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ORGANIZATION

WIPO CONVERSATION ON INTELLECTUAL PROPERTY (IP) AND FRONTIER TECHNOLOGIES

Fifth Session
Geneva, April 5 to 6, 2022

SUMMARY OF THE FIFTH SESSION

prepared by the WIPO Secretariat

INTRODUCTION

1.   The WIPO Conversation on IP and Frontier Technologies (WIPO Conversation) is a leading global forum to engage with, facilitate discussion, and share knowledge on the impact of frontier technologies, including artificial intelligence (AI) on IP.

2.   WIPO began the series of conversations in 2019 as a way of convening a diverse group of stakeholders to exchange information, build knowledge, and support well-informed policy choices in an era of digitalization and technological transformation that is rapidly reshaping our economies and societies.

3.   The fifth session of the WIPO Conversation focused on Frontier Technologies in IP Administration and Registration[1].

STRUCTURE OF THE FIFTH SESSION

4.   The fifth session of the WIPO Conversation took place on April 5 and 6, 2022, in a virtual format. There were over 900 attendees from 117 countries, which underscores the extensive interest in and importance of the topic.

5.   Day 1 was structured around three panels.[2] Panel 1 set the wider scene of how frontier technologies play a role in the IP office (IPO) with visions of how this will happen in the future from heads of IPOs. Panel 2 included stories from innovators and creators who explained how frontier technologies could make IP more accessible for everyone. Panel 3 concluded by discussing the challenges faced by IPOs in the Global South and how they are looking to evolve using frontier technologies.

6.   Day 2 took a deep dive into digital transformation in IPOs and frameworks for the use of frontier technologies. It comprised a sharing session about tools currently being used or developed by IPOs, and a panel discussion describing novel private-sector IP solutions using frontier technologies.

OPENING

7.   The session was chaired by Mr. François Rivasseau, WIPO Senior Consultant, Technology & Diplomacy. WIPO Deputy Director General, Ms. Lisa Jorgenson, opened the fifth session of the WIPO Conversation. Ms. Jorgenson set the scene by discussing the importance of frontier technologies and how they are driven by digital transformation and data.

8.   Ms. Jorgenson pointed out that in the age of the fourth industrial revolution IP is gaining more attention and becoming a key factor in driving economic growth. At the same time, innovation and creation are happening much faster. Ms. Jorgenson noted that the number of IP filings is increasing rapidly but is also subject to more volatility. Markets are globalizing and intangible assets are flowing much more freely across borders. The nature of these new frontier technologies and the resultant scientific breakthroughs and innovations are adding significant technical complexities and touching on many regulatory frameworks.

9.   Moreover, the landscape in which IP operates is potentially becoming more complex to navigate, particularly due to the flow of intangible assets across borders and in different industries. Ms. Jorgenson stated that in the face of so much complexity, IP needs to become

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[1] Videos on demand are available at
https://c.connectedviews.com/05/Search/wipo?search=WIPO%2FIP%2FCONV%2FGE%2F22
[2] See the agenda for further details https://www.wipo.int/meetings/en/doc_details.jsp?doc_id=570491

more accessible, relatable, and understandable. Frontier technologies may also have the power and hold one of the keys to achieving this and bringing the benefit of IP to everyone.

10.   The WIPO Conversation is designed to make issues relating to frontier technologies accessible and understandable. Ms. Jorgenson praised the WIPO Conversation for being a source of connection and education and to help find practical solutions and tools and design better systems.

PANEL 1: TIME TRAVEL TO THE IP OFFICE OF THE FUTURE

11.   The first panel consisted of a group of heads of IPOs from around the world and was moderated by Ms. Jorgenson. This panel set the scene by exploring their vision of the IP Office of the Future and the role frontier technologies may play in shaping this future.

12.   Ms. Jorgenson posed three questions to each of the panelists.

How do you think trends in digitalization, changing business models, and frontier technologies will affect IP, innovators, and creators?

13.   The panelists agreed that the fourth industrial revolution and digitalization have changed and will continue to change how innovation occurs, and how IPOs do business. In particular, the panelists all highlighted the following themes.

14.   An upward trend in IP filings: All panelists agreed that despite the Covid-19 pandemic there was a remarked increase in IP filings across all IP rights, reflecting the increased speed of technological advancement and digitalization.

15.   IPO data and new tools: IPOs hold and have access to significant amounts of data that can be used to improve their products and services for IP registration. The panelists concurred that IPOs should embrace frontier technologies to create and improve tools for IP administration. Such new tools will also assist IPOs in meeting demand due to the increase in IP filings, help improve IPO efficiency and enable better management of limited resources. Furthermore, frontier technologies could enable IPOs to create new, more flexible, and user-centric IP services, such as AI-assisted searches for documents, enabling innovators without IP expertise to protect their businesses by pursuing IP filings or finding prior art.

16.   Investing in human resources and skills: IPO staff need to continue to acquire new skills to be able to use new technologies and new tools. They will also need to consider the IP and policy implications of new technologies and data, and how they may impact innovation across many sectors.

17.   Changing IP ecosystem: The panelists agreed that emerging technologies are changing the IP ecosystem and that governments need to be aware of this to continue fostering innovation. IPOs must cooperate when considering possible changes and move in step with new technologies and innovations as they emerge.

18.   IP enforcement: As a new digital world is emerging, this poses real questions for IP infringement, due to the virtual environment and its cross-border nature. It was noted that AI could help detect counterfeit products, particularly on electronic commerce platforms.

19.   Mr. Michael Schwager, the Director General of IP Australia, noted that the physical, digital and biological worlds are merging and that IPOs operate at the forefront of new inventions. Frontier technologies could enable new methods of creating and AI is becoming a tool in assisting innovation. Mr. Schwager was concerned about AI's impact on IP. He specifically

pointed to questions surrounding AI inventorship.[3] Mr. Schwager noted increasing numbers of AI patents, especially in the health, natural resources, environment, agriculture, and mining sectors.

20.   Ms. María Bresky, Director General of the National Institute of Industrial Property (INAPI), Chile, described Chile's investment in technology and in particular referred to INAPI's new online platform. Ms. Bresky stated that INAPI would like greater cooperation among IPOs to share technological developments, in particular in the area of the development of tools and their impact on IPO management.

21.   Mr. Kim Yong Rae, Commissioner of the Korean Intellectual Property Office (KIPO), noted that the current IP system is based on products in the offline environment and as such may not adequately protect new products and services in the virtual and digital space from being copied.

22.   Mr. Abdelaziz Babqiqi, Director General of the Moroccan Industrial and Commercial Property Office (OMPIC), discussed several OMPIC initiatives to meet the fourth industrial revolution. Mr. Babqiqi discussed using AI as an IPO tool to process patent applications and potential uses of OMPIC's data.

23.   Ms. Rena Lee, Chief Executive of the Intellectual Property Office of Singapore (IPOS), stated that AI and other frontier technologies impact innovators and creators in two ways: in the invention itself and the innovation process. She noted that protection for AI-assisted creations is a key area of discussion around the world. Ms. Lee discussed legislation on registered designs and non-physical products, and IPOS' efforts to ensure that the IP regime is compatible with frontier technologies. Ms. Lee reviewed IPOS' evaluation of frontier technologies and how to harness these technologies to administer their IP regime.

24.   Mr. Matúš Medvec, President of the Industrial Property Office of the Slovak Republic, noted that digitalization is progressing rapidly with the pace of digital transformation quadrupling due to the pandemic. He emphasized the shift to an online world, which changes how innovation and creation occur and which is reflected in a change in the role of IP. Similarly, working habits have changed and teleworking is becoming more popular, which affects the operation of IP Offices.

How are you adopting frontier technologies to transform your IPO to match the needs of inventors and creators in a digital age?

25.   The panelists agreed that AI-assisted tools will continue to improve IP administration and registration, and such tools already include case distribution and workflow, translation, search, classification, and predictive tools to help applicants choose goods and services classes.

26.   Many of the panelists emphasized that the development of such tools should be collaborative amongst IPOs and WIPO to promote efficiency and consistency across IP systems.

27.   Mr. Schwager discussed the potential of frontier technologies to improve IP administration using IP Australia's computerized decision-making as an example of increasing consistency. He emphasized a participative design for introducing legislation allowing computerized decision-making. He also referred to IP Australia's transactional digital services program, wherein

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[3] See the recent decision in the Federal Court of Australia *Thaler v Commissioner of Patents* [2021] FCA 879, https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/single/2021/2021fca0879
Shortly after the Conversation, the appeal to the Full Federal Court of Australia was published: *Commissioner of Patents v Thale*r [2022] FCAFC 62,
https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/full/2022/2022fcafc0062

platforms were rebuilt using APIs, with customer involvement in the design process. Co-design has been critical for creating trust with customers when adopting new technologies. Mr. Schwager discussed using AI to make it easier for innovators to obtain and maintain IP rights, such as machine learning to process patent applications and natural language processing models to generate an automated search. Mr. Schwager concluded by highlighting that IP Australia is using AI tools to augment examination tools for staff and exploring ways to assist innovative businesses.

28.   Ms. Bresky observed that the digitalization process is complicated, and cooperation with WIPO is essential. Ms. Bresky shared that INAPI recently moved to digital platforms. Ms. Bresky also discussed INAPI's use of AI tools to process IP filings and reiterated that the development of frontier technologies should be collaborative, especially when there are similar standards and tools. Ms. Bresky stated that the IPO of the future ideally would be an integral part of the digital economy.

29.   Mr. Babqiqi discussed OMPIC's digital transformation, with most new IP filings now digital, OMPIC is focused on improving and simplifying the user experience. Mr. Babqiqi noted that interconnected systems help with integrated document management and improve examination quality. OMPIC is studying security and data protection and is observing best practices regarding the use of e-signatures. Mr. Babqiqi described a new digital procedure to attribute a specific date for creations and concluded by highlighting that OMPIC is adopting tools to improve access to information and to improve analysis based on statistics and filing data.

30.   Mr. Kim emphasized the importance of expertise in patent examination. Mr. Kim discussed KIPO's use of multi-disciplinary examination teams, which increased the speed of examinations conducted. Mr. Kim also discussed KIPO's use of AI, machine translation AI-assisted search, automated classification systems, and a new priority examination system with a vastly reduced turnaround time.

31.   Ms. Lee described the use of frontier technologies, such as AI and blockchain, to support IPOS, which went fully digital in 2014. A new online platform now enables electronic filing with automatic translation and includes a predictive suggestion tool. Ms. Lee described IPOS' improved user interface and enhanced features for search, IP management, and dispute resolution. Ms. Lee highlighted IPOS' launch of the world's first mobile application for trademark registration, with a 4-in-1 search for trademarks, domains, social media, and business names. Ms. Lee concluded by noting that IPOS is evaluating developing AI technologies for patent classification and prior art searches.

32.   Mr. Medvec described the implementation of a new chatbot function for after-hours help. He discussed AI, including machine translation and classification tools, and the office's ongoing projects to automate tasks and notification systems.

<u>What is one thing you hope that the IPO of the Future can do to help the inventor of the future reap the benefits of his or her brilliant idea?</u>

33.   The speakers all focused on helping customers and highlighted not only frontier technology tools, but also the need for transparency and accessibility.

34.   Mr. Schwager stated that IP Australia will provide inventors with real-time assistance and with searches using AI and analytics.

35.   Ms. Bresky stated that support is needed to enable customers to file applications on their own without professional support and to ensure that INAPI has all the tools required to assist customers. She emphasized the need for greater interoperability and transparency.

36.   Mr. Babqiqi highlighted the importance of accessibility to services and enhancing knowledge of IP. He referred to AI technology and in particular AI-assisted platforms to help customers.

37.   Mr. Kim focused on the needs of digitally savvy people and ensuring that their ideas are brought to market. Mr. Kim described an IP transactions platform established in 2021 that connects innovators and companies.

38.   Ms. Lee focused on the commercialization of IP. She suggested that the IPO of the future will help inventors turn ideas into assets, identifying the IP's value to raise capital and find potential partners.

39.   Mr. Medvec stated that the IPO of the future must be responsive to the shortening of innovation cycles and the need of its users. Mr. Medvec focused on IP tools for inventors and reiterated the need for the IPO to be open, accessible, and flexible.

PANEL 2: FRONTIER TECHNOLOGIES MAKING IP WORK FOR EVERYONE

40.   The moderator, Mr. Dana Robert Colarulli, Executive Director, Licensing Executive Society International, introduced the panelists who focused on giving an insight into their business, how they use and leverage IP and what IPOs need to do to serve innovators and foster innovation.

41.   Mr. Tathagato Dastidar, CEO and Founder, SigTuple, India, described how the company applies AI and robotics to automate the manual microscopic review of biological samples. Sigtuple was founded seven years ago and is based in Bangalore. The company owns 19 patents. Mr. Dastidar noted that it is important, especially for a startup, to build an IP culture. Engineers might not have knowledge of IP and hence fail to appreciate the patentability of new ideas, no matter how simple.

42.   Mr. Dastidar also referred to the national nature of IP rights and the complexities of filing patents internationally for a start-up company. He gave an example of an innovator company that files for a patent in India but later markets its product internationally and subsequently files a PCT application and an application in the US. Mr. Dastidar posed the question of how the innovator company could best protect itself in this case. Mr. Dastidar asked WIPO to consider an assistance mechanism. Mr. Dastidar concluded by urging WIPO to push for an IP curriculum with engineering and science disciplines.

43.   Mr. Rupert Parry, Co-Founder of the Audio Intelligence Agency, Australia, is a director at a research and product development lab focused on the future of music. Mr. Parry stated that his company works with creative tools and is currently developing prototypes. Mr. Parry identifies two big shifts in the research around music and IP.

44.   Mr. Parry first discussed a new type of digital asset in music, driven by AI. Mr. Parry noted that data comprising digital songs are being harvested without permission. Mr. Parry explained that this data can be used to produce synthesized voice or adaptive music, which includes a mix of IP from data and music. Secondly, he discussed new ways to create digital assets, driven by blockchain, such as NFTs and blockchain digital collectibles. Mr. Parry stated that there is a need to anticipate future innovation to preserve the artists' IP rights and revenue streams.

45.   Mr. Timothée Le Quesne, CEO and Co-Founder, Energysquare, France, discussed the IP challenges for a young French company that creates new battery charging technology, which it licenses. Mr. Quesne stated that IP is a business tool that can create new opportunities. Mr. Quesne described three limitations. First is the time to prosecute IP rights. He suggested a direct plugin between businesses and IPOs. The second is cost. He discussed the costs of

drafting and prosecuting a patent application. He imagined a tool that in the future could assist translating an invention disclosure into the language required for a patent application. The third is a lack of knowledge about IP.

46.   Mr. McLean Sibanda, Director, Bigen Global Limited, South Africa, noted that it is important to embed IP in national development plans and business strategies. Mr. Sibanda discussed developing countries in Sub-Saharan Africa and efforts to promote a better understanding of IP. He observed that the strategic use of IP in the developing world would be to use the existing tools and embed them with frontier technologies. Mr. Sibanda asked how existing patent tools such as search engines to inform and assist innovators could be enhanced. Mr. Sibanda discussed certain technologies for tracking competitors and mapping patent portfolios, which could also be enhanced by AI and machine learning.

47.   Mr. Sibanda emphasized the lack of understanding about IP, noting the low use of IP in Africa. He asked whether frontier technologies could assist young entrepreneurs. Mr. Sibanda discussed NFTs and bringing IP education in bite-sized formats, such as Twitter, Instagram, and TikTok. Mr. Sibanda also suggested using social media influencers to make IP more relatable and accessible. Mr. Sibanda stated that there is an opportunity for WIPO to engage with various IPOs and embed storytelling about IP in everyday life.

48.   Ms. Hongxia Yang, AI Scientist, Alibaba Group, China, discussed the next generation of AI models and the inductive reasoning problem. She described Alibaba's DAMO Academy (Academy for Discovery, Adventure, Momentum, and Outlook) and its core AI technology. Ms. Yang pointed to the difficulty in searching and understanding IP as one of the main hurdles to its wider use. Ms. Yang observed that innovation accelerates the spread of IP but it is still hard to retrieve information.

49.   Overall, the panelists agreed and highlighted in their contributions that IP needed to be more accessible, whether by promoting a company culture around IP, building an IP curriculum, connecting businesses directly with IPOs, or including IP in national development.

50.   Mr. Colarulli concluded the panel by observing that learning and AI can help innovators obtain IP rights, but it remains difficult to understand and access IP systems.

PANEL 3: THE FUTURE IS NOW – IP OFFICE TRANSFORMATION

51.   Panel 3 was moderated by Ms. Caroline Muchiri, Research Fellow, Centre for Intellectual Property and Information Technology Law, Strathmore University, Kenya, who outlined that the panel would focus on a global perspective and imagine the future and transformation of IPOs with frontier technologies. She noted that the panel would spotlight the challenges faced by IPOs, and highlight what would be required to close the gap.

52.   Mr. John Ndirangu Kabare, Intellectual Property Operations Executive, African Regional Intellectual Property Organization (ARIPO), started by describing ARIPO and its services. Mr. Kabare noted that IP registration and administration need to evolve, and frontier technologies present opportunities to improve examination, searches, and customer service. He discussed new substantive IP questions arising from frontier technologies such as AI-generated inventions, how to protect frontier technologies and copyright issues for data used in machine learning.

53.   Mr. Kabare discussed challenges faced by IPOs, including enforcement, lack of expertise, access to non-patent literature, and protection of AI-generated works. He also discussed how some Member States are unable to benefit from ICT initiatives. To close the technology gap, Mr. Kabare envisioned improving legal frameworks to address frontier technologies, recruiting staff and training examiners to handle frontier technologies, and providing a platform for Member

States to discuss IP and frontier technologies and support Member States in updating their national laws to address frontier technologies.

54.   Mr. Eugeniu Rusu, Director General, State Agency on Intellectual Property (AGEPI), Republic of Moldova, described Moldova's IPO and Moldova's status as a signatory to most WIPO treaties. Mr. Rusu emphasized the need for IPOs to evolve in the digital age. He identified prerequisites, such as digital transformation, a predictable legal environment, and clear practices for IP examination. Mr. Rusu voiced that the issue of AI inventorship and authorship should not be dealt with exclusively at the national level.

55.   Mr. Rusu described the acquisition and implementation of competitive, integrated ICT and procedures in IP registration, examination, and granting as the key to successful digital transformation. He discussed the challenges involved in moving to the cloud, and that the only way to do so is to use ready-implemented solutions such as WIPO IPAS.[4] Mr. Rusu stated that offices from developing countries are often left to their own devices to address challenges in the digital world, and also have to prioritize social and economic needs. As such, he shared the view that IPOs must join efforts and share new technologies for the benefit of all communities.

56.   Ms. Faith Amatika-Omondi, Senior Legal Counsel, Kenya Copyright Board, discussed frontier technologies and the effective administration of copyrights in Kenya, raising three major points: (1) bottlenecks in the effective administration of copyrights, (2) frontier technologies as the solution, and (3) challenges that come with frontier technologies. She described the challenges in collective management organizations and opportunities to address the challenges, including fingerprinting to avoid re-registration, alternative tools to registration, and blockchain.

57.   Mr. Agustín Bello Vázquez, Director of Systems and Information Technologies, Mexican Institute of Industrial Property (IMPI), discussed how frontier technologies assisted in transforming IMPI. Mr. Vázquez described the improvements made to IMPI's infrastructure, such as using AI-assisted search, new software, improved telecommunications, infosec systems, and a move to web services. Mr. Vázquez described IMPI's new electronic services, a mobile app, and online payment. New challenges for 2022-2024 include migration to new web-server architecture, and adopting AI and blockchain to provide solutions.

58.   Many of the panelists agreed that frontier technologies present opportunities to improve examinations, searches, and customer care, but there remain challenges that must be addressed internationally through collaboration, such as AI authorship or copyright in training data.

59.   Ms. Muchiri asked a final question: Would you consider the need for IP transformation in IPOs as significant for only countries in the Global South? Mr. Kabare, Mr. Rusu, and Ms. Amatika-Omondi responded that they do not.

PANEL 4: THE BIGGER PICTURE – IP OFFICE STRATEGIES FOR DIGITAL TRANSFORMATION

60.   WIPO Assistant Director General Mr. Ken-Ichiro Natsume opened the panel by noting that frontier technologies can help achieve better, more accessible, and relevant IP systems that benefit everyone. Digital transformation provides a starting point for developing and adopting frontier technologies including AI for IP administration. Mr. Natsume noted that Panel 4 would

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[4] IPAS stands for Industrial Property Administration System and is part of WIPO's Office Suite, a bundle of software that enables IPOs to electronically register, process and publish patent, trademark, and design applications.

discuss the bigger picture of digital transformation in IPOs and forecast on implementation of frontier technologies including AI tools.

61.   Ms. Fabiola Varela Mata, Director General, Registry of Intellectual Property, Costa Rica, discussed the IPO of the future and the role of frontier technologies in the changes to IP services. Ms. Mata first described Costa Rica, its systems, its limited resources, and how it relies on WIPO's tools. She noted that in 2016, Costa Rica implemented IPAS for inventions, utility models, and designs. Ms. Mata discussed the volume of applications and the digital tools Costa Rica implemented. She also listed future plans, including incorporating new technologies such as AI, to facilitate the management of filings.

62.   Ms. Sally Radwan, Advisor to the Minister for Artificial Intelligence, Ministry of Communications & Information Technology, Egypt, described the key pillars of Egypt's AI strategy: (1) improve government, (2) absorb AI into key economic sectors, (3) build capacity, and (4) international relations. She indicated that people, data (availability and governance), and systems (infrastructure, ecosystem, and regulation) pose three main challenges to the implementation of the strategy. Ms. Radwan identified lessons learned and recommendations, including the importance of being clear about the objectives, starting with people (users and experts), and having a data strategy.

63.   Ms. Daria Shipitsyna, Head of the Strategic Communication Center at the Federal Institute of Industrial Property (FIPS), Russian Federation, shared the imminent launch of new IP services. She talked about major achievements since 2019 including online verification for registration, improved search facilities and simpler examinations, reduced administrative times, and quality of e-filing. Ms. Shipitsyna discussed the potential of AI in making examinations more efficient and described FIPS' digital transformation plan up to 2024, which focuses on customer experience. In 2023, FIPS will expand AI for classification and translation and plans to create new digital instruments for researchers and entrepreneurs. Ms. Shipitsyna noted that FIPS is considering how to monitor and control the costs of IP registration.

64.   Mr. Jens Petter Sollie, Business Architect, Digital Services, Norwegian Industrial Property Office (NIPO), noted that while NIPO is comparatively small, it has data to exchange for access to other collaborators' projects. He discussed NIPO's strategy to create high-quality open data and described using internal processing data, such as search reports and even secondary search results that aren't used in a final search report.

65.   Ms. Mercy Kainobwisho, Registrar General, Uganda Registration Services Bureau (URSB), described URSB's strategies for digital transformation aimed at simplification and expansion of access to online services, creation of a business index, improved transparency, and shaping a modern public administration. Ms. Kainobwisho noted that all back-office IP administration is automated through IPAS, including the processing of applications, trademark publication, and e-document management. All front office services are provided by paper forms, emailed forms, and online. Digitization is important for decision-making and cloud computing addresses the challenge of infrastructure. Ms. Kainobwisho stated that URSB aims to integrate systems between IP and businesses, and she posited that blockchain might help with evidence of ownership, copyright authentication, IP rights management, and enforcement.

66.   Ms. Kainobwisho also described URSB's challenges: buy-in and change management, and business process re-engineering. There are financial constraints to supporting new ICT infrastructure, data protection, and training. Collaboration, learning from other IPOs and data integration are all very important. Ms. Kainobwisho observed that duplication of tool development is wasteful, and there is an information gap between IPOs, which could be addressed by WIPO informational sessions. Ms. Kainobwisho closed by observing that a successful digital transformation will lead to increased efficiency but requires a clear strategy, the right mindset, and skilled staff.

67.   Mr. Christophe Mazenc, Director, Global Databases Division, Infrastructure and Platforms Sector, WIPO, discussed machine learning tools for IPO administration. In particular, he identified numerous pitfalls, including the black box effect, difficult quality assessment, inaccurate marketing promises by vendors, and rapid obsolescence. He advised on methods to avoid pitfalls, such as judicious investment, measuring quality, and preference for deterministic algorithms. Mr. Mazenc discussed the need to set out clear success factors, evaluate the pros and cons of when to invest, and carefully weighing-up buying vs. building tools or reusing existing solutions from other IPOs.

68.   Many of the panelists agreed that it is key to have a clear strategy as part of the digital transformation, including a sound data strategy, and clear objectives supported by skilled staff. They also emphasized the importance of collaboration to promote efficiency in developing new tools and processes.

69.   Before closing the panel, Mr. Natsume posed two questions:

What would enable more collaboration with other IP offices? What is hindering it? What role can WIPO play?

70.   Mr. Sollie reiterated his earlier point that IPOs should improve quality data first. WIPO has a key role in helping to improve data sharing and data quality through the Committee on WIPO Standards. WIPO standards help to define what quality data is and help IPOs produce standardized data, which in turn will help create quality AI.

71.   Ms. Kainobwisho agreed that standardization was important, particularly for weaker IPOs, and that the information and capabilities gap between IPOs is the biggest challenge in collaborations. Today's IPOs have transitioned from basic registration roles to impacting economic development and national development strategies. However, as IPOs add tasks like digitalization, there is no common understanding of these additional roles. Ms. Kainobwisho proposed WIPO hold more information sessions and offer exchange programs for IPO staff to help with capacity building.

72.   Mr. Mazenc proposed two ideas. First, having more working-level meetings to share information and achievements. Second, create an index of AI projects with contact points and specify what can be reused by other offices.[5]

What factors would play a role in deciding whether to develop in-house, collaborate with other players, or use off-the-shelf solutions?

73.   Ms. Radwan noted that the factors depend on the goals, such as building an expert staff or production grade vs. R&D grade. If speed is a factor, it may be worthwhile considering an off-the-shelf solution. Using cloud services might also provide a quick option. Also worth considering is whether it is acceptable to be tied to a vendor.

74.   Ms. Shipitsyna discussed systems upgrades and paying attention to customer needs. She noted that WIPO is very important in opening access to information for national IPOs.

SHARING SESSION: IPO AI TOOLS AND BEYOND

75.   The sharing session was an opportunity for IPOs to share their AI and other frontier technology tools currently being used or under development.

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[5] An Index of AI initiatives in IP offices is available at
https://www.wipo.int/about-ip/en/artificial_intelligence/ip_administration.html#initiatives

76.   Mr. Ke Xu, Senior Program Administrator, IT Department, Patent Office, China National Intellectual Property Administration (CNIPA), discussed the use of algorithms and the results in smart examination, automatic classification, thematic search, machine translation, and image search. He noted that China uses smart image search and machine translation for designs.

77.   Mr. Saar Abramovich, Senior Patent Examiner, Israel Patent Office, discussed the use of an AI search tool by Israel's examiners. The same tool is available to the public to allow inventors to assess patentability. Mr. Abramovich invited everyone to use the tool, provide feedback, and share insights on their AI search engine.

78.   Mr. Junhyeok Choi, Cultural Trade and Cooperation Division, Copyright Bureau, Ministry of Culture, Sports, and Tourism, Republic of Korea, discussed the metaverse and NFTs and how participation in the digital market is increasing, and that there is a lack of understanding of related copyrights. Mr. Choi noted that the Republic of Korea seeks cooperation with Interpol to respond to copyright infringement. He shared plans to establish a consultative body to consider new technology, legal, and copyright issues.

79.   Mr. Won Seok Huh, Deputy Director of the Trade & Cooperation Division at KIPO, discussed how AI improves efficiency to meet the increasing number of IP filings at KIPO. He highlighted the increasing need for big patent data, and AI-based analysis to support national research and development. Mr. Huh shared that KIPO implemented an automatic classification recommendation system in 2021 and has also piloted an automatic search for designs.

80.   Ms. Bethan Curry, Senior Subject Matter Expert, UK Intellectual Property Office (UK IPO), discussed the Trademark Pre-Apply Tool, which uses AI to improve trademark applications, which are filed by many novice users with limited understanding. The Pre-Apply Tool allows users to select goods and services from a pre-approved list and provides an AI-powered search for similar marks. The tool uses machine learning to ensure performance is continuously improved. She described the process and related technologies, such as OCR, automated selectors, and similarity search. Ms. Curry discussed other improvements, such as semantic similarity searches, text removal, and more integrations to remove entry/upload duplication.

81.   Mr. Rahul Bhartiya, AI Project Manager, Digital Transformation Department, European Union Intellectual Property Office (EUIPO), discussed the implementation of AI tools and the human and HR implications of this, including job mapping. He expressed the view that EUIPO's AI solutions will make EUIPO more innovative and provide new opportunities for staff. Mr. Bhartiya highlighted that EUIPO provides a set of AI tools that applicants can currently assess their applications using the same assessment tools used by examiners. In designs, EUIPO uses a chatbot. Image recognition is used to assess similarity with existing marks. Mr. Bhartiya discussed the difficulty of comparing goods and services classes in trademark opposition proceedings and how machine learning has helped to predict class similarity to enable examiners to make better decisions. Mr. Bhartiya also noted the impact of technology on the IP landscape, including automatic content recognition, anti-counterfeiting technology, the impact of AI on infringement, and the enforcement of copyrights and design.

82.   Mr. Samir Ghamri Doudane, Head of Lab, National Institute of Industrial Property (INPI), France, described INPI's development of frontier technologies and AI tools, in particular for (1) pre-examination classification and distribution, (2) Vienna classification of trademarks, (3) automation for recordals, and (4) document anonymization. Mr. Ghamri Doudane also described new projects including work on a customer data repository (which requires data cleaning to eliminate duplicates) focused on creating a unique ID for French companies, and a support chatbot.

83.   Ms. Ana Arredondo Macua, Director, Information Technology Division, Spanish Patent and Trademark Office (OEPM), outlined the challenge of attracting expert staff. She also

described the necessity to have a strong vision of how to improve using digital technology, and that WIPO standards have helped established the framework in which Spain works. She discussed robotic process automation and other AI initiatives, such as search alternatives. Ms. Macua advocated that good quality data is necessary to ensure that machine learning is effective and that cooperation and sharing with other IPOs and WIPO is critical.

84.   Mr. Bruno Pouliquen, IP Data Machine Learning Development Manager, Advanced Technology Applications Center (ATAC), WIPO, discussed using data to improve AI tools. He discussed WIPO AI tools and applications, including tools related to text (e.g., translators, classification), image (e.g., classification), and speech (e.g., speech-to-text). The availability and usage of WIPO Translate on Patentscope were highlighted, including various use cases. He also spoke about using machine learning to automatically classify text, and prototypes for IPC and CPC automatic classifiers. Mr. Pouliquen concluded by noting that it is important to collaborate and that WIPO welcomes the data from IPOs.

85.   Mr. Atsushi Kukuu, Deputy Director, Multilateral Policy Office, International Policy Division, Policy Planning and Coordination Department, Japan Patent Office (JPO), discussed JPO's action plan dating back to 2017, which included the implementation of AI technology for automatic classification and search. Mr. Kukuu described a machine learning competition for image searches of prior trademarks and concluded by noting that the JPO will continue to develop AI tools.

PANEL 5: FRONTIER TECHNOLOGIES AND NOVEL PRIVATE SECTOR IP SOLUTIONS

86.   Ms. Ulrike Till, Director of the IP and Frontier Technologies Division, opened the fifth panel by discussing how intangible assets and IP are becoming the foundation of our new digital world. As a result, IP systems need to become more efficient and accessible but also IP itself needs to become an everyday liquid asset. Ms. Till noted that there are new tools and products to help address IP becoming more useable, which this panel discussed.

87.   Mr. Ian Schick, Founder and CEO of Draft Builders and Specifio, United States of America, discussed machine-generated patent documents. There is a growing number of patent filings at the USPTO, while the number of patent practitioners is not growing at the same rate. At the same time, many applicants are calling for a decrease in professional fees. Mr. Schick argued that a solution would be to increase the productivity of practitioners, and suggested that automation and AI may be able to help increase productivity.

88.   Patent documents generally consist of three different types of drafting: Bespoke content (an attorney's primary value-add), mechanical writing (routine and mundane drafting), and canned text (for example boilerplate provisions that are generally copied across multiple documents). Mr. Schick noted that mechanical writing is increasingly automated (1-2%). He discussed document assembly and other opportunities for improving efficiencies, such as predictive text or dynamic documents. Mr. Schick did not think that AI would replace attorneys as "bespoke" writing will continue to need human/attorney attention. However, routine and mundane parts of drafting would soon be automated using AI. He stated that the impact of automatically drafted documents would include better job satisfaction and better value to clients and law firms, whereas consumers would experience improved accessibility, quality, and speed.

89.   Mr. Marc Levieils, Managing Partner, Regimbeau, France, discussed IP exchange standards for improved communications between IP stakeholders and discussed a standard his firm created to provide more IP tools and facilitate workflows. He discussed developing and testing the standard, and tools to address practice needs, such as payment processes, which currently require strict reconciliation between a financial system and a separate IP management system. This leaves IP rights at risk and the reconciliation requires three times more work than the operation itself. Mr. Levieils contended that a solution could be found in a standard that

unifies the data flow with all financial and IP data in the same file, and automates the reconciliation process, with instant payment.

90.   Mr. Jonas Block, Head of Product Management, IPWe, Germany, described IPwe's mission to: (1) make global IP utilization rates and use cases more transparent, (2) make it easier to communicate and understand IP value, and (3) increase global IP utilization rates. Mr. Block proposed using blockchain for patent transactions. Currently, transaction rates for IP are low and transactions lack a standardized approach to patent valuation, which prevents scalable IP use cases. Mr. Block discussed the utility of blockchain for aggregating and analyzing data, and how IPwe stores all the data for an IP asset. Mr. Block described that these sophisticated datasets in turn make it easier to communicate and understand the value of IP.

91.   Ms. Xiaolan Fu, Professor at the University of Oxford and Founder of OxValue.ai, United Kingdom, discussed a new AI-based platform for valuing technology and the need for increasing IP liquidity, which requires better pricing. Current pricing methods are highly subjective based on assumptions of future income and market acceptance, leading to high variation. Ms. Fu's approach was to develop a new valuation method based on the intrinsic characteristics of technology, linking patent data and other data to create an algorithm validated by machine learning to evaluate the technology. She contended that the technique would promote more investment in innovation, and suggested collaboration with the UN and WIPO to help global tech transfer. Ms. Fu advocated that the method might help IPOs with IP management, identification, and valuation and help governments to improve the measurement of GDP.

92.   Mr. Hao Du, CEO, Huski.ai, United States of America, noted that Huski is developing a better search engine to protect IP assets, which can be applied to brands, product designs, or any digital assets. Huski provides a solution to help brand and IP owners monitor their brands, using AI and big data to answer three questions: (1) whether protected content is used (text and image-based trademark search engine), (2) how it is used, and (3) where it is used. Mr. Du concluded by describing his vision as enabling IP owners to use frontier technologies to reduce the cost of IP ownership and promoting IP awareness, fair use, and innovation.

93.   Ms. Olivia Mazzucotelli, Public Policy Manager, Customer Trust, Amazon, United Kingdom, focused on Amazon's brand protection strategy. The main brand protective tool is the brand registry, which includes trademark and copyright content, images and logos, brand product categories, and manufacturing and distribution locations. Ms. Mazzucotelli discussed the number of takedown actions and the process to check listings using traditional and machine-learning methods. She concluded by discussing Amazon's $700 million investment to fight fraud, abuse, counterfeiting, and IP infringement.

94.   Mr. Federico Ast, CEO, Kleros, France, set out his views that the future of IP claims will be about digital NFTs, small claims, cross-jurisdiction, crypto payments, smart contract enforcement, anonymous parties, and arbitrators. Mr. Ast proposed a solution to resolve exponentially increasing digital disputes between anonymous parties in metaverse jurisdictions. He discussed the inefficiencies of traditional dispute resolution and described the methods Kleros uses. Mr. Ast also discussed NFT marketplaces with only peer-verified NFTs based on cryptocurrency deposits made by an NFT submitter. Mr. Ast observed that while crypto assets are being created at an accelerated rate, the capacity to regulate them is limited, and his technology seeks to help reduce the registration gap and create new assets in the crypto world.

95.   Mr. Peter Oksen, Green Technology and Research Manager, Global Challenges Division, WIPO, discussed risk assessments regarding the likelihood and impact of climate action failure is higher than the expected impact from weapons of mass destruction (for 2007-2020). Mr. Oksen discussed WIPO's efforts to prioritize green technologies, specifically for climate change, food security, and the environment. The adoption of green technology is too slow due to a lack of information about the technologies and their capabilities. He explained WIPO's work as part

of the sustainable development goal contributions of WIPO. Mr. Oksen discussed the WIPO Green platform, including its database, acceleration projects, partner networks, resources, and knowledge materials. He also highlighted WIPO's 13 policy initiatives, including accelerated patent prosecution for green technologies, matchmaking, and training.

<u>What is the top factor that prevents IP from being an everyday liquid asset, and how can technology address that issue?</u>

96.   Ms. Till closed the panel by asking each panelist a question about the top factors that prevent IP from being an everyday liquid asset and how technology can help. Mr. Levieils indicated that the cost of transactions and lack of standardization was the main hindrance. Mr. Block indicated that subjectivity and the lack of standardization and transparency in how to extract value from an IP asset. Technology may help to value IP assets consistently so they can act like any other asset class. Ms. Fu contended that the main hindrance was a lack of an objective valuation of IP. Mr. Ast said the lack of an effective and efficient way to transfer value. Mr. Oksen stated that the main need was to make information available and accessible. Mr. Du's response was to use technology to reduce the costs of IP.

97.   INTERVENTIONS

98.   Mr. Dongmyeong Shin, Head of SW Research Center, LS Ware, Republic of Korea discussed advanced technology and new IP solutions in the NFT sector. NFTs promote transactions by providing technology that prevents forgery and provides digital tracking while retaining the characteristics of blockchain. Mr. Shin emphasized that copyright infringement might occur in an NFT, and the NFT market is exploring how to provide copyrights and distribute copyright fees.

99.   Mr. Patrick Joram Mugisha, Co-founder and Managing Partner of Innovent Labs Africa, emphasized that whatever solutions will be in the marketplace, standards play a vital role. Mr. Mugisha proposed establishing frontier technologies innovation clusters (FTICs) of academia, industry, government, and NGOs to advocate for frontier technologies and related matters for communities and societies. FTICs can provide leadership, in collaboration with IPOs. The private sector will play a critical role, and a public/private partnership will be important within Africa.

100.   Mr. Matthias Hofer, Officer, Member of ICC Commission on IP, Austria, said that the ICC welcomes and supports WIPO's efforts to facilitate the stakeholder global discussion on IP, frontier technologies, AI, and data-based economy, and the existing regulatory framework of IP rights, the digital economy, and business models. Mr. Hofer stressed that frontier technologies and AI in IP administration should follow strict rules and high standards of responsibility, transparency, and accountability for decisions made using these technologies. Hence, IPOs should hold multi-stakeholder meetings such as the WIPO Conversation, to identify key areas of IP administration where these frontier technologies should be implemented and avoided. ICC further recognizes the potential of these technologies to impact and improve IP administration enforcement and management, but its utility should be assessed under realistic expectations to not supplant the fundamentals of IP administration. Mr. Hofer concluded by urging cooperation among IPOs to standardize rules, ensure interoperability, and reduce costs of IP administration through frontier technologies.

101.   Ms. Urzula Marchlewicz, Researcher, Marketing Management Agency, Poland discussed her development of a model, the material needs of humankind, and the measurability of IPOs.

CLOSING

102. Mr. Natsume concluded the fifth session of the WIPO Conversation by noting that WIPO's vision is to support innovation with IP, which is achieved by open dialogue. Mr. Natsume highlighted overarching takeaways that frontier technologies represent a great opportunity for IPOs, and that IPOs have built a foundation on how to make IP services accessible. He noted that WIPO has an updated index of AI initiatives on its website. WIPO will continue to update both the Index of AI initiatives in IPOs[6] and AI and IP Strategy Clearing House, which includes national strategies, legislation, and more relating to AI, data, and frontier technologies.[7] Member States are invited to continue to inform WIPO of changes to these databases.

103. Mr. Natsume announced that the next session of the WIPO Conversation will occur on September 21 and 22, 2022, and will take a deep dive into practical and concrete aspects, namely, AI inventions and protecting AI innovations.

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[6] https://www.wipo.int/about-ip/en/artificial_intelligence/ip_administration.html#initiatives
[7] https://www.wipo.int/about-ip/en/artificial_intelligence/policy.html#clearing_house