



NORTH AMERICA

ERICSSON MOBILITY REPORT

JUNE 2016

MARKET OVERVIEW

Key figures: US and Canada

	2015	2021	CAGR 2015–2021
Mobile subscriptions (million)	390	450	2%
Smartphone subscriptions (million)	280	370	5%
Data traffic per active smartphone (GB/month)	3.8	22	35%
Total mobile traffic (EB/month)	1.3	8.5	35%

The macro-economic environment

The US and Canada are economically developed countries, with high per capita GDPs. This has enabled high information and communication technology (ICT) adoption. Over 70 percent of the region's cellular subscriptions in 2015 were for smartphones, compared to less than 50 percent globally.

Combined US and Canada GDP increased 2.3 percent during 2015. Lower growth is projected for both in 2016, with US GDP growth projected to be 2.0 percent and 1.7 percent in Canada.¹ Although consumer spending remains strong in both countries, business investments remain stagnant. In the US, there is general concern about shrinking margins, translating to less willingness to invest capital, other than for repair or replacement.

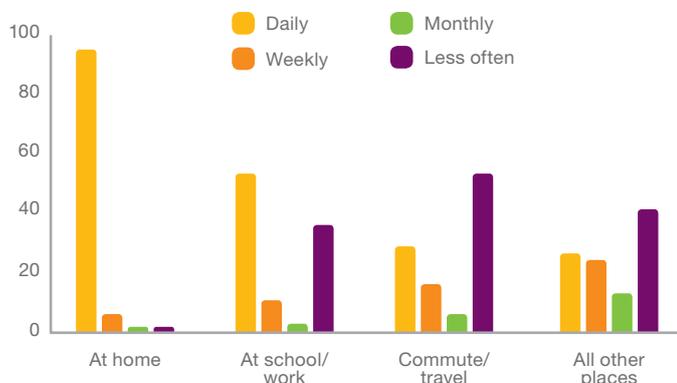
The region's total mobile data usage will grow by 35 percent annually through to 2021, requiring operators to focus their expenditures on expanding mobile broadband to increase its coverage, speed and capacity. The quality and throughput of

mobile data is important, as consumers rely on mobile devices for a variety of popular high bandwidth services, such as short video viewing, social media and internet browsing.²

Mobile internet

Almost 80 percent of US and Canadian internet users use smartphones to go online weekly.² While about 95 percent of US and Canadian internet users use the internet daily at home, less than 30 percent of them use the internet daily during commuting/traveling. Around 70 percent of the region's mobile internet respondents are satisfied with the home internet experience for instant messaging/emailing and web browsing/social media. That percentage decreases when users become mobile. For example, about 60 percent of respondents say they are satisfied while at school or work, and around 55 percent are satisfied with mobile internet while commuting. Therefore, there is still some room for improvement in the user experience for internet services away from the home or office.

Frequency of internet usage across locations, US and Canada (percent)

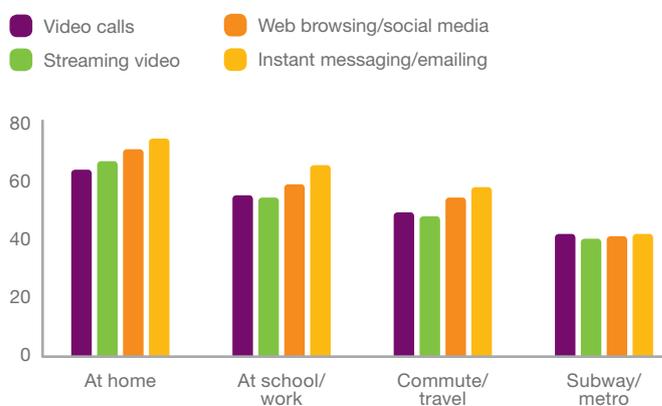


Source: Ericsson ConsumerLab, Analytical Platform (2015), USA and Canada
Base: Internet users, aged 15–69 years

¹ The Economist Intelligence Unit (2016)

² Ericsson ConsumerLab, Analytical Platform (2015), USA and Canada

Mobile internet satisfaction, US and Canada (percent)



Source: Ericsson ConsumerLab, Analytical Platform (2015), USA and Canada
Base: Mobile internet users and respective activity users, aged 15–69 years

MOBILE SUBSCRIPTIONS

The US and Canada represent around 5 percent of global mobile subscriptions. The region had 395 million subscriptions in Q1 2016 – a penetration rate of 109 percent. Between 2015 and 2021, it is forecast that mobile subscriptions in the US and Canada will grow at a compound annual growth rate (CAGR) of 2 percent, to 450 million subscriptions

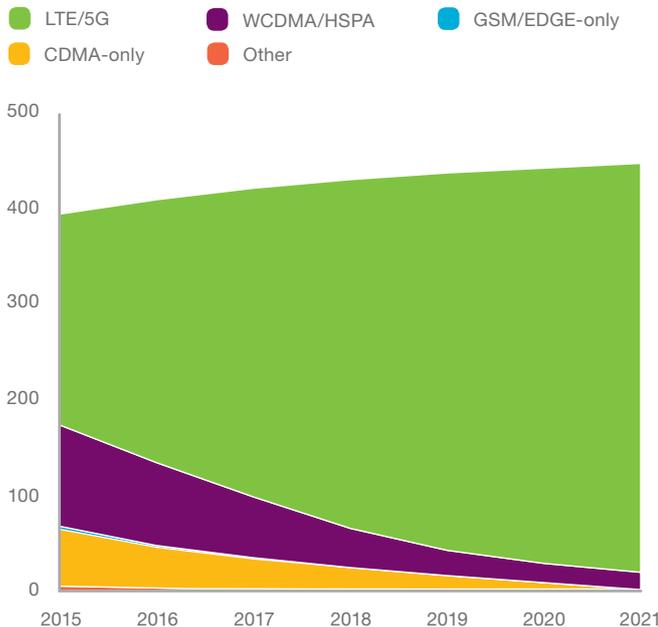
Technology evolution

The majority of US and Canadian mobile subscriptions, at around 55 percent, are LTE subscriptions. This is due to the region's maturity level and the broad coverage of LTE in both countries. By 2021, LTE and 5G technology will completely dominate US and Canadian subscriptions, while other technologies, such as WCDMA/HSPA and CDMA continue to decline, ending up with less than 5 percent of all subscriptions.



By 2021 in North America, 95 percent of all mobile subscriptions will be for LTE/5G

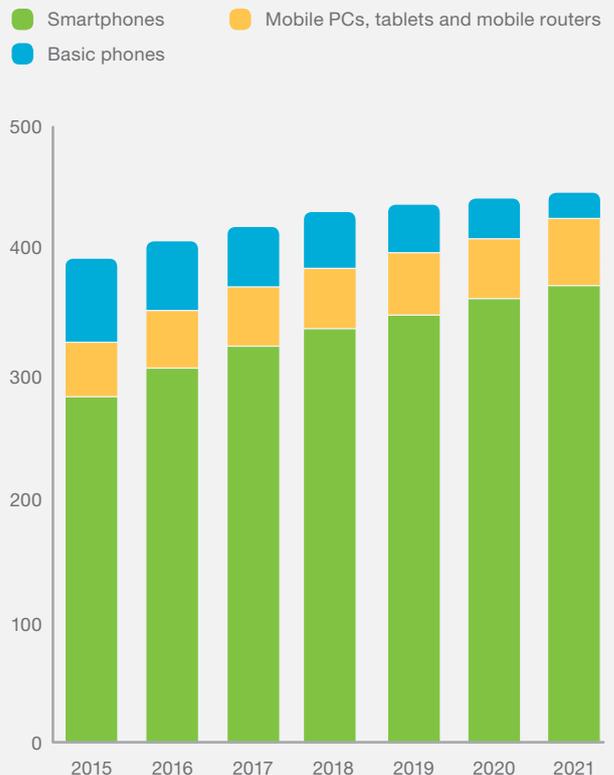
Mobile subscriptions by technology, US and Canada (million)



Smartphone subscriptions

Smartphone subscriptions are ubiquitous in the US and Canada, making up over 70 percent of total mobile subscriptions. It is estimated that by 2021, nearly all handsets will be smartphones, as subscriptions reach 95 percent of handsets. This high level of smartphone adoption drives the need for data.

Mobile subscriptions by device, US and Canada (million)



DATA PLANS AND USAGE

The two major data plan options in the US are limited bundled data and unlimited data. Many unlimited data subscribers have older, grandfathered plans, although some service providers have introduced new versions of unlimited plans

The US mobile market is embroiled in a data price competition, and unlimited plans have made a comeback, although these offerings usually have a time limit or require subscription to additional services. US operators have approached the price competition in different ways, but each of the major operators has reduced their data pricing in some way, or included more data in existing price plans.

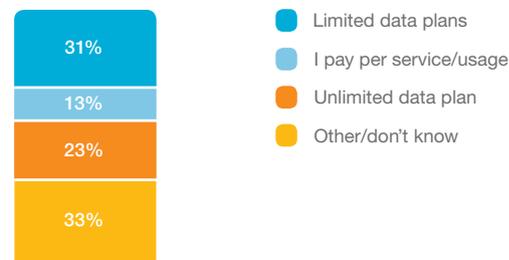
Currently in the US, over half of subscriptions are connected to a data plan, with over 30 percent connected to a limited data plan and almost 25 percent connected to an unlimited plan. Monthly allowances run high; over 70 percent of mobile subscriptions on limited data plans have a 1 GB or higher monthly allowance per phone, and almost 15 percent have more than 10 GBs of data allowance.

There is currently an almost even split between shared and individual plans, with just over 50 percent of plans being shared. Around 50 percent of those are shared with family, with a smaller number sharing between their own devices. A significant number of individuals - around 30 percent - share their plans with four or more devices.



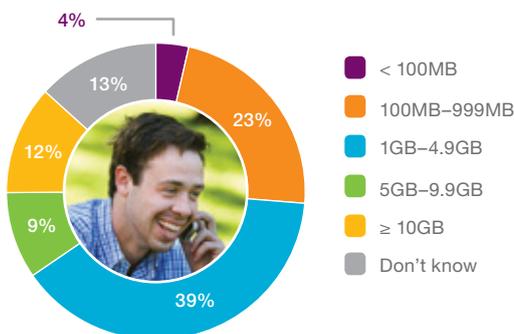
Over 70 percent of US mobile subscriptions on limited data plans have a monthly allowance per phone of 1 GB or higher

Types of mobile phone data plans, US



Source: Ericsson ConsumerLab, Analytical Platform (2015), USA
Base: Mobile/smartphone users and mobile internet users, aged 15–69 years

Monthly mobile phone data allowances, US



Source: Ericsson ConsumerLab, Analytical Platform (2015), USA
Base: Smartphone users on limited data plans, aged 15–69 years

Number of mobile phones in shared data plans, US

Two Three Four
Five More than five



Source: Ericsson ConsumerLab, Analytical Platform (2015), USA
Base: Mobile/smartphone users and mobile internet users who have shared data plans, aged 15–69 years

MOBILE TRAFFIC

Mobile data traffic growth shows no signs of slowing down. It is forecast to grow by around 50 percent in 2016. With data being such an essential part of cellular service, a good data connection is critical to customer satisfaction

Downlink data throughput measurements in Canada and the US can indicate whether highly download-dependent apps, with different performance requirements, will work well all the way to the cell edge. As a point of reference, a downlink throughput rate of at least 1.5 Mbps is recommended for collaboration services, while 2.5 Mbps is recommended for HD video viewing.

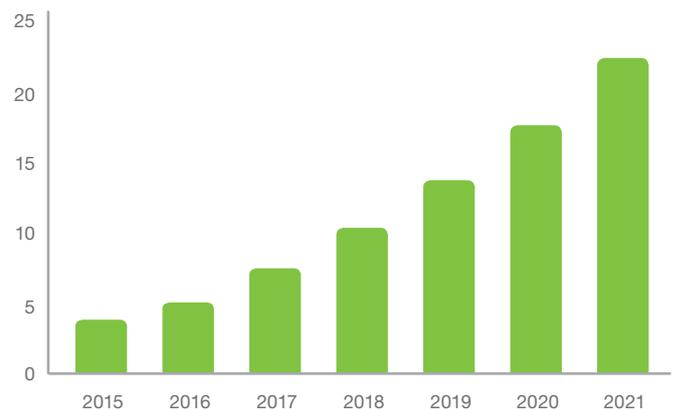
Analysis of network measurements on LTE networks showed significant opportunities for improvement in cell-edge performance in the US, where LTE demonstrated speeds that were not fast enough to secure the expected continuous performance of collaboration services or HD video viewing. However, in Canada, LTE speeds were able to support both services.

Although LTE network cell-edge performance appears to be declining in both markets, this is a normal phenomenon. In all developed markets, newly deployed LTE networks exhibit very high speeds before they begin to be loaded with traffic. As more LTE subscriptions and handsets are deployed, the downlink throughput declines, then stabilizes, and begins to slowly increase as the networks are built out. The cell-edge network speeds pooled from all cellular technologies indicate that the performance is generally improving on these networks.

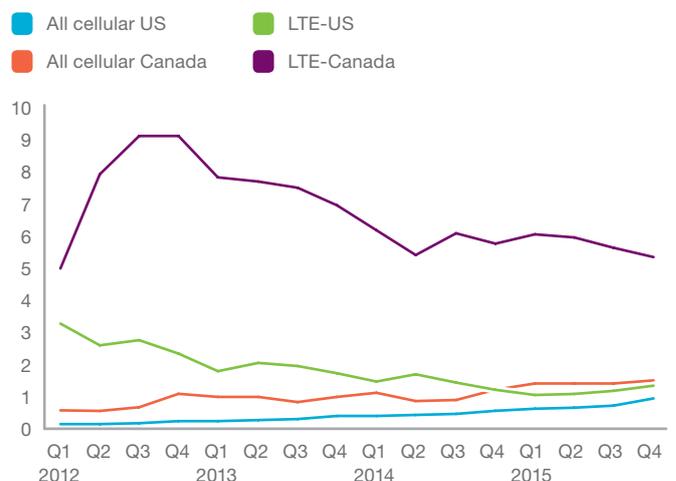


In 2021, mobile data traffic per active smartphone in North America will be the highest in the world at 22 GB per month

Data traffic per active smartphone, US and Canada (monthly GigaBytes)



Cell-edge throughput, US and Canada (Mbps)



Source: Ericsson analysis on Speedtest Intelligence data from Ookla (2012–2015)
 Note: 90 percent of the measurements are at the plotted speed or higher, which gives a good proxy for cell-edge performance

MOBILE PHONES – ACTIVITY AND APPS

Subscribers use their mobile devices for a myriad of activities on a regular basis. Video continues to increase in popularity, with 40 percent of mobile/smartphone users in the region stating they watch full length movies at least weekly

Other popular daily activities include making and receiving calls, emailing, internet browsing and using social media. Bandwidth-intensive activities rank lower in terms of amount of time spent, but are still highly significant. For example, almost 70 percent of US and Canadian mobile/smartphone users say they watch short video clips at least on a weekly basis, and almost 50 percent stream full length movies at least weekly.

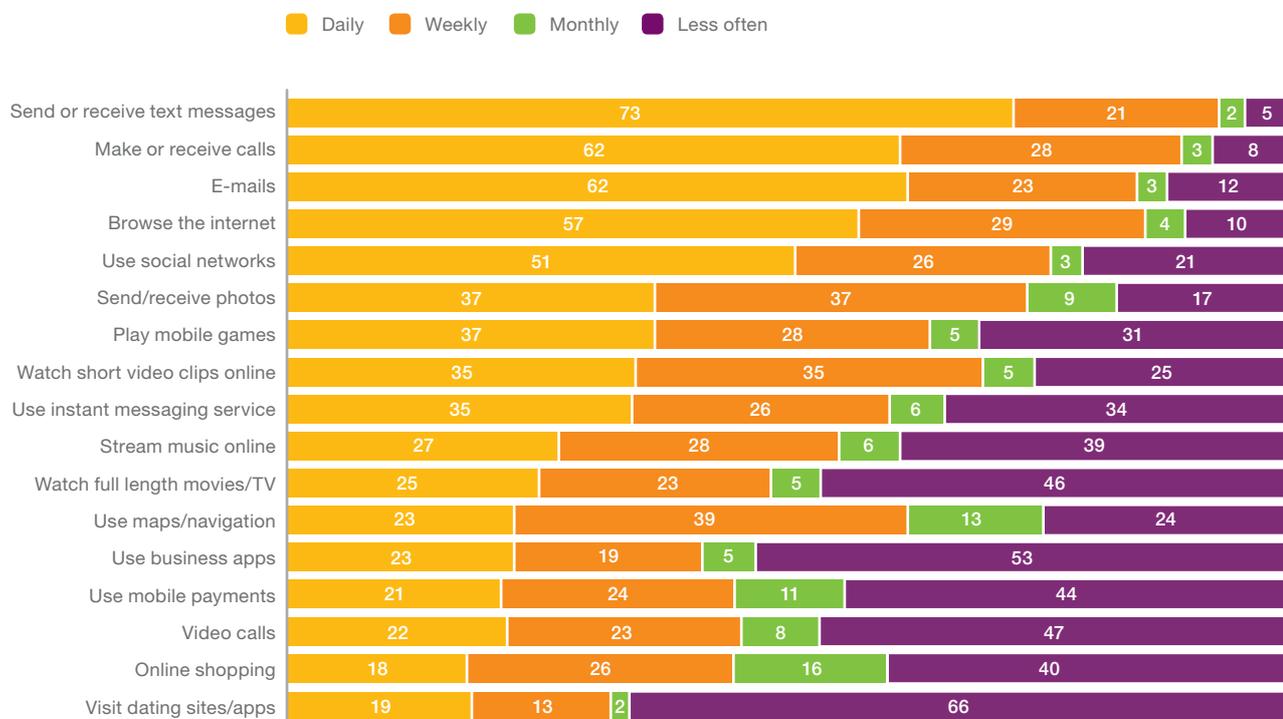
Mobile app usage has increased dramatically compared to last year. Social media apps have the highest increase, with almost 50 percent of smartphone/tablet users saying they have increased their use of social networking in the past year. The smallest increase was for community apps.

However, even for those apps, about 30 percent of US and Canadian users stated their usage had increased.³



Almost 50 percent of US and Canadian mobile/smartphone users say they watch full length movies at least weekly

Mobile services usage frequency, US and Canada (percent)



Source: Ericsson ConsumerLab, Analytical Platform (2015), USA and Canada
Base: Mobile/smartphone users and mobile internet users, aged 15–69 years

³ Ericsson ConsumerLab, Analytical Platform (2015), USA and Canada

THE INTERNET OF THINGS AND 5G

The Internet of Things (IoT) is taking shape in the US and Canada, with both consumer and industrial use cases. Many consumer applications are items people use every day, such as activity trackers, smartwatches and connected thermostats. There will be around 3 billion IoT connected devices in North America in 2021

Commercial IoT applications, such as connected vehicles and smart meters, are also being introduced in the region. For example, US cities like Los Angeles, and Canadian cities like Halifax, are deploying connected street lighting to cut down on waste and make streets safer for drivers.

The connected vehicle IoT application continues to gain traction in the US and Canada. The major operators in these countries have established relationships with auto manufacturers, and nearly every major auto manufacturer is represented. The primary service offered by auto manufacturers is emergency assist services, followed by vehicle diagnostics. The majority of operators are using LTE to provide services to connected cars, although a few still rely on 3G or other systems. A US operator reported having added more than 1 million connected vehicles in the fourth quarter of 2015 alone.



95 percent of service providers in the US and Canada are saying they expect to be in 5G trials by 2018

Service providers in the US and Canada have begun to move towards 5G, which will not only support more traffic, but also faster speeds, lower latency and lower energy use. 5G still has many challenges, including spectrum issues, but it also promises significant opportunities for operators. In fact, 5G will provide speeds 10–100 times faster than 4G, allowing consumers to download full-length HD movies in seconds. These speeds are so fast that some operators in the region are looking at using 5G to either augment or replace traditional copper and fiber broadband “last mile” solutions.

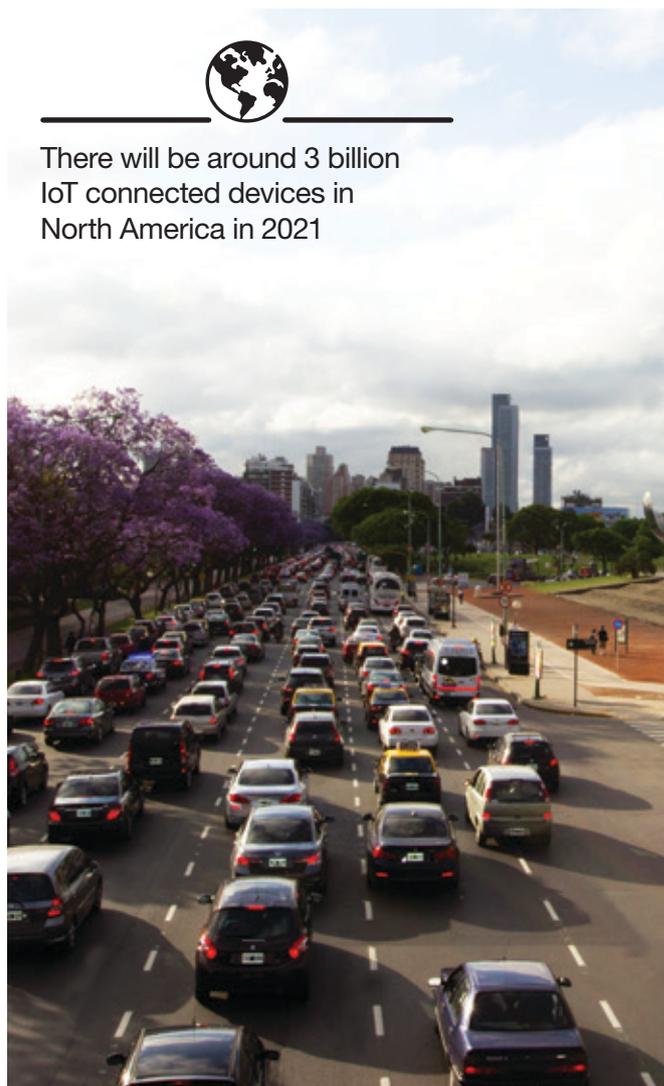
The lower latency of 5G means a connected car could report an accident before the airbags were fully inflated, and 70 percent of US and Canadian public safety organizations surveyed believe faster arrival at incidents is a key use case for 5G.⁴

Lower energy use will allow sensors to be deployed in remote and inaccessible places where a battery life measured in years will be a critical requirement.

With these clear advantages, several service providers in the region are beginning 5G trials in 2016, with 95 percent of US and Canadian service providers expecting trials to have begun by 2018.⁵ The trials will help guide 5G standards and set the stage for widespread commercial availability.



There will be around 3 billion IoT connected devices in North America in 2021



⁴ Ericsson 5G Industry Survey (2016)

⁵ Ericsson 5G Operator Survey (2015)

Ericsson is the driving force behind the Networked Society – a world leader in communications technology and services. Our long-term relationships with every major telecom operator in the world allow people, business and society to fulfill their potential and create a more sustainable future.

Our services, software and infrastructure – especially in mobility, broadband and the cloud – are enabling the telecom industry and other sectors to do better business, increase efficiency, improve the user experience and capture new opportunities.

With approximately 115,000 professionals and customers in 180 countries, we combine global scale with technology and services leadership. We support networks that connect more than 2.5 billion subscribers. Forty percent of the world's mobile traffic is carried over Ericsson networks. And our investments in research and development ensure that our solutions – and our customers – stay in front.