Regulated MVNO Access in Georgia

Analysis to GNCC communication

"*Response to the Policy Report and Expert Opinion Prepared by Consulting Companies for Magticom Ltd*"

KPMG

9th of November, 2020

INTRODUCTION

The present letter is intended as a response to Georgian National Communications Commission (GNCC) communication of 16 October 2020, where the Regulator addresses the reports on regulated access MVNO Introduction in Georgia, presented by Magticom and prepared by six independent contractors including KPMG.

While the Commission does not directly reference KPMG's report throughout their response, they hint that all reports were "not based on any study of the relevant segment of the Georgian telecommunications market and, consequently, the "risks" identified therein cannot be reasonable or convincing", and that "All the arguments and assessments provided in the documents are "likely" and "possible"[…]".

KPMG report was prepared following methodological best practices, thoroughly documented, and supported by 93 different studies and sources, selected bearing in mind comparability and applicability concerning Georgia, and all of them were quoted in the report so that any reader can verify the conclusion for himself. To this purpose, this report is now made public.

We understand, and respect, the Commission's role and responsibility as the sole regulator of the activities pursued by authorized undertakings in the field of electronic communications in Georgia, as well as we appreciate the detailed responses, methodologies and sources presented under the aforementioned communication, which we have carefully analysed.

From this analysis it stems that although the commission doesn't directly contradict KPMG's arguments or sources, it ends up deriving fundamentally different conclusions regarding i) the perceived competitiveness of the Georgian Mobile Communications Market, and ii) the expected results of introducing an MVNO in Georgia. By going through the sources presented by the Commission it's our belief that this conclusion result from a subjective analysis, as in both accounts the exercise of contextualization to the Georgian reality has resulted in a different perspective, as we will try to outline in the next few pages, with the best interest of the Georgian Mobile Communications Market in mind.

We attach our initial report on Regulated MVNO access in Georgia as Appendix 1 to this Report.

Mobile Market Price and Competitiveness Assessment

Encouraging MVNO access is a practice commonly used for the purpose of stimulating competitiveness in the mobile market or decreasing the number of unaddressed market segments.

According to our previous report, the Georgian mobile telecommunications market is competitive, already having three facility-based competitors, in line with developed countries, which appear to be delivering competitive outcomes. Mobile penetration and mobile internet connectivity demonstrate high levels, comparing favourably to the peer countries in Europe. Regarding the price, on average mobile services and mobile data prices are more affordable in Georgia than in other advanced markets.

In addition, Georgian telecommunications market's regulatory framework is in accordance with developed markets and in line with international practices to promote competition: the review of the tariff for wholesale voice services or the introduction of number portability are examples of these regulatory practices.

However, in the "Response to the Policy Report and Expert Opinion", submitted by GNCC it's implied that the market is not competitive (and hence in need of a MVNO). We found that two methodological approaches followed in the Response, to market competitiveness, might have led to those conclusions:

i. The mobile market price analysis focus on 2 operators (Magticom and Silknet/ Geocell), leaving out the lower cost operator (Veon), and comparing their tariffs with the ones practiced in 37 OECD countries. By leaving out the cheapest operator the analysis is biased and does not reflect current market structure.
ii. While comparing the Georgian mobile market with 37 countries, size, population or other measures to guarantee comparability are disregarded. Comparisons are made regarding a sample of countries identified as *leading European countries* not stipulating which countries or what criteria are considered.

Regarding these two issues, we would like to clarify our perspective illustrated in our report:

Operators analysed

In the "Response to the Policy Report and Expert Opinion Prepared by Consulting Companies for Magticom Ltd" report it is stated that "*the prices of Magticom and Geocell (Silknet) for mobile and voice services in Georgia are much higher than those for the services offered by the operators in leading European countries"* illustrating this point with graphs: *OECD Mobile and Data Voice Price Benchmarking – OECD 2017: 100 calls, 0.5 GB* and *OECD Mobile and Data Voice Price Benchmarking – OECD 2017: 900 calls, 2 GB.* By not considering the third mobile operator (Veon Georgia) who offers relatively lower-price tariffs, the analysis is fundamentally biased as it fails to correctly depict the Georgian market.

The regulator illustrates the mobile market based only on two mobile voice and data service baskets, not considering all the existing offers nor all the operators. The two baskets mentioned in the graphs presented in the "Response to the Policy Report and Expert Opinion Prepared by Consulting Companies for Magticom Ltd" report do not capture entry or basic usage (0,1 GB) nor more intense usage (5 or 10 GB). In addition, a more recent analysis would be more accurate since in 2018, TeliaSonera (brand name: Geocell), which was at the time, Georgia's 2nd biggest mobile telecommunications player, decided to leave the Georgian market selling its subsidiary to Silknet.

Disregarding the third operator (in terms of market share) hides crucial issues concerning the mobile market competitiveness assessment, namely:

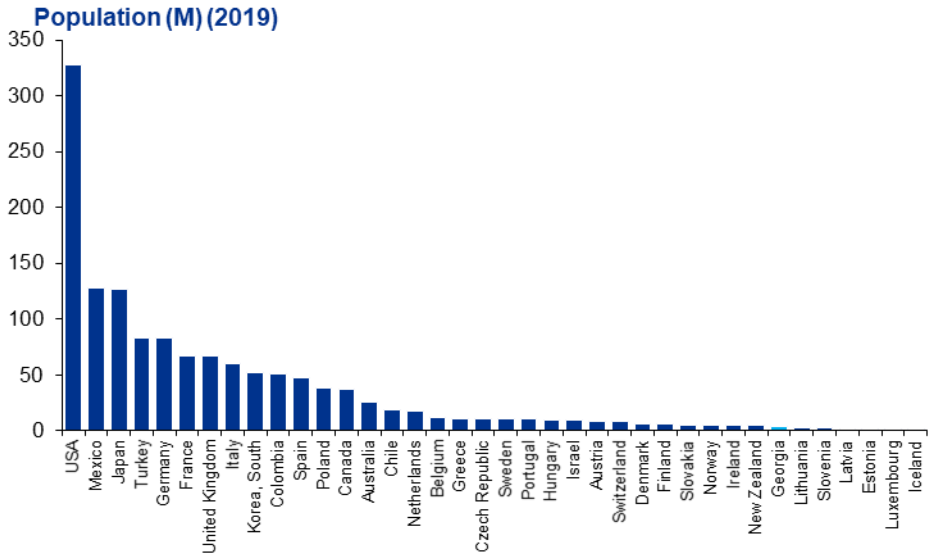
- the discount segment, being typically the most commonly targeted by MVNOs is already addressed;
- despite the possibility to carry a phone number from one provider to another in Georgia was introduced in February 2011, Veon, being the overall cheaper carrier, holds the lowest market share out of the three main players, suggesting, that the Georgian mobile market demonstrates low price sensitivity, driving players to compete in terms of quality.

This challenges the conclusion stated in the Response that the low market share of the third operator is an evidence of low competitiveness.

Comparator countries

Considering the analysis illustrated in the "Response to the Policy Report and Expert Opinion Prepared by Consulting Companies for Magticom Ltd" report, comparisons are made regarding a sample of countries identified as *leading European countries* among 37 OECD countries, not considering size, population or other measures to guarantee comparability. To demonstrate this point, Figure 1 illustrates the variety and heterogeneity of the sample regarding the population size.

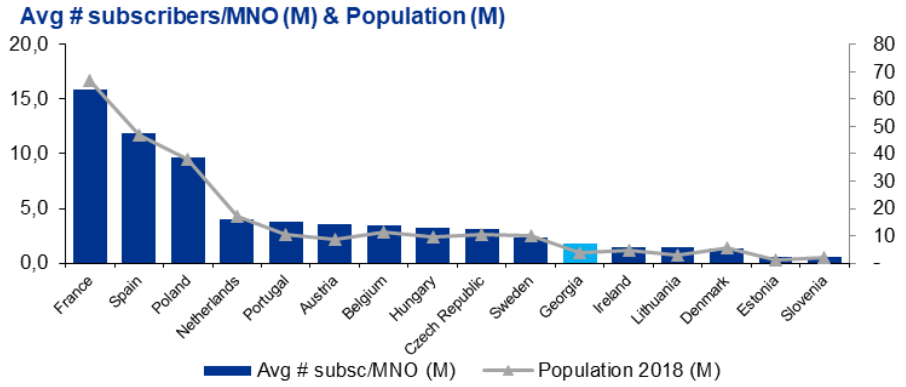
Figure 1 – Population dimension heterogeneity



Source: World Bank

Using countries with similar population sizes would also have ensured that operators size and structures are comparable and conclusions can be derived with a higher degree of certainty. Figure 2 depicts the variety and heterogeneity of the sample regarding the average number of subscribers per MNO.

Figure 2 – Average number of subscribers/MNO



Source: Mobile-cellular telephone subscriptions, ITU; COMMISSION STAFF WORKING DOCUMENT, Digital Economy and Society Index (DESI) 2018, European Commission

Thus, conclusions resulting from the methodology adopted in the "Response to the Policy Report and Expert Opinion Prepared by Consulting Companies for Magticom Ltd" report may not be applicable to Georgian reality. Measures and methodologies from sources in the telecommunications sector should be considered to guarantee the standardization and the validity of the analysis.

According to the methodology used by GSMA Intelligence[1], a source of mobile industry insights, forecasts and research, five clusters were defined to group countries with similar enabling environments: *Leaders, Advanced, Transitioners, Emerging* and *Discoverers*.

In the GSMA Mobile Connectivity Index, *Mobile Tariffs* is a comparable price metric which measures the performance of the countries in terms of monthly cost of mobile broadband data plan expressed as a proportion of monthly GDP per capita. In order to produce comparable price metrics across countries, three baskets are defined based on usage allowance, contract and technology. The baskets were designed to capture entry or basic usage as well as more intense users and are illustrated in Table 1.

Table 1 – Mobile broadband data baskets

Basket	Entry	Medium	High
Monthly usage allowance	100 MB data	500 MB data	1 GB data
Tariff	Prepaid	Any	Any
Technology	2G, 3G or 4G	3G or 4G	3G or 4G

Source: "Mobile Connectivity Index Methodology", GSMA (2019)

Having defined these baskets, all tariffs offered by operators in each country were researched and selected the cheapest available plan under which the basket requirements could be met. The score is normalized between 0 and 100 where a higher value corresponds to a better performance.

Georgia is classified as a *Transitioner* and as previously mentioned in our report, Georgia scored 6,6% higher on the *Mobile Tariffs* dimension when compared to *Advanced* markets' average[2], which means that considering the affordability of mobile data baskets as a share of monthly GDP per capita, Georgia outperforms *Advanced* markets' average. On average mobile services and mobile data prices are more affordable in Georgia than in other advanced markets.

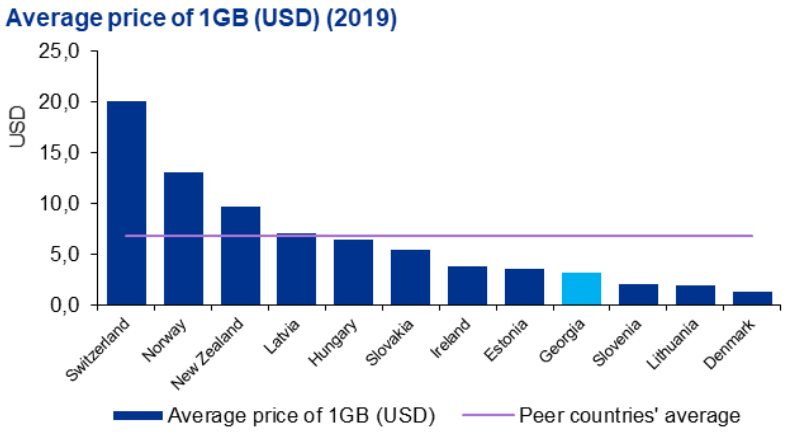
[1] "Mobile Connectivity Index Methodology", GSMA (2019)

[2] GSMA Mobile Connectivity Index, 2019

In this respect, another measure considered by GNCC is the 1GB of mobile data price stating that "*the worldwide rating of countries for the cost of 1 gigabyte mobile data shows that out of 155 countries, Georgia ranks 31st and is more expensive for a direct unit (rated) price than such leading countries as Denmark, France and Poland*". Once again is important to analyse countries comparable with Georgia's context.

In accordance with *Cable.co.uk*, quoted by the *Visual Capitalist* (the source considered in the regulator's report), Georgia is the 13th cheapest out of 38 countries when considering the 37 OECD countries, and regarding the ones whose population size is comparable (considering a range between 1 and 9 million), Georgia appears as the 4th cheapest out of 12 countries (Figure 3).

Figure 3 – Average price of 1 GB



Source: Cable.co.uk

In line with these analyses, reports suggest that Georgian households' telecommunications expenditure, as a percentage of household income stands at approximately 2,2%, lower when compared to its European peers which showcase 3%[3]. Georgian operators' average ARPU in 2018 was also lower by over 5,4 times when compared to European markets[4], even though Georgia's GDP per capita is 3,6 times lower[5].

In this respect, it is worth mentioning that in Georgia, MNOs have been experiencing pressure on their margins as a result of the devaluation of the GEL against the USD, from 2,3339[6] to 3,3409[7] over the last 5 years. Since a considerable portion of their OpEx and CapEx are defined in USD, the maintenance of the same level of pricing is an indicator of strong competition.

As stated by the report, "*there are some relatively lower-price offers from the third mobile operator; besides, the mobile market penetration is high (156%)"* and *"high-price operators (Magticom and Silknet/Geocell) still continue to hold a substantial share of the market*" which is completely aligned with the facts discussed in our report: Veon, being the overall cheaper carrier, still holds the lowest market share out of the three main players proving that the Georgian mobile market demonstrates low price sensitivity, driving players to compete in terms of quality.

[3] "The Silk Connection - Initiation of Coverage – Silknet", Galt & Taggart (2019)

[4] "The Silk Connection - Initiation of Coverage – Silknet", Galt & Taggart (2019)

[5] World Bank

[6] Referring to 2015/05/20, Trading Economics

[7] www.nbg.ge

Considering studies carried out by the GSMA, in markets where players compete in terms of quality, rather than pricing, in order to attain customers large and stable market shares can be an indicator of competitive efforts[8].

In the "Response to the Policy Report and Expert Opinion Prepared by Consulting Companies for Magticom Ltd" report is also mentioned that "*the tariff offers between the two key market players (Magticom and Silknet/Geocell) and the third operator (Veon Georgia) are radically different*". This statement supports the arguments previously presented in our report: there is a wide array of tariffs with different offers and characteristics, addressing the needs of various niches, there are no evident niches for MVNOs to address which are not already served by the existing MNOs.

[8] "Assessing the impact of market structure on innovation and quality driving mobile broadband in Central America", GSMA (2018)

MVNOs market access impacts

In the "Response to the Policy Report and Expert Opinion Prepared by Consulting Companies for Magticom Ltd", report the regulator quotes reports supporting the outlined arguments. Although providing an overview of the impacts regarding the MVNOs market entry, these studies illustrate different contexts when compared to Georgia's current circumstances. Thus, conclusions or assumptions based on these cases may not be applicable to the Georgian mobile market. In most of the mentioned countries, MVNOs' legislation is a practice to ensure the competitiveness in the Post-Merger context as a remedy for mergers between MNOs[9]:

- In Austria, following the merger of Hutchison 3G and Orange Austria, the regulator attached a condition that the merged entity must accept up to 16 MVNOs on its network.
- In Ireland, two MVNOs entered the market due to regulation that was imposed when O2 Ireland merged with Hutchison Ireland to form Three Ireland.
- In Germany, as a condition for the merger between Telefónica and E-Plus, the merged entity was required to offer at least 20% of its network capacity to an MVNO, with an option for the MVNO to acquire a further 10% at a later stage.

Other considered example is the UK case but it is important to note that in the UK there is currently no regulation on wholesale access to mobile networks or MVNO agreements.[10]

An additional set of examples is also given but for each there are particularities that need to be accounted for when trying to draw conclusions[11]: the Netherlands, where the Independent Post and Telecommunications Authority (OPTA) does not regulate MVNO agreements directly; Hungary, where there are no MVNOs established; or Norway, where mobile market is dominated by Telenor Mobil who is obligated to provide MVNO access.

In this respect, as quoted in our report, a study which examined data regarding 58 MNOs in 21 OECD countries between the years of 2000 and 2008, concluded that "*mandated provision of access is related to lower investment intensity by MNOs*". Granting MVNOs access to MNOS' networks might undermine investment incentives for MNOs while non-mandated provision of access does not affect MNO investment incentives. Actually, in many countries access regulation has been replaced with voluntary negotiation-base provisions[12].

According to the sources provided by GNCC, MVNOs are considered relevant stakeholders in the development of areas as "*IoT, Big Data and, in general, a niche development of new technologies on the telecommunications market*". However it is highlighted that this results from contexts where MVNO finds a specific niche in which to focus its activity or when the challenge brought by market saturation leads MNOs to seek for MVNO partnerships to sustain the overall market growth.[13] In this respect, the regulator does not demonstrate evidence of profitable niches for MVNOs to address which are not already served by the existing MNOs nor defines an approach to identify and address unexplored niches.

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[9] "MVNO aspects of the Commission's mobile market review", Analysys Mason (2018)
https://comcom.govt.nz/__data/assets/pdf_file/0018/104238/TrustPower-Appendix-2-Analysys-Mason-Submission-on-the-Issues-Paper-26-October-2018.PDF

[10] "MVNO aspects of the Commission's mobile market review", Analysys Mason (2018)
https://comcom.govt.nz/__data/assets/pdf_file/0018/104238/TrustPower-Appendix-2-Analysys-Mason-Submission-on-the-Issues-Paper-26-October-2018.PDF

[11] "Mobile Infrastructure Sharing", GSMA
https://www.gsma.com/publicpolicy/wp-content/uploads/2012/09/Mobile-Infrastructure-sharing.pdf

[12] "Access Regulation and Infrastructure Investment in the Mobile Telecommunications Industry.", Kim et al (2011)

[13] "How mobile virtual network operators (MVNOs) drive value and improve lives", ITU (2019)
https://news.itu.int/mvnos-telecom-world-value/

The same sources state that there are challenges associated with the MVNOs market, "*The MVNO market has seen a number of failures, as companies struggle with issues of scale and increased competition*" what confirms the arguments presented in our report and illustrated by the Ireland's case.

Quoting the "Response to the Policy Report and Expert Opinion Prepared by Consulting Companies for Magticom Ltd" report, "*Currently, there are more than 1300 MVNO operating across the globe, (…) Out of them, America boasts most, namely 139 virtual operators, then comes Germany with 135 MVNOs. Out of 53 countries of the world, it is in Denmark where MVNOs hold the largest share of the telecommunications market. It is forecasted that the number of MVNOs will increase by 18% to reach 260 million customers by 2022. Besides, the growth forecast for 2025 is 89.9 billion US dollars, at an average annual growth rate of 7.3%*" but considering the "Recommendations document on national roaming access terms and conditions, as well as MVNO access terms and conditions" report carried out by PWC, in developed markets as USA and Europe MVNOs have been decreasing its market share dropping from 45% in 2015 to 36% in 2018 in Europe and from 16% to 10% over the same time period in the USA.[14]

Regarding international cases, the regulator states that "*The Israeli telecommunications market is given as such as example but no explanation is given as to what particular circumstances have caused such negative results*". As stated in our report, market reforms introduced in Israel, mainly driven by short-term considerations aiming to cause rapid reductions of prices by increasing the number of players, were short-sighted regulatory decisions that destroyed the profitability of the cellular market and undermined the ability of the facilities-based service providers to invest in infrastructure, translating into medium to long-term negative outcomes for both the industry and consumers.

In 2009 MVNOs were mandated in Israel. The Israeli government incentivized aggressive MVNO entry through spectrum policy to stimulate competition and reduce mobile prices. These measures led to plan prices declining by 60% to 80% over the course of the following two years. During this time period Israeli mobile prices decreased at an annualized rate of 26%-34%[15]. This in turn caused operators to struggle with massive financial pressures, with all incumbent operators reporting material declines in total revenue[16] during the years following.

By 2018, annual industry CapEx spending was 35% lower than in 2009. The decline in revenues, caused Israeli MNOs to abstain from upgrading their wireless networks. This contributed to Israel falling behind most OECD countries in telecommunications infrastructure and network quality[17].

The Israel's case should not be considered as an isolated case and actually results and conclusions are similar when considering the Spain's case (also mentioned in our report):

- In Israel, from the year 2010 until 2018, following MVNO market entry in 2009, there was a 61% decrease in revenues for the incumbent MNOs and total number of telecom sector employees exhibited a 48% decline[18].
- In Spain, after MVNO entry into the mobile market, mobile services revenues fell by 68% between 2007 and 2017[19], with total number of telecom sector employees also falling by 31%

[14] "Recommendations document on national roaming access terms and conditions, as well as MVNO access terms and conditions", PwC (2019)

[15] "Future-proofing Canada's digital infrastructure to unlock benefits for all", BCG (2019)

[16] "Wireless Market Structures and Network Sharing", OECD Digital Economy Papers No. 243 (2014) https://read.oecd-ilibrary.org/science-and-technology/wireless-market-structures-and-network-sharing_5jxt46dzl9r2-en#page1

[17] OECD; "Report warns that Israel cellular operators may lag on 5G network investment", Times of Israel (2019)

[18] "Report warns that Israel cellular operators may lag on 5G network investment", Times of Israel (2019)

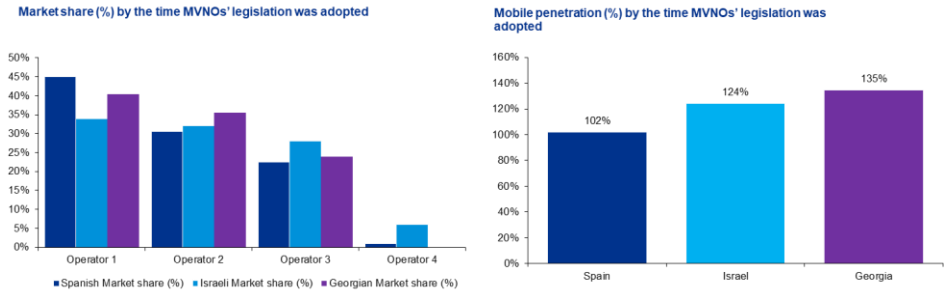
[19] "Commission Decision concerning Case ES/2017/1965: Market for access and call origination on public mobile telephone networks in Spain", European Commission (2017)

during the same time period[20]. Regarding telecommunication investment, there was a 19% decrease[21].

This supports the arguments presented in our report regarding the potential risks and impacts resulting from the MVNOs market entry. Actually regulatory intervention in Spain, mandating MVNO access in order to decrease prices and increase competition led to a steady decline in industry revenues directly impacting investments, causing Spain's decision to withdraw the regulation in 2017.

Regarding the mobile market context, Georgian picture is similar to the Spanish and Israeli environments by the time MVNOs' legislation was adopted, in 2007 and 2010 respectively (Figure 4).

Figure 4 – Spanish, Israeli and Georgian mobile market context



Source: CNMC; OECD; ITU; GNCC

Therefore, assumptions were made based on the examples mentioned and not hypothetically defined, quoting our report:

- it would be difficult for MVNOs to grow their customer base organically, MNO customer base cannibalization and price erosion would be expected to occur, undermining retail revenues and wholesale revenues at a later stage. This can result in lower ARPU (as shown in Israel and Spain where mobile prices decreased at an annualized rate of 26%-34%[22] and 12%[23], respectively).
- if mobile services revenues in Georgia were to fall at an annualized rate of 11% as they did in the case of Spain, an equivalent fall could be registered in Value-Added Tax, potentially translating into a 51% decrease in Corporate Income Tax revenues.
- private investment may be reduced, as seen in Spain and Israel (in Spain, between MVNO entry in 2007 and 2017 investment decreased by 19% and in Israel, investment fell by 35%).

Additionally, summarizing our analysis, the mobile market in Georgia displays high levels of competition, reveals low price sensitivity driving players to compete in terms of quality , offers low competitive pricing when compared to prices offered in peer countries and is aligned with developed market trends, suggesting that the presence of MVNOs is not a requirement for competitive outcomes.

Irina Gevorgyan
Partner, Head of Advisory Department
KPMG Georgia LLC

KPMG Georgia LLC
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Date: 2020.11.09 17:43:07 +04'00'

[20] CNMC; KPMG analysis

[21] CNMC

[22] Times of Israel; KPMG analysis

[23] "Commission Decision concerning Case ES/2017/1965: Market for access and call origination on public mobile telephone networks in Spain", European Commission (2017)

DISCLAIMER

The Report contains a number of assumptions which we consider to be legitimate and substantiated. However, anyone using this Report should perform their own analysis, including of the assumptions used by KPMG. KPMG assumes no liability or obligations related to costs, damage, losses or expenses sustained by a third party in relation to use of the Report.

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

Appendix 1

Regulated MVNO Access in Georgia

Report

KPMG

2nd of June, 2020

INDEX

LIST OF ABBREVIATIONS

MVNO	Mobile Virtual Network Operator
CAGR	Compound Annual Growth Rate
MNO	Mobile Network Operator
ARPU	Average Revenue per User
OPEX	Operating Expenses
CAPEX	Capital Expenditures
GDP	Gross Domestic Product
OECD	Organisation for Economic Co-operation and Development
GNCC	Georgian National Communication Commission
ITU	International Telecommunication Union
HHI	Herfindahl-Hirschman Index
EECC	European Electronic Communications Code
CNMC	*Comisión Nacional de los Mercados y la Competencia (*Spain's competition authority)

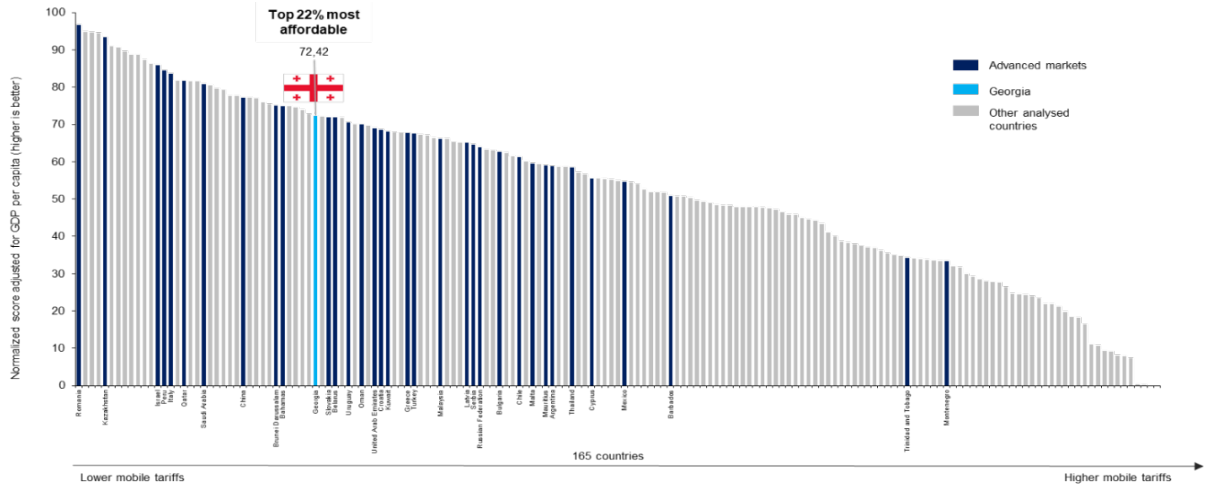
EXECUTIVE SUMMARY

Concerned with how the entry of a mandated Mobile Virtual Network Operators ("MVNO") player and the associated regulation might impact Georgia's mobile telecommunications market and the economy as a whole, Magticom LLC commissioned KPMG a report to analyse the possible outcomes of said scenario. KPMG's aim was to produce a report that independently assesses the Georgian mobile telecommunications market, by paying particular attention to the current competitive climate; explores the potential effects of encouraging new player market entry, namely MVNOs; and depicts past experiences of MVNO market entry in other countries.

Encouraging MVNO access is a tool generally used for the purpose of stimulating competitiveness in the mobile telecoms market, while also being a solution for decreasing the number of unaddressed market segments.

However, as shown in Chapter 1, the mobile market in Georgia displays high levels of competition: i) mobile subscriptions, voice service minutes and particularly data traffic have been increasing considerably between 2010 and 2019 with CAGRs of 3%, 12% and 86% respectively[1]; ii) convergent bundles started to be offered to customers, matching developed market trends; iii) mobile penetration and mobile internet connectivity were 1,3 times and 1,2 times higher in 2018 than in considered peer countries, respectively[2]; iv) prices for mobile voice services have been declining since 2010[1], despite the GEL's devaluation against the USD resulting in pressured margins for MNOs since significant part of their OpEx and CapEx is defined in the USD; v) pricing is low and competitive when compared to prices offered in peer countries, both for mobile services and mobile data services, with an ARPU 5,4 times lower when compared to European markets in 2018, even though Georgia's GDP per capita is only 3,6 times lower[3], ranking 26th out of 35 advanced markets for the most affordable country for mobile data[4] and scoring 6,6% higher on the Mobile Tariffs dimension when compared to their average[5] (see Figure 1); and vi) network coverage is high and expanding with network quality simultaneously increasing[4]. As such Georgian Mobile Market's three MNOs appear to be already delivering competitive outcomes, thus suggesting that the presence of MVNOs is not a requirement for such end.

Figure 1 – Mobile tariffs index (2018)



Source: GSMA Mobile Connectivity Index

[1] GNCC data
[2] GNCC; ITU; World Bank; The State of Mobile Internet Connectivity 2019", GSMA (2019); KPMG analysis
[3] "The Silk Connection - Initiation of Coverage – Silknet", Galt & Taggart (2019); World Bank
[4] GSMA Mobile Connectivity Index
[5] Measures countries' performance in terms of monthly cost of 100MB, 500MB and 1 GB mobile broadband data plan expressed as a proportion of monthly GDP per capita. The score is normalized and a higher value corresponds to a better performance

Furthermore, there is almost no evidence of the existence of unaddressed niche market segments. The discount segment, being typically the most commonly targeted by MVNOs is already addressed, and market analysis points towards overall low price sensitivity, supported by the fact that the overall cheaper MNO, holds the lowest market share out of the three main players[6].

In markets which already display high levels of competition and do not appear to have any relevant untapped market segments, forced MNO-MVNO agreements can pose a number of financial, market, operational[7] and service quality risks for existing players, their consumer-base and the economy in general, potentially leading to a negative impact on consumer outcomes. For example, MVNOs are generally more vulnerable to cyber-security threats than traditional MNOs, partly to do with their generally weaker security capabilities[8].

Georgia's available mobile market is small, at 5,4 million subscribers, has a high penetration rate (136% in 2019)[9]; seemingly low capacity to scale, since its mobile penetration rate seems to have reached its peak and its population has been slowly declining; and unexplored niches can hardly be found. This leads to the following:

a) Probable insufficient critical mass for MVNOs to scale, suggesting they might struggle to break even, which combined with partnerships being mandated instead of voluntary / natural, hints towards low profitability for any individual MVNO, and risk for the MVNO of becoming dependent on constant regulation support in order to survive.

b) Possible widening of the gap / competitive disadvantage towards European peers, considering MNOs in Georgia have on average 2,5 times less subscribers in comparison[10]. Given that it would likely be difficult for MVNOs to grow their customer base organically, MNO customer base cannibalization and price erosion is expected to occur, undermining retail revenues and wholesale revenues at a later stage. This can result in lower ARPU (as shown in chapter 5, Israel and Spain mobile prices decreased at an annualized rate of 26%-34%[11] and 12%[12], respectively), in a market where prices are already low, and potentially ultimately damaging existing players' profitability, and the sector's employment (as shown in chapter 5, in the Israel case, between 2010 and 2018 the revenues of the 3 incumbent MNOs fell by 61% and the sector's number of employees declined by 48%[13]).

Both scenarios would most likely be detrimental to the telecommunications industry, its consumers and the overall economy, as previously observed in other markets.

In a context where the third player in terms of market share appears to be struggling financially, having produced negative operational results for two consecutive years[6], MVNO market entry could potentially lead to a MNO market exit, and consequently decreased market competitiveness.

In the case of Spain, mobile services revenues between MVNO entry in 2007, and 2017, decreased by 68%[12]. Given that both Corporate Income Tax and Value-Added Tax directly depend on sector generated revenues, it is possible to infer that government income deriving from these taxes was negatively affected. Georgia faces equivalent risk, in a scenario where MVNO market entry would translate into an overall fall in revenues, and consequently lower government income resultant from lower tax revenue can occur.

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[6] "Financial Statements and Independent Auditor's Report" of 31 December 2018, VEON Georgia LLC; KPMG analysis
[7] "Mobile Virtual Network Operators (MVNO)", MCMC (2008)
[8] "Series X – Data Networks, Open System Communications and Security", ITU (2017)
[9] GNCC; ITU; World Bank
[10] ITU; "Digital Economy and Society Index (DESI)", European Commission (2018); GNCC
[11] Times of Israel; KPMG analysis
[12] "Commission Decision concerning Case ES/2017/1965: Market for access and call origination on public mobile telephone networks in Spain", European Commission (2017)
[13] CNMC

Moreover, both network coverage expansion and increased network quality reflect effective MNO investment in Georgia with MNO competition being a continuous driving force for MNOs to invest and differentiate themselves for market share. The GSMA also found strong evidence of operator investment being greater in more concentrated markets along with results attributing an important role to the greater efficiency in three-player markets in the use of resources, including spectrum and sites[14].

Given the impact MVNO market entries could have on MNO profitability, driven by lower prices, private investment may be reduced, as seen in Spain and Israel. Investment in Spain, between MVNO entry in 2007 and 2017 decreased by 19%[15]. Similarly, in Israel, between 2009 when MVNOs entered the market, and 2018, investment fell by 35%[16]. This risk is corroborated by a study which examined data regarding 58 MNOs in 21 OECD countries between the years of 2000 and 2008, concluding that "*mandated provision of access is related to lower investment intensity by MNOs*"[17]. As such, the recovery of previous investment in 4G could be delayed, possibly stalling future investments.

Funding of new investments could be undermined with MVNO entry, hampering the deployment of 5G, which will require a significant investment at a point in time when 5G return on investment is unclear. As the GSMA notes: *"The financial demands of 5G deployment on mobile operators will be significant, requiring a high level of investment with uncertain returns."*[18] Another source estimates a 2,4 times higher CAPEX than in pre-5G levels, will be needed, over the course of the three investment waves from 2019 to 2027, and that operational expenses will also be greater. As such, a 2-3 times higher overall total cost of ownership is expected in the last two waves.[19] According to an additional study, 5G is expected to have full payback in 10-12 years, almost double the time it took to upgrade to 4G[18].

Therefore, MVNO entry would likely lead to reduced private investment in the network and negative long-term consumer outcomes, not only because it would deprive consumers of access to the latest technology available along with its benefits, but also because it affects MNOs' ability to invest in network quality and availability (i.e. speed, coverage, latency), an important dimension where there is still room for improvement.

In addition to undermined investment, consumer outcomes could also be adversely affected, particularly during busy hours, given that MNOs have no visibility over MVNOs' future traffic needs.

In conclusion, the entry of a MVNO into the Georgian mobile market can essentially result in the deterioration of long-term investment, as demonstrated in Israel and Spain, and cause an overall negative impact on competitiveness for the sake of short-term affordability. The uncertain economic and industry context being experienced today due to COVID-19 and the upcoming investment in 5G, paired with the industry's inherently very long investment cycle, notably heighten the degree of risk of mandated MVNO entry which can trigger unintended outcomes and then take years to reverse[20].

Irina Gevorgyan

Partner, Head of Advisory Department

KPMG Georgia

2 June 2020

[14] "Mobile market structure and performance in Europe", GSMA (2020)
[15] CNMC
[16] Times of Israel
[17] "Access Regulation and Infrastructure Investment in the Mobile Telecommunications Industry.", Kim et al (2011)
[18] "The 5G Guide", GSMA (April 2019)
[19] "Realising 5G's full potential: Setting policies for success", GSMA (2020)
[20] "Future-proofing Canada's digital infrastructure to unlock benefits for all", BCG (2019)

1. GEORGIAN MOBILE TELECOM MARKET

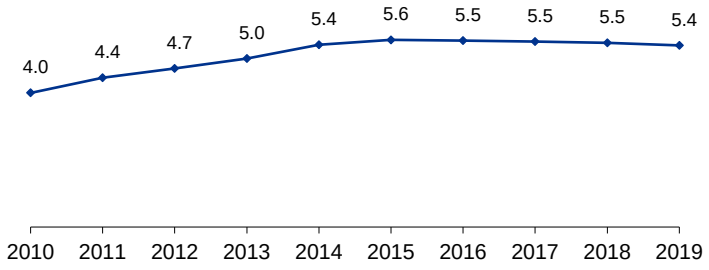
Concerned with how the entry of an MVNO player and the associated regulation might impact Georgia's mobile telecommunications market and the economy as a whole, Magticom LLC commissioned KPMG a report to analyse the possible outcomes of said scenario. KPMG's aim was to produce a report that independently assesses the Georgian mobile telecommunications market, by paying particular attention to the current competitive climate; explores the potential effects of encouraging new player market entry, namely MVNOs; and depicts past experiences of MVNO market entry in other countries. In order to perform this assessment, evaluate other countries' experiences and illustrate the likely potential outcomes of a similar scenario in Georgia, comprehensive desktop research was conducted, along with evaluation and analysis of the relevant available literature, data, and statistics. The report is intended primarily to inform Magticom about the potential impacts of MVNO market entry, and may be shared with Georgian National Communication Commission ("GNCC"), or any other regulatory or government bodies.

1.1. Mobile Market Demand

The Georgian telecommunications market is constituted by around 5,4 million mobile subscribers and 3,2 million mobile internet subscribers, according to GNCC 2019 data.

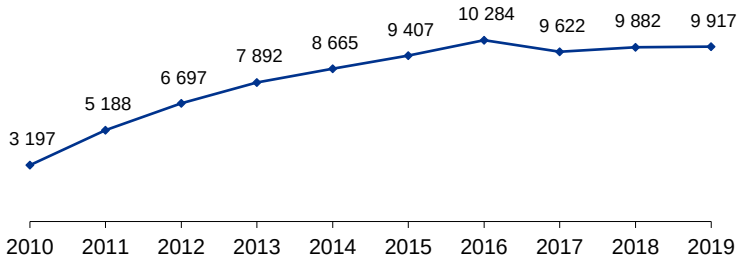
The following Figures show the evolution of mobile subscriptions, voice service minutes, text messages, mobile internet subscriptions and traffic in the Georgian market over the period of 2010 to 2019:

Figure 1 – Mobile subscriptions (million) in Georgia (2010-2019)



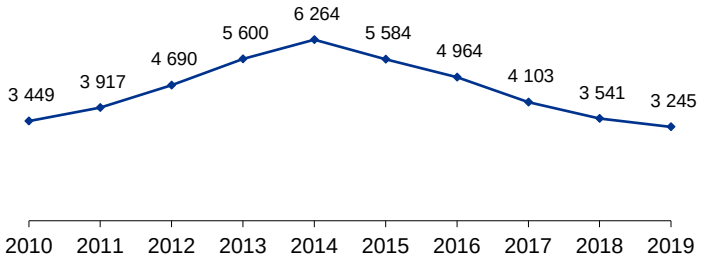
Source: GNCC

Figure 2 – Voice service minutes (million) in Georgia (2010-2019)



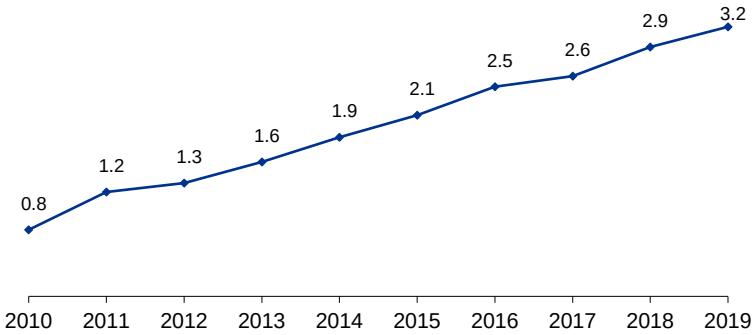
Source: GNCC

Figure 3 – Text messages volumes (million) in Georgia (2010-2019)



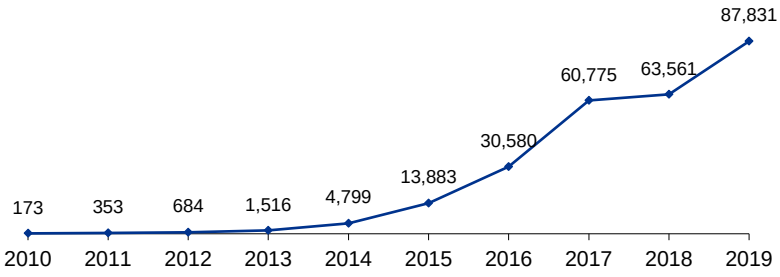
Source: GNCC

Figure 4 – Mobile internet subscriptions (million) in Georgia (2010-2019)



Source: GNCC

Figure 5 – Mobile internet traffic (TB) in Georgia (2010-2019)



Source: GNCC

Despite a 2% population decrease in Georgia between 2010 and 2019[21] voice service minutes, mobile internet subscriptions and mobile internet traffic, as displayed in Figure 2, Figure 4 and Figure 5, have been on the rise for the same time period.

According to this data from GNCC, between 2010 and 2019[22]:

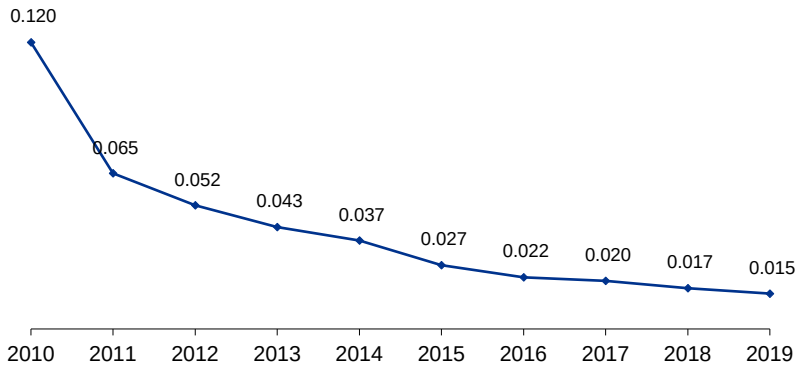
- Mobile subscriptions have increased at a CAGR of 3%;
- Voice service minutes have advanced at a CAGR of 12%;

[21] World Development Indicators Databank, WorldBank; Geostat
[22] GNCC; KPMG analysis

- Text messages volumes have decreased at a CAGR of -1% (probably reflecting a combination of technological alternatives namely IP based instant messaging services such as Facebook Messenger, WhatsApp and Viber);
- Mobile internet subscriptions have expanded at a CAGR of 15%;
- Mobile internet traffic volumes have escalated at a CAGR of 86%.

Despite the increasing call volumes (voice service minutes), revenue per voice minute (GEL) has decreased by 88% between 2010 and 2019[23], as illustrated in Figure 6. This is consistent with relative prices decreasing (decrease in revenue per minute), signalling competition amongst market players.

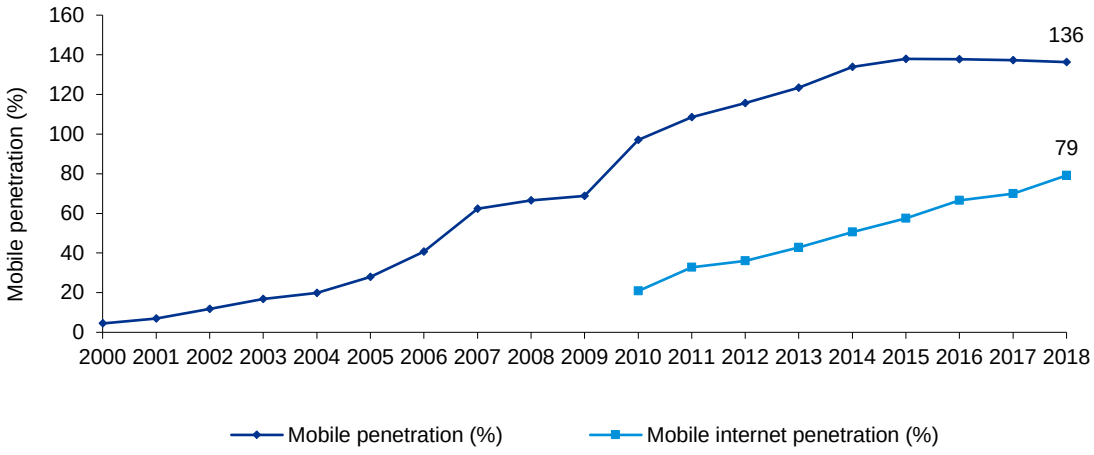
Figure 6 – Revenue per voice minute in Georgia (GEL) (2010-2019)



Source: GNCC

Regarding mobile penetration, Georgia has seen a 41% increase between 2010 and 2018, rising to 136%, 1,3 times higher when compared to peer countries' average at 108%[24] (see Figure 7 and Figure 8). Mobile internet connectivity is also quite high in Georgia with 79% penetration, as shown in Figure 7, against 68% in the region of Europe and Central Asia[25]. For mobile internet penetration, Georgia has experienced a 280% increase between 2010 and 2018.

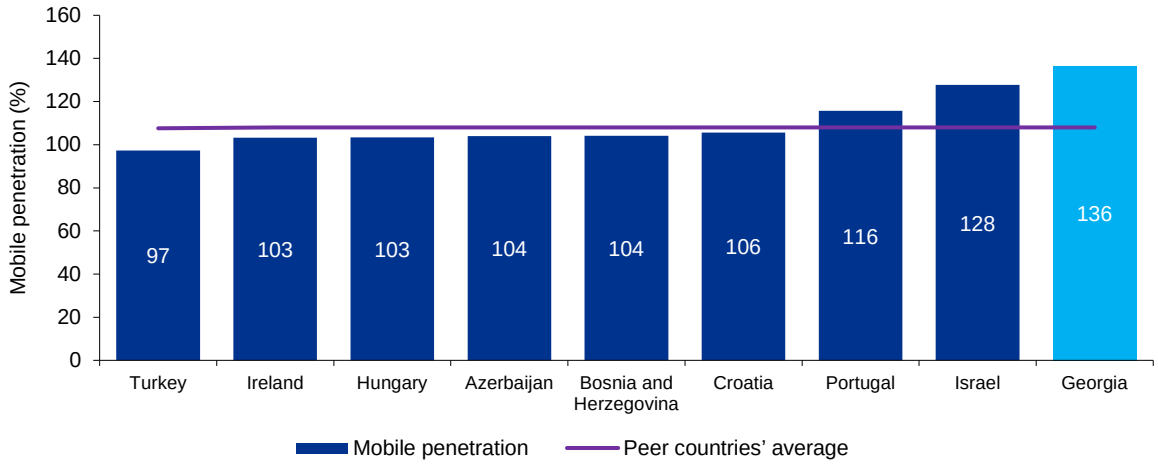
Figure 7 – Georgian mobile penetration (%) (2000-2018)



Sources: GNCC; ITU; World Bank

[23] GNCC; KPMG analysis
[24] GNCC; ITU; World Bank; KPMG analysis
[25] "The State of Mobile Internet Connectivity 2019", GSMA (2019)

Figure 8 – Mobile penetration (%), selected countries (2018)

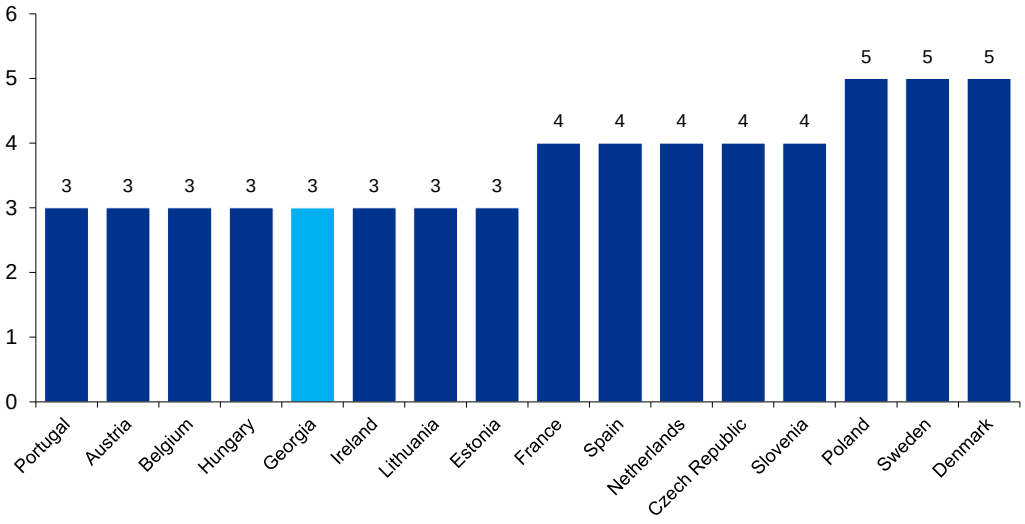


Source: ITU

1.2. Market Structure

In 2018, TeliaSonera (brand name: Geocell), which was at the time, Georgia's 2nd biggest mobile telecommunications player, decided to leave the Georgian market and sell its subsidiary to Silknet, meaning currently, the Georgian market is constituted by three major players: Magticom, Silknet / Geocell and Veon. As such, Georgia's mobile telecommunications market is in line with other developed markets, which typically have three to four MNOs, as show in Figure 9. In these markets, competition has forced out the weaker players, leaving at most three to four players per country.

Figure 9 – Number of MNOs in European countries and Georgia (2017)



Sources: ITU; "Digital Economy and Society Index (DESI)", European Commission (2018); "The Silk Connection - Initiation of Coverage – Silknet", Galt & Taggart (2019)

Studies show that higher concentrated markets can lead to better overall outcomes. According to the GSMA, three-player markets in Europe delivered better network quality during the 4G era, outperforming four-player markets in download and upload speeds (13% and 16% higher respectively) by 2018, as an example of how European mobile users in three-player markets benefitted the most from higher quality and innovation[26].

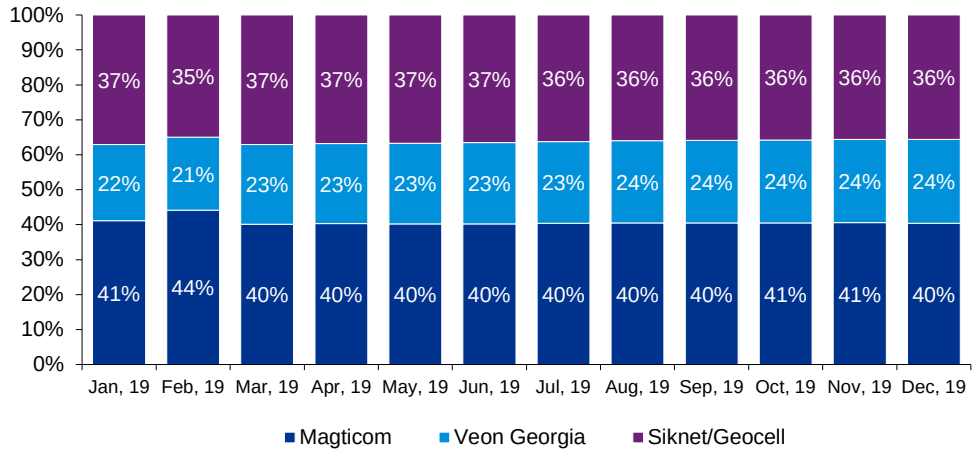
The GSMA also found strong evidence of operator investment being greater in more concentrated markets along with results attributing an important role to the greater efficiency in three-player markets in the use of resources, including spectrum and sites[26].

According to this same study, *"Lower market concentration can be associated with greater incentives to reduce prices and improve quality of service. But concentration levels that are too low can generate dynamics that cancel out these positive competitive effects. In particular, market structures with a larger number of operators can undermine the scale of operators, push up average deployment costs, and decrease margins and returns on investment. This can reduce the ability and incentive to invest in network quality improvements and innovation and limit operators' ability to minimise costs."* [26]

[26] "Mobile market structure and performance in Europe", GSMA (2020)

GNCC data, as of December, 2019, shows Magticom has the highest number of subscribers at 1,8 million, accounting for 40% of market share, Geocell holds 1,6 million subscribers, which accounts for 36% of market share, and Veon has 1,1 million subscribers, making up 24% of the market share.

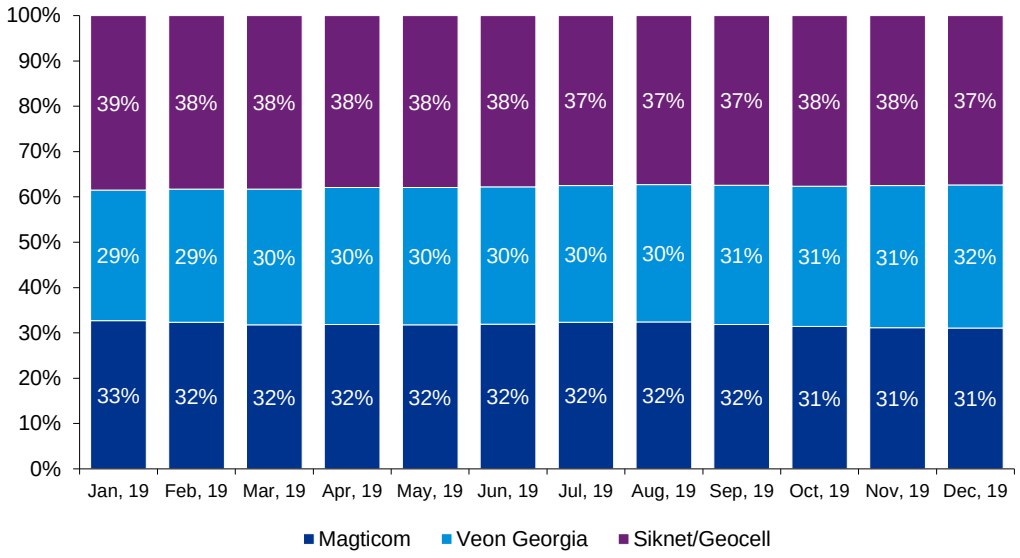
Figure 10 – Share of mobile subscribers (%) by Georgian MNOs (January,2019 – December,2019)



Source: GNCC

In terms of mobile internet subscribers, as of December, 2019, Magticom holds 31% of the market share, whilst Veon and Geocell hold 32% and 37% respectively.

Figure 11 – Share of mobile internet subscribers (%) by Georgian MNOs (January,2019 – December, 2019)



Source: GNCC

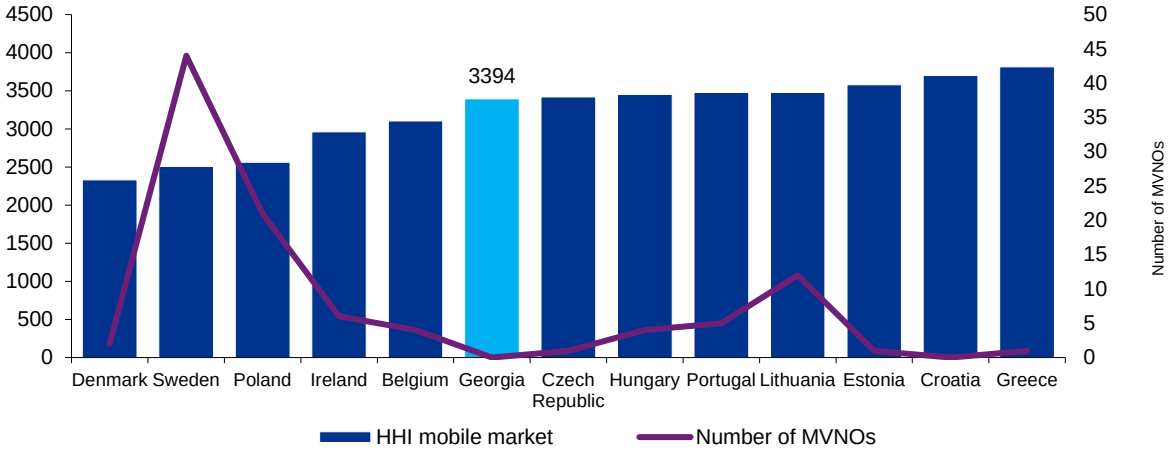
Even though there is relative ease of mobile number portability in Georgia, Veon, being the overall cheaper carrier, still holds the lowest market share out of the three main players, which indicates low price sensitivity. Furthermore, Veon is struggling to be profitable. Its operating results as a percentage of revenue have been negative for two consecutive years at -22% for 2017 and -134% in 2018, with operating losses evolving by 464% for the same time period[27]. This suggests that a forceful introduction

[27] "Financial Statements and Independent Auditor's Report" of 31 December 2018, VEON Georgia LLC; KPMG analysis

of MVNOs into the market might significantly weaken their position which might overall be detrimental to the Georgian telecommunications market, as will be explored further into the report.

In terms of market concentration (considering MNO market share as a percentage of the number of subscribers) even though Georgia displays a value usually associated with concentrated markets, it is in line with other European developed markets, some of which even have a strong MVNO presence.

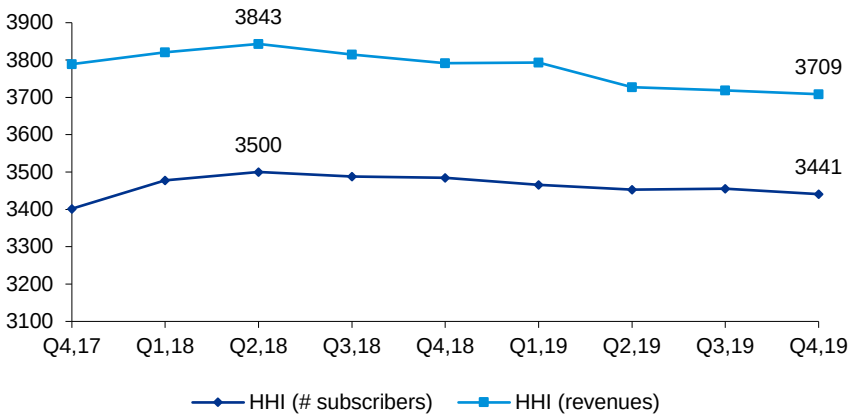
Figure 12 - Herfindahl-Hirschman Index (HHI) considering market shares as percentage of subscribers, selected European countries (2017)



Source: GNCC; "Digital Economy and Society Index (DESI)", European Commission (2018); "Investment and Competition Effects from Creating Mandated MVNO Access to Wireless Networks in Canada by Redefining MVNO Networks to Include Public Wi-Fi ", Margaret Sanderson (2017); KPMG analysis

Additionally, by observing the evolution between 2017 and 2019, Georgia's HHI value for both the mobile market as well as the mobile internet segment (each measured using both number of subscribers and revenues, individually, as the basis for market share) exhibit a decrease (see Figures 13 and 14), which typically indicates an increase in competition[28]. There is a momentary exception regarding the HHI for the mobile market (when using number of subscribers as the basis for market share) which exhibits, in Q4 2019, higher levels than in Q4 2017, but has been experiencing a downward trajectory since Q2 2018.

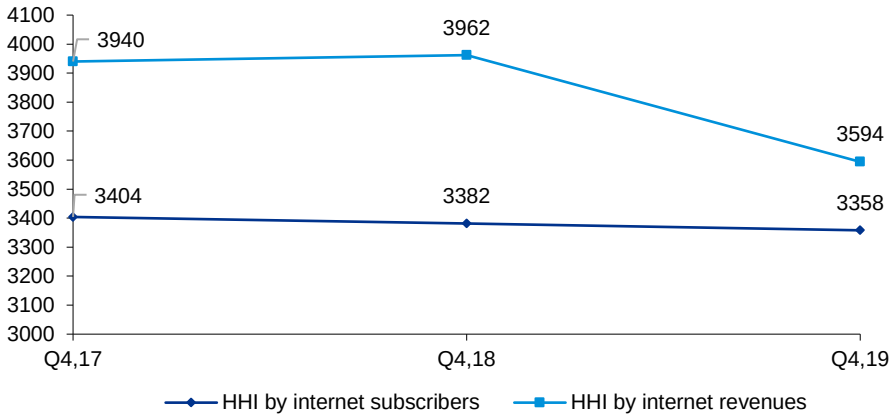
Figure 13 – Georgian mobile HHI (Q4,2017 – Q4,2019)



Source: GNCC

[28] "Analysis: Competition and concentration: The distribution of market power in the global cellular industry", GSMA (2011)

Figure 14 - Georgian mobile internet HHI (Q4,2017; Q4,2018; Q4,2019)

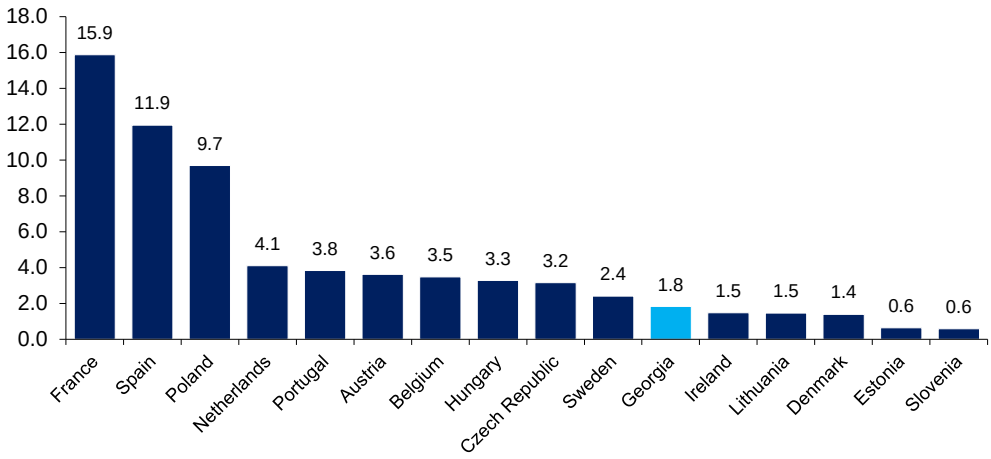


Source: GNCC

It is worth highlighting that the Herfindahl-Hirschman Index is commonly used to diagnose market concentration, but in order to entirely understand competition levels or market power, which is what the second question of the widely adopted ex ante regulation three criteria aims to assess[29], there are other factors which should be considered[30], such as prices, volumes trend, coverage and quality, which are analysed below.

One important limitation of this index is that it fails to consider market specificities such as its size and the average number of subscribers per MNO in order to be financially feasible for the operators to do business. Thus, significant decisions shall not be made based on HHI but on market outcomes. Georgia has an average of 1,8 million subscribers per MNO, lower when compared to countries considered as industry 'leaders' by the GSMA Mobile Connectivity Index, which have an average of 4,5 million subscribers per MNO as shown in Figure 15.

Figure 15 – Average number of subscribers per MNO (million) (2017)



Sources: ITU; Digital Economy and Society Index (DESI) 2018, European Commission; GNCC

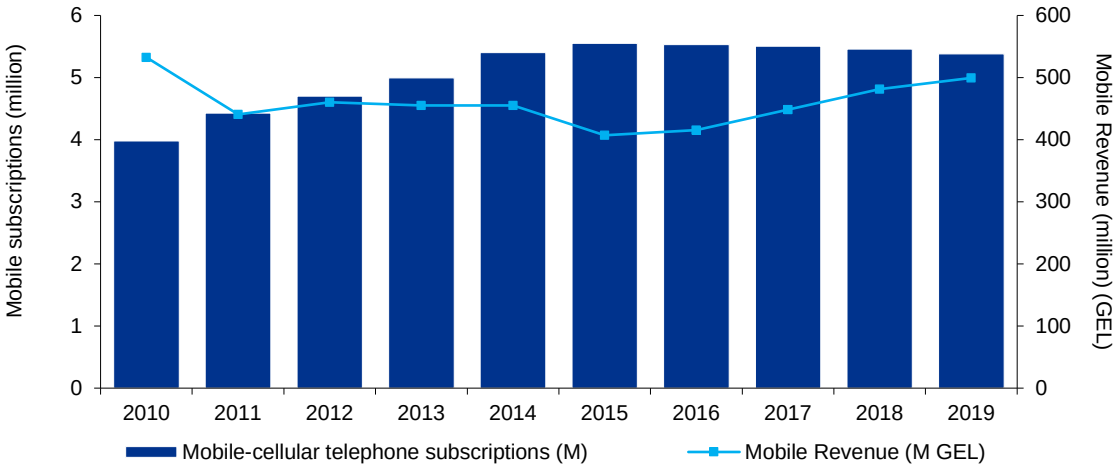
[29] GNCC conducted a three criteria test to determine whether the relevant segment of the wholesale market for mobile data transmission services was subject to ex-ante regulation, evaluating i) structural and/or legal barriers to entry to the relevant segment of the market; ii) potential competition trends on the market; and iii) whether competition law is sufficient to deal with any competition problems

[30] "Analysis: Competition and concentration: The distribution of market power in the global cellular industry", GSMA (2011)

1.3. Price and Profitability

In 2019, mobile revenues exhibited levels 6% lower than in 2010, even though mobile telephone subscriptions grew by 25% as shown in Figure 16. Despite the climbing number of subscribers between 2010 and 2018, increased competition resulted in a general price reduction exerting pressure on revenues culminating in a marginal increase in telecommunications spending[31].

Figure 16 – Mobile subscribers (million) & Mobile revenue (GEL million) (2010-2019)



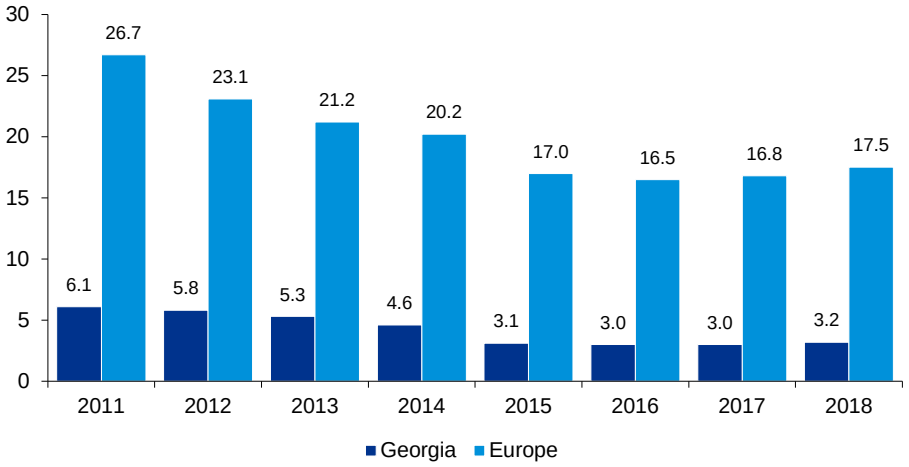
Source: GNCC

Georgian households' telecommunications expenditure, as a percentage of household income stands at approximately 2,2%[32], lower when compared to its European peers, Turkey and Azerbaijan which showcase 3%[32]; 3,8%[33] and 3,2%[34] respectively.

Georgian consumers are spending less than their European peers on telecommunications, motivated by mobile service and mobile data prices significantly lower when compared to prices offered in these same peer countries. Georgian operators' average ARPU in 2018 is also lower by over 5,4 times when compared to European markets, as can be observed in Figure 17, even though Georgia's GDP per capita is 3,6 times lower.[35]

[31] GNCC
[32] "The Silk Connection - Initiation of Coverage – Silknet", Galt & Taggart (2019)
[33] TÜİK's Household Consumption Expenditures Survey
[34] State Statistical Committee of the Republic of Azerbaijan
[35] World Bank

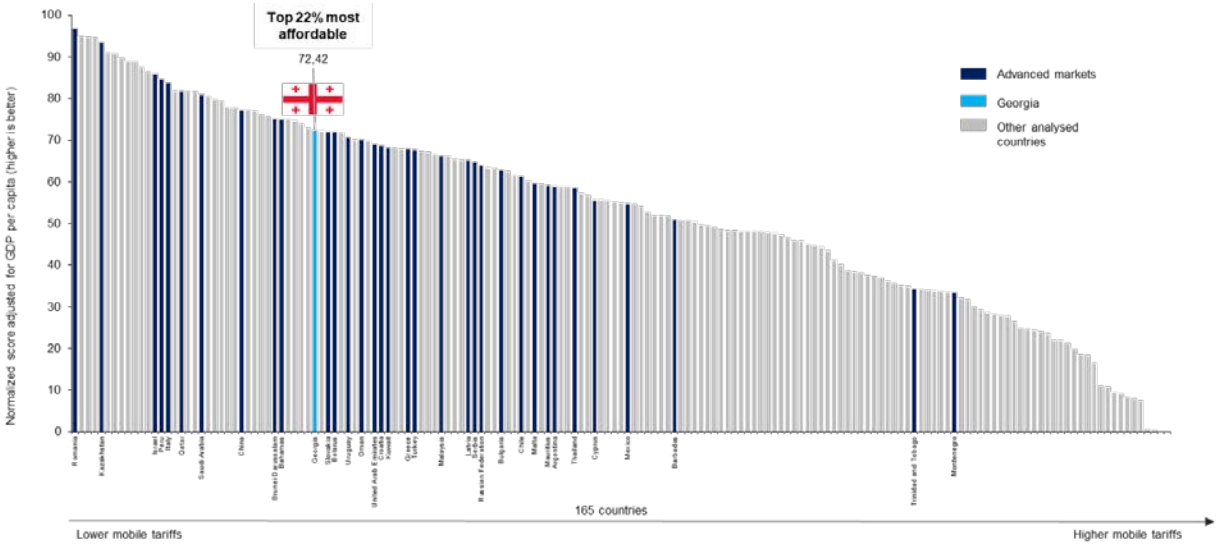
Figure 17 – Mobile ARPUs in Georgia vs Europe (USD) (2011-2018)



Source: "The Silk Connection - Initiation of Coverage – Silknet", Galt & Taggart (2019)

Georgia's mobile services affordability[36] is also evident in the fact that it ranks 26th out of 35 advanced markets[37] for the most affordable country for mobile data, according to the GSMA Mobile Connectivity Index's Affordability Enabler. In addition to its favourable affordability ranking, Georgia also scored 6,6% higher on the Mobile Tariffs dimension when compared to advanced markets' average.[38]

Figure 18 – Mobile tariffs index (2018)



Source: GSMA Mobile Connectivity Index

According to the GNCC in its resolution, *"although the demand for mobile Internet services in Georgia is growing dramatically, there is hardly any indication of (…) retail prices dropping significantly"*.

[36] The GSMA Affordability enabler measures the availability of mobile services and devices at price points that reflect the level of income across a national population, considering the dimensions i) Mobile tariffs; ii) Handset price (cost of entry-level internet-enabled handset as % of monthly GDP per capita); iii) Inequality (inequality in income); and iv) Taxation (cost of taxation and cost of mobile specific taxation).
[37] According to GSMA Mobile Connectivity Index classification, where Georgia is classified as a "Transitioner"
[38] Mobile Tariffs Dimension is a comparable price metric used in the GSMA Mobile Connectivity Index which measures the performance of the countries in terms of monthly cost of 100MB, 500MB and 1 GB mobile broadband data plan expressed as a proportion of monthly GDP per capita. The score is normalized between 0 and 100 where a higher value corresponds to a better performance.

Nevertheless, it is worth mentioning that in Georgia, MNOs have been experiencing pressure on their margins as a result of the devaluation of the GEL against the USD, from 2,33[39] to 3,19[39] over the last 5 years. In light of this, since a considerable portion of their OpEx and CapEx are defined in USD, the maintenance of the same level of pricing is an indicator of strong competition.

Services / Bundles

Georgian MNOs started offering convergent bundles to differentiate from competitors, following developed market trends[40]. In addition to the more traditional offers (mobile internet, SMS, voice and hybrid), with the intention of covering almost all market segments, Georgian MNOs provide various offers in order to meet the different market segments' expectations. They offer different-priced special packages, from discount packages to premium packages.[41] Some focus on local calls (including late-night, weekend and 'favourite number' calls), others on SMS, MMS, Internet and mixed packages.

There is a wide array of tariffs with different offers and characteristics, addressing the needs of various niches. MNO's have hybrid bundles, available in daily, weekly and monthly packages, some of them with unlimited internet, namely Magticom's "Martivi", Silknet/Geocell's "Meti" and Veon's "Max".

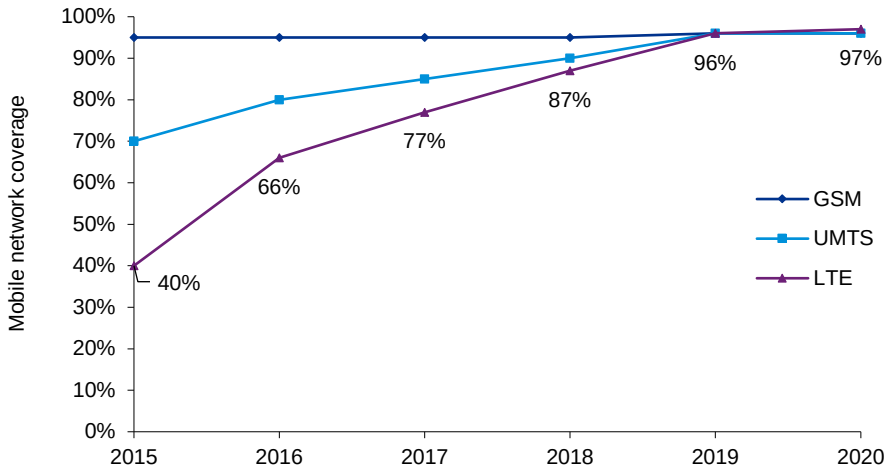
In addition, all 3 major MNOs have offers that satisfy the needs of the the migrant, international travel and foreign segment with Veon offering the Tourist and World Packages, Magticom offering the My World and Regional Tariffs whilst Geocell offering an 'All-inclusive' Tourist Pack and Globus Package. All these tariffs include specific offers for international calls.

[39] Referring to 2015/05/20, Trading Economics
[40] "The Silk Connection - Initiation of Coverage – Silknet", Galt & Taggart (2019)
[41] Various players websites, accessed on the 12th May 2020

1.4. Network Coverage and Quality

Between 2015 and 2020 mobile network coverage in Georgian populated areas has been increasing, with LTE / 4G seeing a 142,5% boost.

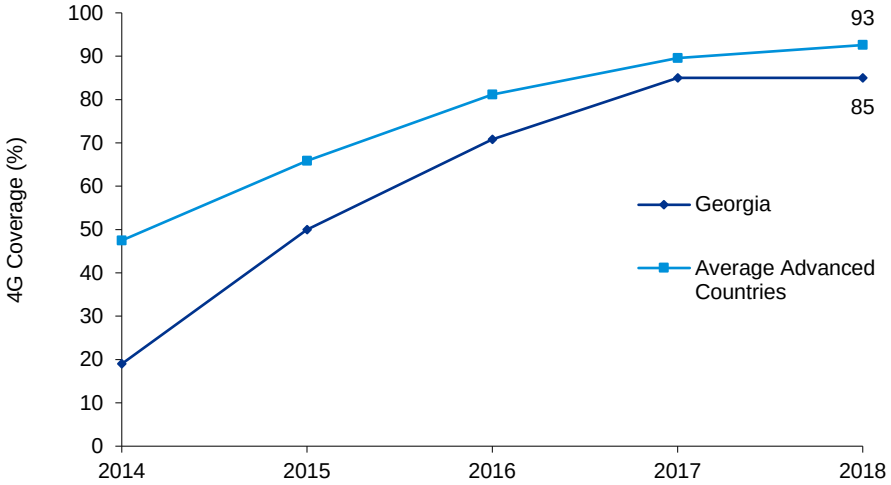
Figure 19 – Magticom mobile network coverage in Georgia (2015-2020) Except Occupied Territories defined by the Law of Georgia



Source: Magticom

Network coverage in Georgia increased by 348% between 2014 and 2018, a larger increment than the advanced markets' 95% for the same time period[42]. Even though 4G rollout began earlier in more advanced markets, 4G coverage in Georgia expanded rapidly and is today converging with these same markets.

Figure 20 – 4G coverage (2014-2018)

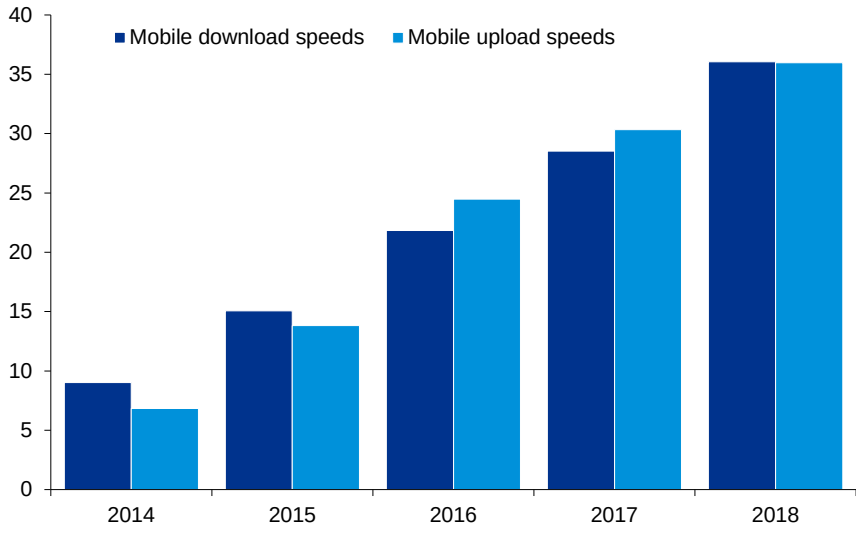


Source: GSMA Mobile Connectivity Index

Network quality in Georgia has also been increasing over the last few years with download and upload speeds having increased by 300% and 427% respectively, according to the GSMA Mobile Connectivity Index.

[42] "Mobile Connectivity Index Classification", GSMA (2018); KPMG analysis

Figure 21 – Georgian mobile download and upload speeds index (2014-2018)



Source: GSMA Mobile Connectivity Index

Both network coverage expansion and increased network quality reflect effective MNO investment in Georgia with MNO competition being a continuous driving force for MNOs to invest and differentiate themselves for market share.

Despite the high and expanding network coverage, given this was a highlighted aspect in GNCC's first criterion from the three criteria test, it is important to note that there are frequency bands which have not been assigned to existing MNOs and are potentially available to a new entrant. Thus, the license for mobile services does not constitute a barrier to entry.

Regarding 5G technology, the Georgian National Communications Commission has announced that it is taking action to introduce 5G internet in Georgia by 2020 stating that it is a "necessary precondition for the development of greatly important areas in the country such as the economy, healthcare, education, business and more"[43].

The Commission has also announced that it has already carried out preparatory work in order to install 5G internet infrastructure, and will be soon announcing a tender / auction for the required frequency spectrum[42].

[43] Agenda Georgia

1.5. Competitiveness Assessment

Overall, the performed market analysis on Georgia's mobile services has shown that Georgia's mobile subscriptions, voice service minutes and particularly data traffic have been increasing considerably between 2010 and 2019 with CAGRs of 3%, 12% and 86% respectively. Prices for mobile voice services have seen a decline shown by an 88% decrease in revenue per minute over the same period, along with mobile internet prices remaining roughly the same despite GEL's devaluation against the USD and a considerable part of OpEx and CapEx of telecommunications' companies in Georgia being denominated in the USD. On average mobile services and mobile data prices are more affordable in Georgia than in other advanced markets, with Georgia ranking favourably on both GSMA's affordability ranking and the mobile tariffs index as previously shown. Mobile penetration and mobile internet connectivity also demonstrate high levels with 136% and 79% penetration, comparing favourably to the 108% in considered peer countries and 68% in the regions of Europe and Central Asia, respectively.

Furthermore, Georgian mobile network coverage has seen an increment over time with 4G coverage in Georgia increasing by 348% between 2014 and 2018, currently converging with advanced markets. Download and upload speeds have also been performing well, having grown by 300% and 427% respectively over the same time period.

Moreover, despite the ease of mobile number portability in Georgia, Veon, being the overall cheaper carrier, holds the lowest market share out of the three main players. MNOs in Georgia have also started offering convergent bundles to customers, matching developed market trends.

Though Georgia exhibits a high mobile market concentration, it is aligned with the sample of developed European countries considered. This mobile market concentration, measured by the HHI, has been decreasing over the last few years, and on its own, is not an indicator of low competitiveness. In fact, in markets where players compete in terms of quality, rather than pricing, in order to attain customers, large and stable market shares can be an indicator of competitive efforts, as opposed to a lack of competition. Granted that operators are able to achieve high market shares through innovation and by offering higher quality, solely studying market shares does not provide compelling conclusions on market competition intensity. [44] Actually, the Georgian mobile market, as mentioned above in section 1.2., demonstrates low price sensitivity, driving players to compete in terms of quality.

In accordance, the overall conclusion is that Georgian mobile market is competitive, already having three facility-based competitors, in line with developed countries, which appear to be delivering competitive outcomes. Therefore, when considering the current market context through market analysis, MVNO-MNO partnerships might not seem necessary.

[44] "Assessing the impact of market structure on innovation and quality driving mobile broadband in Central America", GSMA (2018)

2. THE CASE FOR MVNOs

Generally, Mobile Virtual Network Operators (MVNOs) are wireless communications service providers that independently brand and market their wireless service. Instead of owning a licensed communication band, they resell their wireless services by using the network and radio spectrum of a Mobile Network Operator (MNO).

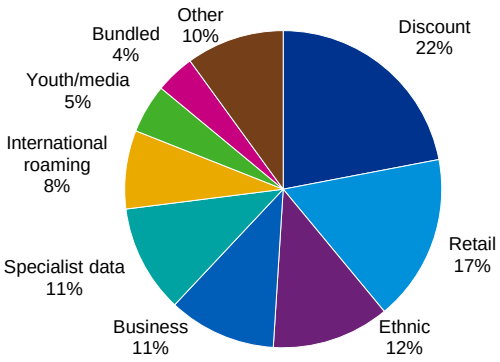
MVNOs can operate through a wide range of business models, depending on the MVNO's level of control over the product or, in other words, its presence on the value chain. Full MVNO, Enhanced Service Provider MVNO, Service Provider MVNO, and Branded Reseller MVNO are some of the types of existing MVNOs.

Since MVNOs rely on access to a telecommunications network usually granted by a MNO in order to operate, it is important to understand the dynamics of the relationship between the two parties. In a competitive market, an MNO would solely grant use of its network to an MVNO if it saw an opportunity for increased business performance. For example, an MNO might see potential in an arrangement, with an MVNO that would be better suited for addressing a particular market segment than the MNO would itself, especially given the MNO's high fixed cost nature. Also, in a scenario where an MVNO market entry is imminent, and cannibalization is likely to ensue, the MNO might be inclined to host said MVNO other than see an arrangement take place between the MVNO and a competitor MNO. On the other hand, if the MNO does not believe in a particular MVNO's value proposition or see a mutually beneficial relationship is likely to occur from a hypothetical MVNO-MNO arrangement, then chances for said arrangement to take place are faint.

MVNOs usually target niche segments within the markets they operate in, which MNOs might opt not to address or lack the capacity to target. These may be smaller niche segments such as a particular ethnicity or larger ones such economically-conscious consumers.

There are 8 key MVNO segments that MVNOs tend to target with the prevailing segments being 1. "Discount" 22%; 2. "Retail" 17% and 3. "Ethnic" 12%, as illustrated by Figure 22.

Figure 22- MVNOs distribution (%) by segment type



Source: "MVNO landscape: global perspectives and New Zealand applications", Red Dawn Consulting (2019), a study of nearly 1 500 MVNOs globally

Given MVNOs characteristics and specificities, there are a number of risks to MNOs and the mobile telecommunications market in general, which can arise from their entry into the market. These risks can be assorted into two main risk categories: financial and market risks and operational and service quality risks, as shown below:

Financial and Market Risks

- Price Erosion and ARPU – MVNO activity may trigger price wars and cripple existing players' profitability ultimately resulting in lower average market ARPU, aggravated by the fact that MVNOs generally sell prepaid plans, and MNOs would likely be driven to compete with said services which generate lower ARPU.
- Increase in Churn – With MVNO market entry, consumers will have a higher number of available competitive options which is likely to cause them to change between service providers at higher rate than before.

Operational and Service Quality Risks

- Network Congestion – MVNO entry might cause overall service quality to be reduced as a result of network congestion, caused by higher levels of network usage.
- Cybersecurity – MVNOs are more vulnerable to cybersecurity threats than traditional MNOs. The International Telecommunication Union notes the following: "*Different from traditional network operators, who own relatively independent telecommunication networks, an MVNO can only manage part of telecommunication networks and services. The service resellers of MVNOs are scattered in different places and connect to the MVNOs through different connections. It is inevitable that MVNOs face serious security threats due to inadequate security practices and requirements, which are very different from the security requirements of traditional network operators. Generally, the security capabilities of MVNOs are weaker than those of traditional network operators. MVNOs are becoming the main targets of security exploits*[45]*."*

In mature markets, intense M&A activity has been ongoing, and MVNOs are seeing their market share decrease both in Western Europe and the USA. As highlighted in PwC's Recommendations document on MVNO access terms and conditions, in mature markets MVNOs have surpassed their MVNO role and have either consolidated, made network acquisitions, or been acquired by traditional operators who seek to increase their market share. This has led to an overall decrease in MVNO market share in recent years. The document elaborates to point out a market share drop from 45% in 2015 to 36% in 2018 in the MVNO market in Europe, with the US seeing a similar decrease from 16% to 10% over the same time period[46].

In the case of Georgia, the business case for MVNO access regulation may not exist, given that there are no evident profitable niches for MVNOs to address which are not already served by the existing MNOs. Existing offers cover market segments MVNOs would typically target such as discount and ethnic. Also, both mobile penetration and mobile broadband connectivity exhibit high levels in the Georgian market. These are all indicators of a highly competitive market. Additionally, there is no reason to believe that MNOs would not voluntarily engage in partnerships with MVNOs given the potential of providing the market with a differentiated offer or targeting an untapped market segment. The motivation behind a partnership, being either voluntary or mandated, is often a determining factor for MVNO market entry success. A prime example is the case of ID Mobile, an MVNO which was launched simultaneously in Ireland and in the UK, in 2015, operating under the British MNO: Three. In the UK, where the relationship was voluntary, ID Mobile experienced rapid growth and is still active today, whereas in Ireland, where the relationship was mandated, the MVNO started generating losses and was eventually liquidated in 2018, after only 3 years of activity. (Further detail on this case can be found in Chapter 5).

[45] "Series X – Data Networks, Open System Communications and Security", ITU (2017)
[46] "Recommendations document on national roaming access terms and conditions, as well as MVNO access terms and conditions", PwC (2019)

3. FINANCIAL AND MARKET RISKS

The Georgian available mobile market is small in terms of users, with a mobile penetration rate of 136%. The country's population in 2017 was approximately 3,7 million, 4,4x lower than the average across European leading countries of 16,4 million. According to statistics for the same year, Georgia had 5,5 million subscribers, 3.4x time lower when compared to the European leading countries' average of 18,8 million.

This scenario is unlikely to be reversed given that Georgia's penetration rate seems to have reached its peak in 2015, and since then has been slowly declining, which is the expected trajectory for developed markets. It is also relevant to note that Georgia's population, as previously mentioned, decreased by 2% between 2010 and 2018.

Furthermore, there is almost no evidence of the existence of unaddressed niche market segments. The discount segment, being typically the most commonly targeted by MVNOs is already addressed, and market analysis points towards overall low price sensitivity, as aforementioned in chapter 1. In addition, MNOs in Georgia provide offers which cover other niche segments, such as youth, migrant, international travel and foreign. As such, unexplored niches can hardly be found, especially for the low-priced segment.

The small market, high penetration and virtually inexistent unserved market segments, along with the likelihood that these variables will remain relatively unchanged, will challenge both MVNOs that enter into the market as well as already existing MNOs. As such, the business case to support such small MVNOs may not exist and these operators who would be hard pressed to break even. The market's low capacity to scale, combined with partnerships being mandated instead of voluntary / natural, hints towards low profitability for any individual MVNO, and to the risk for the MVNO of becoming dependent on permanent regulation support in order to survive.

As an example, a MVNO released simultaneously in the UK and Ireland, under the same MNO, achieved success in the UK where the partnership was voluntary, as opposed to in Ireland, where the partnership was mandated and the MVNO was liquidated after starting to generate significant losses. More detail on this case will be given in Chapter 5.

Regarding MNOs in Georgia, they are already facing a competitive disadvantage, having on average 2,5x less subscribers than their European peers. This gap would probably only be widened with MVNO market entries.

It is implausible for an entrant MVNO to grow a customer base organically. Hence, MNO customer base cannibalization at the cost of price erosion is likely to occur. MVNOs may pose a threat to MNOs by targeting the same customer segments. This will lead to increased price competition / price erosion as MVNOs try to attract customers from other operators. In a market where prices are already low as shown in Chapter 1, this will result in lower ARPU and will ultimately damage existing players' profitability.

In a market where consumers are already served and MNOs do not change their pricing, an MVNO entry would lead consumers to switch from their original carrier (the MNO) to the new entrant. If the MNO loses a significant number of subscribers, it is incentivized to lower its price consequently feeding into price erosion. By doing this, the MNO can successfully gain back a number of subscribers from the MVNO. However, if said MNO is the MVNO's host, it will also see its wholesale revenue fall as a result of a decrease in demand for the MVNO. These market dynamics can therefore cause damage for the

MNO in two ways: through price erosion and reduced revenue, as well as a fall in wholesale revenue later on. [47]

The revenues MNOs earn are already constrained by competition. Any further constraint (e.g., by mandating MVNOs access which requires MNOs to set up a flexible operating and technical architecture to cater for third parties) will lead to the undermining of the sector's employment, price erosion, cannibalization of MNOs' consumer-base and ultimately cripple their profitability. For example, in Israel, from the year 2010 until 2018, following MVNO market entry in 2009, there was a 61% decrease in revenues for the 3 incumbent MNOs and a 48% decrease in the sector's number of employees.

In Spain's case (see further detail in chapter 5), mobile services revenues saw a 68% decrease between MVNO entry in 2007, and 2017. Since both Corporate Income Tax and Value-Added Tax directly depend on generated revenues, it is conceivable to ascertain that government income deriving from these taxes was negatively affected. Georgia faces a similar risk, in a scenario where MVNO market entry would ultimately translate into an overall decrease in revenues, and as a result, lower government income caused by lower tax revenue, could potentially occur. For example, if, hypothetically, mobile services revenues in Georgia were to fall at an annualized rate of 11% as they did in the case of Spain, an equivalent fall could be registered in Value-Added Tax[48], potentially translating into a 51% decrease in Corporate Income Tax revenues[49]. Additionally, regulatory fees paid by operators to the GNCC would also likely be negatively affected since these essentially depend on generated revenues.

MVNO entry could also result in further market exits, leading to decreased market competitiveness, especially when MNO financial struggle is currently evident in the market as is. As an example, for two consecutive years (2017 and 2018), the third largest MNO in Georgia produced negative operational results, a clear indicator of financial fragility, which would likely be critically worsened by MVNO market entry.

In short, introducing an MVNO at this stage is likely to lead to cannibalization, overall market value loss, reduced profitably for existing MNOs and possible further market exits, leading to decreased market competitiveness.

Additionally, there is undoubtedly a current panorama of uncertainty associated with the COVID-19 pandemic. Worldwide, social distancing and stay-at-home directives have motivated an unprecedented spike in network traffic volumes. Mobile operators are acting quickly in order to manage the additional traffic and networks are performing well as a result of continuous investment in network capacity. [50] Data and voice usage have increased and overall revenues are also expected to rise, but certain revenue streams and cash flows such as data roaming could decrease.[51] In Georgia, approximately 35% of total mobile service turnover is seasonal[52], resultant from international visitors who boost the usage of mobile data in the summer season, which given the pandemic is seeing a significant decrease. Alongside, the depreciation of the GEL will result in increased capital, operating and debt service expense. The latest estimate (May 2020) predicts a shrinkage in Georgian GDP for 2020, between -4,5% and -5,5%[51]. This fall in GDP will most likely have an impact on the mobile telecommunications sector as lower economic confidence could potentially result in consumers delaying or foregoing the purchase of smartphones and rethink their mobile tariffs. In the long-run, the consequences of this pandemic on the mobile market's dynamics are unpredictable.

[47] "Mobile Virtual Network Operators: Beyond the Hyperbolae", Brito (Universidade Nova de Lisboa) and Pereira (Autoridade da Concorrência) (2006)
[48] Does not exclude international call termination services for simplicity purposes
[49] Assuming total profit distribution and that MNOs' costs remain unchanged
[50] "Eleven Regulatory Recommendations to Sustain Connectivity During the COVID-19 Crisis", GSMA (2020);
[51] "Telecommunications – Financial reporting implications of COVID-19", KPMG (2020)
[52] "COVID-19 Impact on Georgian Economy", TBC Capital (2020)

4. OPERATIONAL AND SERVICE QUALITY RISKS

Mobile markets are characterized by their frequent and long, cyclical nature of investment and innovation, where new investments may reduce the value of previous investments[53].

According to Georg Serentschy[54], a former telecom regulator in Europe, mandated MVNO access regulation lies on the belief that the MVNOs will "*eventually graduate from simply reselling wholesale products to investing in their own network infrastructure".* However, this did not happen in Europe, due to the protection provided to MVNOs and the lack of incentive in infrastructure investment. As such, in Europe, region in which MVNOs hold the largest market share, the European Commission, in 2016 found itself being driven to propose a new regulatory framework, called the European Electronic Communications Code (EECC), aimed at creating strong incentives for telecoms to invest in new infrastructure.

As Georg Serentschy[53] then concludes, Europe's example clearly shows that *"achieving sustainable and effective competition depends on regulatory policy that incentivizes investment and innovation through facilities-based competition".* Serentschy goes on to claim that "*facilities-based competition that constantly strives to improve network availability and exceed quality experience has consistently proven to drive investments in infrastructure and technology that future-proof our digital economy and, in turn, our society. This maximizes benefits for consumers".*

Hence, MNO investment and innovation is crucial for improving network quality and availability (i.e. speed, coverage, latency), which is an important dimension where there is still room for improvement, as illustrated in chapter 1. Yet, as described in chapter 3, mandating MVNO access will likely negatively impact MNOs profitability, driven by lower prices, which could undermine MNOs' recovery of previous investment in 4G, which has not been yet recouped[55], as well as their ability to funding new investments in infrastructure maintenance and upgrade, causing service quality to drop. Georgia may face the risk of falling further behind the leading countries on network quality and availability, as well as on data usage which, despite the registered significant rise to 2,4 GB/month, is still, in 2018, 2,5x lower when compared to European peers' 6,0 GB/month.

A study which examined data regarding 58 MNOs in 21 OECD countries between the years of 2000 and 2008, concluding that "*mandated provision of access is related to lower investment intensity by MNOs*"[56].

Regulatory policy that mandates MVNO access to improve affordability, will impact industry revenue and as the history of countries who made similar moves suggests, a drop in capital expenditure will follow:

- Investment in Spain, between MVNO entry in 2007 and 2017 decreased by 19%[57], following a 68% decrease in revenues.
- Similarly, in Israel, between 2009 when MVNOs entered the market, and 2018, investment fell by 35%[58] following a 61% decrease in revenues. The decline in revenues, caused Israeli MNOs to abstain from upgrading their wireless network leading Israel to fall behind most OECD

[53] "Competition in the New Zealand Mobile Market", NERA Economic Consulting (2018)
[54] "Canada just took a step to avoiding the wireless 'disaster' that hit Europe", Financial post (2018)
[55] Magticom Financial Statements
[56] "Access Regulation and Infrastructure Investment in the Mobile Telecommunications Industry.", Kim et al (2011)
[57] CNMC
[58] Times of Israel

countries in telecommunications infrastructure and network quality: Broadband subscriptions per capita in Israel fell from 4th place in the OECD rankings in 2010 to 29th in 2017.

In addition to undermined investment, MVNO entry can also affect MNO network quality and service delivery, particularly during busy hours, therefore negatively impacting consumer outcomes, given that MVNOs' future traffic needs are unknown to the MNOs, which have limited visibility and control over their traffic profile. This effect is expected to be amplified since both mobile traffic per capita and mobile internet penetration are both expected to increase. In detail, mobile traffic per capita in Georgia is predicted to grow by 1,7 times by 2022 to 4,1 GB/month, and mobile internet subscriber penetration is anticipated to follow a similar trend by increasing by 1,3 times by 2021[59].

Furthermore, the funding of new investments is at risk of being undermined, hampering the deployment of 5G and depriving consumers of access to the latest technology available along with its benefits. 5G technology's promises of vast socio-economic benefits, ultra-low latency and high reliability will provide improvement in user experience for consumers, who will benefit from faster download speeds and 'always-on' internet connections. 5G is expected to have a better performance than previous technologies due to its correlation and interrelation with other industries and segments, leveraging industry access to connected mobile devices in manufacturing processes[60], eventually allowing for an increased participation of Georgia in global digitized value chains.

Regarding 5G investment, the Boston Consulting Group carried out simulations in order to quantify the amount of additional investments a typical operator needs to make during the time period of 2019 until 2027, considering three waves, compared to pre-5G. The simulations concluded that a massive increase in investments is needed driven by the need for a large number of additional macros and small cells, translating into 2,4 times higher total CAPEX over the three waves. The simulations also showed higher operational expenses and 2-3 times higher overall Total Cost of Ownership in the last two waves[61].

According to another study, 5G is expected to have full payback in 10-12 years, almost double the time it took to upgrade to 4G. The GSMA notes 5G deployment will require a significant investment at a point in time when 5G ROI is unclear: *"The financial demands of 5G deployment on mobile operators will be significant, requiring a high level of investment with uncertain returns."*[62]

Overall, forceful MVNO entry would likely lead to a fall in MNO profitability and, consequently, cause investment to stall, innovation in new networks to slow and technology to lag, delaying the launch of new technologies that are critical to overall economy competitiveness such as 5G, ultimately causing digital infrastructure benefits and network quality to suffer.

[59] "The Silk Connection - Initiation of Coverage – Silknet", Galt & Taggart (2019)
[60] "Realising 5G's full potential: Setting policies for success", GSMA (2020); "Financing the Future of 5G", Greensill (2019)
[61] "Realising 5G's full potential: Setting policies for success", GSMA (2020)
[62] "The 5G Guide", GSMA (April 2019)

5. CASES

The following sample of countries were analysed in order to identify MVNOs market access impacts to the mobile market: Israel, Ireland and United Kingdom and Spain. In Table 1 is a high-level overview of the five countries and respective mobile markets.

Table 1 – Countries high-level overview (2018)

Country	**GNI per Capita** (USD PPP)	**Population** (millions)	**Rural Population** (% of population)	**Mobile Penetration** (%)	**Mobile Broadband Connections** (% penetration)	**4G Coverage** (% of population)
Georgia	3.770	3,7	41	141	88	85
Israel	37.440	8,9	8	116	110	99
Ireland	53.370	4,9	37	98	83	98
United kingdom	40.600	66,4	17	107	98	99
Spain	27.150	46,6	20	116	98	100

Source: GSMA

5.1. Israel

Country Overview

Table 2 – Israel overview (2018)

Country	**GNI per Capita** (USD PPP)	**Population** (millions)	**Rural Population** (% of population)	**Mobile Penetration** (%)	**Mobile Broadband Connections** (% penetration)	**4G Coverage** (% of population)	**Regulation**
	37.440	8,9	8	116	110	99	In 2009, Israel's Ministry of Communications required MNOs to offer MVNOs access based on fair and reasonably negotiated terms, with a regulatory backstop if an agreement could not be reached

Source: GSMA

Context and Impact

In 2009 MVNOs were mandated in Israel. The Israeli government incentivized aggressive MVNO entry through spectrum policy to stimulate competition and reduce mobile prices. These measures led to plan prices declining by 60% to 80% over the course of the following 2 years. During this time period Israeli

mobile prices decreased at an annualized rate of 26%-34%[63], causing operators to struggle with massive financial pressures ultimately impacting their ability to invest in new infrastructure.

Between 2010 and 2018, revenues for Israel's 3 incumbent carriers suffered a 61% decrease, and total sector telecom employees fell from 49.700 in 2010 to 25.900 in 2017, exhibiting a 48% decline[64].

By 2018, annual industry CapEx spending was 35% lower than in 2009[63]. The decline in revenues, caused Israeli MNOs to abstain from upgrading their wireless networks, a necessary step to ensure that Israel's broadband speeds stay competitive and up to speed with global developments. This contributed to Israel falling behind most OECD countries in telecommunications infrastructure and network quality[65]:

- Israeli mobile broadband subscriptions per capita fell from 4th place in the OECD rankings in 2010 to 29th in 2017;
- Regarding cellular network speeds, Israel is ranked 64th with an average download speed of 23,63 Mbps while Canada is ranked 2nd with an average of 65,90 Mbps.

Conclusion

Market reforms introduced in Israel in 2009 mainly driven by short-term considerations and aiming to cause rapid reductions of prices by increasing the number of players, were short-sighted regulatory decisions that destroyed the profitability of the cellular market and undermined the ability and motivation of the facilities-based service providers to invest in infrastructure, translating into medium to long-term negative outcomes for both the industry and consumers.

[63] ""Future-proofing Canada's digital infrastructure to unlock benefits for all", BCG (2019)
[64] "Report warns that Israel cellular operators may lag on 5G network investment", Times of Israel (2019)
[65] OECD; "Report warns that Israel cellular operators may lag on 5G network investment", Times of Israel (2019)

5.2. Ireland

Country Overview

Table 3 – Ireland & United Kingdom overview (2018)

Country	GNI per Capita (USD PPP)	Population (millions)	Rural Population (% of population)	Mobile Penetration (%)	Mobile Broadband Connections (% penetration)	4G Coverage (% of population)	Regulation
	53.370	4,9	37	98	83	98	Following the 2014 takeover of O2 Ireland by Three, Three was ordered by the European Commission to provide mobile spectrum to admit MVNOs on its network
	40.600	66,4	17	107	98	99	None

Source: GSMA

Context and Impact

In 2015, following Three Ireland's takeover of O2 Ireland, Three was ordered by the European Commission to provide mobile spectrum to two new MVNOs, thus encouraging MVNO entry into the market in order to maintain competition[66]. This led to the emergence of ID Mobile, an MVNO which was launched that same year (2015), operating by using Three's network. In 2018, ID Mobile had generated losses of £10 million (€11,36 million) in Ireland[67] causing its parent company to appoint a liquidator to wind up the Irish arm of the company, after failed attempts to find a buyer[65]. Considering the 3 year period during which ID Mobile operated in Ireland, the MVNO wasn't able to cause a positive impact in the Irish telecommunications market:

- The country's total number of mobile subscribers remained roughly the same after ID Mobile's entry in the market, with total mobile subscriptions even increasing by 1,7% since Q3 2019, after ID Mobile's exit[68];
- Market share was unaffected by the MVNO's entry and subsequent exit from the market[68];
- MVNO entries into the market showed no particular increase in portability up until ID Mobile's exit from the market, where the metric displayed an increase[68];

[66] RTE
[67] Irish Times
[68] "Quarterly Key Data Report", Commission for Communications Regulation (2016; 2018; 2019); KPMG analysis

- After ID Mobile's exit from the market, prices are continuing to fall, even for priciest networks like Vodafone suggesting that the 3 operating MNOs (Vodafone, Three and Eir) are able to maintain healthy levels of competition between themselves and do not require additional stimuli provided by MVNOs[69].

ID Mobile was simultaneously launched in the UK in May 2015, where it experienced rapid growth. It was, however, not a product of mandated access regulation on mobile network operators, but instead the result of a voluntary commercial relationship between both parties (the MNO and the MVNO).

Conclusion

MVNOs are more likely to be successful in a competitive market if they can add value relative to the existing MNO offerings. An MNO may decide that for certain customer segments it is more efficient for it to "in-house" its distribution and MVNOs may not seek market entry if they cannot identify profitable niches. An MNO will contract with an MVNO if it feels the MVNO will maximize its customer base and market share. If mobile plans are getting cheaper, it is often an indicator of a highly competitive market and when prices are low across the entire market, there is little room for MVNO entry and success.

[69] Luke kehoe, Telecom Industry Analysts

5.3. Spain

Country Overview

Table 4 – Spain overview (2018)

Country	GNI per Capita (USD PPP)	Population (millions)	Rural Population (% of population)	Mobile Penetration (%)	Mobile Broadband Connections (% penetration)	4G Coverage (% of population)	Regulation
	27.150	46,6	20	116	98	100	In 2006, Spain's regulator pushed for MVNOs by strongly reducing wholesale rates allowing for a large number of MVNOs' entrance in the retail market. In 2017, the regulator approved the deregulation of the MVNO market.

Source: GSMA

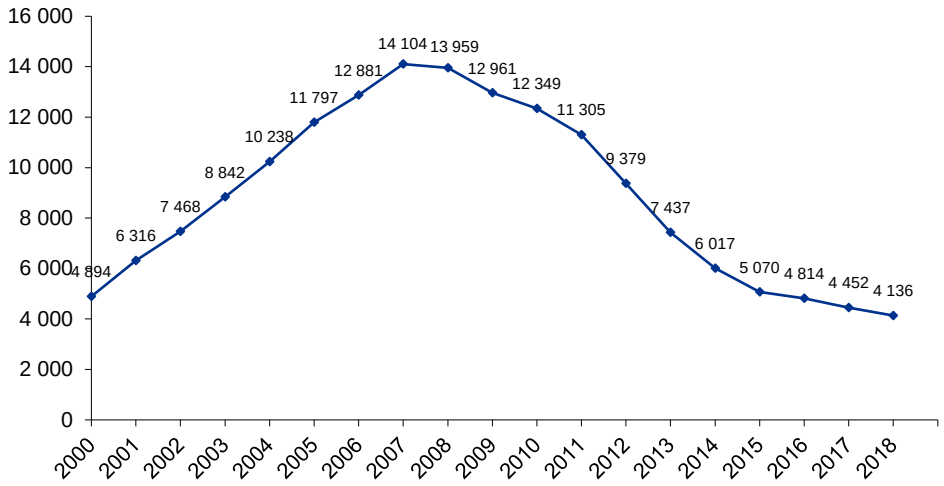
Context and Impact

In 2006, Spain's regulator pushed for MVNO regulation in order to stimulate competition, drive lower mobile prices for consumers, and ease the portability process for consumers. However, Spain's market was already saturated, with very high levels of mobile number penetration at over 100% in 2006[70], making it almost impossible for MVNOs to grow their customer base organically, without acquiring customers from other existing operators. MVNO entrance therefore, led to operators struggling with financial pressures:

- The average revenue per minute of the wholesale voice call origination service dropped by over 75% between 2011 and 2016[71];
- Mobile prices decreased at an annualized rate of 12%[72];
- Commercial agreements between MNOs and MVNOs, according to the CNMC (Spain's competition authority), resulted in prices close to near termination rates[73];
- Growth in MVNOs' market share accelerated and competition intensified due to MVNOs engaging in price wars, which ultimately led to an overall decline in telecom and mobile annual average revenue per subscriber of approximately 8%[74] and 19%[75] respectively.

[70] CNMC
[71] "Commission Decision concerning Case ES/2017/1965: Market for access and call origination on public mobile telephone networks in Spain", European Commission, (2017)
[72] CNMC; KPMG analysis
[73] "Commission Decision concerning Case ES/2017/1965: Market for access and call origination on public mobile telephone networks in Spain", European Commission (2017)
[74] "Future-proofing Canada's digital infrastructure to unlock benefits for all", BCG (2019)
[75] CNMC; OECD; KPMG analysis

Figure 23 - Spanish revenue from mobile services (€ million) between 2000 and 2018

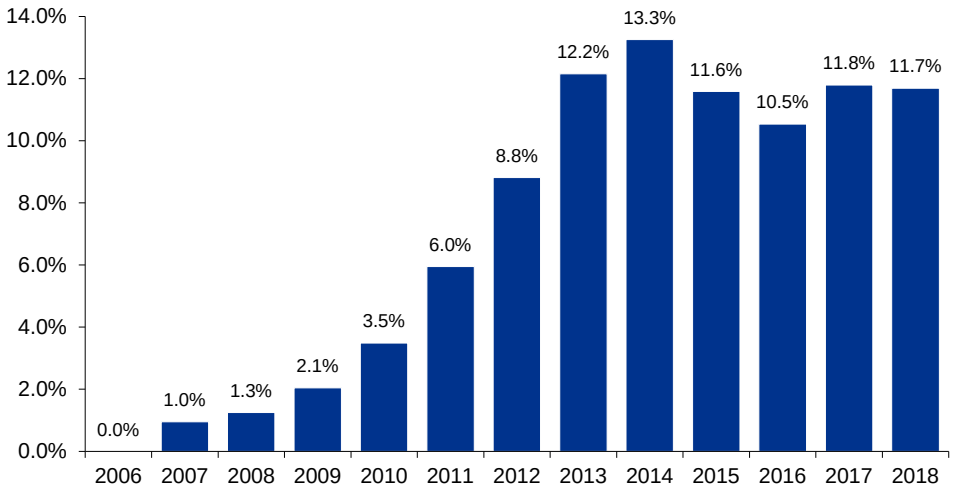


Source: CNMC

After MVNO entry into the Spanish mobile market, mobile services revenues fell by 68% between 2007 and 2017, with total sector telecom employees also falling by 31%, from 85.005 to 58.700 during the same time period[76].

Regarding telecommunication investment in Spain, there was a 19% decrease between MVNO entry in 2007 and 2017[77], as MVNO market share grew and prices decreased, resulting in wholesale rates dropping to values 11 times lower in only 6 years[78] as can be observed in Figure 24 and Figure 25.

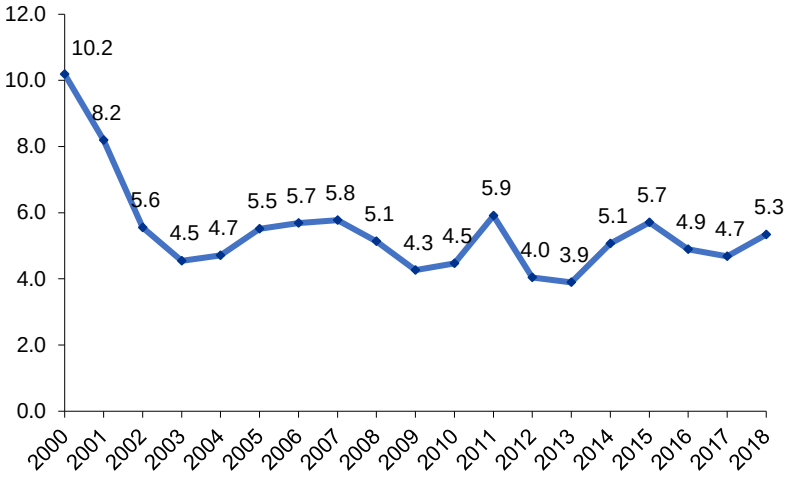
Figure 24 - Spanish MVNOs market share (%) between 2006 and 2018



Source: CNMC

[76] CNMC; KPMG analysis
[77] CNMC; KPMG analysis
[78] "Future-proofing Canada's digital infrastructure to unlock benefits for all", BCG (2019)

Figure 25 - Spanish investment in mobile services (€ billion) between 2000 and 2018



Source: CNMC

Conclusion

Regulatory intervention in Spain, mandating MVNO access in order to decrease prices and increase competition led to a steady decline in industry revenues directly impacting investments and consumer outcomes[79], causing Spain's decision to withdraw the regulation in 2017 and currently relying primarily on market forces.

[79] "Future-proofing Canada's digital infrastructure to unlock benefits for all", BCG (2019)

6. CONCLUSIONS

When a MVNO demonstrates it is capable of adding value that a MNO cannot, by bringing volume to its network, the MNO has an incentive to provide the MVNO with network access. Given the MNO's high fixed cost nature there is little reason to believe that MNOs would not offer MVNOs the chance to partner under competitive / fair terms, if they believe the MVNOs could perform better in certain segments. Also, as illustrated in the Ireland / UK case in chapter 5, whether or not the partnership is voluntary, can be a determining factor for MVNO market entry success.

It is also important to note that the entry of MVNOs into the market entails a number of financial, operational and market risks[80], potentially leading to a negative impact on consumer outcomes. For example, this type of operator is generally more vulnerable to cybersecurity threats than traditional MNOs, partly to do with their generally weaker security capabilities[81].

Additionally, the mobile market in Georgia displays high levels of competition, offers low competitive pricing when compared to prices offered in peer countries, both in mobile service and mobile data, and is aligned with developed market trends, suggesting that the presence of MVNOs is not a requirement for competitive outcomes.

As previously described in chapter 1, Georgia's available mobile market is small, has a high penetration rate, seemingly low capacity to scale, since its mobile penetration rate seems to have reached its peak, its population has been slowly declining, and unexplored niches can hardly be found. This leads to the following:

c) Probable insufficient critical mass for MVNOs, suggesting they might struggle to break even, which combined with partnerships being mandated instead of voluntary / natural, hints towards low profitability for any individual MVNO, and risk for the MVNO of becoming dependent on constant regulation support in order to survive.

d) Possible widening of the gap / competitive disadvantage towards European peers, considering MNOs in Georgia have on average 2.5x less subscribers in comparison[82]. Given that it would likely be difficult for MVNOs to grow their customer base organically, MNO customer base cannibalization and price erosion would be expected to occur. This can result in lower ARPU (as shown in chapter 5, Israel and Spain mobile prices decreased at an annualized rate of 26%-34%[83] and 12%[84], respectively), in a market where prices are already low, and potentially ultimately damaging existing players' profitability, which in turn may lead to possible market exits and decreased market competitiveness.

This indicates that either MVNOs would be unable to sufficiently scale in order to break even and would therefore require constant regulation support in order to survive, or they would effectively acquire the MNOs' consumer base, undermining their revenues, and more importantly, the sector's employment (as shown in chapter 5, in the Israel case, between 2010 and 2018 the revenues of the 3 incumbent MNOs fell by 61% and the sector's number of employees declined by 48%[85]). Both scenarios would most likely be detrimental to the telecommunications industry, its consumers and society in general.

[80] "Mobile Virtual Network Operators (MVNO)", MCMC (2008)
[81] "Series X – Data Networks, Open System Communications and Security", ITU (2017)
[82] ITU; "Digital Economy and Society Index (DESI)", European Commission (2018); GNCC
[83] "Future-proofing Canada's digital infrastructure to unlock benefits for all", BCG (2019)
[84] "Commission Decision concerning Case ES/2017/1965: Market for access and call origination on public mobile telephone networks in Spain", European Commission (2017)
[85] Times of Israel

In the case of Spain, mobile services revenues between MVNO entry in 2007, and 2017, decreased by 68%[86]. Given that both Corporate Income Tax and Value-Added Tax directly depend on sector generated revenues, it is possible to infer that government income deriving from these taxes was negatively affected. Georgia faces equivalent risk, in a scenario where MVNO market entry would translate into an overall fall in revenues, and consequently lower government income resultant from lower tax revenue could potentially occur.

In a context where the third player in terms of market share appears to be struggling financially, having produced negative operational results for two consecutive years[87], MVNO market entry could potentially lead to a MNO market exit, and consequently decreased market competitiveness.

Given the impact MVNO market entries could have on MNO profitability, driven by lower prices, private investment may be reduced, as seen in Spain and Israel. Investment in Spain, between MVNO entry in 2007 and 2017 decreased by 19%[88]. Similarly, in Israel, between 2009 when MVNOs entered the market, and 2018, investment fell by 35%[89]. This risk is corroborated by a study which examined data regarding 58 MNOs in 21 OECD countries between the years of 2000 and 2008, concluding that "*mandated provision of access is related to lower investment intensity by MNOs*"[90]. As such, the recovery of previous investment in 4G, which has not been yet recouped[91], as well as the funding of new investments could be undermined, hampering the deployment of 5G, which will require a significant investment at a point in time when 5G ROI is unclear. As the GSMA notes:

"The financial demands of 5G deployment on mobile operators will be significant, requiring a high level of investment with uncertain returns."[92]

Therefore, forceful MVNO entry would likely lead to reduced private investment in the network and negative long-term consumer outcomes, not only because it would deprive consumers of access to the latest technology available along with its benefits, but also because it affects MNOs' ability to invest in network quality and availability (i.e. speed, coverage, latency), an important dimension where there is still room for improvement.

In addition to undermined investment, consumer outcomes could also be adversely affected, particularly during busy hours, given that MNOs have no visibility over MVNOs' future traffic needs.

In conclusion, the encouragement of involuntary MVNO-MNO partnerships can essentially result in the deterioration of long-term investment, as demonstrated in Israel and Spain, and cause an overall negative impact on competitiveness for the sake of short-term affordability, which is likely to fundamentally translate into lower government income. The uncertain economic and industry context being experienced today due to COVID-19 and the upcoming investment in 5G, paired with the industry's inherently very long investment cycle, notably heighten the degree of risk of mandated MVNO entry which can trigger unintended outcomes and then take years to reverse [93].

[86] CNMC
[87] "Financial Statements and Independent Auditor's Report" of 31 December 2018, VEON Georgia LLC
[88] CNMC
[89] Times of Israel
[90] "Access Regulation and Infrastructure Investment in the Mobile Telecommunications Industry.", Kim et al (2011)
[91] Magticom Financial Statements
[92] "The 5G Guide", GSMA (April 2019)
[93] "Future-proofing Canada's digital infrastructure to unlock benefits for all", BCG (2019)

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