



FTTx Business Models

Key variables to achieving profitability

Market Report

Starting with a model of the different expense and income items, and investment spending in particular, this report measures the sensitivity of a number of FTTx network rollout variables: population density, technical architecture, penetration rate, ARPU... with the measurements themselves segmented by type of operator (incumbent carrier, alternative operator, new entrant).

Key questions

- What criteria are shaping ultra-fast broadband players' choices?
- What are the strengths and weaknesses of the different players involved?
- What level of profitability can be expected from fibre rollouts:
 - depending on the zone being covered
 - depending on the passive infrastructure access mode
 - depending on the level of competition...
- What are the key factors and chief obstacles to players' commitment to ultra-fast broadband?



→ FTTx Business Models

Key variables to achieving profitability

1. Market status and players involved

- 1.1. Rollout status
- 1.2. Type of players involved in the market

2. Business model and simulation

- 2.1. Model structure
- 2.2. Model parameters
 - Technical configurations
 - 7 different types of geographical zone
 - Other decisive criteria in the modelling exercise
 - Increasingly complex realities

3. Modelling results for each zone

- 3.1. Common hypotheses to each type of zone
- 3.2. Densely populated urban zone
- 3.3. Vast, densely populated urban zone
- 3.4. Urban zone with an average population density
- 3.5. Suburban, high rise
- 3.6. Suburban, residential area
- 3.7. Concentrated rural zone
- 3.8. Dispersed rural zone

4. Study of the results' sensitivity to key variables

- 4.1. Zone characteristic chosen for sensitivity study
- 4.2. Constructed and rented civil engineering variable
- 4.3. Rollout speed variable
- 4.4. Relative penetration variable
- 4.5. Customer mix variable
- 4.6. Subscriber acquisition and management cost variable
- 4.7. Churn rate variable

5. Large-scale rollout simulation

- 5.1. National FTTN + VDSL rollout
- 5.2. Progressive FTTH rollout

6. Conclusions

- Key factors and chief obstacles to profitable ultra broadband operations

7. DataBook

- Detailed results of simulations

Model indicators

- Characteristics
 - Housing structure (density, verticality...)
 - Architecture of the existing network (average size of central offices and cabinets)
- Income:
 - ARPU (retail and wholesale)
 - Coverage rate
 - Penetration rate
- Expenditures:
 - SAC
 - IP interconnectivity and content access costs
 - Technical costs
 - Passive infrastructure rental costs
 - Amortisation
- Investments:
 - Network construction feasibility study costs
 - Cost of digging trenches and/or outlets in existing underground passages
 - Manhole costs
 - Price of fibres and installation costs
 - Price of other passive equipment (couplers, connectors, etc.)
 - Price of active electronic equipment (ONT/OLT, switch/CPE Ethernet, VDSL DSLAM/Modem)
 - Subscriber connection study fees
 - Connection costs

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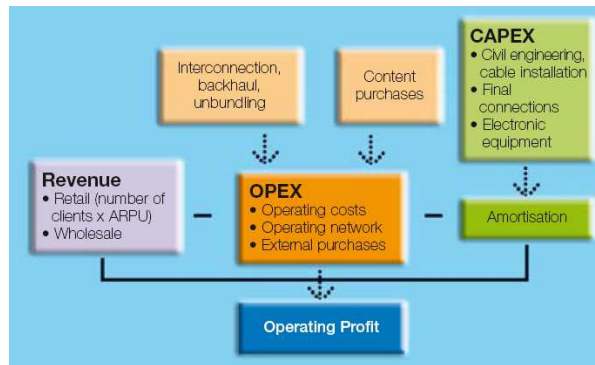
Methodology: an operational model

Based on different FTTx technologies (notably VDSL, GPON and E-P2P) and according to various market features, an income and expense model developed by IDATE (see diagram) that makes it possible to calculate expenditures and associated operating results, notably:

- Annual and accrued investments (CAPEX),
- Income before depreciation and amortisation (EBITDA)
- Operating income (EBIT)
- Annual and accrued free cash flow (FCF),

Several dozen variables and indicators (see list) are factored into the model. Simulations presented in the report generally cover 10-year periods.

Model's overall structure



Source: IDATE

Examples of data tables excerpted from the report

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Homes passed ('000, at year end)	200	400	600	800	1 000	1 000	1 000	1 000	1 000	1 000
Subscribers ('000, at year end)	60	129	207	293	389	411	433	456	478	500
Revenues (million EUR):										
Total revenues	16,1	50,5	89,8	133,8	182,5	214,0	225,9	237,8	249,7	261,6
Expenses (million EUR):										
General expenses	11,5	29,1	48,8	70,8	95,0	105,4	111,2	117,0	122,8	128,6
GPON 8x8										
Total expenses	21,1	48,9	79,3	112,5	148,5	157,8	161,4	164,2	166,2	167,1
EBITDA (million EUR)	2,9	18,1	36,0	56,5	79,4	100,5	106,6	112,8	119,0	125,2
EBIT (million EUR)	- 5,0	1,6	10,5	21,3	34,0	56,3	64,5	73,6	83,5	94,5
CAPEX (million EUR):										
Cumulative CAPEX	102,6	212,1	327,7	449,8	578,7	609,8	641,9	674,9	708,9	743,7
Cumulative FCF (million EUR)	- 99,8	- 191,1	- 270,7	- 336,3	- 385,9	- 316,5	- 241,9	- 162,1	- 77,1	13,2
GPON 32										
Total expenses	21,5	49,8	80,6	114,2	150,7	160,0	163,6	166,4	168,3	169,3
EBITDA (million EUR)	2,8	17,9	35,7	56,1	78,9	100,0	106,1	112,3	118,5	124,7
EBIT (million EUR)	- 5,5	0,8	9,2	19,6	31,8	54,1	62,3	71,4	81,4	92,3
CAPEX (million EUR):										
Cumulative CAPEX	109,6	226,1	348,9	478,3	614,7	645,8	677,9	710,9	744,8	779,7
Cumulative FCF (million EUR)	- 106,8	- 205,4	- 292,4	- 365,7	- 423,3	- 354,4	- 280,3	- 201,0	- 116,4	- 26,6
E-P2P										
Total expenses	22,5	52,2	84,8	120,6	159,7	170,6	175,9	180,3	183,8	186,2
EBITDA (million EUR)	1,9	16,0	32,8	51,9	73,4	93,9	99,4	104,9	110,3	115,8
EBIT (million EUR)	- 6,4	- 1,6	5,0	13,2	22,8	43,4	50,0	57,5	65,9	75,4
CAPEX (million EUR):										
Cumulative CAPEX	107,5	223,4	346,9	478,3	618,1	656,6	697,4	740,3	785,2	832,0
Cumulative FCF (million EUR)	- 105,6	- 205,4	- 296,1	- 375,6	- 442,0	- 386,7	- 328,1	- 266,1	- 200,7	- 131,7
VDSL										
Total expenses	16,5	39,6	65,0	92,9	123,5	134,1	139,6	144,8	149,7	154,3
EBITDA (million EUR)	3,5	19,3	37,8	58,8	82,3	102,9	108,6	114,3	120,0	125,7
EBIT (million EUR)	- 0,5	10,9	24,8	40,8	59,0	80,0	86,3	93,0	100,0	107,3
CAPEX (million EUR):										
Cumulative CAPEX	25,6	53,2	82,4	113,3	145,8	162,4	179,1	196,0	212,9	229,8
Cumulative FCF (million EUR)	- 22,1	- 30,4	- 21,8	6,2	56,0	142,4	234,2	331,7	434,8	543,5

