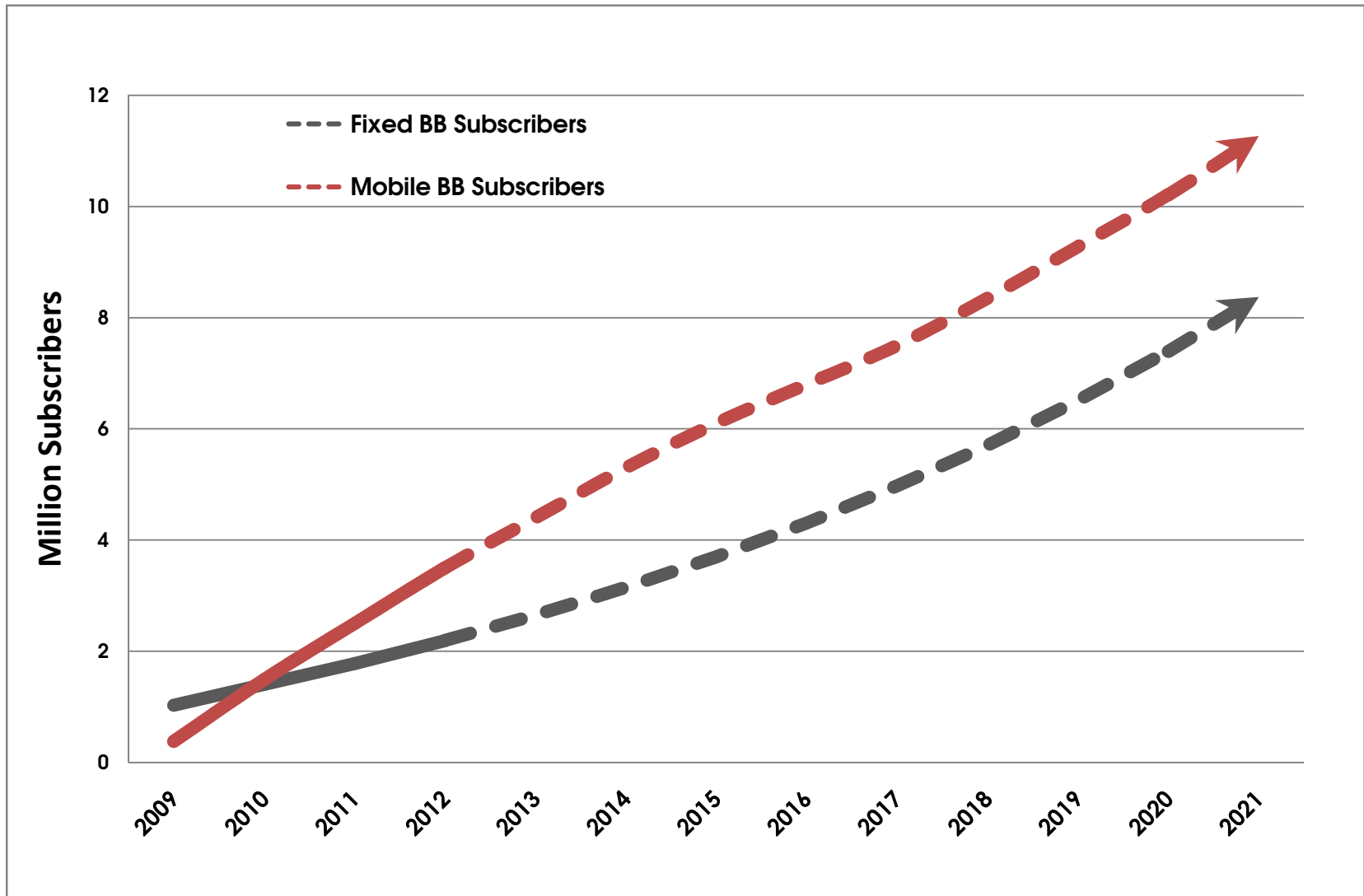




# **Detecon Consultation**

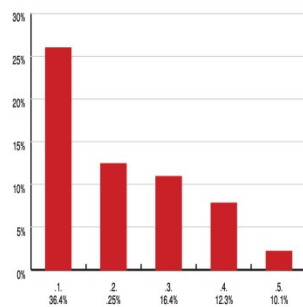


# Projected Growth in Broadband Subscribers

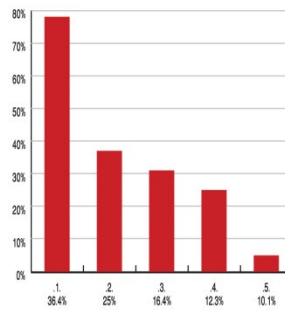


# Constraints

- Unavailability of the service
- Line sharing
- RoW and civil work
- PC penetration
- Affordability
- Illiteracy Rate
- E-literacy
- Local Content



Service Cost (45 EGP/month)

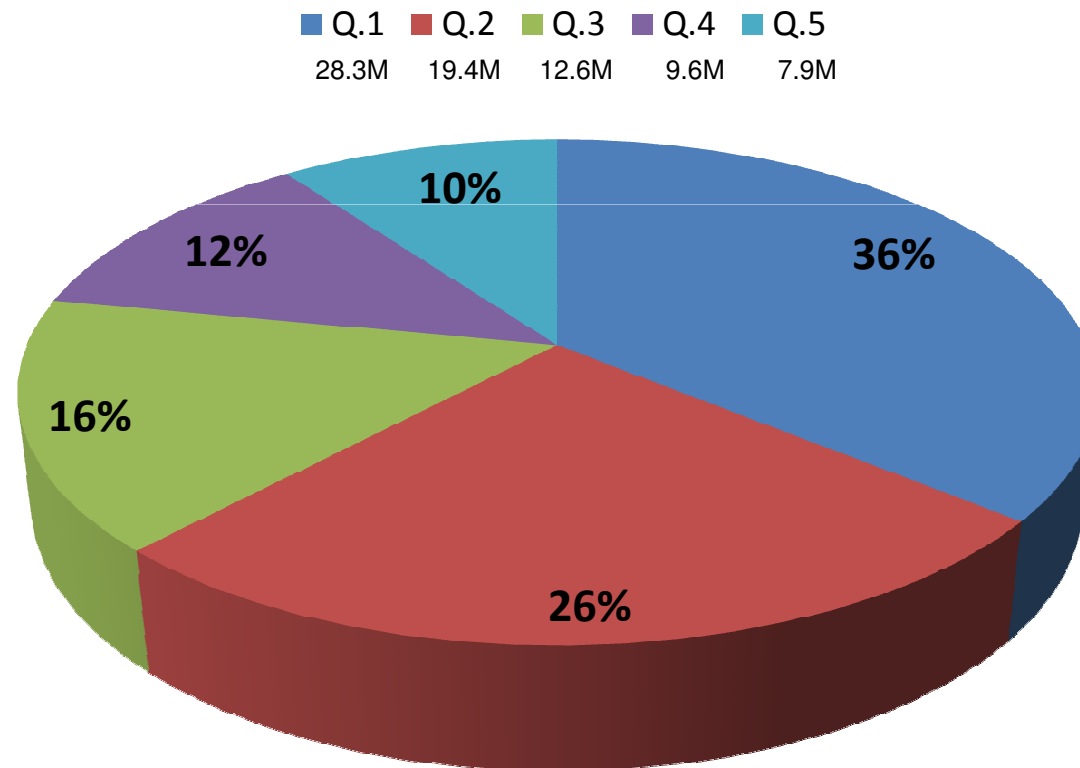


Entry Level (1585 EGP) vs Annual Income

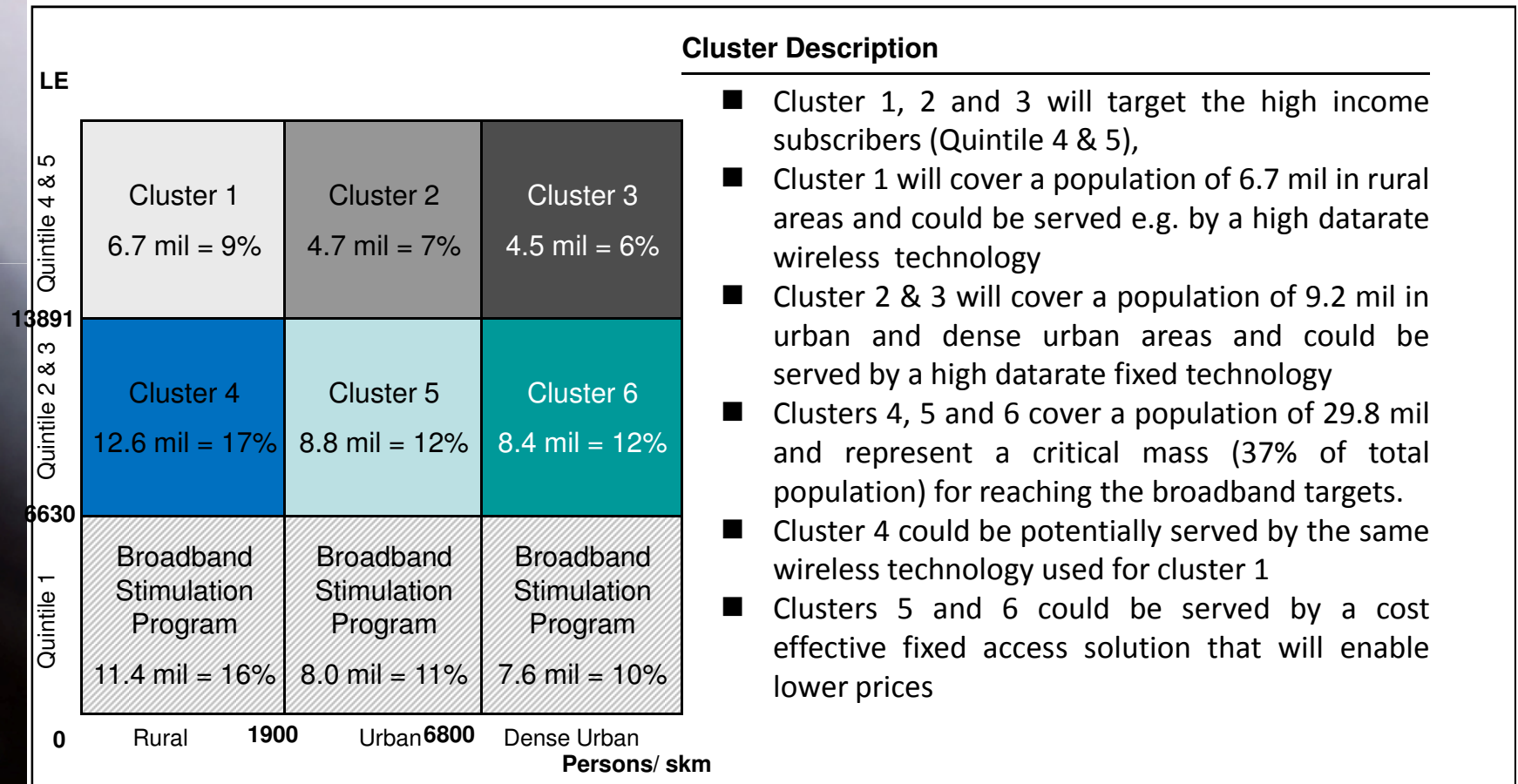


# Income Quintiles

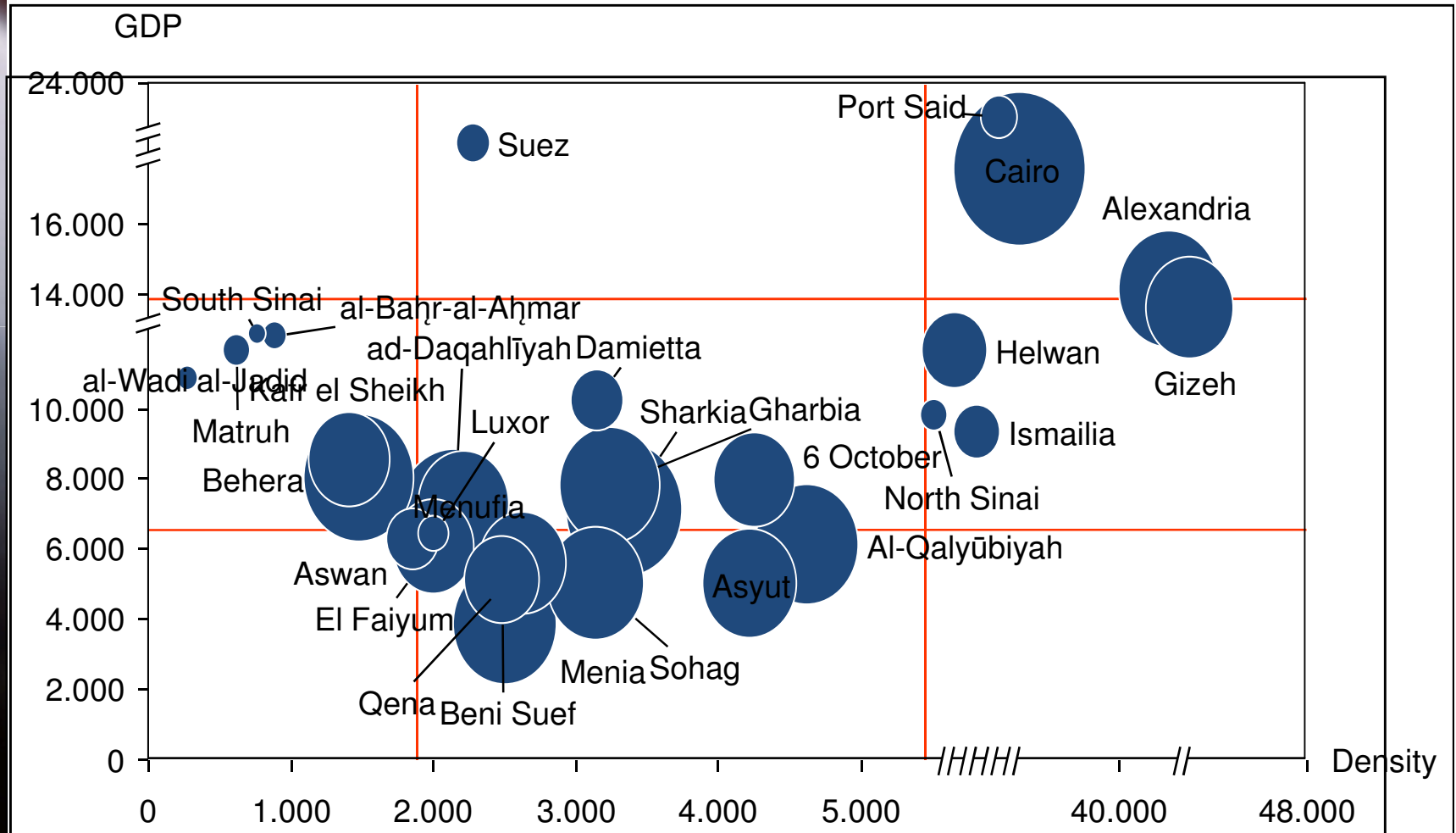
Income quintiles are calculated by listing all the Sheyakha's per capita incomes and dividing them into five 20% groupings.



# Geographical/ Customer Clusters



# Governorate Mapping to geographical/customer clusters



# Business and Technology Requirements

## Approach

The requirements profiles enable the identification of most important business and technology requirements, which will be used for selecting the best suitable technology.

## Aspects per cluster

### For each cluster group, following questions will be answered:

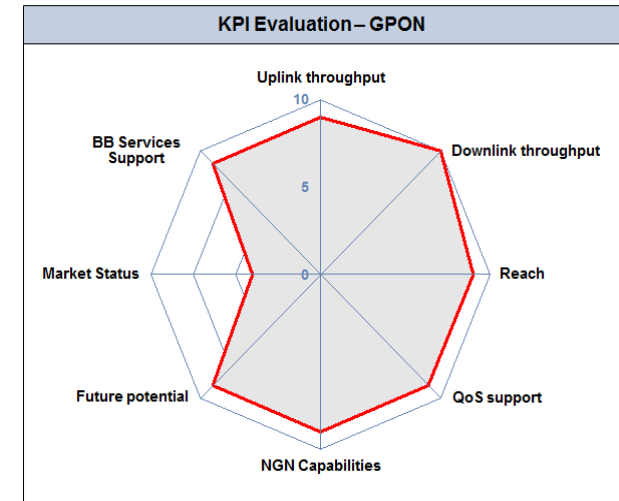
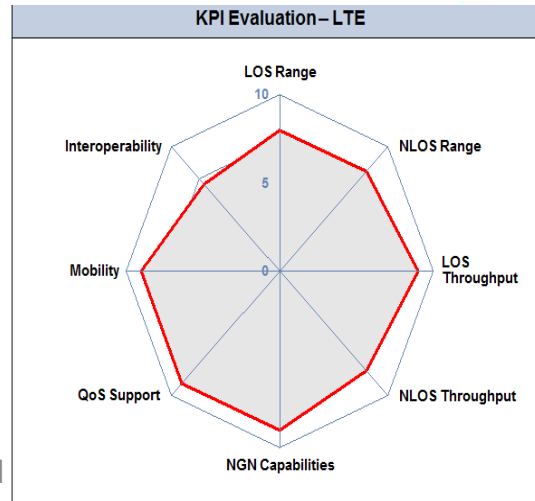
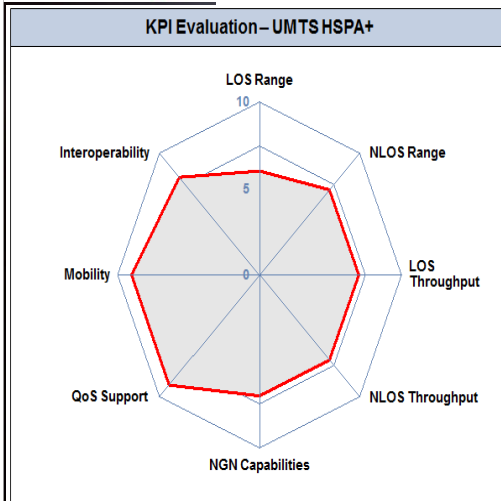
1. Which broadband services are likely be offered?
2. What is the targeted throughput per user?
3. Does the price of the service play an important role (the services should be as cheap as possible) or is the user willing to pay more for an increased service quality?
4. What are the coverage requirements? Indoor/ outdoor? Rural/ urban ?
5. What are the mobility requirements? Should the services be consumed mainly in a fixed place or rather when moving?
6. What are the service quality expectations? Can a yet immature technology be deployed or is an established, proven technology a must for this cluster?
7. What is the target time to market for the services/ potential technology?
8. Are there any boundary conditions known for this cluster (e.g. a technology was already rolled out)?

# Technology Selection Catalogue

KPI Mobile	Description	0	Valuation	10
1 LOS Range	Theoretical distance limit for acceptable transmission quality between transmitter and receiver when in line of sight (LOS) of each other and assuming standard system configuration	< 1km	10 km	> 50 km
2 NLOS Range	Typical coverage range in a cellular environment and with NLOS propagation assuming standard system configuration (output power, sensitivity...)	< 0.1 km	1 km	> 5 km
3 LOS Throughput	Maximum user throughput for LOS propagation assuming standard system parameters	< 0.05 Mbit/s	5 Mbit/s	> 100 Mbit/s
4 NLOS Throughput	Achievable user throughput in a cellular environment with NLOS propagation assuming standard system configuration	< 0.05 Mbit/s	3 Mbit/s	> 50 Mbit/s
5 NGN Capabilities	Level of compliance with NGN requirements (end to end packet based, open and standardized architecture, IPv4/ IPv6 support, QoS support, packet inspection etc...)	no	partly	extended
6 QoS Support	Measure of the breadth of QoS (Quality of Service) mechanisms (e.g. traffic classes, delay, reliability, jitter)	no	medium	extended
7 Mobility	Indication of the type of users provided for, incrementally: fixed, nomadic, portable, mobile (further categorized by supported speed ranges)	fixed nomadic	portable	mobile
8 Interoperability	Measure of both the compatibility of a technology with others of the same family and the degree of inter-working with other standards	no	in family	global

LOS = Line of sight, NLOS = No line of sight, QoS = Quality of Service

KPI Fixed	Description	0	Valuation	10
1 Downlink throughput	Maximum achievable downlink user throughput	< 0.1 Mbit/s	1 Mbit/s	> 100 Mbit/s
2 Uplink throughput	Maximum achievable uplink user throughput	< 0.1 Mbit/s	1 Mbit/s	> 100 Mbit/s
3 Reach	Physical reach on the local loop	< 0.5 km	1 km	> 25 km
4 QoS Support	Capability to support Quality of Service (QoS) mechanisms, e.g. prioritization, traffic classes	no	medium	extended
5 NGN Capabilities	Level of compliance with NGN requirements (end to end packet based, open and standardized architecture, IPv4/ IPv6 support, QoS support, packet inspection etc...)	no	partly	extended
6 Future potential	Indication of capabilities to evolve towards new technologies	low	medium	high
7 Broadband Services Support	Indication of the capability to support future broadband service offerings such as IPTV, etc	low	medium	high
8 Market Status	Establishment/ maturity of the technology in the market	new		mature



broadband

# Technology Options

## Methodology for the Evaluation of Technology Options

### Technology Analysis

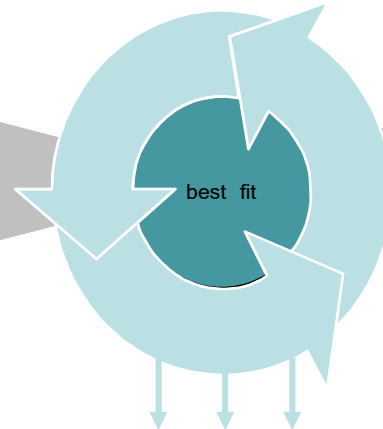
**Technology Option : HSPA (exemplary)**

KPI 1: Range	6
KPI 2: Throughput	4
KPI 3: ....	2
KPI 10: Mobility	9

### Cluster Requirements Analysis

**Cluster Profile**

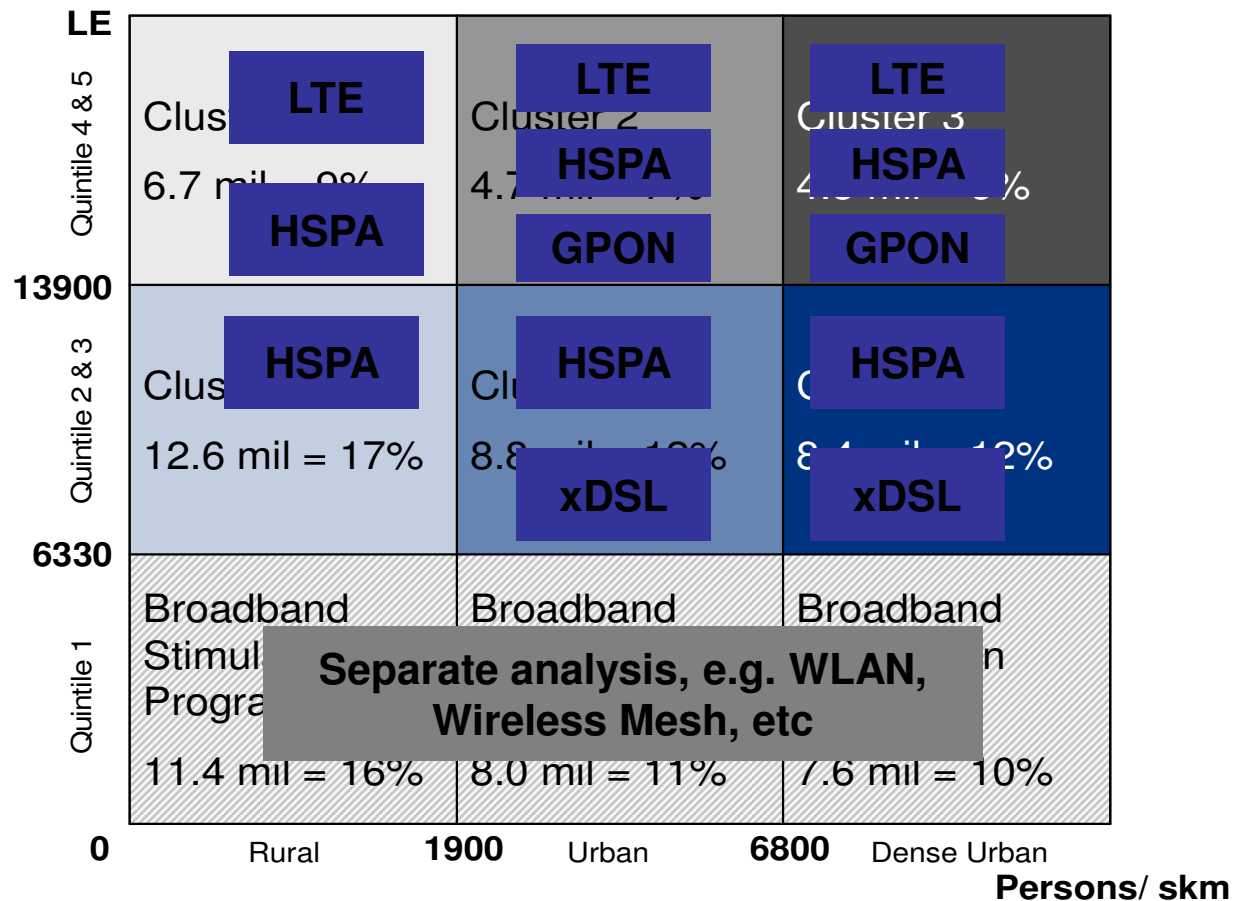
Questions	Answers/ Cluster Profile
1. Which broadband services are likely to be offered?	1. High speed broadband, multimedia content, online gaming, IPTV
2. What is the targeted throughput per user?	2. Target datarate: DL 20 Mbps, latency lower than 100ms
3. Does the price of the service play an important role (the services should be as cheap as possible) or is the user willing to pay more for an increased service quality?	3. Price is not the most important factor, datarates and quality are more important
4. What are the coverage requirements? Indoor/ outdoor? Rural/ urban ?	4. Outdoor and indoor coverage expected. Different coverage requirements per density area: <ul style="list-style-type: none"> <li>Low density areas: up to maximum 1900 persons (475 subscribers) per square Km</li> <li>Medium density areas up to maximum 6800 persons (1700 subscribers) per square Km</li> <li>High density areas up to maximum 400,000 persons (100,000 subscribers) per square km</li> </ul>
5. What are the mobility requirements? Should the services be consumed mainly in a fixed place or rather when moving?	5. Fixed, nomadic and mobile broadband access expected
6. What are the service quality expectations? Can a yet immature technology be deployed or is an established, proven technology a must for this cluster?	6. Best in class service quality expected
7. What is the target time to market for the services/ potential technology?	7. Time to market: as soon as possible (e.g. 2012)
8. Are there any boundary conditions known for this cluster (e.g. a technology was already rolled out)?	8. Boundary conditions: limited arabic multimedia services and arabic IPTV content. Broadband penetration about 11.5%. Partially covered by HSPA or DSL technologies



### Recommendations per Cluster

- Best fit analysis
- Technology recommendations and argumentation

# Technology Options per cluster



# Key Recommendations

- [Support](#) should be provided for expansion of DSL in marginal areas;
- [Private](#) sector needs to be in the vanguard to achieve the targets;
- [TE](#) should be required to offer cost-based dark fiber and duct access: The cost based pricing should be based upon the underlying costs of provision of the service, as assessed by NTRA;
- [New](#) Infrastructure Facilities License(s) should be issued;
- [New](#) Fixed Access licenses should be issued to provide local fiber based data networks;
- [Fiber](#) To The Community should be the goal for economically unviable areas;
- [Public](#) Access Points with Broadband access should be established in all communities with fiber access;
- [Mobile](#) Broadband geographical coverage should be expanded ;
- [Government](#) should commit to being the Anchor Tenant for new fiber access networks;
- [NTRA](#) should commission research to determine the nature and scale of Line Sharing.



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**THANK YOU**