MANY MESSAGES FROM MEXICO

The IIC's annual conference in 2018 was held in Mexico City and, not surprisingly, Latin American developments were prominent. Report by **MARC BEISHON**

The IIC's 49th annual conference, part of its Communications Policy and Regulation Week held each year, took place in Mexico City. It was preceded by the International Regulators Forum (IRF), hosted by Mexico's regulator, the Federal Institute of Telecommunications (IFT). The main annual conference sessions are reported below – they featured a number of keynotes, including by the incoming vice minister of ICT for the new Mexican administration, and Ajit Pai, chair of the US Federal Communications Commission (FCC).

OPENING SESSION: FCC TO THE FORE

Chris Chapman, IIC president, opened the conference by posing a rhetorical question he also raised at the IRF: Where does one start in analysing this postmodern world we seem to be living in? Noting everything from economic uncertainty, jobs and the spectre of AI, and climate change concerns, to an "overabundance, perhaps, of populism", he said that much societal and political disorder is arising directly and indirectly from unrelenting digital disruption. Digital transformation is moving out of virtual world to "real" industries such as financial services and manufacturing, and each innovation tends to add exponential rather than linear change.

> **A key aspect of regulatory humility is scepticism towards pre-emptive regulation of new technologies.**

Gabriel Contreras Saldivar, IFT president, followed with some numbers, such as that by 2025 only 1 in 10 connections will be between humans and devices – the rest will be machine to machine, and that there is no industry that will not be impacted by interconnectivity. But he said that such connectivity needs to be a reality for all, and asked if enough is being done about the deployment of infrastructure for the hyperconnected world. "What do we have to do to have an ecosystem of converged telecoms, and what is the role of the authorities," he asked. He also spoke about Mexico and recent policy on spectrum, and challenges for spectrum worldwide, adding, "Clearly we need stable authorities with stable legal frameworks that are transparent and predictable."

Ajit Pai, chairman of the FCC, gave his vision of the role of government as beginning with a posture of "regulatory humility". "I believe that history has shown us, without a doubt, that a competitive free market is the most powerful force we have for driving technological innovation and promoting consumer welfare." In particular, the government should aim to minimise regulatory uncertainty, which can deter long-term investment decisions. "And I also believe that a key aspect of regulatory humility is scepticism towards pre-emptive regulation of new technologies, rules that try to guess about the market failures before they have even occurred. I believe that a careful case by case approach to evaluating emerging markets and new technologies is more likely to maximise consumer welfare over the long run and to lead to technological progress."

Being nimble though is hard in the fast-paced tech sector, and Pai highlighted the FCC's work in 5G as an exemplar of his regulatory approach, and spoke about freeing up spectrum, promoting more wireless infrastructure, and modernising regulations.

On spectrum, he said the FCC has moved aggressively, conducting the world's first incentive auction for the 600 MHz band previously held by the TV broadcasters, and that "we will begin auctioning 28 GHz millimetre wave spectrum followed immediately by an auction of 24 GHz spectrum. And then in the second half of [2019] we intend to auction off three more spectrum bands, 37 GHz, 39 GHz, and 47 GHz." The FCC was also scheduled to vote on two more spectrum proposals, "one would modify our rules for mid-band spectrum in the 3.5 GHz band to increase incentives for investment and innovation and 5G deployment, and the other would allow unlicensed devices to use the 6 GHz band to pioneer new frontiers for Wi-Fi and the like."

Put together, over the next 18 months or so, Pai said the FCC will free up about 5 GHz of spectrum for 5G services – more spectrum than currently held by all the mobile broadband providers in the US.

On infrastructure, Pai said that the goal is fairly simple – "All of the spectrum in the world

Left: Ajit Pai, FCC chairman, delivers his keynote
Right: Delegates show their appreciation in the main conference room

will not matter if we don't have the 5G network architecture to support that traffic… We will not let today's red tape strangle the 5G future." He said the FCC has reformed its wireless infrastructure rules, and will keep doing so, mentioning that small cells do not now have to go through the same environmental process as a 60 metre tower, and that cities can rule on small cell siting applications, with reasonable limits on siting fees.

And he said the FCC has been busy revising, or just repealing, outdated regulations that no longer serve the interests of the future, especially when it comes to 5G. "We have modernised our rules that required investment in maintaining out of date copper networks. This we think will direct more investment towards next-generation technologies like fibre. We are also making it cheaper and easier for companies of all kinds, especially competitive entrants, to string fibre on utility poles with a bold new policy called, 'one-touch, make-ready'. This will substantially lower the cost and speed up the time for building these networks." He also mentioned the overturning of the open internet order, the US version of net neutrality.

"But I think it's also critical not to confuse regulatory humility for a complete absence of government, because I do believe that government has a role to play, an important role in the communications sector. For example, government clearly must take action when it comes to public safety and consumer protection." Here he mentioned helping networks to recover after hurricanes, and stopping unwanted telemarketing calls, a top priority for consumer protection. "We have hit hard against these illegal spoofing schemes. [and] imposed over $200 million in fines since I became chairman."

Pai also covered digital inclusion in the US, highlighting a reverse auction in which the FCC awarded $1.5 billion to over 100 bidders to help provide broadband to more than 700,000 homes and businesses, and mentioned other technologies, including next-generation broadcast television, and new satellite constellations.

Looking at international cooperation, he noted work in the ITU on regional spectrum, and referenced discussions on artificial intelligence, saying, "People agree that we should avoid regulation in this space for now but it's also important to start thinking about the challenges that AI could unleash, so that regulators aren't caught unprepared."

CONVERGENCE IN THE REGION

Pablo Bello, executive director of the Inter-American Association of Telecom Operators (ASIET), chaired the first panel, which was on priorities for the converging communications ecosystem in Latin America. He said that an ASIET report, recently issued, identified how crucial digitisation is to sustainable growth in Latin America and for building on past productivity gains. Telecoms is by far the best infrastructure that Latin America has, he said, but currently 1 out of 2 Latin Americans is not connected, and 2 out 3 households have no internet, while the trend for more connected devices does not favour the region.

A key topic is the quality of public policies to increase investment and to counter gloomy projections by the World Bank, but Bello noted that telecoms infrastructure is only 20% of the obstacles − the primary issue is how to overcome the limitations of household incomes.

Edgar Olvera Jiménez, undersecretary of communications, Mexican Ministry of Communications and Transportation, agreed with the diagnosis of the problems, and pointed to tax policy as part of the solution. That means considering exemptions for telecoms services because of their potential for economic and national development. This could extend to service consumption and the cost of devices to help consumers. He noted though that while competition among operators in Mexico has resulted in lower prices, this does squeeze their margins and so could result in investors choosing sectors with higher returns.

Hannia Vega, president of SUTEL, Costa Rica's regulator, said regulators "cannot continue with a classical vision of the way we work" but it is "a

challenge to change our paradigms" for digital transformation. Costa Rica, she said, is implementing a regulatory framework that is "flexible, multisectoral, neutral and transparent, guaranteeing clear rules of the game", while for investment the main challenge is to guarantee that all markets remain in effective competition. Vega emphasised intersectoral collaboration and acting in a timely way.

Alberto Jácome Espinosa, vice minister of ICT in Ecuador, picked up the themes of digital inclusion, investment and legal and regulatory frameworks, noting that it is important to establish stability given that governments change, which indeed was the case in Ecuador in 2017.

The final speaker in this Latin America line-up was Héctor Huici, ICT secretary for Argentina, who spoke about defining public policy. "One can fall into the temptation of saying defining this is easy – we want to improve the wellbeing of consumers, or that every ICT user has quality products and affordable prices, or we want 100% connectivity, etc. But other public policies may collide with this, such as maximising income and jobs, and protecting national industries. We need to see if the instruments we are proposing are optimal to achieve these public policy objectives. For example, one may think that we must reduce tariffs on importing and at the same time we can create an instrument that will help the deployment of infrastructure. However, we have to identify whether this implementation is going to achieve the expected result or is it just going to increase a company's profitability."

Another example he gave is quality of service and applying penalties as incentives. "But sometimes the problem is in the municipal limits for the deployment of infrastructure, so even if we impose fees we are not going to improve service quality." The answer lies in rigorous data analysis, while legality of public policy instruments is a key concern, and modifications require consensus. "Regulation cannot be independent of scientific knowledge, especially economic and legal science."

In a second round of comments, the speakers filled in details of various country initiatives, such as in Ecuador where it was noted that the country needs nearly $600 million in digital infrastructure investment to realise plans for universal service and migration to digital TV.

DELIVERING CONNECTIVITY
Tom Dailey, general counsel at Verizon, started his talk about connectivity by saying that Verizon believes the steps taken by the FCC as outlined earlier by Ajit Pai are the right ones. He said the 5G revolution will blur the lines between the physical, digital and virtual worlds, and that one way to think about 5G is that it's a group of new technologies that are changing the future of connectivity. This includes software defined networks (SDN), "the technology of choice for many of our multinational enterprise and government customers who are demanding secure, high performance networks that can adapt to the needs of multiple locations with

From top: Carlos Sánchez, AT&T Mexico, gives a keynote on progress and barriers in Mexico from the industry view; a question from the floor; Clara Luz, Panamerican University, fields a question on the connectivity panel; Pablo Bello, Inter-American Association of Telecom Operators (ASIET), speaking as chair of the convergence panel, alongside Hannia Vega and Edgar Jiménez

bandwidth demands that vary by application". There can be no 5G without massive investment in fibre, he added, and of course in spectrum.

Dailey described 5G applications such as Verizon's fixed-wireless service, already live in cities such as Los Angeles and Houston, with 5G mobile the next step. For business, 5G is the "ultimate enabling technology" for applications such as autonomous vehicles, rural healthcare, remote control of manufacturing, and smart cities.

All this though needs regulatory simplification that speeds time to market and eases market entry, and the good news, said Dailey, is that we are seeing examples of simplification in practice. "One way to reform regulation that has little or no impact on consumers is simplification of obligations imposed on enterprise service providers," he said, mentioning a new quality of service regulation in Argentina that excludes from the quality requirements certain types of business customers that have negotiated service level agreements in arms length contracts.

Apart from the US plans detailed by Pai, he noted countries that have adopted infrastructure reforms to accelerate the deployment of 5G include Chile, the UAE and the UK, and that so far more than 40 operators globally have announced plans to launch 5G commercial services in 30 markets.

Clara Luz, a telecoms academic at the Panamerican University, Mexico City, addressed the unconnected in Mexico – quite the opposite of the 5G story. She said that 70% of Mexicans have mobile phones, but only about 70% of them have a smartphone and only about 45% of these have an internet service. "I would like you to see unconnected people as a business opportunity," she said, addressing industry representatives at the meeting. "We have to start looking at unconnected people with out of the box thinking."

By this she meant looking more closely at demand-side strategies, such as by developing partnerships with social enterprises in areas away from the main conurbations. Field studies in Mexico, said Luz, show that focusing only on connectivity leads to failure because people do not use technology, or only in a limited way.

This session featured a number of other industry viewpoints. One noted that there is no such thing as a purely wireless network, and we need fibre, coax, towers and small cells. A good role for policymakers is to focus on places where it's uneconomic to deploy such networks. Subsidies can help, but demand-side creation through bringing the internet into people's daily lives is also important. On spectrum, policies are needed to balance licensed and unlicensed use on cellular and Wi-Fi networks, and equipment requires great investment in R&D.

Regulation of traffic for both operators and content providers should focus on competition and actual consumer harm, and should step away from legacy policy. Cybersecurity is a major issue for regulators as it is hard to keep up with threats.

Gabriel Solomon (Ericsson) asked whether we want a limited vision of 5G – an evolution of what we have today – or a more expansive version that accommodates transformative apps, or "industry 4.0". Solomon said the latter can be delivered, he believed, by the FCC's 5G strategy, and pointed also to France as setting policy for ubiquitous coverage up to 30 mbps by 2023. The trade-off is between coverage or revenues for spectrum, and Germany too has set aggressive obligations for coverage and speed. "This trade-off between fees and deployment or obligations is a fundamental one that policymakers and governments need to consider."

Some models of how remote access can be enabled in Latin America were noted, including involving local people in maintenance of equipment, and apppointing mobile franchisees to set up connectivity, such as in Mexico. Subsidised fibre to schools is a way of gaining profitability by covering the rest of a town.

CREATING ROBUST DATA ECONOMIES

Salma Jalife from Mexico's University Corporation for Internet Development, and an incoming ICT vice-minister, examined the role of data, explaining how it is the core of the new industrial revolution, owing to connectivity, the internet of things, big data and artificial intelligence. What is needed, she said, is good policy for nations to become leaders in "industry 4.0", adding that concerns about automation and job losses are perhaps misplaced, as the way people live will change as a result.

The importance of cloud services was noted in this session, as they enable small companies to grow and create jobs because they can bring in ICT capacity as and when they need it. The "4th industrial revolution" can't happen without the cloud, but it needs a good foundation in infrastructure and policy and will not arise otherwise.

> **The trade-off between fees and deployment or obligations is a fundamental one that policymakers need to consider.**

Roberto Martínez (OECD Mexico) reported on the OECD's "Going Digital" work, saying that "we are barely beginning to feel the profound transformation brought about by the digital revolution", especially in changes to work. Key messages are that governments and stakeholders must shape the transformation to ensure the benefits; that the internet changes conventional notions of location, distance and jurisdiction, requiring stronger international and multistakeholder cooperation; and that privacy requires a balance between the benefits of enhanced reuse and sharing of data, and concerns for privacy and intellectual property. Reducing digital divides along many dimensions is key, including access, geography, gender, age and level of education; and, finally, governments have an opportunity to be remade by digital transformation.

Pablo Francisco Muñoz (National Institute for Transparency, Mexico) spoke about data protection in the context of law in Mexico, and how penalties have been issued to companies on the misuse of personal data.

◀ DIGITAL CONTENT IN AN OTT WORLD

Derek Wilding, head of the IIC's Australia chapter, introduced this session with a brief overview of the continuing move away from consuming linear broadcasting, apart from programmes such as reality shows and sports; the huge investments that companies such as Netflix are making; and other sources of content, particularly the rising phenomenon of social media entertainment on platforms such as Facebook, some of which is now commanding large audiences and is a radical challenge to established media (see also article, p12). He was followed by Salomon Duarte (Association of Independent Telecommunications of Mexico), who spoke about the learning curve for local content that regional cable TV has been on in Mexico, and how it has an edge against the big over the top (OTT) providers, which do though have the advantage of no regulation.

> **Information in abundance does not equate to plurality.**

Monica Desai (Facebook) gave more detail on types of video distribution platforms, and noted that when she was head of the FCC's media bureau, independent content producers often complained that it was extremely difficult to cut any deals with TV networks and cable systems, so YouTube, Facebook and others are now providing alternative routes. For Facebook, she said, videos are built around conversations, communities and connections – "We want people to discuss what's happening with friends and interact in real time." She noted that videos on Facebook are typically short and optimised for mobile phones.

Traditional linear and new video services are complementary, she added, noting steady growth in both in Mexico and, wordwide, video content production is also up and revenues have increased significantly. Desai warned that well-intentioned requirements to provide a minimum percentage of content created in a country or a region "has to be considered very carefully because it can ultimately serve to reduce the variety of content on a platform rather than increase local content".

Cordel Green (Broadcasting Commission, Jamaica) said that information in abundance does not equate to plurality or diversity of content – 48% of the world's population is excluded, the entire continent of Africa accounts for only 11% of internet users, and much content for Africa is produced elsewhere. The big internet companies control the places on the internet where we gather and connect, and the public cloud too is controlled mostly by only four companies. The language the internet uses is itself a barrier to access, said Green. "According to the World Bank, 80% of online content is in one of 10 languages, but 50% of the world's population do not understand these."

He added that he sees digital literacy as the most critical regulatory tool. "For the meaningful use of the internet there should be enlightened access – meaning content to build digital literacy, serve local needs and preserve social and cultural diversity."

IN BRIEF: OTHER EVENTS AT THE IIC'S MEXICO WEEK

The International Regulators Forum (IRF), held at the Federal Institute of Telecommunications (IFT), and involving 30 countries, included these themes and points:
● Regulatory markets – what is the purpose of national regulation in a borderless digital ecosystem? There is a need to deregulate and re-evaluate current rules, and set a roadmap for digital transformation. Consumers must be at the forefront of decisions.
● Consumer protection and trust – this session covered pricing, fake news vs misinformation, transparency, privacy and security. The "DNA" of every regulator is consumer protection and it was said that maintaining a safe online environment is most important.
● Regulating OTT and apps – governments must change mindsets from the traditional (telecoms and transmissions) to rapidly evolving innovations. Issues discussed included content consumption, regulatory models for content, self-regulation, and digital literacy.
● Net neutrality and zero rating – delegates heard about a cooperative model between internet and content providers put forward by Clayton Christensen, and there was discussion about whether network investment has been affected.
● Information competition policy – the session included presentations on US and European approaches in the context of new market powers in the digital economy.

Breakout groups
The annual conference has a set of breakout groups – this year's topics included aligning regional/ international spectrum, regulatory simplification, privacy and data protection, piracy and copyright protection, and critical national infrastructure.
The regulatory simplification group was closely aligned with recurring themes in the main sessions, and heard about becoming a converged regulator, market definitions, and the need for data in moving more to an ex post world.

Workshop and briefing
● A workshop was held on artificial intelligence: see p10 of this issue.
● A briefing on infrastructure alliances and financing strategies in Latin America took place on day 2 of the conference. Chaired by the Inter-American Development Bank, it covered REDCA's network integration project in Central America, RedCLARA, the Latin American academic network, and Promtel, the Telecommunications Investment Promotion Agency, and also heard from a range of regulators.

IIC Future Leaders Competition
The conference also heard from winner Tim Hogg (see article, p30).

KEYNOTE – MÓNICA ASPE

Mónica Aspe, Mexico's ambassador to the OECD, gave insights from the OECD's Development Centre, which she also heads. She first echoed the point about diversity – that disruptive technologies such as artificial intelligence are heavily weighted in investment to the developed world. She also set out the balance that must be struck between protection of groups such as children and openness that brings benefits. Do we have the right tools to measure productivity in the digital economy and for today's GDP calculations? Probably not, is her view. In jobs, it is medium skilled ones that are being lost, she added. Finally, she called for reflection on digital governance – while we don't know how the "digital subject" will evolve in policy, "What we do know is that we need clarity; industry and societies must know who is in charge of what."

ENSURING ACCESS AND INCLUSION

The conference moved logically to access issues, starting with Daniel Bernal (América Móvil), who noted "huge inequalities" in some Latin American countries. Obstacles include a high bar that applies to all regions, which can mean some areas not getting services; unaffordability of devices; lack of digital skills, an issue that many at the conference mentioned; and lack of tools for the "transactional internet", such as for e-government apps. Néstor Navarro (Investment Fund for Telecommunications and Information Technologies, Honduras) said that in countries such as his the baseline is universal access to telecoms, and described progress and challenges, mentioning the need to update telecoms frameworks for new digital technologies, and developing content and digital skills.

Maria Cristina Cárdenas (Ministry of Public Education, Mexico) described the scale of the educational challenge in Mexico from the digital inclusiveness standpoint, saying that the presence of technology is not enough – there needs to be an integrated plan from one directorate. Networking teachers via social media is proving fruitful, and Cárdenas noted the importance of recognising both formal and informal settings for education.

Also presented at the session was progress in broadband penetration in Mexico, but there is still a large digital divide that will not be bridged soon. While there are differences between various population groups, it is the regional disparities that are most significant. To bridge the gaps, there is evidence of an economic argument that the entry of fixed or mobile within poor areas increases the per capita income of people. There is also financial analysis on whether operators need subsidies. But economics aside, there are also social, moral and political reasons to expand access.

Gender gaps were discussed in the Q&A – the point was made that at a country level the average digital gender divide may not be large but this disguises much larger gaps among older people, those in rural areas and women with low incomes. Connectivity is not enough – for example, the view that women should not work in technical fields must be addressed.

Andrea Millwood Hargrave, IIC director general, with Juan Manuel Wilches, commissioner at Colombia's regulator, CRC, at the reception for the annual conference

In turn this means developing indicators that measure the impact on digital skills and what one commenter called "digital citizenship".

COMPETITION DYNAMICS

The closing plenary focused on competition, leading off with Marie Iasoni (regulatory affairs, BT Mexico), who spoke about corporate markets, saying that providers are often impeded in their ability to meet customer needs and compete on a level playing field across a region. "Regulated access is essential for business service providers," she said. There is also a lack of data – it is important to analyse the role that communications plays in driving efficiency in larger businesses and the effect this may have on country productivity.

Lindsey Fussell (Ofcom, UK) gave a regulator's perspective, saying that a defence of ex ante regulation would be useful, as it had come in for some criticism from the industry side. While in Europe ex ante regulation has tended to move towards wholesale markets, in the fixed market and in the UK, Fussell said, it still has an important role in reducing barriers to entry for network infrastructure builders. "More controversially we will also consider using ex ante powers to prevent dominant players from stifling competition in its infancy," she added. "But we don't use ex ante powers lightly and we certainly continue to look for opportunities to deregulate."

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Abel Hibert (telecoms advisor to Mexico's president) offered more perspective on his country's access issues, homing in also on the value chain and how hard it can be for consumers to untangle what part of a service is responsible for difficulties in connecting or running an app. In turn, this raises complex regulatory issues, including in competition when parts of a value chain consolidate.

AI TRANSFORMATIONS

A two-part workshop was held during the IIC's Communications Policy and Regulation Week in Mexico where experts first led discussions on the impact that artificial intelligence (AI) is having on economic and social aspects, and then held a capacity building session, looking at promising governance approaches.

SESSION ONE: DEVELOPMENT, IMPACTS AND POLICYMAKING

"I think we should not be afraid of artificial intelligence; I think we should be afraid of human stupidity."

Opening the first panel, Nicole Chan (chair, National Communications Commission, Taiwan), explained that the rise of AI is made possible by the super speed, low latency and low energy consumption of 5G networks. These networks will not only accelerate the evolution of ICT applications, but will change the economies and lives of people in the countries where they are developed. Like all new technologies, their development brings huge opportunities, but also complex challenges, which require adaptability and agility to be anticipated and worked out.

Chan said Taiwan is carrying out a national AI project with five key principles:
● AI should be developed for the common good and wellbeing of all humans
● AI should be based on the principles of fairness
● AI should not be used to reduce privacy or the rights of individuals, families and communities
● Citizens have the right to be educated to enable them to develop mentally, financially and personally through AI
● AI should never have the objective of affecting, hurting or deceiving humans.

The role of the regulator, she said, is to "DANCE" – an acronym to ensure there is full digital development, adaptability and agility, fostering a new mindset, guaranteeing cybersecurity and privacy, and always keeping an eye on ethics. With AI, she added, ethical principles are the most important issue, which should never be cast aside.

According to Chris McLaughlin (AI cloud lead at Google), the defining feature of AI is its ability to use existing information to generate new information – to predict and to show what historical data is telling us. Like any new development, AI generates many fears, and the fear that it will take jobs away from people is the one making the most headlines today. To some extent, this happens every time a new technology is established – think of the automotive industry with robots – while, in fact, technology replaces repetitive and boring jobs, not all jobs. Indeed, technology has made us more productive so that we need to work less, not more, than 100 years ago.

That said, we also know that some people and

Taiwan's Nicole Chan leads off the first panel at the AI workshop

communities will be affected and made redundant by the new technology, so we need to have policies in place for these, minimising the negative impact on society. To move in this direction, policymakers need to research the likely future of work in their own economy – the impact of AI will be different in different geographies – to find out what skills gaps will become significant in the future.

Rigorous cost-benefit analysis will be needed to define how to increase the productivity of workers, as it may not be possible to learn these skills through formal schooling. There may be totally new ways of learning, from on-the-job training to watching videos on YouTube.

Technology fears are not new, even though we know that the impact of technology has been positive. There is consensus that AI will never replace jobs that require a high degree of social skills, for example. The trouble is that these skills tend to be acquired in early childhood and are hard to teach.

What can we do? Governments should consider investing in human capital as a top priority, and this means not just investing in science but especially in social and cognitive skills. While progress is painfully slow, technologies including AI itself could be harnessed for these purposes.

SESSION TWO: CAPACITY BUILDING – ENSURING POLICYMAKERS HAVE THE RIGHT TOOLS

"I am not a technology pessimist or technology optimist; technology offers an opportunity but it all depends on how we manage that."

Introducing the second session, IIC president Chris Chapman warned against complacency about our relationship with technology in the future, inviting regulators to continue to work on everyday issues, but also to keep an eye, or maybe even provide a bridge, towards the future. The panel session began with Roberto Martínez Yllescas (OECD Mexico Centre), who presented the main global trends in the field of AI. South Korea, the US and China are leading the way in AI developments, both in the

number of patents and AI startups. AI is affecting every industry, with entrepreneurs and smaller businesses (SMEs) appearing to be the driving force behind developments. Several international initiatives have laid the groundwork on AI policy, and the OECD has summarised seven building blocks of public policy that enable AI:

● Access to data: AI feeds on the ability to process huge quantities of data, and any country that wants to facilitate AI must find a way to provide access to reliable data for SMEs in particular. One solution could be to regard (public) data as a common good

● Policies to maximise AI use: we need to foster entrepreneurship if we want developments to be shared widely and benefit society

● Innovation policy: an innovation-friendly environment is needed

● Jobs – helping workers acquire new skills and get new jobs if AI has replaced their work

● Society and trust – including all issues concerning privacy, and trust in the unbiased use of data, particularly when its use may affect human rights

● Cybersecurity and safe usage – how do we ensure safety when using driverless cars, for example, and how can policy help safe developments?

● Competition – we need to ensure AI developments do not close down competition.

Fairness, reliability, privacy, inclusiveness, transparency and accountability are the principles that should guide all AI developments, stated Juan José Delgado (national technology officer, Microsoft Mexico). Even when these principles are adhered to, there will be scenarios where AI should not be left to make decisions without human intervention – for example where denied access may have huge consequences (such as mortgages, education, recruitment), where significant harm may occur (such as healthcare applications, military) or where human rights may be impacted, as in intelligence gathered for national security.

General regulations and laws need to be revisited to address the new realities, as AI and other technologies impact all industries, if we want to ensure that technological developments benefit people as broadly as possible. The discussions about whether Uber drivers are employees or freelancers is a good example of testing existing laws in the light of new developments. We need to think beyond the technology itself to address the need for strong ethical principles, the evolution of laws, the importance of training for new skills, and even labour market reforms.

AI is already having a clear impact on our lives, argued Luis Fernando Garcia Muñoz (director, Red en Defensa de los Derechos Digitales, a human rights agency), since it already decides what is acceptable content for some platforms, and may have been used to influence elections. This shows that we should never underestimate the impact of new technology on society, particularly when it comes to human rights. We may not need to develop a new ethical charter specifically for AI – the Universal Declaration on Human Rights is fit for purpose, in particular the "right to know" what is happening, which points to transparency and accountability.

For example, the trade agreement recently signed by Mexico with Canada and the US established policy on data, and while the decisions made may well be very good for trade, a closed-door agreement is the wrong place for this kind of decision. The agreement provides no guarantee that the US will protect Mexican data. The right approach should be inclusive, and all stakeholders should be involved.

In conclusion, Javier Juárez Mojica (commissioner of Mexico's regulator, IFT) said regulators are one piece of the puzzle, and all policymakers will need to work together. Regulators need to facilitate innovation and regulate to generate genuine trust that technology will provide benefits for all.

Cristina Murroni

QUESTIONS AND ANSWERS ON THE CHALLENGES OF AI

What do you see as the main challenges at this point in the development of AI?

● Restructuring the educational system, and using the advantages of new technology to assist in the design of new teaching curriculums.

● Potentially, AI enables us to make better decisions – quicker, based on more information and free from bias. However, AI is currently based on information from the real world – which is biased – and thus would maintain this bias.

● We need to set very realistic and practical goals for fairness and equity in AI. They need to be clear and measurable – it is worth widening the scope to social scientists and ethics experts on the goals, which must be linked to AI systems so that we can monitor their success.

● Another challenge is setting policies to ensure SMEs can adopt AI, for example ensuring more workers can use the simplified technology tools that are currently available.

How do we achieve responsibility and accountability with algorithms?

● Predictability is simpler, because an algorithm will not suddenly do something completely different. But there are disagreements over the concept of transparency: an algorithm is created through many different things, interacting with many variables influencing how it arrives at a given answer. But we can work towards making this process understandable (not all of it, but the key processes) and thus transparent. We need to ensure this process improves before we let AI become fully operational.

What do we need to do in order to build skills for the different sectors of our society?

● The education system requires deep, structural reforms, which should include different aspects, like training teachers, preparing manufacturing workers for automation, and helping specialist professionals understand issues that go beyond their main competence. As technology crosses over distinct industry boundaries, we need, for example, lawyers to understand how networks function, and network engineers to understand human rights.

● We may need to organise meetings on a given industry or theme to audit the skills that are needed and define the best ways to measure and test our progress in learning to manage AI.