FAIR TRADING COMMISSION

Proposed Acquisition of Columbus Networks International Inc. by CWC Communications Plc

Summary Report

DOC No: FCD20150326

EXECUTIVE SUMMARY

The Fair Trading Commission, pursuant to Section 20 (5) of the Fair Competition Act CAP 326C ("the FCA") reviewed the formal notification of the merger application between Cable and Wireless Communications plc, and Columbus International Inc. on 24 November 2014.

In this application the Applicants argued that the market of interest in the merger analysis is that for "communications services", which was disaggregated into sub-markets for (i) Voice Telephony; (ii) Television; and (iii) Data Services. The Commission challenged this interpretation on the grounds that the classification of the market was too broad. In its assessment, the Commission made use of the information sources and analytical tools at its disposal to define the relevant product markets of interest as follows:

- Fixed-voice (landline) telephony
- Fixed data (broadband internet) services
- Subscription television services

The Commission however believed that based on the activities within the market, the markets that will be affected by the merger owing to potential anti-competitive effects are:

- Fixed-voice (landline) telephony
- Fixed data (broadband internet) services

The Commission considered the efficiencies of the merger within the context of the overall economic and competitive impacts and determined that:

- The merging parties will become dominant in the supply of fixed voice telephony in Barbados moving from a duopoly market to a monopoly market.
- The merging parties will become dominant in the supply of fixed broadband services in Barbados.
- The merging firms are close competitors and will be able to raise prices significantly, post-merger.

- Customers have limited or reduced possibilities of switching suppliers especially in the case of fixed voice and fixed broadband.
- The merged entity is able to hinder expansion by competitors since it will control 100% of Fibre to the Home infrastructure and a large proportion of Fibre to the Business infrastructure. Further, other providers of fixed data (outside of Digicel) remain reliant on the merging entities for wholesale access in order to deliver ISP services to end users.
- Effective competition may be significantly impeded by a 'merger of equals' within the context of innovation. Competitors have also suggested that FLOW/Columbus has been a major buffer to C&W/LIME's strong competitive position in the broadband market.

In this regard, the Commission is of the view that the merger in its entirety is likely to affect competition adversely and that conditions to lessen these effects on competition must be implemented. To this end the Commission outlined specific structural and behavioural conditions to the merger transaction.

The Commission's Decision

The Commission determines that the merger is approved subject to the following remedies:

1. The Commission directs that the Applicants divest the following:
   - One set of fibre cables in the zones where there exists total overlap of the LIME and FLOW networks. This includes the 27,000+ homes passed by the Karib Cable Network as well as the 28,000+ homes passed outside of the Karib Cable Network but in the LIME/FLOW fibre network overlap.

   - The Government Hill and Durants hub sites related to the fibre cables associated with the 27,000+ homes passed by the Karib Cable Network.

- The equipment on poles related to the fibre cables where such equipment is solely used to support the fibre cables to be divested.

2. Customers of the fixed voice residential and commercial business and the fixed broadband residential and commercial business, provided by FLOW/Columbus and CWC/LIME on the divested assets related to the 27,000+ homes passed by the Karib Cable Network as well as the 28,000+ homes passed outside of the Karib Cable Network but in the LIME/FLOW fibre network overlap as at the date of this merger decision, must be released from any contracts, if they so desire, so that they are able to exercise the option to choose a service provider. During this transitional period these customers are not to be disadvantaged.

3. The Applicants must submit an independent valuation of the assets to be divested within sixty (60) days after the date of the Commission's decision.

4. The responsibility lies with the merged entity to find a suitable buyer that has the economic and technical capacity to maintain a viable network. The company(ies) interested in acquiring the divested assets must be approved by the Commission before divestment occurs.

5. Within 45 days of the date of the Commission's decision or 30 days after closing the Transaction, whichever is the later, the merged entity must vest such assets in a holding company. The Commission will appoint a Trustee(s) of the Holding Company who will be responsible for monitoring the ongoing management of the divested assets. This will ensure that the divested assets are maintained intact and made available for sale.

6. At all times the Trustee(s) will be independent of the merged entity and will submit monthly reports to the Commission. Remuneration of the Trustee(s) will be provided by the merged entity. The merged entity may submit suitable nominations to fill this post, however, the final determination will be made by the Commission.

7. The merged entity shall enter into agreements that allow the purchaser, for a period of 180 days, to access customers outside of the Karib Cable network but in the LIME/FLOW fibre network overlap during the period in which the purchaser deploys fibre to access these customers.

8. In the event of the failure, by the merged entity, to find a suitable buyer for the assets of the Holding Company within 180 days of the announcement of the Commission's merger decision, the Trustee(s) will also assume the responsibility to seek out a buyer for the assets for a maximum of five (5) years. After five (5) years the Trustee(s) will place the Holding Company for sale in the open market.

9. After the 180 day period, the merged entity must continue to seek out a buyer and report on the progress of seeking out such a buyer by providing monthly reports which include copies of advertisements placed, any commercial interest shown and minutes of meetings held to the Trustee(s) and the Commission. The merged entity must also notify the Commission when a new buyer emerges. The merged entity shall not, directly or indirectly, hold, acquire or re-acquire an interest in the divested assets.

10. In addition to the above mentioned structural condition the following behavioral conditions must be adhered to:
    - The merged entity must enter into commercial agreements for access to its poles, ducts and facilities, subject to the usual caveats of engineering suitability and access capacity. The Commission must be notified of the outcome of these commercial discussions.

    - The merged entity must comply with any regulations in respect of Equal and Indirect Access and virtual unbundled local access in accordance with the policy directives as issued by any regulatory agency with responsibility for telecommunications in Barbados.

11. The merged entity, in accordance with its commitments, must be technically ready for Local Number Portability ("LNP") in the fixed network by September 30, 2015 and Mobile Number Portability ('MNP") in the mobile network by November 30, 2015.

12. Within three (3) months of the date of the merger being effected, in accordance with its commitment, the merged entity must offer the same prices, products and service standards to customers in areas not passed by any competing fixed voice network as those offered to customers in areas passed by a competing fixed voice network.

13. Further to the above, the merged entity must adhere to its commitment that all current LIME and Flow Broadband and Television tariffs will be set at whichever level is the lower of the tariffs offered by the two companies.

14. The merged entity must maintain net neutrality thus facilitating the use of over-the-top (OTT) services.

15. The Applicants are required to notify the Commission when the merger has been completed along with any supporting documentation.

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1.0 AN OVERVIEW OF THE MERGER TRANSACTION

16. Section 20 (5) of the Fair Competition Act CAP 326C ("the FCA") confers on the Fair Trading Commission (the "Commission") the authority to grant or refuse permission for any merger falling under its jurisdiction, and notify the applicants in writing of its determination.

17. The Commission, pursuant to this requirement gave consideration to the formal merger application filed by Cable and Wireless Communications plc (hereafter referred to as "CWC"); and Columbus International Inc. (hereafter referred to as "Columbus"). CWC and Columbus are jointly referred to as the "Applicants". Formal notification of the merger was made on 11 November 2014 with the submission of the Merger Notification Form to the Commission. The information submitted was considered incomplete and the notification was therefore not acknowledged by the Commission until 24 November 2014, when all of the requisitioned documentation was submitted by the Applicants.

18. The following sections will detail the merger transaction; provide a brief background on the merging entities (*i.e.* the Applicants); discuss key findings of the merger analysis; and present the Commission's final determination on the matter.

19. It incorporates the views of the applicants, other industry players and all stakeholders.

1.1 The Proposed Transaction

20. The nature of the transaction is such that a Share Purchase Agreement was effected on 06 November 2014 in which CWC, a UK-incorporated company listed on the London Stock Exchange, proposed the acquisition of 100% of the shares in the international telecommunications company, Columbus International Inc., which is incorporated under the laws of Barbados. The total consideration for the transaction is estimated at US$1,852 million and comprises:

- US$708 million in cash; and
- Shares in CWC valued at US$1,145 million in aggregate

21. In addition, CWC proposes to assume all of the debt of Columbus. Combined, the enterprise value of the transaction is therefore US$3,025 million. The outcome of the transaction is that the Columbus operations will be subsumed with CWC and as a result will cease to exist.

1.2 Rationale of the Merger

22. According to the submitted documentation, the transaction is expected to allow the new entity to improve its offerings in fixed and mobile voice telephony, data services, and television. Specifically, the transaction is expected to[1]:
    a. Leverage Columbus' depth and experience to enhance the breadth of CWC's television offering and allow it to acquire better content at better rates;
    b. Offer improved consumer experience through a high quality "quad play" offer, providing "always-on connectivity" alongside greater television choice;
    c. Address the needs of international businesses and small businesses with regard to hosted, integrated telecommunications and IT solutions;
    d. Assist governments to deliver better managed services.

1.3 The Primary Stakeholders in the Proposed Transaction

23. The Transaction features the participation of a number of key players. These include the Applicants (Cable and Wireless (Barbados) Ltd; and Columbus Telecommunications (Barbados) Ltd), as well as the Telecommunications (Telecoms) Unit as one of the regulators[2] of the industry and administrator of the telecommunications licenses.

[1] The listed reasons are extracted from the CWC Merger Notification Form.

[2] The other regulator is the Fair Trading Commission. The office of Utility Regulation is responsible for the regulation of domestic and international voice telecommunications services, interconnection services, and leased services provided by the incumbent CWC/LIME.

1.3.1 The Merging Entities

Cable and Wireless Communications Plc

24. Cable and Wireless Communications Plc (CWC) is a UK registered company. Its origins date back to the grouping of a number of British telegraph companies in the 1860s and later to the Imperial International Communications Company in 1928 and thereafter CWC in 1934.

25. At present, CWC operates in Seychelles, Latin America and the Caribbean as a full-service telecommunications company offering International Wholesale Capacity services via its extensive subsea cable network. This subsea network supports the delivery of CWC's services over its terrestrial Public Switched Telephone Network (PSTN) and its optical fibre network. CWC is also known for its corporate solutions business arm, which provides data hosting and managed networked services to corporate customers in the private and public sector, as well as wholesale internet capacity to resellers of internet services and value added providers. The company operates in Barbados through its 81% controlling interest in Cable & Wireless (Barbados) Ltd, a publicly listed company on the Barbados Stock Exchange.

Cable and Wireless (Barbados) Ltd.

26. Cable and Wireless (Barbados) Ltd. has been the incumbent provider of telecommunications services in Barbados since 1924. CWC operates in Barbados through Cable and Wireless (Barbados) Ltd. trading as LIME and primarily focuses on the provision of fixed and mobile telephony and data services, built on the legacy Cable & Wireless network and customer base. CWC has only a small presence in providing TV services, having just recently launched LIME TV.

Columbus International Inc.

27. Duly incorporated under the companies Act of Barbados in 2004, Columbus International Inc. ('Columbus') is a diversified telecommunications company providing Internet Protocol (IP) services, corporate Information Technology (IT)

solutions and data hosting services over its recently extended sub-sea cable network, which spans over 42,000 kilometres (km) in 42 countries in Latin America and the Caribbean.

28. Columbus is a major player in IP telephony, high-speed internet and Internet Protocol Television (IPTV)[3]. It operates under the brand 'FLOW' in Barbados, Trinidad, Jamaica, St. Lucia, St. Vincent and the Grenadines, Grenada, and Curacao—and under Karib Cable in Antigua. On the corporate side, Columbus operates as Columbus Business Solutions offering cloud-based services, and a wide range of IT solutions including managed network services.

29. Over the past 10 years of operation, Columbus has embarked on a series of acquisitions in various markets across the region commencing with the acquisition of New World Networks Ltd. in 2005, which now trades as Columbus Networks Ltd (CNL). In the intervening period, Columbus acquired a number of cable companies and telecommunication operators throughout its operating territories.

Columbus Telecommunications (Barbados) Ltd.

30. Columbus' Barbados subsidiary, Columbus Telecommunications (Barbados) Ltd (traded as Flow) emerged in the telecommunication markets after its acquisition of TeleBarbados and Karib Cable in 2012 and 2013 respectively. These acquisitions enabled Columbus to become the first telecommunications company to offer the triple play service of fixed voice, internet, and subscription TV. At present, Columbus is deploying a terrestrial fibre optic network which, as of September 2014, has connected up to 70,000 homes along the West, South, South-East and lower central regions in Barbados. Columbus is not active in the mobile sector in Barbados.

[3] IPTV is television delivered over internet protocol.

2.0 THE RELEVANT MARKETS

31. By virtue of the proposed transaction Cable and Wireless (Barbados) Ltd (hereafter referred to as CWC/LIME) will likely acquire all operating and spectrum licenses and physical assets currently held by Columbus Telecommunications (Barbados) Ltd (hereafter referred to as FLOW/Columbus) to complement its existing licenses. Given this, it was necessary to determine the relevant markets that will be affected by the merger and the impacts that the same would have on the activities therein. At the onset it became clear that, given the volume of activity by both parties the proposed merger will have effects in both the upstream and downstream segments of the telecommunications market.

2.1 The Applicants' Definition of the Relevant Market

32. The Applicants assessed the market as a general market for "communications services" and further classified this broad market into sub-markets of (i) Voice Telephony; (ii) Television; and (iii) Data Services. The Applicants listed the players assigned to each sub-market in accord with their market assessment and this is presented in Table 1.

Table 1: Players Assigned to the Applicants' Derived Markets

Supplier	Communication Services		
	Voice	Data	TV
CWC/LIME	X	X	X
Digicel	X	X	
Columbus/FLOW		X	X
CBC/MCTV			X
DirecTV			X
WiNet		X	
Ace Communications		X	

33. The Applicants' justification for the aforementioned market classification stems from the assertion that:

"*Across all aspects of the market, customers are increasingly purchasing different communications products together (often as a single package) and* *then using them together. As this "convergence" between technologies increases, and differences in performance capacities, speed and reliability decrease, the distinction between different forms of communication services have become less and less apparent.*

From the customer's perspective, the experience of using communications products is similar, regardless of the manner in which it is delivered. A customer will not differentiate between a call placed on a mobile or fixed-line network, assuming the quality of delivery is the same. Similarly, video content downloaded over the Internet streamed online is the same as that viewed via a traditional cable TV connection. Customers are ultimately looking for high levels of flexibility in their communications services. […]"

2.2 Established Criteria in Defining the Relevant Market

34. The Commission believed that the proposed "communications market" and sub-markets were likely to provide too broad a classification in some respects and preferred to utilise a more structured approach to defining the relevant markets.

35. The Commission recognized that a definition of the relevant market comprises two elements: the product/service involved and the geographical area over which the product/service is offered. Hence the Commission sought confirmation of the relevant markets by utilizing common methods which demonstrate either by directly observing consumers' purchasing behaviour in response to actual price changes[4], or through data, where consumers are asked to state their intended purchasing behaviour in response to a hypothetical situation. The hypothetical situation is usually represented by demand-side and supply-side substitutability arising from a hypothetical, small (between 5% and 10%), permanent increase in relative prices.

36. The Commission employed the Small but Significant Non-transitory Increase in Price (SSNIP) Test (or hypothetical monopolist test) which records demand-side

[4] Pricing and subscription data from the relevant players in the identified markets.

substitutability based on consumers' reactions to a hypothetical increase in the relative prices of the product in question—the outcome determines whether consumers will switch to available substitutes[5]. The same procedure is usually used for defining the relevant geographic market. If selected, the substitute product or location would be included in the relevant market. The test is then repeated until there are no more substitutes. The equivalent analysis is applied in supply-side substitutability: The SSNIP Test would also determine if an increase in product price would create alternative distribution channels or outlets for the product in question (*i.e.* would cause suppliers to enter the market). Similar inferences are made when other market data are used.

37. While the SSNIP test was utilized it is also important to highlight that the definition of the market was not entirely reliant on the outcomes of that test. In this regard, the Commission was also informed by inferences made from other analytical techniques, indicators of company performance (*e.g.* profitability of players), and activities within the market(s) (*e.g.* introduction of services, entry of new players). Inferences were also made based on data procured from the Applicants, other players in the market, stakeholders (inclusive of consumer groups, industry associations), and customers. The perceptions of these agents were collated in order to provide an overview of the activities within the telecommunications sector. Discussions centred on public perceptions of the quality of service and product delivery, the structural (e.g. legislative, physical, etc.) and behavioural (e.g. consumer behaviour/choices) components therein, as well as barriers to market entry and/or adoption. Analysis highlighted the factors that are likely to stymie growth and competition among players within the market(s) of interest.

38. It is also necessary to consider that regulatory bodies in Europe have determined, on analysis, that fixed and mobile retail services ought to be classified in separate markets for the following reasons[6]:

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[5] Will customers switch to another product and how sustainable will the increase in price be to the hypothetical monopolist, i.e. will the revenue from the increased price offset the lost revenue from unit sales
[6] BEREC (2012), Report on Impact of Fixed-Mobile Substitution in Market Definition, BoR (12) 52; pp. 22.

a. The existence of different characteristics between fixed and mobile offers;
b. The existence of different prices between fixed and mobile offers;
c. Fixed offers do not allow mobility in the use of the services;
d. The existence of different preferences and different usage patterns between fixed and mobile services users; and
e. Fixed and mobile services are mainly complements rather than substitutes

2.3 The Commission's Assessment

2.3.1 The Product Market

39. In the current context a survey vehicle was constructed in which the preferences and perceptions of residential and business customers towards telecommunications products and services were collated[7]. Questions were used to construct the SSNIP test and were specific to hypothetical increases in the price of fixed voice telephone services, mobile services, internet services, and subscription television services[8]. Each question was associated with a suite of possible responses from which respondents were asked to select the one that best reflected their views/behaviour. The options were the only practical choices available to customers as they had to reflect as accurately as possible on realistic consumption/economic choices. The results of the SSNIP test presented demand-side confirmations of the relevant product markets.

2.3.2 Fixed Voice Services

40. With regard to Fixed Voice (Landline) Services[9] Table 2 shows that the majority of respondents—261 of the 380 responses to this question, or 68.4% of the

[7] This survey is part of a larger study on the Telecommunications Sector in Barbados, which commenced in August 2014 and was therefore before the announcement of the CWC/Columbus merger. The survey was officially launched on 02 December 2014 with the distribution of questionnaires to residents and businesses in Barbados. Data collection started 02 December 2014 and ended on 11 January 2015 with a total of 447 completed residential questionnaires and 27 business questionnaires.
[8] The market for RF spectrum was determined via interviews with officers within the Telecoms Unit.
[9] Inclusive of copper, fibre, and wireless transmission media. In this report the terms 'fixed voice services' and 'landline services' are synonymous. The term 'landline services' was used in the survey since it is a common term used in describing fixed telephony services.

sample—indicated that they would maintain their fixed voice services in response to a permanent increase in their fixed voice bills. Specifically, they would either:

a. Cancel their service and use another provider (26.6%);
b. Pay their bill and maintain their landline service (18.2%); or
c. Alter their plan or the way they use the telephone (23.7%).

41. These sentiments contrast with the 120 (31.6%) of respondents who would use another platform to communicate. For example, respondents indicated that they would either:

a. Cancel their service and use the internet to make telephone calls from home (22.1%); or
b. Cancel their service and use a mobile phone exclusively (9.5%).

42. These responses strongly suggest that for the majority of respondents, fixed-line services are non-substitutable, and as such, represent a separate market in voice telephony. A distinction can therefore be made between fixed-voice and mobile telephony services in this regard. Further support of this assertion is provided in part by supplemental questioning, which asked respondents to indicate the likelihood of cancelling their fixed voice service and switching exclusively to a mobile telephone service.

Table 2: Results of the SSNIP Test: Fixed Voice Services

Action	# Responses	Percentage	Substitutability of Landline Services
Cancel my service and use another provider	101	26.6	Non-substitutable
Pay my bill and maintain my landline service	69	18.2	Non-substitutable

Table 2: Results of the SSNIP Test: Fixed Voice Services

Action	# Responses	Percentage	Substitutability of Landline Services
Alter my plan or the way I use my telephone	90	23.7	Non-substitutable
Cancel my service and use a mobile phone exclusively	84	22.1	Substitutable
Cancel my service and use the internet to make telephone calls from home	36	9.5	Substitutable
Total	**380**	**100.0**	

43. Based on a Likert Scale anchored at "1" (Very likely) and "5" (Very Unlikely), a total of 217 respondents indicated that they were either Unlikely (33.3%) or Very unlikely (25.0%) to drop their current provider of fixed voice services and switch exclusively to a mobile service (Table 3).

Table 3: Likelihood of Switching Exclusively to a Mobile Service

Likelihood of Switching	# Responses	Percentage
Very Likely	47	12.6
Likely	50	13.4
Indifferent	58	15.6
Unlikely	124	33.3
Very unlikely	93	25.0
Total	**372**	**100.0**

44. That respondents are unlikely to drop their fixed voice service entirely is similar across customers who use either of the two providers of fixed-line services[10] in Barbados (CWC/LIME, and FLOW/Columbus), and appears to be independent of the provider used. For example, FLOW/Columbus generated better scores for

[10] Incidentally, CWC/LIME and FLOW/Columbus were the only two providers identified by the sample of respondents.

its overall service than CWC/LIME (92.7% of FLOW/Columbus customers believe that its overall service is either good or very good. In contrast, 11.6% of CWC/LIME customers believe that its overall service is either good or very good). These observations therefore present a strong counter-argument to the notion that the likelihood of switching exclusively to a mobile service could be influenced by differentiated service delivery (with respect to for example price/tariff structure, service quality, product offering) of the two players. In other words even though customers' satisfaction with the overall service offerings of their respective provider differs, they are still unlikely to drop their fixed voice service in favour of a mobile service.

45. **Based on the above, the market of interest is the market for the provision of fixed voice services.** This assertion gains further credence from the observation that the aforementioned is made a *de facto* market by edict: Notwithstanding the Utilities Regulations Act CAP. 282 (URA)[11], Statutory Instrument 2005 No. 101 of the Telecommunications Act CAP 282b (Telecoms Act)[12], identifies CWC/LIME as the dominant carrier in the provision of international telecommunications services, and fixed telecommunications services. Specifically, Section 4 of the S.I. 2005 No. 101 states that:

> "The Minister hereby declares Cable & Wireless (Barbados) Limited to be the dominant carrier in respect of the provision of the following services based on the criteria specified in section 26(3) of the Act and regulations 3:
> (a) international telecommunications services; and
> (b) fixed telecommunications services.

2.3.3 Mobile Services

[11] Section 3 (1), (2) , and (3) of the URA outline the functions of the Commission with respect to the regulation of service providers .
[12] Part VI (Sections 25 to 31) of the Telecoms Act outlines the requirements for interconnection by carriers.

46. The SSNIP results also demonstrated that mobile phone service is also non-substitutable. Table 4 shows that mobile phone service is also non-substitutable since the majority of respondents indicated a willingness to either:

    i. Pay their bill and maintain a mobile service (16.2%);
    ii. Cancel their service and use another provider (20.8%); or
    iii. Alter their plan or the way they use their mobile phone (55.1%)

47. On aggregate 92.2% of the sample regard mobile telephony as non-substitutable. The observation that respondents are unwilling to forego mobile services in favour of fixed voice services in the event of a price increase in the former (and *vice versa*) may be explained by the factors which influence behaviour (consumer choice) in the use of either fixed-voice or mobile telephony (e.g. mobility, and tariff structure). This phenomenon corresponds well with the principles of two-way substitutability and speaks to the separation of the mobile and fixed-voice markets.

Table 4: Results of the SSNIP Test: Mobile Services

Action	# Responses	Percentage	Substitutability of Mobile Services
Pay my bill and maintain my mobile service	60	16.2	Non-substitutable
Cancel my service and use another mobile provider	77	20.8	Non-substitutable
Alter my plan or the way I use my phone	204	55.1	Non-substitutable
Cancel my service and use a landline phone exclusively	10	2.7	Substitutable
Cancel my service and use the internet to make telephone calls from home	19	5.1	Substitutable
Total	**370**	**100**	

48. Moreover, in addition to the notion that the fixed rate tariff makes substitution unlikely, certain market characteristics influenced consumers' behaviour and in so doing, created a distinction between fixed and mobile telephony. These characteristics included:

    a. The mobile phone allows users to send and receive calls at any location within signal range of the mobile network, whereas fixed voice use is limited to a fixed location.
    b. Unlike mobile phone rates which vary according to usage, the fixed voice rates of the incumbent (CWC/LIME), which supplies [90-100] % of the fixed voice market, are fixed in accordance to the Price Cap regime regulated by the Commission. For this reason, the mobile phone calls are likely to have a lower average call hold time than the fixed voice line calls.
    c. The absence of local number portability[13] could be a notable explanation for the non-substitutability between mobile and fixed-voice telephone. Indeed, 66.4% of fixed voice customers and 79.2% of mobile customers were either likely or very likely to switch their respective provider if they were able to retain their current telephone number. The above is a notable change from the 26.1% of respondents who indicated that (in the absence of number portability) they were either likely or very likely to drop their current provider of fixed voice services and switch exclusively to a mobile service.
    d. The growth in Columbus' fixed-voice customers in the past year goes against the fixed-mobile convergence argument.

49. The results above therefore substantiate a separation of the mobile and fixed voice markets. These will be defined separately as:

    a. The market for Mobile voice services
    b. The market for Fixed voice services

[13] Local number portability rules indicate that customers can switch existing telephone service providers and keep their existing phone numbers as long as they remain in the same geographic area.

50. For the purposes of this report, it was not necessary to take a definitive view on the precise product market definition for mobile voice services as the proposed merger did not raise any competitive concerns in this market.

2.3.4 Data Services

51. From the perspective of a demand-side definition of the market, data services present an interesting dynamic in the telecommunications sector. Data services are delivered over the local loop (*i.e.* the physical connection or circuit that connects from the customer's premises to the edge of the service provider's network) which is owned by CWC/LIME; FLOW/Columbus' fibre network; and through fixed wireless (Digicel, WiNet, Ace Communications, and CWC/LIME) and cellular networks (Digicel and CWC/LIME).

52. The Applicants defined data services under a single market whereas the Commission separated data services into mobile and fixed. This separation is attributed to the following factors:
    a. Mobility: Mobile data services allow users to connect to the internet while on the go.
    b. Tariff Structure: Mobile data is offered over the cellular network and is provided in a variety of data plans where users are billed according to the allowances on their data plan and/or for every unit of data used outside of that plan. On the other hand, fixed data services users are in most cases afforded unlimited internet access at a fixed monthly charge irrespective of the quantum of data used.
    c. Service Quality: Mobile data in Barbados is provided by Evolved High-Speed Packet Access (HSDPA+) which is significantly slower than what is attainable over fixed internet. As such, slower connection speeds along with data limits show why data services may be too broad of a definition.

2.3.5 Fixed Internet Services

53. The SSNIP test was employed to confirm the existence of a separate market for the provision of fixed internet access. The results of the test show that fixed internet service is largely non-substitutable and that a market for fixed internet services exists.

54. Moreover, events within the broader telecommunications sector accord well with the market description from a supply-side perspective, insofar that providers within the market (internet service providers in particular) rely on CWC/LIME, FLOW/Columbus, and Digicel to provide carrier services which include wholesale broadband access and connectivity to the internet 'backbone'. As such, the market for fixed internet services raises competitive concerns given the upstream presence of the Applicants.

55. The results of the test (Table 5) show that fixed internet service is largely non-substitutable given the large portion of respondents who collectively would either:

    a. Pay their bill and manage their internet service (32.1%);
    b. Cancel their service and use another provider (27.4%);
    c. Alter their plan or the way they use the internet (29.1%); or
    d. Cancel their service and use free Wi-Fi if possible (7.8%)

Table 5: Results of the SSNIP Test: Fixed Internet Services

Action	# Responses	Percentage	Substitutability of Internet Services
Pay my bill and manage my internet service	116	32.1	Non-substitutable
Cancel my service and use another internet provider	99	27.4	Non-substitutable
Alter my plan or the way I use my internet	105	29.1	Non-substitutable
Cancel my service and use free Wi-Fi if possible	28	7.8	Non-substitutable
Cancel my service and use a mobile data package	13	3.6	Substitutable

exclusively			
Total	**361**	**100.0**	

56. It is important to note the small portion of respondents (3.6%) who would cancel their service and use a data package exclusively. For these respondents, fixed internet and mobile data services are substitutable.

57. In any event, the results indicate that a market for fixed internet services exists. Moreover, events within the broader telecommunications sector accord well with the above market description from a supply-side perspective, insofar that providers within the market (internet service providers in particular) rely on CWC/LIME, FLOW/Columbus, and Digicel to provide carrier services which include wholesale broadband access and connectivity to the internet 'backbone'. As such, the market for fixed internet services raises competitive concerns given the upstream presence of the Applicants.

2.3.6 Subscription Television Services

58. With regard to television services, Pay/Subscription TV is supplied by local distributors (CBC/MCTV, DirecTV, CWC/LIME, FLOW/Columbus) using one of three (3) transmission methods: MCTV's channel offerings are provided via MMDS infrastructure, while DirecTV transmits via satellite, and both CWC/LIME and FLOW/Columbus distribute content using internet protocol (*i.e.* over the internet). The Applicants contend that the market ought to be defined as the provision of pay TV services, and should include the supply of TV content[14].

59. The Commission does not support the latter as it implies the further truncation of the market to include the supply of TV content since all suppliers offer a variety of TV content through their programming schedules (*e.g.* drama, documentaries,

[14] This would widen the relevant market since it would now include Digicel as a supplier of sports content (through its acquisition of International Media Content Ltd, the parent company of sports channel SportsMax).

action, lifestyle), in which there is considerable overlap in both the content offered (suppliers offer the same programming albeit in different packages); and the network listings (networks (*e.g.* FOX, NBC, CBS, ABC) are assigned to specific channels by the local distributors. Network owners are defined by their content and therefore compete in this regard). Moreover, content is not as specialized as in the case of Digicel which provides a specialty service (*i.e.* a service that offers a specific type of programming aimed at a specific audience group), in this case sports viewing. Moreover this service is only accessible through a distributor of television services.

60. From a supply-side perspective, it was not necessary to divide Pay TV into separate markets according to the transmission platform used (*i.e.* MMDS, satellite, and internet) since each distributor/provider in operation, with the exception of CWC/LIME and FLOW/Columbus, uses a separate delivery platform. This view was supported by the results of the SSNIP test (which provided a demand-side perspective) into television services which show that television services were non-substitutable. In addition, equipment switching costs are free (each distributor waives installation fees as standard or this becomes part of periodic marketing drives), thereby facilitating easy adoption of any of the services offered. Support for this view is sought from the results of the SSNIP test (which provides a demand-side perspective) into television services (Table 6) which show that television services are non-substitutable since the majority (64.8%) of respondents on aggregate would either maintain their service (25.6%), or alter their package (39.2%) in response to a 10% increase in their monthly television bill.

Table 6: Results of the SSNIP Test: Television Services

Action	# Responses	Percentage	Substitutability of Television Services
Pay my bill and maintain my television service	51	25.6	Non-substitutable
Alter my package	78	39.2	Non-substitutable

Cancel my service and use another provider	70	35.2	Substitutable*
Total	**199**	**100.0**	

* May depend on current provider since group could comprise of subscribers of an IPTV provider opting for another provider using the same IP platform.

61. Attention is paid to the 35.2% of respondents who would cancel their service and use another provider. It is determined that for these respondents, the provision of television services is substitutable. This assertion is cautiously applied, however given the observation that this group of individuals may include IPTV subscribers. That there are two distributors that use the IPTV format suggests that individuals among this group can opt for another IPTV provider. Table 7 offers some insights into this phenomenon and shows that the majority of respondents (34.3%) are indeed IPTV subscribers.

Table 7: Composition of the Group that would Cancel their TV Subscriptions

Current Television Provider	# Individuals	Percentage
CWC/LIME	21	30.0
FLOW/Columbus	10	14.3
MCTV	13	18.6
DirecTV	26	37.1
Total	**70**	**100**

62. Notwithstanding this, focus is placed on the group that considers television services as non-substitutable and the ensuing definition of the market as that for the retail supply of television services.

63. In any event, it is not necessary to take a definitive view on the precise product market definition for subscription television services as the proposed merger

does not raise any significant competitive concern under any of the possible market definitions.

2.3.7 Radio Frequency (RF) Spectrum Allocation and Assignment

64. One of the relevant markets considered in this investigation is the RF Spectrum in the provision of mobile telecommunications services in Barbados. This market comprises C&W, Columbus, Digicel, Sunbeach and Ozone.

65. The allocations (channels) are assigned in frequencies of various sizes. The size of the channels (the bandwidth) denotes the capacity available to the operator to transmit data/signals to (*i.e.* the uplink) or from (*i.e.* the downlink) the transmission source.

66. Two of these entities (Sunbeach Communications Inc., and Ozone Communications) are not operating, while Columbus Communications announced in 2014 that it planned to introduce a mobile service in Barbados.

67. It is important to note however that as telecommunications becomes more data-driven, there will be areas on the spectrum that best facilitate networks that offer Fourth Generation Long Term Evolution (4G LTE) technologies where users can experience data speeds that are up to 10 times faster than Third Generation (3G) networks. As such, specific bands within the total available spectrum allow for broadband mobile services where the focus is on facilitating internet browsing services, data streaming and similar services via mobile devices.

68. Specific bands of the spectrum therefore become 'prime real estate' for operators. According to the Telecoms Unit, the low frequency bands on the 850MHz band (which runs from 790MHz to 900MHz) are most sought after by operators in order to build an efficient 4G network.

69. In principle, bands (and bandwidth, by extension) are allocated to an operator according to customer demand and therefore are unlikely to confer any

advantage to a particular operator or impose any constraints on competition. The above rests on the fact that additional capacity on the spectrum is only granted if the request can be justified (usually by providing evidence that current allocations are unable to satisfy customer demand).

70. The evolution of the mobile telecommunications industry resulted in operators migrating to the lower frequencies of the spectrum and a need, therefore, to secure additional portions of the spectrum within the targeted ranges. The 1800 MHz and 1900 MHz bands remain relevant but may in the near future become obsolete, as an increasing volume of consumers migrate to the more advanced mobile devices whose focus is on broadband and data speeds (*e.g.* 3G and 4G). The 700 MHz and 800 MHz portions of the spectrum best support the delivery of such technology.

71. Although the merger has implications with respect to the use of spectrum, its management remains the purview of the Telecoms Unit. Thus, in deference to the functions therein, and recognizing the role the Unit plays in spectrum management, further commentary on spectrum is reserved to a brief note in later sections on the implications of the merger in this regard. As such, competitive concerns with the allocation of RF spectrum will not be a primary consideration in this investigation.

2.3.8 Relevant Geographic Market

72. The Commission generally defines the relevant geographic market by identifying the area over which the monopoly firm supplies, or could supply the product. The Commission also will consider the area to which buyers can practically turn (and the imports) to find alternative sources. As mentioned, the same principles of substitute testing can be used to determine the areas to which buyers are likely to find alternative sources of supply given the relevant increase in price. Note however that under the Telecommunications Act, operators must first be granted permission to operate in Barbados once the operator satisfies a number of criteria prescribed by the Telecoms Unit. Since activities are restricted to the jurisdiction

under which the Telecoms Act applies, it follows that the relevant geographic market will be so governed. To this end, the relevant geographic market is exclusive to Barbados.

2.4 The Markets Likely to be Affected by the Merger

73. For the purposes of the analysis the assessments above enable the Commission to determine that based on the operations of the Applicants, the following product markets were defined in the merger transaction in the geographic market of Barbados:
    a. Fixed-voice (landline) telephony
    b. Fixed data (broadband internet) services
    c. Mobile voice services
    d. Mobile data services
    e. Subscription television services
    f. Allocation of the RF Spectrum

74. The Commission however believes that the subscription television market is competitive and notes that with respect to the mobile market, FLOW/Columbus does not offer mobile services in its portfolio of services hence there is no overlap between the Applicants. It is also noted that the licensing and distribution of RF spectrum falls under the purview of the Telecoms Unit. As a result of the above, the subscription television, mobile and RF spectrum markets will not feature predominantly in further analysis.

75. The product markets where the entities compete directly are as follows:
    a. Fixed-voice (landline) telephony
    b. Fixed data (broadband internet) services
    c. Subscription television services
    d. Allocation of the RF Spectrum

76. However, for the purposes of the investigation, the markets that the Commission considers will be negatively affected by the merger owing to potential anti-competitive effects are:

    a. Fixed-voice (landline) telephony
    b. Fixed data (broadband internet) services

2.4.1 The Fibre Network as a Derived Market

77. The Commission also that the telecommunications sector has evolved to the state where providers have sought and deployed new technologies that create a competitive advantage. Competitive advantage is generated by improvements in operational efficiency, the realization of cost savings, the seamless delivery of multiple services, and the ability to guarantee enhanced product and service offerings. The use of optical fibre provides distinct advantages over the traditional copper network, with its noted limitations, and has resulted in players deploying fibre networks to deliver their services more efficiently.

78. In this regard, the fibre network has become a derived market from both a demand-side and a supply-side perspective, as a result of a recognised need of providers to enhance and expand their service delivery to satisfy the increased consumption patterns of end-users who demand faster, more reliable and varied services.

79. The analysis of the competitive concerns resulting from the merger is therefore performed with the foreknowledge that markets are migrating to a new platform built around the use and versatility of optical fibre. Concerns are especially heightened given the implications surrounding the fact that the company that controls the fibre network will be able to control access to, and the services which are delivered over the same.

2.5 Dominance and the Exercise of Significant Market Power

80. Dominance is defined as the ability of a firm to set its prices and make other market decisions without being constrained by competitive pressures (Korah, 2000:81[15]). The European Commission[16] defines a dominant position as:

> "[…] a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by giving it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of consumers."

81. To assess whether or not a firm holds a position of dominance the Commission , having defined the market, considered the market share of the firm. The Commission then assessed the consequent level of competition in the particular market based on the contestability or existing barriers to entry to the market. If a firm has a large market share, and is supported by significant barriers to entry, then it is unlikely to be effectively constrained by its competitors. In such cases the firm is regarded as having significant market power because it can unilaterally increase its prices independently of its competitors, customers and ultimately its consumers[17].

2.5.1 Market Share

82. As a general guide, the Commission considers a firm with a sustained market share of 50.0% or more, likely to be in a position of dominance[18]. One can determine market shares based on:
    - Revenue
    - Number of customers

The Applicants' View

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[15] Korah V. (2000); An Introductory Guide to EC Competition Law and Practice; 7th ed.; Hart Publishing, USA.

[16] (27/76) [1978] E.C.R. 207, para. 65

[17] EU (2002); Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services; European Union.

[18] Under the current EC Directives, an operator is presumed to have significant market power if it has more than 25% of a telecommunications market in the geographic area in which it is allowed to operate.

83. Table 8 below provides the Applicants' estimates of competitors' market share by revenue yield in Barbados as per their characterisation of the "Communication Services" market[19].

Table 8: Market Shares of Players in the 'Communication Services' Sub-markets

Operators	Communication Services		Television Service		Voice Telephony Service		Data Services	
	Revenue (US$'000s)	Market Share (%)	Revenue (US$'000s)	Market Share (%)	Revenue (US$'000s)	Market Share (%)	Revenue (US$'000s)	Market Share (%)
CWC/LIME	[redacted]	[60-70]	[redacted]	[10-20]	[redacted]	[60-70]	[redacted]	[70-80]
Columbus/Flow	[redacted]	[0-10]	[redacted]	[0-10]	[redacted]	[0-10]	[redacted]	[10-20]
Combined	[redacted]	**[60-70]**	[redacted]	[10-20]	[redacted]	**[60-70]**	[redacted]	**[80-90]**
Digicel	[redacted]	[20-30]	[redacted]	0	[redacted]	[30-40]	[redacted]	[10-20]
CBC/MCTV	[redacted]	[0-10]	[redacted]	[60-70]	[redacted]	0	[redacted]	0
DirecTV/Other	[redacted]	[0-10]	[redacted]	[10-20]	[redacted]	0	[redacted]	0
Total	[redacted]	**100.0**	[redacted]	**100.0**	[redacted]	**100.0**	[redacted]	**100.0**

Note: The figures provided herein are estimates provided by the Applicants for their defined markets

84. Further, Table 8 shows that even when the Applicants' classification is adopted, CWC/LIME accounts for [60-70]% of the revenue earned by the general Communication Services market. Digicel and Columbus/Flow follow with [20-30]% and [0-10]% market share, respectively, while the other players account for [0-10]% market share in total. The table also shows that post-merger the combined market share of the Applicants (represented by the row labelled 'Combined' in Table 8) would be significant at [60-70]% of total revenue. Similarly, the combined market shares of the Applicants in the sub-markets for Voice Telephony([60-70]%), and Data Services ([80-90]%) are substantial. Only the Television Service sub-market differs in this respect with the combined shares of the Applicants reaching [10-20]%. This divergence can be attributed to the inclusion of CBC/MCTV and DirecTv who were historically the primary providers of subscription television services in Barbados, and is substantiated by respective market shares of [60-70]% and [10-20]%[20].

[19] The Applicants have also deconstructed the Communication Services market into Voice Telephony, Television, and Data Services sub-markets.
[20] The alternative offerings of subscription television services were only realised in the last two years.

85. Table 8 also shows that the Transaction will have no material effect on competition in the provision of television to viewers in Barbados.

86. The Applicants believe that the new entity will face strong competition post-merger from a number of providers of subscription television services. In addition they believe that the clear market leader (with around [60-70]% share in 2013) is CBC which, in addition to its terrestrial television offering operates Multi-Choice Television (MCTV), a multi-channel subscription television service. In addition to MCTV, there are a number of other suppliers active in Barbados, in particular DirecTV, which has an estimated share of [10-20]%. It has been observed that at least one other player offers television services in Barbados through IPTV annual subscriptions.

87. In addition to the already high levels of competition, there is the prospect of further competition for television services in the future. In September 2014, Digicel acquired two companies in the TV sector: (i) Jamaican-based Telstar which provides voice telephony, data services and television, and (ii) International Media Content Ltd, the parent company of SportsMax, the 24-hour cable sports channel.

The Commission's View

88. Market share data using subscription levels (Table 9a) and revenue (Table 9b) result in the similar inferences being made regarding the Commission's defined markets. Specifically, CWC/LIME's dominance in the fixed voice and fixed data (WIMAX/fixed internet) markets is confirmed by the results presented. The figures also confirm that subscription television services features competitive constraints given the number of players in the market and the implied dominance of CBC/MCTV.

Table 9a: Market Shares based on Current Subscription Levels

Operators	Fixed Voice	Fixed Data	TV
CWC/LIME	[90–100]%	[60-70]%	[10-20]%
FLOW/Columbus	[0-10]%	[20-30]%	[20-30]%
Digicel†††		[0-10]%	
Ace†		[0-10]%	
WiNet		[0-10]%	
CBC/MCTV*			[40-50]%
Directv			[0-10]%

*Based on estimates provided by CBC

†Based on subscription data provided by the Telecoms Unit

††Based on 2013 data. All other categories represent 2014 data.

††† [redacted]

Table 9b: Market Shares based on Revenue Levels

Operators	Fixed Voice		Fixed Data		TV	
	Min	Max	Min	Max	Min	Max
CWC/LIME		[90-100]%	[60-70]%	[60-70]%	[0-10]%	[0-10]%
FLOW/Columbus		[0-10]%	[30-40]%	[30-40]%	[30-40]%	[10-20]%
Digicel*			[0-10]%	[0-10]%		
CBC/MCTV*					[40-50]%	[60-70]%
DirecTV					[0-10]%	[10-20]%
Ace*			[0-10]%	[0-10]%		
WiNet*			[0-10]%	[0-10]%		

*Ace Communications and WiNet market shares were estimated from interviews with the respective companies. The maximum and minimum estimates are derived using the highest and lowest priced services for Ace Communications, WiNet, MCTV and Digicel. Digicel's actual subscriber numbers were used to calculate revenue.

Table 9b: Market Shares based on Revenue Levels

Operators	Fixed Voice		Fixed Data		TV	
	Min	Max	Min	Max	Min	Max

89. The merger will result in a reversal in the competitive landscape especially in the fixed voice and fixed internet markets: The fixed voice market will revert to a monopoly structure. In the fixed internet market, considerable market power by the merged entity will become manifest, since it would now have [90-100]% market share.

2.5.2 Market Concentration

90. Market concentration measures the extent to which a firm (or small group of firms) within a particular market can exercise its (their) dominance over other firms competing in the same market. The exercise of this market power may be manifested in the ability of the dominant firm(s) to profitably alter their prices beyond the competitive norm, or manipulate output to the detriment of others. The significance of the concentration measures is reflected in their description of prevailing market conditions with regards to the competitive restraints players may be able to exert on each other; and what will prevail post-merger.

91. The Herfindahl-Hirschman Index (HHI) is typically used to measure market concentration and is derived by calculating the squared market shares of all firms in the market. HHI lies between zero (which represents an infinite number of firms in the market each with zero market share) and 10,000 (a monopolist). Respectively, Table 10 presents the HHI pre-merger and post-merger using revenue yields of players in the Applicants' derived 'Communication Services' market.

Table 10: HHI Estimates for the 'Communication Services' Market: Revenue

Status	Sub-Markets (Defined by the Applicants)			
	Communication	Television	Voice	Data
PRE-Merger	4673	4684	5259	5403

POST-Merger	5267	4871	5404	7013
DELTA (Difference)	**594**	**188**	**145**	**1610**
Description	**Extremely High**	**High**	**High**	**Extremely High**

* Estimates are based on market share information from revenue levels submitted by the Applicants.

92. 'Delta' in the HHI estimates represents the magnitude of change in the HHI post-merger. A delta above 100 in the relevant market raises competitive concerns where it suggests that the merger would need further scrutiny. A delta above 200 suggests that the merger is almost unconditionally anticompetitive in that market. The internationally recognised threshold that is used to indicate whether there is cause for concern with respect to high concentration can be found in the Horizontal Merger Guidelines used by the United States Federal Trade Commission and the US Department of Justice. Those guidelines indicate that:

"Based on their experience, the Agencies generally classify markets into three types:

- Unconcentrated Markets: HHI below 1500
- Moderately Concentrated Markets: HHI between 1500 and 2500
- Highly Concentrated Markets: HHI above 2500"

93. The European Commission's Guidelines on the assessment of horizontal mergers adopts a somewhat lower threshold but generally concerns are likely to be raised with regard to concentration levels above 2000.

94. The HHI estimates based on the Commission's derived markets point to the same conclusions (Table 11a&b).

Table 11a: HHI Estimates for the Derived Markets: Subscriptions

Status	Markets (Defined by the Commission)		
	Fixed Voice	Fixed Data	TV
PRE-Merger	8200	5422.43	3438.95
POST-Merger	10000	9107.73	4238.75
DELTA (Difference)	1800	3685.3	799.8
Description	**Extremely High**	**Extremely High**	**Extremely High**

* Based on subscription data submitted by the Applicants

Table 11b: HHI Estimates for the Derived Markets: Revenue					
Status		**Fixed Data***		**TV***	
	Fixed Voice	**Max**	**Min**	**Max**	**Min**
PRE-Merger	8872	5062.72	5168.06	5077.86	3638.8
POST-Merger	10000	9300.22	9490.94	5200.85	4314.64
DELTA (Difference)	1128	4237.5	4322.88	122.99	675.84
Description	Extremely High	Extremely High		Extremely High	

Note: Based on revenue data submitted by the Applicants

*Ace Communications and WiNet market shares were estimated from interviews with the respective companies. The maximum and minimum estimates are derived using the highest and lowest priced services for Ace Communications, WiNet, MCTV and Digicel. Digicel's actual subscriber numbers were used to calculate revenue.

95. Hence, by any of the criteria utilised, it is clear by the high HHI values and corresponding deltas above 100, that the relevant markets identified merit significant consideration to determine the competitive nature of the markets post-merger since they are considered highly concentrated.

2.6 Barriers to Entry

96. As mentioned, the existence of barriers determines to what extent the incumbent(s) can exert their dominance, vis-à-vis significant market power, within the competitive landscape. Already one can infer that the potential for the incumbents to exhibit market power is present and that the same already obtains in the respective markets. This section therefore documents the noteworthy 'internal' and 'external' barriers which the Commission believes affect the prospects of *de novo* entry and which affect competition within the markets that are vulnerable to the merger. These barriers are summarized accordingly as:

Internal Barriers	External Barriers
High Sunk Costs	Regulatory/Administrative Obligations
Economies of Scale	Technological Progress/Innovation

	Access to Essential Facilities

2.6.1 High Sunk Costs: Capital Investment

97. Duplication of a telecommunications network is a costly undertaking and therefore presents a major barrier to a potential entrant. The potential entrant would be faced with expensive capital outlay before a sufficiently sized customer base is generated to ensure long term viability.

98. In the context of this investigation, high capital investment is a major barrier facing *de novo* entrants. The vertically integrated remnants of a pre-liberalised sector place the incumbent in a favourable position where upstream and downstream presence impedes the likelihood, efficiency, and timeliness of competitive market penetration. With regards to upstream presence, CWC/LIME benefits from joint ownership of a subsea fibre cable[21] which connects to its domestic network. This network was recently upgraded with the expectation of an additional investment for its fibre network expansion.

2.6.2 Regulatory and Administrative Obligations

99. The Telecommunications Unit has a number of regulatory requirements for potential operators[22]. As such, there is a temporal element to the barriers. It is

[21] Presentation by the Caribbean Network Operators Group in association with the Caribbean Telecommunications Union on the World Bank funded Caribbean Regional Communications Infrastructure Programme.
http://static1.squarespace.com/static/5138f2cae4b0f3422dd43abd/t/524e67e2e4b0bd80688f228c/1380870114690/CARCIP+CaribNOG+Presentation+.pdf

[22] For example: A submarine cable landing license, mobile, international, resale of leased circuit, and satellite licenses permit operation in the upstream market for international internet capacity. The submarine cable license authorises subsea cable landing. The prospective licensee must apply to the Town and Country Planning Department (TCP) and submit an Environmental Impact Assessment to the Coastal Zone Management Unit (CMU) to show the potential harmful impact to the marine and costal environment, if any, and the strategies to avert such. In the event of approval from the CMU, the application must go to the TCP and the Telecommunications Unit for final approval. In general all licenses may include the submission of: An Executive Summary of the business plan; the Applicant's Financial Capacity, including letters of intent from financial institution(s), equipment vendor(s) and supplier(s); Technical Feasibility, including technical plan and operational plan, choice of technology and network design; Commercial Feasibility, including marketing plan, market estimates, business plan and cash flow, revenue and cost projections as well as pro forma financial statements, for a period of at least (5) years; the Applicant's Expertise and Experience, including international telecommunications experience and local market knowledge and expertise; Corporate Development Plan,

worthy to note that maintaining bands within the RF Spectrum can be a potential deterrent to entry: A license to use between 1 MHz and 20MHz of the RF Spectrum attracts a US$1,500 application fee plus an annual operating fee of US$10,000 for the first MHz of occupied bandwidth and US$250 per subsequent MHz of occupied bandwidth or part thereof. Moreover, the quantum of the annual operating fees for international, mobile, fixed wireless and network providers vary according to the category of license, and the multiplier used in the derivation of the fee[23].

100. Additional fees also apply, for example, in registering numbers in the Home Location Registers in the Master Switching Centres (which must have the number for each customer on the network. The operator must pay for each number logged in the switching centres).

2.6.3 Economies of Scale

101. Barriers to entry also included economies of scale in which the entrant's investment must be at a scale necessary to maintain a network design that supports the target customer base. This of course depends on market saturation and the ability to garner new business; especially in small and highly penetrated markets.

102. In highly saturated markets such as the ones defined in this investigation, high penetration rates coupled with a higher concentration level in a post-merger environment can be a considerable deterrent to a likely entrant. In this regard, significant market concentration in a post-merger environment presents significant competitive concerns.

2.6.4 The Pace of Technological Change/Innovation

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including plans showing, *inter alia* structure and staffing of the company at 3 years, 5 years and 10 years; and Approval from Parliament for certain categories of license.

[23] For example, the annual operating fee for a Fixed license is US$2,500 (application fee) plus US$187,500 for the first year and thereafter 1.5% of adjusted revenue for licensable activity or US$375,000 (whichever is greater). For an International and Mobile license there is a $2,500 application fee, plus US$375,000 for the first year and thereafter 3% of adjusted revenue for licensable activity or US$375,000 (whichever is greater).

103. As a corollary to the above, some stakeholders note that the telecommunications market is highly concentrated and that the level of investment required to attract a customer base which would otherwise be supplied by a monopoly provider will be significant. Low returns are expected in such a scenario since the new entrant would be unable to take advantage of, for example, the economies of scale and scope that are accorded to the incumbent. The situation may be exacerbated by the fact that at present, the only effective way to maximize the delivery of high-speed broadband is via a network built on fibre optic infrastructure.

104. Fibre optic networks are expected to be in existence for some time in the future given the ability of a basic fibre optic infrastructure to be expanded and/or rearranged by upgrading the end point electronics to deliver even higher capacity and speeds. This can be done far more effectively than existing wireless or copper based systems. As such, a new entrant would have to offer his services over a similar fibre optic infrastructure, and perhaps distinguish itself from its competitors by offering greater capacity and speeds. The enhanced service offerings are hardly unique to the new entrant and offer a limited advantage to the new entrant as the enhanced service can be replicated by the incumbents. Wireless systems have their place in current telecommunications architecture. They complement the offerings of fibre optic systems but can hardly be a viable replacement for same. For example, cost considerations make wireless systems the preferred modes of delivery in remote regions. In terms of the speed and efficiency of transmission, fibre optic systems are superior.

105. The above scenario is different from what pertained with the entrance of FLOW/Columbus to the market. FLOW/Columbus was well positioned to introduce customers to a new and advanced service/product offering by delivering its services over a modern fibre network. FLOW/Columbus' entrance invariably created churn and introduced new customers to the market.

2.6.5 Access to Essential Facilities

106. The European commission (EC), in recognition of network barriers affecting competition, addressed the matter of network access in the electronic communications sector in its proclamation of the Access Directive[24]. Paragraph 5 of the directive states that "In an open and competitive market, there should be no restrictions that prevent undertakings from negotiating access and interconnection […]". This position is reflected also in sections 25 – 31 of the Telecommunications Act CAP. 282B which speaks to a Reference Interconnection Offer, and implicitly to a Reference Access Offer. Notwithstanding the existence of these provisions, the entrance barrier remains. In the event of an unconditional merger approval, the incumbent will become the *de facto* monopoly access provider in a duplicated fibre network system (for leased circuits and local loop access). In such an event, the evolving competitive environment which existed pre-merger will inevitably dissipate.

[24] Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive).

3.0 THE APPLICANTS' STATED BENEFITS OF THE MERGER

107. The Applicants stated that the Transaction will give rise to significant short medium and long-term benefits for large numbers of customers in Barbados. According to the Applicants, in the short-term customers will enjoy[25]:

a. Better TV: The Transaction will result in better TV content for customers almost immediately following closing. Following the Transaction the parties' customers will have access to upgraded content based on combining the best of content from the CWC and Columbus portfolios. This will include the best high-definition and standard-definition TV channels currently offered by CWC and Columbus (including 82 HD channels), cloud-based video recording, multi-screen capabilities and video-on-demand services currently offered by Columbus. Therefore, within a short period following closing of the Transaction, thousands of customers will benefit from a higher quality TV offering than would have been available from either CWC or Columbus absent the merger.

b. Better Data Services: The Transaction will result in better quality, higher speed data services for customers almost immediately following closing. The CWC and Columbus fibre networks cover many of the same areas but each currently covers some areas uniquely. The parties envisage that within three months of closing, the combined business will begin work to give customers covered by either the CWC or Columbus fibre networks access to a combined set of TV and/or high speed broadband services that benefit from the access over fibre. This will result in better quality services than would have been available for those CWC customers absent the merger.

c. Accelerated LTE (4G) Services: The Transaction will result in better quality voice and data services for customers using CWC's mobile services. Columbus holds a Band 17 (700 MHz) spectrum licence but has not offered services using this spectrum. Within four months of closing, the combined business will use this spectrum to launch high

[25] These benefits were extracted from the merger Notification Form that was submitted by the Applicants.

quality LTE services in Barbados. CWC's proven track record in deploying LTE in the Caribbean, and integration with CWC's 2G/EDGE and 3G/HSPA+ networks, will result in better quality services for customers than would have been available absent the merger.

108. In the medium and longer-term, the Applicants stated that the Transaction will give the combined business a greater incentive to invest in expanding the fibre network than either company would have had independently. It is further anticipated that this investment would lead to wider fibre coverage, and would benefit customers and the broader economy. As such, the Applicants argue that the Transaction will create significant benefits which translate into the following synergies:

a. Overall, the merger will achieve recurring annualised pre-tax cost synergies of approximately US$85 million and one-time capital expenditure synergies of US$145 million in the first three financial years post-merger.
b. Operational synergies in the order of US$57 million will be realised for Barbados, while capital expenditure synergies are estimated at US$50 million in aggregate for the first three financial years post-merger.
c. It is anticipated that these synergies will redound to the benefit of customers, as outlined above.

109. In all cases, the Applicants believe that these benefits either would not have been realised in the absence of the Transaction, or will be brought about much faster because of the combination of the parties' businesses.

3.1 The Commission's Assessment of the Proposed Efficiencies

110. In the Commission's view, the Applicants did not substantiate the efficiency claims with relevant supporting documentary evidence, inclusive of quantifications, adequate derivations of data, and supporting statistics. As such, the Commission's assessment is informed largely by inferences made from

independent assessments of the market (*e.g.* market study of the telecommunications sector); economic theory; stakeholder insights[26]; commentaries from other national authorities on merger cases (such as the USFTC, US DoJ, the UK Competition Commission, and the European Union); technical and industry reports (*e.g.* BEREC, ITU, TeleGeography); and applicable case law. To this end, the Commission's assessment can be conflated into the three (3) general themes below, which align well with the Applicants' submissions.

3.1.1 Economies of Scale and Scope

111. Briefly, the proposed economies of scope relate to the provision of better television content as a result of rationalising CWC/LIME's and FLOW/Columbus' content. Though realisation of the customer benefits will be time-specific (since there will be minimum lag compared to establishing a new provider outright) it does not address the fact that the merger will not create new television channels *per se* but would result instead in a repackaging of existing offerings with commonalities between the two providers. The Commission does not see this as an efficiency other than it would be counter-intuitive for the merged entity to negotiate and maintain separate vendor contracts for a single service it intends to offer. As such, the efficiencies will revert to the Applicants more so than to customers.

112. In contrast, the proposed economies of scale from the provision of enhanced data services can be independently achieved by either Applicant since they have both deployed fibre with similar coverage and capabilities of providing "better quality, higher speed data services for customers". The Commission further contends that realisation of the aforementioned economies of scale is limited by the speed of deployment of the fibre network and is not a function of the merger. Rather, the proposed merger highlights the current operational inefficiencies in one entity having two separate fibre networks. These inefficiencies are made

[26] Inclusive of the views of the Telecoms Unit, the Barbados ICT Professionals' Association, market players, and other subject matter experts.

even more significant given the reported redundancy in the fibre network[27]. Had the Applicants deployed their fibre networks in geographically distinct areas (with minimal overlap) there could be a strong claim that the merger would result in greater access of customers to the fibre network where they can have "access to a combined set of TV and/or high speed broadband services that benefit from the access over fibre". This, however, is not the case. Indeed the Commission agrees that the merger will see operational and capital expenditure synergies for Barbados. It however believes that these benefits will redound to the Applicants given the deficiencies highlighted above, as a means of recovering some of the sunk costs in the individual fibre deployment.

113. Moreover, stakeholders have highlighted the negative economic impacts of the merger arising for example, from:

a. The re-negotiation of vendor contracts/rates: This will reduce competition between vendors (and local contractors) to supply services related to the technical operations, network development, and deployment initiatives of the individual companies. Competition between the Applicants in securing these services will also be nullified.

b. The countervailing buying power the merged entity would possess in procuring services from local suppliers can result in the elimination of a competitive bidding process for services, as well as a reduction in the number of firms that offer specialist support services and ancillary services (*e.g.* uniform manufacturers).

c. A reduction in headcount: It is anticipated that the principals of the merged entity would seek to generate cost synergies by rationalising overlapping headcount across several departments, including back office, sales and marketing, customer service, IT, and operations. As a corollary, future job opportunities will be depressed especially for individuals with highly specialised skills.

3.1.2 Deployment of LTE Services

[27] Submitted by RBB Economics on behalf the Applicants.

114. The Applicants further submit that by virtue of the merger they will be able to provide better quality mobile voice and data services for customers. It is anticipated that this would be achieved by utilizing the operating license in the 700MHz RF spectrum currently held by FLOW/Columbus. The Commission accepts that improved LTE coverage could be advantageous given the access to the 700MHz band of the RF spectrum. Such coverage can translate to improved service in both delivery and content. The latter relates to the ability of LTE to better facilitate OTT and/or other value-added services. The Commission however notes that CWC/LIME could have made an application for spectrum allocation in the 700MHz band independently of the merger. In addition, access to and use of the 700MHz band by the merged entity is subject to the approval of the Telecoms Unit under which the management of the RF Spectrum falls. Further, the Commission contends that LTE could have been provided given current frequency allocations. In that regard, an efficiency gain premised on the proposed transaction presents an unsubstantiated claim.

3.1.3 Incentives to Invest

115. The Applicants' position that the merger provides greater incentives to invest in expanding the fibre network is moot on the grounds that pre-merger, there appeared to be a strong incentive for both companies to expand the fibre network given the well documented advantages of using fibre compared to copper, and the competitive advantage that fibre deployment guarantees. Furthermore, CWC/LIME was in the process of decommissioning its copper network in favour of fibre, and had committed to same, owing to the reported costs of maintaining an aged and inefficient network. These facts represent the counterfactual to the proposed merger since absent the merger, both companies were prepared to deploy fibre as a strategic competitive move. The Commission can find no substantial evidence to prove otherwise.

116. Fibre deployment is one strategy that enables the telecoms provider to remain competitive. The Commission therefore does not regard the Applicants' incentive

to invest as an efficiency of the merger but a competitive response that will seek to record fixed cost savings from decommissioning the copper network.

4.0 COMPETITIVE ASSESSMENT

117. In this section, the Commission will consider the reported impacts of the Transaction from the perspective of the Applicants, as well as from stakeholders within the industry (inclusive of the general public, competitors, professional associations, consumer advocates and other players within the sector). Notably, the Applicants have argued that the Transaction will not have an adverse effect on competition, and have presented two over-arching arguments in defense. Briefly, the Applicants submit that:

    a. Their respective businesses have different focuses: According to the Applicants, CWC/LIME's position "derives primarily from its legacy business in voice telephony and data services […] In contrast, TV is a key growth area for Columbus, which has seen very significant growth in this segment […] Unlike CWC, voice telephony accounts for only a very small proportion of Columbus's business."
    b. The Applicants will continue to face strong competition following the Transaction: Digicel has been identified by the Applicants as presenting the strongest competition. It was further noted that "Digicel competes directly with the parties in the provision of voice telephony and data services, and has recently acquired a content provider in the TV sector. In addition to Digicel, the parties will face competition from CBC and other suppliers, such as DirecTV."

118. In contrast, some stakeholders regard the merger as generally negative in terms of generating consumer benefits. Specifically, proponents note that as a consequence of the merger there will be no incentive to innovate, become more efficient, or reduce prices. Rather there will be a greater focus on increasing shareholder value, to the detriment of consumer welfare.

119. In the sections that follow the Commission will present the views of the stakeholders with respect to activities that are likely to emerge, and the corresponding impacts on competition, in the respective product markets. The

Commission will in turn present its position on the issues that arise, and determine, based on its analysis, whether there are credible competitive concerns resulting from the Transaction.

4.1 The Market for Fixed-voice Telephony

4.1.1 The Applicants' View

120. The Applicants are of the opinion that the legacy companies (CWC/LIME and FLOW/Columbus) are not close competitors in the provision of fixed or mobile services. Specifically, it was submitted that FLOW/Columbus has minimal sales in fixed-voice services; and that CWC/LIME's fixed-voice services are regulated by the Commission—a position which they further claim is unlikely to change post-merger.

4.1.2 The Views of Stakeholders

121. At the invitation of the Commission, stakeholders from across the industry and representing various economic and consumer groups submitted their views on the proposed merger. Of particular concern was the resulting structure of the market post-merger.

122. Stakeholders indicated that the merger would result in CWC/LIME "having a very significant presence" in the fixed telephone market which would increase the likelihood of the new entity having enhanced market power. In essence, it is argued that the new entity would become "super-dominant" and a "quasi-monopoly". The stakeholders further note that, absent effective regulatory controls, the merger could enable CWC/LIME to leverage its control of the fixed voice market[28] to gain market share in the mobile voice and mobile data markets by offering quad-play bundles.

123. In addition, stakeholders have objected to the merger on the grounds that "[t]he merger would create a monopoly which would be able to make a justifiable case for rate increases given the type of incentive based legislation under which it

[28] Also the fixed internet market. This will be discussed in later sections.

must be regulated. Even with a freeze on rates there would be no way of determining what would be the efficient price, down to which the market could be driven given effective competition. Despite the promises of C&W therefore of greater investment, competitive rates, and greater access to communications by the consumer, the company's actions would appear to speak louder and such actions point to a continued hike in land-line rates once given the opportunity."[29] (*sic*)

4.1.3 The Commission's View

124. The fixed telephony market is characterized by two players: CWC/LIME and FLOW/Columbus which offer services to both residential and business customers via a combination of copper and fibre network in the case of CWC/LIME, and a fibre and wireless network in the case of FLOW/Columbus. Digicel on the other hand provides business telephony services to a small number of customers but uses GSM technology in its delivery. The near monopoly status of CWC/LIME in the fixed voice market is an artefact of a regulatory regime in which the price of fixed-line telephony is regulated and fixed subject to periodic revisions under the Price Cap Mechanism[30].

125. Post-merger, the market for fixed-line telephony would feature predominantly in the merged entity, with the related concerns that it would be able to increase prices. That LIME intends to increase its fibre roll-out suggests that it intends to transfer its customers to a fibre platform, which would further suggest that efficiency gains are expected to be derived from such. It is however important to note that pre-merger, the competitive constraints occasioned by FLOW/Columbus in the fixed voice services may have necessitated a reassessment of the regulation of fixed voice services. Accordingly, pricing is likely to have stabilized given the fact that, under the price cap regime, CWC/LIME opted not to increase its prices although it was cleared to do so. Such is an example of the pricing discipline created by competition within the

[29] Submission from a private consumer.

[30] Managed by the Utility Regulation Division of the Fair Trading Commission.

market for fixed voice services. This discipline is expected to be eliminated by the merger. More importantly, the landscape would revert to a monopoly structure.

4.2 The Market for Fixed Internet Services

4.2.1 The Applicants' View

126. The Applicants believe that with regards to their characterization of the relevant market as that for data services, Digicel will remain the primary competitor and that the merger will feature the improvement in the quality and range of the new entity's product offerings. Further, it is believed that the Transaction will not create any barriers to entry in the communications market in Barbados. According to the Applicants:

> "The Transaction will result in better quality, higher speed data services for customers almost immediately following closing. The CWC and Columbus fibre networks cover many of the same areas but each currently covers some areas uniquely."

127. Indeed, the report submitted by RBB Economics on behalf of CWC/LIME, highlighted the following improvements that can be realized from the merger. In summary:

    a. A more extensive fibre network which will see more households gaining access to Fibre to the Home (FTTH) within one year post-merger.
    b. Increased reliability of service attributable to the fibre network, with corresponding improvements in broadband services, IPTV deployment and content.

128. To this end, the Applicants dismissed the notion of any competitive concerns as a result of the merger. In support of the Applicants, RBB Economics stated that:

> "*Firstly, Digicel remains an important competitive constraint post-merger. Digicel is a large, well-resourced and aggressive competitor, which has a strong and growing presence across all segments of the communications market in Barbados and the wider Caribbean. While Digicel has particular*

strength in the mobile voice telephony segment, it has now broadened its offering considerably and is increasing its share of categories traditionally outside its core markets. […] Digicel has begun to roll-out an extensive fibre network in Barbados, following on from a similar successful expansion in Jamaica.

[…] the extent to which [the Applicants'] respective networks overlap is likely to overstate the extent of competition between them. In any case, the high density of customers in these regions makes it particularly easy for entrants to profitably establish a fibre network there, with [the Applicants] understanding that Digicel is likely to initially target these regions.

[…] In the geographic areas in which [the Applicants] currently do not overlap, the Transaction would not result in a loss of competition. Post-merger Digicel remains an important, credible potential competitor.
Finally, in order to be competitive with the offering of other TV suppliers in Barbados (in particular CBC), [the Applicants] will be strongly incentivised to keep the price of their combined TV and broadband packages at competitive rates." (*sic*)

4.2.2 The Views of Stakeholders

129. Stakeholders note that prior to the entry of players in the market, there was no incentive for the incumbent provider (CWC/LIME) to innovate or become more efficient in order to pass on cost savings to customers. Rather, it was argued that the incumbents' primary focus was on maximizing shareholder value. In fact, stakeholders contend that prior to the entry of FLOW/Columbus to the fixed internet market CWC/LIME:

a. Never reduced prices in line with operating savings;
b. Increased bandwidth but only after per-Mb costs had significantly fallen so that its supernormal profits were maintained;
c. Kept the bandwidth ceiling well below that of other developed and developing nations, thereby impacting the quality of service; never

deployed the new and better FTTH technology despite having run successful trials many years prior;

d. Corporate broadband suffered from a complete lack of innovation and stagnant pricing generated supernormal profits.

130. Stakeholders further contend that on the entry of Columbus there was a paradigm shift in the market to the extent that there was now greater focus by CWC/LIME on improving its product and service offerings. Specifically, the entry of Columbus is thought to have resulted in:

a. Higher-quality fixed services at a lower cost than the incumbent;
b. Much higher bandwidths possible over the new FTTH network;
c. IPTV service with the capability of incorporating value-added services/add-ons (such as Play/Pause TV, video-on-demand);
d. Price reductions and bandwidth increases by CWC/LIME on their copper network;
e. Deployment of a competing FTTH network by CWC along with higher bandwidths and an equivalent IPTV service.

131. Stakeholders also believe that the post-merger effects of the merger will be more pronounced because of service bundling and the deployment of fibre networks by both CWC/LIME and FLOW/Columbus. In highlighting concerns regarding service bundling, stakeholders note that the ability to offer quad-play would determine the level of competition in the telecommunications sector. Presently, CWC/LIME and FLOW/Columbus are able to independently offer, through a single contract, a combination of packages at discounted rates: Flow/Columbus offers double-play (TV+Fixed Internet; TV+Fixed-voice; Fixed internet+Fixed-voice; and triple-play bundles (TV+Fixed internet+Fixed voice). CWC/LIME offers triple-play (Fixed-voice+Fixed internet+IPTV) and quad-play bundles (Fixed-voice+Fixed internet+IPTV+mobile). CWC/LIME is the only provider that can offer quad-play bundles.

132. With regard to the fibre networks, stakeholders believe that the Transaction would result in the combination of the only two fibre networks in Barbados, and would as a result further monopolise the telecommunications sector with respect to the provision of IPTV services in particular.

4.2.3 The Commission's View

133. The supply of fixed internet (broadband) services via a fibre network is thought to favour the new entity given its monopoly status post-merger—CWC/LIME and FLOW/Columbus offer fixed internet supported by an all-fibre network in the case of FLOW/Columbus, and a network comprising a combination of copper and fibre in the case of CWC/LIME. All other players offer WiMax internet service. More importantly, the merged entity will have upstream access to backhaul. This would further galvanise its position in the market and enhance its market power, especially given the highlighted inability of WiMax technology to make significant inroads in the market.

4.2.3.1 Bundled Services

134. The Transaction raises the issue of the merged entity becoming better positioned to offer unique bundles at discounted rates. The ability to enhance its service delivery by virtue of creating synergies is hardly an indictment on the merged entity or any of the merging parties. Concerns are created by the fact that the merged entity's ability to offer mobile, broadband, fixed voice, and television services is made even more robust by the following:

    a. CWC/LIME is already a major player in each of the aforementioned markets. FLOW/Columbus was one of its main competitors especially in its subscription television, fixed voice, and fixed internet offerings. Analyses show that Columbus is a primary competitor of LIME especially in the fixed voice and broadband services. The removal of Columbus as a main competitor from the market will lessen current competitive pressures in the aforementioned services. The merged entity will be the only operator in the market that can offer—in the short-term at least—quad-play packages to customers. The opportunity for churn (customer attrition) for CBC/MCTV and Digicel in favour of the new entity is therefore real.

b. A near-monopoly situation will be created in the fixed-internet and fixed voice markets as a consequence of the merger. More precisely, dominance in same will be strengthened post-merger as the company which offered the most resistance to CWC/LIME will be subsumed by the transaction. This has implications for competition irrespective of the assurances by the Applicants that the merger will create new products, provide unmatched quality of networks and download speeds, feature savings on current prices, and deliver an improvement in overall service levels.

4.3 Other Competitive Concerns

135. The analysis of market data and discussions with stakeholders have highlighted other areas within the telecommunications sector that are likely to be impacted by the merger, and which in turn create implications for competition. Much of the ensuing discussion is centred on the observation that some proposed mergers would, if allowed to proceed, significantly impede effective competition by leaving the merged firm in a position where it would have the ability and incentive to make the expansion of smaller firms and potential competitors more difficult, or otherwise restrict the ability of rival firms to compete. In such a case, competitors may not, either individually or in the aggregate, be in a position to constrain the merged entity to such a degree that the merged firm would not increase prices or take other actions detrimental to competition.

136. For instance, the merged entity is poised to have such a degree of control or influence over the supply of inputs or distribution possibilities that expansion or entry by rival firms may be more costly. Similarly, the merged entity's control over patents or other types of intellectual property (e.g. brands) may make expansion or entry by rivals more difficult.

137. In markets where interoperability between different infrastructures or platforms is important, a merger may confer to the merged entity the ability and incentive to raise the costs or decrease the quality of service of its rivals. In making this assessment the Commission may take into account, *inter alia*, the financial strength of the merged entity relative to its rivals. With the merged entity access to infrastructure would be very critical. Both CWC/LIME and FLOW/Columbus would have control of 100% of the fibre to the home in Barbados and almost [90-100]% access to fixed data in Barbados. To this end, the Commission sets out the additional competitive concerns in the sections that follow.

4.3.1 Upstream Control of Telecommunications Services

138. Upstream control by the new entity of the wholesale supply of telecommunications services would be the domain of the merged entity. This is especially true with respect to its cell-site 'backhaul', which in the case of mobile telephony, provides connectivity between mobile transmission masts and the operator's mobile networks. The same applies to landing station backhaul links in supplying internet access (*i.e.* bandwidth for broadband services) to and from domestic networks. Implications abound for the provision of ancillary services such as leased lines, dedicated internet access and other wholesale inputs in both broadband and mobile operations.

139. For example, CWC/LIME owns one of two submarine telecommunications fibre-optic cables to Barbados; the other is owned by Digicel. Together they transport voice and data traffic from Barbados to switching centres in the US[31] and *vice versa*. However, CWC/LIME owns the infrastructure (*i.e.* the cable landing stations[32]) that supports both its submarine cable, as well as that of Digicel. This has implications for Digicel with regards to accessibility to the landing station.

[31] All traffic originating in Barbados is routed through international switching centres located primarily in the US. This includes traffic originating in Barbados for domestic recipients.
[32] A cable landing station or termination point is the location (gateway point) where the subsea cable makes landfall and connects to land-based infrastructure.

140. In addition, the new entity will have access to all fixed network infrastructure (ducts, leeways, poles, right-of-ways, switch sites, cable landing stations, etc.). The possibility exists therefore for the new entity to restrict the access of its competitors either through pricing, or physical restrictions—the new entity could have the power to raise the price of, or restrict access to network infrastructure. History shows that CWC/LIME experienced difficulties in accessing the ducts at Coverley, which are owned by TeleBarbados (FLOW/Columbus).

141. The Commission also notes that at present CWC/LIME, through its wholesale arm[33], provides expanded international wholesale bandwidth capacity (or 'backhaul') to global, regional and local communications companies in the Caribbean and Americas Region. The merger would imply that the new entity would have largely unfettered access to backhaul which would mean that it would be able to offer both broadband and mobile services at the retail level, in addition to controlling wholesale access to, and pricing of, same. To wit, the new entity would be supplying wholesale backhaul to itself. This has implications for transfer pricing if the downstream and upstream arms are not treated as separate entities.

142. Regarding backhaul, the Commission is of the view that the merged entity will have monopoly power in certain areas which would allow it to unilaterally inflate access prices (in the upstream market) with implications for competition downstream.

143. Implications therefore abound with regard to retail prices, and quality of service mandates in both retail and wholesale spheres: the retailer and wholesaler are positioned to manipulate the price and availability of goods, and in so doing, can effectively produce an environment in which few of their competitors can operate. This is the status quo, and can become more entrenched post-merger. One can therefore argue that the higher the degree of substitutability between the

[33] Which incidentally, was created through a joint venture between Cable and Wireless Wholesale Solutions and Columbus Networks Ltd.

merging firms' products, the greater the likelihood that there will be an increase in prices to maximize profits with little fear of churn. The rationale for this assertion lies in the fact that customer choice will be eliminated by the merger: The survey data suggest that in the market for fixed voice and broadband services, customers view the Applicants' products as very close substitutes.

144. This situation creates even more concerns from a competition and consumer welfare position when one considers the following profile of Barbados:

		Barbados	**Comparison**	
Category	**Description/Definition**	**Rank (Value)**	**Leader**	**Value**
Internet User Penetration	Percentage of the total population with internet access	31st (75%)	Iceland	96.5%
Mobile broadband population penetration	Percentage of the total population with mobile broadband access	49th (41.5%)	Macao	303.4%
Download speed for fixed internet access	Median download speed (Mbit/s)	97th (5.11)	Hong Kong	57.07
Affordability	% of average GDP *per capita* required for broadband access	45th (1.49%)	Macao	0.12%

Source: Internet Society Global Internet Report 2014[34]

145. This profile suggests that the cost and value propositions of the current providers in Barbados are not globally competitive. Although Barbados can boast of having high internet penetration (75%) and relatively high mobile broadband penetration (41.5%), these services are still rather expensive (*i.e.* they require 1.49% of average GDP per capita for access). Value-for-money issues arise considering that given the relatively high costs for internet access, the median download speed of 5.11Mbit/s is an order of magnitude lower than that for the global leader, Hong Kong (57.07Mbits/sec), whose affordability is 0.70% of average GDP *per capita*[35].

4.3.2 Competitors' Delayed Response to Market Changes

[34] See: http://www.internetsociety.org/map/global-internet-report/#
[35] Hong Kong is ranked 16th in this category.

146. Digicel has commenced its roll-out of a fibre network in Barbados as a means to providing fixed voice and broadband service. Successful deployment could however be hamstrung by the accessibility issues highlighted above, which could further undermine the competitive process. As a corollary, if faced with price increases in the supply of fixed voice services, competitors will not be in a position to increase the supply of fixed voice services. This inability can be attributed to technical constraints which also represent a barrier to entry. Such barriers exist for broadband services where the current competitors (Wi-Net and Ace Communication) are faced with capacity constraints and lack of capital to boost supply at short notice. Only Digicel seems to have the necessary capacity to offer any competitive pressure, but achieving this would require significant outlay of funds and would take a considerable amount of time to organise.

4.3.3 Limited Customer Choice

147. The above reaffirms the fact that customers have limited possibilities outside of the Applicants, of alternative suppliers. This is true in the wholesale and retail landscapes[36]. On one hand, customers of the merging firms have reduced opportunities to switch especially in the case of fixed voice and fixed broadband services. Support for this posit is gained from the residential survey which indicates that while in theory there are a number of operating licenses issued for the supply of fixed-line telephony and broadband services there are only two key operators, namely CWC/LIME and FLOW/Columbus. Moreover, when customers were asked if they would switch in the next year, several responded in the positive but further analysis of the data reveals that persons would switch either from CWC/LIME to FLOW/Columbus or *vice versa*. It is already established that post-merger, this choice will be eliminated.

148. On the other hand, for the customers that would exercise their choice, the cost of switching appears to be prohibitive. Switching costs in this context are governed by the lack of number portability, as well as accessibility of, and technical

[36] Activities in the wholesale markets are more profound. The CWC/Columbus Joint Venture in the wholesale market means that Digicel is the only other supplier of backhaul capacity.

limitations inherent in, the offerings of the smaller providers of broadband services in particular.

4.3.4 Elimination of an Important Competitive Force

149. Effective competition may be significantly impeded by a 'merger of equals' within the context of innovation. For example, CWC/LIME and FLOW/Columbus are companies with a 'pipeline' product, namely fibre. Although FLOW/Columbus' market share at this time is comparatively small it has demonstrated the ability to grow and constrain CWC/LIME.

150. FLOW/Columbus is regarded as a vital competitive force especially given that it had recently applied for a license to operate in the mobile market and would have been the only other provider to challenge CWC/LIME with a quad-play package.

151. In the relatively short period of time that FLOW/Columbus has been in the market, evidence shows that it has become the main rival for CWC/LIME in both fixed data and fixed voice telephone markets. Evidence further indicates that while Telebarbados (in the past) and Digicel have held licenses to provide domestic fixed service for some time, up to 2012 neither had made any significant gains into the provision of fixed telephony services. At that time CWC/LIME had some [90-100]% of the market, while TeleBarbados had less than [0-10]% market share. However with the entry of FLOW/Columbus in the market, 2013 figures and 2014 figures suggest that FLOW/Columbus had reached [0-5]% and [0-10]% market share respectively.

Table 12: The Operations of FLOW/Columbus in Barbados

Service	Subscriptions			Percentage Change by Year		Nominal Change by Year	
	2012*	2013	2014	2012/13	2013/14	2012/13	2013/14
TV	[redacted]	[redacted]	[redacted]	-	-	[redacted]	[redacted]
Voice	[redacted]	[redacted]	[redacted]	[310-320]%	[110-120]%	[redacted]	[redacted]
Internet	[redacted]	[redacted]	[redacted]	[230-240]%	[110-120]%	[redacted]	[redacted]

* Acquisition of TeleBarbados by Columbus

152. With respect to Broadband internet, the figures suggest that in 2012/2013 LIME had around [80-90]% of the Broadband market, sharing it with TeleBarbados, Karib Cable, Sunbeach, Wi-Net and Ace Communications. By 2013, with FLOW/Columbus on the market that had fallen to [80-90]% and now (2014) it has fallen to [60-70]%. In the intervening period CWC/LIME saw a decline and FLOW/Columbus had substantial increases in fixed broadband customers during the period. Of significance is the increase in speeds offered by CWC/LIME since 2013 and the reduction of prices or rather matching of prices with those of FLOW/Columbus for the 2013 and 2014 periods.

4.3.5 Availability of Spectrum (Spectrum Management)

153. As inferred from the above, entry to the mobile markets is expected to be difficult given the high sunk costs, the regulatory process, and considerable capital investments in infrastructure. One also expects that access to bands on the mobile spectrum will pose significant challenges given the current allocations and the fact that, in absolute terms the size of the bands within the mobile spectrum is finite[37]. The finite nature of the bands is a result of the small area of Barbados which will create interference if bands are shared by more than one operator[38]. This fact creates implications firstly for the entry of new players in the market, and secondly for incumbents to expand operations.

[37] In the absence of intervention from the Telecoms Unit *vis-à-vis* a review of spectrum use by operators and a subsequent reallocation of same, once the spectrum has been allocated the only option available to operators for expansion is through the acquisition of another player. From a technical perspective, the spectrum can be expanded through the use of technology (*e.g.* data compression) which attenuates the flow of data from the cell tower to the handset. Expansion of the spectrum becomes the purview of the operator which must first determine the feasibility of so doing. This is usually a protracted and costly exercise and therefore does not provide an immediate solution to issues arising from insufficient space on the spectrum. Furthermore, it is argued that it is not in the best interest of the operator to use such technology to expand the spectrum because it will weaken their argument when applications are made to the Telecoms Unit for additional spectrum.

[38] For countries with large land masses (e.g. USA, Russia) the same band can be allocated to different operators in dispersed geographical locations (such as in the north and south).

154. A large portion of spectrum at the 800 MHz frequency has already been assigned, leaving little capacity for either expansion or entry. The Commission notes that market entry by operators wishing to provide mobile services may be hamstrung by the unavailability of the requisite bands within the spectrum. Confirmation of the above is provided by one operator who informed that a recent application to the Telecoms Unit for spectrum allocation in the LTE (700 MHz) range was denied due to unavailability of bandwidth.

4.3.6 Coordinated Effects

155. Coordination is more likely to emerge in markets where it is relatively simple to reach a common understanding on the terms of behaviour *viz.* competition. In addition, three conditions are necessary for coordination to be sustainable. First, the coordinating firms must be able to monitor to a sufficient degree whether the terms of coordination are being adhered to. Second, discipline requires that there is some form of credible deterrent mechanism that can be activated if deviation is detected. Third, the reactions of outsiders, such as current and future competitors not participating in the coordination, as well as customers, should not be able to jeopardise the results expected from the coordination.

156. However, a merger may also increase the likelihood or significance of coordinated effects in other ways. For instance, a merger may involve a 'maverick' firm that has a history of preventing or disrupting coordination, for example by failing to follow price increases by its competitors, or has characteristics that give it an incentive to favour different strategic choices than its coordinating competitors would prefer. If the merged firm were to adopt strategies similar to those of other competitors, the remaining firms would find it easier to coordinate, and the merger would increase the likelihood, stability or effectiveness of coordination.

157. It is readily agreed that for a merger with a potential competitor to have significant anti-competitive effects, two basic conditions must be fulfilled:

a. The potential competitor must already exert a significant constraining influence or there must be a significant likelihood that it would grow into an effective competitive force. Evidence that a potential competitor has plans to enter a market in a significant way could help the Commission to reach such a conclusion.
b. There must not be a sufficient number of other potential competitors, which could maintain sufficient competitive pressure after the merger.

158. In this case, while Digicel is a vibrant competitor in the mobile market and CBC/MCTV and DirecTV remain at present viable competitors in the provision of subscription television, there will be a lack of competitive pressure in the fixed-voice and fixed data markets. In addition, FLOW/Columbus being poised to enter the mobile market would likely have emerged as the only viable full-package quad play competitor of CWC/LIME in Barbados. The proposed merger, if allowed to proceed unchallenged, would likely erase competition in all markets, first by eliminating strong and effective competition in the fixed-voice and fixed data markets, and secondly through the use of the quad play packages; essentially eroding effective competition in the subscription television and mobile markets.

4.4 Summary

159. Owing to the inferences made above, the Commission is able to summarise the potential impacts of the merger and the corresponding competitive concerns as follows:

Merger Implications	Competitive Concerns
Wholesale and retail markets are contracting.	Reduction in the number of potential suppliers may reduce the intensity of competition at the wholesale and retail levels.

Ability to secure market share through the offering of bundled services.	Eliminates competitive pressure in key markets (fixed-voice and fixed data) and leverages position in associated markets (subscription TV and mobile).
Delayed Response to Market Changes.	Competitors are unlikely to increase supply if the price increases.
The merging firms are close competitors with a high degree of substitutability in their product suite.	It is likely that the merging parties will raise prices significantly. Effects are compounded by limited switching options and high switching costs.

5.0 CONCLUSION

160. With respect to the relevant markets, the Applicants have indicated in their submissions that they believe that the market is better assessed as a general market for "communications services". The Applicants have further classified this broad market into sub-markets of (i) Voice Telephony; (ii) Television; and (iii) Data Services.

161. The Applicants' view of the market was analysed and the Commission decided that this view was too broad. Having considered all information submitted and gathered, the Commission has defined the relevant product markets of interest as follows:

    a. Fixed-voice (landline) telephony
    b. Fixed data (broadband internet) services
    c. Subscription television services

162. The Commission however determined that the market for subscription television services was not vulnerable to anticompetitive effects as a result of the merger.

163. With respect to efficiencies, the Applicants' view is that the transaction will allow the merged entity to improve its offerings in fixed and mobile voice telephony, data services, and television. Specifically, the Applicants state that the transaction is expected to:

    a. Leverage Columbus' depth and experience to enhance the breadth of CWC/LIME's television offering and allow it to acquire better content at better rates;
    b. Offer improved consumer experience through a high quality "quad play" offer, providing "always-on connectivity" alongside greater television choice;
    c. Address the needs of international businesses and small businesses with regard to hosted, integrated telecommunications and IT solutions;
    d. Assist governments to deliver better managed services;

e. Accelerate LTE (4G) Services: the Transaction will result in better quality voice and data services for customers using CWC/LIME's mobile services; and
f. Achieve operational cost synergies of US$57 million and one-time capital expenditure synergies of US$50 million for the first three financial years which will redound to the benefit of customers.

164. The Applicants were also of the view that either the benefits would not have been realised in the absence of the merger transaction, or will be brought about much faster because of the combination of the parties' businesses.

165. The Commission analysed the submissions of the Applicants and stakeholders and finds that:

- The merging parties will become dominant in the supply of fixed voice telephony in Barbados moving from a duopoly market to a monopoly market ([90-100]% and [0-10]% market share CWC/LIME and FLOW/Columbus respectively converting to 100% post-merger). Analysis and information gathered show that there is no strong evidence of convergence in the mobile-to-fixed or fixed-to-mobile market for voice in Barbados.

- The merging parties will become dominant in the supply of fixed broadband services in Barbados ([60-70]% and [20-30]% market share CWC/LIME and FLOW/Columbus, respectively converting to [90-100]% post-merger). Analysis and information gathered show that there is also no strong evidence of convergence in the mobile-to-fixed or fixed-to-mobile market for data in Barbados.

- The merging firms are close competitors and will be able to raise prices significantly (the survey suggests that in the market for fixed voice and internet, customers view these entities' products as very close substitutes.

In fact for both fixed voice and broadband services CWC/LIME and FLOW/Columbus are seen as first and second choice in this regard).

- Customers have limited or reduced possibilities of switching suppliers in the case of fixed voice and fixed broadband.

- The merged entity will be able to hinder expansion by competitors. The merged entity will control 100% of Fibre to the Home infrastructure and a large proportion of Fibre to the Business infrastructure. Other providers of fixed data, outside of Digicel, remain reliant on wholesale access to deliver ISP services to end users.

- Effective competition may be significantly impeded by a 'merger of equals' within the context of innovation. For example, CWC/LIME and FLOW/Columbus are companies with a 'pipeline' product, namely fibre. Although FLOW/Columbus' market share at this time is comparatively small it has demonstrated the ability to grow and constrain CWC/LIME.

- There may be some likely effect on the wholesale market. Competitors have also suggested that Flow/Columbus has been a major buffer to CWC/LIME's strong competitive position in the broadband market.

166. The Commission has determined that the merger is likely to affect competition adversely and there would be a significant lessening of competition in the relevant markets. In this regard, for the merger to be approved, the concentration in the access to the fibre infrastructure, the fixed-voice and fixed data (internet) markets should be addressed with structural and behavioural solutions. This is premised on the desire for the maintenance of competitive pressures in a post-merger environment.

5.1 The Commission's Decision

167. The Commission having considered the overall efficiencies of the merger and the anti-competitive effects which the merger will create in the Fixed-voice (landline) telephony and Fixed data (broadband internet) services, has determined that the merger should be approved subject to the following conditions:

168. The Commission directs that the Applicants divest the following:

- One set of fibre cables in the zones where there exists total overlap of the LIME and FLOW networks. This includes the 27,000+ homes passed by the Karib Cable Network as well as the 28,000+ homes passed outside of the Karib Cable Network but in the LIME/FLOW fibre network overlap.

- The Government Hill and Durants hub sites related to the fibre cables associated with the 27,000+ homes passed by the Karib Cable Network.

- The equipment on poles related to the fibre cables where such equipment is solely used to support the fibre cables to be divested.

169. Customers of the fixed voice residential and commercial business and the fixed broadband residential and commercial business, provided by FLOW/Columbus and CWC/LIME on the divested assets related to the 27,000+ homes passed by the Karib Cable Network as well as the 28,000+ homes passed outside of the Karib Cable Network but in the LIME/FLOW fibre network overlap as at the date of this merger decision, must be released from any contracts, if they so desire, so that they are able to exercise the option to choose a service provider. During this transitional period these customers are not to be disadvantaged.

170. The Applicants must submit an independent valuation of the assets to be divested within sixty (60) days after the date of the Commission's decision.

171. The responsibility lies with the merged entity to find a suitable buyer that has the economic and technical capacity to maintain a viable network. The company(ies)

interested in acquiring the divested assets must be approved by the Commission before divestment occurs.

172. Within 45 days of the date of the Commission's decision or 30 days after closing the Transaction, whichever is the later, the merged entity must vest such assets in a holding company. The Commission will appoint a Trustee(s) of the Holding Company who will be responsible for monitoring the ongoing management of the divested assets. This will ensure that the divested assets are maintained intact and made available for sale.

173. At all times the Trustee(s) will be independent of the merged entity and will submit monthly reports to the Commission. Remuneration of the Trustee(s) will be provided by the merged entity. The merged entity may submit suitable nominations to fill this post, however, the final determination will be made by the Commission.

174. The merged entity shall enter into agreements that allow the purchaser, for a period of 180 days, to access customers outside of the Karib Cable network but in the LIME/FLOW fibre network overlap during the period in which the purchaser deploys fibre to access these customers.

175. In the event of the failure, by the merged entity, to find a suitable buyer for the assets of the Holding Company within 180 days of the announcement of the Commission's merger decision, the Trustee(s) will also assume the responsibility to seek out a buyer for the assets for a maximum of five (5) years. After five (5) years the Trustee(s) will place the Holding Company for sale in the open market.

176. After the 180 day period, the merged entity must continue to seek out a buyer and report on the progress of seeking out such a buyer by providing monthly reports which include copies of advertisements placed, any commercial interest shown and minutes of meetings held to the Trustee(s) and the Commission. The merged entity must also notify the Commission when a new buyer emerges. The

merged entity shall not, directly or indirectly, hold, acquire or re-acquire an interest in the divested assets.

177. In addition to the above mentioned structural condition the following behavioral conditions must be adhered to:

- The merged entity must enter into commercial agreements for access to its poles, ducts and facilities, subject to the usual caveats of engineering suitability and access capacity. The Commission must be notified of the outcome of these commercial discussions.

- The merged entity must comply with any regulations in respect of Equal and Indirect Access and virtual unbundled local access in accordance with the policy directives as issued by any regulatory agency with responsibility for telecommunications in Barbados.

178. The merged entity, in accordance with its commitments, must be technically ready for Local Number Portability ("LNP") in the fixed network by September 30, 2015 and Mobile Number Portability ('MNP") in the mobile network by November 30, 2015.

179. Within three (3) months of the date of the merger being effected, in accordance with its commitment, the merged entity must offer the same prices, products and service standards to customers in areas not passed by any competing fixed voice network as those offered to customers in areas passed by a competing fixed voice network.

180. Further to the above, the merged entity must adhere to its commitment that all current LIME and Flow Broadband and Television tariffs will be set at whichever level is the lower of the tariffs offered by the two companies.

181. The merged entity must maintain net neutrality thus facilitating the use of over-the-top (OTT) services.

Glossary

3G	Third Generation.
4G	Fourth Generation.
CNL	Columbus Networks Limited.
CWC	Cable and Wireless Communications Plc.
DoJ	United States Department of Justice.
EC	European Commission.
EDGE	Enhanced Data rates for GSM Evolution: digital mobile phone technology that allows improved data transmission rates as a backward-compatible extension of GSM.
FTTH	Fibre To The Home: broadband network architecture using optical fibre to provide all or part of the local loop used for last mile telecommunications.
GSM	Global System for Mobile Communications: standard developed to describe protocols for 2G digital cellular networks used by mobile phones.
HD	High – Definition.
HHI	Herfindahl-Hirschman Index: used to measure market concentration by calculating the squared market shares of all firms in the market.
HLR	Home Location Register: a central database that contains details of each mobile phone subscriber that is authorized to use the GSM core network.
HSDPA+	Evolved High-Speed Downlink Packet Access: enhanced 3G mobile telephony communications protocol in the High Speed Packet Access family, also known as 3.5G, 3G+ or Turbo 3G, which allows networks based on UMTS (Universal Mobile Telecommunications System) to have higher data speeds and capacity.

IP	Internet Protocol: a connectionless protocol used for delivering data packets from host and host across an internetwork.
IPTV	Internet Protocol Television.
IT	Information Technology.
LNP	Local Number Portability.
LTE	Long-Term Evolution: standard for wireless communication of high-speed data for mobile phone and data terminals.
MCTV	Multi-Choice Television.
MNP	Mobile Number Portability.
MSC	Mobile Switching Center: soft-switch variant of the mobile switching center which provides circuit-switched calling mobility management and GSM services to the mobile phones roaming within the area that is serves.
PSTN	Public Switch Telephone Network: the international telephone system based on copper wires carrying analog voice data.
RF Spectrum	Radio Frequency Spectrum: radio frequency portion of the electromagnetic spectrum.
SSNIP	Small but Significant Non-transitory Increase in Price: test which identifies the smallest relevant market within which a hypothetical monopolist could impose a profitable significant increase in price.
USFTC	United States of America Federal Trade Commission
URA	Utilities Regulation Act. CAP 282 of the Laws of Barbados
WIMAX	Worldwide Interoperability for Microwave Access: wireless communications standard designed to provide 30 to 40 megabit-per-second data rates with the 2011 update providing up to 1 gigabit-per-second for fixed stations.