# Survey on the feasibility of 5G deployment in Malta

Kindly complete the following survey electronically by submitting your responses to **5G@mca.org.mt** by **28th June 2019.**

The advent of 5G promises to bring about a number of benefits which will enhance the way we communicate, empower us to better safeguard our society and change the way we do business. However, 5G is primarily the reaction to three different possible use cases which are a combination of society’s desire for more data, faster data communications links and hyper-connectivity. The three use cases are enhanced Mobile Broadband (eMBB), massive Machine-Type Communication (mMTC) and Ultra-Reliable and Low Latency communication (URLLC).

Supply must meet demand in an economically feasible manner. Without sufficient demand and/or the willingness to pay for such demand, one may question whether 5G is necessary and rely on existing 4G or 4.5G.

In view of the various factors which may influence when 5G is deployed in Malta, the Malta Communications Authority invites you to participate in the following survey. The questionnaire intends to shed light on the market use elements which may accelerate the feasibility of 5G.

1. 5G is the technological adaptation to various number of user-driven developments, such as the continuous increase in mobile video consumption, the ubiquitous Internet of Things and the uptake of various emerging latency-constrained applications. Consequently, 5G shall cater for three use cases: eMBB, mMTC and URLLC. Out of these three, the first 5G use case that is foreseen to be deployed will be eMBB.

Will applications requiring communications link capable of a data rate of at least 200Mbps (eMBB applications) be the first stimulus for the deployment of 5G networks in Malta?

1. When do you estimate that the following 5G services will be introduced in Malta:
* Services requiring at least 200Mbps - eMBB: Choose an item.
* Services that support a connection density of at least 105 devices/km2 - mMTC: Choose an item.
* Services that require a latency of up to 1ms – URLLC: Choose an item.
1. Answer the following question if you represent an industry that can benefit from the **use** of 5G:
	1. Do you feel that current solutions can continue to meet your business needs in the next 5 years? Choose an item.
	2. Do you feel that current solutions can continue to meet your business needs in the next 10 years? Choose an item.
	3. If you replied yes, to any of the above (3a and/or 3b) kindly mention the solutions which will fulfil your needs: Click here to enter text.
2. Answer the following question if you represent a Mobile Network Operator:
	1. Do you feel that current solutions can continue to meet the needs of the Maltese society including its businesses in the next 5 years? Choose an item.
	2. Do you feel that current solutions can continue to meet the needs of the Maltese society including its businesses in the next 10 years? Choose an item.
	3. If you replied yes, to any of the above (3a and/or 3b) kindly mention why do you think this is so by selecting all which apply from the below:

[ ]  The demand is not increasing at the same rate as it is internationally

[ ]  Assigned Spectrum is such that it can cater for the estimated increase in capacity

[ ]  Services which will rely exclusively on 5G such as mMTC and URLLC will not be adopted in Malta.

[ ]  The existing 4G network is dense and can cater for the estimated increase in capacity

[ ]  It is more feasible to acquire more spectrum than to roll-out 5G given the local user needs

1. Rate the probability each of the following possible use cases being introduced in Malta with the next 10 years using the Likert Scale where:

1 indicates **low probability** of the use case being introduced in Malta and

5 indicates **high probability** of the use case being introduced in Malta.

|  |  |
| --- | --- |
| Fixed Wireless Access example to provide fixed Broadband | Choose an item. |
| Automotive – To provide assisted or autonomous driving |
| Intelligent Transport Systems | Choose an item. |
| Vehicle-to-Vehicle Communication | Choose an item. |
| Vehicle-to-Infrastructure Communication | Choose an item. |
| Media and Entertainment |
| Gigabit Hot Zones during Large Events | Choose an item. |
| Transmission of Ultra-High Resolution Content indoors using wireless connectivity – 4K video for indoor use | Choose an item. |
| Virtual Reality Applications for Tourism | Choose an item. |
| Virtual Reality for Gaming | Choose an item. |
| Manufacturing and Logistics |
| Industry 4.0 example automation | Choose an item. |
| Intelligent Logistics - Assets Tracking, Stock Management, Temperature Control, Order Tracking | Choose an item. |
| Machine-to-Machine Communications – Sensors and Connected Wireless Devices | Choose an item. |
| Energy and Utilities |
| Smart Buildings | Choose an item. |
| Smart Utilities such as Intelligent Street Lighting | Choose an item. |
| Smart City | Choose an item. |
| Monitoring of supply infrastructures[[1]](#footnote-1) | Choose an item. |
| Smart Grids |  |
| Healthcare |
| TeleMonitoring | Choose an item. |
| Connected Ambulances | Choose an item. |
| Teleconsultation (Doctor-to-Patient) | Choose an item. |
| Teleconsultation (Doctor-to-Doctor) | Choose an item. |
| Public Safety |
| Monitoring and Law Enforcement (Video Surveillance) | Choose an item. |

1. Is it envisaged that certain vertical industries would prefer existing non-5G solutions over 5G? If yes,
	1. Identify clearly the verticals being referred to

Click here to enter text.

* 1. Why would non-5G solutions be preferred over 5G?

Click here to enter text.

1. Demand will increase as a result of emerging next generation applications that rely on intelligent connectivity. Indicate how critical 5G is for the development of applications which rely on the following:

*1 means 5G is not necessary* and

*5 means 5G is necessary*

|  |  |
| --- | --- |
| Artificial Intelligence | Choose an item. |
| IOT | Choose an item. |
| Big Data | Choose an item. |

1. As applications evolve what comes first the use case or the network that can enable it?

Click here to enter text.

1. Will there be a need for higher levels of specialised services with tailored or customised products rather than off the shelf solutions?

Click here to enter text.

1. What regulatory, planning and other key challenges need to be overcome to support the rapid and cost effective deployment of 5G across Malta?

Click here to enter text.

1. Are there planning or wider legal issues which have the potential to hold back the deployment of 5G networks?

Click here to enter text.

1. What are the challenges of cross-industry collaboration in the deployment of 5G networks?

Click here to enter text.

1. a. What are the infrastructure requirements for 5G deployment likely to be?

Click here to enter text.

b. What do the services and uses for 5G suggest about the infrastructure requirement?

Click here to enter text.

1. a) What level of 5G coverage will be optimum?

Click here to enter text.

b) What does this level of 5G coverage mean for the challenge of delivering higher speeds and lower latency?

Click here to enter text.

c) Are there particular issues to be faced by urban, suburban and rural areas?

Click here to enter text.

1. a) In what ways could collaboration between infrastructure sectors speed up and improve deployment?

Click here to enter text.

b) How can this be incentivised?

Click here to enter text.

1. a. 5G enabled cities are cropping up across Europe as a showcase for use cases enabled by this technology. If you were to collaborate with a consortium to deploy a 5G-enabled city in Malta, what role do you best fit in?:

*<Choose all that apply>*

[ ]  Neutral Host

[ ]  Infrastructure Provider

[ ]  Mobile Service Provider

[ ]  Tenant providing different use cases

b. Which use cases do you think would be most appropriate and commercially-feasible for the first 5G-enabled Maltese city?

Click here to enter text.

c. Taken into consideration the use cases listed in (b.) what are the characteristics that a 5G-enabled city should have?

Click here to enter text.

d. What is the estimated capital investment necessary to deploy a 5G-enabled city in Malta?

Click here to enter text.

1. Are there any relevant international examples in the deployment of telecoms infrastructure that Malta can learn from?

Click here to enter text.

1. Infrastructures such as Water Sewage or Ventilation Systems [↑](#footnote-ref-1)