health sector with applications such as telemedicine, electronic health records, and drug allocation.

E-commerce and remote access to bank services (home banking) are also enhanced by high-speed connectivity.

Fiber facilitates the diffusion of home automation and the Internet of Things (IoT), as well as the development of leisure and recreational activities (online gaming, high-definition TV over IP, video on demand, video streaming).

As far as public institutions and the public administration are concerned, optical fiber facilitates the deployment of sustainable mobility services in municipalities, such as electronic control of access to restricted traffic zones in cities, info-parking, traffic flow management and electric vehicle recharging.

There are also many advantages for municipalities in the area of security and territorial monitoring through video surveillance and environmental remote sensing, efficient management of street lighting, and digitisation of tourist, museum, and cultural services.

The public administration also benefits from the development of ultra-broadband in commercial transactions in areas such as e-procurement and e-billing.

An important dimension deriving from high-speed connectivity is e-government, which makes it possible to overcome the country's digital divide and mitigate disparities and inequalities thanks to projects such as SPID, the Public Digital Identity System that allows access from all devices to Public Administration

online services with a single identity, the electronic ID card, and the National Register of the Resident Population (ANPR).

For the business world, there are numerous benefits and advanced services that can be enabled by fiber optics.

Just think of how it will make faster smart working and teleworking, that nowadays, after COVID-19 pandemic, will be a huge part of our life.

The dematerialisation of documents, and electronic data storage and sharing (cloud computing). "Industry 4.0" also defines ultra-broadband as an enabling infrastructure, recognising the centrality of fiber optics for the country's growth. According to studies by authoritative institutions (World Bank, McKinsey, Booz & Company), a 10% increase in broadband connectivity would correspond to an estimated growth of between 1.3 and 1.5 points in national GDP.

2.2.4 Sustainability of the services deployed

In 2020 Open Fiber drafted its first Sustainability Report for 2020³³, aiming at systematising all of the company's sustainability activities, in order to communicate its sustainability performance to the outside world.

³³ https://openfiber.it/app/uploads/2021/07/Report-Sostenibilit%C3%A0_2020.pdf

The Sustainability Report is an effective way to inform the organisation's internal and external stakeholders of its commitment to economic, social, and environmental issues and the initiatives taken.

Among the key items reported, relevant topics for stakeholders are those that can substantially influence their assessments and choices.

One of those is for sure the ESG Policy, a policy that describes how the company, in addition to pursuing the goals set out in its business plan, is committed to generating positive impacts through ESG (Environmental Social & Governance) initiatives aimed at meeting the needs of its internal and external stakeholders.

Another important topic for the stakeholders is the trial executed in collaboration with WINDTRE, after the Ministry of Economic Development's call for tenders to begin trialling 5G technology in the cities of Prato and L'Aquila.

The project has engaged other important Italian companies, research centres and technology suppliers in a shared aim to create innovative services for the 5G City in areas such as health, mobility, security, emergency prevention and management. Although it concerns two quite distinct and circumscribed areas in the towns of Prato and L'Aquila, the trial has characteristics that are replicable nationwide and across Europe.

In Prato, Open Fiber successfully conducted experiments on urban video surveillance, virtual and augmented reality applied to cultural heritage, smart industry, and smart city sensors.

The project, after 3 years, was concluded successfully in June 2020.

Open Fiber and WINDTRE are now fully prepared to play their part in any activities that might arise from the House of Technology scheme³⁴ promoted by the Ministry of Economic Development and sponsored by the municipalities of Prato and L'Aquila.

³⁴ <https://www.mise.gov.it/index.php/it/27-comunicazioni/2040058-programma-di-supporto-alle-tecnologie-emergenti-5g>

3. Open Fiber Strategy implementation

After this general framework on Open Fiber and Enel, we can start our analysis based on the strategy used by Enel and Open Fiber to establish their nowadays position on the TLC market, with a quick view on how they manage to win the tenders for the coverage of the Italian territory, overcoming all the other participants and mainly the one big incumbent on the Italian market, Telecom.

3.1. Research methodology

First, the methodology used to in the analysis must be defined.

The objective is conducting a study on the company strategy, in order to identify which kind of actions implemented and strategic choices have allowed Open Fiber to experience the victory of all the tenders for the Cluster A, B, C, D and becoming the major European player for the optic fiber deployment.

For this purpose, the majority of the information has been found within company sources: financial statements, website of OF, Enel and on the BUL strategy progress documents.

Subsequently, a financial statement analysis will be performed.

Not all aspects will be considered, since the financial statement analysis serves as complementary work, due to the lack of information on the financial statement of Open Fiber, given that the company is basically a start-up, born just 5 years ago. However, we will look into the profitability, financial solidity, liquidity of the company.

The period taken into consideration is the 5 years-period 2015-2020, for which we have availability of financial statements, with integrations taken from the Enel management documents and financial report for the investors.

After that, we will look into the progress of the construction sites and how the conclusion of the work on those sites, impact on the financial wellbeing of the company.

We already presented the context on which Open Fiber established its business, and the problem given by the incumbents on the deployment of the network.

Despite of that, Open Fiber stood up and arise as a small wholesale only network operator in a market made of giants and characterised by high investment, not so easy to manage by new entrants.

Given this framework, we can understand how it was difficult for Open Fiber at least in the past years, to expand their network and partners.

In a nutshell, our aim is understanding what is behind Open Fiber gradual establishment in telecommunication sector in terms of strategic choices and in

terms of repercussions of the same strategic choices on the companies' profitability, financial solidity, and liquidity.

3.2. Open Fiber Strategic Plan

Open Fiber aims to guarantee coverage of Italy's major cities and the connection of industrial areas, with the goal of creating a pervasive and efficient ultra-broadband network to drive the recovery of the country's competitiveness: a widespread network capable of providing increasingly advanced services and functions for citizens, businesses, and the public administration. Open Fiber does not sell fiber optic services directly to the end customer, but operates exclusively in the wholesale-only market, offering access to all market operators interested in using its network.

We already talk of all the benefit that come to the society using the wholesale only business model, one over all the other, the strengthening of the market competition, that favour the operators, and primarily the people.

This boost that the wholesale only business model gives to the market competition, gives a preferential ex-ante treatment³⁵ to Open Fiber in the tenders, giving to it an edge on the competitors in the tenders that it has been awarded of.

35

https://www.researchgate.net/publication/343189813_THE_STATE_AND_PROSPECTS_OF_REGULATION_A_LONG_TERM_PERSPECTIVE_ON_ITALY_AND_BEYOND

Once achieved the tenders, the Plan of OF was based on the intervention in the area of market success (Cluster A and B) and, also in the area of market failure (cluster C and D).

The difference between those classification is that the two cluster the infrastructure is owned by the firm, on the contrary, cluster C and D are owned by the State, trough Infratel, a private law corporation, but fully dependent and 100% owned by the Ministry of Economic Development³⁶.

The ministry of Economic Development divides those clusters in black areas and white areas:

- In the black areas (clusters A and B), where the main urban centres are located, the network will be built entirely in fiber to the customer - Fiber To The Home (FTTH) - with direct and exclusive investment by Open Fiber.
- In the white areas (clusters C and D), the network will be built using FTTH and FWA (Fixed Wireless Access) technology following the award of public tenders by Infratel - which will retain ownership of the network, entrusted in concession to OF for 20 years - for the construction, operation, and maintenance of the ultra-broadband infrastructure.

³⁶ <https://www.infratelitalia.it/chi-siamo>

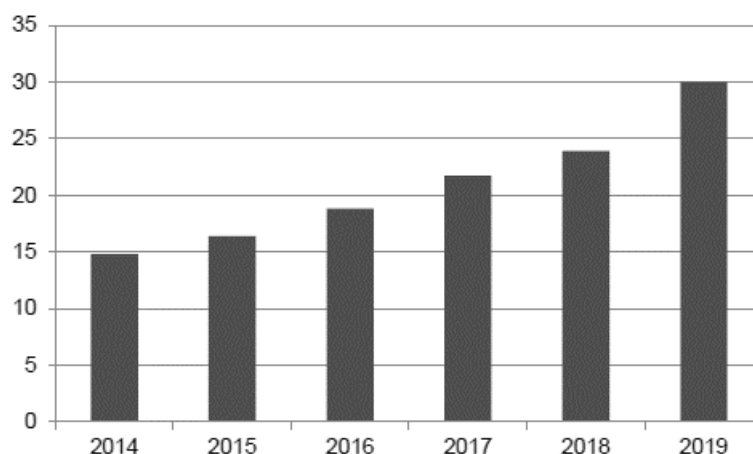
Open Fiber has signed a EUR 4.145 billion loan with a pool of some of Europe's leading commercial banks, the EIB and Cassa Depositi e Prestiti. This is the largest ongoing structured finance operation for the development of a fiber optic network in Europe.

Open Fiber's overall plan, comprising private and public investment, is worth over EUR 7 billion and involves connecting more than 19 million properties in Italy's cities (black areas), the most isolated and smallest municipalities (white areas) and industrial districts (grey areas).

Open Fiber has cabled a total of over 11 million properties, confirming its position as by far the leading FTTH (Fiber To The Home) provider in Italy, the third in Europe, after Telefonica and Orange, and the biggest wholesale-only operator on the continent.

With 3.8 million properties cabled with FTTH/B in 2020, the Italy ranks second in terms of annual growth rate after France (+4.7 million) and ahead of Germany (+1.9 million) and the United Kingdom (+1.8 million).

FIGURE 9: COVERAGE OF FTTH/B NETWORKS IN ITALY IN % OF HOUSEHOLDS



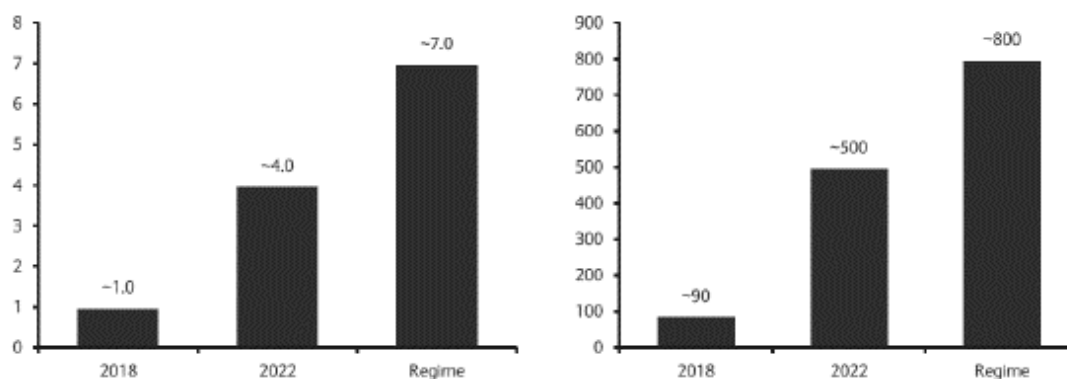
SOURCE: EU COMMISSION 2015-2020 - DIGITAL ECONOMY AND SOCIETY INDEX

Around 80% of 2019-2020 growth of Italy's position is attributable to Open Fiber. Indeed, Open Fiber has signed commercial agreements with over 100 national and international operators for the use of its ultra-broadband network³⁷, establishing a huge network of partners.

The plan that Open Fiber is implementing in all regions is a driving force for the Italian economy: currently around 10,000 people are employed on construction sites opened by OF.

In Open Fiber's business plan Clusters A and B cover 271 Italian municipalities, reaching 9,5 million of houses, with an investment of 3,7 billion, forecasting an EBITDA near the 300 million of euros in the 2021.

FIGURE 10: OPEN FIBER: EXPECTED USERS AND EBITDA PROJECTIONS



SOURCE: COMPANY PRESENTATION, BARCLAY RESEARCH

³⁷ <https://openfiber.it/en/operators/partner-operators/>

To date, marketing of OF fiber services has been opened up by partner operators in 175 cities.

Open Fiber's plan foresees private investment coverage of the 271 biggest cities in Italy.

For the clusters C and D Open Fiber has been awarded all three Infratel tenders for the design, construction, operation, and maintenance of fiber networks in those areas where operators have shown no interest in investing.

Summarizing the already mention division of the tenders:

- The first tender involves the building and operation of an ultra-broadband network in Abruzzo, Emilia Romagna, Lombardy, Molise, Tuscany, and Veneto.
- The second Infratel tender concerns municipalities in 10 regions (Piedmont, Valle D'Aosta, Liguria, Friuli-Venezia Giulia, Umbria, Marche, Lazio, Campania, Basilicata, Sicily) plus the Province of Trento.
- The third Infratel tender involves Calabria, Puglia, and Sardinia. In total, Open Fiber will reach over 6,500 towns in all 20 Italian regions, cabling around 9 million homes, businesses, and public administration offices.

3.3. Financial Statement Analysis

As already mentioned, the financial statement analysis serves as a complement to the study of the thesis, due to the lack of data given by the just 5 years of creation of Open Fiber.

The period taken into consideration is the five-years period 2015-2019, periods that ends on the 31/12 of each year.

We will consider also the 5 years balance sheet of Enel for integrated data about the periods taken into consideration, given that Enel is the one that made the initial investment on the society and nowadays, as already said, is the one that decide to take a step back from the project.

We will not use it to compare the two companies results, but to analyse it, trying to understand those decisions, looking at the indicators given by its balances.

For Open Fiber the non-consolidated balance sheet has been used (the only one available), while for Enel, the consolidated balance sheet has been used, since Enel S.p.A. includes companies that are functional to the survival and expansion of the business.

Hence, their contribute to the formation of revenues and costs that cannot be ignored.

Even if, Enel balance sheets are more completed than the Open Fiber ones, we can use it thanks to the financial ratio used by the AIDA website, where the balances have been taken.

Indeed, financial ratio downloaded from AIDA database³⁸, proposes standardized and comparable data for all the companies that it contains.

For any company, AIDA offers the detailed balance sheet, reclassified according to the scheme contained into the IV EEC directive.

Moreover, the fact that this financial analysis serves as a complement to the business model analysis, make us state that differences in accounting policies do not undermine the validity of our conclusions.

The last specification regards the components (revenues and costs) from accessory and extraordinary areas to the formation of the ordinary operating income: from our analysis of the companies' financial statements, their burden can be considered negligible; hence, from our analysis perspective, do not separating these components from the relative income and cost items does not distort again the results.

³⁸ AIDA (Analisi Informatizzata Delle Aziende), a database realized and distributed from Bureau van Dijk, containing balance sheets, personal data, financial ratios, sectorial data of all Italian limited companies. Link to the website: <https://www.bvdinfo.com/en-gb/our-products/data/national/aida>

The main fields that will be investigated within the financial ratio analysis are:

- Profitability
- Financial solidity
- Liquidity

The first area considered is the profitability one.

It will be useful in order to appreciate the profitability, the returns generated by the investments exposed in the precedent sections. The main indicators in this sense are those present in Table 1 (for Open Fiber) and Table 2 (for Enel).

First indicator analysed is the EBITDA, that measure corporate performance since it is able to show earnings before the influence of accounting and financial deductions.

EBITDA is a measure of a company's financial performance and profitability, so relatively high EBITDA is clearly better than lower EBITDA.

Companies of different sizes in different sectors and industries vary widely in their financial performance.

Therefore, the best way to determine whether a company's EBITDA is "good" is to compare its number with that of its peers—companies of similar size in the same industry and sector.

Even if they differ in size, we can evaluate Enel and OF situation not with the idea of compare the two, but with the idea of understanding the moves of Enel, trying to comprehend if the step back from the project was based on the not any more sustainable position of OF or for other reasons.

In these cases, the tables show that both have increasing trend in EBITDA, with Open Fiber reaching a positive EBITDA in 2019.

Negative Open Fiber EBITDA until 2016 is a consequence of the start-up phase, characterised by huge investments in the network expansion.

Positive EBITDA achieved in 2017, indicates that the increase in revenues associated to the expansion of the business partner and investors, given by the winning of the tenders of the BUL strategy, more than compensate the operating costs incurred for reaching this result, mainly the ones for the expansion of the network in the Italian territory.

Given that, we don't have any management document of OF for those years, but we can make a double check on the more detailed Enel balance and management documents.

Indeed, from the 2015 Enel suffer a negative EBITDA, gives of course by the huge starting investment made for the foundation of Open Fiber and, by the many

investments and cost sustained by the group in all the other worldwide operations, like investment made in India, Kenya, and Germany.

This continuous weight on the revenues and the opposition of the previous Italian government, stated in the previous chapter, may be a reason for the departure of Enel from project.

Looking deeply in the analysis of the EBITDA, with the EBITDA margin (EBITDA/Sales) help us understand the company's ability to stay on the market.

It is a financial metric used to assess a company's profitability by comparing its gross revenue with its earning.

This metric indicates the percentage of a company's earnings remaining after operating expenses.

A higher value indicates the company is able to produce earnings more efficiently by keeping costs low.

A low EBITDA-to-sales ratio suggests that a company may have problems with profitability as well as its cash flow, while a high result may indicate a solid business with stable earnings.

Open Fiber EBITDA/sales, of which we have result from the 2017, started positive, with a significant drop in 2018, that must be attributed to the opening of many construction sites, returning on a positive trend in the 2019.

Talking about the ROI (Return On Investment), this is a performance measure used to evaluate the efficiency or profitability of an investment or compare the efficiency of a number of different investments.

Open Fiber present a negative ROI for all the periods under analysis, indicator that the investments made are not guaranteeing a good return.

Since $ROI = \text{Net Operating Margin} / \text{Total Assets}$, a negative Net Operating Margin (NOM) in all years has a negative impact on the ratio.

A negative ROI during the initial phase of the business, more than anywhere on the telecommunication industry, tend to be negative because of the huge investment made for the network expansion.

Positive trend on ROI will come much later over time, and are not visible immediately, this is a peculiarity of the utilities sector.

As regards ROS (Return On Sales), is a ratio used to evaluate a company's operational efficiency.

This measure provides insight into how much profit is being produced per dollar of sales.

An increasing ROS indicates that a company is growing more efficiently, while a decreasing ROS could signal impending financial troubles

Given that the ROS is computed, according to AIDA methodology, as Net Operating Margin/Revenues, we should expect a constant negative value as happened for the ROI, for the same reason above mentioned.

On the contrary, after a negative result in 2018, a positive ROS is shown in 2019 given by the exponential growth in sales, that foresees a year-by-year improvement in ROS value.

Another interesting indicator is the ROA (Return On Assets), that explains how profitable a company is relative to its total assets.

It gives a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings.

The higher, the better, but, on the contrary, in The Open Fiber situation, ROA is on an increasing negative trend.

That could be explained by the enormous investment made in the start up phase and nowadays for the huge work in the making to build the infrastructure needed to cover the territory awarded from the tenders.

ROA does not take into account a company's debt, that differentiates it from the return on equity (ROE), that is our last profitability ratio.

ROE is a measure of financial performance calculated by dividing net income by shareholders' equity.

Because shareholders' equity is equal to a company's assets minus its debt, ROE is considered the return on net assets.

ROE is considered a measure of a corporation's profitability in relation to stockholders' equity.

Whether ROE is deemed good or bad will depend on what is normal among a stock's peers.

In our case, utilities have many assets and debt on the balance sheet compared to a relatively small amount of net income.

A normal ROE in the utility sector could be 10% or less, for Open Fiber ROE is also on a negative trend.

That negative trend could be explained by the two recapitalization of 350 million³⁹ and 450 million⁴⁰ was made finalised to compensate the disproportion between debt and equity in the liabilities side of the balance sheet.

That negative trend is of course a sign of a persisting loss for period, but, on the other hand, the fact that shareholders continue to invest in the company, as

³⁹ <https://www.key4biz.it/open-fiber-ok-della-bei-a-350-milioni-di-finanziamento-sbloccato-il-project-financing-da-35-miliardi/227707/>

⁴⁰ <https://www.key4biz.it/open-fiber-in-arrivo-aumento-di-capitale-da-450-milioni/306410/>

attested by the continuous capital injections, meaning that the credibility of the Open Fiber is safe.

Now, will look over to the financial solidity index, that again will be shown in the Table 1 and Table 2.

Jointly, also liquidity ratios will be commented.

As mentioned, Open Fiber investment have generated a financial need.

Even if the EUR 4.145 billion loan that Open Fiber has signed is the largest ongoing structured finance operation for the development of a fiber optic network in Europe, that could not be enough to cover the debt.

In order to equilibrate the use of debt and equity, the ratio Debt-to-Equity ratio help to understand the relationship between total corporate liabilities and equity, also known as shareholder capital.

For results greater than 1 the total amount of the company's debts exceeds the total amount of equity or capital in value.

For results between 0 and 1, we find that the value of the debts is less than that of the capital.

Basically, the higher the ratio indicated above, the lower the margins for lending additional money to the applicant company, as the debt is already high, or the financial strategy pursued was aggressive.

For this ratio, the result stated by Open Fiber for the year 2017 and 2018 indicates a right balance on the use of debt and equity, on the contrary, in 2019 it is visible a dependence on debt for the company.

Indeed, we already mention the 450 million capital increase obtained in the 2020, that it's linked to a new line of credit discussed with Société Générale, Bnp Paribas and UniCredit that should bring 550-650 million.

Liquidity can be investigated at this point, by looking at the liquidity ratio, current ratio, and Net Financial Position (NFP).

The current ratio is a liquidity ratio that measures a company's ability to pay short-term obligations or those due within one year.

It is a measure used to establish the ability of a company to sell its tangible assets to pay off its debt in the short term.

The current ratio is calculated by dividing the value of a company's tangible assets by the value of its liabilities.

In this case the liquidity ratio and the current ratio are basically equal, considering that the value of the inventory is near to zero.

The low value of the ratio may be explained by an excessive reliance on cash and cash equivalent, and on the cashflow created by operating activities.

This fact on a side demonstrates Open Fiber ability to generate cash flows able to cover investments, but on the other side erodes cash and cash equivalents, making them insufficient to cover current liabilities.

The Net Financial Position, allow to determinate the overall level of debt of the company, in the short and long period.

It measures the amount of debt for which there is no immediate coverage through liquidity: "uncovered" debts for which funding has probably been requested.

Is visible that after the first start-up phase, Open Fiber recorded a positive NFP, that means that although the debt and the long awaiting for the return of the investment, the company still have cash to repay it.

That is again a proof of the trust that the investors and shareholder have in Open Fiber.

TABLE 1: OPEN FIBER'S BALANCE SHEETS

Open Fiber					
<i>Indicators</i>	31/12/2015	31/12/2016	31/12/2017	31/12/2018	31/12/2019
thou. EUR					
<i>Profitability</i>					
EBITDA	- 6,00	- 9.536,00	14.593,00	- 15.812,00	33.130,00
EBITDA/Sales	n.d.	n.s.	16,33	- 13,89	17,80
ROI	- 0,12	- 1,42	- 3,96	- 6,82	- 3,81
ROS	n.d.	n.s.	16,33	- 13,85	17,80
ROA	- 0,12	- 1,00	- 2,85	- 3,99	- 2,63
ROE	- 0,09	- 1,11	- 5,59	- 12,17	- 15,21
<i>Financial Solidity</i>					
Debt/Equity ratio	-	-	0,65	0,76	2,14
Net Financial Position	- 5.000,00	- 38.935,56	402.880,00	585.584,00	1.606.806,00
<i>Liquidity</i>					
Current ratio	n.s.	0,81	0,23	0,67	0,64
Liquidity Ratio	n.s.	0,76	0,20	0,54	0,31
<i>Other Values</i>					
Total assets	5.008,00	1.013.073,00	1.546.136,00	2.407.678,00	3.492.586,00
Total liabilities	13,00	301.296,00	742.630,00	1.410.950,00	2.412.600,00
Equity	4.996,00	711.490,00	672.362,00	799.867,00	769.186,00

SOURCE: OUR ELABORATIONS ON AIDA DATASET

TABLE 2: ENEL'S BALANCE SHEETS

ENEL					
Indicators	31/12/2015	31/12/2016	31/12/2017	31/12/2018	31/12/2019
	thou. EUR				
Profitability					
EBITDA	- 155.044,00	- 129.031,00	- 226.140,00	- 223.017,00	- 147.871,00
EBITDA/Sales	- 63,25	- 62,48	- 170,66	- 423,63	- 129,60
ROI	- 0,35	- 0,35	- 0,58	- 0,62	- 0,44
ROS	n.s	n.s	n.s	n.s	n.s
ROA	- 0,31	- 0,27	- 0,46	- 0,47	- 0,30
ROE	4,06	6,39	8,33	12,37	16,20
Financial Solidity					
Debt/Equity ratio	0,21	0,05	0,07	0,06	0,04
Net Financial Position	- 610.849,00	- 1.710.863,00	- 512.725,00	- 428.741,00	- 2.831.755,00
Liquidity					
Current ratio	1,11	1,06	0,70	0,60	0,73
Liquidity Ratio	1,11	1,06	0,70	0,60	0,73
Other Values					
Total assets	53.174.335,00	54.404.665,00	52.675.719,00	51.704.615,00	57.934.953,00
Total liabilities	53.174.335,00	54.404.665,00	52.675.719,00	51.704.615,00	57.934.953,00
Equity	24.879.544,00	26.915.547,00	27.235.805,00	27.943.184,00	29.585.518,00

SOURCE: OUR ELABORATIONS ON AIDA DATASET

3.4 BUL strategy Analysis

Seen as financially Open Fiber has manage to conquer the Fiber market in Italy and master the wholesale only business model over all Europe, now it's time to look into the actual work behind the BUL strategy implementation and how well Open Fiber is doing in implementation of the plan, marked by the tenders won.

As written above, investors place a lot of confidence in the project, demonstrated by the large investments they make to cover the large expenses caused by the construction of the infrastructure for all of Italy.

This expense could be worthy if the strategy implementation is as good as the Open Fiber idea of business is.

With some ratio built by our elaboration and the BUL progress data, available on the website of Infratel41, it's clear how the implementation has some ups and down that could lead to a loss of money for the company and, an even worst, loss of trust by the investor, meaning no more investment and allocation of money in the pocket of Open Fiber.

The ratios are built, like we said, from the data of the BUL strategy that cover the design phase, the executive phase and the activation and completion phases.

⁴¹ <https://www.infratelitalia.it/archivio-news>

The data collected will focus on the FTTH infrastructure as it is the one delivered by Open Fiber, but it will also contain elaboration of the FWA infrastructure, in order to have a complete vision of the progress of the BUL strategy.

The process that brings the site to the completion has to start from the design phase.

In the final design stage, that we will discover in the table 1, as TFD (Timeliness Final Design) and ARFD (Approval Rate Final Design), Open Fiber looks into any possible infrastructure available through the SINFI cadastre, understanding where to ask the necessary rights of digging and passage.

Once completed, Infratel has the right to check if the solutions are compliant to the contract and then let the permission to move the process to the next stage.

The next step is called the Execution phase, TED (Timeliness Executive Design) and ARED (Approval RATE Executive Design) are the indicators that we will find in Table 1 that refers to this stage.

In this phase, the principal step is asking the permit to the public administration, this could take some time, due to the delays that the bureaucracy in the public administration could bring.

Once the permits have been obtained, the Infratel checks the compliance to the project and then give permission to activate the site.

The activation and completion phases are studied by the indicators SAR (Site Activation Rate) and SCR (Site Completion Rate) and could be useful to analyse the production problems due to input bottlenecks or shortage of skilled works.

The particularities of those ratio presented are that they are concatenated and selective.

Concatenated because all of them measure a distinct part of the reality of the project, but every one of them could be read as interconnected to one another.⁴²

Selective, because they aim both to the public actors and private actors, indeed the TED and ARED, are principally depended on the public actors, meanwhile the TFD, ARFD and the SAR and SCR depends on private actors.

We will look to those indicators in 4 different period to have a full year coverage of the evolution of the BUL strategy works.

The periods taken into consideration are April 2020, October 2020, April 2021, and July 2021.

⁴² Matteucci, N. (2020), "Building administrative capacity for the Gigabit Society. The Italian NGA strategy for peripheral areas". Working paper DiSES

TABLE 3: REGIONAL INDICATORS OF POLICY CAPACITY - 2015 STRATEGY FOR NGA INFRASTRUCTURE IN WHITE AREAS (APRIL 2020)

Regions grouped by CFT	TFD	TFD - Mm.	ARFD	ARFD - Mm.	TED	TED - Mm.	ARED	ARED - Mm.	SAR	SAR - Mm.	SCR	SCR - Mm.
ICFT												
Abruzzo	88,7	98,3	94,3	98,2	57,5	73,6	99,5	100,0	90,7	97,7	41,2	36,8
Emilia-Romagna	73,0	94,5	99,1	99,1	51,0	76,3	99,6	100,0	87,8	78,9	21,7	19,0
Lombardy	78,5	88,2	96,5	96,1	32,3	34,4	99,2	99,2	65,3	68,7	32,8	26,5
Molise	81,0	97,7	97,9	98,4	39,1	62,3	100,0	100,0	91,3	91,4	23,8	21,6
Tuscany	79,4	91,7	94,2	97,9	42,5	51,5	95,5	99,1	92,6	97,1	29,9	27,5
Veneto	76,6	98,6	98,8	99,3	44,5	58,3	97,7	98,1	65,4	72,0	35,2	31,7
ICFT AVERAGE	79,5	94,8	96,8	98,2	44,5	59,4	98,6	99,4	82,2	84,3	30,8	27,2
II CFT												
Aosta Valley	86,8	100,0	100,0	100,0	44,3	52,9	93,6	91,7	72,7	66,7	43,8	36,4
Basilicata	85,5	100,0	98,6	99,0	64,8	82,4	100,0	100,0	93,5	96,4	39,0	34,6
Campania	82,6	85,6	98,2	99,7	42,9	41,7	100,0	100,0	92,3	96,1	29,7	25,4
Friuli-Venezia Giulia	81,7	98,9	98,0	100,0	54,3	59,9	98,8	98,2	90,4	92,5	29,8	33,3
Lazio	88,1	98,4	99,1	100,0	45,2	57,0	99,1	100,0	93,5	99,4	32,0	25,7
Liguria	79,6	96,5	97,8	97,9	36,6	46,3	97,1	97,8	94,1	94,5	6,3	5,8
Marche	81,7	98,6	99,7	99,5	56,5	75,6	99,0	99,4	80,7	89,6	7,5	6,2
Piedmont	86,8	95,0	96,1	95,8	33,5	33,8	98,8	99,7	82,5	89,0	22,2	22,5
Sicily	80,3	86,3	95,5	100,0	58,2	65,7	99,0	100,0	93,9	95,0	50,5	46,1
Trentino-South Tyrol*	84,5	99,5	93,6	92,5	29,4	29,6	81,7	74,6	80,3	85,1	39,3	27,5
Umbria	83,4	97,4	99,3	100,0	71,0	96,1	100,0	100,0	93,0	100,0	23,4	18,9
II CFT AVERAGE	83,7	96,0	97,8	98,6	48,8	58,3	97,0	96,5	87,9	91,3	29,4	25,4
III CFT												
Apulia	58,8	58,8	70,9	70,9	1,3	1,3	0,0	0,0	0,0	0,0	0,0	0,0
Calabria	40,7	40,7	97,2	97,2	0,8	0,8	0,0	0,0	0,0	0,0	0,0	0,0
Sardinia	46,5	46,7	89,2	89,2	2,0	2,0	25,0	25,0	0,0	0,0	0,0	0,0
III CFT AVERAGE	48,7	48,7	85,8	85,8	1,4	1,4	8,3	8,3	0,0	0,0	0,0	0,0
STRATEGY	70,6	79,9	93,5	94,2	31,6	39,7	68,0	68,1	56,7	58,5	20,1	17,5

SOURCE: OUR ELABORATION ON INFRATEL DATASET AND ON UN-PUBLISHED COBUL DOCUMENTS

Starting from April 2020, we will then compare the ratio results contained in Table 1,2,3 and 4 to see if there are improvement or worsening of the situation in the various region divided by tender's order.

In April 2020 the TFD and ARFD ratios, show two main peculiarities, the regions of the first tender show low percentage of progress despite of the region in the second tender, even though the region in the first tender start working 5 months before the on in the second.

Indeed, in particular the TFD is pretty different between the tenders, showing a 79.5% average for tender 1, against an 83.7% average in tender 2.

This could mean that learning that takes time to master the design phase, and the many errors committed cause longer timing of finalization.

On the contrary the ARFD ration, seems to be very close between the first two tenders.

Even the regions in the third tenders, really behind in the development of the design phase, have a pretty solid percentage in ARFD ration.

Once finalized the design phase, we take into consideration the results of TED and ARED that give us the how long are the working, (pretty much bureaucracy) before the permit issue time.

Looking closely at the regions, despite of the tenders, we can see that the worst performing are the northern Italy regions.

The lowest point is reached by the Trentino-South Tyrol, but Lombardy and Piedmont and Liguria are following at a short range.

On the contrary, Umbria, Sicily and Basilicata are three examples of good performing regions.

Looking at the total average, we can see how the worst performance of Lombardy in the first tender and Trentino -South Tyrol and Piedmont in the second tender, make a great impact on the overall result of the other regions that had solid result, one above all, Umbria with the 71% of TED and 100% of ARED.

Let's take outside of our evaluation, for the moment, the third tender that demonstrate to be far behind the execution and final site construction state.

About the SAR and SCR, they measure two facets of private administrative capacity in building works: timeliness of site activation and completion.

We can see, that following the TED and ARED results, also SAR show that the first tender regions are still behind in percentage respect to the second tender regions, even if they start working 5 months before the others.

They still however have a pretty solid percentage of the Site activation rates, on the contrary, the SCR are on both the tenders very low.

As before, the worst performing region are the ones of the norths, with Lombardy and Piedmont above the others, due to the large concentration of underperformance sites in those regions, that could be seen also in smaller region of Italy, like Marche and Liguria.

Based on this, we can affirm that exist a clear pattern that show how the construction progress deteriorates when the size of the territory increases and when the complexity of the environments of the territory increases.

Also in this situation, the best performer, in the SCR, seems to be the regions of the south of Italy.

On the contrary, the worst performing were, the already said, Lombardy, Piedmont, Marche, Liguria, Umbria, and Emilia Romagna.

TABLE 4: REGIONAL INDICATORS OF POLICY CAPACITY - 2015 STRATEGY FOR NGA INFRASTRUCTURE IN WHITE AREAS (OCTOBER 2020)

Regions grouped by CFT	TFD	TFD - Mun.	AREFD	ARFD - Mun.	TED	TED - Mun.	ARED	ARED - Mun.	SAR	SAR - Mun.	SCR	SCR - Mun.
I CFT												
Abruzzo	93,4	100,0	98,1	98,9	57,1	74,1	99,5	99,2	97,4	98,4	56,5	50,8
Emilia-Romagna	79,9	100,0	92,8	94,6	55,5	79,8	97,3	97,4	87,5	87,2	34,5	28,0
Lombardy	90,1	100,0	87,6	88,4	35,2	36,4	99,8	99,8	71,5	73,3	49,4	42,0
Molise	85,8	100,0	95,6	99,2	43,1	64,4	100,0	100,0	88,3	87,1	39,6	35,1
Tuscany	87,3	100,0	91,5	91,9	46,4	53,3	99,4	100,0	95,9	98,2	39,6	38,3
Veneto	81,9	100,0	97,4	99,8	51,6	63,4	98,3	97,9	73,8	70,5	47,8	45,5
I CFT AVERAGE	86,4	100,0	93,8	95,5	48,2	61,9	99,1	99,1	85,7	85,8	44,6	40,0
II CFT												
Aosta Valley	87,3	100,0	99,0	100,0	50,0	54,4	100,0	100,0	81,8	86,5	51,1	43,8
Basilicata	89,9	100,0	94,1	100,0	66,9	86,4	100,0	100,0	95,6	95,5	52,8	44,7
Campania	93,3	100,0	88,5	87,8	43,1	41,6	99,6	99,5	97,7	98,4	43,6	39,3
Friuli-Venezia Giulia	88,8	100,0	97,9	98,9	59,1	61,5	98,9	99,1	88,2	95,5	58,2	50,9
Lazio	92,7	100,0	97,2	98,8	42,4	54,1	100,0	100,0	99,1	99,4	48,0	42,9
Liguria	86,2	100,0	94,4	98,0	37,6	47,8	100,0	100,0	98,2	100,0	11,2	8,3
Marche	87,6	100,0	95,6	98,6	63,3	84,2	98,3	97,8	81,8	84,6	29,9	22,1
Piedmont	91,9	100,0	96,6	96,6	37,4	36,7	98,9	98,8	91,3	92,8	37,5	39,2
Sicily	92,1	100,0	86,0	86,8	61,2	63,8	99,7	100,0	99,7	100,0	64,5	60,4
Trentino-South Tyrol*	92,2	99,5	92,2	95,8	46,7	42,5	97,4	95,6	63,2	66,7	54,2	41,4
Umbria	87,1	100,0	96,5	98,7	73,0	94,9	100,0	100,0	97,5	100,0	39,7	32,4
II CFT AVERAGE	89,9	100,0	94,3	96,4	52,8	60,7	99,4	99,2	90,4	92,7	44,6	38,7
III CFT												
Apulia	100,0	100,0	71,3	71,3	7,2	7,2	31,3	31,3	100,0	100,0	20,0	20,0
Calabria	100,0	100,0	66,8	66,8	7,6	7,6	61,1	61,1	100,0	100,0	18,2	18,2
Sardinia	99,3	100,0	94,8	94,8	6,6	6,7	77,8	77,8	33,3	33,3	0,0	0,0
III CFT AVERAGE	99,8	100,0	77,6	77,6	7,1	7,1	56,7	56,7	77,8	77,8	12,7	12,7
STRATEGY AVERAGE	92,0	100,0	88,6	89,8	36,0	43,3	85,0	85,0	84,6	85,4	34,0	30,5

Moving on to the next period under analysis, we can see how the TFD is improved along the tenders, with a huge increase for the region of the third tenders that now seem to have mostly completed the design process.

A slightly difference still remain between the first and second tender, that still demonstrate how difficult is to deal with the design phase, as we mention above.

The other ratios are all in an increasing overall trend, demonstrating that the works on the BUL strategy are going further, but still with low percentage when talking about the SCR ratio, that could be trouble for Open Fiber, that of course, cannot offer its services to the operators, without finishing the work on the sites.

The longer the waiting on the completion of the sites, the higher the operating cost for Open Fiber.

TABLE 5: REGIONAL INDICATORS OF POLICY CAPACITY - 2015 STRATEGY FOR NGA INFRASTRUCTURE IN WHITE AREAS (APRIL 2021)

Regions grouped by CFT	TFD	TFD - Mun.	ARFD	ARFD - Mun.	TED	TED - Mun.	ARED	ARED - Mun.	SAR	SAR - Mun.	SCR	SCR - Mun.
I CFT												
Abruzzo	98,5	100,0	97,2	98,9	62,8	78,2	99,0	99,3	96,0	97,8	66,3	61,4
Emilia-Romagna	96,1	100,0	89,0	95,0	63,5	82,2	99,3	99,5	95,6	96,0	39,2	31,6
Lombardy	95,0	100,0	88,7	91,4	43,5	44,5	94,9	94,5	92,7	94,0	51,1	47,0
Molise	98,6	100,0	96,6	100,0	51,2	65,9	99,1	98,9	100,0	100,0	54,2	47,7
Tuscany	98,5	100,0	91,8	91,9	60,6	63,8	97,0	97,0	99,0	100,0	47,9	43,3
Veneto	92,2	100,0	96,5	99,8	62,1	69,8	98,9	99,4	93,2	98,1	47,4	39,9
I CFT AVERAGE	96,5	100,0	93,3	96,2	57,3	67,4	98,0	98,1	96,1	97,6	51,0	45,1
II CFT												
Aosta Valley	98,0	100,0	100,0	100,0	57,1	55,9	100,0	100,0	91,1	97,4	52,9	45,9
Basilicata	96,1	100,0	90,1	99,0	67,4	88,3	100,0	100,0	99,2	100,0	58,0	54,9
Campania	97,4	100,0	86,3	87,8	47,4	46,3	100,0	100,0	99,3	100,0	61,4	59,6
Friuli-Venezia Giulia	91,7	100,0	97,3	98,9	68,5	71,4	100,0	100,0	96,4	99,2	70,6	65,1
Lazio	99,6	100,0	95,7	98,8	45,5	55,0	99,6	99,4	100,0	100,0	60,3	56,1
Liguria	100,0	100,0	96,4	99,0	48,8	51,2	96,7	96,1	95,7	99,0	25,0	23,5
Marche	98,6	100,0	97,1	98,6	72,9	89,6	99,2	99,0	91,2	92,9	38,0	33,5
Piedmont	99,3	100,0	96,2	97,0	45,4	41,7	96,8	96,3	95,3	96,7	56,2	54,0
Sicily	99,0	100,0	86,8	86,8	66,9	66,4	99,7	99,5	99,7	100,0	79,8	77,6
Trentino-South Tyrol*	96,9	99,5	95,8	96,7	62,5	57,0	92,6	90,2	96,7	96,2	41,7	32,7
Umbria	99,3	100,0	97,3	98,7	82,7	94,9	100,0	100,0	97,6	100,0	62,0	52,7
II CFT AVERAGE	97,8	100,0	94,5	96,5	60,5	65,3	98,6	98,2	96,6	98,3	55,1	50,5
III CFT												
Apulia	100,0	100,0	83,0	83,0	22,0	22,0	81,6	81,6	97,5	97,5	51,3	51,3
Calabria	100,0	100,0	69,0	68,9	19,2	18,9	91,3	91,1	88,1	90,2	70,3	70,3
Sardinia	100,0	100,0	95,6	95,6	28,9	28,9	64,1	64,1	64,0	64,0	68,8	68,8
III CFT AVERAGE	100,0	100,0	82,5	82,5	23,4	23,3	79,0	78,9	83,2	83,9	63,4	63,4
STRATEGY AVERAGE	98,1	100,0	90,1	91,7	47,0	52,0	91,9	91,8	91,9	93,3	56,5	53,0

SOURCE: OUR ELABORATION ON INFRATEL DATASET AND ON UN-PUBLISHED COBUL DOCUMENTS

TABLE 6: REGIONAL INDICATORS OF POLICY CAPACITY - 2015 STRATEGY FOR NGA INFRASTRUCTURE IN WHITE AREAS (JULY 2021)

Regions grouped by CFT	TFD	TFD - Mun.	ARFD	ARFD - Mun.	TED	TED - Mun.	ARED	ARED - Mun.	SAR	SAR - Mun.	SCR	SCR - Mun.
I CFT												
Abruzzo	95,9	100,0	94,5	98,9	60,3	79,9	100,0	100,0	97,1	98,6	67,2	63,5
Emilia-Romagna	95,9	100,0	90,4	95,9	64,6	84,3	99,0	98,5	96,5	97,5	41,6	34,2
Lombardy	93,6	100,0	90,0	92,2	44,0	45,7	98,1	98,5	94,4	95,3	54,8	51,9
Molise	94,2	100,0	96,7	100,0	50,0	65,2	100,0	100,0	97,3	100,0	56,9	52,3
Tuscany	97,4	100,0	90,5	91,9	59,2	62,9	98,0	99,2	98,0	99,2	51,0	47,2
Veneto	88,7	100,0	96,3	99,8	62,0	72,2	99,6	99,7	90,5	96,0	51,1	43,5
I CFT AVERAGE	94,3	100,0	93,1	96,4	56,7	68,3	99,1	99,3	95,6	97,8	53,8	48,8
II CFT												
Aosta Valley	91,7	100,0	97,0	100,0	51,9	55,9	100,0	100,0	92,9	100,0	55,8	50,0
Basilicata	96,6	100,0	94,7	100,0	69,7	89,3	99,2	98,9	97,5	100,0	62,7	60,4
Campania	98,0	100,0	88,1	87,8	47,3	47,9	98,7	98,6	99,3	99,1	65,9	62,9
Friuli-Venezia	92,4	100,0	97,7	98,9	71,9	75,8	95,7	94,2	99,6	100,0	74,6	69,2
Lazio	95,9	100,0	94,4	98,8	44,2	55,9	99,6	99,5	99,6	100,0	62,6	59,6
Liguria	94,3	100,0	96,8	99,5	48,7	54,7	93,0	91,8	95,0	98,0	31,9	29,3
Marche	94,1	100,0	97,1	98,6	71,2	90,0	100,0	100,0	89,8	91,0	44,7	39,8
Piedmont	97,2	100,0	94,9	97,0	46,8	44,7	96,9	96,8	93,9	94,0	63,8	59,2
Sicily	99,0	100,0	87,6	87,1	67,8	67,9	100,0	100,0	98,6	99,5	81,6	80,9
Trentino-South	97,5	99,5	95,3	96,7	66,0	58,9	94,4	94,4	93,1	94,1	45,0	35,7
Umbria	98,0	100,0	97,3	98,7	81,7	94,9	100,0	100,0	98,4	100,0	64,2	55,4
II CFT AVERAGE	95,9	100,0	94,6	96,7	60,6	66,9	98,0	97,7	96,1	97,8	59,3	54,8
III CFT												
Apulia	100,0	100,0	84,4	84,3	24,1	24,2	100,0	100,0	92,6	92,6	64,0	64,0
Calabria	100,0	100,0	77,0	76,9	22,2	21,8	98,1	98,1	100,0	100,0	76,9	78,4
Sardinia	100,0	100,0	96,3	96,3	30,4	30,4	97,6	97,6	92,1	92,1	54,3	54,3
III CFT	100,0	100,0	85,9	85,8	25,6	25,5	98,6	98,5	94,9	94,9	65,1	65,6
STRATEGY	96,7	100,0	91,2	93,0	47,6	53,6	98,5	98,5	95,6	96,8	59,4	56,4

SOURCE: OUR ELABORATION ON INFRATEL DATASET AND ON UN-PUBLISHED COBUL DOCUMENTS

We can find the same increasing situation the two 2021 periods, demonstrating that the works are going on an increasing trend as stated in the SCR ratio, that say that all the regions in the three tenders are above the 50% completion of the site work.

Even though 50% is still a lower value of completion, given the high activation rate ratio, that is oxygen in the balance sheet of Open Fiber, that actually sell the service and register profit, reducing the debts.

Revenues bring trust in the process and trust in the process means support from investors and stakeholder, for Open Fiber.

3.5 Main Results

In this section we will outline the results emerged from the analysis of the strategy, the financial statement of Open Fiber and the BUL strategy progress on FTTH that basically refers only to Open Fiber.

It's easy to understand that thanks to the business model used by Open Fiber and, because of the favourable evaluation that the market give to that, assure to the company an ex-ante treatment in the evaluation of the tenders, that allow OF to win those tenders and cover with its infrastructure the various clusters.

The top-notch technology and the quality of the FTTH make Open Fiber one the main character in the transaction of Italy into the gigabit society and to achieve the objective prefixed in the Italian digital strategy.

It is by far the main FTTH provider in Italy and has a prominent role in wholesale only initiatives in Europe, thanks to its effort in the coverage of the territory with its infrastructure Italy ranked second in terms of annual growth rate in properties cabled with FTTH/B.

The financial statement analysis of the company helps us understand how large the expenses are for companies, like Open Fiber, that try to enter the infrastructure and utilities market.

Indeed, the return on the investment (ROI) is still negative and will be, especially in this sector, for many years.

All the other indicators analysed help us to have a vision of how huge those expenditure is, indeed, Open Fiber still have negative ROA, ROE and have to depend on a constant debt for the company.

This is of course a negative thing for the long-term well-being of the company, even though, we must say that the belief that the investor and the direction in which the market is going is in favour of Open Fiber.

Indeed, EBITDA and the EBITDA/Sales are both on a positive trend, demonstrating the belief of the investor in the process, and that the sales effectively made, help Open Fiber to balance the weight of the debts, this could be supported also by the positive ROS index.

Net Financial Position values also helps us to support those affirmation, even if the company relates to much on cash and cash equivalents, making difficult to cover current liabilities, as shown by the current ratio index.

NFP is on a positive trend, demonstrate that the trust of the investors in the company is still high and the cash supplied is still enough to balance the debt.

It's important to underline, that this is good in the short time, but in the long run, it will be good that OF will manage to achieve a balance on the overall equity to strengthen the position of the company in the market.

Those financial data are all supported by the BUL strategy working status, that, as suggested before, indicate the FTTH coverage, that refers totally on Open Fiber.

As seen in the previous section, the concatenated ratios help to understand the develops of the work, that are referred to the various phase of the project, design, executive and site activation, and completion.

Open Fiber still manage to arrange an increasing trend in SCR ration, with a promising 59%, but that is still low, given that the SAR ratio is at a 90% average, that means that the completion of the sites takes time, and this is transported also into the waiting in the revenues to come into the pocket of Open Fiber.

Another point to underline, that could also explain the retard in the SCR, could be the TED values, that remains on a 50% average, way lower of the design phase ratio, that's mean that asking the permit to the public administration takes too much time in Italy and that is definitely a problem for the final earning of Open Fiber.

Conclusion

In terms of business model, we already said that the decision of embrace the wholesale only model for Open Fiber was the best possible option, both in term of timing and benefit for the company.

Of course, because it is good for the market competition, but also for the treatment given to it on the tenders, that allowed Open Fiber to achieve the highest score on the tenders' evaluation and consequentially to win the auctions and get the public subsidies to build the infrastructure across all Italian white areas.

The well-regarded business model, and the coverage of a huge and trusted company as Enel at the beginning, secured to Open Fiber a good positioning in the market and the trust of the investors and stakeholders, guarantying to the company the money coverage needed to such titanic undertaking that is the BUL strategy coverage.

In the financial situation analysed the position of the company is not one of the best, considering the negative trend of ROI, ROA and ROE.

However, it's still true that in this sector investment has a long pay-back period and the company, based on the situation present nowadays in Italy, is one of the

best options for the country to cover the gap existing in the digital infrastructures and to achieve the benefits of the 5G.

However, in a project that is already way behind its scheduled planning, it can't be good, that the executive phase (TED), it is so far away to reach the percentage of the design phase (TFD).

The concatenated ratio elaborated in this paper, help us emphasises those aspects, if the TED percentage is on average 50% that's mean that the delivered project are very low respect to the foreseen projects.

That slowness on the execution phase, will case lateness on the site activation and completion rates, because, if the project don't pass the execution phase, the practical working phase will not start at all.

We can take the positive trend on the SCR as a good sign for Open Fiber, but that could be even higher if the company will manage to solve the bottleneck of the execution phase.

Open Fiber can share the responsibility on the slowness of the TED phase with the Italian public administration in charge of the approval of the execution phase.

For a company that struggle to balance profits and debts, working on the efficiency of those planning phase, will help to fasten the process and enhance the

SCR, that will mean actual profit for Open Fiber and together enhance the trust of the investors.

The trust of the investor is key in order to overcome the operational expenditure that Open Fiber has to cover to manage the open sites works.

Thanks to the credibility and the sustainability of the project, Open Fiber received more than 10 billion through capital inflows and long-term loans, that help it to sustain the high debts that the company have to assume to finance the BUL strategy works.

Those cash inflow helps Open Fiber in the financial situation, as stated by the positive trends on EBITDA, EBITDA/Sales and NFP ratios.

Investment and revenues are secured when the population receives the services.

The obtained coverage of 175 cities, 271 Italian municipalities, reaching 9,5 million of houses, is a great achievement and fresh air for the country, but is still low on average, since it is equal to only 59% in the national SCR, as we said before.

The project is overdue, we must remember that it started 6 years ago and the families that still without internet or broadband as today are 16 million, we must speed up the process in order to reduce the gap existence within Italy and the rest of Europe.

In conclusion, looking into the Italian broadband market, we can still affirm that Open Fiber and its business model, so appreciated by the market, comes at the right time, in a fragmented Italy that even now, is still looking to the full fiber coverage.

COVID-19 highlights the need of speeding up this process, due to the needs of smart working and online teaching.

Like we said before, Italy is struggling and needs to speed up the coverage of country in order to compete with the global run to achieve the gigabit society.

FTTH and also FWA solutions have a huge part in helping Italy to overcome this disadvantageous situation.

FWA could be the right strategy for the areas of the territory that for their morphology are difficult to cover. FTTH, like we saw in the BUL strategy analysis, is on his way to cover a big chunk of the country, even with the problem highlighted before.

Open Fiber and the wholesale only business model are nowadays one of the best solutions to fill the gap in network infrastructure of our country, an example to follow for the other wholesale only companies all over Europe, and a strong competitor against the incumbents that are still attached to the old business models.

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