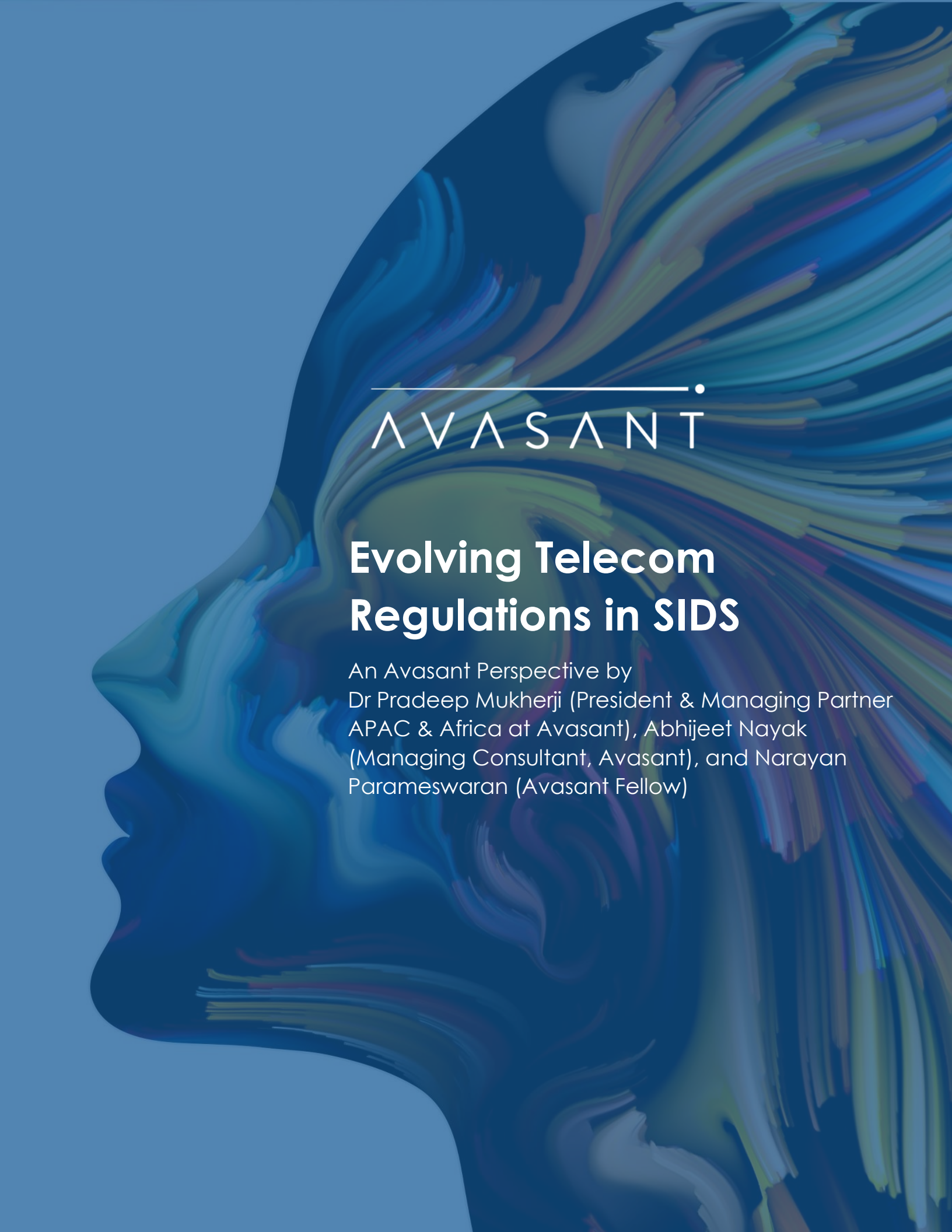

AVASANT

Evolving Telecom Regulations in SIDS

An Avasant Perspective by
Dr Pradeep Mukherji (President & Managing Partner APAC & Africa at Avasant), Abhijeet Nayak (Managing Consultant, Avasant), and Narayan Parameswaran (Avasant Fellow)

Introduction

Historically, utility and service sectors have changed hands gradually from being Government owned to public and subsequently private ownership. While the timing and the choice of sectors for liberalization varied, the underlying principles and approaches followed a common template globally. One such development was the creation of an effective sector regulator to promote the orderly growth of the industry.

Today, the ICT sector is deregulated and liberalized across the world. The stakeholders in the ICT sector include the service providers, the government and the consumers. While the Government is primarily responsible for policy formulation and implementation, the broad responsibilities of the regulator include the orderly development of the sector, protection of consumer interests and protecting the interests of the government, especially in the area of national security. The regulators generally work on certain basic principles such as: ensuring level playing field and transparency in operations, promoting market competition and moving towards regulatory forbearance. The regulatory role encompasses the economic, technological, social and consumer protection facets. Generally, a technology-neutral approach is followed.

The rate of technological change is probably highest in the ICT Sector, as compared to other liberalized sectors. Given these rapid technological advancements, the biggest challenge for the ICT Sector Regulator(s) is to keep themselves updated. The regulatory framework should facilitate fast adoption of the technological developments, and at the same time monitor and regulate the sector effectively.

While the ICT Sector regulators in developed and emerging countries have made strides in this direction, the regulatory framework in smaller countries is getting modernized at a slower pace. The pace of regulatory updating is even slower in Small Island Developing States (SIDS).

In this paper, we present our research findings regarding the ICT Regulatory framework in about 30 Small Island Developing States (SIDS). For this research, we have chosen key regulatory areas such as licensing, spectrum management, tariff, number portability and market competition.

SIDS Economy

The economy of any country plays a major role in shaping the regulatory framework of the country. So, before we dwell into the research findings on the regulatory areas, it may be a good idea to take a quick look at the overall SIDS Economy. More than half of the SIDS fall within the upper middle-income bracket, while the remaining are scattered across other income brackets. Interestingly, about 25% of the SIDS are in high income economies. For these handful of rich islands, tourism and financial services have been the major engines of growth. On the other end of the spectrum, islands such as Comoros and Haiti are struggling against abject poverty and underdevelopment. Some of the other island nations are progressing steadily and are on the verge of breaking into higher income brackets. The graph below shows the distribution of the SIDS based on their per capita income in PPP terms.

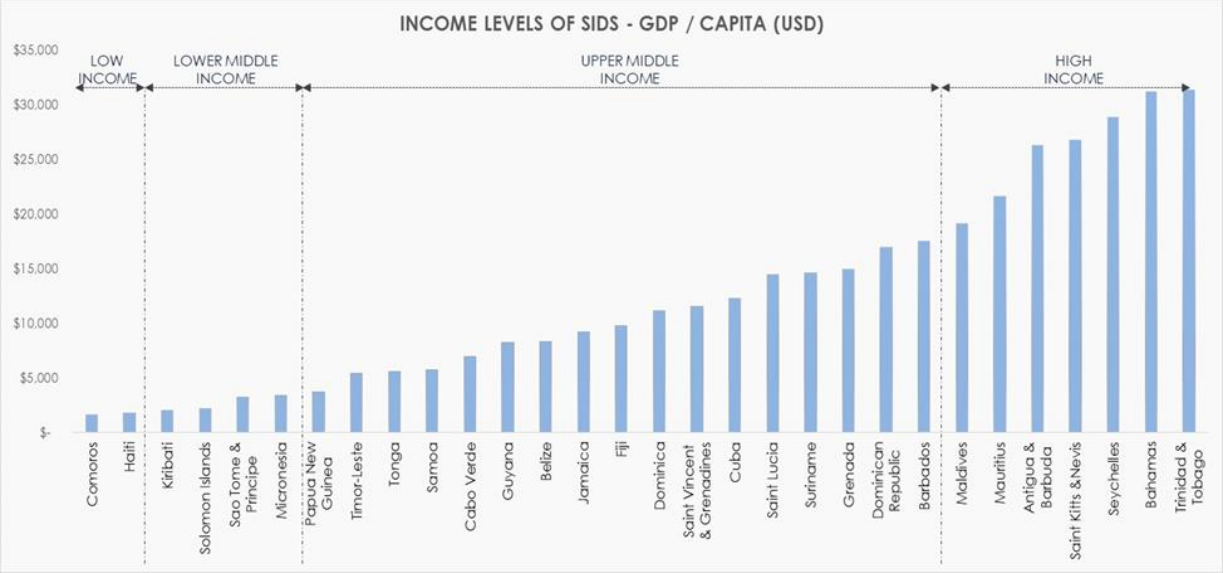

Figure 1: Comparison of Small Island Developing States by their GDP/Capita (USD – PPP)

Overall Regulatory Outlook

The ITU, in its 2017 Regulatory Outlook, has classified all countries into five categories, G1 – G5, based on the maturity and modernization of the ICT regulatory framework in each country. The first-generation countries are the ones where the Ministry is still in charge of ICT Sector regulation. These countries are denoted as G1 and have primitive regulations in most aspects.

The other end of the spectrum, G5, is occupied by countries having a common regulator for all sectors with an updated and adaptive ICT regulatory framework. The following figure depicts the five generations of ICT Regulators on the lines of ITU's classification in its recently published Regulatory Outlook.

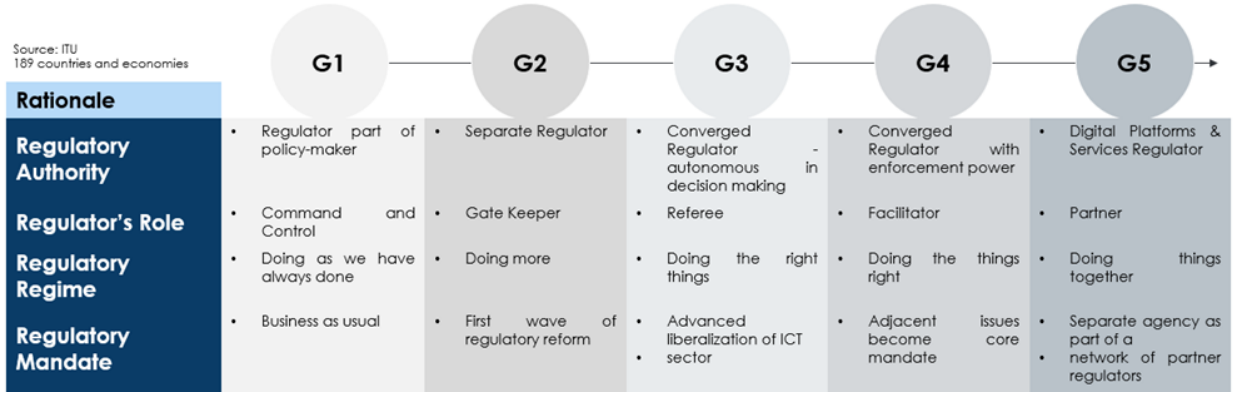

Figure 2: Evolution of ICT Regulatory Framework

The table below shows that barring few islands, all others have a clear demarcation between the government and sector regulator. Most of the SIDS have moved to G2 or G3 generation of ICT Regulations. The national sector regulators have been making continuous strides towards sector liberalization, modernization and competition. Around one-third of islands have also merged their telecom, broadcasting and internet regulators by introducing a common regulatory framework for these inter-connected sectors. This is evidence of realizations of the blurring of boundaries between the three sub-sectors of the broader ICT Sector. Interestingly, around 40% of the island have one single regulator for all de-regulated economic sectors. This percentage is far greater than that of their mainland peers. Such an advanced architecture makes these island countries strong candidates for the G5 tag, as defined by the ITU in its 2017 Regulatory Outlook. This convergence could have been partially encouraged by attempts to achieve economies of scale in terms of economic regulation and government administration, given the small market sizes in most island countries.

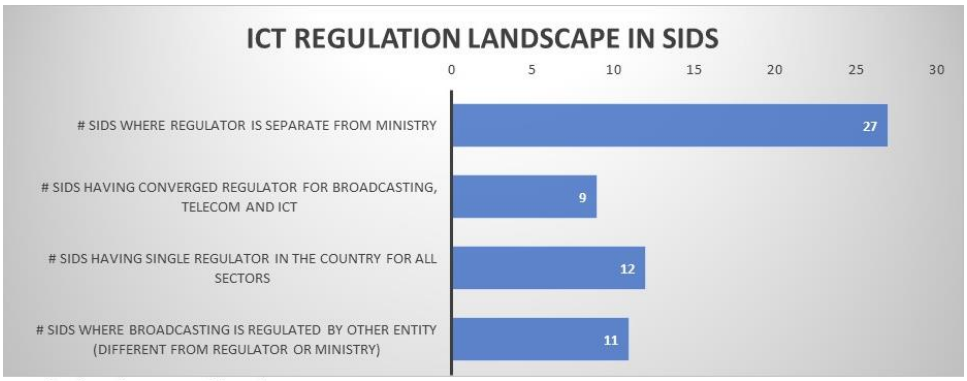

Figure 3: Classification of SIDS based on ICT Regulatory attributes

Another aspect of ICT regulations that is common to many countries globally, is exclusion of broadcasting regulation from the common ICT regulation framework. Around one-third of SIDS also have separate regulator for broadcasting. This separation could stem from sensitivities surrounding broadcasting content on grounds of social acceptability and national security.

Licensing

The licensing framework for networks and services for telecom, broadcasting and internet serves as the pillars for the respective sectors. The foundation of the framework is typically grounded on a range of legal instruments, particularly the telecommunications acts and other relevant laws in the country.

The license regulation generally references the use of spectrum (particularly where the spectrum authorization is separate from the network/service license), and addresses potential further obligations relating to specific rules on operators with market power, interconnection and access, numbering and/or universal service. Traditionally, the licensing regime in all countries offered service specific licenses. Slowly the licensing framework is migrating towards Unified Licensing. The following figure shows the evolution of licensing in the ICT sector.

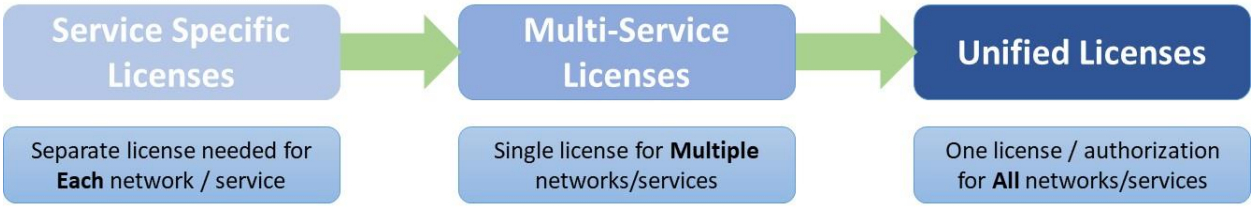

Figure 4: Evolution of ICT Sector Licensing approach

Alongside the introduction of technology and service neutrality, regulators are streamlining their licensing frameworks and allowing for unified licensing which permits operators to offer all services – or at least a broad range of services – under a single license.

Unified Licensing/Authorization regimes can have multiple variations. Countries have customized the licensing structure within the ambit of Unified Licensing, to align with the specificities of their local industry. The following figure captures some of the common variations.

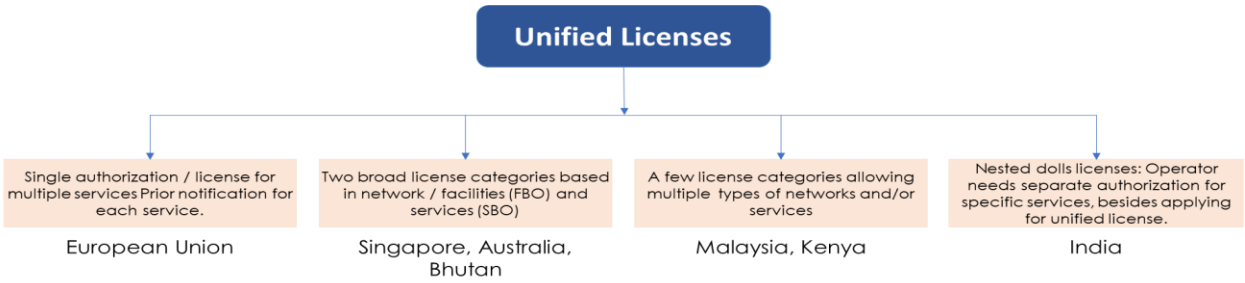

Figure 5: Types of Unified Licenses / Authorizations

Almost none of the SIDS have adopted Unified Licensing, possibly due to small set of players and services. Most of the SIDS are still stuck with *Service-Specific Licenses* and need to urgently update to *Multi-Service Licenses*. Singapore is the only island country to have adopted Unified Licensing in its true spirit, similar to members of the European Union. The near-zero adoption of Unified Licensing in SIDS is much lesser than their mainland counterparts across income groups.

Over the past decade, stakeholders in the telecommunications & broadcasting industry have recognized the benefits of cross-offerings due to the convergence of telecom, digital and broadcasting services. Secondly, service providers/operators have witnessed increasing synergies in offering a full spectrum of services across merging domains that include telecom, internet, and broadcasting, among others. The Regulators have taken due notice of these developments and have migrated to '*converged licensing*'. Gradually, the '*converged licensing*' is paving the way for Unified Licensing that requires service providers to get a single license to be able to offer all services efficiently.

This paper has analyzed the possible impact of Licensing regime on consumer tariffs. The prepaid off-net tariffs in each country have been charted with respect to the income levels of the country and the prevalent licensing regime. An attempt has been made to identify possible trends that establish correlation between the tariffs and the licensing regime or the income level of the SIDS.

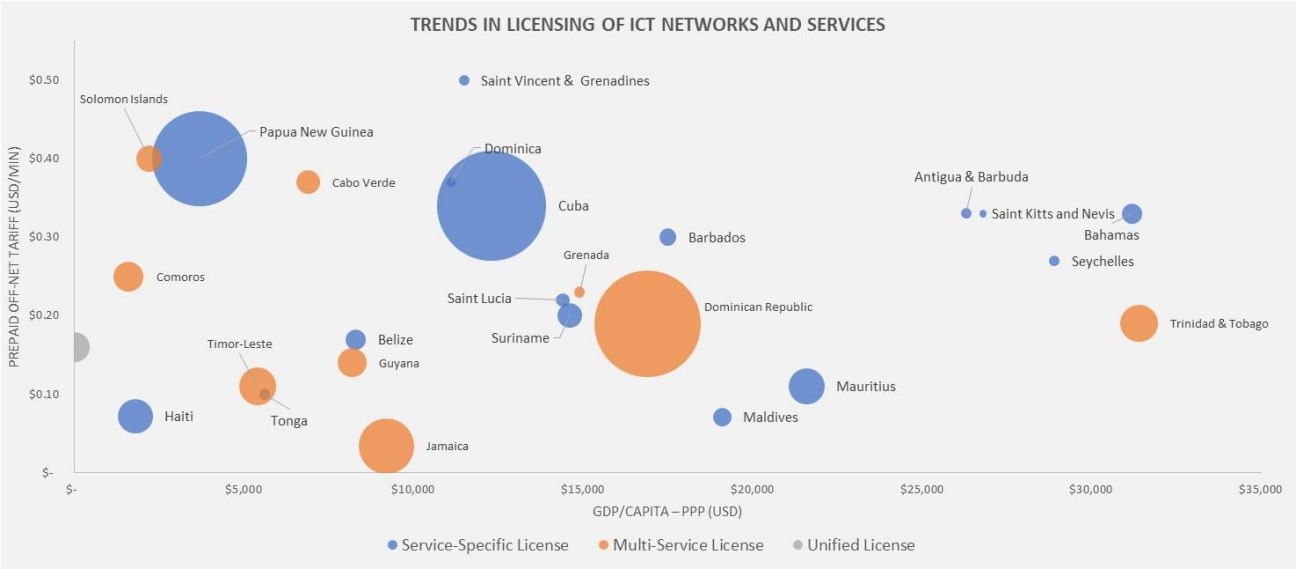

Figure 6: Telecommunications and Broadcasting Licensing regime in SIDS

The mean tariff in Islands with *Service Specific License is $0.24/min* as compared to *$0.21/min* for SIDS with *Multi-Service Licenses.* This points to possible economies of scale and strategic alignment in offering a bouquet of services under a single license.

Apart from the above observation, the above chart does not present any other trends that can establish linkages between the three factors being examined. However, based on economic principles and trends from larger countries, the impact of unified licensing on retail tariffs would also hold good for the SIDS. In the majority of countries, migration to a new licensing regime is carried out in a phase-wise manner. The licenses can be mandated to shift to a new regime only after their individual licenses have run through their full-term. It is a likely scenario that mobile telephony in many of these SIDS is being offered on earlier licenses and the retail tariffs have factored in the historical price and associated conditions. Such a lag of regulatory implementation could be one of the possible reasons behind the absence of a defining trend between consumer tariffs and licensing regime, normalized for the income level of the country.

Unified (or integrated) licensing both simplifies the licensing process to promote new entry and competition, as well as enables existing operators to more easily expand their service offerings by eliminating the need to obtain a new license for each new service added to the network, which significantly delays the roll-out of new and innovative technologies and services.

A liberalized licensing framework would catapult the telecommunication sector's transition from a monopoly/duopoly in many SIDS to a thriving, competitive market by facilitating new entry; thereby improving service quality and selection, reducing prices and increasing access to new

and innovative services. The move towards Unified Licensing should be complemented with simplification of application procedures, evaluation criteria and decision timeframes.

Spectrum Management

The radio spectrum is a major component of the infrastructure that underpins the information society. Spectrum regulation, however, has not kept pace with changes in technology, business models, and economic policies. For many years, traditional government administration of the spectrum worked reasonably well, but more recently it has led to growing technical and economic inefficiencies as well as obstacles to technological innovation. Two alternative approaches to spectrum management are being tried in several countries, one driven by the market (tradable spectrum rights) and another driven by technology innovation (spectrum commons).

Most countries have already moved to an auction method for assigning spectrum for commercial use: As per ITU, more than 120 countries have shifted to the auction regime for assignment of spectrum for commercial uses. The remaining countries are in various stages of moving to auction regime. About half of the remaining countries have already lined up auctions in the next 18 months and are exploring the best model for running the bid process.

Data from around island countries shows nearly 40% have adopted competitive methods for spectrum allocation, while some others have scheduled auctions over next few months. This shows that auction is emerging as the favored process for assigning commercial spectrum in island economies, due to the inherent advantages and sound underlying principles of the concept.

30% of the island countries are still stuck with the primitive *Administrative Allocation* model for radio spectrum assignment. The remaining 30% have moved to *Administrative Incentive Pricing* model, which is a type of hybrid between *Auction* and *Administrative Allocation*. Some countries consider it as a stepping stone on the path to an open competition regime.

This paper has attempted quantitative analysis of consumer tariffs and methods of radio-spectrum assignment. Given the likely variance of prices with respect to income levels, the same has also been considered as a factor in this analysis. The findings of the analysis are reflected in the chart below.

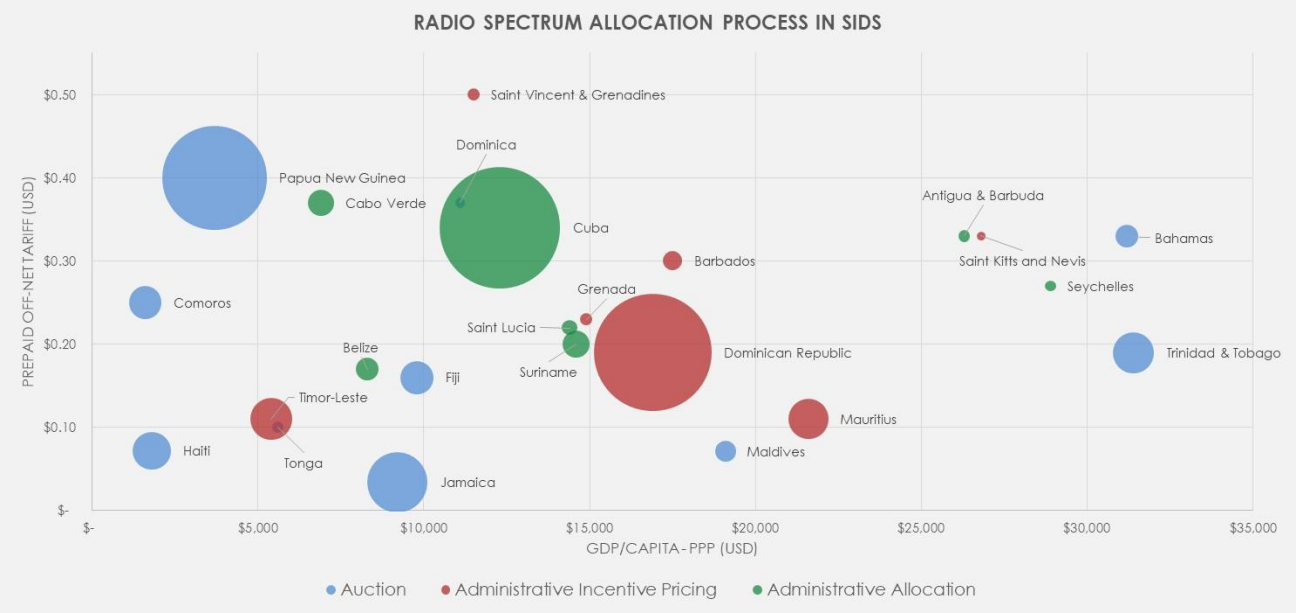

Figure 7: Spectrum Assignment process in SIDS

Spectrum auction in SIDS tends to induce higher competition leading to lower consumer prices. This is suggested by lower mean and median tariffs for countries that have adopted auction for radio spectrum allocation.

The set of SIDS that have embraced auctions have done so at critical junctures to introduce the next generation technologies in the market. During the period 2013-2018, many of the first-time auctioneer islands used the auction route to assign spectrum for introduction of LTE/4G services in their respective markets. Therefore, overlapping first-time auctions with new technology introduction (4G/5G) seems to be a preferable and acceptable approach to all stakeholders. Auctions will also pave way for trading and sharing of spectrum. Spectrum that is leased through fair and competitive means has greater credibility and predictability, thus drawing confidence from other market players for trading and sharing.

Number Portability

Mobile Number Portability (MNP) entails porting processes, code of conduct between Donor Operator and Recipient Operator, technology used for porting, competition, and customer standards to determine the success or failure of MNP depending on how they are implemented by mobile operators.

Only 5 out of 30 SIDS have implemented Number Portability. Given the small market size in SIDS, MNP may be more acceptable in island countries with larger populations. However, the SIDS with larger populations are not the ones that have embraced MNP so far.

The barrier to switching is considered to be one of the primary impediments to competition. The tariffs in the SIDS that have adopted MNP are around 50% lower than others.

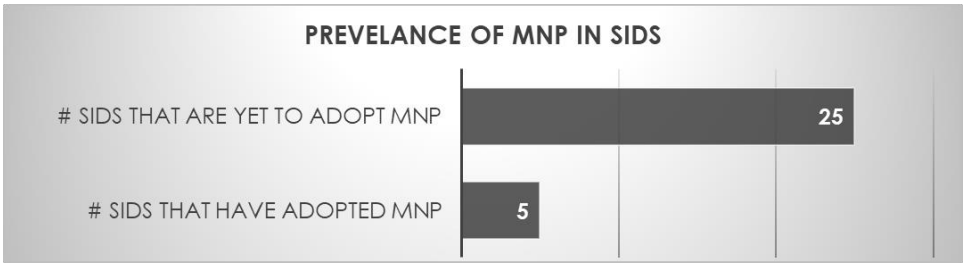

Figure 8: Classification of SIDS based on MNP implementation

In the absence of MNP, customers have to give up their number and must adopt a new one when they switch operators. As a result, customers face switching costs associated with informing people about changing their number, printing new business cards, missing valuable calls from people who do not have the new number, etc.

Globally, more than 83 countries have successfully implemented MNP so far. Europe leads the pack with highest number of countries that have implemented followed by Asia Pacific, South America, Middle East and Africa. The world-map below highlights the extensive adoption of MNP around the world.

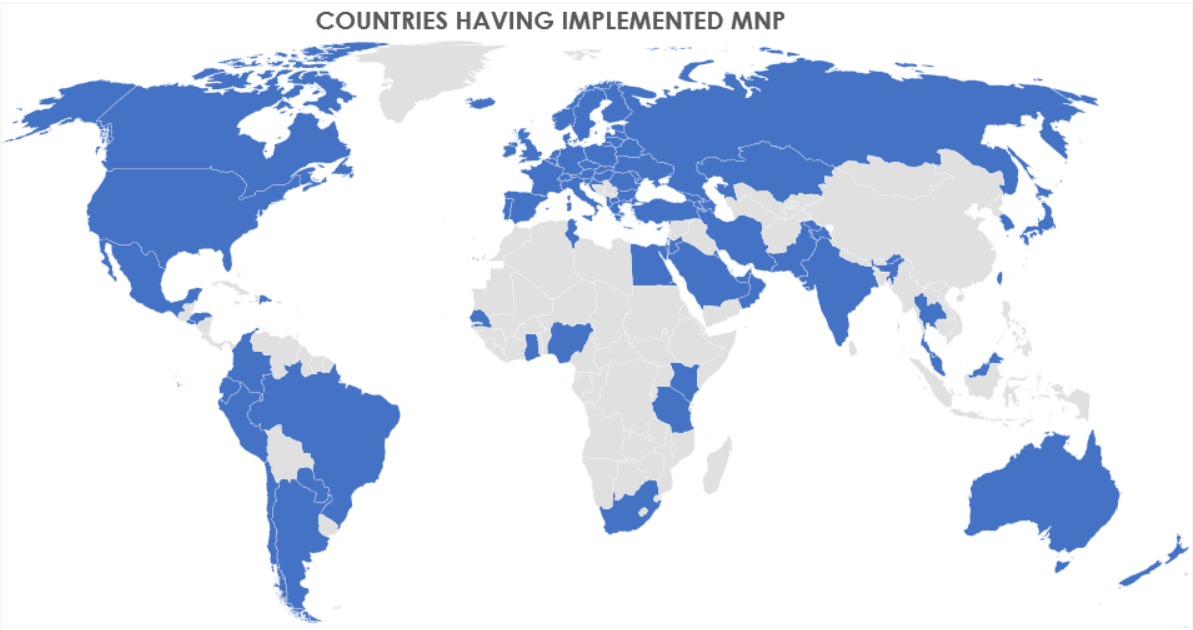

Figure 9: Global MNP landscape
Source: Avasant Intelligence

MNP is one of the primary systems adopted to catalyze competition. Regulators implementing MNP usually do so with the aim of reducing the barriers to switching for consumers, which in turn can stimulate market competition and, in some cases, serve to reduce the power of a dominant player.

Analysis of telecom markets having MNP indicates that MNP facilitates creation of a level playing field and encourages the entry of new mobile operators. it has also been observed that average tariffs have fallen significantly post MNP implementation in many countries. Simultaneously MNP

introduction has also resulted in improved quality of service for all operators and increase in efficiency of the entire ecosystem.

The market structure in many of the islands is of a monopoly or a duopoly. in such situations, MNP will give investors to launch new services, thus eventually reducing the market concentration. MNP will directly lead to price-reduction and service improvement by incumbents to check customer attrition.

Accounting Separation

Accounting Separation (AS) is a common tool used by the regulator to address anti-competitive concerns of market distortion by a Notified Operator in various forms such as including excessive charges for interconnect services, discrimination in pricing, unfair cross-subsidies and predatory pricing. Under this approach, the Notified Operators' activities are split for accounting purposes, into separate segments or services for reporting. Accounting separation enables monitoring a systematic division of costs between retail and wholesale. Regulatory cost accounting provides information about the margins achieved by each category of service either wholesale or retail, residential or business which is critical for policy makers in two ways:

- to identify the existing competition level.
- to form an opinion of the level of market competition and of any need for further regulation.

The majority of SIDS are yet to implement Accounting Separation. Accounting Separation is one of the primary tools for checking the significant market power (SMP) regulations in the market. Introduction of SMP in SIDS would ensure that communications networks and services are available under reasonable terms to all market players and end consumers throughout the country. Most countries have introduced regulations for monitoring and addressing the abuse of dominant position by service providers. The below graph shows limited prevalence of Accounting Separation among SIDS.

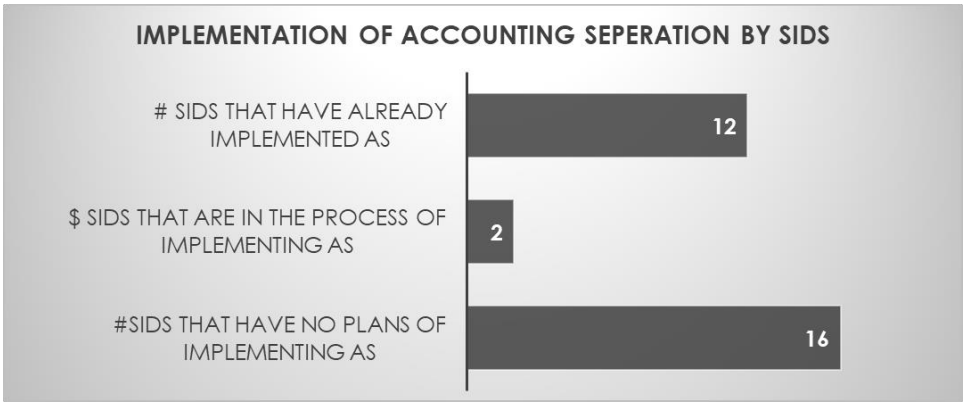

Figure 10: Classification of SIDS based Accounting Separation

Pricing Analysis

Avasant has analyzed the mobile tariff in around 30 island states. Specifically, the prepaid off-net tariffs have been analyzed after grouping them based on their income levels and geography. The interesting trend that can be observed is that there is wide variation in consumer prices within each of these groups. This points to a heterogenous mix of variables at ground level in these islands. This also strengthens the understanding that local market variables, such as depth of competition, efficacy of regulatory framework and consumer dynamics play a greater role as compared to income levels or position on the world map.

The wide variation in each of the groups also points to diverse market characteristics in each group, such as population, consumer awareness, ICT literacy and geo-political risks.

For the purpose of tariff analysis, the SIDS have been grouped as SIDS in regions of Africa, Asia & Oceania and Caribbean & Latin America. The following table depicts the consumer tariffs in each of these geographical clusters. The mean tariffs are lowest in the Asia & Oceania region at $0.20/min and the highest in the Caribbean region at $0.26/min. Given that the majority of SIDS in the Caribbean belong to the high-income category, a faint correlation is observed between level of income and consumer tariffs. However, this trend is not very prominent in islands belonging to other regions.

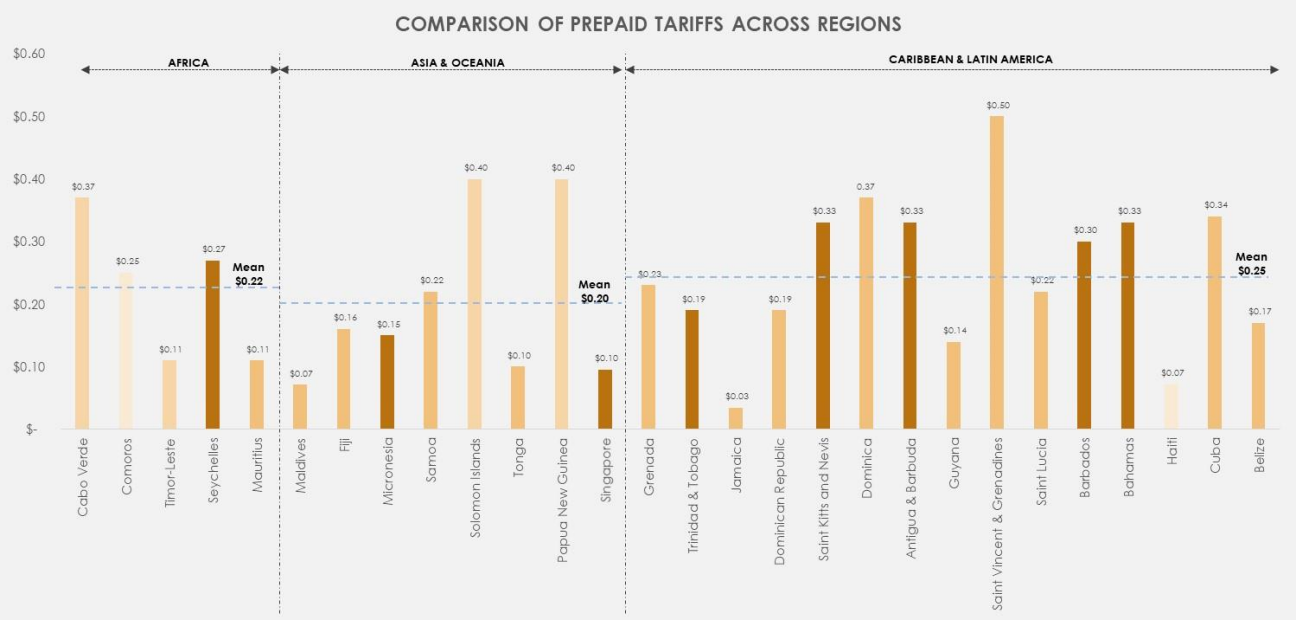

Figure 11: Mobile tariff analysis in SIDS across regions

This paper has also grouped the SIDS on the basis of their income levels and charted them with respect to consumer tariffs. This analysis presents two contradicting observations that tend to nullify the hypothesis that links consumer tariffs with income levels. Surprisingly, the mean tariffs are similar for high-income categories and lower-middle income categories, that occupy two sides of the spectrum. Tariffs are most affordable in the low-income category, followed by the middle-income

group. However, the variation in tariffs are highest in the middle-income group. The following chart showcases this mapping.

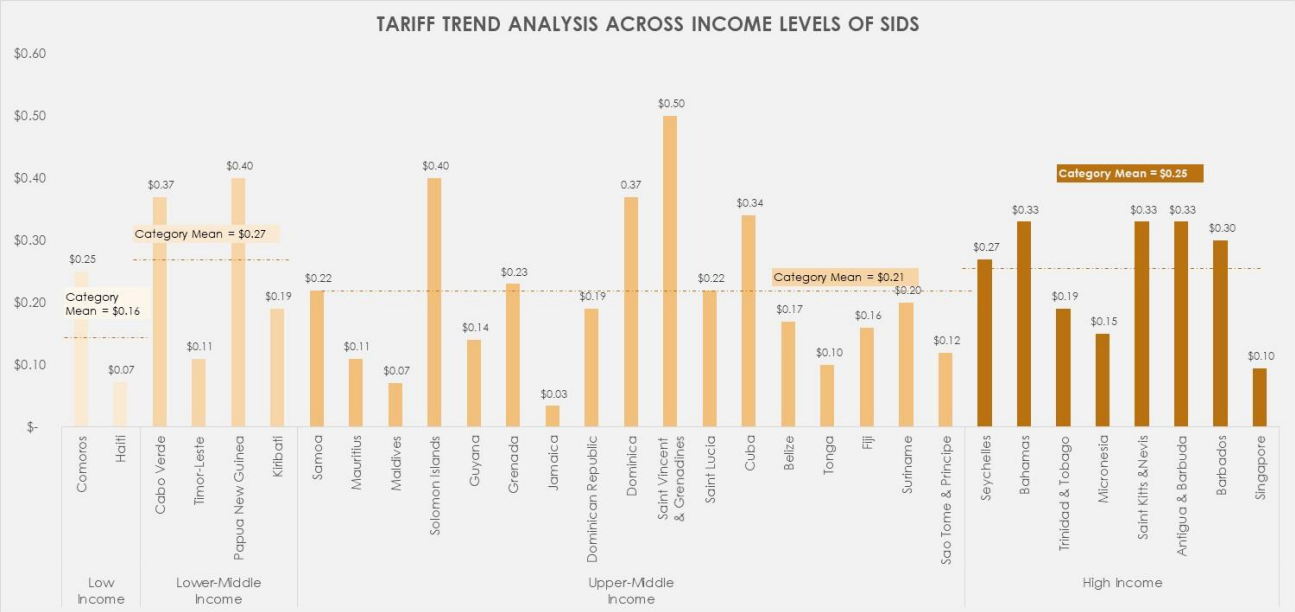

Figure 12: Mobile tariff analysis in SIDS across income levels

Conclusion

The analysis of regulatory trends and tariff in this paper suggests that the SIDS need to accelerate the updating of their respective ICT regulatory frameworks to reach global best practice standards. Given that SIDS face some inherent disadvantages such as small population size and geographical isolation, among others, their regulatory frameworks need to be responsive to these unique characteristics. Many a time this is taken as a ploy to maintain the status quo by the dominant operators. A robust and customized regulatory framework, aligned to best practices would take the islands a long way in service availability, affordability, quality and technological advancement.

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About the Authors

Dr. Pradeep K.Mukherji is President & Managing Partner APAC & Africa at Avasant. For more information on Avasant's Globalization & Strategy Advisory Services, email him at pk.mukherji@avasant.com

Abhijeet Nayak is a Managing Consultant with Avasant. For more information, email him at abhijeet.nayak@avasant.com

Narayan Parameswaran is a retired technocrat, with 30+ years of Telecom, Broadcasting and Regulatory experience. He can be reached at narayana.parameswaran@avasant.com