Fibre to the Home Council Middle East & North Africa

Enhancing Life

THE TRENDS IN FINANCING FTTH

A Report by Regulatory & Policy Committee
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EXECUTIVE SUMMARY

This paper is produced by FTTH Council MENA within the series of research papers conducted by the Regulatory and Policy committee to strengthen its cooperation with policy makers, governments and regulators in the region.

To positively influence the relevant policy and decision makers the R&P committee prepared this paper to highlight the potential for infrastructure finance to fund investment in Fibre of the Home which includes an assessment of a different approach to funding fibre FTTH deployments including NBNs.

This report includes information, updates and generic recommendations that reflect the views and experience of the expert consultants.

Assessing the Potential of the Infrastructure Finance Technique

There is now growing interest in investing in fibre from a different type of fund – infrastructure funds. Such investors invest in a project rather than a company and seek long-term positions (20-30 years) in infrastructures that are inherently inflation proof.

Infrastructure investors have trillions of dollars invested in airports, roads and, of course, there is a whole sector specialised in real estate. Packaging FTTH projects as infrastructure investments would tap into huge pools of money available to invest over a long time horizon. Long-term investment is key because the ability to amortise the high capital investment in fibre over many years makes viable projects that could not be funded by conventional corporate finance. In simple terms, it is analogous to the difference between buying a house for cash or by using a mortgage. Clearly the mortgage allows a much greater and earlier investment.

This paper explains the differences between corporate and infrastructure finance in basic terms and will discuss how Governments / operators could design projects to attract such funding. PPPs (public private partnerships) is briefly described which rely on such patient private capital.

Findings of funding fibre: Corporate verses Infrastructure Models are detailed in the following chapters:

- CORPORATE FINANCE
- INFRASTRUCTURE FINANCE
- ABOUT INFRASTRUCTURE FINANCE
- DEALING WITH MARKET RISK
- PUBLIC PRIVATE PARTNERSHIPS (PPPS)
- GENERIC VALUE DRIVERS AND RISKS IN AN FTTH PROJECT
- PRACTICAL STRUCTURES FOR FIBRE PROJECTS
- CONCLUDING REMARKS

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1 INTRODUCTION

Historically, most FTTH deployments have been financed by operators using corporate finance techniques (i.e. a mix of shareholder equity and debt in the form of bank loans and corporate bonds). There is now growing interest in investing in fibre from a different type of fund – infrastructure funds. Such investors invest in a project rather than a company and seek long-term positions (20-30 years) in infrastructures that are inherently inflation proof.

Infrastructure investors have trillions of dollars invested in airports, roads and, of course, there is a whole sector specialised in real estate. Packaging FTTH projects as infrastructure investments would tap into huge pools of money available to invest over a long time horizon. Long-term investment is key because the ability to amortise the high capital investment in fibre over many years makes viable projects that could not be funded by conventional corporate finance. In simple terms, it is analogous to the difference between buying a house for cash or by using a mortgage. Clearly the mortgage allows a much greater and earlier investment.

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2 FUNDING FIBRE: CORPORATE VERSES INFRASTRUCTURE MODELS

2.1 Corporate Finance

Corporate finance is the term used for normal business finance using a mix of equity and debt. Investment periods are usually relatively short (a few years) particularly for bank loans. Investors look for high rates or return over short to medium term periods.

2.2 Infrastructure Finance

Infrastructure project finance uses money raised from pension funds and similar which value stable and predictable inflation proofed returns over a long period. Lenders to such project do not have any recourse beyond the project itself which means projects tightly controlled within a specific remit. Returns are lower than for corporate equity, but the stability of returns is of much greater importance and must be more secure over the long term.

In this paper I use the term *infrastructure finance* to mean the approach also known as *project finance* applied here to passive layer fibre assets. Over recent years, project finance has emerged as the preferred financial solution for infrastructure involving public entities. Project finance has been an increasingly popular technique to attract private capital, most notably investment in projects characterised that are specific to one situation, are immovable (i.e. not re-deployable) and are highly capital intensive.

The spectrum of equity risk appetite (returns) compared to investment horizons is illustrated in this chart.

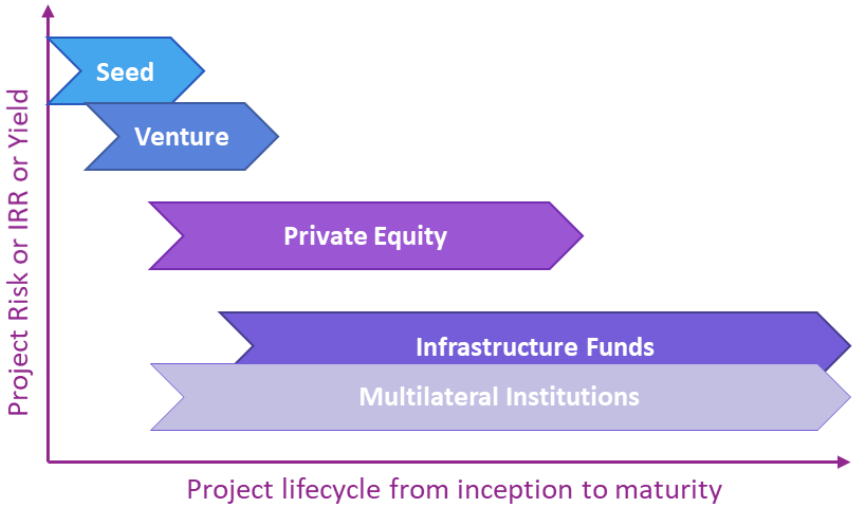


Figure 1 Spectrum of Target Equity Returns

We can see in this chart that infrastructure funds take less risk and so require a lower rate of return than typical early stage equity. The investment horizon is also much longer being 25 years compared to 5 years or less. The quid pro quo is that the investment is protected by strict and often demanding contractual obligations laying off risk to those best able to take it.

Infrastructure projects have higher levels of leverage than typical non-infrastructure investments. This is enabled by their inherently less volatile cash flows and the willingness of sponsors of infrastructure projects to accept higher levels of debt. Debt instruments have historically comprised 70-80% of the total capitalisation of general infrastructure projects. We see proposals in fibre projects at the lower end of this range. The typical ranges are Debt 60%-80%; Mezzanine 0%-20%; Equity 10%-30% - which provides a higher level of debt (gearing) than is possible in normal corporate finance because of the nature of a utility like service and also as the operating parameters of the project are tightly tied down contractually.

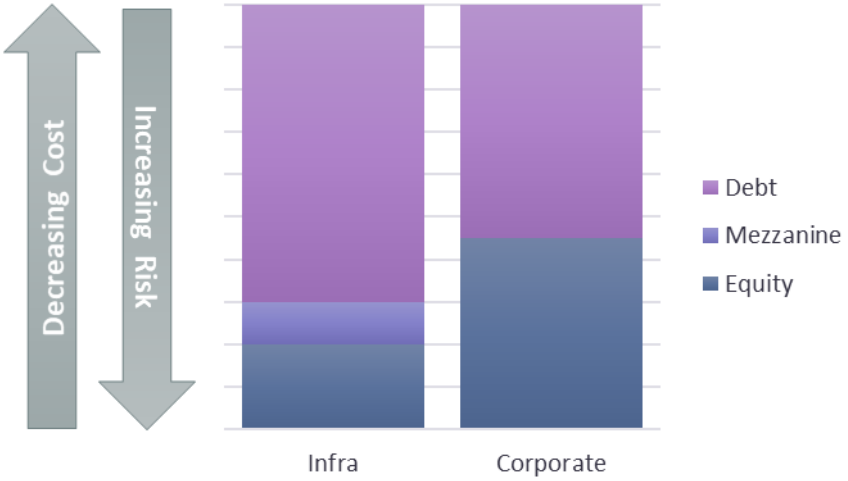


Figure 2 Comparison of Typical Capital Structures Between Project Finance and Corporate Finance

2.3 About Infrastructure Finance

This table sets out the different characteristics of typical investors and shows why there is interest in infrastructure finance for fibre which has long payback periods but will be inherently inflation proofed:

	Stock Market	Private Equity	Infrastructure
Equity Element	50%-60%	35%-50%	25%
Takes Market Risk	Yes	Moderate	Very little
Risk and Return	Highly Variable	Moderate	Relatively Low
Loan Period (tenor)	2-10 years	1-5 years	10-15 years
Holding Period	6 months	3-5 years	15-30 years
Fits New Build Fibre	*	**	****

Fibre projects very rarely have a simple payback of less than 5 years – it is more common to see 7-12 years which makes them difficult to finance using a typical corporate finance approach. Given their relatively long-term nature, these projects simply do not fit well with most stock market investors or private equity, at least when they are relatively immature. Of course, when established and throwing off cash then they become very attractive for such investors.

FTTH is a new type of infrastructure which should be inflation proof and that will not normally face competition from overbuilders. These characteristics make FTTH attractive for long term infrastructure investors and there is a belief in some quarters that fibre could emerge as a new "asset class". [i]

Long-term investment is key because the ability to amortise the high capital investment in fibre over many years makes projects viable that would not be viable with conventional corporate finance. In simple terms, it is the equivalent to the difference between buying house with cash or by using a mortgage. Clearly, taking out a mortgage allows a much greater and earlier investment compared to trying to save up the cash for the house.

Infrastructure investors have many trillions of funds invested in airports, roads and of course there is a whole sector specialised in real estate. Packaging FTTH projects as infrastructure investments would tap into huge pools of money that is available to invest over the medium to long-term.

Modes		Infrastructure Finance Instruments		Market Vehicles
Asset Category	**Instrument**	**Infrastructure Project**	**Corporate Balance Sheet / Other Entities**	**Capital Pool**
Fixed Income	**Bonds**	Project Bonds	Corporate Bonds, Green Bonds	Bond Indices, Bond Funds, ETFs
		Municipal, Sub-sovereign bonds		
		Green Bonds, Sukuk	Subordinated Bonds	
	Loans	★ Direct/Co-Investment lending to Infrastructure project, Syndicated Project Loans	Direct/Co-investment lending to infrastructure corporate	Debt Funds (GPs)
			Syndicated Loans, Securitized Loans (ABS), CLOs	Loan Indices, Loan Funds
Mixed	**Hybrid**	Subordinated Loans/Bonds, Mezzanine Finance	Subordinated Bonds, Convertible Bonds, Preferred Stock	Mezzanine Debt Funds (GPs), Hybrid Debt Funds
Equity	**Listed**	YieldCos	Listed infrastructure & utilities stocks, Closed-end Funds, REITs, IITs, MLPs	Listed Infrastructure Equity Funds, Indices, trusts, ETFs
	Unlisted	★ Direct/Co-Investment in infrastructure project equity, PPP	Direct/Co-Investment in infrastructure corporate equity	Unlisted Infrastructure Funds

Source: OECD analysis drawing on OECD (2015b)

Figure 3 The OECD's Taxonomy of Infrastructure Finance Instruments (Most Relevant for Fibre Starred by the Author)

Such patient capital is well suited to FTTH projects but is not a magic solution. Projects must be economic and have the correct structure if infrastructure funds are going to be able to invest. Such funds have raised money from pension funds and other investors under certain rules and criteria. Any FTTH project hoping to attract such investment must be compatible with these requirements.

This form of financing is sometimes called "limited" or "non-recourse" because it is not backed by assets or guarantees but by the project itself. Funders only have "limited recourse" to the sponsor, relying instead on the strength of cashflows through the SPV. Debt is kept off the sponsor's balance sheet in a Special Purpose Vehicle (SPV). The borrower is then merely a Sponsor of the SPV. This structure is shown in the diagram below.

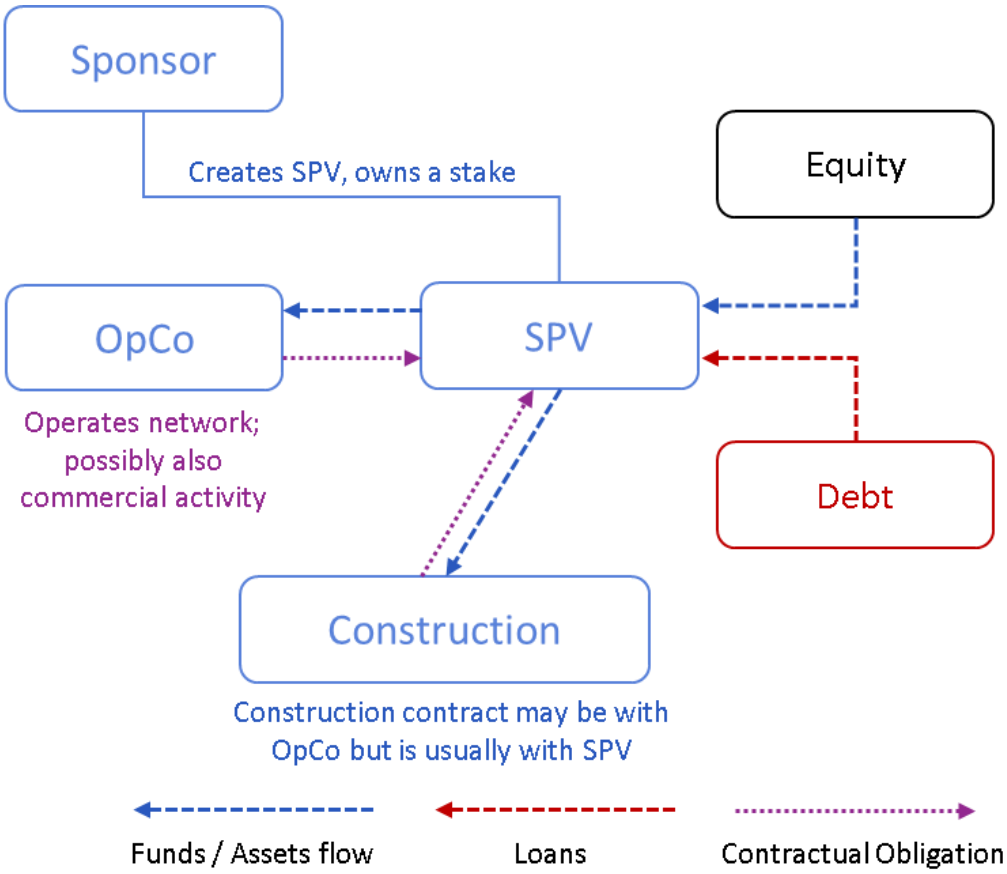


Figure 4 Generic Infrastructure / Project Finance Structure

Infrastructure projects usually have higher levels of leverage than non-infrastructure investments, enabled by inherently less volatile cash flows and the willingness of sponsors of infrastructure projects to accept higher levels of debt. But this high level of debt means that lenders look carefully to see whether any potential volatility in cashflow may be compensated for by debt coverage (i.e. that amount by which cash available for debt service exceeds obligations).

The projected coverage ratios (available cash generated compared to the money needed to pay the debt/loans) under a range of downside scenarios must give banks enough confidence that debt service can be maintained even in the face of unexpected cashflow conditions. Furthermore, such loans tend to have greater numbers of cashflow covenants than a corporate loan; enhanced opportunities for banks to get involved in the project should things go wrong. They also include mechanisms to dynamically reduce the tenor (duration) of the loan should the project over-perform.

Of course, strong cashflows are critically linked to the level and certainty of revenues. Funders will rely upon the "visibility" (i.e. predictability) of the cashflows. Traditionally, such funds look for long-term contractual cashflows (often over 25 years), and little or no volatility in returns. This is *relatively* easy to arrange in an electricity project say but not so in fibre where the output is bought not by an established utility but instead by individual consumers and businesses making their own purchase decisions. Nonetheless, there is growing interest from infra funds in fibre and creative solutions are emerging to reduce the market risk (i.e. revenue risk) down to levels which are acceptable for this type of investor.

2.4 Dealing with Market Risk

There is now a consensus in the financial community that market risk (i.e. relating to revenues) is the key issue for fibre projects. Costs are generally known and predictable but revenues much less so. Even if in the long-term investors are confident there will be healthy demand at a reasonable price, the issue is how quickly take-up grows on the network. Debt must be serviced from the start – it is not acceptable to lenders to ask them to wait for several years until the project is in good shape. Some fibre projects have obtained debt with an initial repayment 'holiday' where repayments are postponed, but this is usually for no more than two years and the issue of confidence in revenues after that construction period becomes of even greater importance.

There are a few basic ways of dealing with market risk:

- The classic solution is to have an offtake contract or similar from a reliable Authority which has the effect of guaranteeing at least a minimum viable level of revenues from the project;
- A reliable Authority (almost certainly Government) guarantees the loan repayments so that market risk is in effect eliminated by indirect means (if a Government guarantee is obtained then this sovereign guarantee will lead to lower borrowing costs as repayments are certain);
- There is a high level of confidence in market demand and an operator, marketing agency or similar competent partner is willing to take the market risk through contractual obligation while investors accept what will be, in reality, rather limited recourse to that party should performance not be sufficient. This approach will probably entail a greater proportion of the funding to be equity buffer in the project than the methods above.

2.5 Public Private Partnerships (PPPs)

In marginal and uneconomic areas, the public sector has an important role to play in reducing private risks (mostly market risk) to the point where private investment becomes possible. This could be by means of a subsidy or an availability payment (a different and sometimes more efficient way of subsidising projects) or through a joint co-investment such as a Public Private Partnership (PPP).

The Government may choose to fund some or all of the capital investment in a project and look to the private sector to bring in expertise and efficiency. This is generally the case in a so-called Design-Build-Operate project (DBO) where the operator is paid a lump sum for completed stages of construction and will then receive an operating fee to cover operation and maintenance of the project. Another example would be where the Government chooses to outsource the civil works for the project through traditional procurement and then brings in a private operator to operate and maintain the network and/or provide a wholesale broadband service to Internet Service Providers and other forms of Service Provider.

There are numerous long-term infrastructure funds active in, or specialising in, deals with Governments. These public private partnerships are based on a fundamental trade – Government acts to partly fund a project with social benefits by reducing the risks faced by the private sector so attracting an element of private investment and management expertise in return.

The PPP concept originated in the UK as a way of funding Government investment in schools, bridges etc “off balance sheet”. The idea was that there would be two advantages to Government:

- the private sector would take construction risk and build more efficiently than Government (so reducing costs);
- private financiers would provide essentially a form of long term mortgage finance to Government allowing it to spread the cost of expensive new projects across many years and (if rules permit) keep most of the cost out of the public sector borrowing figures.

Over time, the PPP concept has evolved and has many forms around the world with numerous local variants and many countries now have Laws designed to limit the ways in which this idea can be used.

The diagram below shows the range of possible structures that could be relevant to funding fibre deployment in uneconomic (usually rural) areas.

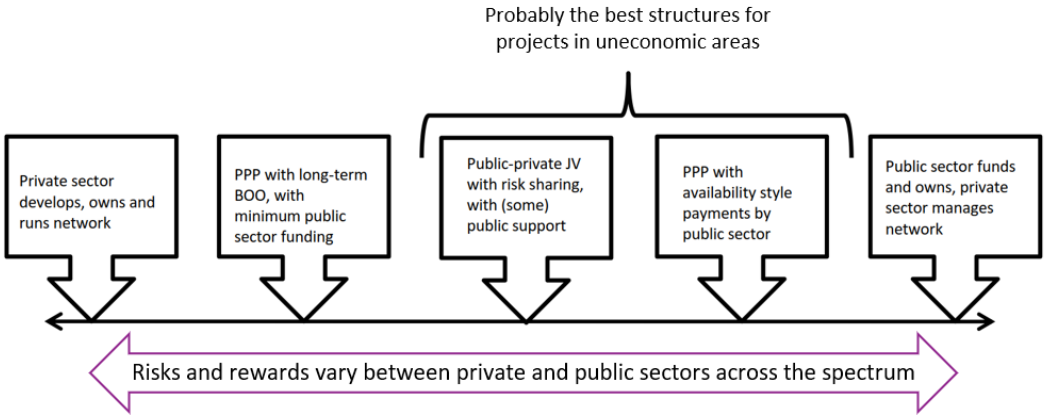


Figure 5 PPP Structures Showing Public Private Risk Allocations Source: Portland Advisors, Ventura Team

Common to all PPP deals though is the fact that infrastructure investors are key across the spectrum of structures. They will subscribe equity into the project company (known as a Special Purpose Vehicle - SPV) which is at the heart of this type of deal structure.

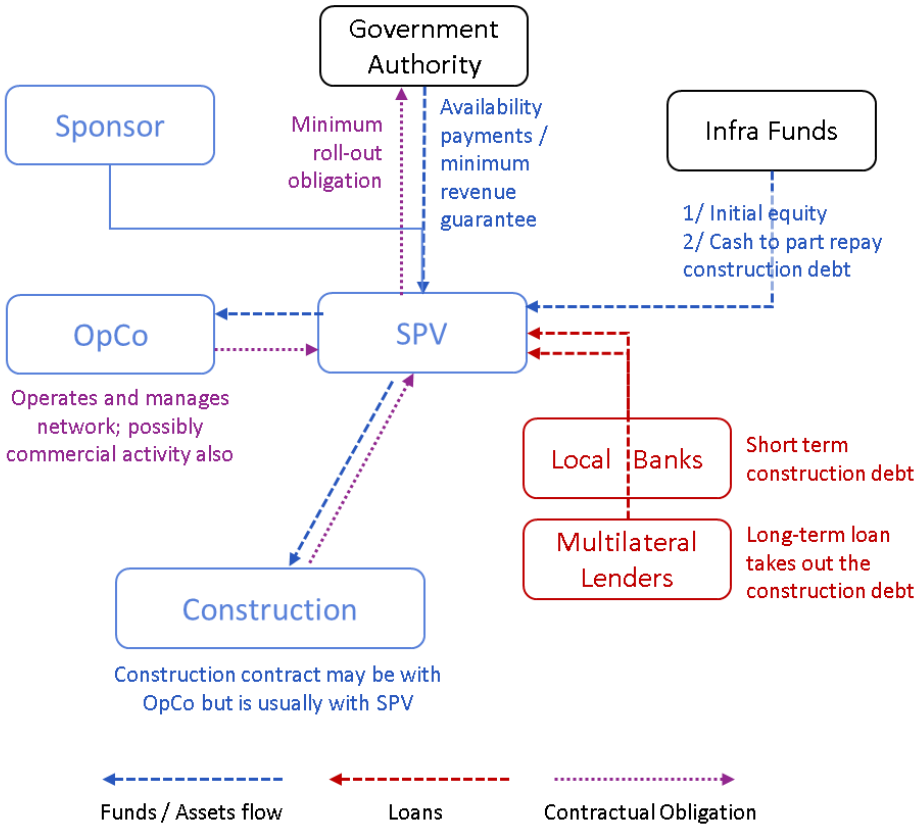


Figure 6 Example PPP Structure for a Rural Fibre Project. Source: Ventura Team / FTTH Ventures

The SPV will be leveraged with debt. The equity cushion that an infrastructure investor provides is crucial to support this debt - as are the prospects for, and security of, revenue generation of course. In return for their equity investment, an infrastructure investor will require a substantial minority shareholding in the SPV and they will also need to participate in corporate Governance.

Many infrastructure funds buy and hold such investments for 25 years. Whenever exit happens, one option is to sell or hand over the assets to the Government; another is to sell to the operator (concessionaire) of the project or perhaps offer first right of refusal to the incumbent operator in return for preferential use of its old copper related assets & wayleaves and/or in return for the early and orderly migration of its customer base to the fibre network.

For any Government, initiating fibre PPPs is not a trivial exercise – these are complex deals and without an established supplier and investor ecosystem, considerable effort is required to ensure participation from private actors. The World Bank has the following suggestion regarding project development by Government[ii]:

> *In the UK, arguably one of the most efficient PPP market in the world, advisory costs during project development average 2.6 per cent of project capital costs. Advisory costs in lesser developed PPP markets run even higher. The large amount of upfront costs for procuring PPP projects, in particular the cost of specialist transaction advisers often meets with strong resistance from government budgeting and expenditure control. But quality advisory services are key to successful PPP development, and can save millions in the long-run. Therefore, funding, budgeting and expenditure mechanisms for project development are important to a successful PPP program, enabling and encouraging government agencies to spend the amounts needed for high quality project development.*
>
> *The government may wish to develop a more or less independent project development fund (PDF), designed to provide funding to grantors for the cost of advisers and other project development requirements. The PDF may be involved in the standardization of methodology or documentation, its dissemination and monitoring of the implementation of good practices. It should provide support for the early phases of project selection, feasibility studies and design of the financial and commercial structure for the project, through to financial close and possibly thereafter, to ensure a properly implemented project.*

3 GENERIC VALUE DRIVERS AND RISKS IN AN FTTH PROJECT

The returns tree diagram below shows the most important factors affecting bankability and rates of return on new fibre projects.

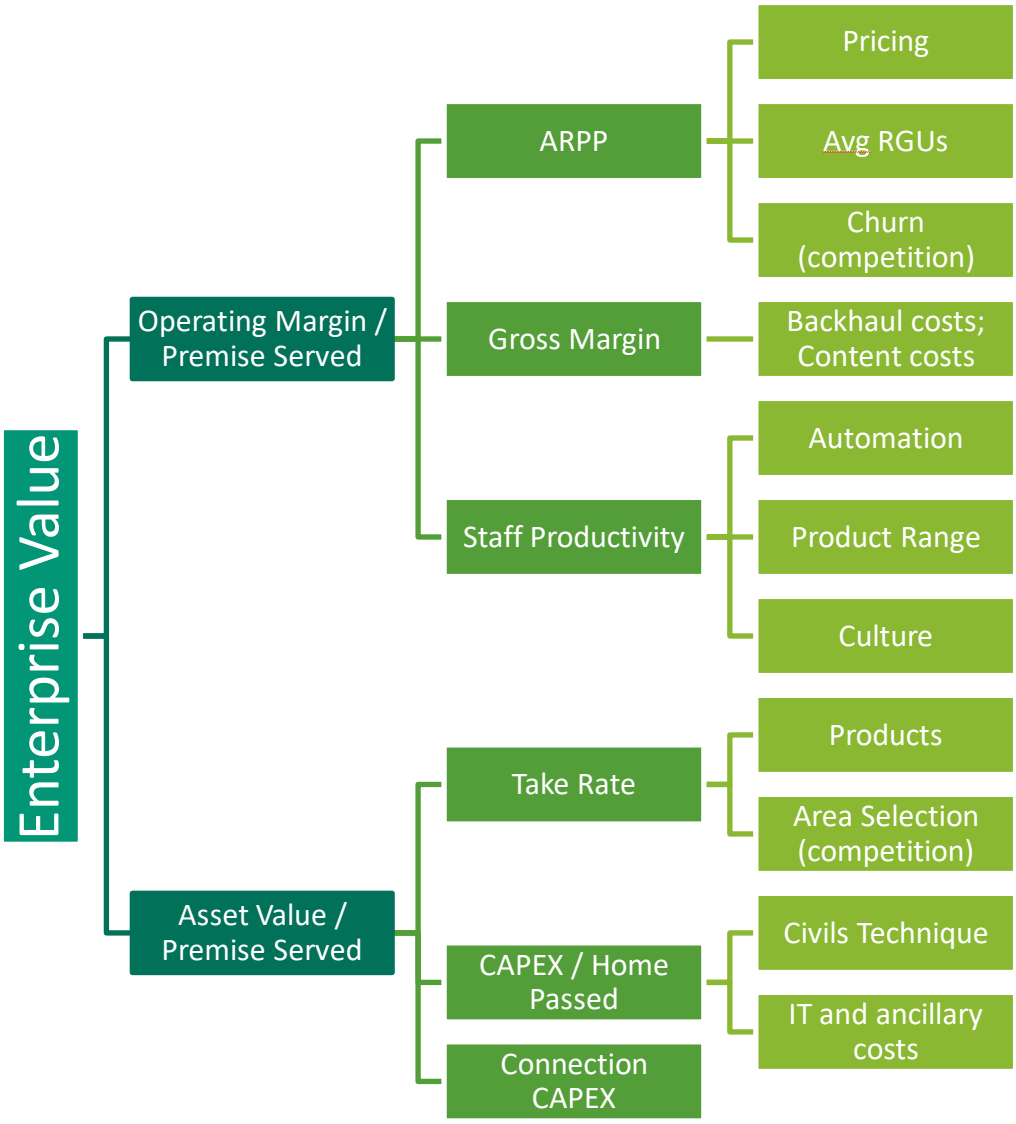


Figure 7 Value and Return Drivers in a Fibre Network. Source: FTTHVentures.com

As shown in the diagram above, the value of a fibre project is a function of two key ratios:

- *Operating Margin per Premise Served;* should be as high as possible and depends on sales achieved
- *Asset Value per Premise Served;* should be as low as possible and is relatively predictable.

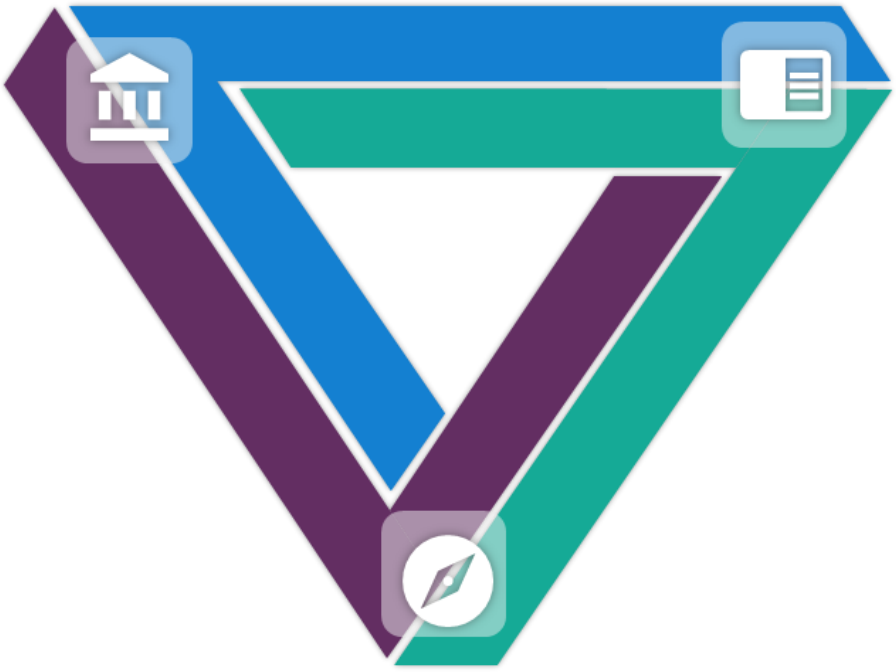
A slightly different view is to take the essence of these two ratios and add in the key geographic factor influencing both – area selection:

CAPEX Costs

CAPEX that is too high compared to revenue can drive peak funding to unsustainable levels.

Revenue Yield

The combination of ARPP (Average Revenue per Premise) and Take Up is the key ratio in FTTH.



Area Selection

Targeting geographic areas with the right combination of revenue potential (demand, ability to pay, competition) and deployment costs is the most important determinant of success or failure in the fibre business.

Figure 8 The Trinity of Value Drivers in FTTH. Source: FTTHVentures.com

4 PRACTICAL STRUCTURES FOR FIBRE PROJECTS

In the sections above, we have explored the general background to financing to new ways of financing fibre projects. European fibre projects in uneconomic areas (i.e. those that attract public sector financial support) have tended to use a simple grant to, in effect, reduce the cost of building in these expensive areas. However, in France there have been numerous projects funded some using infrastructure finance techniques. An ecosystem has developed over several years which enables such projects to be developed and funded relatively efficiently.

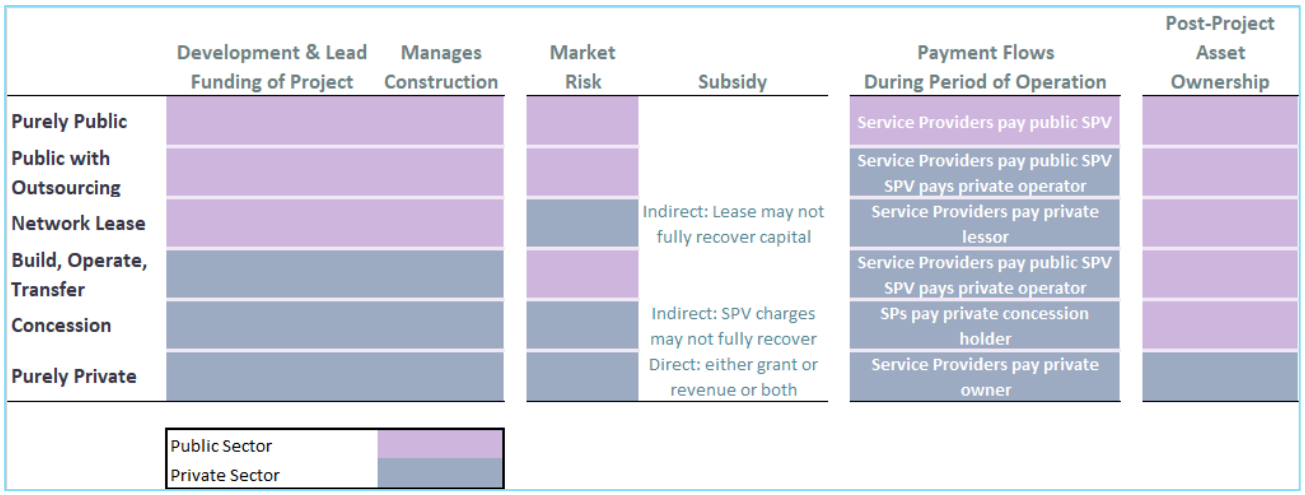


Figure 9 Structures Typically Used in French Rural Fibre Projects

The most common models used in France are shown in the chart above:

- At the top of the table is a fully publicly funded project and this is shown for completeness rather than suggesting that this approach is used in Europe.
- The last model on the table is a fully public private project but which needs a subsidy in order to be viable on these and economic areas. The long running programme of grants for rural fibre in Poland is a good example of this type of project.
- Between those two ends of the spectrum lie four models typically used in France. These have different combinations of public sector and private sector involvement. As we understand it, in all the French projects the long-term ownership of the fibre assets that have been part funded by the State lies with the State. Of course, it is perfectly possible to have a model where the state supports a project and the private sector is the long-term owner of the assets after the 20 to 30 year duration project. Whether the prospect of owning and infrastructure some 25 years after inception is attractive to the private sector is, however, doubtful.

5 CONCLUDING REMARKS

In this paper we have reviewed the differences between corporate finance infrastructure finance and explained why the new approach of infrastructure finance is of increasing interest to the industry.

However, as we have also seen, this technique relies on wide-ranging and carefully constructed contracts to correctly allocate risks to the right parties. Market risk is particularly problematic because there is no single guaranteed buyer for the output of the project unless Government's start to take on this role. This might be the key issue in applying the infrastructure finance technique to fibre and there are the few precedents for market risk so far – projects tend to rely on subsidy to bring the economics into the range of private sector viability.

We believe that one of the most powerful interventions in promoting investment in fibre anywhere would be for the public sector to take on enough market risk in new fibre projects so as to stimulate private sector investment in this valuable new infrastructure. Such a development would mirror the role of the State in energy and transport.

This independent report was sponsored by the FTTH Council MENA.

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[i] An asset class is a group of securities that exhibits similar characteristics, behaves similarly in the marketplace and is subject to the same laws and regulations. The three main asset classes are equities, or stocks; fixed income, or bonds; and cash equivalents, or money market instruments. Some investment professionals add real estate and commodities, and possibly other types of investments, to the asset class mix. *Source: Asset Class http://www.investopedia.com/terms/a/assetclasses.asp*

[ii] http://ppp.worldbank.org/public-private-partnership/financing/government-support-subsidies