

FTTH CASE STUDY

FIRST FIBER OPTICS NETWORK OPERATOR USING ELECTRICITY

UTILITIES' INFRASTRUCTURE IN PALESTINE

{NEW TELECOMMUNICATION BUSINESS MODEL}

December 2015

INTRODUCTION

Global Telecommunication industry has been experienced a significant revolution which leads to radical changes to the market structure, which in turn brought disruptive applications that challenged the old business models and existing regulations of this industry. Palestine has its own and sensitive situation comparable to other countries, and so forth the case of its telecommunication industry. It is affected by political and economic factors that differentiate its case, and inhibit the development of the sector

The world trends toward the liberalization of telecommunication market have been raised in the last decades, and especially the calls for the strengthening of competition in the fixed broadband market. However; in spite of opening the market for the mobile and internet services players, monopolistic fixed broadband market has been dominant in Palestine since 1997. Therefore; breaking the monopoly of the fixed broadband market in Palestine is not the only necessity, and it should not turn a blind eye to global trends and stay idle with the existing critical factors; new business models must be introduced to the Palestinian telecommunication sector rather than the current traditional model that put obstacles for opening the market for innovations by introducing new technologies and new services with competitive advantages and reasonable prices.

It is not surprisingly that practitioners and academia have been interested in the concept of business models and more specifically in the ICT sector due to the unlimited technological evolution and therefore this study is analyzed based on the dimensions shown in the current situation in conceptual framework (See Figure 1.1). Transformation in the telecommunication industry is needed taking into account each dimension in the current and future situation, which would result at the end in the new recommended telecommunication business model.

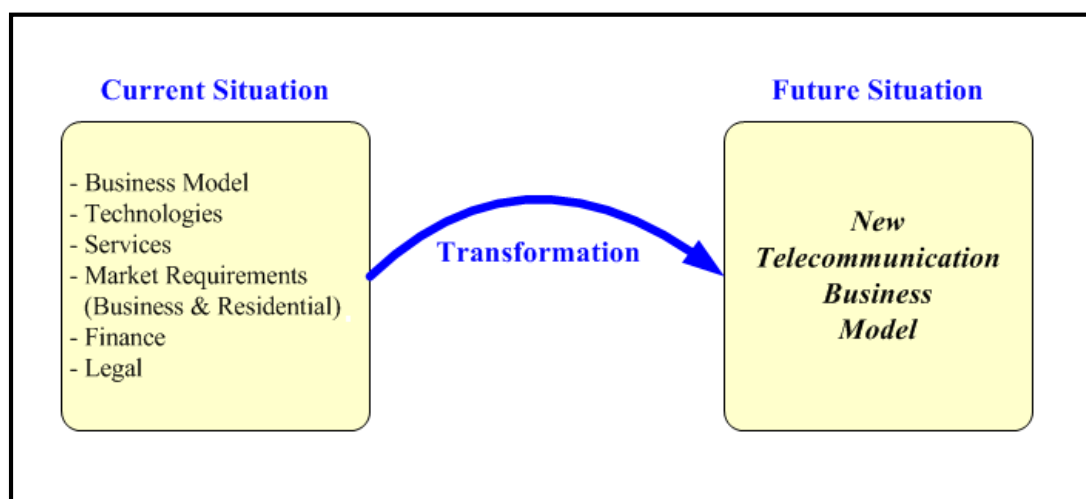


Figure 1.1: Conceptual Framework

Research questions have then risen:

- What is the current situation of the Palestinian telecommunication industry? What are services, technologies and market requirements provided in the current operating business models in Palestine?
- What is the recommended new business model that would introduce a new value proposition in the telecommunication industry?
- How would the current industry situation be transformed to a better situation? What actions are needed to introduce the new business model with new services and new technologies with a healthy competitive sector?
- The research methodology is conducted using a combination of the quantitative and qualitative methods is used employing both qualitative and quantitative data and offering an opportunity in order to explore deeply into the issues raised by the research questions. As for the qualitative method, interviews are chosen to be held with key persons who represent different actors of the new business model in this study. As a quantitative tool, questionnaires are chosen to target both Residential and Business subscribers to evaluate their current situation and their potential need toward broadband.). Figure 1.2 gives a brief on the study procedure. Note that Business model analysis is based on a chosen business model concept, and with reference to the global FTTH business models, that would ensure the form of ontology of the new telecommunication business model.

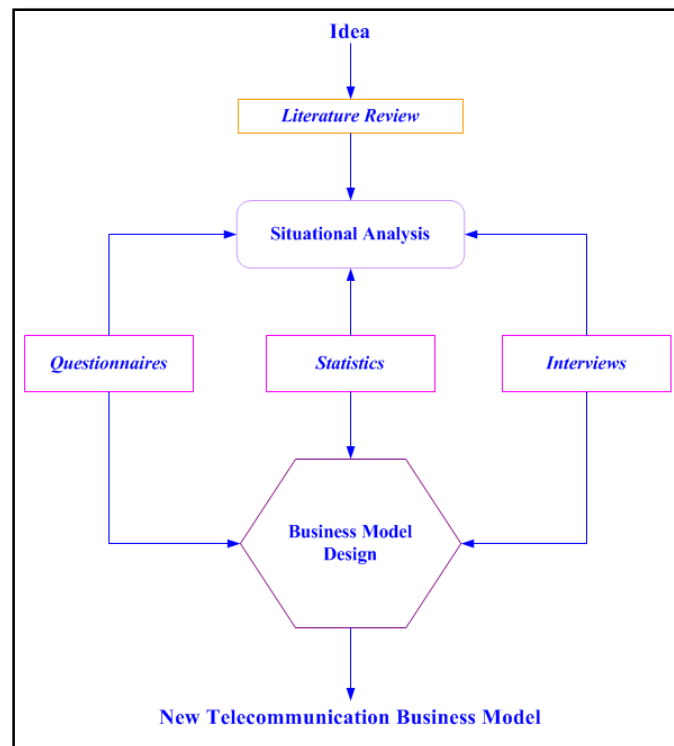



Figure1.2: Thesis Procedure



The recent model that operates and dominant in Palestine is the “Vertically Integrated” model especially for fiber optics services, the incumbent operator keeps it as a premium service for a niche market and prevents opening the access for other players. With the high barriers of a monopoly market, the complexity of totally operation that would be faced in a likely model is also an important factor, in addition that this model is considered a form of infrastructure competition model which is not the objective of introducing a new model that must be a service oriented model that would benefit the customers at the end. The highly required and massive investment for building a new infrastructure from the beginning in Palestine as a developing countries and under the Israeli occupation which raise the barriers and limit the development of the Palestinian economy is impossible, Therefore; Vertically Integrated model is excluded in this study.

Liberalization of the services layer (High competition between Palestinian ISPs) contributes in finding the second model Active Sharing regarding the DSL technologies; ISPs provide residential and commercial services using Paltel’s infrastructure, and here Paltel acts as a wholesaler in addition that it retails the services for ISPs for the ADSL technologies. As for fiber optics services, Paltel has an option to open the access and to retail to ISPs. JDECO case is an example of choosing an “Active Sharing” model by investing in a new company (JFO) to handle the passive and active layers operations (started as a pilot project) with the continuous attempts to get the full license. This is considered a risky decision in spite of the additional margins it would gain by acting as a network carrier; there is no effective regulatory party, no upcoming investors yet especially after conducting a feasibility study with the PIF which resulted in a low ROI. The market is yet monopolistic and JDECO’s infrastructure does not cover all districts in Palestine to strongly compete with the incumbent operator, Moreover; the lack of experience in the telecommunication business model lead to a partnership with one of the ISPs to operate the network and to market new services, but in the same time and after the liberalization of the retail services market in Palestine, it must be mentioned here that it is surely unacceptable while trying to help in liberalizing the fixed broadband market to limit the service for only one ISP. The homogeneity of the active network and its products is another factor which is very necessary and useful; it reduces the time and effort needed in configuring the active components especially in creating and customizing interfaces among the different active products, for example, if each electricity utility in Palestine would go forward to the active layer and each would subcontract different active equipment suppliers, the connectivity between several branches of the same company in different cities with different electricity utilities would be very complex. Therefore, the "Active Sharing "is also excluded in this study.

The idea of a “Passive sharing” model is owning the active and services layers and an also form of infrastructure competition, as an example, ISPs can go backward and invest in the active network and uses the available passive infrastructures, but with the big number of ISPs and with the low number of passive infrastructure players, it would be very complex to handle the relations and operations especially from the passive layer providers’ side; imagine the case that only one electricity utility in Palestine with around 12 ISPs who would invest in the active network and use the its infrastructure! And therefore; it would surely prefer to work with few specific ISPs and limit the access to other ISPs. Moreover; it is a waste of money on a macro level if each ISP would invest and own his active network to operate the passive network, and in the case of buildings at the access side how many active device

would be installed in the basement of each building if each ISP would like to connect its customers and how many number of fibers would be specified for only one building in case of the Fiber-To-The-Building Scenario? Even with a low number of ISPs, it is always preferred to avoid the duplication of the passive infrastructure and so forth the active components. Paltel could consider this model by using alternative infrastructure in the underserved areas, and especially in fiber optics, but introducing new entries and new competitors is one of the main goals for the telecommunication sector and so for the purpose of this study, and therefore; this model is also excluded. A summary of the discussed business models options are shown in Figure 5.1.

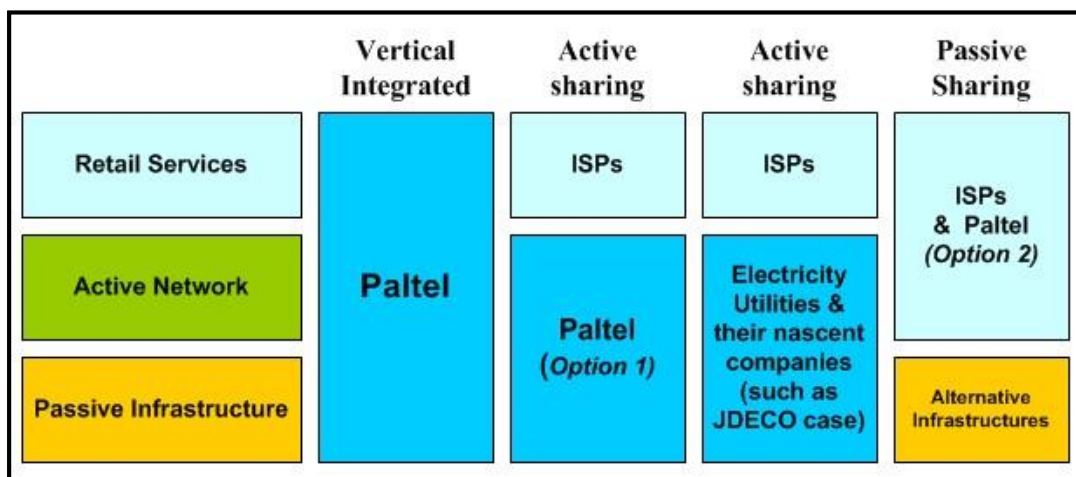


Figure 1.3: Different Business Models Scenarios in Palestine

Opening up competition is preferred at all the layers. In Palestine, the service layer is the only liberalized layer, and therefore; to find an open access network at different layers would be necessary especially for the long run, Passive and active network are preferred to be accessed by all the players. Open access means no more monopoly; no more discrimination; transparency and price control; and all is going to share benefit. The main disadvantages is the lack of direct control over the revenue stream and marketing to the end-user, which is not a critical factor by finding alternative infrastructure of other non-telecommunication companies such as electricity utilities and even municipalities, which their core competencies are away of the telecommunication business in addition that they lack the experience in this business, and have no visions and objectives to go for the services market and end-users. Therefore; the new telecommunication business model is more closely and going to take the shape of a Full Separation model in this study for the case of Palestine

The model is designed by using Faber’s business model concept^[1] the four interrelated design domains are ordinal: **Service Design; Organization Design; Technology Design; Finance Design;** For the purpose of this study, the organization design is analyzed on a sector level and included all possible players and stakeholders. Since Faber’s model didn’t include a regular or a legal domain; a **“Legal & Regulatory Framework”** is added to include all Faber’s design domains to ensure the role and need of effective legislations and regulations that would protect and help the work process of

the new model especially in Palestine (see Figure 5.2). [Kindly download the full paper for more details of the study's analysis and model design.](#)

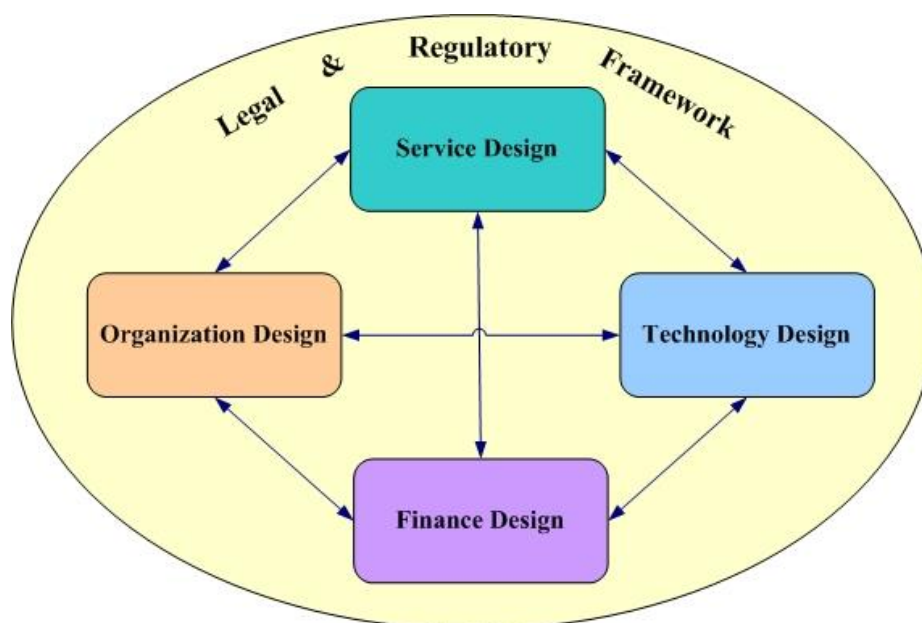


Figure 5.2: Business Model Design (Adapted from Faber's Design Model)

Finally the study's results concluded with the following:

- The “Full Separation” model as a new telecommunication business model is highly recommended to be introduced in Palestine to ensure an effective transformation to a better situation and a healthy environment in the sector as a flexible business model to deal and adapt with all technological changes and industry requirements is a necessity, and therefore;
- New Telecommunication Company (NTC), as a 1st fiber optics network operator using electricity utilities infrastructure in Palestine, is recommended to be introduced in the active network layer of the new business model to handle the operations and communications between the industry players, especially between the passive and services' layers. NTC could be abbreviated as a “National Telecommunication Company”, because of the key role that it would play in giving a new shape of the telecommunication industry and which in turn would reflect the benefits on the whole ICT sector and consequently the economic sector. Because of the need of deepening and strengthening the relationship and cooperation between the public and private sectors; the idea that NTC is to be owned by the public sector and operating with the mentality of private sector could be also an option. It is recommended that NTC handles the Planning & Documentation for the passive and active layer in addition to active network operations.
- Introducing FTTH/FTTB GPON technologies (GPON or other upgraded versions), and PTP & PTMP topologies are recommended. Introducing new entries in the sector would not only result in price competition; it would increase the competition in building and attaining

adequate infrastructures, and in continuously introducing and finding new innovative technologies and way of services, which consequently open doors for ISPs and other potential companies to look for new market segments and introduce new and advanced services with full solutions, especially for SMEs that are not capable to afford the currently higher rates.

- It is recommended that ISPs are to be the front office; handling marketing processes, providing services and the only customer care and support for residential and SMEs; Only one invoice to be issued for the customers for the internet services and the link access, and ISPs are financially accountable for the link access providers whether the access is using ADSL, GPON technologies or any other technologies; and Backhaul capacity rates issued for ISPs or other players are recommended to be with the same currency as customers pay, in order to avoid the exchange rates problems.
- Electricity Utilities should not be late to exploit opportunities for economies of scope by using its existing infrastructure. A new business, especially for the electricity distribution companies, would help in facing their main challenges, and more specific those financial challenges, since they are buying the power electricity with higher rates from the Israeli side, which is consequently reflected on the Palestinian consumers. It is recommended for electricity companies to:
 - ✓ Concentrate on their core competencies and play only in the passive layer.
 - ✓ To add an independent fiber optics department to the electricity utilities' organization structure and to be directly connected with the high level management (GM or CEO) to avoid hierarchal and authority problems in order to ensure a fast and healthy communications and operations with the active network player.
 - ✓ The installation of fiber optics' cables, and more specific the aerial cables, to be done by their technical teams for their experience and for security reasons, since they know well how to deal with electricity networks.
 - ✓ To cooperate and open communication with any active network player whether they lease or share revenue.
 - ✓ To exploit the fiber optics infrastructure for the development of SCADA, smart metering, and other new advanced applications is necessary; JDECO is considered a very good example.
 - ✓ Synergies and ways for reducing CapEx and OpEx have to be exploited as much as possible, such as expanding and using the street electricity cabinet in the last mile.
- As for municipalities; it is recommended to take lessons from the initiative role of Ramallah municipality regarding the roll out the ducts in the construction and retrofitting projects; It has also an important regulatory role provided the existence of clear polices and regulations to rely on.
- Taking the example of the electricity sector by updating the law in 2009 and founded PENRA as a regulatory authority is highly recommended and the questions have risen here and poses

to the government in specific, why the telecom law (3/1996) has not yet updated? And why the PTRA has not yet activated?

- It is recommended that polices, and regulations include the following points into consideration and not limited to:
 - Law (3/1996) is very old and not compatible with the technological changes and for the long term evolutions.
 - Issuing a law to enforce establishing a telecommunication regulatory authority.
 - Taking into account the global fixed broadband business model and especially the “Full Separation” model.
 - Categorizing and Classification, and specially for the “Full Separation” model are recommended to be issued with consideration to the different layers and the possible players in each layer; according to the different assets, technologies and services in each layer.
- Continuous scheduled workshops and meetings are highly recommended for all players with engaging electricity utilities, municipalities, and engineering association in order to assess the sector’s situation and its need, and which in turn help finding and issuing convenient policies and regulations that benefit all parties.
- Optional strategic partnerships are recommended and not limited to:
 - Partnership with one of the famous active network equipment suppliers is very useful for the purposes of continuous upgrades and up to dates to the technological changes in the world, and for the homogeneity of the network.
 - Potential Partnership between NTC and Wataniya Mobile especially for making a market balance with the strategic partnership between Paltel & Jawwal.
 - Merging NTC with the founded companies of the electricity utilities such as the nascent company of JDECO (JFO) would be an advantage for taking the lessons learned faced in their operations and pilot projects.

[1] Faber, E., Ballon, P., Bouwman, H., Haaker, T., Rietkerk, O., & Steen, M. (2003, June). Designing business models for mobile ICT services. In *Workshop on concepts, metrics & visualization, at the 16th Bled Electronic Commerce Conference eTransformation, Bled, Slovenia*.

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