



Message from the President



I hope everyone had a nice Thanksgiving with family and friends. It is hard to believe it has been two months since I last saw most of you in Annapolis for our annual conference. I now have a new nickname for John Purnell, "Mr. Annapolis." His love of his home town was evident not only during the planning phase of the conference, but throughout the entire event. John's inclusion of Mayor Gavin Buckley, who provided opening remarks, through

his organization of special city shuttle buses to take us around, and even included his leadership of a late-night bar crawl through downtown. He is truly Mr. Annapolis – everyone knows his name! John even convinced his wife, Claire, to find those special local items for our speaker gifts along with the bags of SCTC emblazoned M&Ms at registration. We cannot thank John and Claire enough for the wonderful experience!

The three highlights of the education program were the AI Boot Camp, the keynote address, and, of course, the opportunity for all of us to meet many new people, both consultants and vendors. Louis Giannotti, Naval Academy CIO, gave an incredible presentation that he created specifically for SCTC. If you have not had time to look at the materials that Lou put together for our members in addition to his presentation, they are on the SCTC website. I recently reviewed the materials to prepare for a potential client meeting and they proved to be quite helpful.

[Click Here for Presentation](#)

Our new board members have completed their orientations and we have started to craft our agenda for 2019. At our last meeting, we reviewed the SCTC strategic planning efforts that were started last year. Please know that we are working diligently to bring new value to the organization at every opportunity. As the SCTC President, I am hoping to focus our energy on ways to increase our membership value and membership numbers. Specifically, I am looking of ideas for the SCTC consultants to gain exposure to new clients, vendors, and professional development. If you have ideas, please share them with a board member or on the list serve.

Another exciting addition to the team this year is Linda Deen. Linda is a consultant member from Canada who has been working diligently to help us develop a social media plan. This has been on our "to-do" list for quite a while and we are looking forward to starting this effort. Be sure to keep an eye out for the social media messages that will be coming from SCTC in December. We need everyone to participate! Finally, I want to thank Beth English for her many hours of service to the SCTC over the past few years. The transition to our management firm from Cathy required a lot of heavy lifting. SCTC operations, policies and procedures, and financials are in good shape thanks to Beth and Molly's leadership and hard work over the past year.

We have a lot of programs planned for next year - look for the schedule for your regional conferences on the website for the spring and our list of tradeshow you may want to attend. Be sure to check our website continuously for updates and new opportunities.

Thank you all and enjoy the holiday season!

Sara Uzel

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Global and Regional Factors in the Future of Work

By Elizabeth English

Unless you've been living "off the grid" you're likely to have heard the terms "big data," IoT, analytics, robotics, and "block-chain," among others. But what do these words mean for the future of work? What skills will companies need, and should consultants develop to continue to be useful in an increasingly global economy?

We are now in the beginning of what is commonly referred to as the fourth Industrial Revolution, characterized by emerging technology breakthroughs in several fields, such as robotics, artificial intelligence, IoT, 3D printing and biotech. According to Klaus Schwab, in his book *The Fourth Industrial Revolution*, the fourth Industrial Revolution is fundamentally different from the previous three in that the underlying basis lies in advances in connectivity and communications, rather than technology. According to Schwab, these advances have great potential to continue to connect billions of more people to the web, drastically improve the efficiency of business and organizations and help regenerate the natural environment through better asset management.

Just as steamships, railroads and air travel changed the face of the earth and the nature of business by allowing people and goods to traverse the globe, the fourth Industrial Revolution will revolutionize the exchange of information across cultural and geographic barriers. People in remote regions can become part of the global community in ways previously impossible. Because information flows easily, businesses can make decisions about where to place factories and support centers using a new set of criteria which could shift the geography of business growth. The Global Economic Forum Competitive Index looks at factors such as "Enabling Environment, Human Capital, Markets, and Innovative Ecosystem" to identify how countries and regions are positioned to compete.

At the same time, advanced communications are creating new trends that will impact business growth both positively and negatively. For example, advances in mobile Internet enable the wireless connection of billions of devices, while increasing protectionism may make it harder to do business across borders. The following trends are expected to impact business growth through 2022:

Trends set to positively impact business growth	Trends set to negatively impact business growth
Increasing adoption of new technology	Increasing protectionism
Increasing availability of big data	Increase of cyber threats
Advances in mobile internet	Shifts in government policy
Advances in artificial intelligence	Effects of climate change
Advances in cloud technology	Increasingly ageing societies
Shifts in national economic growth	Shifts in legislation on talent migration
Expansion of affluence in developing economies	Shifts in national economic growth
Expansion of education	Shifts of mindset among the new generation
Advances in new energy supplies and technologies	Shifts in global macroeconomic growth
Expansion of the middle classes	Advances in artificial intelligence

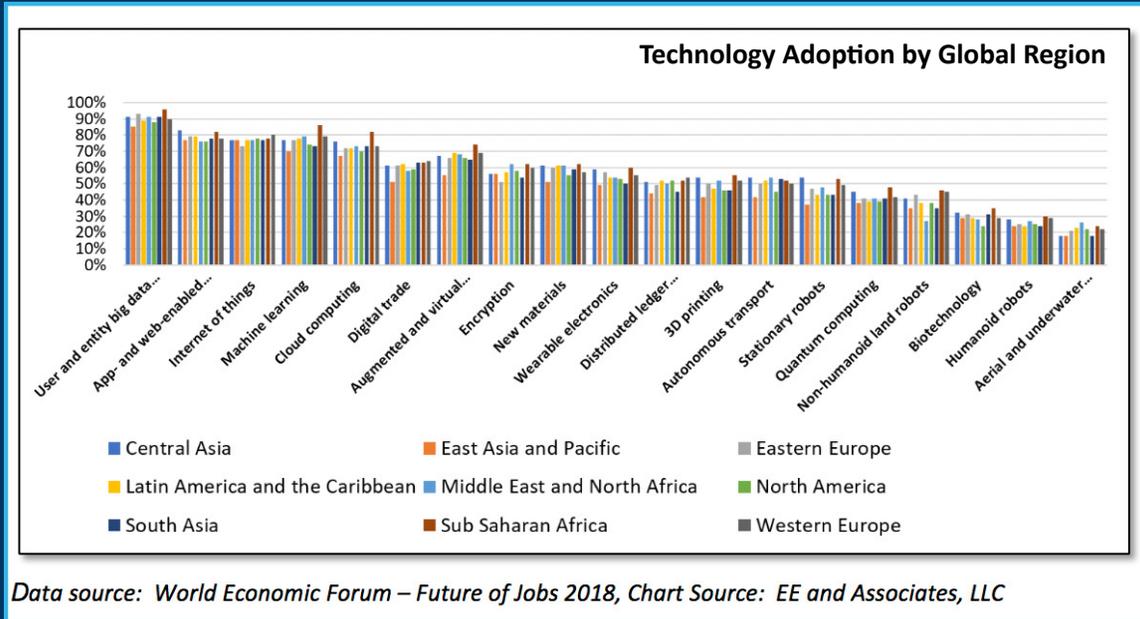
**Source: World Economic Forum – 2018 Future of Jobs Report*

In considering the trends expected to impact business growth, one could initially assume a good strategy would be to build a business plan around artificial intelligence, for example. But it turns out, according to the World Economic Forum's *Future of Jobs 2018* report, that technology adoption varies not just by country and region, but also by industry.

For example, big data and analytics have an overall adoption rate of 85% across all industries, while quantum computing has an overall adoption rate of only 36%. On the other hand, block chain has an adoption rate of 73% in the financial services sector, but only 18 % adoption in infrastructure-related organizations. To some extent, the skills required depend on the industry in which they're being applied. If your business plan calls for a focus on blockchain, but your core business is infrastructure, success will be challenging.

Global and Regional Factors in the Future of Work continued

From a regional perspective, big data and analytics have an adoption rate of 96% in Sub-Saharan Africa, while in Latin America, Caribbean and East Asia, an 85% adoption rate. Quantum computing adoption ranges from 39% adoption in Latin America/Caribbean region to 48% in Sub-Saharan Africa. In addition to understanding how your core business is adopting technology, it is equally important to understand both how the region you serve is adopting the technology AND the competitive readiness of the region.



Finally, with every corner of the world having the potential to become the “Wild West” of ideas and collaboration, what skills should organizations be cultivating, and which will no longer be needed? While it’s apparent there is no “one size fits all answer” when it comes to specific technology skills, there are notable trends in the broader skills categories which can be used as a starting point.

Today 2018	Trending through 2022	Declining through 2022
Analytical thinking & innovation	Analytical thinking & innovation	Manual dexterity, endurance & precision
Complex problem-solving	Active learning & learning strategies	Memory, verbal, auditory & spatial abilities
Critical thinking & analysis	Creativity, originality & initiative	Management of financial, material resources
Active learning & learning strategies	Technology design & programming	Technology installation & maintenance
Creativity, originality & initiative	Critical thinking & analysis	Reading, writing, math & active listening
Attention to detail, trustworthiness	Complex problem-solving	Management of personnel
Emotional intelligence	Leadership & social influence	Quality control & safety awareness
Reasoning, problem-solving & ideation	Emotional intelligence	Coordination & time management
Leadership & social influence	Reasoning, problem-solving & ideation	Visual, auditory & speech abilities
Coordination & time management	Systems analysis & evaluation	Technology use, monitoring & control

source: World Economic Forum - 2018 Future of Jobs Report

What is clear from this list, then, is that skills which can be automated, such as monitoring and control, and manual dexterity, will be automated. Skills such as analytical thinking, innovation, and learning strategies will become more desirable. In a world where everything is changing rapidly, and new technology emerges on a daily basis, it makes sense that strategic thinking and problem solving resources are essential to navigate the landscape.

By Dave Mailer

The Client

University of Oxford Museums and Gardens are the custodians of the University of Oxford's world renowned collections and comprises world famous names including the Ashmolean Museum, Museum of the History of Science, Oxford University Museum of Natural History, Pitt Rivers Museum, University of Oxford Botanic Garden and Harcourt Arboretum. The collections embodied within these departments are an essential part of the University's wider nature and mission. They are part of its heritage as the country's oldest University and now form a resource of national and international importance for teaching, research and cultural life; they also make a major contribution to the University's outreach and access missions.

The Project

The Museums and Gardens (previously Museums and Collections) has recently merged with the Bodleian Libraries to become the new University department; Gardens, Libraries and Museums (GLAM). The University identified that, particularly in the case of Museums and Gardens, GLAM was served by a wide variety of disparate ICT infrastructure, much of which was ageing or incompatible with other GLAM systems. 4C Strategies were appointed to assist the University with a project to review and modernise the ICT infrastructure serving the Gardens and Museums to support a new digital strategy whilst preserving the historical environment within the museum buildings. The scope of the project included data centres, servers and storage, networking and telephony, and business continuity / disaster recovery planning.

How 4C Helped

Having previously worked for many University Departments and Colleges, including Bodleian Libraries, the New Blavatnik School of Government and the central University-wide IT Services, 4C Strategies were the natural choice to assist Gardens and Museums with a review of its ICT Infrastructure.

Dave adopted a collaborative approach, working closely with both central IT Services staff and Museum staff responsible for the delivery and operation of ICT services. He identified the

fundamental ICT requirements by reviewing the digital strategy and consulting with Museums and Gardens personnel to gain a clear picture of current and future requirements. Combined with an in-depth assessment of the current arrangements this enabled him to develop a clear set of development priorities.

4C then worked with the current GLAM team to develop a set of preferred systems and standards for all requirements, making use of existing assets which existed within GLAM or the wider Collegiate University wherever possible.

Outcome / Benefits

The primary outcome of the project was a clear development roadmap for GLAM to be able to adopt and roll-out a consolidated underlying ICT infrastructure across all its Museums and Gardens estate and functions. Key highlights of the project are as follows:

- Existing assets were identified and will be re-deployed or developed wherever possible enabling best return on investment and facilitating a more rapid deployment of common systems and infrastructure;
- The opportunity to share assets between units is enabling both increased scalability and improved business continuity / disaster recovery arrangements across Gardens and Museums as a whole;
- The collaborative approach adopted contributed to the cohesiveness of the new GLAM internal ICT team with all applicable team members having the opportunity to contribute to the resultant strategy;
- 4C's techniques of documenting and analysing requirements in a clear, concise and easily understandable manner enabled the GLAM team to readily confirm the development priorities and to adopt a clear and focussed development plan.

Testimonial

"We were extremely pleased with the work we commissioned 4C to do for us. Exploring the infrastructure complexities within Oxford is a difficult task, but 4C did this diligently and to a high standard. We were kept in touch all the way through and this felt very much like a partnership, shaping the recommendations jointly. The final report delivered to time and to scope and offered very good value for money."

So, you want to go international, eh?

By Linda Deen



Sip Beaver and Anna Bell-Beaver are well established and comfortable in their Communications Technology jobs in Canada, but their government is encouraging businesses to export globally. Sip is the talented adventurer

who can adjust to CEO-type challenges easily enough. Anna Bell is quite content just to carry on with the status quo while keeping Sip grounded. Is there enough opportunity for these two married professionals to create and grow together beyond their national boundaries by becoming international consultants? The following are some issues they must consider before venturing beyond their own pond.

I've had a good run with my consulting practice," Sip thinks to himself. "As consultants we work from home, when they want, make a lot of money, and write-off expenses. All it takes these days is ten years' experience in some specialty like advanced communications technology and at least an undergraduate degree". Sip is intrigued by the potential of having a global reach. All he needs to do is win over Anna.

"Anna, I think it's time to broaden our horizons. Canada is a safe place to live, the air is clean, and thanks to global warming, our winters are getting warmer, but let's face it, going to work is depressing. For most of the year, we leave home in the dark and return in the dark."

Anna pauses, and she thinks about what Sip is saying. "Sip," Anna replies, "I know that your services are good just about anywhere, but my family, the Bells, have always been grounded in Canada! We've been in public service since my great-grandfather Analog Bell first came to the county. Isn't this kind of a big change for us?"

"It's simple," Sip says confidently. "We just promote Beaver services on LinkedIn, pack laptops into briefcases, some business casual clothes into carry-ons, and working files in the Cloud. Besides, Canada will be here when we are ready slow down. I can't play golf here year-round and I get so tired of government regulation!"

"Well," says Anna, "Everything is getting more expensive, but I've got a good public service job. Why don't I stay put and give the family financial stability, while you establish the consultancy internationally?"

Sip lights up. "Sounds like a plan! Let's see. First, we'll want to optimize this LinkedIn profile...That's good, my 'Headline' is already 'Communications Technology Consultant. I advise organizations on how to...'. Then, here under 'Summary', we need to tell our story in an engaging way using key words for SEO."

Anna looks over his shoulder. "SEO, yes, Search Engine Optimization. You know, the Google Keyword Planner is a great tool for this. You can create a Company Page from your personal LinkedIn account, with individual service portfolios such as Cloud and IoT. You can even customize these services for individual audiences by selecting specific parameters."

"Anna, how do you know all this?" Sip asks with amazement. Anna grins, "The Bells aren't that old fashioned, we still have a few tricks up our sleeves."

Sip thinks and says, "I'll need to find Canadian, American, or European contractors who would send me out for short-term work. It's going to take some time to understand what is needed in the international market and how to deliver it."

"Who exactly are your clients going to be?" asks Anna, "and how do your unique skills, approach and knowledge apply? As an independent professional consultant, you must be at the point where people know your work and will stake their own reputations by providing job referrals, even on LinkedIn."

Sip replies, "For international work, a daily rate makes the most sense. I will have to be prepared to lower my daily rate to be competitive if working for a contractor outside of Canada. However, the contractor saves me the up-front costs of winning a contract. Also, I'll invoice only for fees and travel expenses. Getting paid within 30-45 days is easy with direct deposit and international wire transfers."

"Where are you thinking of going?" asks Anna.

Sip answers, "Global Affairs Canada has been advising Canadians about the best countries for export. US and other advanced economies like in Western Europe are prime targets followed by Brazil, India, and China for the long term. The 'Sweet spot' destinations include Chile, Hungary,

So, you want to go international, eh? continued

Indonesia, Kazakhstan, Mexico, Peru, Republic of Korea, South Africa, and Taiwan. Growth potential lies in Argentina, Columbia, Egypt, Malaysia, Poland, Russia, Saudi Arabia, Thailand, Turkey and Vietnam. Then there are Canada's potential Trans Pacific Partners: Australia, Brunei, Chile, New Zealand, Peru, Singapore, Vietnam, Japan, Malaysia, and Mexico..."

"You mustn't forget a visit to the Travel Health Clinic for all the Hepatitis, Tetanus, and Yellow Fever shots," Anna interjects. "Some vaccinations require multiple visits, so don't delay. Of course, the serums are expensive, but you can claim them as expenses. Or better yet, why not just try to consult in the United States where you don't need any of those vaccinations?"

"I don't really think of the United States as 'International'" says Sip, "We visit your older Bell relatives in the U.S. every year. Besides, in the United States I'd have to be at the top of my game to be competitive. Many large American companies have already established affiliate offices in Canada from which they draw talent particularly in management services for which Canada has a trade surplus of 65 percent. It's not unusual for office managers of these affiliates to tell Canadian consultants that any purchasing or hiring decisions are made at the US head office. "

Anna sighs, "Well, it seems like the travel bug has already hit you. It's more than the business. You're craving the adventure. Whatever country you choose, a B-1 Business Visitor won't get you far. It's limited to 'non-paid' activities such as consulting with business associates, attending a conference on specific dates, negotiating a contract, or attending short-term training. To engage in paid consulting contracts, we'll have to register a foreign office and transfer you there on an executive type visa as the new Director. I'll fill the role of Director of the parent company back in Canada. We really need to get some proper legal, accounting, and insurance advice both here and abroad."

"I just got an invitation from the Canadian Trade Commissioner's office to attend a webinar on how to enter the Latin American market," Sip says. "The first point of discussion is how to mitigate business risk. The Canadian government organizes trade fairs to some markets. There is one listed this month in

Guadalajara, Mexico for Enterprise Software." Sip continues, "Unfortunately, like most trade fairs, this focuses on products rather than vendor-independent consulting services. Add that to the local consultants operating with native language skills, political connections, and advanced qualifications... I'll need to figure out unique, added-value consulting services that would enable me to partner with them".

Sip realizes that it will take time and deep pockets to be successful outside of his own country. However, if he can get some initial experience through a variety of international contracts, he could determine which country to focus his efforts for the longer term and establish a Foreign Office there and secure his own contracts. He'll keep his options open by building 'connections' on LinkedIn to help promote Beaver services globally. However, he still must win over Anna who is very risk-averse and isn't likely to join him away from home until she can take early retirement including pension from her secure job.

"Rwanda!" Anna says, looking up from her iPad. "Now, there's an exotic place for long term investment. The South Koreans have been building 4G LTE infrastructure under contract with the government. There is fiber installed throughout the country and investors keep arriving. Carnegie Mellon University Africa also has a contract with the Rwanda government to develop local talent with its Master of Science Information Technology program. Apparently, a Canadian consultant already helped develop the Economic Development and Poverty Reduction Strategy (2013-2018) by positioning ICT as a 'cross-cutting' function for all Ministries."

Sip replies, "But, it's not on the Global Canada list, and we haven't really planned it out, and what do you mean 'we'? You're going too?"

"Hey, you're not the only one who is allowed to catch the travel bug," Ann replies, laughing. "If we keep our base in Canada, we can still try new places even if they are roads less travelled. Besides, international or not, if you need to know exactly where you'll be next, you're in the wrong business."

Legal Update from Martha Buyer

NAFTA's Replacement

A consultant member reached out to me recently and inquired about how the recently announced NAFTA replacement agreement between the U.S., Canada and Mexico would affect consultants involved in transborder work. To say that finding clear answers was impossible would not be an understatement. To say that even getting fuzzy answers was challenging would also be very, very true. With that whopper of a disclaimer, let me share what I've learned. Two calls that I made to trade experts at the Canadian Consulate have gone unreturned.

First, in a nutshell, at least for the moment, nothing has changed. The new agreement has yet to be ratified, so any changes (*and based on my read, the changes for consultants and others who offer professional services*) are proposed only. Based upon my reading of the current document, there is nothing that I've read that creates any additional tax or tariff burden on the provision of professional services. Phew!

The new document proposes Mutual Recognition Agreements (or MRAs). However, the first sentence indicates that the guidelines provided are non-binding. For fans of "Pirates of the Caribbean," that's equivalent to the Pirate Code. However, these MRAs are more geared towards large associations of professionals, with particular emphasis on those professionals—or that professional activity—whom are licensed or otherwise regulated. The issue addressed is specifically focused on professional qualifications, licensing or registration none of which, at least based on my knowledge, really affect technology consultants. An organization like BICSI, as an example, might be a party to a discussion covered under the USMCA, but at this point, it is unlikely that the new agreement, even if it is ratified, will affect SCTC consultant and other members. Interestingly, the section of the agreement that includes references to communications is largely focused on programming content for television, with specific emphasis on both commercials and home shopping.

The text of the entire agreement can be found here, <https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement/united-states-mexico>, and the

section that addresses professional services can be found here. <https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/15%20Cross%20Border%20Trade%20in%20Services.pdf>. Check Annex 15-A (page 15 of 24). Finally, for more information on this issue, please see <https://www.livingstonintl.com/nafta/>.

9-1-1 Location Information

The comment period on a **proposed FCC rulemaking** that is directed to the Commission's interest in securing more accurate and platform/vendor-neutral location-specific identification information provided to Public Safety Access Points (PSAPs) when 911 is dialed is open until December 10th. Under the proposed rulemaking, dispatchable location information must be provided when someone calls 911, not only from a multiline telephone systems (MLTS) such as those in use at hospitals, universities, and corporate campuses, but also from PBXs, Centrex, key telephone, IP, and hybrid systems.

The proposed rulemaking stems not only from the Kari's Law Act of 2017, a federal law requiring that MLTS provide direct access 911 dialing and on-site notification systems, but also **Ray Baum's Act**, which requires the FCC to complete a proceeding to consider the adoption of rules that "ensure that the dispatchable location is conveyed with a 911 call, regardless of the technological platform used and including all calls from MLTS." Under Kari's Law, all MLTS installed, sold, operated, or managed must be configured to allow a user direct access to 911 without the need for dialing an extra digit, code, prefix, or suffix. In addition, under Kari's Law, the system must notify a central location at the facility that an emergency call has been made. As rules currently stand, any MLTS that is manufactured, imported, offered for initial sale or lease, or installed after Feb. 16, 2020, must be compliant with these rules.

Too Much or Just Enough Information?

Is such specificity necessary? That depends on your perspective. But before we get to the question of perspective, consider this input from Steve Souder, former director for the Fairfax County, Va., Public Safety Center, and still a very active participant

Legal Update from Martha Buyer continued

in 911 policy and practice in Maryland, with an incredible 60 years of experience in the field. “With respect to 911 information, the singular most important piece is the ‘where.’ All of the other questions can be answered later, but the ‘where’ is the most important piece of information when the call comes in,” he said.

In January 2015, the FCC determined that all carriers should plan to deploy sophisticated location information based on both horizontal (X and Y coordinates) and vertical (Z coordinates) to identify a caller’s location. It specified that major nationwide wireless providers have their implementation plans ready within 18 months, with deployment to take place by 2021. In 2015, a 2021 deadline seemed a long way in the future, but not so much anymore. “The reality is that the [existing] rules have never required that the carriers provide a useful level of accuracy. In fact, the X and Y coordinates only represent the front door. It’s the Z coordinates that are even more essential and largely not mandated to be in place for some providers until 2021,” Souder said. “Further, the current rules require that by 2021 only 80% of calls made from each carrier must present the accurate location information. For the remaining 20%, the 2021 deadline still doesn’t help.”

With this deadline looming and at least some carriers not yet compliant, and with the passage of both Kari’s Law and Ray Baum’s Act, the FCC has issued the aforementioned Notice of Proposed Rulemaking (NPRM) to clarify requirements on the detail and extent of location information that providers must make available. If you want to comment, please take the time to do so. Comments, which must be identified by PS Docket Nos. 18-261 and 17-239, can be submitted by any of the following methods:

Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions for submitting comments.

- Federal Communications Commission’s Website: <http://www.fcc.gov/ecfs/>. Follow the instructions for submitting comments.
- Mail: Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although the Commission continues to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission.
- People with Disabilities: Contact the Commission to request reasonable accommodations (*accessible format documents, sign language interpreters, CART, etc.*) by email: FCC504@fcc.gov or phone: 202-418-0530 or TTY: 202-418-0432.



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