



IMT Roadmap Consultation

General comments

Process for radio frequency migration

Overarching statutory framework for radio frequency spectrum migration

Chapter 5 of the Electronic Communications Act, 2005 ("**the Act**") sets-out the Authority's broad powers regarding spectrum administration. These powers encompass *inter alia* controlling, planning, administering, managing and licensing the radio frequency spectrum. In particular, section 34(16) of the Act specifically empowers the Authority to initiate the necessary processes which would culminate in the migration of spectrum users. Although this power is of general application, the Authority promulgated the Radio Frequency Migration Regulations and Radio Frequency Migration Plan, 2013.

Though the Act does not provide detailed guidance on the manner in which migration must be undertaken by the Authority, Intel is of the view that the processes set-out in the Radio Frequency Migration Regulations and Radio Frequency Migration Plan, 2013 are consistent with prudent spectrum management practices. Further, the processes are both rational and reasonable and do not derogate from the substantive purport of section 34(16) of the Act.

Radio Frequency Migration Regulations and Radio Frequency Migration Plan, 2013

Intel notes that the Authority has relied on the provisions of the Radio Frequency Migration Regulations and Radio Frequency Migration Plan, 2013 promulgated under Government Gazette No. 36334 of 3 April 2013 ("**the Regulations**") in initiating the Consultation. In this regard, the Regulations set-out the principles underpinning the necessity for radio frequency migration.¹ Further, the Regulations set-out the rationale which may from time to time underpin the necessity for initiating frequency migration.

¹ See further Regulation 3 entitled *Principles*.

To this end, Regulation 4 reads as follows:

“Process for Radio Frequency Migration

The Authority shall initiate a process of radio frequency migration in the following circumstances:

(a) As specified in the Frequency Migration Plan.

(b) Where a change in the use of a radio frequency band is required to bring the South African National Frequency Plan into line with ITU Radio-regulations or the final acts of the latest WRC.

(c) Where a change in the use of a radio frequency band is required to ensure harmonization of the South African National Radio Frequency Plan with the SADC FAP.” (Own emphasis)

Much of the Consultation document refers to the necessity of harmonizing the spectrum allocations in the South African National Radio Frequency Plan with those reflected in the International Telecommunication Union Band Plan for Region 1. Further, the IMT bands forming the subject-matter of the Consultation have already been allocated for IMT services as part of the deliberations at WRC-07 and WRC-12.² To this end, Intel has also understood the Consultation as being largely concerned with giving effect to the WRC-07 and WRC-12 resolutions by clearing those bands that have been allocated for IMT services. In the circumstances, Intel welcomes the underlying rationale for the Consultation. In principle, Intel supports the identification of additional spectrum for IMT services, and where necessary clearing and making available those frequency bands that have been allocated for IMT services.

Intel also supports the Authority’s commitment to undertaking feasibility studies as part of the preparatory process prior to initiating any frequency migration. Although the Authority does not believe that all proposed migrations must be informed by a feasibility study, nonetheless Intel believes that these studies ought to provide technically robust evidence which ought to inform the most rational and reasonable manner of undertaking the migration process. In the circumstances, Intel encourages the Authority to undertake feasibility studies for all proposed migrations.

Overall, Intel also believes that feasibility studies ought to be undertaken in conjunction and with the cooperation of those licensees that may be directly or indirectly affected by the proposed migration. Further, the feasibility studies ought to be undertaken in a transparent and objective manner with adequate notice being provided to those persons that are to be directly or indirectly affected by the migration process.

² For instance Resolution 224 (WRC-07), Resolution 222 (WRC-12) and Resolution 223 (WRC-12).

Applicable timeframe for migration

In general, Intel supports the principles relied upon by the Authority in guiding the migration process. In this regard, Intel believes that it is reasonable for the Authority to take into account the following factors:

- the duration of the spectrum licence;
- the time frame to migrate existing customers (end users);
- the economic life of the equipment installed, and
- adequate forward planning.

Generally, orderly frequency migration must take into account the interests of the incumbent spectrum user's committed investments in network infrastructure. Further, the interests of the incumbent spectrum user's customers and their legitimate expectation in continuing to receive uninterrupted and reasonable levels of service quality throughout the migration process must also be considered.

Relationship between the Consultation and South Africa's National Broadband Plan

Intel further supports the interrelatedness of this Consultation with South Africa's National Broadband Plan entitled *South Africa Connect: Creating Opportunities, Ensuring Inclusion: South Africa's Broadband Policy* ("**South Africa Connect**").³ The Consultation makes reference to South Africa Connect at several junctures and further recognizes the importance of spectrum availability for IMT services to support the attainment of the broadband penetration levels.

South Africa Connect also acknowledges the importance of the Minister of Telecommunications and Postal Services setting-out the policy context within which the strategic objectives relating to broadband are to be achieved.⁴ Importantly, the role of the Authority is almost indispensable and South Africa Connect acknowledges the Authority's regulatory intervention as being necessary to give effect to crucial milestones. In this regard, the Consultation ought to be viewed as one of several regulatory interventions undertaken by the Authority in support of South Africa Connect.

³ Government Gazette No. 37119 of 6 December 2013.

⁴ For instances, South Africa states that "[T]he DoC will also ensure that impediments to broadband rollout are removed, by issuing the necessary policy directives to the ICASA to expedite the assignment of broadband spectrum." (Ibid, at 5)

The other priorities which are spectrum-orientated and are either directly or indirectly affected by the outcomes of the Consultation are set-out as follows:

“The immediate priorities with respect to spectrum are:

- *the identification of unused spectrum and its reassignment;*
- *the removal of all bottlenecks preventing migration of terrestrial broadcasters from analogue to digital in order to realize the digital dividend;*
- *the re-allocation and assignment of broadband spectrum taking into consideration job creation, small business development, national empowerment and the promotion of NDP goals;*
- *approval of spectrum sharing between spectrum licensees and across services by ICASA in support of efficient use of spectrum and where it does not impact negatively on competition;*
- *the enabling of dynamic spectrum allocation :and*
- *ensuring sufficient spectrum for extensive WiFi and other public access technologies and services.”⁵*

Overall, Intel believes that the Consultation and its outcomes ought to reinforce the objectives set-out in South Africa Connect and that the Authority must, as far as possible ensure that the contemplated migration periods for all affected bands do not unduly delay the making available of IMT spectrum so as to support South Africa Connect objectives.

⁵ Ibid, at 37.

2.1 IMT450

No comment.

2.1.2 The Authority invites industry views on IMT paired spectrum usage for PPDR.

No comment.

2.1.3 The Authority invites industry views on IMT paired spectrum usage for the SA Connect initiative.

In general, Intel believes that the Consultation ought to be preoccupied with securing the orderly migration of spectrum users in those bands that have been allocated for IMT. This exercise amounts to a rationalization of spectrum allocations that arise from WRC resolutions.

Intel is of the view that this exercise ought not to be conflated with regulatory decisions pertaining to the spectrum assignment for mobile broadband. Indeed, the Consultation does not seek to canvass for proposals regarding the methodology that the Authority is likely to adopt in relation to spectrum assignment i.e. competitive assignment methodologies or comparative assignment methodologies. Further, Intel has not understood the Consultation to be concerned with exploring the most optimal assignment arrangement i.e. whether spectrum assignment ought to be on a wholesale basis, or exclusive assignment to licensees. These options are inherently spectrum assignment considerations and Intel believes that the complexities of the issues pertaining to spectrum assignment requires separate consultative processes.

2.1.4 The Authority invites industry views on IMT unpaired spectrum usage for M2M and smart energy/grid applications in South Africa.

M2M and the Internet of Things

Intel notes that the Authority appears to have considered the suitability of M2M and Internet of Things services ("IoT") within the 450 – 470 MHz band. The rationale appears to be premised on availing 450 – 470 MHz on a Time Division Duplex ("TDD") basis given that M2M and IoT services are predominantly uplink-traffic orientated and would not necessarily be suitable for Frequency Division Duplex band channelization.

There is no doubt that the availability of M2M and IoT services will increase in the medium to long-run as technological innovation provides more efficient mechanisms for the transfer of data and enabling seamless communication between devices. While the Authority cites research undertaken by Analysys Mason on the potential for M2M and IoT, there are similarly encouraging market analyses which project the commercial potential for M2M and IoT.

In this regard, McKinsey Global Institute identifies IoT services as one of the most under-hyped technologies with great economic potential; the estimated global economic impact is \$2.7 to \$6.2 trillion by 2025.⁶ IDATE Research has also projected that Europe will be the most valuable region in a global machine-to-machine (M2M) market worth €40 billion in 2017,⁷ and Frost & Sullivan has forecasts the European M2M market to increase at 33 percent compound annual growth rate (CAGR) through 2016.⁸ Further, General Electric estimates significant economic benefits from connecting machines and the Internet to drive a “productivity revolution” in Europe, predicting that IoT services could add €2.2 trillion to European GDP by 2030.⁹

Intel and IoT

To address immediate market demand for the IoT, Intel is focused on accelerating the development and deployment of intelligent devices, creating “systems of systems” by horizontally connecting the edge of IoT solutions to the cloud, and enabling end-to-end analytics to transform business. Among its many capabilities, a successful end-to-end strategy makes existing devices more intelligent and secure to reliably filter and manage data locally – so that they can seamlessly interact with each other as well as new devices and infrastructure. Intel technology drives these end-to-end strategies, powering devices from the edge of the network to the data center with industry leading hardware, software, and services, and the delivery of important user experiences such as device set up times. In order to reach IoT scale and deployment velocity, Intel will develop an end -to-end architecture based on horizontal and interoperable building blocks that function as an IoT platform that can be deployed across industry sectors. Utilizing our cutting-edge

⁶ *Disruptive Technologies: Advances that will transform life, business, and the global economy*, McKinsey Global Institute (May 2013), http://www.mckinsey.com/insights/business_technology/disruptive_technologies. Assessing a longer timeframe, GE estimates that, over the next 20 years, the Industrial Internet could add \$10-15T to global GDP. *Industrial Internet, A European Perspective: Pushing the Boundaries of Minds and Machines*, GE Corp. (June 2013) (“GE Report”), http://www.ge.com/europe/downloads/IndustrialInternet_AEuropeanPerspective.pdf.

⁷ *Europe to be most valuable M2M market, claims research*, European Communications (Jan. 2014), <http://www.eurocomms.com/industry-news/49-online-press/9558-europe-to-be-most-valuable-m2m-market-claims-research>.

⁸ The CAGR of 33 percent is expected for the M2M market in Germany, France, Poland, Russia, Sweden, and the UK between 2011 and 2016. *European M2M Market Consolidates to Optimise Future Opportunities*, Frost & Sullivan (May 2013), <http://www.frost.com/prod/servlet/press-release.pag?docid=278342488>.

⁹ *Ibid*, GE Report.

solutions, Intel will be the preeminent building block supplier for IoT deployments, and through partnerships with corporations and governments worldwide deploy cutting edge IoT solutions in sectors like manufacturing,¹⁰ utilities,¹¹ healthcare,¹² and public safety,¹³ and smart cities like London (Smart City/Infrastructure), Dublin (Smart City/Infrastructure), and Shanghai (Transportation).¹⁴

The Authority has identified several vertical industries within which the deployment of M2M and IoT services could result in an improved user experience and better outcomes. Similarly, Ofcom has identifies the transport, healthcare and energy as the industries already taking advantage of the innovation offered by IoT.¹⁵

Intel considers spectrum as an essential building block for IoT device connectivity. Ubiquitous, affordable, high-speed broadband connections over licensed and unlicensed airwaves are critical to enable consumers and the public and private sectors throughout the IoT ecosystem. Thus, effective and efficient management of this increasingly scarce resource must be a priority for policymakers. In the circumstances, Intel is encouraged that the Authority has correctly recognized the importance of spectrum availability which will enable M2M and IoT services.

The Authority's recommendation on allocating 450 – 470 MHz for IMT to accommodate M2M and IoT

The Authority appears to have reached a preliminary position in relation to the allocation of 450 – 470 MHz for IMT, and in particular for purposes of accommodating M2M and IoT services. In this regard, the Authority has stated that:

“Therefore the 450-470 MHz band should be migrated to be used for IMT, especially for future M2M and connected car application and basic broadband coverage in

¹⁰ Manufacturing: <http://www.intel.com/content/www/us/en/industrial-automation/industrial-automation-connected-factory-video.html>.

¹¹ Utilities: <http://www.intel.com/content/www/us/en/intelligent-systems/iot/daikin-applied-transforms-hvac-with-iot.html> and <http://www.intel.com/content/www/us/en/energy/westfalen-weser-energie-relay-station-monitoring-vpro-xeon-case-study.html?wapkw=westfalen>.

¹² Healthcare: <http://www.intel.com/content/www/us/en/intelligent-systems/tech-today/careview-video.html?wapkw=healthcare+iot>

¹³ Public Safety: <http://www.intel.com/content/www/us/en/intelligent-systems/tech-today/big-data-analysis-improves-orange-county-emergency-response-video.html>.

¹⁴ London: <http://news.techworld.com/green-it/3359881/intel-turns-london-into-testbed-for-smart-technologies/>. Dublin: <http://www.irishtimes.com/business/sectors/technology/smart-dublin-high-tech-sensors-to-monitor-life-in-the-capital-1.1745721>. Shanghai: <https://www.youtube.com/watch?v=M0ZN8El6fY>.

¹⁵ Ofcom, *Promoting investment and innovation in the Internet of Things* (23 July 2014).

rural areas. Both demands will evolve over the following years with the availability of new IMT networks and the availability of devices.”¹⁶

In the circumstances, Intel supports the Authority's preliminary position. However, over and above the necessity to accommodate M2M and IoT services within current allocations for IMT and also within perhaps ISM bands, Intel is of the view that there are other regulatory matters which require consideration by the Authority and which transcend spectrum allocation decisions.

These matters include *inter alia*:

- Connectivity and interoperability;
- Privacy and security;
- Intelligent analytics and big data;
- Open standards;
- Data and device discoverability; and
- Mutual collaboration between the Authority and industry.

Intel urges the Authority to approach the consideration of IoT and M2M services in a holistic manner and give treatment on the above matters.

2.1.5 The Authority invites industry views on the migration of incumbents (Transnet, SAA, Telkom, etc.) out of the 450-470 MHz band.

No comment.

2.1.6 The Authority invites industry views on the migration time line.

No comment.

¹⁶ Ibid, at 126.

2.1.7 The Authority invites industry views on destination bands.

No comment.

2.1.8 The Authority invites industry to give any other inputs that must be taken into consideration when finalizing plans for the IMT 450 band.

No Comment.

2.2 IMT700**2.2.1 The Authority invites industry views on Option 1/Scenario 1 (ITU Region 3).**

No comment.

2.2.2 The Authority invites industry views on Option 2/Scenario 2 (ITU Region 1).

No comment.

2.2.3 The Authority invites industry views on Option 3/Scenario 3 (ITU Region 1).

No comment.

2.2.4 The Authority invites industry views on 2×3 MHz IMT band of ITU Region 1 solution.

No comment.

2.2.5 The Authority invites industry views on other ITU Region 1 based suggestions.

No comment.

2.3 IMT750

2.3.1 The Authority invites industry views on IMT unpaired spectrum in the coverage band of 750 MHz.

No comment.

2.4 IMT800

2.4.1 The Authority invites industry views on Option 1 (ITU Region 3).

No comment.

2.4.2 The Authority invites industry views on the 2×3 MHz IMT band of Option 1 (ITU Region 3).

No comment.

2.4.3 The Authority invites industry views on Option 2 and 3 (ITU Region 1).

No comment.

2.5 IMT850

2.5.1 The Authority invites industry views on the migration of incumbents (Neotel, etc.) out of the band.

No comment.

2.6 GSM900 spectrum consolidation

2.6.1 The Authority invites industry views on spectrum consolidation.

No comment.

2.6.2 The Authority invites industry views on guard bands.

No comment.

2.6.3 The Authority invites industry views on the time line of spectrum consolidation, i.e. when it should be done.

No comment.

2.6.4 The Authority invites industry views on demand for IMT migration of 5 MHz taking into consideration the spectrum for IMT available in the 700 and 800 MHz bands.

No comment.

2.6.5 The Authority invites industry views on need-based differentiated spectrum assignments in the 880-915 MHz (paired with 925-960 MHz).

No comment.

2.6.6 The Authority invites industry views on demand for IMT migration of 10 MHz, taking into consideration the new spectrum for IMT in 700 MHz and 800 MHz.

No comment.

2.7 IMT2300 unpaired spectrum TDD

2.7.1 The Authority invites industry views on usage of 2380-2400 MHz.

No comment.

2.7.2 The Authority invites industry views on usage of 2290-2300 MHz for IMT.

No comment.

2.8 IMT2600 paired FDD spectrum

No comment.

2.8.1 The Authority invites industry views on demand in the IMT2600 FDD band.

No comment.

2.8.2 The Authority invites industry views on the migration of the incumbent (WBS), into 2380-2400MHz.

No comment.

2.8.3 The Authority invites industry views in-band migration of the incumbent (WBS), into IMT2600 unpaired spectrum.

No comment.

2.8.4 The Authority invites industry views on alternative destination bands for the incumbent (WBS).

No comment.

2.9 IMT2600 unpaired TDD spectrum

2.9.1 The Authority invites industry views on demand in IMT2600 TDD band.

No comment.

2.10 IMT3500 unpaired TDD spectrum

2.10.1 The Authority invites industry views on migration out of 3400-3600 MHz from FDD usage to TDD.

No comment.

2.10.2 The Authority invites industry views on status and time line.

No comment.

2.10.3 The Authority invites industry views on interest in TDD downlink focused spectrum.

No comment.

2.10.4 The Authority invites industry views on interest in TDD uplink focused spectrum.

No comment.

2.10.5 The Authority invites industry views on interest in the introduction of a Managed Spectrum Park.

Intel has understood the Authority's reference to the introduction of a Managed Spectrum Park to be consistent with designating certain frequency bands to be unlicensed or licence-exempt and operate as *spectrum commons*. The creation of spectrum commons allows the existence of open wireless communications networks to exploit the bandwidth capacity of the designated spectrum bands so as to accommodate multiple users simultaneously. Importantly, the management of these frequency bands is distinctly different to the licensable paradigm which entitles a single person to exploit their assigned spectrum band. In the case of licensable spectrum bands, the management of the bands, particularly regarding the resolution of instances of harmful interference, lies squarely with the regulatory authority which enforces rules for dispute resolution. However, in the spectrum commons paradigm, the *ex ante* prescribed sharing protocols together with the computational capabilities of radio devices communicate with each other while coordinating spectrum usage on several dimensions (i.e. time, frequency, geography, power) so as to avoid harmful interference ensuing. In the instance where these *ex ante* sharing protocols are not adhered to, the *anticommons* problem ensues where the benefits of the spectrum commons are diluted by the congestion caused.

The emergence and increased proliferation of Bluetooth, Zigbee, radio frequency identification (RFID) technologies and Wi-Fi in the recent past has demonstrated the importance of spectrum management being responsive to technological innovation and administrators having the necessary flexibility to be responsive to these developments. These technologies predominantly require spectrum to be made available on a licence-exempt basis or be deployed in bands designated as spectrum commons where deployment is subject to appropriately defined technical parameters which support mutual co-existence of these technologies in the same band ranges. Indeed, the designation of certain portions of spectrum as licence-exempt has been recognised by Ofcom as being increasingly important for the supply of wireless data capacity to accommodate innovative technologies that complement licensable spectrum.¹⁷

While the benefits of spectrum commons are widely seen in the successful deployment of several wireless communications networks such as Wi-Fi, Intel believes that the process for designating bands as spectrum commons must be carefully considered. In this regard, it is the bandwidth capacity of the spectrum band capable of accommodating multiple users (under a spectrum commons regime) instead of a single licensable user, and the welfare implications of the use of that band that must inform such designation. This consideration is inherently one of efficiency and the extent to which the capacity of the band in question may be exploited more optimally by allowing multiple users instead of a

¹⁷ Ofcom, *Consultation on the Future Role of Spectrum Sharing for Mobile and Wireless Data Services*, available at http://stakeholders.ofcom.org.uk/binaries/consultations/spectrum-sharing/summary/Spectrum_Sharing.pdf

single licensed user. Of course there are instances where licensable bands assigned exclusively are capable of better and more efficient exploitation by wireless carriers than multiple users in a spectrum commons. In these instances, the positive welfare implications have been demonstrably clear: 2G and 3G (and most recently 4G) network roll-outs undertaken by carriers assigned exclusive spectrum on a technologically neutral basis has resulted in widespread network proliferation that has availed near universal voice connectivity while broadband connectivity increases steadily.

Another important consideration in designating bands as spectrum commons is the potential displacement effect: this is the extent to which the optimal exploitation of the band's capacity is likely to result in welfare enhancing outcomes if either a spectrum commons displaces an exclusive licensable designation of the band or, vice versa.¹⁸ The displacement effect is also analogous to the potential foreclosure of the optimal exploitation of the spectrum capacity where the relevant band is designated as either a spectrum commons or licensable. Here, there are social costs which arise as a result of the foreclosure. The spectrum band, where incorrectly designated as either licensable or spectrum commons, manifests a social cost where, first, the designation is incorrect, and second, the subsequent usage of the band is sub-optimal (thus reinforcing the incorrect designation). In other words, society incurs a cost in the sub-optimal use of the band and a more efficient use of the band which is potentially welfare-enhancing is foreclosed by the incorrect designation.

Intel also believes that permitting unlicensed allocations where they do not or will not foreclose or significantly interfere with licensable usage on new or existing allocations, especially where the spectrum is suitable for high powered, wide area network use. For example, Intel has supported unlicensed use at 6.78 MHz and 900 MHz for ISM, 2.4 GHz, 5 GHz and 60 GHz bands for Wi-Fi and ultrawideband (UWB) above 6 GHz. Generally, Intel supports regulatory decisions which permit unlicensed use where the opportunity cost of use is low because the existing uses already foreclose other uses or technology can mitigate interference to the existing uses.

All in all, Intel is supportive of designating bands as spectrum commons considering the above guidance.

2.11 Operators opinion on one TDD-operator instead of every operator having parts of TDD spectrum

Intel directs the Authority to our views expressed regarding paragraph 2.1.3 of the Consultation questions above.

¹⁸ For the econometric modelling of the displacement effect, see further Yochai Benkler, *Some economics of wireless communications* Harvard Journal of Law and Technology (2002) 16(1), 25 – 83.

2.11.1 The Authority invites industry views on the TDD spectrum bundling of IMT450, IMT750 and IMT2600 and assignment to one (wholesale) operator.

Intel directs the Authority to our views expressed regarding paragraph 2.1.3 of the Consultation questions above.

2.11.2 The Authority invites industry views on the operator interest in individual IMT3500 assignments per operator or in one assignment to one (wholesale) operator.

Intel directs the Authority to our views expressed regarding paragraph 2.1.3 of the Consultation questions above.

2.12 Universal service obligations for lower frequency bands (sub-1GHz)

2.12.1 The Authority invites industry views on universal service obligations for lower frequency bands (sub-1GHz).

Intel agrees in principle with the Authority's preliminary view regarding the appropriateness of imposing universal service obligations for geographic and population coverage as part of spectrum assignment processes. In this regard, Intel believes that the imposition of universal service obligations as part of spectrum assignment is apt in facilitating the attainment of South Africa Connect objectives. Here, there must necessarily be an alignment between roll-out targets specified in spectrum licences, and those targets being consistent with South Africa Connect aspirations.

The regulatory practice of imposing roll-out targets acknowledges the absence of commercial incentives for mobile carriers to simultaneously roll-out their networks to cover urban and non-urban areas; the former areas are routinely preferred over the latter areas due to the projected average revenues per user relative to network costs being significantly higher.

Prior to the combined spectrum auction for 800 MHz and 2 600 MHz bands, Ofcom undertook a wide-ranging consultation which set-out *inter alia* the rationale for presenting the 800 MHz and 2 600 MHz bands in a combined auction.¹⁹ Although that consultation considered matters relating to the most appropriate assignment mechanisms for the combined auction, Ofcom made the following remarks regarding the imposition of coverage roll-out targets as part of the spectrum assignment exercise:

"We recognize there is a possibility that, notwithstanding what we expect will be a competitive market, commercial levels of coverage and quality provided using LTE

¹⁹ Ofcom, *Consultation on assessment of future mobile competition and proposals for the award of 800 MHz and 2.6 GHz spectrum and related issues* (22 March 2011).

technology might fall short of what might be socially desirable. Coverage levels might be no higher than those of existing 3G networks and it could take what we might consider an unacceptable length of time to reach even that level. This would deny or delay the benefits of next generation mobile broadband to a substantial number of consumers and citizens in the UK population. This raises the question whether we should set coverage obligations to avoid that happening.”²⁰

While Intel supports the imposition of roll-out targets in the form of universal service coverage obligations, it is the design of the scope of the obligation and concomitant enforcement that should be the focus of regulatory intervention. Intel recognizes that setting roll-out targets may have unintended consequences such as distorting network investment decisions and this may translate into regulatory failure where the roll-out targets are ultimately not met.

At the very least, Intel believes that the scope of the roll-out obligation must necessarily go beyond merely specifying a percentage target of roll-out coverage to be attained over a certain period: it must also address the minimum quality of service that is to be expected by consumers so as to make the obligation meaningful to those consumers whom the benefit of the roll-out target has been specified. In other words, the scope of the obligation must necessarily address network performance expectations that would be consistent with consumer expectations for certain level of quality of services consistent with South Africa Connect aspirations.

Lastly, the Authority has wide-ranging powers regarding the enforcement of licence obligations in the event of non-compliance by licensees. It is important that the Authority recognizes the presence of commercial incentives for licensees not to comply with roll-out obligations and accordingly design disincentives that have a greater (punitive) value than the costs of non-compliance such that compliance becomes the rational choice for licensees. The Authority must also be mindful that there is a proportional balance to be attained between setting the roll-out target and quality of service expectations, and the non-compliance punitive sanction too high. Here, regulatory failure may ensue where neither the roll-out target is met and the resultant punitive measure imposed on the licensee lead to unintended consequences i.e. market exit or surrender of licence.

2.13 Capacity licence obligations for new and existing IMT bands

2.13.1 The Authority invites industry views on licence obligations for new and existing IMT bands, including infrastructure sharing.

Intel reiterates its position as set-out at paragraph 2.1.3 of the Consultation questions above regarding the conflation of this Consultation with matters relating to spectrum assignment. While Intel believes that licence obligations relating to spectrum assignment

²⁰ Ibid, at para 6.12.

must be informed by the aspirations of realizing the coverage and service expectations objectives set-out in South Africa Connect, matters relating to more granular details of band-specific network performance expectations may perhaps be more appropriately addressed as part of a spectrum assignment exercise. Intel believes that the current Consultation is critical and must be prioritized and the Authority's focus ought to be on finalizing the processes entailed therein.

2.14 Additional input

2.14.1 The Authority requests any other inputs that are deemed necessary and appropriate which should be taken into consideration.

No comment.

END