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Reframing an Unfolding Canvas: Policy Approaches to Facilitate APEC's Creative Economy amid Evolving Digital Technologies

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KEY MESSAGES

- The creative economy holds untapped opportunities for economic progress globally. In the APEC region, gross exports of both creative goods and creative services have increased since 2012, reaching USD 416 billion and USD 415 billion respectively in 2022.
- The continuing evolution of digital technologies could serve to further realise the potentials of the creative economy. In the APEC region, creative services, which can often be delivered digitally, have in fact overtaken creative goods in terms of value of exports since 2016.
- Digital technologies, such as artificial intelligence (AI), extended realities and more advanced graphic processing units, could help drive creative processes in different ways. They could play a role in inspiring creative ideas and content creation; enhancing creative production and dissemination processes; and expanding ways to appreciate and participate in creative experiences.
- Although the value of digital technologies in driving creative processes is apparent, optimising their use poses several significant challenges. For example, a population with limited digital literacy and exposure may be unable to contribute to or participate in creative innovation. The lack of a clear legal framework for intellectual property (IP) rights could raise liability issues associated with the use of AI. The absence of a supportive policy environment could also weaken an economy's competitiveness in the creative economy.
- Policymakers need to accentuate the strengths of digital technologies while, at the same time, minimising the challenges associated with their use in the creative economy. Approaches to consider include formulating holistic educational and skills training programmes; narrowing the material-access digital divide; providing clarity on IP issues; creating and adapting ecosystems to be supportive of digital technologies; expanding collaborations with various stakeholders; and improving internationally comparable statistics and databases.
- APEC can serve as an incubator of ideas as the region endeavours to reframe the unfolding canvas of the creative economy. APEC can also be an avenue for sharing information and undertaking capacity-building activities toward building a mature creative economy.

Introduction

In 2019, a real banana duct-taped against a white wall went viral for being sold (and eaten) for USD 120,000 at an art gallery in Miami, Florida.[1] Unsurprisingly, many questioned the absurdity of what transpired – asking whether the 'duct-tape banana' could be considered art in the first place.

Regardless of its cultural status, it is worth emphasising that what was bought here was arguably the artist's creative idea rather than the object. Similar examples of creativity can be found across the world, ranging from goods such as designer apparel and traditional crafts to services like animation, music, the performing arts, design visuals, and tourism activities such as fusion gastronomy and heritage experiences. These creative works and experiences form part of the continuously expanding and evolving creative economy.

While there is currently no internationally agreed definition of the creative economy, various researchers, governments and international organisations have contributed to shaping this evolving concept. UN Trade and Development (UNCTAD) has characterised the creative economy as 'the [embrace] of economic, cultural and social aspects interacting with technology, intellectual property (IP) and tourism objectives'.[a,2] This definition echoes aspects of how institutions like the World Intellectual Property Office (WIPO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) define the creative economy.[3]

Often, IP is what differentiates a creative good or service. To illustrate, a generic notebook is obviously a non-creative good, yet the simple addition of an *anime* character on its cover could arguably qualify it as a creative product. What marks the difference is the creativity in the cover, that is, the IP. This value-adding IP is the natural conclusion arising from the artistry of creatives and the use of specialised skills and technologies. Thus, in the creative economy, 'the means of production are in the hands of creative talents, who themselves become the people who transform culture into commodities, and creative skills are the tools to do that'.[4]

Indeed, economies throughout the world have grown interested in this area. In 2023, for instance, the international community manifested this interest by passing the first United Nations (UN) resolution to specifically address the creative economy. This resolution included a call for economies to strengthen data collection and utilise digital technologies responsibly.[5]

Remarkably, this resolution aligns with APEC's own initiatives, in particular, the Aotearoa Plan of Action that sought to 'promote ecosystems that support micro, small, and medium enterprises (MSMEs), including those in the creative industry, to take advantage of the digital economy'.[6] Certainly, APEC members are no strangers to the creative economy. At the individual-economy level, many have introduced or are in the process of introducing strategic policies and programmes to promote its development (see Appendix).

Global support for the creative economy is to be expected as it holds untapped opportunities for economic progress. UNESCO has estimated that the cultural and creative sectors accounted for 3.1 percent of global gross domestic product (GDP) (around USD 3.1 trillion in 2022) and 6.2 percent of all employment (nearly 50 million jobs).[7] Meanwhile, according to UNCTAD estimates, creative goods and services accounted for 3 percent (USD 0.7 trillion) and 19 percent (USD 1.4 trillion) of global goods and services exports, respectively, in 2022.[8]

Moreover, the continuing evolution of digital technologies, in particular, since the COVID-19 pandemic, paints a positive future for the creative economy's growth. An unfolding canvas, creative goods and services are increasingly transforming into digitally deliverable formats – a development that has increased their global trade.[9] And such opportunities are not limited to these creative works because even those that require a functional medium, such as apparel for fashion design, have benefited through the strategic use of digital technologies. Alongside this, however, are challenges that require policymakers' attention, partly because digital technologies thrive in what is arguably a modified frame of enabling factors.

This policy brief discusses the intersection between the creative economy and digital technologies, particularly how digital technologies can help drive creative processes. It also identifies some of the key challenges faced by the creative economy in using digital technologies and offers policymakers approaches to reframe existing policy environments, thereby facilitating APEC's creative economy amid the evolving digital technologies.

[a] UNCTAD has characterised the creative economy in multiple ways. For brevity and clarity, however, only the definition most relevant to this policy brief is cited here.

Category	Description	Examples
Creative Goods	Art crafts	Carpets, products related to celebration, other crafts, paperware, wickerware and yarn
	Audiovisual	Films and CDs, DVDs and tapes
	Design	Architecture, fashion, glassware, interior, jewellery and toys
	New media	Recorded media (e.g., memory cards and smartcards) and video games
	Performing arts	Musical instruments and printed music
	Publishing	Books, newspapers and other printed matter (e.g., maps and calendars)
	Visual arts	Antiques, paintings, photography and sculpture
Creative Services	Research and development	Provision of customised and non-customised research, licences for the use of the outputs, sale of proprietary rights (e.g., patents, copyright)
	Software	Mass-produced software, development of operating systems, licenses to reproduce and/or distribute computer software, purchases of originals and ownership rights
	Audiovisual	Movies, music, radio, television, performing arts, and licenses to reproduce and/or distribute them
	Information	News agency services and non-bulk subscriptions to periodicals
	Advertising, market research and architecture	Design and creation of advertisements, trade fairs, and design of buildings
	Cultural, recreational and heritage services	Museums and sports

Table 1. UNCTAD operational definition of creative goods and services

UNCTAD=UN Trade and Development
Note: For brevity, the product and services codes are not listed. Readers are encouraged to explore the following UNCTAD sources for the full descriptive list of goods and services. Source: APEC Policy Support Unit (PSU) compilation based on UNCTAD, 'Creative Goods Groups (HS 2012)," 5 June 2024, https://unctadstat.unctad.org/EN/Classifications/DimHS2012Products_Creatives_Hierarchy.pdf; UNCTAD, *Creative Economy Outlook 2022* (New York: UN, 2022), https://unctad.org/publication/creative-economy-outlook-2022

Overview of the Creative Economy in APEC

Measuring the creative economy's contributions is challenging. By right, only the value-added arising from IP should be treated as the creative value. The worth of the functional medium, which in the earlier example is the generic notebook, should have been excluded. However, this distinction is impractical.

With respect to trade, for instance, existing nomenclatures are not equipped to accommodate such nuances. One compromise is to follow specific criteria. Among the most common are criteria based on individual creativity, percentage share of the creative component, copyright, or share of creative occupations.[10] Another approach is to adopt an operational definition of creative goods and services, like the one by UNCTAD (Table 1).[b]

The contributions of APEC's creative economy as a region are difficult to characterise given the limited data available,[c] with the exception of data on trade. Using UNCTAD's operational definition of creative goods and

[b] The operational definition identifies a range of creative goods and services through, respectively, product codes and services codes.

[c] Reasons include the absence of a commonly agreed definition or a set of criteria and the lack of resources to regularly monitor and produce economic statistics on the creative economy.

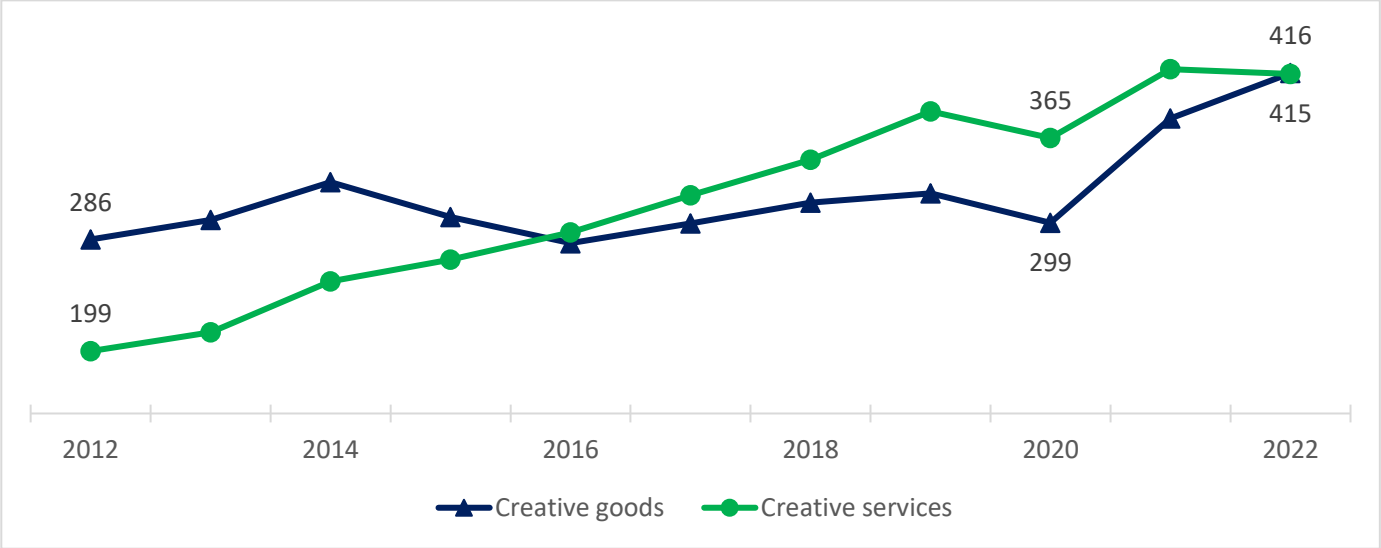

Figure 1. APEC gross exports of creative goods and services in 2012–2022 (billion USD)

Notes: Goods trade data (2013–2018) for Papua New Guinea are based on 2012 data. Data for 2022 for Papua New Guinea and Russia are based on 2021 data. Services trade data (2020–2022) for Viet Nam are based on 2019 data. The APEC aggregate does not include Brunei Darussalam and Chinese Taipei due to incomplete data coverage. Source: APEC PSU calculations using data from UN Comtrade (downloaded via World Integrated Trade Solution, accessed 20 July 2024) and UNCTAD's experimental data on creative services, accessed 20 July 2024.

services, it is possible to calculate an APEC aggregate based on existing databases of trade figures.[d]

Figure 1 shows that APEC's gross exports for both creative goods and services have increased since 2012, reaching USD 416 billion (goods) and USD 415 billion (services) in 2022. Notably, in terms of value of exports, creative services overtook creative goods in 2016. Also, during the period 2013 to 2019, the average annual growth rate of the export of creative services (10 percent) outpaced that of creative goods (2 percent). The quick pace of the growth of creative services may be attributable to the emergence of digitally deliverable services, especially amid the pandemic.[11]

Creative goods and services represented 5.8 percent of the APEC region's total gross exports of goods and services in 2022. This is lower than the global share, which is 6.9 percent, suggesting that there is room for creative economy exports to grow further alongside other goods and services. Meanwhile, APEC represented 40 percent of global gross exports of creative goods and services in 2022, lower than its peak in 2015 (44 percent). Despite growing in value, APEC's share of world creative gross exports has been decreasing since 2016. This could be indicative of faster growth in the rest of the world.

How Digital Technologies Help Drive Creative Processes

The advent of transformative digital technologies and their applications,[e,12] especially those associated with the fourth industrial revolution, has strongly changed how economies and industries produce and consume both goods and services.

The World Bank has estimated that the digital economy alone is responsible for more than 15 percent of global GDP, growing 2.5 times faster than physical global GDP over the last decade.[13] About a third of the digital economy is driven by the growth of the mobile industry, which is forecasted to grow from USD 5.2 trillion in 2022 to USD 6.0 trillion in 2030.[14]

This trend of increasing digitalisation is likely to benefit the creative economy as well. In fact, the circumstances

[d] A two-step estimation was conducted to calculate exports of creative services. The first step was to calculate economies' estimated percentage share of world creative services exports based on actual services exports data from UNCTAD. Due to limited data, values were calculated using the numbered 1-digit level (e.g., SJ3 instead of SJ311). Hence, the estimated percentage share could underestimate or overestimate the actual percentage share of the economies' exports of creative services. The second step was to use these percentage shares to estimate economies' exports of creative services based on UNCTAD's experimental data on creative services.

[e] Technically, technologies and their applications are two different things. The former refers to the practical manifestation of science (e.g., machine, software, material) whereas the latter pertains to a program or tool that enables the user of the application to carry out specific tasks. For simplicity, this policy brief is referencing both concepts whenever the term 'digital technology' is used.

caused by the COVID-19 pandemic made it imperative that the creative economy digitally adapt in various ways and to varying extent.[15] Some in the creative economy have benefited from new and emerging technologies, such as generative artificial intelligence (AI), while others have started to use technologies that have been around for decades but have seen improvements and increased affordability over time, such as computer assisted design (CAD) and videoconferencing platforms.

In the context of the creative economy, digital technologies that have gained interest of late are AI, extended realities (e.g., augmented, virtual), drones, machine learning algorithms (e.g., neural networks, deep reinforcement learning), more advanced and powerful graphics processing units, micro-controllers and single-board computers, micro-light-emitting diodes, and blockchain distributed ledgers.[16]

Whether used individually or in combination, these digital technologies can help drive creative processes in at least three ways: (1) by inspiring creative ideas and content creation; (2) by enhancing creative production and dissemination processes; and (3) by expanding ways to appreciate and participate in creative experiences.

Inspiring creative ideas and content creation

Natural language processing algorithms can be used for creative writing and musical composition. One interesting example is an AI machine called Benjamin, which was trained by feeding it dozens of scripts. Benjamin eventually learned to write its own screenplays for fictional short films.[17] Quality aside, this case shows the potential of AI-enabled applications to inspire content creation, perhaps refined by human interventions. In fact, content co-creation has become possible with generative AI. In the music industry, for instance, Flow Machines by Sony can help analyse data and identify musical patterns to help composers construct new melodies and music.[18]

AI-powered audio, image and video processing applications can be used to explore different artistic expressions, particularly across various visual arts, such as through options to enhance contrast in, or colour, black-and-white photographs.[19] Similarly, drones have opened the field of aerial photography to more photographers and hobbyists, which in turn expands their artistry.[20]

Further, design and creative services could use deep neural networks to synthesise images. One example is neural scene decoration, which can be used to help interior designers with difficult, time-consuming tasks.[21] To illustrate, interior designers typically conceptualise their design and furniture placement and then model that using a CAD program before they produce a realistic image. Deep neural networks can help simplify this process, subject to certain limitations.

Enhancing creative production and dissemination processes

Machine learning-enabled capture and motion prediction applications can be used to animate synthetic avatars, objects and scenes. For instance, Adobe's Character Animator has been used by studios and other online content creators to synchronise lips, track eyes and control gestures through real-time digital inputs.[22] In the same way, movie studios have been using digital twins alongside human actors.[23]

Algorithms, deep neural networks and collaborative platforms can facilitate dissemination of creative works. Adobe's lossless compression, for instance, shrinks the file size of a digital artwork without sacrificing much graphic detail.[24] Digital platforms that facilitate hyperconnected collaborations among creators, publishers and tech companies, such as Spotify and Netflix, are powerful avenues for connecting consumers to a network of creative works. Related to dissemination, the registration of IP could potentially be enhanced by the strategic use of blockchain platforms. For instance, by executing smart contracts that record a time stamp of first or subsequent use of a trademark, creatives can forego the often costly traditional use of accounting and archived paper records.[25]

Expanding ways to appreciate and participate in creative experiences

AI and various technologies can generate realistic environments and expand creative/interactive experiences. By using technologies like video-to-video synthesis, interactive game studios can convert input semantic videos (e.g., street views, faces) into output photorealistic videos, which can then be used to generate synthetic gaming environments.[26] These AI-generated environments are one way to expand how people appreciate and participate in creative experiences. Another is by using AI to generate interactivity and develop interactive narratives. For example, a multi-agent system called MADE (massive artificial drama engine) can elevate the video gaming experience by generating procedural content, such as designing emergent background stories for non-player characters in massive virtual worlds.[27]

Combined use of the internet, specialised hardware and machine learning technologies can expand the range of immersion. One example is a prototype that enabled museum visitors to interact with features of a train model.[28] Another example is immersion through extended realities. During the pandemic, the Smithsonian utilised augmented reality to give people the ability to interact with objects through Instagram.[29] Similar interactions can go further. For example, the restaurant Le Petit Chef projects an animated little chef cooking food, thus entertaining guests while they wait.[30]

Spatial computing technologies can redefine creative experiences. Although still in its early stages, consumer hardware such as Meta Quest and Apple Vision Pro has expanded the use cases for both augmented and virtual realities to include both work and entertainment.[31] The area of entertainment has seen exciting developments like Meta Quest's Music Valley Concert Series. This series has been giving fans of artists such as Doja Cat and Blackpink a taste of virtual reality (VR) concerts.[32] This is significant as music festivals and concerts often bring economic boosts. Taylor Swift's Eras Tour, for example, generated up to an estimated SGD 500 million in Singapore tourism receipts.[33] VR concerts could be complemented by social network platforms. An example is Weverse, a homegrown platform by the entertainment company, Hybe, that allows millions of fans to interact with the Korean pop sensation, BTS, thereby strengthening the group's fan communities around the world.[34]

Challenges for the Creative Economy in Utilising Digital Technologies

The value of digital technologies in driving creative processes is apparent, but they are not a panacea. Optimising their use requires a supportive environment. The following sub-sections discuss some of these challenges along four themes, namely: (1) the digital divide; (2) the mindsets of potential users; (3) legal frameworks for IP rights; and (4) the broader creative economy policy environment.

Digital divide

Appropriate skills are imperative in employing digital technologies. It is also important that users are aware of the limitations of digital technologies (e.g., the training data used affects the outputs generated by AI algorithms). However, studies point to a digital divide in the region. A survey of over 23,000 workers across 19 economies (including nine APEC economies) by Salesforce for its 2022 Digital Skills Index reveals that more than three-quarters of respondents did not feel ready to operate in a digital-first world, while at the same time less than 30 percent are actively involved in digital skills learning and training.[35]

Gendered nuances also exist. Not only are women represented less across the creative economy compared to their male counterparts,[36] but women may also be less equipped with digital skills relative to men.[37] In the gig economy, for instance, women are often found in historically feminised occupations (e.g., clerical and data entry work, caregiving) that typically do not capitalise on technology-related skills.[38]

These are concerns because a population with limited digital literacy and exposure can undermine creative innovation. To draw from an earlier example, Le Petit Chef might not have come up with their idea if they did not know of animation, projectors and three-dimensional (3D) mapping.

The digital divide also pervades other key areas. One important area is infrastructure, as the adoption of digital technologies, such as AI and collaboration tools, depends on reliable and speedy internet connections. Yet, across APEC economies, fixed broadband subscriptions vary substantially, from a low of 0.2 per 100 people to a high of 44.3, while active mobile broadband subscriptions range from 11 to 174 per 100 people. In July 2023, fixed broadband connection speeds ranged from 16 Mbps to 247 Mbps, and mobile broadband connections from 17 Mbps to 141 Mbps.[39]

Another is the affordability of broadband access. Here, there are notable variations in both fixed and mobile broadband prices across APEC economies. Additionally, several economies have not met the affordability target of below 2 percent of monthly gross national income (GNI) per capita for cost of entry-level broadband services set by the UN Broadband Commission for Sustainable Development.[f,40]

In addressing the digital divide in the context of the creative economy, it should be noted that digital technologies could be used to help broaden access to creative works, as shown by teamLab's art exhibitions in different parts of the world.[41] Here, though, the challenge is to develop the physical infrastructure through which the creative goods and services (including those developed with the help of digital technologies) are showcased and experienced.

[f] Seven economies have not met the affordability target for the fixed broadband basket, while one economy has not met the affordability target for the mobile broadband basket.

Mindsets of potential users

The advent of novel technologies is often accompanied by users hesitant to adopt them for various reasons. A classic example is the Luddite movement in the 1800s, where workers feared that newer technologies would lead to their unemployment. A similar argument has been put forward in the creative economy. For example, the emergence of AI influencers has led human influencers to worry about their income being cannibalised and threatened.[42]

The view that digital technologies are not quite there yet is also contributing to slower uptake. For example, there is a perception that storytelling cannot yet be fully replicated by generative AI despite significant progress in recent years.[43] Furthermore, users are reluctant to use these technologies if they distrust their providers. For instance, some companies are worried that using intermediary platforms would make them beholden to these platforms in one way or another.[44]

Even when creative talents are keen to adopt and use digital technologies, access to financial resources can pose a challenge. A 2017 survey among independent artists in the US, for instance, revealed that 75 percent of respondents earned less than USD 10,000 a year.[45] Many reported that their income from creative works represented less than a quarter of their total income. Inadvertently, the dissolution of physical borders arising from the expansion of digital markets could have led to tighter competition without a parallel increase in the demand for creative goods and services, thus exacerbating the difficulty faced by creatives in accessing much-needed financial resources.

Legal frameworks for IP rights

Policies generally lag technological advancements. Depending on the status quo, this lag may lead to a policy environment that is either restrictive or flexible. Arguably, a flexible environment may enable emerging technologies to grow and be pushed to their limits, but it may also lead to questionable practices.

The creative economy is no exception. One front where this is playing out pertains to IP infringement associated with the use of AI. In the area of model training, for example, it has been alleged that while some AI developers have agreements to use certain data and information for training, most use data (including copyrighted materials) scraped from the internet and other sources without prior explicit consent.[46] In addition to infringing copyright holders' rights by merely reproducing works without authorisation, AI models could also produce derivative works and products, potentially harming the market for the originals without the originating creative being properly or fairly compensated.[47]

Experts, however, remain divided on whether infringement claims by creatives would hold up in court. On the one hand, some copyright holders have requested courts in the US to order the destruction of AI systems trained on copyright-infringing copies.[48] On the other hand, there is the claim that the use of copyrighted works in training AI systems may constitute fair use, a legal defence for copyright infringement existing in the US and a handful of other jurisdictions.[49]

Regulators and IP offices have not made any definitive pronouncements as of April 2024, but many, including those from Japan;[50] Singapore;[51] and the US,[52] are consulting with different stakeholders (including creatives) on how to approach these developments.

Where the AI models generate outputs that are substantially similar to the copyrighted materials, questions arise as to whether these would constitute IP infringement. And, if IP has been infringed, who should be liable: the users or the model developers? Critical to this is whether the user has deliberately prompted the models to generate the infringing output. Additionally, granted that an AI developer has inserted mechanisms to minimise IP infringement, such as guardrails whereby an output will not be generated in response to specific keywords, and yet, infringing outputs are still generated, who would then be liable? The novelty of those aspects poses a challenge to previous jurisprudence and casts a cloud of uncertainty over the use of AI for the creative economy.

Related to this problem is the ongoing legal debate on whether AI-generated outputs are copyrightable. The prevailing view is that only humans can be authors of copyrighted works. After all, the objective of copyright is to provide exclusivity to a human author for a period of time so that she/he is incentivised to create more. Yet, the US Copyright Office has granted registration for *Zarya of the Dawn*, a comic book generated with the help of Midjourney, a generative AI program (although it should be noted that the copyright protection is limited only to the text and arrangement of images in the book).[53]

As there is currently no legal certainty, some industry players have taken a practical approach. For instance, OpenAI has decided to assign to users the rights to contents generated by them, with the requirement to inform OpenAI if users are involved in a legal complaint or infringement case.

Setting aside this issue, it is worthwhile to note that there would be significant commercial and societal implications if AI could create outputs of a quality on par with or better than humans. For instance, given that Spotify must pay 70 percent of the revenue of each stream to the corresponding artist, the firm is financially incentivised to remove the artist from the equation since

this will generate the firm more revenue. Generating music using their own AI applications makes commercial sense in this case.[54]

Even in situations where it is arguably more acceptable to employ AI, the issue of transparency and attribution remains. Human influencers, for instance, have asserted that their virtual counterparts should disclose that they are not human. While some creators have done so, through, for example, tagging their post with the hashtag #aimodel, others do not. At most, some use vague terms, such as #digitalinfluencer, that could apply to both groups of influencers.[55]

To be fair, attribution requirements for outputs generated by AI models vary across jurisdictions. In the European Union, for example, the AI Act requires providers of AI systems that generate synthetic audio, image, video or text content to ensure that these outputs are marked in a machine-readable format and detectable as artificially generated or manipulated. The Act also requires models to disclose if they have been trained with copyrighted materials, another issue of transparency. Rules vary at the level of AI developers too. OpenAI, for example, indicates that users are not required to attribute text or images generated by its model.[56]

There might also be other issues associated with the use of trademarks in the virtual world, and how to protect these rights, including their enforcement.[57] This shows that beyond copyright, other IP rights could influence how the creative economy evolves. It should be noted that IP rights, in particular those beyond the minimum standards included in multilateral agreements, are largely territorial. Hence, increased coordination and exchange of experiences among IP offices would be critical.

Besides IP liability issues associated with the use of AI, digital technologies and tools may also exacerbate existing IP issues that creatives have long had to contend with. Some digital platforms have put in place practices to respect IP.[58] However, large-scale dissemination of copyrighted materials with no compensation given to the IP owners does still happen.[59] Certain platforms also make it easier to disseminate materials across borders, where enforcement against infringement may be difficult to implement given that IP rules vary across jurisdictions. The negative impact of such piracy can discourage emerging artists, more so than it hurts already established figures.[60]

The broader policy environment for the creative economy

An economy-wide strategic policy document or programme not only sends a strong signal about an economy's investment and interest in a particular area, but also builds a holistic and coordinated effort among stakeholders. Yet, not all APEC economies have adopted (or have ongoing efforts to adopt) at least one strategic policy document or programme related to the creative economy (see Appendix). Among those found to have policy document or programme, 11 explicitly referenced the development of digital technologies as a driver of the growth of the creative economy.

Common interventions mentioned in an economy's strategy include tax incentives, grants and other financial support, networking mechanisms, and education and training. For instance, Australia's strategy includes a package worth up to AUD 286 million that would establish a new principal arts investment and advisory body, support local arts development, adopt policies safeguarding cultures, and fund grants to bolster digital literacy skills and connectivity.[61] Elsewhere, Thailand established the Thailand Creative District Network to coordinate stakeholder efforts to develop creative spaces across the economy.[62]

Many APEC economies have also introduced complementary initiatives that may contribute to the development of their creative economy. One example is an export strategy known as Cool Japan, which capitalised on the opportunities of globalisation to promote Japanese culture and has, to an extent, led to increased demand for Japanese creative works.[63]

Importantly, the absence of an economy-wide plan related to the creative economy may weaken an economy's competitiveness in this area since programmes and initiatives may exist in silos or could be fragmented. However, to be fair, the nuances surrounding the diversity of cultures can make it challenging to establish an economy-wide strategic policy or programme.

Nonetheless, a few APEC economies do have ongoing discussions on the matter. Hong Kong, China announced in 2023 their plan for a comprehensive blueprint to develop an internationally competitive creative economy and promote Chinese culture.[64] Meanwhile, US policymakers have filed several bills to support universal arts education, expand support programmes and provide tax incentives, although there are no explicit interventions aimed at the development of digital technologies for the creative economy.[65] Similarly, China has legislation pending: its Cultural Industry Promotion Law seeks to coordinate economy-wide efforts to develop its creative economy (the bill

includes explicit references to the development of digital technologies).[66]

Policy Approaches to Facilitate Digital Technologies in APEC's Creative Economy

As discussed, digital technologies could be beneficial to the creative economy, but there are challenges in adopting them. Thus, it is critical to reach a balance whereby policymakers endeavour to accentuate the strengths of digital technologies while minimising their challenges. The approaches that could be considered are discussed below.

Formulate holistic educational and skills training programmes

Creative talents are the core of the creative economy. In the context of the digital economy, this could mean people who are not only creative but also at ease with using digital technologies to manifest their creativity. As such, it is critical that economies ensure a steady supply of digitally literate creative talents.

Fundamentally, economies would have to establish a holistic curriculum where creative subjects are integrated in science, technology, engineering and mathematics (STEM) education, and vice versa. For example, the Hong Kong Baptist University offers an honours bachelor's degree in art technology, the University of Hong Kong has an undergraduate degree in humanities and digital technologies, while the Hong Kong Design Institute runs a higher diploma in arts technology.[67] Specialised school curriculums could also be explored. One example is Korea's Busan International K-pop High School expected to open in 2028.[68]

At the same time, economies would have to inculcate the value of upgrading one's skills through lifelong learning programmes. After all, more than 65 percent of students who enter primary education are estimated to likely end up in jobs that do not yet exist.[69] Depending on the specific creative sector, this may mean identifying and offering more targeted skills training programmes or developing transferable skillsets.

Also, to build experience across the creative sectors, it is important that economies explore avenues such as internships, apprenticeships and job placements. The Polytechnic University's Research Centre for Cultural and Art Technology, for instance, partners with firms such as Tencent and Nvidia to nurture talents.[70]

Narrow the material-access digital divide

Affordable access to relevant hardware and software is a prerequisite to the use of digital technologies in the creative sectors. Easier access to financing, grants and incentives could go a long way in helping creative talents on this front.

Furthermore, the optimal use of digital technologies is conditional on the availability of supporting digital infrastructure. Specifically, on broadband connectivity, it is imperative that economies focus on improving access and coverage by working with telecommunication providers. This may include the use of low earth orbit satellites to connect rural communities to the internet.[71]

Digital infrastructure aside, it is important for economies to enhance physical infrastructure, including the repurposing of existing spaces and buildings to serve as venues for creative goods and services to be showcased and experienced. In some cases, this may entail programmes and initiatives to develop digital and physical infrastructures in parallel. In Hong Kong, China, HKD 70 million was allocated to upgrade government facilities between 2023 and 2024 so that arts groups could apply technology more extensively in their performances.[72]

Provide clarity on IP issues

IP lies at the front and centre of the creative economy. Laws and regulations to protect IP incentivise rights holders to create in the first place, but they are also designed to maintain an open and competitive environment among creatives.

The emergence of new digital technologies such as AI has raised questions that regulators and IP offices are currently grappling with. For example, would the creation of derivative works and products using AI models that are trained on copyrighted materials constitute IP infringement or fair use? Or could a user whose only contribution is to enter a prompt be considered an author? Also, could copyright be assigned to AI-generated output? And, if the degree of human involvement is a factor, how much involvement is needed before regulators can assign such copyright?

To encourage the wider adoption of digital technologies in the creative economy, it is critical that IP issues are sufficiently clarified. One way to do this is by working closely with the relevant industries and rights holders to foster productive dialogues on identifying best practices to enable the creative economy's growth. Economies should also endeavour to overcome existing IP issues that may have been exacerbated by digital technologies (e.g., large-scale infringement or illegal dissemination of copyrighted materials across borders).

Create and adapt ecosystems to be supportive of digital technologies

The potential impact of the use of digital technologies, particularly emerging technologies, in the creative economy is immense. One way to maximise this potential is by adopting an economy-wide strategic policy or programme that coordinates stakeholders' efforts and provides a common vision or roadmap.

Here, it is important to highlight that there is no one-size-fits-all approach in creating a supportive ecosystem. Often, a plethora of initiatives act in concert (holistically). For instance, having regulatory sandboxes is one mechanism to promote the use of emerging technologies and, at the same time, ringfence the potential dangers. This is useful since it is through experience that businesses may discover the non-viability of technologies or seek to improve them. For example, Stem Disintermedia, a firm that helps music creatives split royalties, opted not to use blockchain as artists found uploading the metadata related to their work too burdensome.[73] Meanwhile, economies can also create hubs to enable access to shared resources, to showcase the use of emerging technologies, and to promote cross-pollination between people from different sectors (such as collaborative work between creatives and non-creatives).

Certainly, the role of targeted policies and programmes also matters. After all, some technologies are relatively new, so their use cases remain limited. Others, which have been around longer, continue to broaden their usage and evolve along with technology advancements and affordability. It is important that economies do not stifle the adoption of these technologies and stand ready to tackle the challenges that may arise. One way to do this is by adopting initiatives that support solutions for specific creative sectors. For example, funding may be provided to expand research on sensors related to smart textiles.[74] However, these targeted initiatives should remain aligned with the macroscopic guidance of an economy-wide strategic policy or programme.

Expand collaborations with stakeholders

Different stakeholders could contribute to creating a favourable environment for the adoption of digital technologies and it is crucial that economies leverage their efforts.

Amazon, for example, has taken steps to monitor and curb the influx of AI-generated books. In September 2023, it posted new guidelines requiring self-published authors to disclose if they had used AI to create texts. It also limited the number of titles that users could upload to its self-publishing platform to three times a day.[75] The academic sector has also devoted time to tackling the challenges presented by digital technologies. For instance, researchers from the University of Chicago have developed Glaze and Nightshade, both of which are software to tweak pixels in ways that could not be discerned by humans but that would make the digitised art appear dramatically different to AI.[76] Meanwhile, researchers at Washington University in Missouri have come up with AntiFake software to prevent AI from copying voices by adding noises to digital recordings of people speaking.

Improve internationally comparable statistics and databases

Having an internationally agreed definition and reliable and comparable statistics are critical to supporting the development of the creative economy, including its adoption of digital technologies. Adopting regular and consistent reporting would allow policies to be shaped in a form that strengthens the creative economy's development. Economies could participate in various international efforts on this front. For example, UNCTAD has created the Informal Working Group on Creative Economy that aims to review and potentially create a new working definition of the creative economy and its industries.[77]

Reframing an Unfolding Canvas: The Role of APEC as an Incubator of Ideas

Digital technologies present the creative economy with both opportunities and challenges. While they can help to drive creative processes, the optimal use of digital technologies necessitates the resolution or minimisation of related challenges.

Certainly, the creative economy's untapped potential gives APEC a strong incentive to shape its development. This could entail policy interventions that give the creative economy the right set of enabling factors amid a digital technologies landscape that continues to evolve – akin perhaps to how an artist keeps a canvas presentable by removing its old frame and replacing it with something new. How this new frame will look remains debatable.

Even as APEC economies take different approaches domestically, regional endeavours could complement their efforts. For instance, exports of creative goods and services naturally require cross-border collaboration and cooperation. On this front, APEC can do what it does best: serve as an incubator of ideas.

In 2017, for instance, APEC Leaders welcomed the APEC Internet and Digital Economy Roadmap (AIDER)

to promote the development and growth of the internet and the digital economy in the region.[78] Relevant key focus areas identified in this roadmap include: developing the digital infrastructure; promoting innovation and the adoption of enabling technologies and services; and enhancing trust and security in the use of information and communication technologies. A similar roadmap could be envisioned for the creative economy – one that will promote the region's mutual prosperity by addressing issues such as the strategic use of AI and other digital technologies.

Furthermore, as an international organisation, APEC provides an avenue to share information and undertake capacity-building activities. This can go a long way toward building a mature creative economy across the region. Given that these endeavours would require coordination and collaboration between government agencies and various stakeholders, APEC can leverage its convening role by fostering cross-fora collaboration, public–private dialogues, workshops and similar events.

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Appendix. Examples of economy-wide strategic policies and programmes related to the creative economy

Economy	With Explicit References to Developing Digital Technologies	Policy / Programme	URL
Australia	Yes	National Cultural Policy: Revive	https://www.arts.gov.au/what-we-do/new-national-cultural-policy
Canada	Yes	Creative Canada Policy Framework	https://www.canada.ca/content/dam/pch/documents/campaigns/creative-canada/CCCadreFramework-EN.pdf
Chile	No	National Plan to Promote the Creative Economy	https://www.cultura.gob.cl/wp-content/uploads/2017/04/plan-economia-creativa.pdf
China	Yes	Opinions on Promoting the High-quality Development of the Foreign Cultural Trade	https://www.chinalawtranslate.com/en/18328-2/
Hong Kong, China	Unknown	Blueprint for Arts and Culture and Creative Industries Development (pending)	https://www.chinadailyhk.com/hk/article/586636
Indonesia	No	Law No. 24 Year 2019 on the Creative Economy	https://peraturan.bpk.go.id/Details/123686/uu-no-24-tahun-2019
	Yes	National Strategy for Artificial Intelligence	https://ai-innovation.id/images/gallery/ebook/stranas-ka.pdf
Japan	Yes	Cool Japan Export Strategy	https://www.cao.go.jp/cool_japan/english/pdf/cooljapan_initiative.pdf
Korea	Yes	Content Industry Promotion Act	https://elaw.klri.re.kr/eng_service/lawView.do?hseq=39662&lang=ENG
Malaysia	Yes	Malaysian National Creative Industry Policies	https://www.komunikasi.gov.my/pdf/dikn.pdf
Papua New Guinea	No	National Cultural Policy 2022–2032	https://www.ncc.gov.pg/wp-content/uploads/2022/07/National-Cultural-Policy-2022_2032.pdf
The Philippines	Yes	Philippine Creative Industries Development Act	https://lawphil.net/statutes/repacts/ra2022/ra_11904_2022.html
Singapore	Yes	Our SG Arts Plan (2023–2027)	https://www.nac.gov.sg/docs/default-source/the-arts-plan/our-sg-arts-plan_2023---2027_phase-4_updated.pdf?sfvrsn=bf188896_2
Chinese Taipei	Yes	Development of the Cultural and Creative Industries Act	https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=H0170075
Thailand	No	Thailand Creative District Network	https://www.cea.or.th/en/creative-district/tcdn
United States	No	Pending legislation: HR 9175 (CREATIVE Act) HR 6569 / S 3560 (PLACE Act) HR 6381 / S 3521 (CREATE Act) HR 4750 / S 2872 (PATPA)	https://www.americansforthearts.org/by-program/reports-and-data/legislation-policy/legislative-issue-center/federal-creative-economy-legislation
Viet Nam	Yes	Strategy for Developing Viet Nam's Cultural Industries to 2020, with a Vision to 2030	https://vanban.chinhphu.vn/default.aspx?pageid=27160&docid=186367

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