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Blog

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BLOG: Tracking The 5G Wireless Wave; There Are Only Ripples In 2020

Read Time ~8 Minutes

The 5G wireless wave has been slowed due to the COVID-19 pandemic. In this blog we update readers on the state of the 5G deployment in the U.S. and Canada.

We find that despite some progress, major U.S. carriers are progressing slower than expected with their deployments of higher-frequency 5G networks. Handset development has also been hampered by supply chain issues caused by COVID-19.

In Canada, 5G progress also remains slow. This has been further impacted by the postponement of the 3.5GHz spectrum auction and the government's lack of communication on its policy towards Huawei.

We continue to view 5G as an investable technology theme, but not until 2021. In the meantime, investors have extra time to assess the industry for opportunities.

Sectors:

Information Technology, Telecommunication Services



All figures in U.S. dollars unless otherwise stated.

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Meaningful 5G Commercial Deployments Delayed To 2021

As the 5G wireless wave gains momentum (or slows), our goal is to track its progress and implications. In collaboration with Telecom analyst Bob Bek, our 'Tracking The 5G Tidal Wave' blog updates both global and Canadian developments, providing context and insights.

5G commercial deployment plans in the United States and Canada have experienced delays caused by the COVID-19 pandemic. This has given time for the ongoing Five Eyes partnership (the security alliance between the U.S., U.K., Canada, Australia and New Zealand) to further reduce its reliance on Huawei. The Chinese telecom giant looks likely to be removed from U.K. networks. Meanwhile, Canadian carriers BCE and Telus recently announced a switch away from Huawei as a network provider, opting instead for Ericsson and Nokia to be their providers. Canada is the only member of the Five Eyes that has yet to make a decision on Huawei and the exact timing of receiving such an announcement remains unknown.

While 2020 5G availability could gradually start to move back up during the second half of the year, 2021 is more likely to mark a return to broader network deployment. We expect this will influence handset availability and consumer up-take.

To explain why, we begin by discussing the current state of 5G deployment in the U.S., covering the plans of its largest carriers and recent changes on the launch of Apple's 5G-capable iPhone. We then shift our focus to Canada where carriers have continued their slow roll-out of 5G. We also discuss the impact of the 3.5GHz spectrum auction now delayed to 2021 and the government, who has yet to provide guidance on its policy towards Huawei.

We conclude by discussing what these 5G trends mean for investors who have clearly been given more time to assess the opportunities in 5G.

U.S. 5G Plans For 2020

Despite some progress, the U.S. major carriers are progressing slower than expected with higher-frequency 5G network deployments. With the exception of Verizon, which in March announced a 3% rise in capex spending to prepare for a surge in stay-at-home traffic (but not 5G) due to COVID-19, other U.S. carriers cited lower year-on-year capex spending in 2020 (mobileworld). In its April earnings call this year, AT&T said it would spend around \$20B on capex throughout 2020; \$3B lower than the amount spent in 2019 (Techblog). T-Mobile also cited lower capex spending of between \$5.9 to \$6.2B in 2020, versus capex of \$6.39B in 2019 (S&P Global). Further slowing the adoption of 5G in the U.S. is news that Apple's 5G-enabled iPhone launch may be delayed or limited due to supply chain issues caused by COVID-19.

The initial roll-out of 5G mostly offered faster wireless access to consumers, rather than providing a standalone 5G experience. Standalone 5G, which the carriers have since begun to roll out, supports both speed and low latency. Within two to three years, the benefits of smaller network delays or lower latency should be available with national 5G coverage. The technology for a standalone 5G network requires technology wireless spectrum in three bands: low band (600 – 900 MHz), mid band (2.5 – 4.2 GHz or sub 6) and mmWave (above 24 GHz) for high-band support. Consumers will require a new device to access standalone 5G networks.

U.S. Carriers: Limited High-band 5G But Nationwide Low-band 5G Coverage

Verizon's gradual roll-out continues, with 35 cities currently covered by its high-band mmWave technology. Most recently it added San Diego, California, Little Rock, Arkansas, Kansas City, Missouri and Cincinnati, Ohio, to its coverage list. The service is typically limited to select areas, which are comprised of landmarks or areas frequented by a large volume of people, such as in stadiums.

Verizon's price for 5G services is an incremental \$10 per month under its most basic Unlimited plan. This starts at \$70/month for a single line, or \$35/month for a family of four. Alternatively, 5G access is also available as a bundle with the company's premium Unlimited plans. These start at \$80/month for a single line, or \$45/month for a family of four. Customers can choose from eight, 5G-compatible phones to access Verizon's 5G connectivity services. These include four Samsung Galaxy 5G phones, Motorola's edge+ and moto z4, LG V60 ThinQ 5G and OnePlus 8 5G.

AT&T now offers 5G plans for low-band national coverage to 355 markets, which include numerous cities, counties and towns. This is up from 100 markets under its coverage in mid-March 2020. Similar to Verizon, its high-band coverage ("5G+") is currently available in 35 cities. This means standalone 5G will only be available in limited areas of these 35 cities.

AT&T's response to Verizon is to offer 5G bundled within its two premium Unlimited plans. These start at \$40/month for a single line or \$140/month for a family of four. Six phones are listed as supporting 5G connectivity, and are dominated by five Samsung Galaxy phones and the LG V60 ThinQ.

After closing their merger in April 2020, T-Mobile and Sprint now offer low-band 5G coverage in over 50 U.S. states. Over the next six years, the company plans to broaden its coverage to reach 99% of Americans. It does not offer any mid- or high-band 5G services.

Delay Of Apple's iPhone 12

Apple's post-pandemic 5G product plans appear to be delayed. While an iPhone (12) with 5G enabled capabilities could be released, it appears volumes will be limited. iPhone 12 is expected in mid-September and should support 5G including the key millimeter wave technology from Qualcomm. The delay if it materializes is (two weeks to four months) largely due to the pandemic's impact on its supply chain. Both Samsung and Huawei already have 5G enabled mobile phones.

Longer term, we know that Apple is thought to be designing its own 5G modem for use in multiple products in 2022. That is more realistic timing for broader adoption of 5G and the related IoT applications.

Canada's 5G Plans For 2020

Telus And BCE Move Away From Huawei

While a final verdict on allowing Huawei equipment has yet to be made by the Canadian government, TELUS and BCE announced a switch to Ericsson and Nokia as 5G network providers earlier in June. Given the timing need to roll out 5G, and to catch up to Rogers, the decision not to wait further seems reasonable. That said, we believe Huawei would still play a role in TELUS and BCE networks should the Canadian government decide to allow the Chinese telecom giant. The 5G ecosystem is expected to be much more open and agile, allowing multi-vendor deployments, instead of a commitment to any one equipment provider.

5G Network Deployment In Canada Has Slowed To A Halt

5G networks in Canada are slowly being built up in major cities. Rogers was the first to launch 5G service in Vancouver, Toronto, Ottawa and Montreal in January of this year with plans to expand to over 20 markets by year end. Bell and TELUS followed Rogers by launching 5G in Vancouver, Calgary, Edmonton, Toronto and Montreal in June of this year. Telus, which shares the network with Bell, is planning to expand to an additional 26 markets across Canada by year-end. Keep in mind that at this stage, these are preliminary launches ("early 5G" in the company's own words), and this "5G" wireless access is free for selected plans until March, 2021. Even as more 5G devices become available, we do not expect companies to aggressively entice a swap to 5G by offering plan discounts or hardware subsidies.

On a network capability note, the auction for 3.5GHz spectrum, widely considered a key for 5G networks due to its propagation and speed capabilities, was pushed out by six months to June 2021 as a result of the pandemic. Therefore, while we expect Canadian wireless operators to continue to invest in backhaul pipes, small cell sites and 5G-ready equipment, we see little incentives for any of the Big 3 operators to accelerate 5G investments as monetization paths are yet to be seen, and “killer apps” – applications of a new technology which will be considered indispensable – have yet to be invented anywhere. Before COVID-19 and the spectrum auction delay, we were expecting to see some minor 5G-specific revenue starting to aid financials in Q3/21. That timeline has now been pushed to Q1/22. As such, Canadian wireless operators have even more time to observe 5G developments, successes and failures in the nations which have rolled-out the technology earlier.

Conclusion: 5G Is An Investable Theme, But Not Until 2021

While the 5G cycle has moved from lab and field trials, the slow roll-out in commercial deployment has decelerated in 2020 due to the COVID-19 pandemic. In addition, product development has been hampered by supply chain issues. These developments mean that the transition to commercial 5G deployments will be extended into 2021. Investors therefore have more time to decide which companies they want to leverage in order to participate in the commercial deployment phase of 5G. Exhibit 1, below, shows the 5G cycle by phase and year indicating when specific companies are expected to benefit.

This view is mirrored in the share prices of lab and field trial companies who have outperformed while the commercial deployment companies continue to lag.

Lab/field trial companies like Keysight Technologies continue to perform extremely well with continued growth prospects this year, while the commercial deployment companies have yet to price in any material 5G opportunities. Infrastructure companies like Ericsson and Nokia's share prices are about the same level as they were in 2016. They recently rallied in anticipation of the perceived benefits of further market share gains at the expense of Huawei.

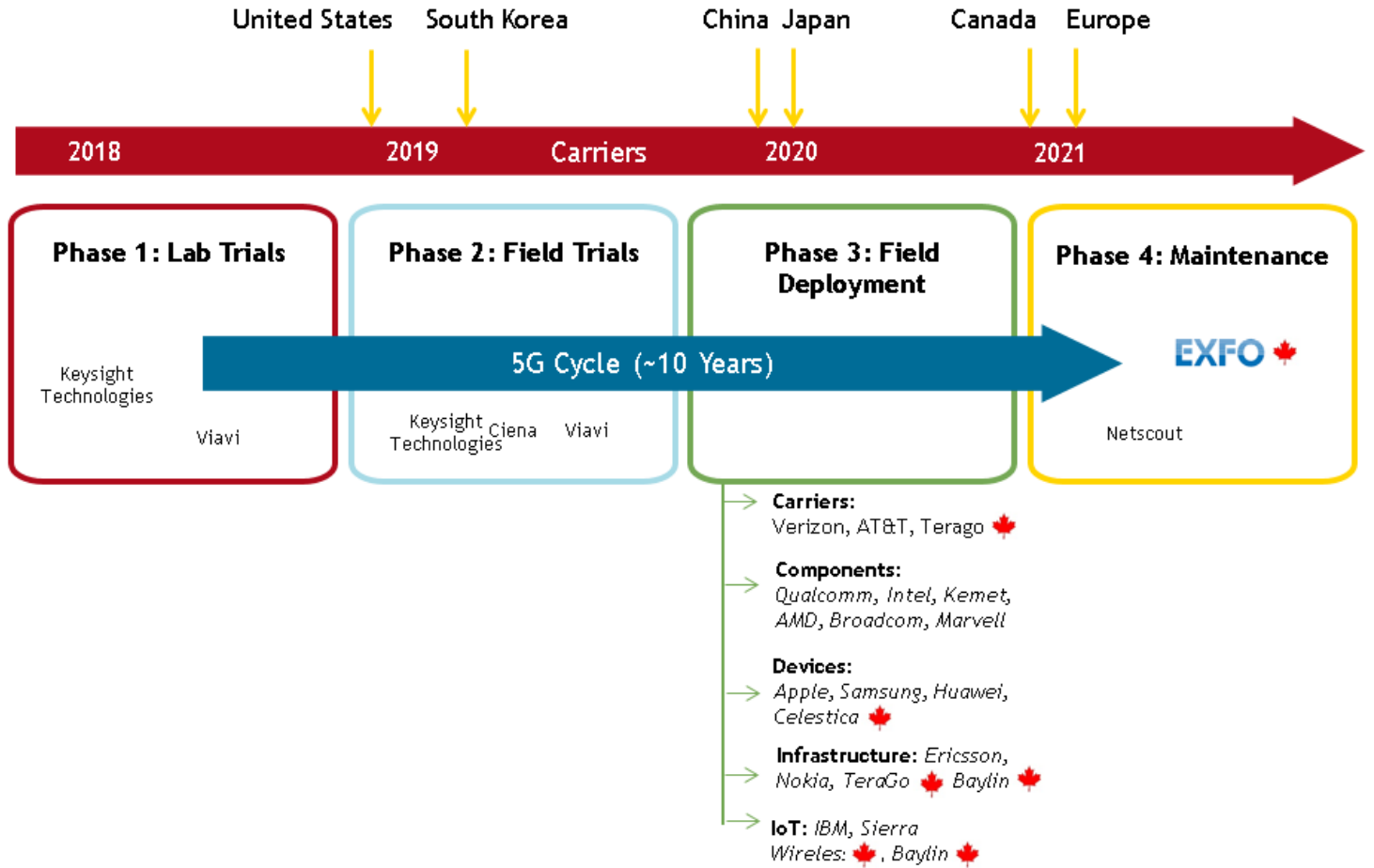
In Canada, EXFO and Baylin's share prices are well off their peaks in 2017 and 2015, respectively, and so far remain relatively unaffected by 5G opportunities. Baylin recently called out timing issues of its own that have deferred the positive impact of 5G spending on its wireless base-station antenna business. Specifically, Baylin has suffered from lower-than-expected small-cell densification by its major carrier customers (the largest being AT&T).

More recently, EXFO during its Q3 earnings call, noted it had started seeing an acceleration of 5G investments, particularly in China. While U.S. 5G commercial deployments are moving more slowly. With EXFO, it is interesting that its valuation remains at a 50% discount to its direct peers. This suggests investors have yet to factor in its exposure to 5G growth.

While we are in the early stages of a 10-year 5G cycle, investors are getting extra time to assess the commercial or field deployment for the next round of opportunities. The next test will be if U.S. 5G spending accelerates in the second half of 2020 with the continuing pandemic as a backdrop.

Longer term, the 5G trend should take hold and allow the companies to benefit. Below is our timeline and the impact to the related companies and carriers.

Exhibit 1: The 5G Timeline



Source: Company reports and CIBC World Markets Inc.

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