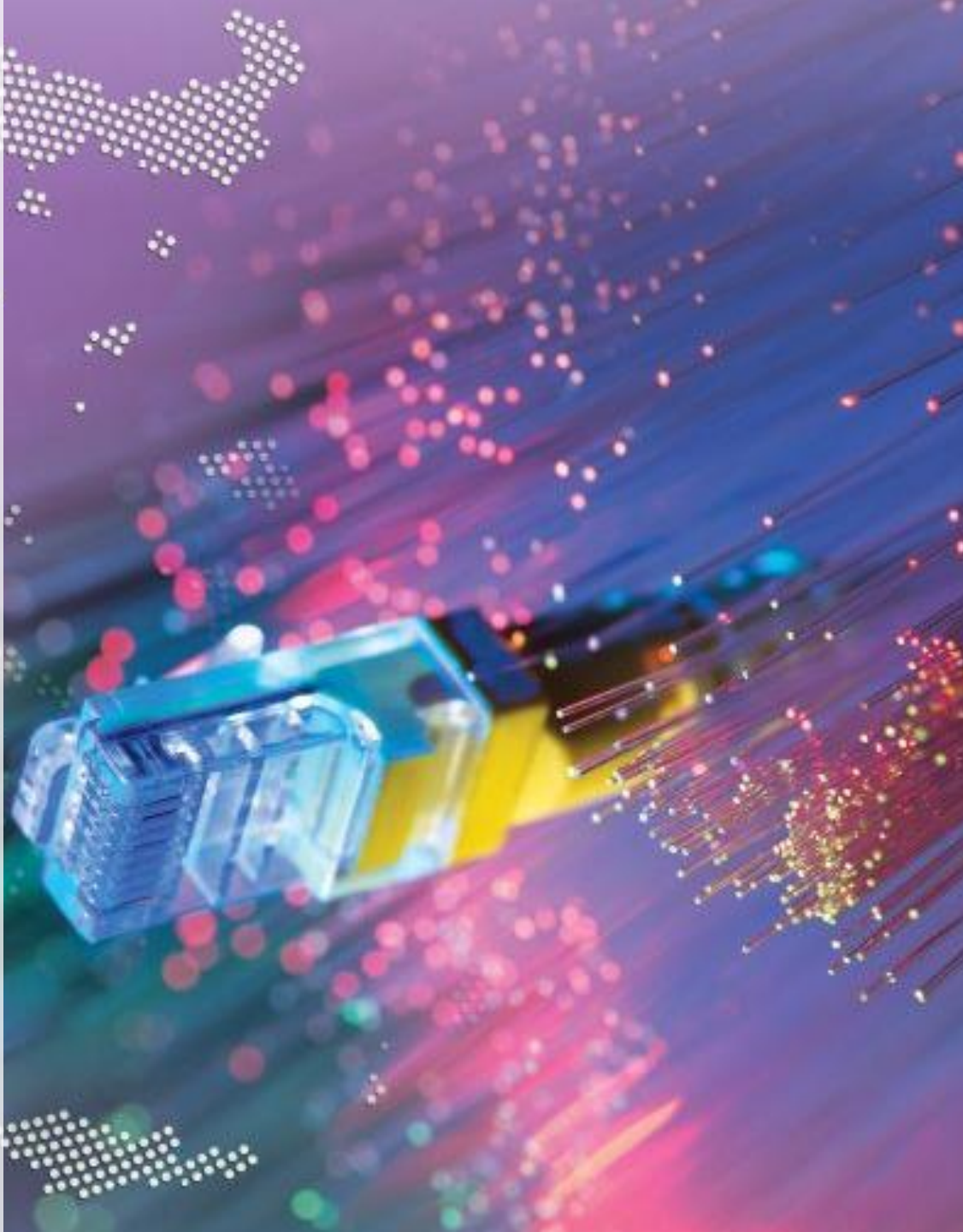
UltraFast Broadband

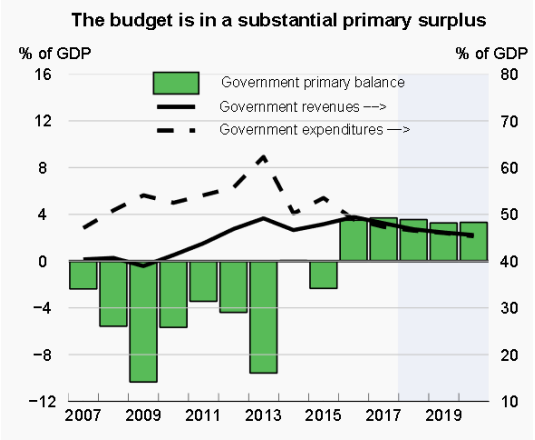
General Secretariat of Telecommunications & Posts,
Ministry of Digital Policy, Telecommunications and Media

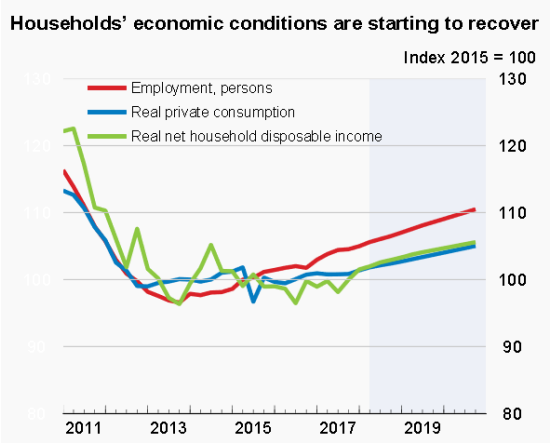
JASPERS-REGIO CBA Forum meeting on Broadband
Brussels, May 15, 2019



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





Source: OECD, Economic Forecast Summary, November 2018

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**

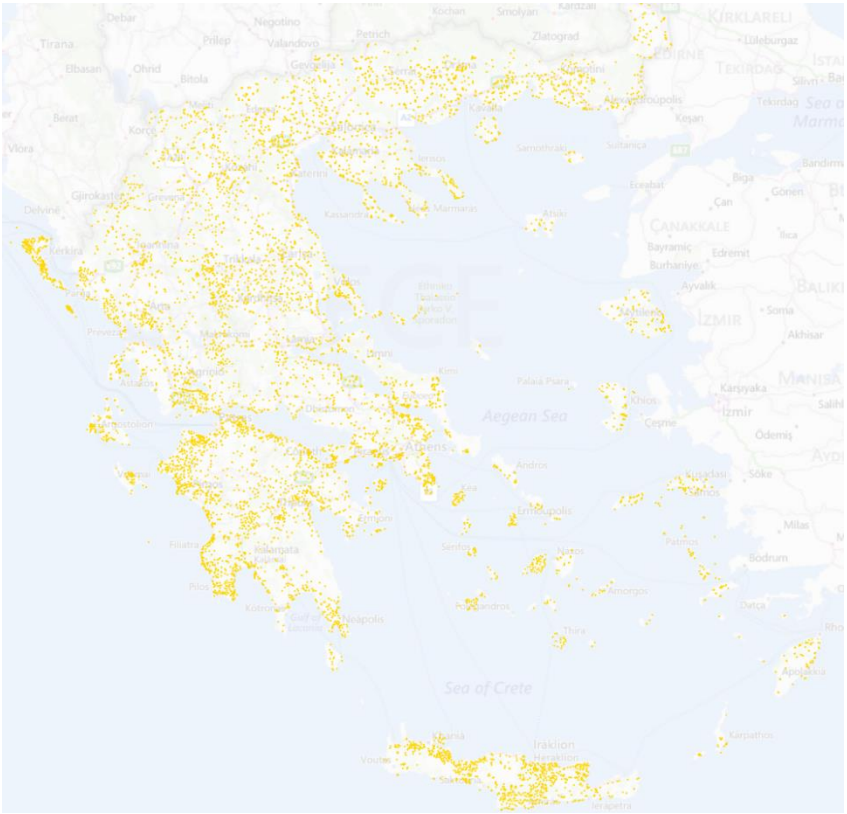
"*Real GDP is forecast to reach 1.9% in 2018 and to accelerate further to 2.3% in 2019. The main driver of growth is expected to be investment, which is rising on the back of the improving business environment and increased foreign direct investment.*", **EU Commission**

Considerable private investments in NGA are already being implemented, driven by strong demand for BB services

Projected coverage from private investments by 2023

NGA-colour	Technology	Operator				Grand Total	% of lines
		OTE	Vodafone	WIND	None		
NGA-gray	gigabit upgradable	1,745	564	460		2,768	58.7%
	non-gigabit upgradable	931		86		1,017	21.5%
	Rural Broadband				123	123	2.6%
NGA-white	**No NGA**				**812**	**812**	**17.2%**
	Grand Total	2,675	564	546	935	4,720	100.0%

- 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€**

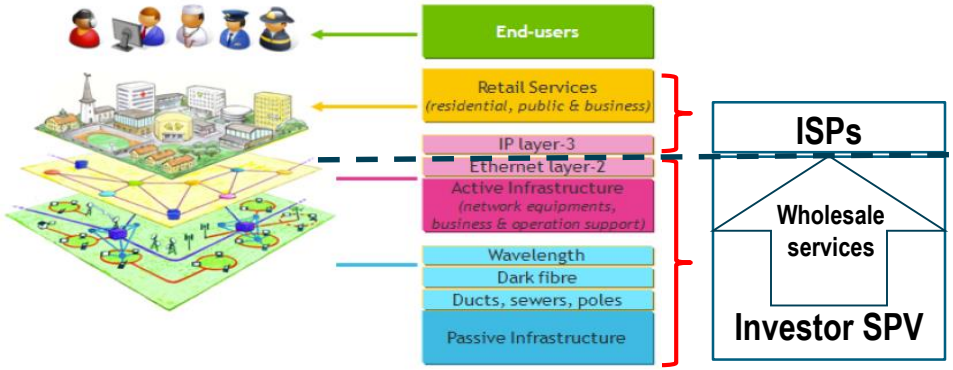
Project scope

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.



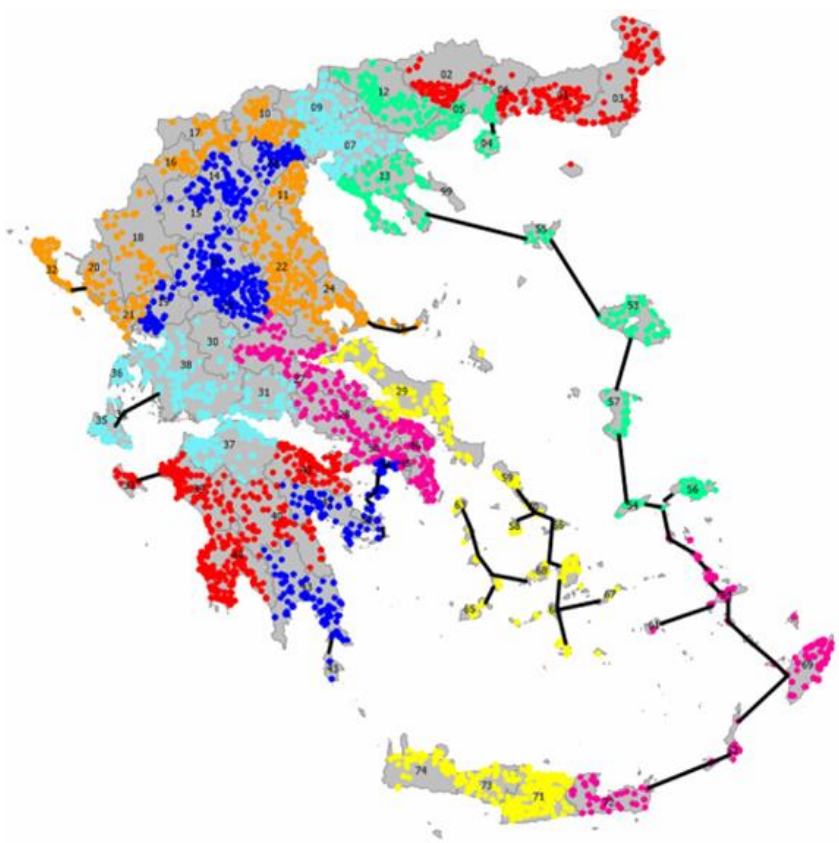
Investment will mainly target **passive infrastructure**, with the necessary level of active infrastructure to offer a set of L2 network services to Retail Service Providers (to reduce investor risk and barrier to entry for retailers, through increased competition and end-user take-up)

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.

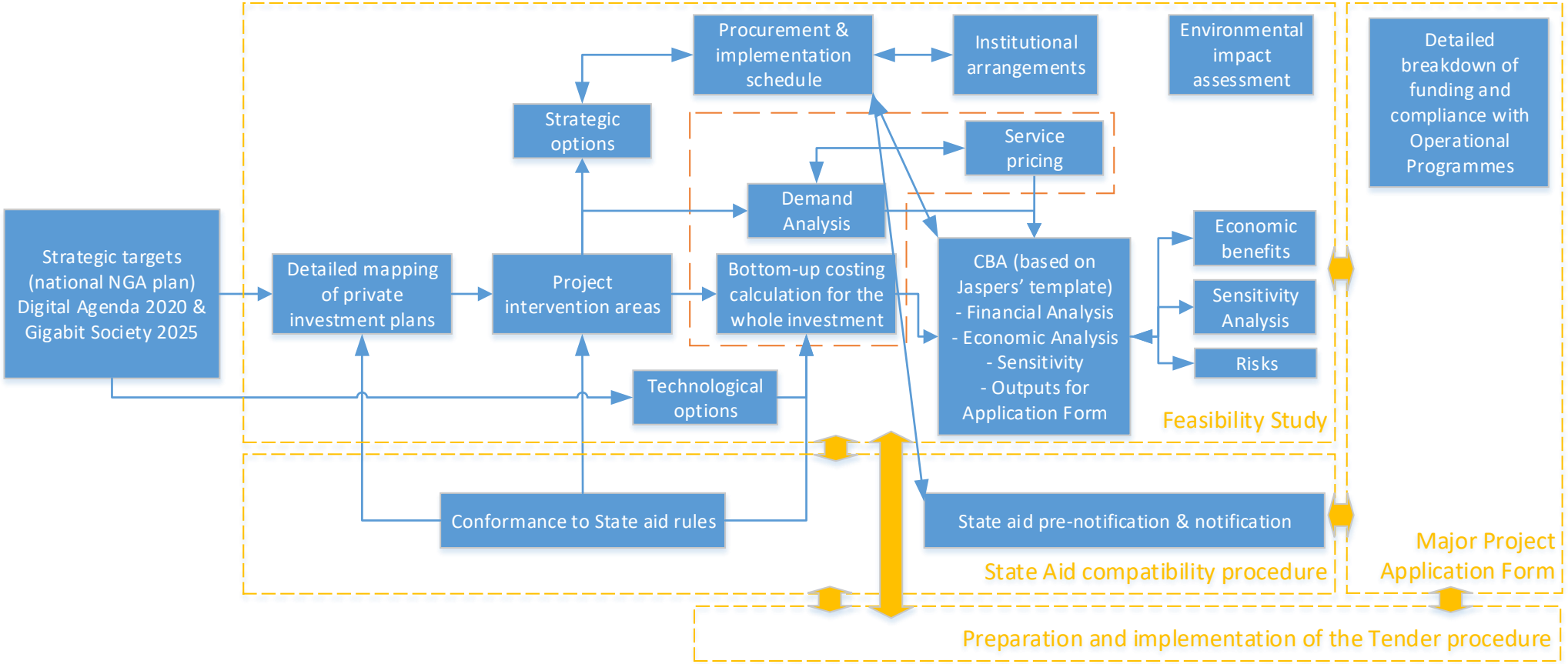
Project segmentation and LOTs



Comments

- The project is segmented into 7 geographic areas (LOTs).
- Each LOT, corresponds to an addressable market of 103-126K active lines
- Bidders will have the option to bid for multiple LOTs.
- Up to 3 LOTs can be awarded to the same bidder unless no biding interest is shown for certain areas.
- 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

Preparing the UFBB Project



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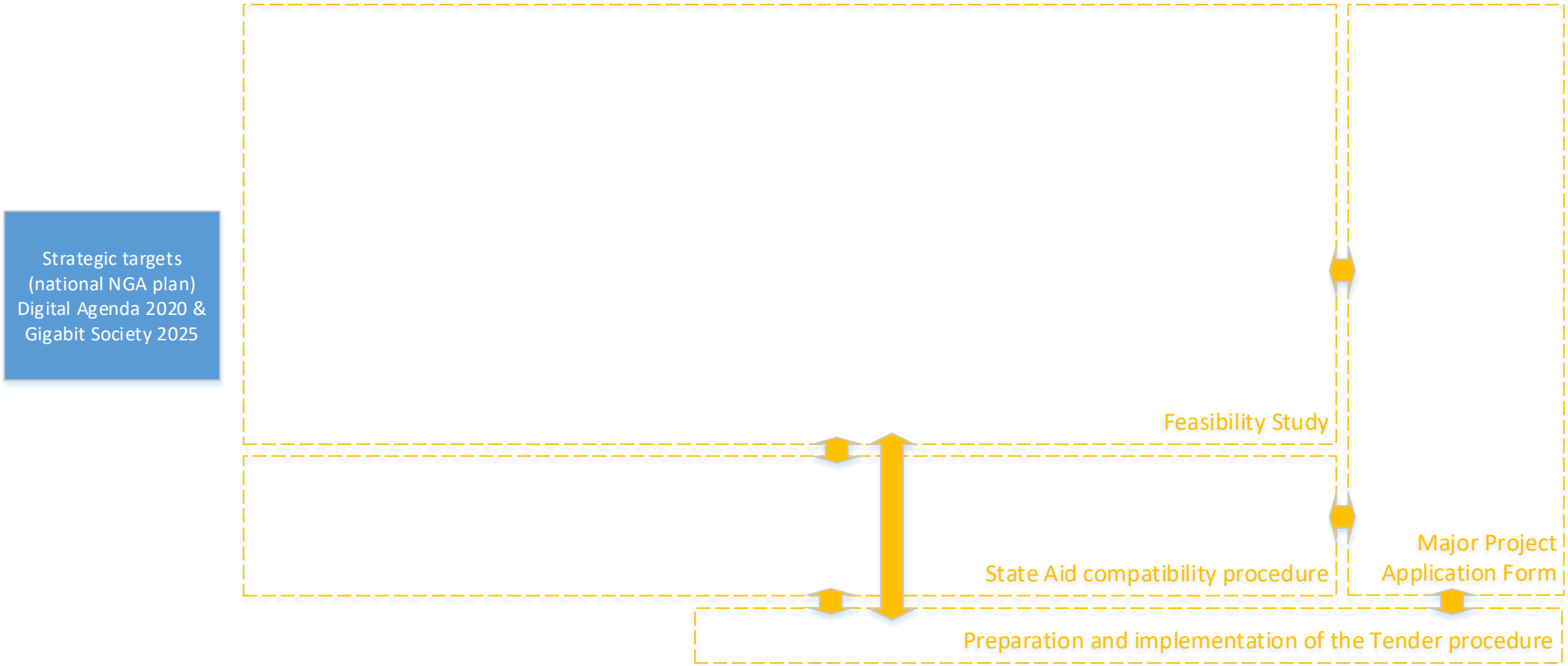

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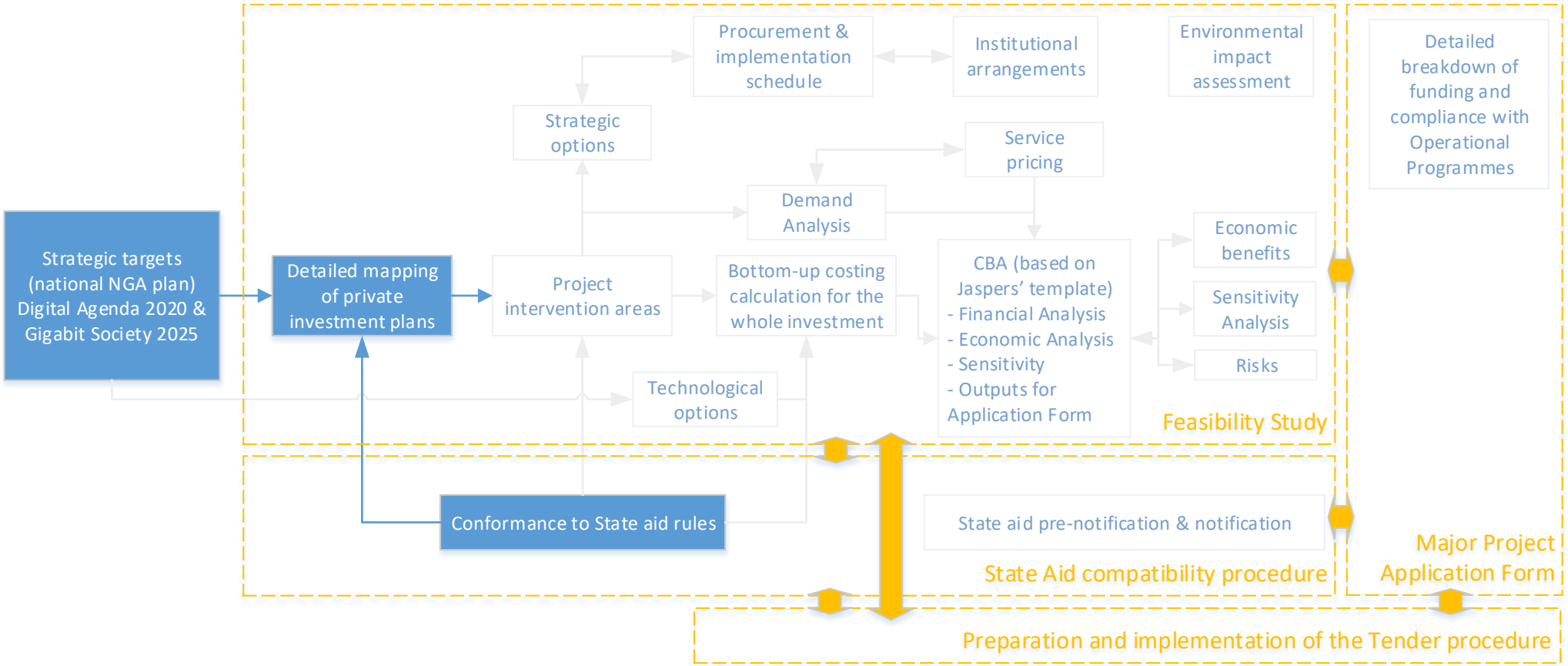

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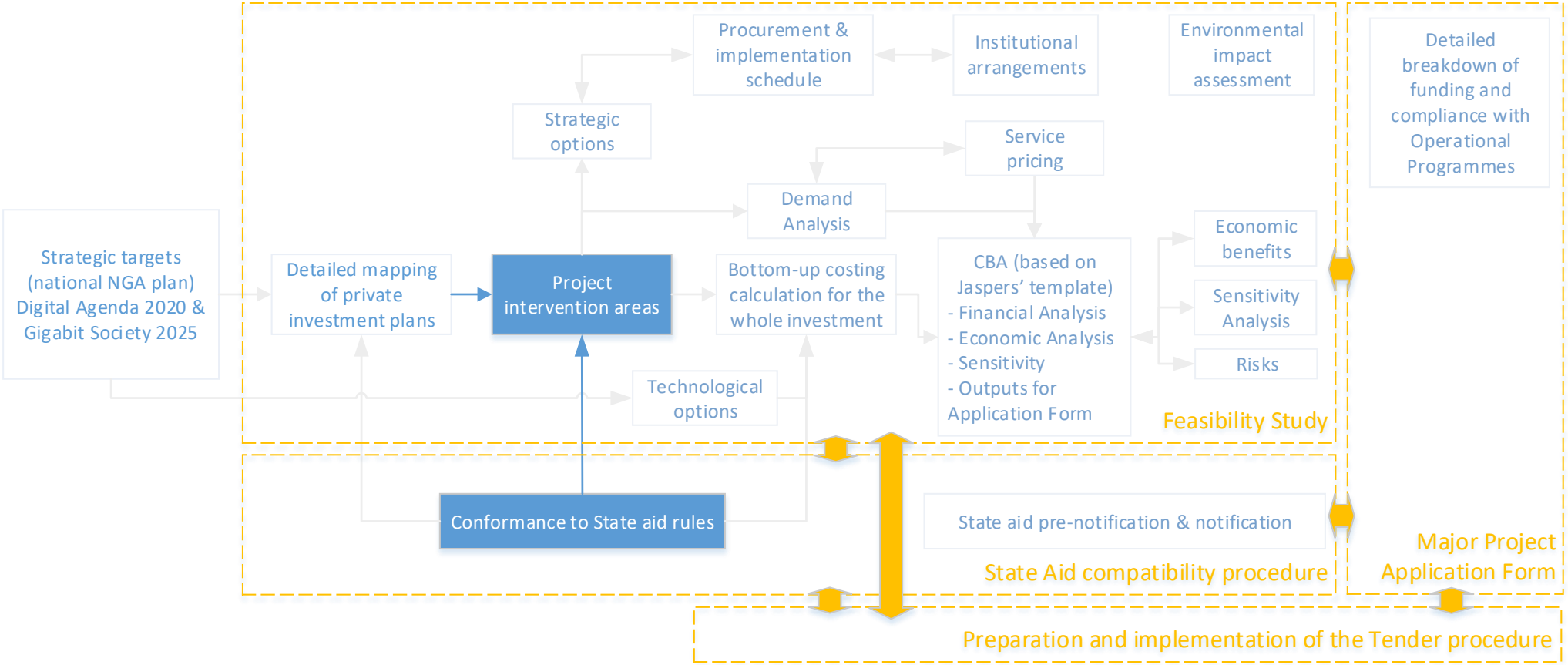

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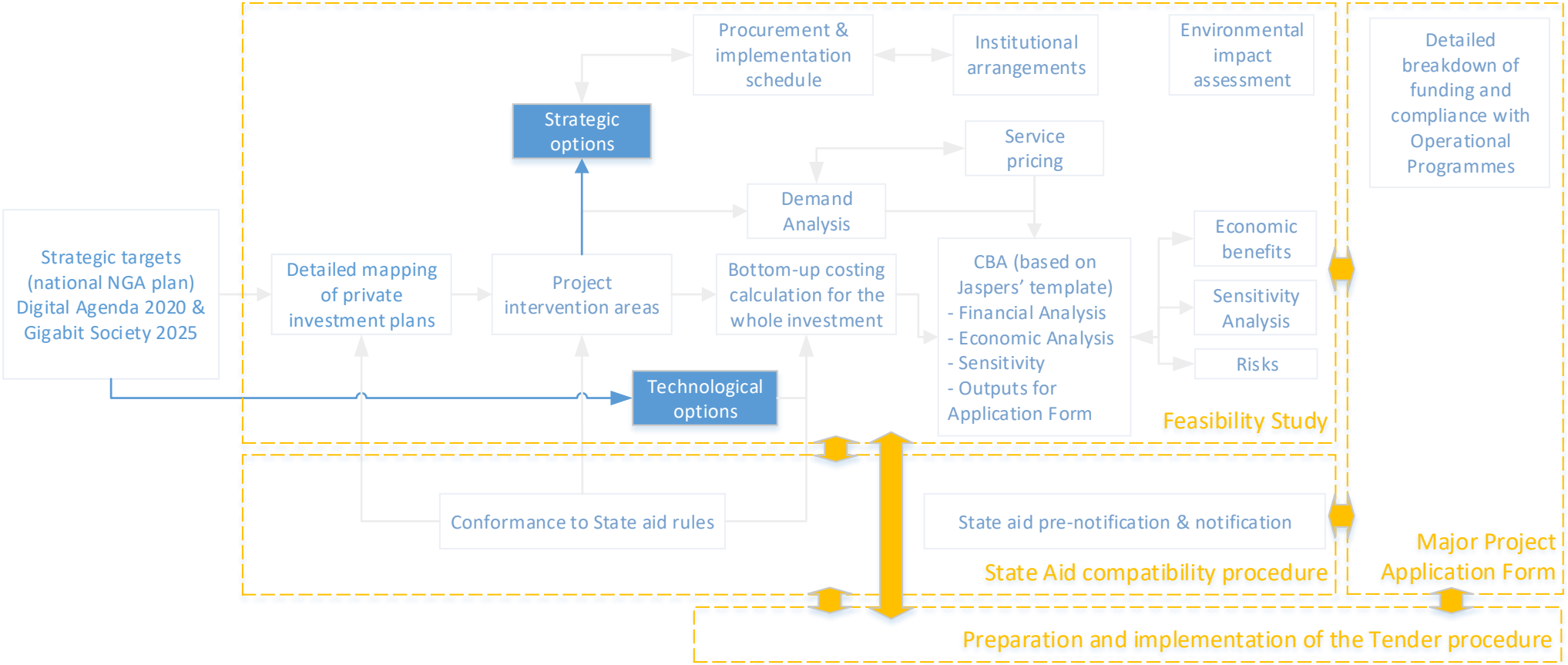

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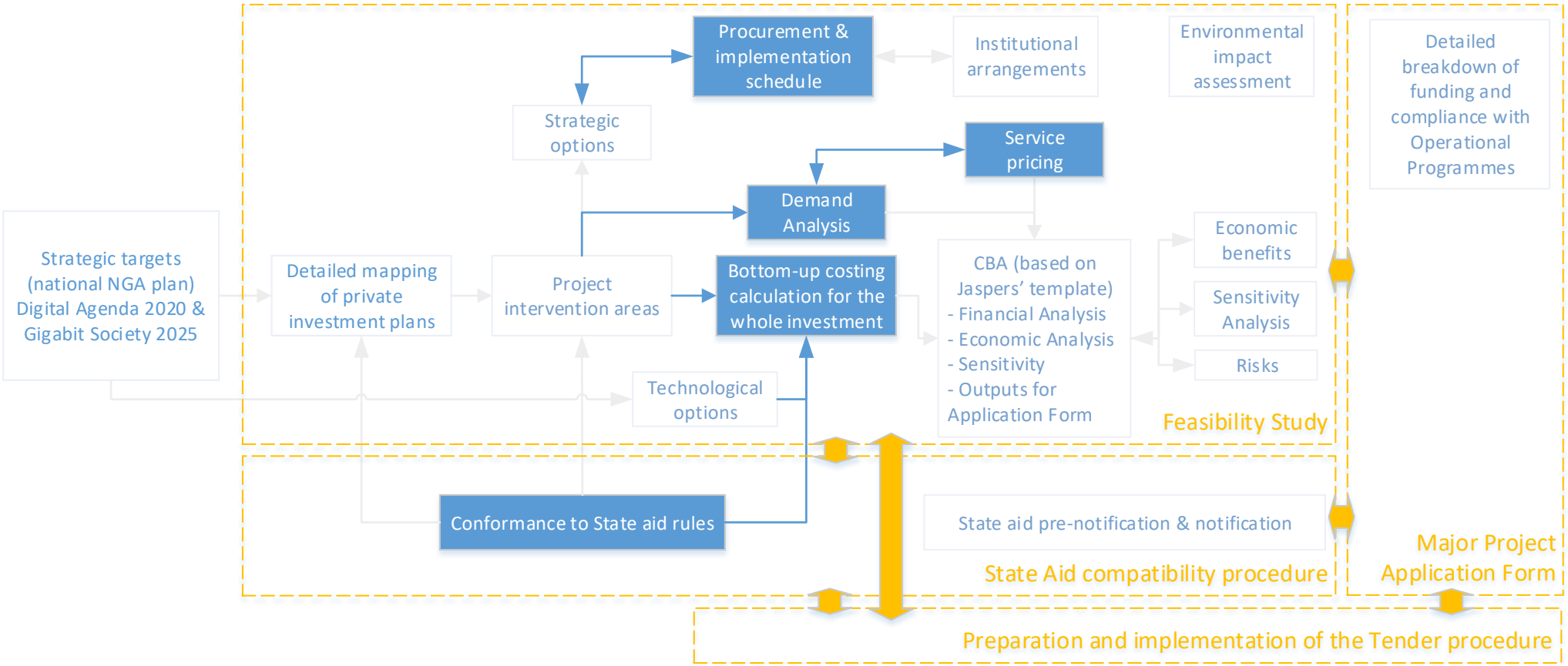

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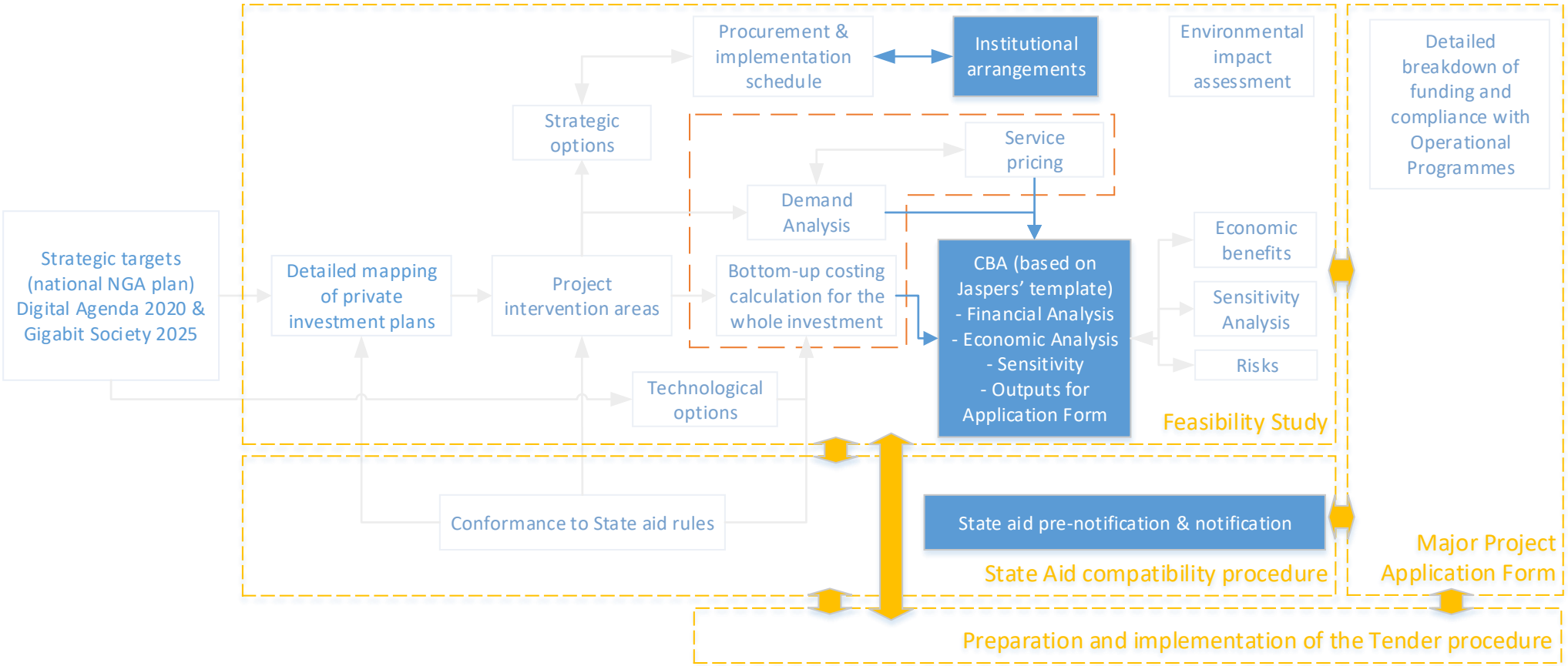

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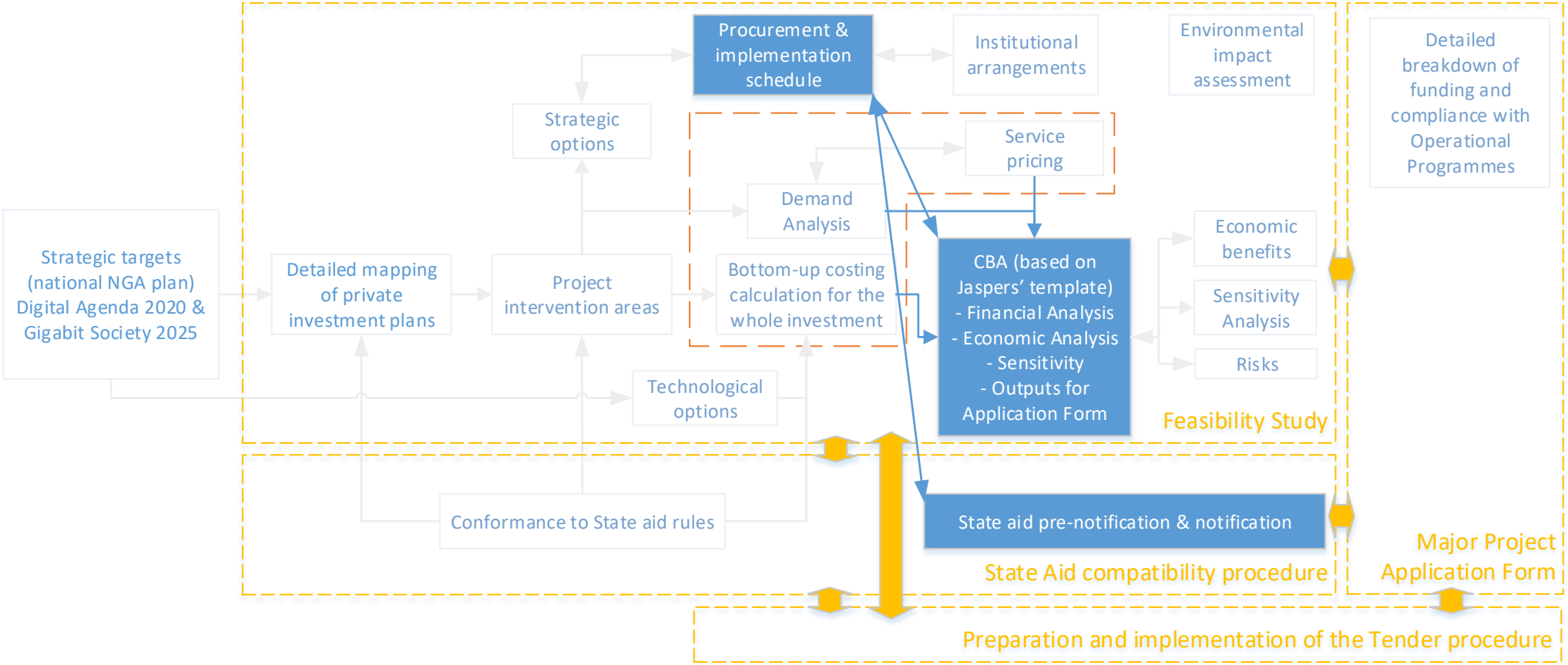

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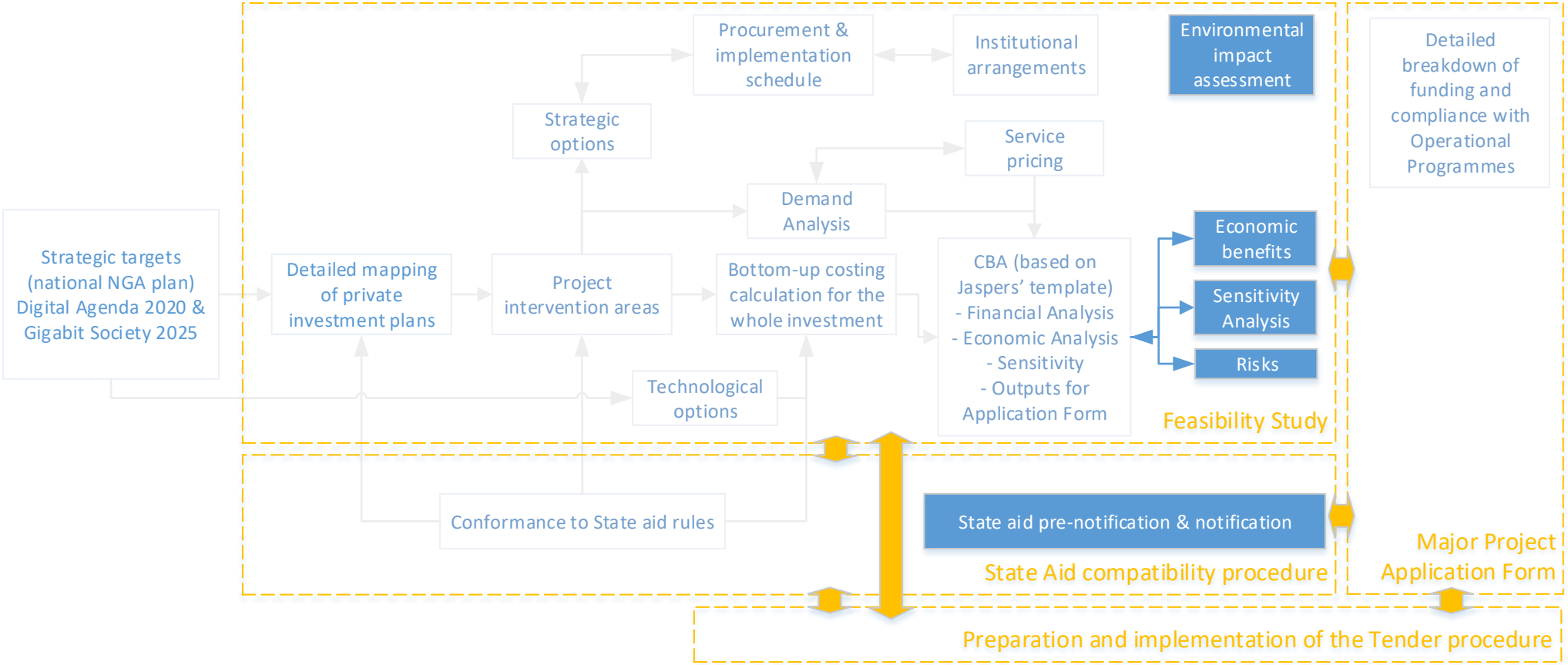

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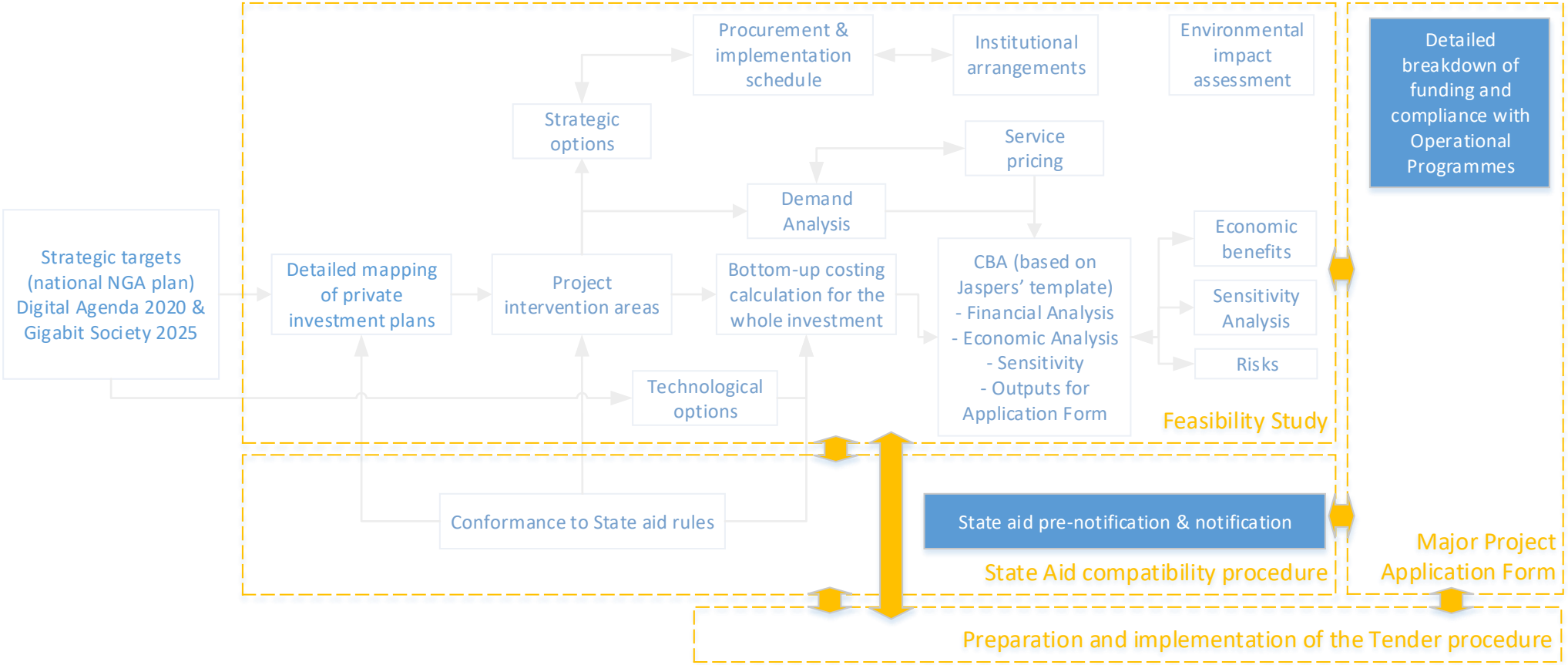


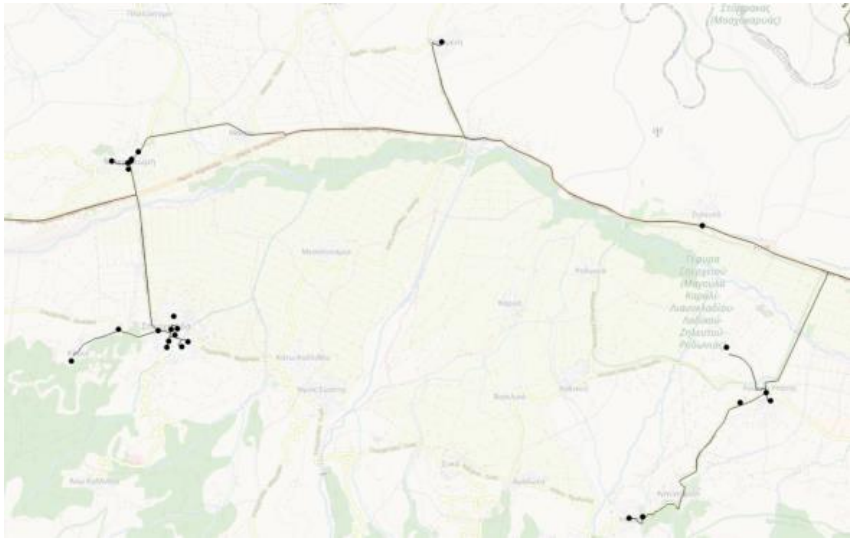
Challenges of the pilot user (UFBB was the first project to use the new CBA template)

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

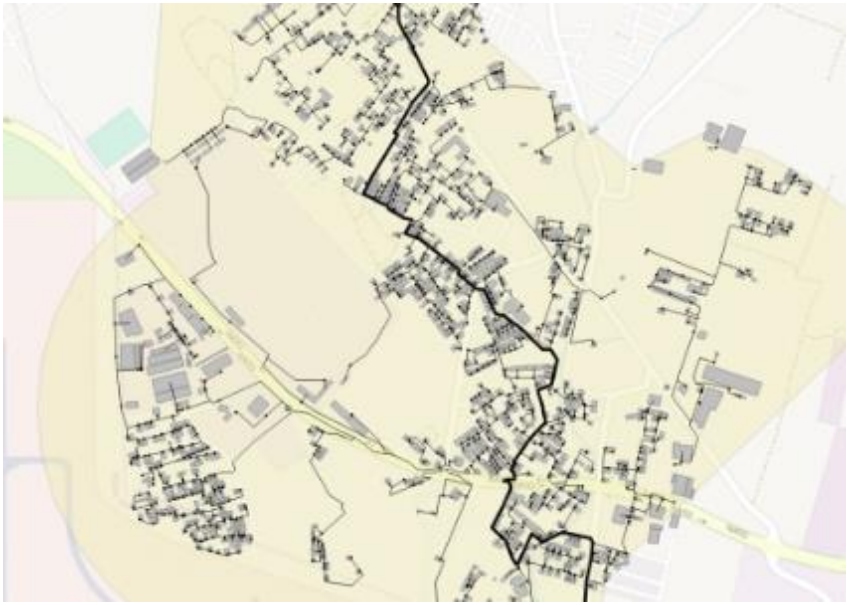
Key benefit: Allows to **focus on the project itself**, instead of building and proof-checking a new CBA from scratch: Once familiar with the template, confidence is built-in and therefore, a “guidebook” approach can be followed

Bottom-up cost model

Backhaul



Access



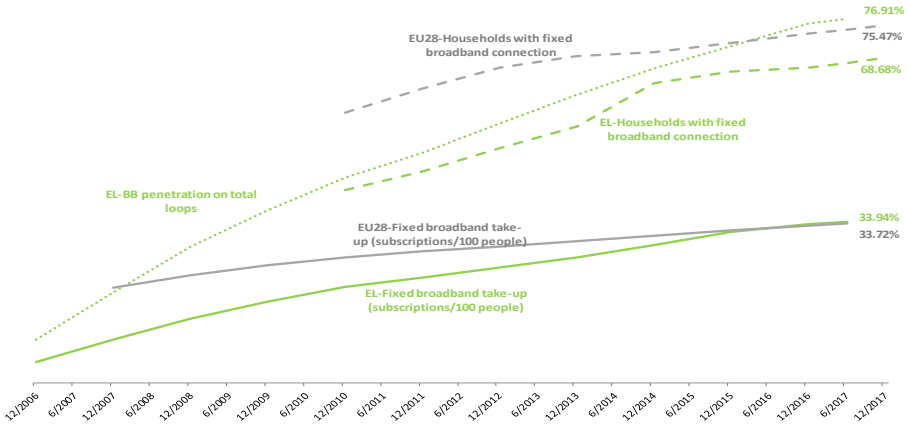
Bill of materials

LOT	Cost_Class	Item_code	Item_description	Unit_cost	Unit	Quantity	Cost	Capex cate
1	A	Splice-Box	BEPs	20	item	41740	834,800 €	3b
1	A	CONSTRUCT-MT	Construction of small microtrench (6x30cm) for laterals and reconstitution (no blowing). Includes RoW	3700	km	292	1,081,066 €	3b
1	A	M/HOLE-CONSTR-60-80	Construction of a medium manhole (60x80cm)	220	item	1820	400,404 €	3b
1	A	M/HOLE-COVER-60-80	Cover of a medium manhole (60x80cm)	170	item	1820	309,403 €	3b
1	A	M/HOLE-DOUBLE-CONSTR	Construction of a double size manhole (120x80cm)	420	item	670	281,400 €	3b

Demand analysis & service pricing

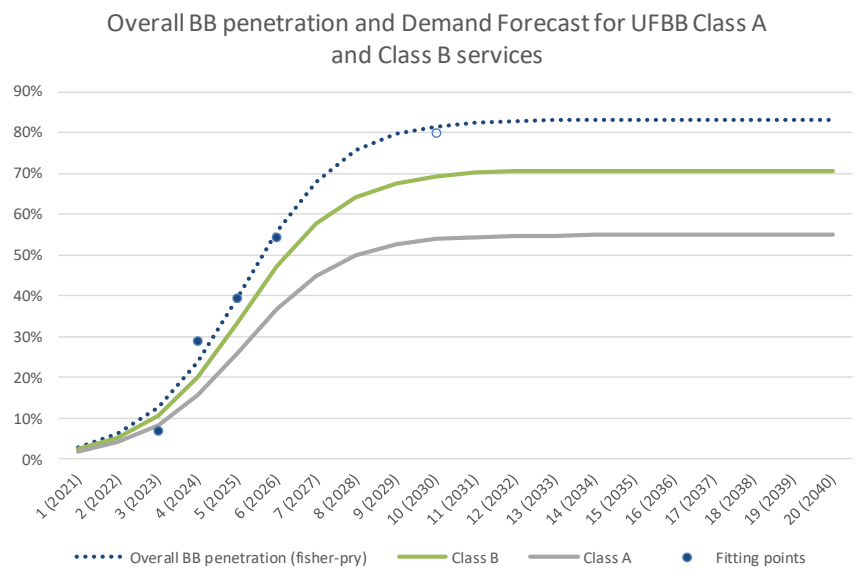
Selecting the right metric & price levels

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



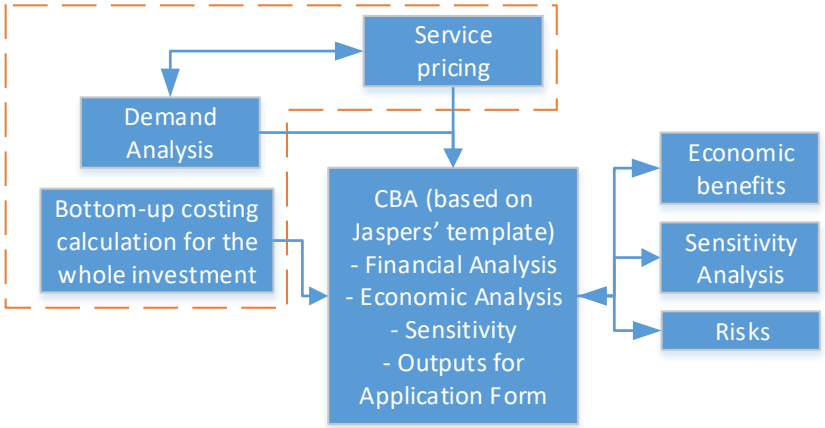
Monthly Cost per Subscriber and per Speed		
Connections in the buildings entrance (BEP)		Connection Fixed Cost
30 Mbps/ 3 Mbps	€ 12.84	€ 57.01
50 Mbps/ 5 Mbps	€ 13.48	
100 Mbps / 10 Mbps	€ 15.08	
200 Mbps / 20 Mbps	€ 18.28	
300 Mbps / 30 Mbps	€ 21.48	
500 Mbps / 50 Mbps	€ 27.88	
1 Gb / 100 Mbps	€ 43.88	
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	

Forecasting based on fitting to historical data



Supportive excel to feed the CBA

Concept



Implementation

ELIGIBLE capital expenditure	2020	2021	2022
	33%	33%	34%
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 €
b. Access network infrastructure	101,613,980 €	101,613,980 €	104,693,191 €
4. Plant and machinery			
a. Backhaul equipment infrastructure	7,167,468 €	7,167,468 €	7,384,664 €
b. Access equipment infrastructure	6,592,010 €	6,592,010 €	6,791,768 €
5. Contingencies			
6. Price adjustment			
7. Publicity	425,145 €	425,145 €	438,028 €
8. Supervision during contrusction 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			
12. TOTAL	243,413,167 €	225,339,253 €	232,167,715 €

Inputs

Generic input parameters	Unit	Value
First year of infrastructure roll-out	Year	2020
Number of roll-out years	Year	4
Currency used in the model		EUR
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%
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	#	1,461,785
Reference period	Year	20
Correction factor parameters	**Unit**	**Value**
CAPEX Correction factor due to fiscal corrections / shadow pricing	#	0.88
OPEX Correction factor due to fiscal corrections / shadow pricing	#	1.00
Socio-economic parameters	**Unit**	**Value**
Current (localised) GVA per employee	EUR	39,589

Note: Currency cod

Note: 5% for major p

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
Residual value (Economic analysis)	EUR	0	0	0

OPERATOR Cashflow projections (constant 2020 prices) ELIGIBLE capital expenditure		2020	2021	2022
1. Planning/design fees	EUR	18,073,915		
2. Land purchase	EUR			
3. Building and construction				
a. Backhaul network infrastructure	EUR	97,199,081	97,199,081	100,144,508
b. Access network infrastructure	EUR	101,613,980	101,613,980	104,693,191
4. Plant and machinery				
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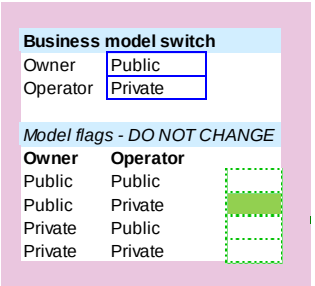
5. Contingencies	EUR			
6. Price adjustment	EUR			
7. Publicity	EUR	425,145	425,145	438,028
8. Supervision during contrusction implementation	EUR	12,341,568	12,341,568	12,715,555
9. Technical assistance	EUR			
10. Sub-TOTAL	**EUR**	**243,413,167**	**225,339,253**	**232,167,715**
11. VAT	EUR			
12. TOTAL	**EUR**	**243,413,167**	**225,339,253**	**232,167,715**
Total capital expenditure				
ELIGIBLE capital expenditure	EUR	243,413,167	225,339,253	232,167,715
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	Comments
Clear & well defined structure	Concise Financial and Economic analysis: no ambiguity with regards to what should be included and where (with full alignment to the CBA guide)
Quantifiable economic benefits • Business employee benefits • Household consumer surplus	Used results to shape project's awarding criteria → focus on gigabit coverage of scope areas
Integrated approach	Used the output of the Financial analysis to "segment" the project in equivalent "lots"
Sensitivity, qualitative risk and new jobs created	Clear and straightforward to prepare



Business model switch	
Owner	Public
Operator	Private

Model flags - DO NOT CHANGE	
Owner	**Operator**
Public	Public
Public	Private
Private	Public
Private	Private

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

Vasilis Dermosoniadis
vd@enomix.gr
+30 2108144576

More Information

For info or further questions on this seminar and the activities of the JASPERS Networking Platform, please contact the JASPERS Networking and Competence Centre at the following email:

jaspersnetwork@eib.org

JASPERS Networking Platform: www.jaspersnetwork.org

JASPERS Website: jaspers.eib.org