UltraFast Broadband

General Secretariat of Telecommunications & Posts, Ministry of Digital Policy, Telecommunications and Media

JASPERS-REGIO CBA Forum meeting on Broadband
Brussels, May 15, 2019
Greek economy is bouncing back after several years of austerity. Positive momentum is driven by favorable business environment and investment.

Main economic indicators are steadily improving

Economic Institutions agree on positive outlook

“Investment and private consumption will recover as confidence rebuilds, following improved fiscal credibility”, OECD

“Economic growth is the strongest since the onset of the economic crisis. Confidence has been improving, supported by the successful completion of the European Stability Mechanism (ESM) programme reviews”, OECD

“Real GDP is forecast to reach 1.9% in 2018 and to accelerate further to 2.3% in 2019. The main driver of growth is expected to be investment, which is rising on the back of the improving business environment and increased foreign direct investment.”, EU Commission

Source: OECD, Economic Forecast Summary, November 2018
Considerable private investments in NGA are already being implemented, driven by strong demand for BB services.

Projected coverage from private investments by 2023:

- Fixed BB take-up (subscriptions per 100 people) in Greece is 36.1%, the 10th higher in EU.
- Three players are heavily investing in NGA expected to cover ~80% of households.
- Nevertheless, 17.2% of households are not expected to have access to NGA by 2023: These “no-NGA” areas are UFBB intervention areas.
Nationwide EU-funded PPP project to boost BB infrastructure deployment in NGA-white areas with estimated CAPEX of 701 M€

Project scope

Two different Service Classes are defined:
- Class A: **Gigabit upgradable 100 Mbps service**
- Class B: **100Mbps service**

Major socioeconomic drivers to be covered by symmetrical Gigabit service. Class B areas to be upgraded to Class A by the end of the concession period.

Investment will mainly target **passive infrastructure**, with the necessary level of active infrastructure to offer a set of L2 network services to Retail Service Providers (to reduce investor risk and barrier to entry for retailers, through increased competition and end-user take-up)

Comments

- **Project Key Characteristics:**
  - **Design-Build-Operate-Transfer** model
  - **Long term** investment on **tangible assets**
  - **Wholesale-only** market positioning
- Open access network (non discrimination among retail service providers)
- Offered services:
  - Virtual Unbundled Local Access (VULA - layer 2) service
  - Capacity services
  - Long term duct and fiber lease
  - Colocation / hosting service
- Proven approach successfully followed both in Greece (Rural Project) and other EU countries
Project segmentation, fosters competition and allows room for smaller players. Up to 3 LOTs can be assigned to each bidder.

<table>
<thead>
<tr>
<th>Project segmentation and LOTs</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The project is segmented into 7 geographic areas (LOTs).</td>
<td></td>
</tr>
<tr>
<td>• Each LOT, corresponds to an addressable market of 103-126K active lines</td>
<td></td>
</tr>
<tr>
<td>• Bidders will have the option to bid for multiple LOTs.</td>
<td></td>
</tr>
<tr>
<td>• Up to 3 LOTs can be awarded to the same bidder unless no biding interest is shown for certain areas.</td>
<td></td>
</tr>
<tr>
<td>• LOTs were organized so as to require similar total investment (94-106M), with similar public contribution (40.4%-46.3%), while having the same private equity IRR</td>
<td></td>
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</table>
Preparing the UFBB Project

D – Project preparation journey

Strategic targets (national NGA plan) Digital Agenda 2020 & Gigabit Society 2025

- Detailed mapping of private investment plans
- Project intervention areas
- Technological options
- Strategic options

Procurement & implementation schedule

- Institutional arrangements
- Service pricing

Demand Analysis

- Bottom-up costing calculation for the whole investment
- CBA (based on Jaspers’ template)
  - Financial Analysis
  - Economic Analysis
  - Sensitivity
  - Outputs for Application Form

Environmental impact assessment

- Economic benefits
- Sensitivity Analysis
- Risks

Conformance to State aid rules

- State aid pre-notification & notification
- State Aid compatibility procedure
- Preparation and implementation of the Tender procedure

Feasibility Study

Detailed breakdown of funding and compliance with Operational Programmes

Preparation and implementation of the Tender procedure
Preparing the UFBB Project

Strategic targets (national NGA plan)
Digital Agenda 2020 & Gigabit Society 2025

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**Strategic targets**
- (national NGA plan)
- Digital Agenda 2020 &
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Operational Programmes
Challenges of the pilot user (UFBB was the first project to use the new CBA template)

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Followed approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which template to use for the CBA? previous, new, other?</td>
<td>Used new: Understanding the structure of the template and proof-check it. Cope with lack of supportive documentation</td>
</tr>
<tr>
<td>Enrich provided template or use external file to feed it?</td>
<td>Used a supportive excel file, containing bottom-up costing, demand and service pricing</td>
</tr>
</tbody>
</table>

Key benefit: Allows to **focus on the project itself**, instead of building and proof-checking a new CBA from scratch: Once familiar with the template, confidence is built-in and therefore, a “guidebook” approach can be followed
Bottom-up cost model

**Bill of materials**

<table>
<thead>
<tr>
<th>LOT</th>
<th>Cost_Class</th>
<th>Item_code</th>
<th>Item_description</th>
<th>Unit_cost</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost</th>
<th>Capex cat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>Splice-Box</td>
<td>BEPs</td>
<td>20</td>
<td>item</td>
<td></td>
<td>834,800 €</td>
<td>3b</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>CONSTRUCT-MT</td>
<td>Construction of small microtrench (6x30cm) for laterals and reconstitution (no blowing). Includes RoW</td>
<td>3700</td>
<td>km</td>
<td></td>
<td>1,081,066 €</td>
<td>3b</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>M/HOLE-CONSTR-60-80</td>
<td>Construction of a medium manhole (60x80cm)</td>
<td>220</td>
<td>item</td>
<td></td>
<td>400,404 €</td>
<td>3b</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>M/HOLE-COVER-60-80</td>
<td>Cover of a medium manhole (60x80cm)</td>
<td>170</td>
<td>item</td>
<td></td>
<td>309,403 €</td>
<td>3b</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>M/HOLE-DOUBLE-CONSTR</td>
<td>Construction of a double size manhole (120x80cm)</td>
<td>420</td>
<td>item</td>
<td></td>
<td>281,400 €</td>
<td>3b</td>
</tr>
</tbody>
</table>

**Backhaul**

**Access**
Demand analysis & service pricing

Selecting the right metric & price levels

Evolution of BB penetration as measured by different metrics (% of households, subscription per 100 people, on total loops)

- EL-BB penetration on total loops: 76.91%
- EL-Fixed broadband take-up (subscriptions/100 people): 33.94%
- EU28 - Fixed broadband take-up (subscriptions/100 people): 33.72%
- EU28 - Households with fixed broadband connection: 75.47%

Forecasting based on fitting to historical data

Overall BB penetration and Demand Forecast for UFBB Class A and Class B services

Monthly Cost per Subscriber and per Speed

Connections in the buildings entrance (BEP)

- 30 Mbps/3 Mbps: €12.84/$57.01
- 50 Mbps/5 Mbps: €13.48
- 100 Mbps/10 Mbps: €15.08
- 200 Mbps/20 Mbps: €18.28
- 300 Mbps/30 Mbps: €21.48
- 500 Mbps/50 Mbps: €27.88
- 1 Gb/100 Mbps: €43.88

Connections in the building's floor box

- 30 Mbps/3 Mbps: €17.36/$57.01
- 50 Mbps/5 Mbps: €18.23
- 100 Mbps/10 Mbps: €20.40
- 200 Mbps/20 Mbps: €24.72
- 300 Mbps/30 Mbps: €29.06
- 500 Mbps/50 Mbps: €37.71
- 1 Gb/100 Mbps: €59.36
Supportive excel to feed the CBA

**Concept**

- Demand Analysis
- Service pricing
- Bottom-up costing calculation for the whole investment
- CBA (based on Jaspers’ template)
  - Financial Analysis
  - Economic Analysis
  - Sensitivity Analysis
  - Risks
- Economic benefits

**Implementation**

<table>
<thead>
<tr>
<th>Eligible Capital Expenditure</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Planning/design fees</td>
<td>18,073,915 €</td>
<td>18,073,915 €</td>
<td>18,073,915 €</td>
</tr>
<tr>
<td>2. Land purchase</td>
<td>97,199,081 €</td>
<td>97,199,081 €</td>
<td>100,144,508 €</td>
</tr>
<tr>
<td>4. Plant and machinery</td>
<td>7,167,468 €</td>
<td>7,167,468 €</td>
<td>7,384,664 €</td>
</tr>
<tr>
<td>5. Contingencies</td>
<td>6,592,010 €</td>
<td>6,592,010 €</td>
<td>6,791,768 €</td>
</tr>
<tr>
<td>6. Price adjustment</td>
<td>12,341,568 €</td>
<td>12,341,568 €</td>
<td>12,715,555 €</td>
</tr>
<tr>
<td>7. Publicity</td>
<td>425,145 €</td>
<td>425,145 €</td>
<td>438,028 €</td>
</tr>
<tr>
<td>8. Supervision during construction implementation</td>
<td>12,341,568 €</td>
<td>12,341,568 €</td>
<td>12,715,555 €</td>
</tr>
<tr>
<td>10. Sub-total</td>
<td>243,413,167 €</td>
<td>225,339,253 €</td>
<td>232,167,715 €</td>
</tr>
<tr>
<td>11. VAT</td>
<td>243,413,167 €</td>
<td>225,339,253 €</td>
<td>232,167,715 €</td>
</tr>
<tr>
<td>12. Total</td>
<td>243,413,167 €</td>
<td>225,339,253 €</td>
<td>232,167,715 €</td>
</tr>
</tbody>
</table>

**Risks**

- Economic benefits
- Sensitivity Analysis

**Service pricing**

**Inputs**

- **Generic input parameters**
  - Unit Value
  - First year of infrastructure roll-out: 2020
  - Number of roll-out years: 4
  - Currency used in the model: EUR
  - Note: Currency code must be inserted here
  - EUR to EUR conversion ratio: 1
  - Price level of financial analysis: Constant
  - Member state classification: Other
  - Financial discount rate used in the model - Real discount rate: 5.0%
  - Social discount rate used in the model: 5.0%
  - Note: 5% for major projects in Cohesion countries, 3% for other member states
  - Co-financing rate of the priority axis: 85.0%
  - Total number of households in the intervention area: 826,527
  - Total number of premises in the intervention area: 1,451,785
  - Reference period: 2020
  - Correction factor parameters
    - CAPEX Correction factor due to fiscal corrections / shadow pricing: 0.86
    - OPEX Correction factor due to fiscal corrections / shadow pricing: 1.00
  - Socio-economic parameters
    - Current (localised) GVA per employee: EUR 36,586
  - Inflation
    - Unit 2020 2021 2022
    - Annual Inflation rate: 0.0% 1.2% 1.4%
    - Value after applying inflation rate: 100.0% 98.8% 97.4%

**Owner**

- Cashflow projections (constant 2020 prices)
  - Revenues (fill in only if applicable)
    - 2020 2021 2022
  - Residual value: EUR 0 0 0

**Operator**

- Cashflow projections (constant 2020 prices)
  - Eligible capital expenditure
    - 2020 2021 2022
    - 1. Planning/design fees: 18,073,915 €
    - 2. Land purchase
      - 3. Building and construction
        - a. Backhaul network infrastructure: 97,199,081 € 97,199,081 € 100,144,508 €
    - 4. Plant and machinery
      - b. Access equipment infrastructure: 6,592,010 € 6,592,010 € 6,791,768 €
    - 5. Contingencies
    - 6. Price adjustment
    - 8. Supervision during construction implementation: 12,341,568 € 12,341,568 € 12,715,555 €
    - 9. Technical assistance
    - 10. Sub-total: 243,413,167 € 225,339,253 € 232,167,715 €
    - 11. VAT
  - Ineligible capital expenditure: EUR 0 0 0
  - Total capital expenditure: EUR 243,413,167 225,339,253 232,167,715
Advantages of working with the provided CBA template

CBA Template aspect

Clear & well defined structure

Quantifiable economic benefits
- Business employee benefits
- Household consumer surplus

Integrated approach

Sensitivity, qualitative risk and new jobs created

Comments

Concise Financial and Economic analysis: no ambiguity with regards to what should be included and where (with full alignment to the CBA guide)

Used results to shape project’s awarding criteria → focus on gigabit coverage of scope areas

Used the output of the Financial analysis to “segment” the project in equivalent “lots”

Clear and straightforward to prepare
Key lessons learned

- **Thorough understanding of state-aid rules** is critical for the whole lifecycle of project preparation: State-aid rules should be studied in detail from the very beginning and involvement with State-aid authorities should start as early as possible.

- **Forecasting demand and service pricing** has huge impact on the project: It is impossible to know the future, therefore risks should be well thought and mitigation measures should be incorporated within the project design.

- **Procurement procedure** has a major impact on project preparation timeframe: Competitive dialogue allows for parallelization of the MPA and SA with the tender process.

- **Jaspers experience** was critical to better prepare the project: challenging key aspects led to better decisions and raising early alerts helped avoiding future pitfalls.
Thank you for your attention

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More Information

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JASPERS Website:  jaspers.eib.org