



WORLD TRADE
ORGANIZATION

**Council for Trade-Related Aspects of
Intellectual Property Rights**

**EXTRACT FROM MINUTES OF
MEETING OF THE
COUNCIL FOR TRADE-RELATED ASPECTS OF
INTELLECTUAL PROPERTY RIGHTS**

HELD ON 5-6 JUNE 2018

**ITEM 11: INTELLECTUAL PROPERTY AND INNOVATION:
THE SOCIETAL VALUE OF IP IN THE NEW ECONOMY – IP IMPROVING LIVES**

EXTRACTED FROM DOCUMENT IP/C/M/89/Add.1

11 INTELLECTUAL PROPERTY AND INNOVATION: THE SOCIETAL VALUE OF IP IN THE NEW ECONOMY – IP IMPROVING LIVES

11.1 Australia

168. Australia is pleased to introduce the discussion on intellectual property and innovation at this meeting, guided by the discussion paper IP/C/W/642 Intellectual Property and Innovation: The Societal Value of IP in the New Economy - IP Improving Lives. Australia is pleased to co-sponsor this agenda item with the European Union, Hong Kong China, Japan, the Republic of Korea, Switzerland, Chinese Taipei and the United States. Our discussion today is designed to highlight the role of intellectual property frameworks and how they support innovation through promoting and protecting the expression of new ideas and inventions, fostering creativity, supporting cross-border collaboration, trade and participation in global value chains. In supporting and incentivising innovation, intellectual property frameworks make a significant contribution to improving lives through social and economic growth and advancement across a wide range of sectors, relevant to developed and developing Members such as education and training, creative works, health, the environment and transport. As part of the 2018 theme under the Intellectual Property and Innovation agenda, the Societal Value of Intellectual Property in the New Economy, Members are invited today to share national and regional experiences on the positive human impact of intellectual property and innovation frameworks and how they improve lives.

169. Turning now to the case of Australia, Australia's intellectual property rules-based framework has played a role in changing the everyday lives of people worldwide through innovations that transcend national borders. We will showcase a number of innovative examples of how intellectual property frameworks have protected new ideas and contributed to improving the lives of people in Australia and around the globe.

170. Turning to the example of Reach and Match, the award-winning innovation – The Reach and Match Learning Kit is an innovative educational kit designed by an Australian woman that empowers children with disabilities and people in main-stream education to learn to together in an inclusive environment. The Reach and Match Learning Kit includes braille and print forms for both visually impaired and sighted children to develop literacy as well as cognitive motor, social and communication skills. It uses a tactile texture with braille markings, bright colours and distinct sounds to enhance the learning experience of all children. Reach and Match has trademark protection, it has won several awards, including one for social inclusion and innovation design. It was also one of the winners at the MIKTA Education and Emergencies Challenge and the inventor will receive a share of AU\$2million from the Australian Government's Department of Foreign Affairs and Trade, to help develop and implement the product.

171. The second example is called the Yield. It was designed by an Australian entrepreneur, Ms Ros Harvey, which uses innovative technology and the internet of things to develop agri-business, improve productivity and reduce waste. Ros Harvey's invention, known as The Yield is designed to help deliver food from farm to table. The Yield helps growers take the guess work out of growing, with sensors, apps and data to monitor and predict conditions on the ground so farmers can make faster and better decisions about their crops. The Yield actively uses the IP system, including trademark protection to support the business. Innovation and the ability of IP protection encourages the creation of inventions like these, which can improve everyday lives. We invite all Members to share their views on how intellectual property and innovation has improved lives.

11.2 European Union

172. Intellectual property rights play a crucial role in catalysing innovation and creativity, promoting economic growth and development, creating jobs, improving the quality and enjoyment of our lives, and combatting the manifold challenges we face as individuals, as nations and as a global community.

173. The societal value of IP in the New Economy becomes obvious in a large number of sectors, and we will see this documented, once all the Members' interventions of today are uploaded in the e-TRIPS database. The EU would like to highlight two of them in its intervention today: Health Care and Transport.

174. The recent report on the State of Health in the EU (State of Health in the EU "Companion Report 2017) concluded that only by fundamentally rethinking our health and care systems can we ensure that they remain fit-for-purpose. This means systems which aim to continue to promote health, prevent disease and provide patient-centred care that meets citizens' needs will have to adapt in a digitalised world. As in many parts of the world, health and care systems in Europe require reforms and innovative solutions to become more resilient, accessible and effective in providing quality care to European citizens.

175. Europe's health and care systems, like in many other regions of the world, face challenges. These are ageing, multi-morbidity, health workforce shortages, and the rising burden of preventable non-communicable diseases caused by risk factors such as tobacco, alcohol, and obesity, and other diseases including neuro-degenerative and rare diseases. We are also seeing a growing threat from infectious diseases due to increased resistance to antibiotics and new or re-emerging pathogens. Without innovative solutions, which are often incentivised by properly functioning IP systems, we will not be able to face the challenges of tomorrow.

176. Digital solutions for health and care can increase the wellbeing of millions of citizens and radically change the way health and care services are delivered to patients, if designed purposefully and implemented in an effective way. Digitisation can support the continuity of care across borders, an important aspect for those who spend time abroad or to bring health services to places of the world where due to local factors such services are unavailable now. Digitisation can also help to promote health and prevent disease, including in the work place. It can support the reform of health systems and their transition to new care models, centred on people's needs and enable a shift from hospital-centred systems to more community-based and integrated care structures. The digitisation and a shift from hospital-centred systems will also increase the access of developing countries to high quality health services that were out of reach before.

177. The EU is supporting the development of various approaches in high performance computing, data analytics and artificial intelligence, which can help design and test new healthcare products, provide faster diagnosis and better treatments. But succeeding in these endeavours depends on the availability of new and innovative technologies that ultimately will have to be developed by private health care industries which depend on their ability to retrieve a return on their investment. Without functioning IP systems, this paradigm shift will not happen or the benefits will only be fully exploitable in those places that properly protect IP.

178. Health and care authorities across Europe face common challenges, which can be best addressed jointly. To this end, the Commission has been working with the EU Member States, regional authorities and stakeholders to tap into the potential of innovative solutions, such as digital technologies and data analytics, and in doing so assist EU Member States in pursuing the reforms of their health and care systems. The EU provides its support through funding and actions that promote policy cooperation and exchange of good practice and by ensuring appropriate legal certainty with regards to protecting the relevant IP rights related to the inventions and creations in those sectors. EU funding supports research and innovation in digital health and care solutions, notably through the Horizon 2020 programme. It also supports the building of infrastructure for cross-border exchange of patient summaries and electronic prescriptions, with funding from the Connecting Europe Facility programme.

179. Cooperation structures have also been developed; for example, the European Innovation Partnership on Active and Healthy Ageing, the Active and Assisted Living Joint Programme, and public-private partnerships such as the Innovative Medicines Initiative and the Electronic Components and Systems for European Leadership. Regional and national smart specialisation and innovation strategies also play a central role in the development of stronger regional ecosystems around the healthcare and innovation domain. Since 2004, two eHealth Action Plans have provided a framework for policy action for the Member States and the Commission, and the eHealth Stakeholders Group has played an important role.

180. The second sector we would like to highlight where the new digital economy will dramatically alter our current lives is transport. Electricity as an energy vector for vehicle propulsion offers the possibility to substitute oil with a wide diversity of primary energy sources. This could ensure security of energy supply and a broad use of renewable and carbon-free energy sources in the transport sector which in turn can help the implementation of the European Union targets on CO2 emissions reduction. Without the incentives of IP protection, the dramatically high amounts of

investment needed to change our current transport technology based on combustion engines will not take place.

181. Electric vehicle 'tank-to-wheels' efficiency is a factor of about 3 higher than internal combustion engine vehicles. Electric vehicles emit no tailpipe CO₂ and other pollutants such as NO_x, NMHC and PM at the point of use. Electric vehicles provide quiet and smooth operation and consequently create less noise and vibration.

182. Electrification of transport (electromobility) is a priority in the Community Research Programme. It also figures prominently in the European Economic Recovery Plan presented in November 2008, within the framework of the Green Car Initiative.

183. The European Commission will support a Europe-wide electromobility initiative, Green eMotion, worth €41.8 million, in partnership with forty-two partners from industry, utilities, electric car manufacturers, municipalities, universities and technology and research institutions. The aim of the initiative is to exchange and develop know-how and experience in selected regions within Europe as well as facilitate the market roll-out of electric vehicles in Europe. The Commission will make €24.2 million available to finance part of the initiative's activities.

184. The development and large-scale deployment of Connected and Automated Mobility (CAM) provides a unique opportunity to make our mobility system safer, cleaner, more efficient and more user-friendly.

185. The needed innovative technology for the upcoming paradigm shift in the transport sector will never be available without properly functioning IP systems, IP systems that allow innovators to reap the benefits of their massive R&D investments, which dwarf any public money that even the EU or other developed regions will be able to make available.

11.3 Japan

186. First of all, the delegation of Japan would like to express its sincere appreciation to the Secretariat for providing us an opportunity to share our ideas and experiences. Just for your information, handouts of the slides of this presentation are available at the entrances of this room.¹

187. Firstly, this delegation would like to mention that innovation can contribute to a higher quality of living, which is also emphasized in the concept paper. Last year, the WIPO introduced "10 Innovations That Are Improving Lives", at WIPO-World-IP-Day. They are examples that improve lives, such as Medical Delivery Drones, which deliver vital medical supplies to patients living in difficult-to-reach parts; and mobile water-safety checking systems that help users to find, monitor and map the quality of water and sanitation sites.

188. At the same time, this delegation would also like to emphasize that "Innovation and IP have a positive correlation". For instance, please have a look at the bar graph on the lower left of this slide, which shows the number of patent applications for inventions on data structures field. Looking at this bar graph, you will note the surges of patent applications filed during 2001-2006, the era when DVD technology was developed; and 2009-2013, the era when video-distribution-technology was developed. Picking up this graph as an example, this delegation is of the view that "Innovation and IP potentially have synergy effects to improve people's lives."

189. We now will show you an example of the startup company that made good use of IP to improve people's lives through its product.

190. Slide 2 shows the world's first, fully automatic laundry-folding robot developed by a Japanese start-up company. The product called "Laundroid" was developed by the company "seven dreamers laboratories, inc." Laundroid is based on a combination of advanced technologies, namely image analysis, AI, and robotics. The product was exhibited at the Consumer Electronics Show in 2018. And the company was awarded as the regional final at the Start-up World Cup 2018.

¹ This PowerPoint presentation is available in Room Document RD/IP/21.

191. The company says, the product can save 375 days of your lifetime because it is estimated that the average person spends about 375 days folding clothes. In this regard, this delegation would like to reemphasize that the product definitely improves people's lives. Taking this opportunity, this delegation would like to show you a short video which illustrates this interesting product²

192. This delegation would like to mention how the company succeeded in developing Laundroid. Firstly, the company was smart enough to adopt a comprehensive IP strategy. Specifically, or simply, it carefully chose whether its technology should be opened or closed, that is, filing it as a patent application or protecting it as undisclosed information. Secondly the president of the company took the initiative to raise the employees' awareness of IP by following the IP strategy.

193. In conclusion, such IP-oriented activities led to the company's forming alliances with big companies that also have the latest technologies. Furthermore, having the IP rights, the company improved its credibility, which led to ample fundraising from banks as well as government agencies.

194. This delegation would like to stress here that "the stable and efficient IP system has supported and promoted innovations that improve lives."

195. In this connection, from the viewpoint of governmental policies, this delegation would also like to mention that the Japan Patent Office released a brochure in April this year called "IP Strategies for Start-ups", which targets small-scale companies. This brochure highlights best practices for start-ups, including "Actually faced IP issues with IP" and "How companies in and outside Japan overcame and succeeded" based on real cases. This delegation believes that this brochure can assist start-up companies in developing business strategies utilizing IP, and further contribute to developing innovations that can improve lives.

196. As we have seen in the slides, a stable and efficient IP system can support and promote ground-breaking innovations such as Laundroid that make our lives easier. Since this delegation is of the view that innovation and IP potentially have synergy effects that can improve and make our lives easier, Japan will remain committed to developing the even more user-friendly IP system to encourage further innovations.

11.4 Chinese Taipei

197. As we all know, it is inventions and new creations that provide us with the possibilities and the means to improve lives. And, this holds true in all walks of life.

198. In 1958, Jack St. Clair Kilby and Robert Norton Noyce invented the integrated circuit (IC), and this year marks its 60th anniversary. Since then, the development of the semiconductor industry has been the driving force behind the digital revolution. Not only has this been the foundation on which modern technologies, such as home appliances, computers, the internet, cloud computing, smart phones, etc., have been built, but it remains the basis of today's emerging technologies as well, such as the Internet of Things (IoT), artificial intelligence (AI), and self-driving automobiles. I believe that the example Laundroid demonstrated by Japan also use ICs. So, we can definitely say that the burgeoning development of the semiconductor industry, and the inventions and creations it has inspired, have improved our lives in so many ways, not least in terms of convenience.

199. I would like now to give you just a very short history of our own development in this field over the last 30 or so years. We made the decision, in the 1970s, to make an all-out effort to develop our own IC industry. From then onwards, the Industrial Technology Research Institute (ITRI) started to introduce US IC designs and manufacturing technologies. These were later combined with ITRI's self-developed technologies, then transferred to the United Microelectronics Corporation (UMC) and the Taiwan Semiconductor Manufacturing Company (TSMC). Little by little, a strong IC industry with an established upstream and downstream supply chain was developed.

² Video not available in this document.

200. From 1987, TSMC and UMC focused on the so-called "foundry model" (that is, separating the semiconductor fabrication plant operation from the integrated circuit design operation into separate companies or business units) in order to generate innovation in the manufacturing process. As a result, they have become global leaders in semiconductor manufacturing technologies. In 2017, we were ranked the world's third largest in term of gross industrial output values of the semiconductor industry chain. Of these, foundry had the largest market share globally, accounting for over 70%.

201. In addition to the transfer of technology from the US and the ITRI in the early stages, the comprehensive protection of intellectual properties, such as patents and trade secrets, was also a key element in promoting the expansion of our semiconductor industry. For instance, according to TSMC's Annual Report, "IPRs protect the company's advanced and leading-edge technologies, safeguard its freedom to operate, and enhance its competitive position". And, according to the Annual Reports of TSMC and UMC for 2017, "the combined total of patents granted worldwide exceeded 40,000 as of the year's end". Regarding the protection of trade secrets, the Trade Secrets Act was instituted in 1996. In 2013, a criminal liability clause was introduced into the Act to provide more comprehensive protection for intellectual properties within our territory.

202. Future applications like the IoT and AI will undoubtedly depend on the semiconductor industry as their foundation. We are currently actively pushing for development of industries in areas such as, smart cities, smart manufacturing, automatic vehicles, augmented reality (AR), virtual reality (VR), and information security. Our belief is that the semiconductor industry's existing advantage coupled with our continuing investment will generate more relevant inventions and creations that will further improve the quality of people's lives.

203. Intellectual property and innovation are indispensable forces driving economic growth. I hope you found these examples and experiences useful. We look forward to hearing those of other Members, and we would very much welcome more sharing and discussion of IP policies and experiences between Members in the future.

11.5 Hong Kong, China

204. Innovation and technological progress contribute significantly to improving our lives. The cornerstone of our advancements in research and development is a robust IP regime. It is a principal means for establishing and protecting creations of the mind, and provides a legal foundation for incentivising and commercialising innovations. IP is undoubtedly a crucial part of a successful innovation system.

205. Our Government has been working hard to enhance our IP ecosystem by continuing to implement a series of measures to facilitate and encourage exploitation of the economic potentials of IP, as well as to promote Hong Kong as the IP trading hub in the region.

206. For example, our Government is pressing ahead with the establishment of an original grant patent (OGP) system, which bears strategic significance for Hong Kong to develop into a regional innovation and technology hub and IP trading nexus. Subject to the progress of essential preparatory tasks, our target is to launch the OGP system in 2019 the earliest.

207. We have also introduced a bill into its legislation in April 2018 to expand the scope of profits tax deductions for capital expenditure incurred for the purchase of IP rights from the existing five types to eight. The three additions are rights in layout-design of integrated circuits, plant varieties and performances. The legislative proposal would encourage businesses to further consider using and purchasing the three types of newly added IP rights. It would also bring about positive effects to the development of the local IP industry and help contribute to a more favourable environment for innovation in Hong Kong.

208. On the other hand, our Government is also assisting our businesses to leverage on their IP assets and engage in cross-sector IP commercialisation in the wake of the knowledge-based economy. I am pleased to share with you today two remarkable inventions which make our lives healthier, safer and more comfortable.

209. The first one is a practical, award-winning face mask invented by a local pharmaceutical and healthcare product company. This face mask can effectively filter airborne particulates and viruses and kill 99% of bacteria within five minutes while maintaining high breathability and comfortability. It received Silver Award at the 2016 International Exhibition of Inventions in Geneva and has been registered as patent and trademark. Another mask developed by the same company received Gold Award at the same event in 2017. The inventions of these face masks are supported and sponsored the Innovation and Technology Fund under our Innovation and Technology Bureau. As at March 2018, the Innovation and Technology Fund has funded around 7400 projects.

210. Another notable example is a Wildfire Detection Robot invented by a young local start-up. This robot helps to mitigate fire disasters and safeguard natural resources. It is the world's first automated detection system which is equipped with thermal imaging sensors and artificial intelligence vision technology to spot fires in areas as small as two metres by one metre and within a five-kilometre radius.

211. This start-up has been recognized through several awards, including the prestigious "Entrepreneur of the Year" at the 2015 IBM SmartCamp Global Finals in the US, and the Asia Pacific ICT Alliance Awards the year after.

212. After obtaining patents relating to the technology of the robot, this award-winning start-up introduced the robot globally across Hong Kong, Mainland China and various countries.

213. To-date, over 100 wildfire detection robots have been deployed in 41 cities in China and Indonesia, while 1.3 million hectares of land are being protected. The company has also successfully carried out projects and conducted demonstration/proof-of-concept worldwide, including in China, Indonesia, Malaysia, Cambodia, Canada, Mexico, Brazil and South Africa.

214. These are just a few successful stories and we believe that there would be more to come. We would continue to support our industries and all stakeholders to harness the power of IP rights and commercial insights and innovations in future.

11.6 United States of America

215. The United States is pleased to co-sponsor this agenda item and contribute to the discussion of the Societal Value of IP in the New Economy – IP Improving Lives. Around the world, new technologies and vibrant creative endeavours are contributing to better outcomes for individuals and societies while increasing the quality of life.

216. IP systems play a critical role. For instance, patent, regulatory data, and trade secret protections provide innovative risk-takers with the confidence needed to devote what may be years and millions of dollars into an endeavour that may or may not produce a return on investment. Copyright can serve as an engine for creativity, cultural preservation, and cross-border cultural exchange. Through advances in technologies, it has never been easier for societies around the world to interact, share music, movies, or writings, and lend their expertise to solve pressing problems far from home.

217. During the last session of IP and Innovation, we shared information on how IP-intensive industries contribute to the economy of the United States. Today, we will explore the important contributions that innovations and creative content from these industries provides to societies and individuals around the world.

Creative industries

218. Creative industries are helping to unite populations and contribute to cross-cultural exchange around the world through the combination of robust IP protection, trade networks, and technological advances. This includes music, television programmes, books, games, films, fashion, and more.

219. For these and other products and services, technologies have increased the market for these cultural goods, which helps create jobs in a broad number of direct and indirect industries. For

example, each successful film or television programme creates opportunities for not only directors and actors, but also costume designers, makeup artists, advertising professionals, lawyers, and more.

220. As legitimate platforms to distribute content continue to flourish, the opportunity to access these products grows. As we examine this topic, the music industry provides a multi-faceted example. Music brings people together, connects diaspora populations to their homeland, promotes cross-cultural awareness and understanding, and helps people to better understand themselves and others.

221. In a recent study conducted in Portugal, researchers found that young students exposed to a six-month musical programme that included both national songs and songs from another culture found that those students who participated in the programme demonstrated a reduced prejudice towards the non-nationals whose music they had learned.

222. Copyright is a critical tool to enable the continued creation of music and robust copyright protection and trade rules help facilitate cross-border exchanges. Content delivery platforms, such as Apple Music and Spotify, have revolutionized how music is listened to, and continues to unite cultures throughout the world. There are over 400 content delivery platforms globally.

223. A healthy music ecosystem, for example, contributes and provides benefits to all aspects of society. There are many different contributors, creators, and investors. However, there are harmful players as well who do not contribute (pirates, stream-rippers, etc), and diminish the ability of creators to generate a positive livelihood.

Agriculture

224. Outside of the arts, society benefits from both large-scale innovation and targeted technological improvements that save and improve the lives of millions.

225. In a multi-stakeholder initiative that includes the African Agricultural Technology Foundation, Gates Foundation, USAID, Monsanto, the International Maize and Wheat Improvement Center, and participating African governments, innovations have been designed to match African farmers' needs.

226. Through the Expanding Water Efficient Maize for Africa programme, these partners have come together to develop, license, and utilize a hybrid maize seed that can more efficiently utilize water and provide pest resistance—two particularly pernicious problems for farmers in this region. To date, farmers in sub-Saharan Africa have planted over 180,000 hectares of hybrid seeds which farmers have reported doubling over previous yields. By voluntary arrangement, over 23 seed companies are licensed to access the hybrids without paying any royalty to the company that developed the technology.

Technology

227. Breakthrough advances in technology are also providing innovators with new platforms to help others. Recently, researchers at the California Institute of Technology developed an app that makes use of an existing device that is worn like sunglasses, but composed of high-powered lenses and computer processors, that could improve the lives of millions of visually-impaired individuals. The app, using a high-tech headset, can quickly analyse a room and provide the wearer with audio directions and hints to navigate complicated spaces. The app calls out directions, announces obstacles, staircases, and railings to guide the user to safely reach his or her destination.

228. These types of innovations bring enormous hope and potential to the over 253 million people that the WHO estimates live with blindness or visual impairment. Other applications of this type of technology include providing doctors or trainees with real-time, visual guides to complicated operations, or pilots with new training tools.

USG programmes

229. The United States Government and numerous private sector and other organizations implement programmes that make significant economic and social contributions to society through IP-intensive products.

230. For example, recently, music exchange has been used as a cultural diplomacy tool between the U.S. and Pakistan³. The State Department brought selected Pakistani musicians to South by South West, a three-day music festival in the US, for showcases and IP education. The result was perhaps the most unique set of performances at this year's SXSW festival. Musically, the six acts represented a variety of regions and styles

231. Moreover, the Department of Commerce participates in related trade shows and missions in the music and entertainment sector which highlight opportunities for U.S. exporters in the sectors of digital licensing. Some examples are Book World in Prague this past May, and the Hong Kong Filmart this past March. These opportunities drive future export competitiveness, and the highlight the importance of intellectual property protection.

Private sector/non-profit initiatives

232. Many US non-profits, charities, and companies engage in initiatives which make social and economic contributions to society through distribution of copyrighted works.

233. The MIT Enterprise Forum Pan Arab Innovate for Refugees Competition provides rewards for "innovative and tech-driven solutions for life threatening challenges faced by refugees worldwide."

234. Examples of innovations that have emerged from this competition include Flowy, a standalone solar-powered hand-washing basin that helps provide clean hand-washing facilities that conserve both energy and water and NCfilter that can convert dirty to clean water using nanotechnology applied to locally-available waste materials. The diverse teams that participated in the competition included Members from Lebanon, Egypt, Jordan, and many other countries.

235. There are many others, including the Bill & Melinda Gates Foundation, FilmAid, Women in Film's PSA Production Programme, and Dramatic Need.

236. IP continues to drive innovation and creativity worldwide. Governments, the private sector, and other organizations and individuals are undertaking important and exciting work to ensure that the societal benefits of IP are widely shared and applied to the people and populations that need them.

11.7 Canada

237. Canada is pleased to co-sponsor today's discussion on "IP Improving Lives", as part of the three-part theme "The Societal Value of IP in the New Economy." We would like to thank Australia for drafting the discussion paper (IP/C/W/642) as a basis for today's agenda item. We would also like to thank the co-sponsors for developing the discussion under this theme, and those Members that have shared their experiences and insights on this issue so far.

238. As touched upon in the discussion paper, emerging technologies are increasingly reshaping how we interact and engage with our environments, with implications for education and learning, labour productivity, as well as how our businesses, cities, and markets are organized. The scale and scope of emerging technologies – such as advances in information and communications technology (ICT), 3D printing, artificial intelligence (AI) learning, and automation – will have significant impacts on how we work, interact, live, and govern, as well as overall quality of life. Given the pace of technological change, increasing attention is being paid to the accessibility and adoption of new technologies, to ensure that they meet their potential for improving livelihoods for a diverse community of users. In this regard, it is important to ensure that the IP system is understood and accessible in order to serve its purpose, and support the commercialization of innovation and creation from a wide range of groups.

³ <https://centerstageus.org/news/billboard-behind-us-state-departments-sxsw-focused-cultural-exchange-pakistan>

239. With this in mind, Canada would like to note the recent announcement of our national IP Strategy. Canada's IP Strategy was launched on April 26, 2018, and contains a mix of initiatives aimed at increasing businesses' ability to use the IP system to be more competitive and successful. These initiatives include legislative changes, IP literacy and advice, and tools to support growth. Canada would be pleased to present on these initiatives in greater detail at TRIPS Council meetings in the coming months, including legislative changes under the IP Strategy, but for now, would like to highlight a few initiatives aimed at increasing IP education and awareness, as well as the involvement of a broad range of groups in the IP system. In particular, under Canada's Budget 2018, CAD\$2 million will be provided to Statistics Canada over three years to conduct an IP awareness and use survey to help identify how Canadians understand and use IP, including groups that have traditionally been less likely to use IP, such as women and indigenous entrepreneurs. As well, Canada's Budget 2018 also proposes to invest CAD\$1 million over five years to enable representatives of Canada's Indigenous Peoples to participate in discussions at the WIPO IGC.

240. In addition, the Canadian Intellectual Property Office (CIPO) is developing initiatives through its IP Education and Awareness Programme to ensure that businesses have a sound understanding of IP and can better utilize and leverage their IP assets as part of their business and growth strategies. This includes CIPO's IP for Business and IP Academy programmes, which will deliver seminars and webinars, IP training, and produce a suite of online information products and tools, as well as guides for those seeking IP in export markets. This also includes CIPO's IP Hub, which will deliver and support a suite of networked services, including referral, consultation and support to advisory services.

241. Another way that Canada has sought to make the IP system more accessible for a wider range of groups is by way of recent reforms to the *Copyright Act* in respect of persons with perceptual disabilities, under the 2016 Bill C-11 (*An Act to amend the Copyright Act (access to copyrighted works or other subject matter for persons with perceptual disabilities)*). These reforms included amendments to permit the making of large-print books, reduced restrictions on exporting accessible materials, safeguards to protect the commercial market for materials in accessible formats, and exceptions relating to the circumvention of technological protection measures (or TPMs). As was noted when Canada notified these amendments to TRIPS Council (under document IP/N/1/CAN/17), these reforms enabled Canada to accede to the WIPO *Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired, or Otherwise Print Disabled* on June 30, 2016, with the treaty subsequently coming into force on 30 September 2016.

242. As these examples and initiatives articulate, a key avenue to providing that innovation and IP systems improve livelihoods is in ensuring that those that stand to benefit from these systems are involved at all stages of the process, "from the ground up" so to speak. IP education and awareness is one such avenue for ensuring that a wider range of previously under-represented groups are involved in the IP system, with a view to facilitating more diverse innovations and creations that may benefit a wider range of communities. As Canada embarks on a national IP Strategy aimed at helping *all* Canadians harness IP, we are interested in hearing the views and experiences of other Members, with regard to how IP and innovation systems can reach and involve a broader range of groups, for the benefit of all. We would again like to thank other Members for the discussion today, and look forward to engaging further on this issue.

11.8 Switzerland

243. Switzerland would like to thank the previous delegations for their gripping interventions and presentations. We welcome the opportunity to exchange experiences and views on how intellectual property has practically contributed to improving our lives – a topic which is broader than previous topics under the IP and innovation theme. It is not only directly relevant to all of us here in this building, but to all human beings.

244. We believe that intellectual property serves as an important engine for fostering creativity, innovation, and technological progress for the benefit of society. The intellectual property system plays a major role in providing incentives to the development of solutions to current challenges and enriches lives thanks to more diverse literature and art. Since the early modern era, IP rights have contributed to technological and cultural advancement in the most diverse fields such as education, environmental protection, public health, food and agriculture, arts, and entertainment.

Certain inventions have even dramatically changed the way we live or have helped improve our day-to-day lives.

245. IP rights are an important tool. They are, however, not a panacea and need to be put into the wider context of the market economy and state policies. Switzerland tries to adopt a bottom-up approach to enable innovation to flourish. This means leaving competence at the lowest administrative level as long as possible. It is an established principle, for example, in the promotion of research and innovation: The researchers' own initiative is regarded as being crucial, besides the principles of competition, qualitative assessment criteria, and international cooperation. A free competitive environment is one of the main driving forces of innovation. In addition, overall favourable and innovative-friendly conditions depend on a reliable legal framework, including a system of adequate and enforceable IP protection.

246. Let me illustrate, with a few case studies, how intellectual property protection, innovative and entrepreneurial spirit, international trade, and cooperation have contributed – and will contribute in the future – to finding innovative solutions and thereby have made, and will make, life easier.

247. The first example dates back to 1929 when financial and economic crises shook the world. Due to the Wall Street Crash, Brazil ended up with a large surplus of coffee beans. The Brazilian Coffee Institute asked a Swiss company to find a solution for the surplus of coffee beans that were sitting unsold in warehouses in Brazil. After years of research, the Swiss chemist Dr Max Morgenthaler presented a winning formula which converted coffee beans into a soluble coffee powder, while preserving the true taste and aroma of coffee. It was the world's first instant, readily soluble coffee. The invention of this breakthrough beverage helped to find a way out of the enormous surplus of coffee beans in Brazil, while preserving the traditional form of coffee production. In addition, it made coffee consumption more popular worldwide, expanding the international market for coffee producers. The availability of patent protection for this new method of producing instant coffee served as an important incentive, since it enabled the company to recoup its investments in research and development. In addition, protecting the trademark of this innovative product contributed to making the company internationally known for its original food products and processes.

248. Switzerland is convinced that the promotion and protection of intellectual property is an important element – among others – that contributes to technological progress for the benefit of humanity. Creative solutions prosper if inventors are able to commercialize their inventions in a predictable and stable legal environment. Protection of IP also encourages investors to provide the necessary funding for developing new products and technologies that increase our well-being.

249. Intellectual property has also contributed, as is well-known, to the development of new innovative drugs and treatments that have helped to ensure healthy lives and promote well-being across the globe. IP plays a key role in providing the necessary funds to cover the expensive undertaking of developing new medicines. In the last decades, significant progress has been made in increasing life expectancy as well as eradicating, curing, and improving the treatment of a wide range of diseases.

250. One example of a product, the development of which was made possible by IP and an innovation-friendly ecosystem, is Ceftriaxone. Ceftriaxone is an antibiotic which is suitable for treating organisms that tend to be resistant to many other antibiotics. It is a product which has made – and still is making – a great impact. In 1979, a Swiss pharmaceutical company discovered and filed for patent protection of Ceftriaxone worldwide. The antibiotic is used in the treatment of a number of bacterial infection diseases, such as sepsis (i.e. blood poisoning), meningitis and pneumonia. It has been available as a low-cost generic by many suppliers and has featured on the World Health Organization (WHO) model list of essential medicines for many years. This innovative antibiotic has helped to save countless human lives and continues to do so.

251. The development of new drugs and treatments is and will be instrumental in improving lives. It is also a very expensive undertaking. Few other industries are as dependent on effective patent and test data protection as the innovation-driven pharmaceutical industry. They need to recoup their massive investments in R&D costs and be able to reinvest in new and better products. By doing so, they not only supply the pipeline of innovative medicines, but in the medium term, also

the pipeline of generics, as these innovative products may be copied by any manufacturer after their patent term has expired.

252. We would like to look at a last example of an interaction between innovative spirit and IP improving lives – and that is Solar Impulse, a completely solar-powered plane. In 2016, it completed the first-ever round-the-world flight without a single drop of jet fuel. It was built to carry the message that the world needs to find new ways of improving the quality of human life, which includes clean technologies and renewable forms of energy production.⁴ This pioneering project was successful due to the joint efforts of individuals and many partners from the private and public sector, including the Swiss government. In this project, numerous companies and institutions from several countries contributed with their expertise and high-tech materials. It took 12 years of research and development to create an aircraft powered by dozens of environmental products and processes.

253. The technologies developed are now opening up new "markets and offering an opportunity for economic development, job creation and profit."⁵ The Swiss solar plane served as a laboratory and platform for clean technology. Project partners invested money and expertise. In return, they benefited not only from the project's media impact but also from IP, such as patents for technology developed for building the aircraft. As was explained in a related article in the WIPO Magazine, the Solar Impulse team entered into a partnership with Bayer MaterialScience, which offered access to "innovative material solutions" that reduce energy consumption. Another partner, the Swiss energy company SIG, helped "optimize the energy chain and push the storage capacity of the batteries to their maximum". The project partners relied on IP protection to make their research viable, and help them administer the rights in their innovations within their partnership and with external partners. The project team itself also applied for some IP rights, despite the fact that the project itself was not commercially oriented.

254. The project fulfilled its ambition: "to contribute to the world of exploration and innovation, to the cause of renewable energies." It wanted "to demonstrate the importance of the new technologies". Beyond its contribution to the cause of renewable energies and their importance for mankind, the technology developed for the solar impulse aircraft may be used and further developed for other purposes. Take the lighter-weight and more efficient batteries that were essential for the aircraft. They can now just as well be used in cars.

255. This endeavour would not have been possible if the companies involved did not have the assurance that all of their investment in physical and human capital and knowledge, and research and development, would be protected and rewarded, including through the protection of intellectual property.

256. In conclusion, we note that intellectual property has widely contributed to the improvement of lives around the globe. We encourage Member States to continue providing the necessary framework and make all IP instruments available to encourage financing and other investments in innovative solutions – solutions that improve lives. The Swiss delegation is looking forward to continuing constructively engaging in this information sharing-session.

11.9 Brazil

257. From the outset, allow me to thank the proponents of document IP/C/W/642 for the document. We appreciate opportunities for the exchange of views and experiences that enable mutual understanding.

258. The issue before us relates directly to the basic objective of intellectual property: to promote technological innovation in a manner conducive to social and economic welfare. The attainment of such goal is a constant concern of policy makers and demands an unceasing and careful analysis of the designing and application of intellectual property policies. The IP toolkit of rights, if I may use that expression, offers many options for those interested in generating a competitive edge to their services and products. Small enterprises may rely on trademarks and trade names to differentiate them from larger competitors; they may also use patents to attract investments to

⁴ For further information, see: https://www.swissinfo.ch/eng/sci-tech/record-breaker_swiss-solar-plane-ends-round-the-world-tour/41329902

⁵ Available at: <http://aroundtheworld.solarimpulse.com/>.

their industrial innovations, even if they don't have the capital themselves for making that investments. Agricultural producers are able to bring additional income and value to their regions when the protection afforded by a geographical indication is adequately utilized as part of their commercial strategies.

259. On the side of the society at large, IP also generates concrete benefits. The dramatic improvement on life standards seen in the last century is largely attributed to new and innovative medicines. The technical improvements applied to the agricultural sector have allowed food production to reach levels unheard of during and after the green revolution. Trademarks and GIs, on their hand, make it possible to distinguish one company from another, enhancing competition and increasing the quality of products in the market.

260. I would like to present two examples of innovations by Brazilians which have improved lives. A Brazilian company developed a smartphone app called "Cataki", which connects consumers to companies that recycle products. Consumers merely have to consult the app in order to find the nearest recycling company, which then may be contacted to collect the recyclable product. The app received a prize from UNESCO, due to its positive impact on the environment. Mario Adolphi Jr, from a company called Kidopi, received a prize from MIT for "Clever Care", a software that uses artificial intelligence in the form of a chatbot, which is used to exchange messages with patients. The software monitors the administration of medication, clarifies basic questions of patients and alerts their doctors if something goes out of the ordinary.

261. Allow me to stress the efforts that Brazil has been developing to provide an environment conducive to innovation. We are currently undertaking studies in partnership with international organizations to measure the concrete impact of intellectual property on our economy and on the access to technology in areas such as agriculture and health.

262. There are also ongoing initiatives to modernize the Brazilian industrial property office. We have hired 210 new patent examiners in the last two years, almost duplicating the office's capacity to process patent applications. Further, Brazil is engaged on creating an increasingly integrated and effective innovation ecosystem. In the last session of the Council, I have referred to the broader legal framework of the Brazilian innovation law. The government of Brazil also fosters innovation through financing of start-ups, and by providing, by law, that federal university professors may take temporary leave to create a start-up. Of course, IP by itself does not generate innovation and development and must be part of a broader innovation and industrial policy of countries, but its contribution cannot be reduced.

263. In this sense, Brazil will continue to support initiatives aimed at encouraging and rewarding innovation and its widespread use in the economy and society.

11.10 Korea, Republic of

264. As a co-sponsor of the document IP/C/W/642 – IP and Innovation: IP improving lives", Korea is pleased to share with the TRIPS Council its views as well as experiences with regard to this agenda item. In my intervention, I would like to briefly present some of the important innovations that have significantly impacted people's lives - and then provide an overview of Korea's efforts to support the development of IP in other developing countries

265. As is well-known, an effective IP system plays a crucial role in enhancing our daily reality by incentivizing innovation and technological development. There are countless examples of inventions in the history of humankind that have brought significant improvements in human lives. To give a few examples, the telephone, which was, as you know, invented by Alexander Graham Bell, has brought a revolutionary change in communication. Cars brought great advances in transportation. The milestone patent, for a "vehicle powered by a gas engine" was filed in 1886 by Benz. Benz went on to develop and patent other automotive components and this invention resulted in dramatic improvements in people's lives; people were no longer bound to one place and this meant greater flexibilities in the choice of living and working places. The semiconductor is another key example of an invention the benefits of which were far-reaching and widely felt. In 1958, Jack Kilby of Texas Instruments patented the first prototype integrated circuit. Indeed, the semiconductor ushered in a revolution in technology. If it were not for the semiconductor, we

wouldn't have computers, the internet, televisions and in fact most electronic devices - and it is hard to even imagine a world without these.

266. Korea is one of few countries that have succeeded in achieving economic growth in a relatively short period of time - and we believe that it was possible to achieve such a rapid economic development mainly due to intensive efforts to innovate, which have been anchored in a strong and effective IP system. Korea's experience serves to demonstrate that there is a positive correlation between effective IP and innovation, growth and indeed a better quality of life.

267. And yet, we do not believe that a strong IP system in itself automatically brings about innovation and economic growth. Other elements such as technical capability are also crucial factors. As such, Korea is working with other developing countries to support efforts to innovate and enhance our daily lives through appropriate technology (AT). The goal of appropriate technology is to promote a better quality of life in the developing world without condescension, complication or environmental damage. In AT inventions there is a special focus on the social and cultural impact on a particular community that they are intended for. We are carrying out various AT development projects in countries in need of assistance mainly with a view to improving the quality of life for low-income households. For example, a crop dryer and solar charge controller was developed for Makerere University in Uganda. The drying technology in agriculture is expected to improve the quality of feed and contribute to the income of local farmers. A coconut oil expeller was developed in Sri Lanka with the aim of addressing issues regarding the quality of coconut oil. Furthermore, relevant technology research centres have been established in both countries to promote the sustainability of such technologies.

268. Korea will continue to work with WTO Members with a view to improving lives through the further development of an effective IP system and promotion of technological innovation.

11.11 South Africa

269. This delegation would like to thank the co-sponsors for having introduced this interesting and relevant item, we have not heard any dissent to many of the statements that have been made, perhaps we can start a new trend. Increasingly, harnessing technological progress is viewed by policymakers as a key priority to boost economic growth and improve living standards. The relationship between IPRs and development is indeed quite complex from a theoretical point of view. Any attempt to quantify the impact of IPRs needs to appreciate the variable nature of the legal frameworks that supports IPRs. The context of IPRs is important: they are interwoven with other domestic laws and institutions governing competition policy and anti-trust, international trade, labour rights, privacy and many other issues.

270. The economic literature on the impact of IPRs is rather inconclusive. We have to ask whether current IPR frameworks encourage innovators to address the most pressing issues facing our global society and developing countries' needs? Do they ensure access to the products of this innovation by those who need it most? It remains ambivalent as to whether the social benefits of IPRs exceed their costs, even in relation to the developed world. The basic argument in favour of IPRs is that they are necessary to stimulate invention and new technologies. The main critique against IPRs is that they increase the cost of patented commodities which reduces welfare. This problem is exacerbated in developing countries because they are net importers of technology.⁶ Given these embedded costs, a quantification of the contribution of IPR frameworks to improving lives through social and economic growth ought to rest on development models that enable developing countries to catch up and as such the optimal IPR regime for them may be different from that for a more advanced economy. In the pharmaceutical industry, for example, pharmaceutical companies devote relatively little of their research budget towards diseases that afflict developing countries, and the incremental returns that they receive from developing countries are sufficiently smaller that they are unlikely to affect significantly the overall pace of innovation.

271. If it is argued that IPR frameworks lead to broader and stronger IPRs and that such systems may encourage more IP to be generated, or greater creativity to develop, such assumption must at the very least address the following questions: How much of the IP that is generated translates

⁶ Auriol et al. Intellectual Property Rights Protection in Developing Countries p.2 (2012), Toulouse School of Economics.

to more innovation, jobs, creativity, and productivity and greater societal benefits? Are IPRs currently calibrated to maximise innovation and inclusive growth? Some innovators avoid heavy reliance on IP because they are concerned that it could slow innovation down. In their view, most innovation is incremental and if IP rights are too strong or too widely used, IP will retard progress for subsequent inventors. This perspective originated with certain software hackers and academics and eventually helped to shape the development of open-software platforms like Linux, Android and Chrome OS.⁷

272. Furthermore, the pace of innovation in some industries is raising doubts in the minds of some stakeholders about the universal suitability of IP systems for helping to solve major global challenges such as climate change. This was illustrated by the decision of Tesla Motors to open its patent portfolio, which Tesla said was a result of its disappointment with the slow pace of adoption of electric motor technology.⁸

273. Whereas the transformational effect of new technologies cannot be denied, the diffusion and access to such technologies are not only dependent on IPR frameworks. UNCTAD's *Information Economy Report: Digitalization, Trade and Development*⁹ underscores the fact that affordable access to different ICTs is essential for people and enterprises to take active part in the evolving digital economy and reap development gains from it. More than half of the world's population remains offline and the broadband divide is ever wider.

274. Proponents advance the argument that in respect of education and training, a range of intellectual property rich materials foster social and economic contributions to society. A fundamental component of the right to education is access to high quality text books and other learning materials. Yet in many developing countries, access to such resources can be prohibitive since textbook scarcity is a serious challenge affecting the quality of education. In Cameroon, there is approximately one reading textbook available for every 12 grade two students and one mathematics text per 14 students. As more and more learning is facilitated through computer access and the internet, both students and teachers are able to log onto vast amounts of information. Unfortunately, access to these technologies are both inadequately and unequally distributed between the developed and undeveloped regions in the world.¹⁰ The disparities experienced in the physical world is often exacerbated in the online environment. Buy a book and you own it forever; pay for access to a digital book and when the period of service is over you often retain nothing.

275. A better understanding of the enabling conditions and implications of digitalization for the economy and society is urgently needed in order to maximize potential benefits and opportunities, and cope with various challenges and costs.¹¹ The adoption of digital technologies in global supply chains across all industries also impact on international production. In this context, we are beginning to see the disruptive effects of DT when firms re-shore investment as low-wage jurisdictions lose their cost advantages from increased use of robotics and artificial intelligence. There are concerns that the labour conditions may deteriorate in the digital economy and exacerbate polarised labour markets and inequality. Employment levels in many sectors appear set to decline and as the new technology augments the premium for higher skills and replaces routine jobs, workers will be forced to compete for fewer, lower-paying jobs. Where new employment is created, it is often insecure with declining levels of health, safety and unemployment benefits. The use of self-driving cars and drones may save time and money; however, the introduction of these technologies is not value neutral in themselves, aside from the IPR dimension, there are a myriad of other factors that determine their ultimate societal impact and utility.

276. Over 40,131 patents originating from all over the world were registered in South Africa between January 2005 and July 2015.¹² Only 10% of the total number of patents granted were South African patents, this translates to on average less than 400 South African patents granted per year. The South African patent landscape is characterized by the easy grant of patents of

⁷ OECD Enquiries into Intellectual Property's Economic Impact (DSTI/ICCP) p.18 (2015).

⁸ Ibid.

⁹ Information Economy Report: Digitalization, Trade and Development p.17 (2017).

¹⁰ K. Bohma "Digital Divide Effects on Education Development in Africa." p.9 (2014).

¹¹ UNCTAD p.11 (2017).

¹² Jonathan Berger and Andrew Rens "Innovation and Intellectual Property in South Africa: The Case for Reform." p.15 (2018) Shuttleworth Foundation.

dubious quality and value, as well as the enforcement of a legal frame work that appears to be heavily skewed in favour of patentees. What this means in practice is that in exchange for very little, market exclusivity is easily granted, and maintained, ordinarily at a high cost to society.¹³

277. Intellectual property in itself has always been an integral part of general economic, social and cultural development worldwide. Whether IPRs are a good or bad thing, the developed world has come to an accommodation with them over a long period. Even if their disadvantages sometimes outweigh their advantages, by and large the developed world has the national economic strength and established legal mechanisms to overcome the problems so caused. Developing countries are far from homogeneous, a fact which is self-evident but often forgotten. Not only do their scientific and technical capacities vary, but also their social and economic structures, and their inequalities of income and wealth. The determinants of poverty, and therefore the appropriate policies to address it, will vary accordingly between countries. The same applies to policies on IPRs. The impact of IP policies on poor people will also vary according to socio-economic circumstances. What works in India, will not necessarily work in Brazil or Botswana.

278. We thank the proponents for the introduction of this very useful contribution. Much of what is presented is based on broad generalisations and assumptions. This delegation would like to invite proponents to enter in to a more focused discussion on the theme of Intellectual Property and Innovation. More specifically, we would like proponents to address some of the following issues in upcoming discussions:

- What can we learn from the economic and empirical evidence about the impact of IP in developing countries? Does the historical experience of developed countries hold any lessons for developing countries today? How can technology transfer to developing countries be facilitated?
- How does the IP system contribute to the development of medicines that are needed by poor people? How does it affect the access of poor people to medicines and their availability? What does this imply for IP rules and practices?
- How does copyright protection affect developing countries' access to knowledge, technologies and information that they need? Will IP or technological protection affect access to the Internet? How can copyright be used to support creative industries in developing countries?
- How should developing countries frame their own legislation and practice on patents? Can developing countries frame their legislation in ways that might avoid some of the problems that have occurred in developed countries?
- Are the international and national institutions involved in IPRs as effective as they could be in serving the interests of developing countries?

11.12 India

279. The history of evolution of IP rules in developed countries suggests that the design of IP rules and policies should be adaptable to the changing needs of societies. This is reflected by the fact that the levels of IP protection in developed countries increased as their industrial and technological capacities improved over time. While IPRs may provide an incentive to innovate, they are neither a necessary nor a sufficient condition and could only be effective in certain contexts;

280. We have seen firms using patents and other forms of intellectual property in anti-competitive ways. Firms may use patents as a strategic deterrent by building up "patent thickets," which make incremental or follow-on innovation by other firms a more challenging and costly process. Non-Practicing Entities (NPEs) also have been identified by many policymakers as a costly impediment to innovation and economic growth.

281. IPRs cannot boost innovation if the required conditions – skills, information, capital, market prospects – do not exist. Therefore, the strength of IP rules should be calibrated to the levels of development in country. In countries where the required conditions to benefit from strong IP protection do not exist, IP protection may be more costly than beneficial.

¹³ Berger and Rens: p.44.

11.13 Norway

282. Norway would like to thank the proponents for the communication contained in document IP/C/W/642 and for including the topic on the agenda of the TRIPS Council. The societal value of IP is a topic of interest to Norway, and we take the floor today mainly to indicate our support of the discussions, which we continue to follow with interest. We see this as a good opportunity to have a balanced discussion related to IP in the WTO, focusing on both challenging and positive aspects of Intellectual property rights.

283. Norway supports effective and balanced protection of IP, which we view as an important incentive for investments in innovation and creativity. Norway is not in a position today to share specific examples or experiences. However, we have taken note of the proponents' questions and we may come back to the Council with more specific comments later this year.

284. We would also like thank other Members for their interesting presentations and interventions today.

11.14 New Zealand

285. New Zealand would like to thank all Members who have presented under this agenda item. We have found the presentations to be thoughtful and interesting. We recognize the importance of this topic, and consider that the sharing of examples, national experiences and viewpoints to be a useful exercise. We look forward to sharing this information with interested persons back in capital.

11.15 China

286. In 2017 the theme of World Intellectual Property Day was innovation and how it improves our lives, similar to the topic we discuss today. From new materials to new transportation technologies, it is no doubt that Innovation has changed our lives.

287. While the intellectual property system is a crucial part of a successful innovation system, it contributes to the protection of innovation and helps to transfer and dissemination of technology.

288. China attaches great importance to innovation. And in order to better protect innovation, China has built an intellectual property system based on the international rules. Under the protection of intellectual property, in 2017, there were 1.3 million patent applications, 5.7 million trademark registration applications, and 2.7 million registrations of copyrights. All three numbers hit a record high.

289. In 2017, China's e-commerce industry led to employment of 42.5 million people. Innovation plays an important role in changing the Chinese people living standard and stimulating economic growth.

290. But we still recognize the huge gap in the current innovation field. At present, developed country Members created more innovations. At the same time developing and LDC Members created less. China believes that innovation should not only be the "toy" for developed Members, but also can allow more people to share the benefits of innovation.

11.16 UNCTAD

291. I would like to take the opportunity to update Members on a new element of UNCTAD's activities related to IP. Building on the results of UNCTAD's capacity building and policy advice for developing countries related to the implementation of the TRIPS Agreement, we now consider it important to assist developing countries in the support of technology-based industries and job creation, in areas such as pharmaceuticals, biotechnology, information and communication technology, and agricultural technologies. With a view to improving living conditions in beneficiary countries, avoiding brain drain and large-scale migration, it is essential to help developing countries move away from their dependence on natural resources and cheap labor. The fast-growing percentage of young people in developing country societies and the expected impact of artificial intelligence and robotics on currently existing employment in the processing industry call

for a shift toward more knowledge-based economies. Technology plays a key role in this respect, and technology transfer for developing countries is crucial.

292. This is where our future activities in IP are intended to take place. In our work, we have seen that voluntary, contractual licenses may provide a key avenue for technology transfer in developing countries and may at the same time open new markets for foreign investors. Well negotiated contracts can create win-win situations for both the foreign investor and the domestic partner in a developing country. This has been demonstrated in a series of case studies on "Local Production of Pharmaceuticals and Related Technology Transfer in Developing Countries" that UNCTAD published in 2011.¹⁴ In that context we found that contractual agreements between a foreign investor – which could be a patent holding pharmaceutical company or a generic company – and a local producer were important sources of technological know-how that assisted local producers in meeting WHO Good Manufacturing Practices (GMP). For example, we analysed a case where a foreign investor authorized a local manufacturer to use the investor's trademark to sell locally produced products in the host country, in exchange for the right to benefit from the domestic producer's distribution network. The licensor of the trademark agreed to provide GMP training to the licensee to ensure the good reputation of the trademark. We found beneficial effects in terms of contractual know-how transfer in countries at very different stages of development, for example Argentina, Bangladesh, Colombia, Ethiopia, Indonesia, Jordan, and Uganda.

293. All of this being said, we have also seen in our work that the private sector in many least-developed countries and developing countries has very little capacity in understanding and negotiating a contractual license. This lack of capacity not only concerns IP licenses, but likewise contracts on research collaboration, technology transfer, joint ventures, and other transactions involving technology. To our knowledge this problem has not been sufficiently addressed by the providers of technical cooperation.

294. In our view, this represents a missed opportunity for technology transfer and foreign investment that we intend to address. We wish to promote mutually beneficial contractual arrangements. We intend to cooperate with the Medicines Patent Pool (MPP), which in informal consultations confirmed the need to build capacities in developing countries to better understand patent licenses. UNCTAD could complement the work of the MPP in that respect. In addition, we would seek to build capacities of pharmaceutical producers based in countries that are usually excluded from MPP licenses, considering that some of these countries are seriously affected by certain diseases and at the same time provide interesting markets for foreign investors. Finally, we intend to go beyond the area of pharmaceuticals and will seek to build capacities in contracts related to other areas of technology that are important to help developing countries become less dependent on commodities, such as biotechnology, agricultural technologies, and information and communication technologies.

295. Importantly, we will not address contractual licenses in isolation. Foreign investors will only engage with local producers where the latter have acquired a certain degree of technological capacity. We therefore intend to advise developing country governments on the design of appropriate IP and investment frameworks that are conducive to the acquisition of domestic technological capacity and an improved R&D framework. One example is the promotion of linkages between public universities and R&D institutions on the one hand and the domestic industry on the other. Other examples relate to the adaptation of domestic IP frameworks to recent technological developments in big data solutions and artificial intelligence, and the design of incentives to more effectively address technology solutions for antimicrobial resistance.

296. We would like to invite development cooperation partners to approach us for further discussion.

¹⁴ http://unctad.org/en/PublicationsLibrary/diaepcb2011d7_en.pdf