Background Paper

The State of Digital Animation in the Philippines

2022

Department of Trade and Industry
Competitiveness and Innovation Group

Contents

1. Executive Summary

The Philippines has strengths in animation through the good technical skills of the people and English language capabilities. In terms of the animation value chain, the country has yet to reach the higher value animation services of conceptualization and pre-production but has already gained significant expertise on production and post-production works, particularly on 2D (and to a certain extent, 3D) animation. Over time, the Philippine animation studios largely cater to the Western market, followed by the Japanese and European markets.

There is no single agency or organization which currently tracks the size of the global animation market. Different sources suggest that the size could be within the range of US$270 billion to US$355 billion in 2020. These sources also indicate that the animation industry is expected to enjoy modest growth rates – posing opportunities for different countries to consider for industry development. The shift for home-based entertainment, as triggered by the Covid-19 Pandemic, is one considerable factor for the growth in the animation market. As there is decline in the live events segment, there is an increase in video streaming and use of online games at home. Getting out of the pandemic, will not totally alter this set up of consuming animation and the post-pandemic demand for it will most likely be hybrid.

It has been a challenge to attract investors and develop a Philippine or regional Asian market for local animation. One significant reason is that the competitor nations have also targeted the same segments in the animation industry. Some ASEAN countries have specific programs for the animation industry, which includes fostering local original content for animation. Thus, the relationships that have been built with existing large US-based clients for more projects and knowledge transfer should be complemented with programs for skills development and developing original content.

The application of new technologies in animation may bring both opportunities and disadvantages to the Philippines. On one hand, codifiable processes may be replaced by new technologies such as artificial intelligence. On the other hand, these new technologies may ease the burden of doing codifiable processes so that animation studios can focus on doing higher value work. For the Philippines which focus on codifiable processes at present, it would really be important to move up the value chain.

The challenge therefore is how to make local animators more skilled and more creative, and the industry to be entrepreneurial. This is where the government can step in by providing the right environment for the industry to flourish and align to the global developments. As

mechanistic work is the major area that foreign studios can outsource to the Philippines, it will be important to develop own local content. There had been attempts to do this, but the general lack of capital and institutional support constrained this.

There are already different programs from various government agencies to support skills development and to provide incentives for eligible animation studios. However, it would be more ideal if there is one lead agency to implement and monitor the success of these programs. The passage of this Creative Industries Act will serve as the foundation to achieve one goal and implement one roadmap to increase competitiveness of the Philippine animation industry in particular and the creative industries in general.

2. Introduction

The United Nations Conference on Trade and Development (UNCTAD) reported in 2015 that the global creative economy has reached a market size of more than US$500 billion. This is expected to grow faster as the world enters into the digital revolution stage. The creative economy is composed of seven broad commodity groups: design, art crafts, audio-visuals, new media, performing arts, and visual arts. These industries are thriving in the age of digital technology advancement as various platforms and outlets of knowledge, output and delivery of content can be delivered beyond the traditional physical methods.

The onset of the Covid-19 Pandemic in 2020 somewhat changed the trajectory of the creative economy as a group. Those in the performing live events, visual arts, and advertising-related took a hit as venues closed, affecting music, theater, and similar activities. On the other hand, design, arts and crafts, audio-visual and new media related activities flourished as people were restricted in their homes, which in turn increased the demand for online entertainment and online games and gave more opportunities for conceptualizers to think of more innovative ways to address the change created by the pandemic.

Film, television, and video games no longer available in public spaces transitioned to streaming in households and personal gadgets. The lack of physical sports led to the proliferation of e-sports. In the United Kingdom (UK) alone, it was estimated that e-sports market reached revenues of US$1.5 billion in 2020. Nonetheless, the whole creative economy sector is still expected to generate more economic activities especially as the world recovers from the pandemic and as the pandemic itself facilitated the digitalization of many related activities of the creative economy. Even live physical performing activities were able to transition itself by offering these services through streaming facilities.

The Philippines, as a country known for its creativity in arts, music, and industrial design, is poised to take advantage of these global developments even prior to the pandemic. Given the shares of information, communication, and other services sectors to the gross domestic product (GDP), it can be said that the creative economy contributes roughly to 4 percent of total output. The increase in service exports beginning in the early 2000s provided an opening for the country to take advantage of the creative economy and bring it as major contributor to foreign exchange. In the Philippines, most of the digital animation work is seen as part of the IT-BPO industry, which is another part of services exports of the country. While the bulk of services exports remain concentrated in the delivery of voice and contact activities, higher value adding services such as those in software, animation, game development, among others, have been present but have not really been able to provide increasing contribution levels to output.

In the IT-BPO industry, the animation and game development segment – as clustered together in the industry – is estimated to contribute to less than 1 percent of the entire industry. However, industry players regard the high potential of the animation and game development. In 2020, the growth forecast for animation and game development is estimated to reach up to 12 percent, which is significantly higher than the 7 percent growth forecast for the established contact support services segment.

Nevertheless, estimating the direct market size of the digital animation industry is complex due to its application of not only in creative industries itself, but in other economic segments. Digital animation is heavily used in film and television, and its processes can be applied in architecture and design and game development.

The challenge in the Philippines remains to be how to fully define the industries under the creative economy. These industries crisscross each other in terms of revenues and outputs. Nonetheless, there are proxies that are being used to estimate their contribution. What is crucial is to recognize that in the context of the Philippines, digital animation would largely be confined in 2D or traditional processes, unless additional measures are implemented.

This report will attempt to capture the contribution of the digital animation sector to the creative economy and to the national output in general. To achieve this, this report will be formatted in the following order: a) definition of the industry and its value chain, b) estimated contribution in terms of output and employment, c) competitiveness analysis of the sector using the Porter Diamond and the Five Forces, d) policies at the global and national level, and e) recommendations on how to help the industry increase its contribution to the economy.

This report also aims to provide a comprehensive assessment of the performance and competitiveness of the digital animation sector, considering both internal and external factors, such as the Covid-19 Pandemic, participation in the global value chains, the Industry 4.0, and other new technologies. This study ends with possible recommendations on strategies, policies and programs which can be considered when creating the sector's roadmap.

3. State of the Animation Industry

a. Value Chain

To enable us to conceptualize clearly what constitutes the activities of the animation industry, it is important to define the final output of this industry. Animation is a series of images (or *frames*) that, when observed sequentially, produces the illusion of motion. The frames may or may not be produced digitally. When they are, they are called 'Digital Animation'. Digital animation, or computer animation, is a subset of *Computer-Generated Imagery* (CGI).

Animation can be categorized into these three types

Figure 1. **Categories of Animation**

2D or Traditional	***Stop-Motion***	***3D or CG***
Animation produced on a flat (2D) medium involving a series of sequential drawings or illustrations. Early stages of the animation (layout, key frames, backgrounds, etc.) may still be produced traditionally (pencil, paper, and paint), however, the latter stages (inbetweening, inking, coloring, etc.) are generally done digitally as a matter of practicality.	Animation using physical objects. The objects are positioned to achieve an individual frame to be captured by a camera after which they are repositioned to achieve the next frame.	The digital successor to *stop motion*; 3D animation is essentially stop motion with digital assets instead of physical objects. The use of computers allows greater freedom, flexibility, and precision than traditional stop-motion animation. All 3D and CG animation are digital.

Source: Author's Illustration

As the world transitions into digital, these categories are effectively being integrated into computer graphics which also led to the addition of project or context specific use of animation such as Motion Graphics, Projection Mapping, Character Animation[2], 2D Rigged

Animation, 3D Character Animation, Motion Capture, Simulation.[3] A recent addition is Visual Effects (VFX) in which the animation may be entirely digital, but the final product will not always be entirely animation. VFX is done in service to enhancing, supplementing, augmenting, or otherwise improving live-action footage which has many applications not only in movies and live action, but in games, work patterns, production processes and many others.

The expansive possibilities embedded in animation and what the digital economy allows it to do provide a lot of opportunities for the Philippines to take advantage of this industry. In order to properly contextualize the different elements of animation, it has to be described on how the process is developed until the final product is determined. Table 1 illustrates the simplest value chain of how an animated product is delivered.

Table 1. **Value Chain of Animation**

Stage 1 **Conceptualization**	**Stage 2** **Pre-production**	**Stage 3** **Production**	**Stage 4** **Post-production**	**Next cycle (for tech intensive firms)**
Idea for series or production (short concept and final script); planning	**Storyboarding; concept art to flesh out script; story reels; script changes**	**Animating**: Very large investment of resources (animators, supporting technical staff); voice acting	Some **editing** of scenes, retakes	Development of software tools for next generation animated features

Source: Tschang, 2004

These stages are straight-forward, and the costs of an animated product can range from US$15 million to US$100 million for films. However, costs and technology do not define the success of the animation project, but the story or content and style of delivery. It can therefore be understood that each part of the value chain is crucial. In addition, there is a "symbiotic relationship" within the creative economy. At the creation (conceptualization) stage, a novel designed for an animated film can have various by-products in the form of video-on-demand services, games, shows and books. The creators generate the intellectual property. At the production stage, strength in sectors ranging from software to music to

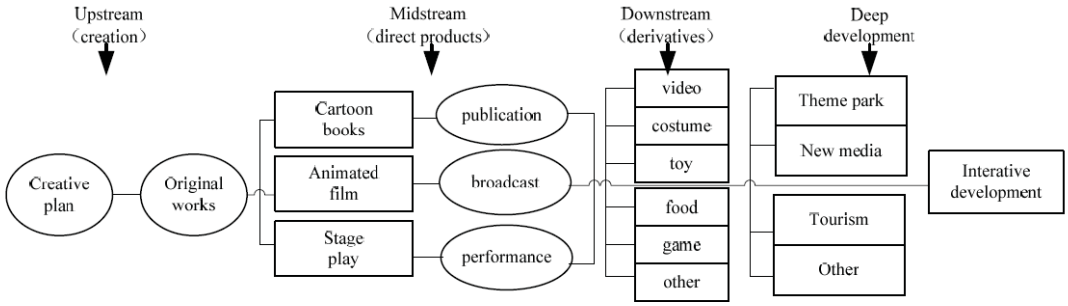
[2] Deals with humans, animals, or any other figure that could be described as a 'character'. Most commonly found in animated films and series as well as video games.

[3] Deals with fluids, cloth, hair, debris, particles, or motion or effects otherwise too tedious to animate realistically manually. While the 'animating' itself would be done almost entirely by the computer, expertise on various materials and parameters is still required to achieve realistic or pleasing results; of which could still be described as digital animation. Also has extensive applications in the sciences, such as visualizing weather patterns or predicting the results of protein folding.

financial services can make a country more attractive as a destination for investment in new shows.

The Chinese have further expanded this value chain to include the downstream element of the animation industry. In a more detailed production outflows, it can be seen how animation can be expanded to produce other creative outputs. Take the case of the South Korean film industry that spawned various television dramas embraced around the world. Another success story is Walt Disney's animated movies that have led to the development of Disneyland Theme Parks.

Figure 2. **Expanded Value Chain of Animation**



Source: Yangfei et.al., 2013

There is an estimate that the multiplier effect coming out of motion pictures, video, television, sound recording, programming, and broadcasting sector ranges from 1.7 to 1.9 times in Germany, UK and France. This means that intermediate inputs will be affected by the increase in demand for creative services. Hence, the key to generating value in animation and related creative products is the intellectual property (IP). Many businesses are generating spillovers by creating and consolidating intellectual property across multiple media (IP, which includes stories, characters, settings, designs, theme tunes and other defining content). The deployment of IP in one segment can make goods and services more attractive to customers and can drive demand in the original sector.

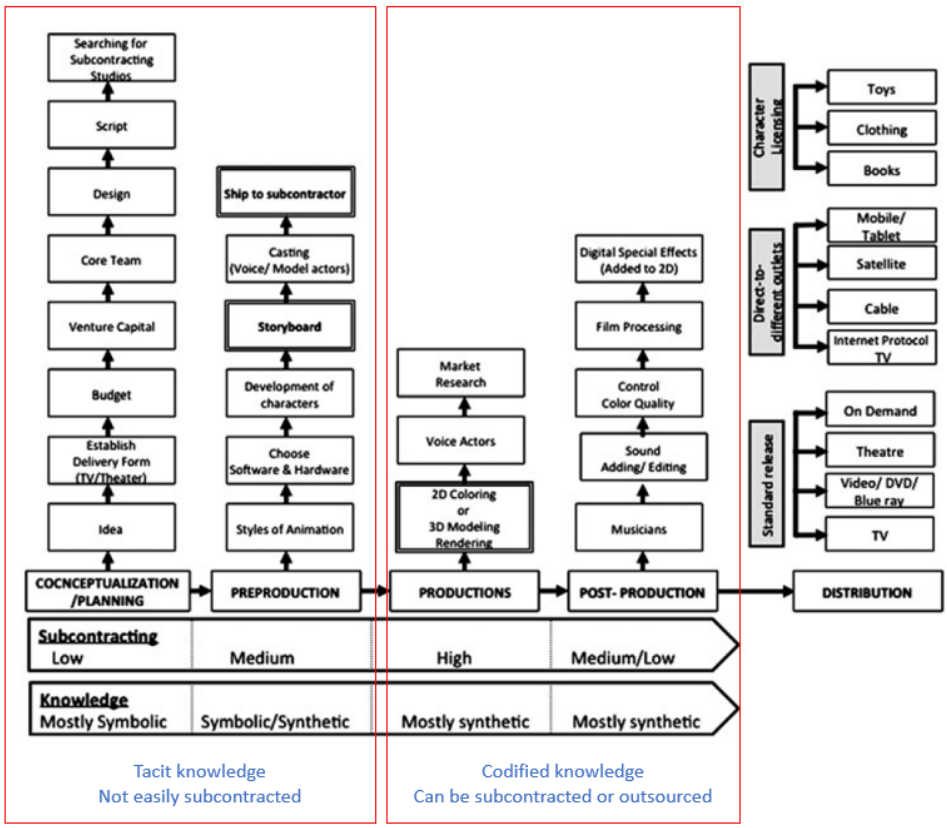
A study in 2015 provided a much more animation focused production value chain for the animation industry.[4] This study follows essentially the first figure but added distribution which was highlighted in the Figure 2. In this value chain, each essential element of the production process per stage is clearly identified which allows for resource mapping. This value chain identifies which part of the process is codifiable. In the digital economy, any task

[4] Yoon, 2015

that is codifiable is subject to be considered for artificial intelligence (AI). It means that these tasks will eventually need less human contribution.

In detail, the study does this by distinguishing which is tacit and codifiable knowledge. Tacit knowledge leans more on the cultural context which is needed for generating new ideas and images. Face-to-face contact and geographical proximity are critical for tacit knowledge. Codified knowledge is used on production and post-production stages; this type of knowledge is usually acquired through on-the-job activities or other technical trainings.

Figure 3. **Complete Value Chain of Animation**



Source: Yoon, 2015

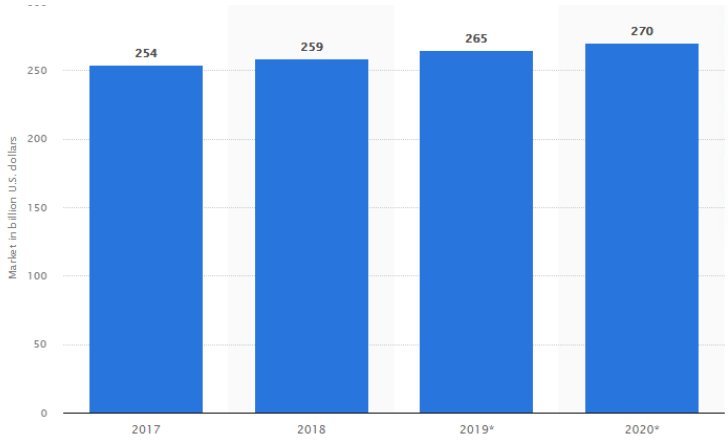
Under this distinction between tacit and codifiable knowledge, we are also able to pinpoint which part of the value chain can be subcontracted or outsourced. Clearly, the production and post-production parts of the value chain are the ones that are outsourced. *Since these are the parts of the value chain that are most expensive*, there is a tendency to find the cost-effective studios to produce them and this is usually found outside the country where the conceptualization and preproduction stages were developed. This has given rise to the animation industry being linked to the global value chain (GVC) framework. Initially, only

the parts of animation which required large amounts of labor would be outsourced. Over time, all low-skill and labor-intensive production tasks were outsourced to other countries.

b. The Global Animation Industry

This value chain is concretized by the global animation market size. At present, there is no single agency or organization which tracks the actual size of global animation market. As one source, Statista estimated the global animation market size to about US$270 billion in 2020. Figure 4 shows the level of the market size from 2017 to 2020. The global industry was estimated to be growing at 2 percent to 3 percent year-on-year.

Figure 4. **Size of Global Animation Market**



Source: Statista

Precedence Research, on the other hand, valued the global animation market size to be at US$354.7 billion in 2020 based on a June 2021 estimate.[5] The differing valuation of the global market is due to the segments of the industry that could be captured by other related industries in the creative economy. Following the global value chain, the segments of the industry are broadly covering 2D, 3D animation, VFX, Stop Motion, Motion Capture, CGI applied in television, video, digital platforms, entertainment, games, simulation, software development, education, health, advertising, mapping and advanced visualizations. At current pace of 5.2 percent growth, the global industry could reach US$642.5 billion by 2030. This is complemented by the increasing high quality consumer demand for immersive content with the increase in access to ultra-high definition televisions, tablets and smartphones to head mounted devices.

[5] Precedence Research. *Animation Market Size to Hit Around US$ 642.5 bn by 2030.* https://www.globenewswire.com/news-release/2021/06/28/2254030/0/en/Animation-Market-Size-to-Hit-Around-US-642-5-bn-by-2030.html

The traditional animation output remains to be animated movies. The technology has immensely improved through the years and has allowed for better visual quality and realistic impressions. The global take from the animated movies based on box-office sales is also enormous. The following table from Screenrant[6] provides a snapshot of how animated movies have performed in the last two decades.

Table 2. **Top 15 Highest Grossing Animated Movie**

1. Frozen 2 (2019) – US$1.45Bn	9. Finding Dory (2016) – US$1.02Bn
2. Frozen (2013) – US$1.28Bn	10. Zootopia (2016) – US$1.02Bn
3. Incredibles 2 (2018) – US$1.24Bn	11. Despicable Me (2013) – US$970 Mn
4. Minions (2015) – US$1.16Bn	12. Finding Nemo (2003) – US$940Mn
5. Lion King (1994) – US$1.08Bn	13. Shrek 2 (2004) – US$928 Mn
6. Toy Story 4 (2019) – US$1.07Bn	14. Ice Age (2009) – US$886 Mn
7. Toy Story 3 (2010) – US$1.06Bn	15. Secret Life of Pets (2016) – US$875 Mn
8. Despicable Me 2 (2017) -US$1.03 Bn	

Source: Screenrant

Animated movies cost ranges from US$20 million to US$300 million with the production component approximately representing 20 percent to 25 percent of total cost.

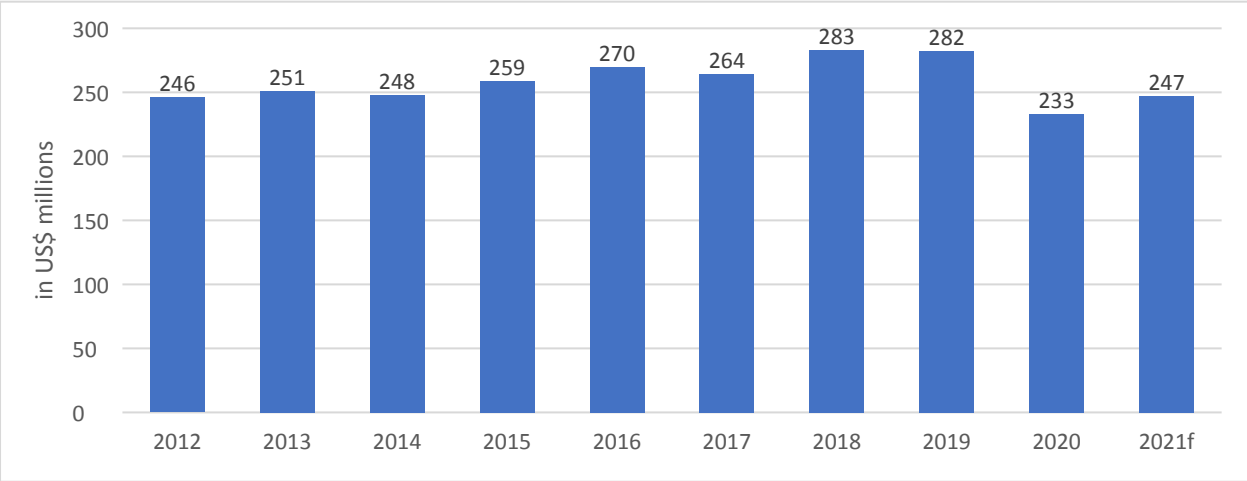
Film Animation Services Industry

Film animation services is a known segment of the global animation industry. Animation is more popularly applied in the film and TV industry. IBISWorld, an international research company, provided their own estimates on the film animation services industry for the US market. It is important to look at the US market since it is considered as a key client market for animation services. IBISWorld defines film animation service industry to comprise of services from companies that produce video animation for film and TV distribution. Based on

[6] Screenrant. *15 Highest-Grossing Disney Animated Movies Ever.* https://screenrant.com/highest-grossing-disney-animated-movies/

their estimates, the film animation services industry in the US had been steadily increasing from from 2012 to 2019. However, the industry's revenues dipped by 17.5 percent in 2020, contributed by the Covid-19 pandemic, since there were still industry players which experienced difficulties in adapting to the shifting media landscape.

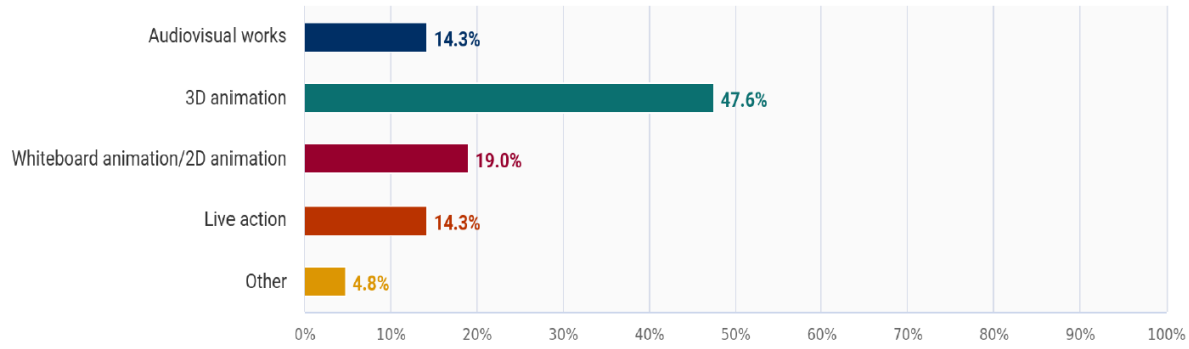
Figure 5. **Revenues of Film Animation Services Industry in the US, in US$ millions, 2012-2021**



Note: 2021 is based on IBISWorld's forecast, as of July 2021.
Source: IBISWorld.

In addition, IBISWorld noted that the industry would rebound from the downturn in 2020. In 2021, more than 6 percent revenue growth is projected. Between 2022 and 2026, annual growth of the film animation services industry is projected around 2 percent to 4 percent.
Product and services segmentation of the film animation services industry in the US highlights a good positioning for the Philippines which has achieved significant experience in 2D animation. As shown in Figure 6, 2D animation takes up 19 percent of of film animation services industry based on 2021 forecast. However, 3D animation captures the largest share, with 47.6 percent. This implies that there is a greater opportunity for 3D animation services.

Figure 6. **Product and Services Segments of the Film Animation Services Industry in the US, 2021 (forecast)**



Source: IBISWorld, 2021

A more notable data coming from IBISWorld is the cost structure of the film animation industry in the US. One significant cost comes from wages, taking up 20.6% of total revenues of film animation industry in the US. On the other hand, 51.3% of the total revenues are attributed to other costs, which are other expenses including legal, administrative, and insurance costs.

Table 3. **Cost Structure of Film Animation in the US, 2021**

Item	Description	Share to Total Revenues
Wages	Salaries of animation workers	20.6%
Purchases	Purchases of new computers and artistic equipment	1.8%
Marketing	Marketing expenses to prospective clients to generate business from content providers that need to outsource animation to another firm	6.7%
Depreciation	Accrued depreciation expenses from aging comptuter systems and other peripheral technologies	2.3%
Rent	Rental fee	4.6%
Utilities	Utilities expenses	0.6%
Others	Other expenses such as legal, administrative and insurance costs	51.3%
Profit		12%

Source: IBISWorld, 2021

Transnational Multimedia Companies and the Global Value Chain

The advent of CGI became instrumental in changing the GVC in the animation industry particularly from 2000s. CGI brought forth "reusability", wherein data used in production process can be archived and reused. CGI also made code-sharing and automation of repetitive tasks in animation possible, which resulted in increase of subcontracting of animation processes. CGI is open-source which enables users to contribute to further development and innovation of CGI software.

With this innovation, transnational multimedia companies (TMCs) adopted new strategies that resulted in mergers and acquisitions such as with Disney and Pixar, allowing for greater CGI expertise and increased competitiveness in the industry. The TMCs increased the number of joint ventures and subsidiaries outside the home countries to tap different regional markets. TMCs also launched co-production with existing international studios to develop regional markets with high levels of protectionism increased. This changing nature of the global value chain in animation has led to TMCs increasing their vertical integration – from animation to character licensing and distribution that helped them capture more market value.

It should be noted also that TMCs ensure economies of scale in which they operate in large domestic markets with strong distribution channels. Location and linkages are also important considerations in the GVC. This has led to the agglomeration and linkages between and among cities clustered with each other in terms of education, technology and conceptualization. For instance, Hollywood shows high local linkages (meaning, within the US) and regional linkages with North American animation studios. As a global producer of animation, Hollywood has access to high local demand – an important factor for growth in early stages and crucial for TMCs. Hollywood can also tap local resources to increase tacit knowledge for animation production.

Table 4. **Select Animation Production Cities, their Key Characteristics, and Business Strategies**

Cities	Mumbai	Seoul	Toronto, Montreal and Dublin	Hollywood
Role	Subcontractor	Subcontractor	TV Series Makers	Global Producer
Types of Knowledge	Codified/mobile	Mixed	Mixed	Mixed
Local linkages	High	High	Mid	High
National linkages	Low	Low	High	High
Regional linkages	Low	Decreasing	High	Low
Hollywood linkages	Low	High	High	Not applicable
Global linkages (excl. Hollywood)	High	High	Low	Low
Local Factors	• Labor • IT industry • Limited local market • Low production cost	• Skilled labor • Technical know-how from subcontracting or co-production • Government policy support • Increasing local	• Technical know-how from subcontracting or co-production • Government policy support • Original TV series and	• Path-dependence • Local talents • Big local and national markets • TMCs

		demand	independent films • Path-dependence on global producers • Limited local market	
Strategies	• Co-production	• Long term relations through subcontracting • Geographical and cultural proximity (for clients in Tokyo) • Co-production • Development of niche markets (e.g. children's TV and film animation	• Geographical and cultural proximity (for clients in US and Europe) • Co-production • Development of niche markets (e.g. children's TV and film animation	• Distribution channel • Capturing of the high value processes in pre-production stage and integrated marketing • Presence of global brands
Production Stage Outsourced Offshore	Pre-production / Production (low skilled CGI)	Planning / Pre-production / production	Planning / Pre-production / production / post-production	Planning / Pre-production / production / post-production

Source: Yoon, 2015

As shown in Table 4, the surveyed animation production cities largely differed in terms of their respective strategies. One of the main strategies which surfaced is co-production. Looking at the cities closely, it can be seen the co-production would a good strategy if two conditions are met: first, if the type of knowledge exceeds codifiable knowledge; and second, if linkages with established animation markets are present.

Table 4 also shows some examples of linkages within the animation industry. Toronto, Montreal and Dublin would be deemed as key locations for creating TV series, since key factors for these locations are geographical, cultural and linguistic proximity to US and Europe. In Asia, Seoul has been established as subcontractor for Hollywood and Japan since the 1970s. This long relationship led Seoul to enhance codified knowledge, at the same time, create linkages with other clients. Lastly, Mumbai caters to its own domestic market, and is known as the center of India's movie industry. Its strong IT industry in India provides skilled and English-speaking labor and low-cost production, which created a boom in the city's animation industry.

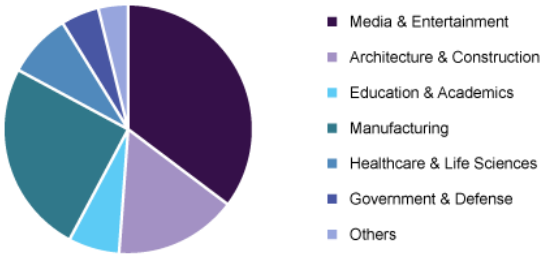
From these short survey of animation cities, location is an important criterion for getting animation projects from the key client markets (in this case, US, Europe and Japan). The nearer one animation city is with the client market puts it as the most immediate location for co-production, subcontracting or outsourcing. Given the developments in the IT infrastructure of many cities, location may not seem to be a key defining factor for choosing an animation provider. Cultural affinity serves as another important criterion.

Other Segments of the Global Animation Industry

Beyond traditional animated movies, other segments are likewise growing considering the applications to media and entertainment and other industries due to the improvements in technology. Among the segments, the fastest growing is the 3D animation, recording 11.7 percent growth rate and with a market value of about US$18.4 billion in 2021.[7] Figure 7 shows the breakdown of segments which 3D animation is applied.

Figure 7. **Global 3D Animation Market Share, according to end use, 2020**

[7] 3D Animation Market Size, Share & Trends Analysis Report. https://www.grandviewresearch.com/industry-analysis/3d-animation-market



Source: Grandview Research

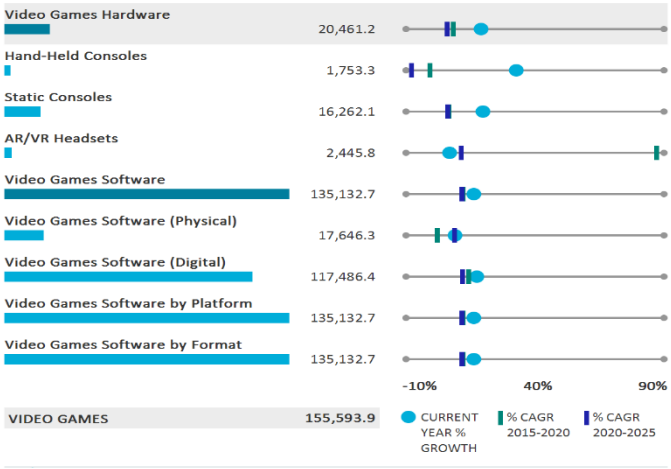
The growth in 3D animation is likely to increase given the lingering impact of the pandemic as 3D animated videos can serve as an alternative to physical assessment in a number of applications. Among the segments, media and entertainment, education, defense and healthcare are some of the more commonly known users of 3D animation. In the aspect of VFX, the lockdowns have caused increased demand for gaming and entertainment leading to use of virtual reality (VR) and AI in mobile applications and geographical mapping.

The segments architecture and construction and manufacturing also use 3D animation. Creating graphic illustrations of various heavy machinery elements in the manufacturing industry is seen as one of the key sources of market growth. Simulation in the design of industrial tools is another increasing the use of simulation software and services in manufacturing, architecture and construction.

In addition, the increasing global internet penetration is one significant driver of growth in the application of animation in various segments. For instance, video streaming is the fastest growing distribution channel for animation as internet speed has increased and costs fell. Netflix, Amazon, HBO, Disney are pushing online and on-demand markets. In fact, these four companies have immensely benefited from the pandemic. The estimated revenues of the streaming industry are about US$224 billion in 2020.[8]

Figure 8. **Sale of Video Games in the World and its growth performance (percent), by category, 2020 in US$ million**

[8] Global Video Streaming Market Report 2021-2028. https://www.businesswire.com/news/home/20210923005761/en/Global-Video-Streaming-Market-Report-2021-2028---ResearchAndMarkets.com



Source: Euromonitor

In addition to these, the gaming segment is also a major contributor to the animation industry. This component is estimated to have contributed about US$155 billion in 2020 (see Figure 7). Euromonitor segments video games industry into two broad categories: video games hardware and video games software. Between these two, video games software contributed the bulk of sales revenue topping US$135 billion. Video games software are mostly used through platforms and formats allowing it to be used on existing mobile gadgets and even within smart televisions and computers. This is validated by the sales of video games according to source. Sales of video games through e-commerce grew 79 percent in 2020.

c. Animation Industry in Southeast Asia

Given the rise in demand for animation services globally, ASEAN countries are also gearing up their capabilities for as a service provider for animation. Table 5 shows the summary of the select ASEAN countries' animation industries.

Table 5. **Summary of Select ASEAN's Animation Industries**

Country	Malaysia	Vietnam	Thailand
Strengths	• Sizeable talent pool, with about 3,000	• Improving business environment and	• Sizeable talent pool to be tapped for

	animation workers as of 2016	better relations with target client markets for animation	animation services, with 2,000 annual graduates from related disciplines to animation
Weaknesses	● Shortage of more seasoned animators, such as project managers, producers and directors ● No industry association representing the entire animation industry of Malaysia	● Lack of knowledge and exposure for marketing and promotions among Vietnamese production companies ● Limited talent pool for animation, since universities are offering ICT courses which may not include specific animation modules	● The lack of original content to be exported overseas due to its being monoculture ● The Thai domestic market is leaning more on live action movies and dramas instead of animated content.
Institutional Support	● Policies and support for creative and digital content creation are targeted to the youth.	● Vietnamese studios have dependency on external financial support.	● In 2004, the Thai government announced a USD2 billion funding for the expansion of the multimedia and animation sector.
Infrastructure	● Known for cyber infrastructure development and specialized facilities for digital industries, such as the	● Improving broadband and ICT infrastructure	● Presence of Thailand Creative & Design Center which focuses on stimulating creative thinking for its

	Multimedia Super Corridor (MSC) and MSC Malaysia Animation and Creative Content Center.		creative industries.
IP / Original Content Creation	● Features its own local culture, such as those in Upin & Ipin and The Kampung Boy	● Government-run Vietnam Animation Company can produce 8-10 traditionally or computer-drawn cartoons per year.	● Domestic studios can collaborate to bring about successful projects, such as *The Legend of Muay Thai: 9 Satra*

Source: MDEC, 2018

Malaysia

One new entrant is Malaysia, which already employed about 3,000 animation workers in 2016. Malaysia's strength for animation lies in the government support through creative and digital content creation targeted to the youth. Malaysia is also known for cyber infrastructure development and specialized facilities for digital industries. These include the Multimedia Super Corridor (MSC) and MSC Malaysia Animation and Creative Content Center. Malaysia has also been capitalizing on original content production by featuring its own local culture, such as those in Upin & Ipin and The Kampung Boy.

Even with these strengths, Malaysia struggles on supporting its animation industry with mid-level animation workers. There is also a lack of industry association which can represent Malaysia's animation industry. There is also skills shortage for more seasoned animators, particularly taking the roles of project manager, producers, and directors.

Vietnam

Vietnam is another new entrant in the animation industry. It can be said that Vietnam's animation industry is still nascent, but it is supported by sizeable creative talent pool in the country. More than 40 percent of Vietnamese universities offer ICT courses which can be

tapped for basic animation processes. However, there is a need to convert the talent pool churned out from these courses, since what they have learned is not very specific to animation services. Another related challenge is the pool of skilled and tenured workers for the animation industry.

Vietnam's overall business environment has been improving, with general policies on improving the broadband Internet connection. This will help the development of the animation industry which highly rely on the Internet. However, animation companies in Vietnam must improve on their marketing and promotions, especially when reaching to potential clients. Vietnamese studios also struggle for sufficient funding to support their projects.

Thailand

The real push for Thailand's digital content development started in 2004 when the Thai government announced a USD2 billion funding for the expansion of the multimedia and animation sector. Since then, the country has been pushing for different initiatives to develop animation. Thailand has also been active in hosting large animation events such as Thailand Animator Festival, Japan Expo Thailand, and the Bangkok International Digital Content Festival to showcase the country's capabilities for animation.[9]

Thailand boasts of talent pool which can be tapped for animation processes. Thailand has about 2,000 annual graduates from related disciplines to animation. Similar to Malaysia, Thailand is supported by public and private institutions which help stimulate the entire creatives industry. Private sector players are open to collaboration with each other to accomplish larger projects (e.g., the animation project of "The Legend of Muay Thai: 9 Satra").

Another notable characteristic of Thailand's animation industry is presence of Thailand Creative & Design Center (TCDC) which focuses on stimulating creative thinking for its creative industries. TCDC is under the Office of Knowledge Management and Development of Thailand. TCDC serves as a dedicated facility for creatives professionals when working on their respective projects. TCDC can also host exhibition from artists.

However, its weakness is the lack of original content to be exported overseas. Thailand produces specific local content due to their monoculture, which is challenging to introduce to

[9] MDEC, 2018

non-Thai market. In addition, Thailand's domestic market is leaning more on live action movies and dramas instead of animated content.

d. The Philippine Animation Industry

The Philippines has long been a part of the global value chain in animation. Animation in the Philippines started more than 40 years ago when 2D animation was still the main production technique in delivering animated products. The country was considered as an early player in this industry. A brief timeline of the Philippine animation industry is found below.

Table 6. **Key Events in Philippine Animation Industry**

Year	Details
1983	• The first animation studio, Burbank, was established in the Philippines. The studio became the platform for initial training and exposure about animation work.
Late 1980s to early 1990s	• Animation studios experienced high-cost structures due to large proportion of permanent staff and rising wages
1997	• Release of Ibong Adarna, a full length, original content animation, as an entry to the Metro Manila Film Festival (MMFF)
2000-2001	• External shocks such as the collapse of IT bubble in 2000s and terrorist attacks in the US contributed to the downturn in the global animation industry. • The failure of EM.TV (German conglomerate trying to become a key animation company) affected the volume of animation work in the country. • Philippine animation industry revenues in 2000 reached USD40 million, but slumped to USD21 million in 2001.
2004 to 2007	• Philippine animation industry slowly gained momentum. ○ Revenues reached USD40 million in 2006, USD65 million in 2006, and USD105 million in 2007. ○ Number of workers and firms also increased. In 2004, there were about 3,000 animation artists in the country, employed

	across 15 firms. In 2007, there were about 5,000 animation artists and 50 animation firms. Most of the firms are small-sized.
2007	• Start of ACPI's Animahenasyon, a film festival for local animators and competition
2008	• Release of the animated film Urduja. The film showcases the indigenous culture of the Philippines, as it highlights the life of a warrior princess. • Dayo: Sa Mundo ng Elementalia is a digitally animated film which was an entry to the MMFF.
2010	• 3D RPG: Metanoia, another original content, full length animation was released.
2016	• Marketing initiatives from the government and ACPI in France[10]
2020-2021	• Presence of Filipino-themed animation films in Netflix, such as "Trese", "Barangay 143", and "Hayop Ka!"

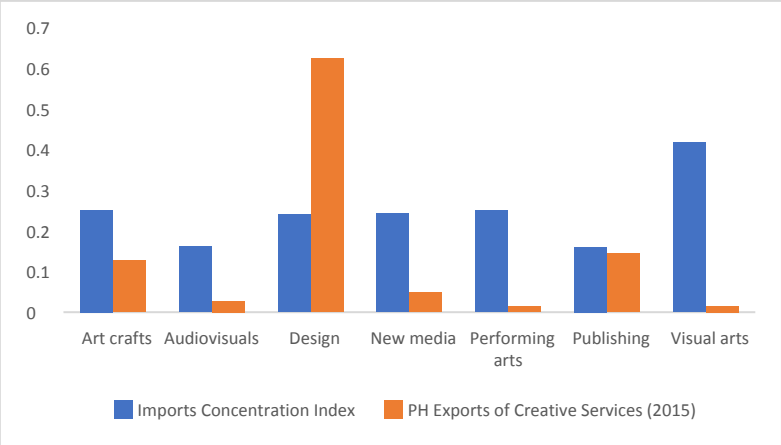
Source: Tschang, 2010; Asis, 2017; Various news releases

Animation in the Philippines was brought about by the increasing need for outsourced services from the United States and Europe. This helped in making the country a major exporter of outsourced animation service. One reason why the Philippines became an outsourcing destination for animation is its low labor costs, especially during the beginning of the animation industry of the country. In a 2004 report by Tschang and Goldstein, they reported that for 2D animation, labor accounted for 70% to 80% of total costs. In addition, for 3D animation where software and hardware are critical components, labor accounted for 60% of the total costs. Hence, the animation industry is an early part of the much larger business process outsourcing industry. Contextualizing the Philippine animation industry within its whole creative economy will provide a better appreciation of the opportunities available and challenges facing the sector.

[10] DTI. *PH Animators Showcase Talent in France.* https://www.dti.gov.ph/archives/news-archives/ph-animators-showcase-talent-in-france/

According to UNCTAD data as of 2015, the Philippine share to total creative economic output of the world is less than 1 percent. This data shows that there is a lot of potential for the country to catch up in contributing to the creative economy of the world. Figure 9 breaks down the creative economy using the global import structure and the Philippine export structure of creatives. From this, it can be said that the Philippines is largely concentrated on design and publishing and arts and crafts to a lesser extent. The potential lies mostly in audiovisuals, new media, performing arts and visual arts.

Figure 9. **Global Import Demand for Creative Goods and Philippine Export Supply**



Source: UNCTAD

Relating this chart to the animation industry, the audiovisuals, new media, and visual arts are somehow interconnected with the outputs of animation. With the various modes of delivering and various potential usage of animation, the country has a lot of opportunities to build on beyond its current levels of output and expand coverage to other sectors as well.

It is also important to note that the animation industry in the Philippines is largely considered part of the business process outsourcing (BPO) industry. Its products are captured as part of services exports of the country. Data from the IT and Business Process Association of the Philippines (IBPAP) reveals that the animation is one of its major services. It lumps animation and gaming into one service as they both essentially interfaces with one another. Table 7 lists the services that are included in the IBPAP.

Table 7. **Component Services of the IT-BPO Industry of the Philippines**

Major BPO Service	**Description**

Contact Centers and BPO	• Includes both voice and non-voice BPO services
Global In-house Center (GIC)	• Not a third-party outsourcing structure, in which ○ Services from GICs may include both voice and non-voice BPO services and IT services ○ Industries of GICs in the Philippines are banking and finance, FMCG, electronics and shipping
Health Information Management Services	• Includes processing, maintenance and care of healthcare data, for utilization in hospitals, doctors' offices, clinics, insurance companies, and organizations that provide health-related services
Animation and Game Development	• Includes design, programming, quality assurance, translation and technical support services
IT Services	• Outsourced IT services

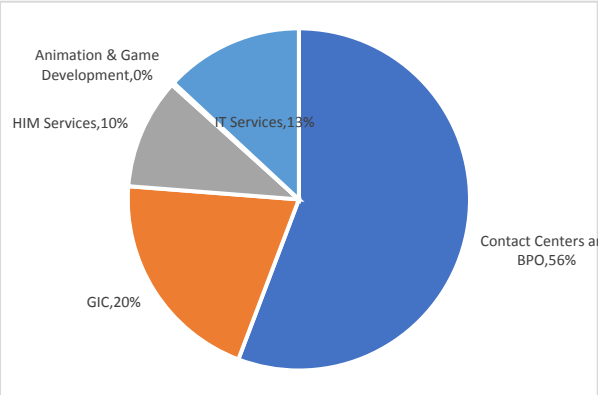
Source: IBPAP

It is important to explain the relationship between animation and game development. It can be said that game development would require more and specific details compare to typical animation. Reiterating its definition, animation will pertain to a process where multiple snapshots are taken and shown in rapid succession which creates an illusion of movements. Thus, such concept of animation is required for game development. However, there are games which require to be more interactive. For instance, in a third-person game, a player has the option to rotate his or her device (as if when he or she is running around the game environment). This necessitates new angles to be revealed about the game avatar and its surroundings. In film animation, there is no need to think about how a character will be viewed from different angles, since the viewers are not controlling which angle to look at.[11] Overall, the concept for animation in game development and film industry is the same, but the application and considerations are different.

[11] *How Animation for Games is Different from Animation from Movies.* https://www.pluralsight.com/blog/film-games/how-animation-for-games-is-different-from-animation-for-movies

The IT-BPO industry's overall contribution to the Philippine economy has been unprecedented. From contributing about 4 percent in 2010, it has consistently maintained a contribution of about 7 percent until 2020. During the onset of the pandemic in 2020, Philippine output contracted by about 9 percent, but the IT-BPO sector still managed to grow by 1.4 percent. This shows that the industry has a strong potential to tide against the effects of the pandemic. As noted in the global animation section, demand for animation outputs in particular has been seeing strong growth and is expected to be sustained even after the pandemic as the new way of living seems to be aligning towards a blended type of work, school and leisure. However, it can be noted that the animation and gaming sector is only a small fraction of the entire IT-BPO industry. In 2016, it only contributed to less than 1 percent of the whole IT-BPO revenue.

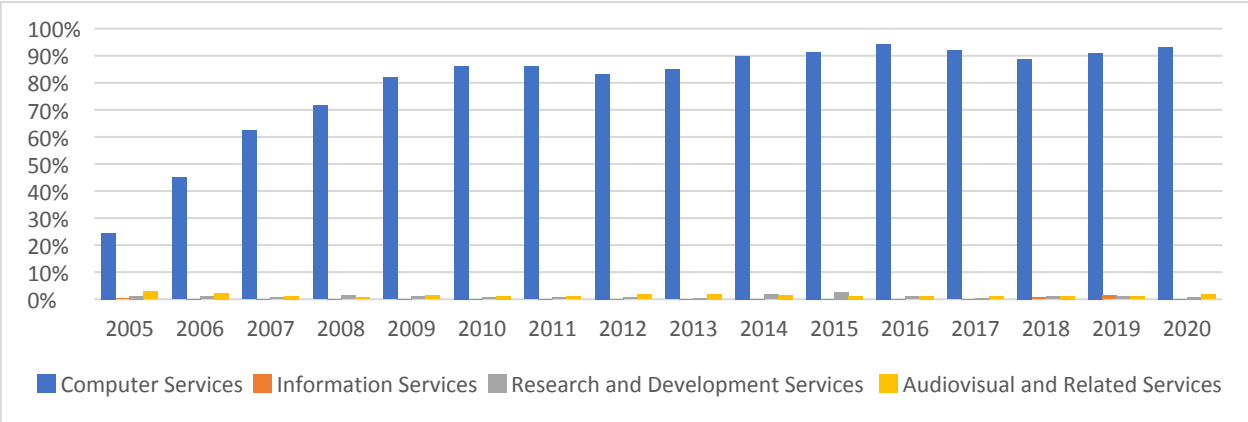
Figure 10. **Revenue Share of IT-BPO sectors, as percentage of industry revenues, 2016**



Source: IBPAP

The data using the Balance of Payments (BOP) statistics of the Bangko Sentral ng Pilipinas (BSP) may also serve as a basis to estimate the market size of the creative services trade, and subsequently, the animation industry. It is important to note that there are four subsegments related to creative services trade: computer services, information services, research and development services, and audio-visual and related services. Figure 11 shows the historical data on the exports of the mentioned services.

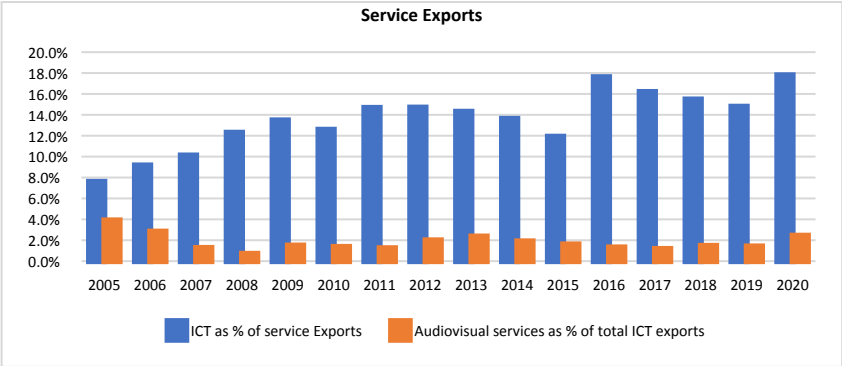
Figure 11. **Exports Related to Creative Services Trade of the Philippines, as percentage of ICT Services Exports, 2005-2020**



Source: BSP

Based on the BOP data as of end-2020, net service exports amounted to US$13 billion. The ICT exports composed of telecommunications, communications and information services contributed about US$4 billion or approximately 18 percent of net service exports. As there is no specific item on animation and gaming development, it was assumed that it was lumped in the audio-visual exports which netted about US$30 million in 2020. As a share to total ICT exports, this represents about 2.4 percent. However, as a share to net service exports, it only represented less than 1 percent. This is therefore consistent to the estimates of the IBPAP that the animation and gaming sector is contributing less than 1 percent to total IT-BPO revenues.

Figure 12. **Ratio of ICT and Audiovisual Services to Total ICT Exports of the Philippines**



Source: BSP

Despite these seemingly small contributions, the IBPAP in its 2020 forecasts estimate the revenue growth and the employment growth of the animation and game development sector to range between 7 to 12 percent in the coming years. These estimates are considering that the pandemic-induced changes in consumption and production may boost further the growth of the animation and gaming industry growing at 14 percent, and may increase revenue from the current levels at around US$50 million to US$124 million by 2022.[12] They also estimated that the contribution of the animation and gaming sector will come from 3D animation, augmented and virtual reality (AR/VR) and gamification. Full time employees of about 5,000 at present will reach close to 10,000 by end 2022.

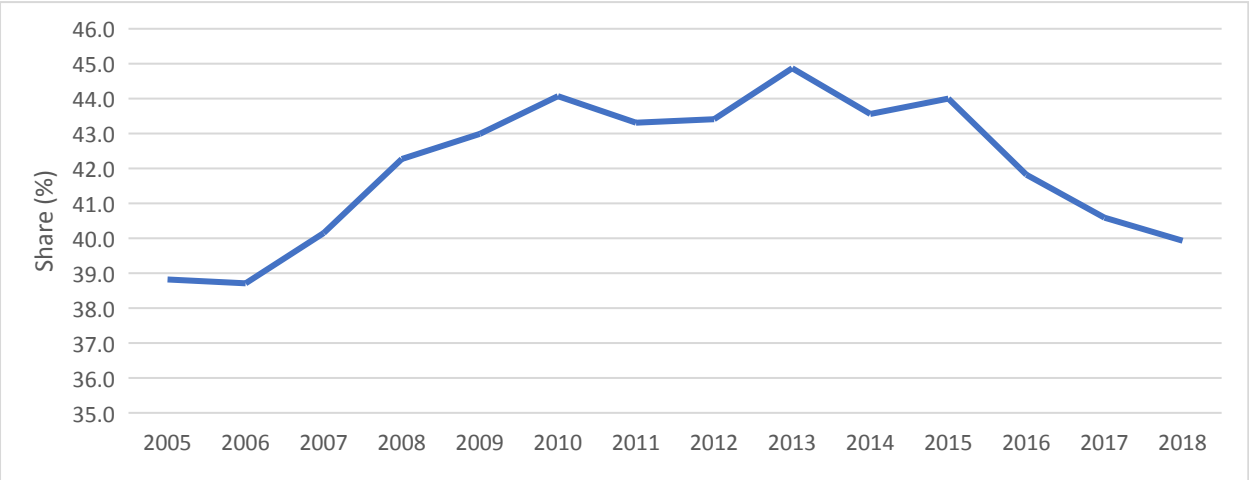
Another way to estimate the contribution of the animation industry to the economy is through the Trade in Value Added (TIVA). Using the TIVA database of OECD we can see the linkages of the one industry to another. The TIVA database does not provide specific details on the animation, so the information for Publishing, Audiovisual and Broadcasting Activities is used. Though this sector captures industries aside from animation, it can still be used to understand the overall trend. This might be reflective of the animation industry.

In terms of the forward linkages, it would be good to use the domestic value added in exports of intermediate products as a share of total gross exports. One reason for using this data point is that exports of animation services in the Philippines are mainly production and post-production work. This means that the output of the animation services in the Philippines are intermediate products.

Figure 13 shows that the share of the domestic value added in exports of intermediate products to total gross exports in the Publishing, Audiovisual, and Broadcasting from 2005 to 2018 peaked in 2013, and generally declined until 2018.

[12] Updated 2022 Roadmap IBPAP

Figure 13. **Domestic Value Added in Exports of Intermediate Products, as a Share of Total Gross Exports for Publishing, Audiovisual and Broadcasting Activities of the Philippines to the World**

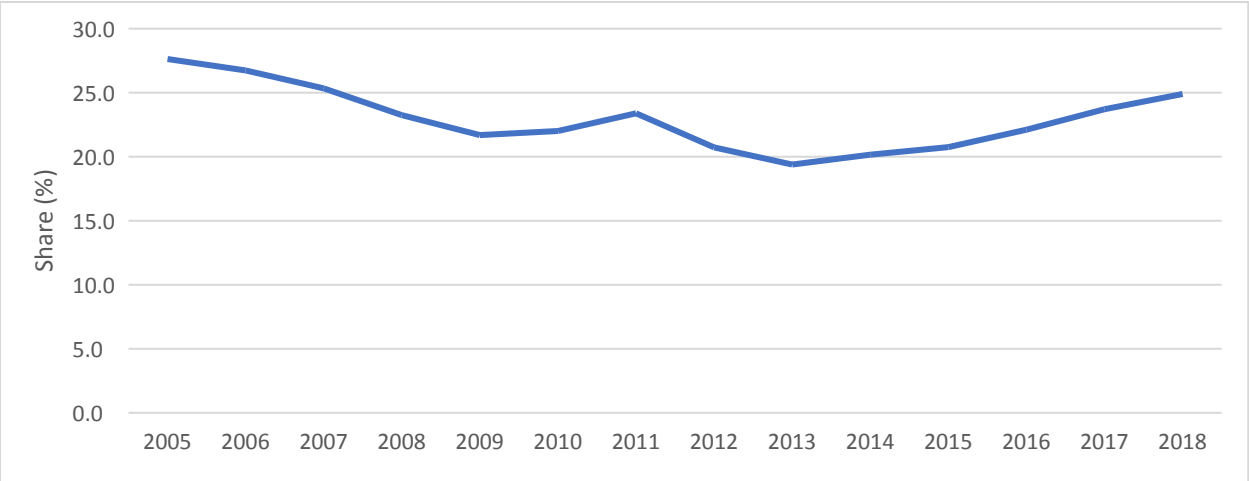


Source: Trade in Value Added Database of OECD

For backward linkages, it would be good to look at the foreign value added share of gross exports of the Publishing, Audiovisuals, and Broadcasting Activities of the Philippines to the rest of the world. The foreign value added share generally fell from 27.6% in 2005 to 24.9% in 2018. It hit the lowest in 2013, when 19.4% share was recorded but has since started to increase.

The challenge of getting the most accurate data to estimate the contribution of animation is also hampered by the different standards and collecting institutions. Hence, over time, the relative importance of this industry to the digitalized economy will certainly lead to better ways of measuring its actual contribution at the global up to the country levels.

Figure 14. **Foreign Value Added Share of Gross Exports of the Publishing, Audiovisuals, and Broadcasting Activities of the Philippines**



Source: Trade in Value Added Database of OECD

Data on Philippine Firms Involved in Animation

As mentioned early on in this report, the challenge of estimating the industry hinges on the availability of firm level data on animation and its value chain. Validating and cross-validating studies and forecasts on the industry is hampered by a unique data classification set for the whole creative industry segment of the economy. Most of the data shared in this report were gathered from varying global industry forecasts which are based on differing classifications. Existing Philippine data is also based on a broader classification of the creative sector. Using the 2009 Philippine Standard Industrial Classification (PSIC) and the Annual Survey of Philippine Business and Industry (ASBPI) 2017, we were able to extract subsectors and firm contribution to total output and employment generally derived from the information and communications sector. As the sector is not fully determined, this study approximated the following subsectors are part or are contributory to the animation industry. These are the audio-visuals, new media and visual arts. In the classifications for information and communications sector, those involved in retail and manufacture of related equipment were not included. This estimation mainly focused on firms that are providing service related to producing output for television, audio, and movies as main point of consideration.

It can be considered that the subgroupings under the animation industry can be segmented according to core services and extended services. The extended services are driven by new technologies and the Internet. The extended services also reflect the distribution of the animation outputs. Table 8 presents the subgroupings according to core services and extended services.

Table 8. **Subgroupings of Animation-Related Industries**

Sub-Group	2009 PSIC Code	Industry Description
Core		
Audiovisuals	C18203	Film and Video Reproduction
Audiovisuals	G46493	Wholesale of Recorded Audio and Video Tapes, CDs, DVDs
Audiovisuals	G46526	Wholesale of Blank Audio and Video Tapes and Diskettes, Magnetic and Optical Disks (CDs, DVDs)
Audiovisuals	G47423	Retail Sale of Stereo Equipment, CD and DVD Players and Equipment
Audiovisuals	G47429	Retail Sale of Audio and Video Equipment, n.e.c.
Audiovisuals	G47620	Retail Sale of Music and Video Recordings in Specialized Stores
Audiovisuals	J59110	Motion Picture, Video and Television Program Activities
Audiovisuals	J59120	Motion Picture, Video and Television Program Post-production Activities
Audiovisuals	J59130	Motion Picture, Video and Television Program Distribution Activities
Audiovisuals	J59140	Motion Picture Projection Activities
Audiovisuals	N77220	Renting of Video Tapes and Disks
Audiovisuals	N77296	Renting of Audio-video Machines
Visual Arts	M74203	Photograph and Motion Pictures Processing (Not Related to Motion Pictures and TV Industries)
Extended		
Audiovisuals	C18201	Reproduction of Video and Computer Tapes from master copies
Audiovisuals	C18202	Reproduction of Floppy, Hard or Compact Disks
Audiovisuals	J60201	Television Broadcasting and Relay Stations and Studios Including Closed Circuit Television Services
Audiovisuals	J60202	Television Program Production
Audiovisuals	J60203	Television Broadcasting Activities Over the Internet (Internet Television Stations)
New Media	J62020	Computer Consultancy and Computer Facilities Management Activities
New Media	J62090	Other Information Technology and Computer Service Activities
New Media	J63111	Data Processing
Visual Arts	M74201	Digital Photograph Processing

Visual Arts	M74202	Commercial and Consumer Photograph Production (Except Aerial Photography)
Visual Arts	M74204	Film Developing and Printing and Photograph Enlarging
Visual Arts	M74205	Aerial Photography
Visual Arts	M74206	Microfilming Activities
Visual Arts	M74207	Underwater Photography
Visual Arts	M74209	Photographic Activities, n.e.c.

Source: PSIC (2009)

If looking only at core services, the estimated total income share of the animation industry to total creative industries in the Philippines was only 2 percent in 2017. If we consider both core and extended services, then the animation industry's share to the total creative industries was 14 percent in 2017. The share of the value-added of the core services under animation industry was also at 2 percent in 2017, while combining both core and traditional services arrived at a 19 percent share to total value-added of creatives industries in 2017.

ASPBI data for 2017 meanwhile provides the following information about animation related industries. The employment figure of 4,578 employees is close to the IBPAP estimates of about 5,000 full time employees in the sector. The income share however is low, as it is not capturing other elements of the industries clientele or services offered.

Table 9. **ASPBI's Information on ICT Industry, 2017**

	Number of Establishments	**Employed**	**Income**	**Expense**
Information and Communication	**2,739**	**147,505**	**653,070,874**	**526,496,940**
Motion picture, video and television program activities	170	4,578	17,299,872	13,302,001
Share to Total	6.2%	3.1%	2.6%	2.5%

Source: ASPBI, 2017

Meanwhile, based on the estimates of the Animation Council of the Philippines Incorporated (ACPI), the industry is primarily a service provider for the following industries: motion picture films, TV channels, computer systems design, software and gaming, advertising, specialized design, industry specific service and others. The bulk of the service is for TV channels and advertising which have a combined 56 percent of all animation services. Hence, the approximation of the table above is what these services more or less represent in the existing PSIC code.

ACPI also showed that the industry's main source of revenue remains to be in 2D animation which contributes more than half of revenue. 3D and gaming are closely following especially as the industry adopts to global demand. The estimated total revenues of the industry according to ACPI aligns closely to the BOP data which is about US$20 million to US$30 million annually. The market is dominated by 5 major studios who collectively supply 75 percent of all the revenues which are all export sourced rather than local markets.

The major studios in the Philippines are Toei Animation, Top Peg Animation and Creative Studio Inc., Top Draw, Philippine Animation Studios, and Holy Cow! Animation. Of these five, only Top Peg Animation and Creative Studio Inc. is wholly Filipino-owned, which has experience working for some Disney animation such as 101 Dalmatians, Tarzan, Kim Possible, and Hercules. Foreign ownership and leadership have proven to be essential to build contacts and credibility in the industry.

Industry Players

Table 10 shows the top animation studios in the Philippines. Toei Philippines has been the pioneer animation company in the Philippines.

Table 10. **Top Animation Studios in the Philippines**

Company Name	**Year of Establishment**	**Ownership / Management**	**Location**	**Description**
Toei Philippines	1986	Foreign	Quezon City	Centers on production services for anime projects; servicing mainly to Japanese market

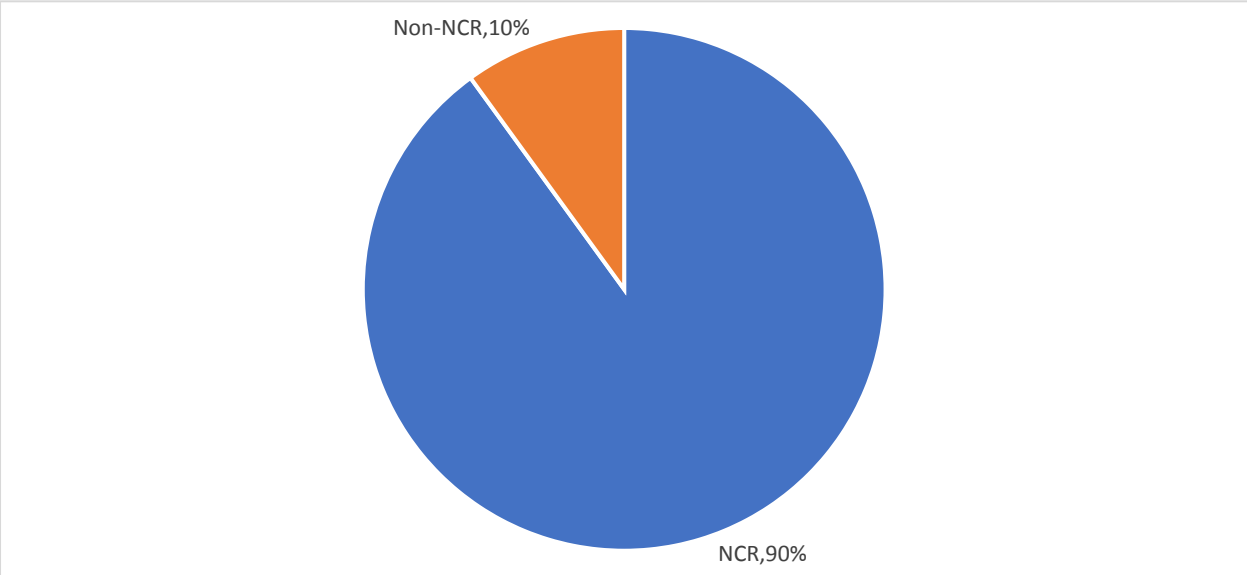
				Has 200 employees
Toon City Animation	1993	Local	Mandaluyong City	Provides 2D traditional animation, cut-out animation, CGI flash animation services Has 350 artists
Philippine Animation Studios, Inc.	1991	Foreign	Makati City	Provides traditional animation services; Acquired funding from Malaysian company
Top Peg Animation and Creative Studio Inc.	1996	Local	Las Pinas City	Scope of animation services include 2D traditional and digital animation, 3D animation, cut-out animation, backgrounds, illustrations, character designs, storyboards
Holy Cow! Animation	1999	Local	Taguig City	Offers 2D, 3D, and Flash services for animation requirements
Top Draw Animation	1999	Foreign	Pasig City	Specializes in 2D digital animation production services Clientele includes those from Canada, France, Australia, Spain and the United States. Some notable clients are Cartoon Network, Disney and Warner Bros. Animation Acquired by Grom Social Enterprises, a US-based company in 2016 Has 500 employees
Snipple	2011	Foreign	Quezon City	A 2D and 3D animation

Animation Studios Inc.				studio in the Philippines with offices in London Clients include Warner Bros. Animation, Disney Television Animation, Dreamworks, Nickelodeon, Amazon Studios, Netflix and Cartoon Network
ASI Studio	2015	Local	Quezon City	Main services include 2D digital animations and storyboarding services; One of the studios involved in the creation of the Japanese-Filipino animate TV series, Barangay 143; Formed under a partnership between Manila-based animation company Synergy88 and Singapore-based studio August Media Holding.
World Anime Networks	2017	Foreign	Baguio City	Servicing the Japanese market as its main client; Partnered with Feel Studio of Japan Services include 2D and 3D animation and clean-up in animation production process;

Source: Company websites and social media profiles

In terms of location, animation studios are in the National Capital Region (NCR). Only a couple of companies are located outside the NCR (see Appendix for a longer list of animation and related companies).

Figure 15. **Regional Distribution of Animation Companies in the Philippines**



Note: Based on data from GDAP and ACPI members

Seasoned animation studios in the Philippines partnered with foreign companies. This business relationship with foreign companies would be deemed beneficial for their Philippine-based production studios in terms of exposure to the culture and preferences of foreign animation companies. Aside from this, the purpose of partnerships and business ventures with foreign companies is to gain access to client market and sufficient funding.

Local animation companies have received funding from venture capital companies. For instance, a game development company, Ranida Games is supported by Discovery Nusantara Capital, an early-stage technology venture fund focusing on internet startups investment in Southeast Asia.

Digital animation in the Philippines is mainly focused on the production process, particularly in 2D animation. This is due to the history of the animation industry in the Philippines, wherein US animation studios had been outsourcing animation services to take advantage of skilled and low-cost labor. Back then, projects from Disney, Hanna Barbera and Warner Bros. required mostly 2D animation services from the Philippines.[13] This trend continues to

[13] Tschang, 2010.

present, as seen by the services offered by large and more established animation companies. Animation studios in the Philippines are generally small-sized. Large animation studios can have more than 200 employees, while smaller companies can have up to 50 employees.[14] It is also important to note that only a few companies offer purely animation services, such as Toei Animation and Toon City Animation. Some, like Fizzbuzz Philippines and Ideas Quest, offer marketing and advertising services, as an application of animation. There are also other IT and software development services which add animation processes in their service offering.

Presence of Industry Associations

Table 11 shows the list of relevant industry associations for animation. ACPI serves as the overall industry association for animation services. A related organization is the Game Developers Association of the Philippines (GDAP). Both ACPI and GDAP are part of the IBPAP. The respective mandates of these organizations are also explained in the table.

Table 11. **Related Industry Associations for Animation Services**

Name of Industry Association	**Number of Member Firms**	**Mandate of the Organization**
Animation Council of the Philippines, Inc. (ACPI)	52*	To promote the Filipino talent in animation and to harness our capability in content delivery both locally and internationally
Game Developers Association of the Philippines (GDAP)	26	To represent and promote the country's game development industry. Its members create and publish interactive games and entertainment content for various platforms

*ACPI members include studio members, academe members, and supplier members.

Source: ACPI, GDAP

ACPI and GDAP are active in promoting skills development among potential animators and game developers in the Philippines. ACPI and GDAP partner with the Technical Education

[14] Board of Investments Philippines. *Basic Industry Information on Animation.* https://boi.gov.ph/wp-content/uploads/2018/02/Animation-December-2017.pdf

and Skills Development Authority (TESDA) to offer training programs. The related industry associations are not part of international groups or associations for animation services. Nevertheless, ACPI is active in promoting Filipino animation overseas. ACPI had earlier promoted Filipino animation to Europe to fill in for lean seasons when demand from American market would be low.[15] Recent marketing activities of ACPI were done together with the Department of Trade and Industry (DTI). DTI collaborated with ACPI and other organizations for information sessions related to international marketing for animation industry.

4. Innovation, R&D, and New Technologies: Factors Affecting the Animation Industry

Over the recent years, two global factors are affecting the overall landscape of the animation industry of the Philippines. These are the Industry 4.0 (or, the Fourth Industrial Revolution) and the Covid-19 Pandemic.

Industry 4.0. Industry 4.0 was first used to describe a range of new technologies which can impact the workplace. Initially referring to the data exchange technologies for manufacturing, Industry 4.0 has acquired a broader meaning which means technologies applied across all sectors combining physical, digital and biological worlds. Some of the technologies under the Industry 4.0 include cyber-physical, internet of things, AI, cloud computing, and cognitive computing. Table 12 also enumerates other Industry 4.0 technologies. Based on their descriptions, Industry 4.0 is applied more in improving manufacturing activities.

Table 12. **Industry 4.0 Technologies**

Industry 4.0 Technologies	**Description**
Cyber-physical systems	• Computational collaboration systems that are in strong connection with the surrounding physical world and its respective active processes while providing and utilizing data access services as well as data processing available on the Internet • Integrate the relationship with people, data and information, machines and equipment, in order to streamline the process of receiving and sharing data and information, analysis and

[15] JETRO, 2007

	interpretation, and decision making.
Cloud Manufacturing	• Integrates cloud computing and traditional product design and manufacturing • A service-oriented product development model in which consumers can design and make products through using IT and online manufacturing resources
Big Data Analytics	• The organization on which data analysis is performed, the elements that make up the tools, the infrastructure, and the means to visualize and present insights
Augmented Reality	• A computer graphics technique that transforms the real environment into a digital environment also using virtual objects in the real world • Has several possibilities of use in different areas, either in the transmission of knowledge, in the performance of work activities, in the elaboration of products, in the deliberation of logistic routes, among many other applications.
Smart Sensors	• One of the key elements of the future smart grid, • Remote monitoring at each specific point on a network is possible to assess real-time system performance and to find likely errors
Location Detection Systems	• Designed to make it easier to identify the respective location of a user or a particular object in a physical space
Industrial Internet of Things	• A system that involves intelligent networking, cyber-physical systems, cloud computing platform that allows access, collection and evaluation of communications, and also enables the industry to exchange data, such as processes, products and services, in real-time, thus generating the optimization of production value
Additive Manufacturing	• A technique that aims to bring together a wide variety of complex geometries and structures from 3D model data

Source: Carvalho, et. al., 2020

Among the Industry 4.0 technologies, it is the AI which has immediate impact on the animation industry. One definition of AI is that it is a computer program that makes reasonable actions and maximizes benefits based on the perception of the environment. AI covers a wide range of areas, which includes intelligent reasoning, news recommendation and news writing, machine vision, AI art, intelligent search, machine translation, speech recognition, automatic driving, robots, in-depth learning, data mining, and knowledge mapping, among others.[16]

Another important technology which affects the animation industry is the augmented reality (AR). This can be applied in animation services for different industries such as in architecture and engineering, construction, entertainment, and healthcare services. Given that augmented reality banks on the translating the real environment to digital environment, this can be utilized for research and development activities across industries.

One recent study of the Asian Development Bank (ADB) highlights the impact on Industry 4.0 on IT-BPO and electronics industries in the Philippines.[17] It is important to note the findings of the study for the IT-BPO industry since animation is part of this. There have been plans for the IT-BPO industry to explore higher value services, which is even more important now given the application of 4IR across industries.

Though not specifically covering animation companies, this study shows that the understanding of Industry 4.0 and its adoption in the business among IT-BPO companies are mixed. About 59 percent of the firms surveyed affirmed to have adopted some Industry 4.0 technologies in their operations. However, cost is considered as a significant barrier to further adoption, as 53 percent of companies surveyed affirmed this. Given that animation companies are small sized in the Philippines, it can be said that they may encounter these barriers when considering new technologies in their operations.

Based on this study, 4IR has significant impact on skills requirement of the industry. There will be more requirement for intermediate to advanced skills in critical thinking and active learning, numeracy and evaluation, judgment and decision-making.

Figure 16. **Estimating the Impact of 4IR on the Skills Levels for IT-BPO, 2018-2030**

[16] Zhang, et. al, 2019.

[17] ADB, 2021.

Absolute Change in Percentage of Workers Requiring Skill by Level, 2018–2030 (%)

Skills	Basic	Intermediate	Advanced
Critical thinking and active learning	(84.2)	38.4	50.0
Written and verbal communication	(2.3)	(75.1)	77.4
Numeracy	(0.3)	(99.4)	99.7
Complex problem solving	(77.9)	41.0	41.1
Management	0.0	(12.3)	12.3
Social	(22.9)	(53.3)	76.3
Evaluation, judgment, and decision-making	(3.8)	(96.2)	100.0
Technical	(79.0)	74.1	19.6
Computer literacy	(28.6)	(43.8)	72.4
Digital/ICT skills	(39.5)	84.7	15.1

>50%
>10%
≤10%; ≥-10%
< -10%
< -50%

Source: ADB, 2021

The results indicate the need for skills training targeted to develop more critical thinking among potential new hires within the IT-BPO industry. The animation industry is not excluded for this requirement. This would translate to the continual alignment of academic curricula with the industry needs. Particularly for animation, on-the-job training or project-based trainings would be helpful for students to utilize theoretical foundations, as well as how to use 4IR tools to increase productivity in the workplace. A McKinsey & Co. report added that addressing skills gaps for the using Industry 4.0 technologies would be a paramount action for companies, given the effects of the Covid-19 pandemic.[18]

Recognizing the need for better skills development, the DTI launched the Philippine Skills Framework Initiative. This is also an inter-agency effort to build the skills and competencies of the country's labor force. The intention of this initiative is to prepare the workforce for the future economy which is depicted with use of digital technologies.

DTI has already published the Philippine Skills Framework for Supply Chain and Logistics in 2021. This contains the skills maps for the following jobs: (1) warehouse management and operations, (2) transportation management and operations, (3) freight forwarding and operations, and (4) logistics information system.

As of the time of writing, the DTI has been drafting the skills framework for the animation industry. DTI's skills framework includes the career path for each job within the animation value chain. More importantly, it has already identified the critical work functions and key

[18] McKinsey, 2021.

tasks for each job role. This will be useful for creating further skills development and cross training, which encourages career progression.

Covid-19 Pandemic. As already mentioned, the Covid-19 pandemic has hit the creatives industries both negatively and positively. Those which require live and physical interaction, such as theatres, musical events, and others experienced a downturn, while those in new media experienced increased demand.

The Covid-19 Pandemic called for a more proactive response from the government to look more into the entire creative economy. There is a recognition for its economic contribution in the country, but there is lack of effort in organizing the sub-industries under it. It should be noted that the employment structure in the creative economy of the Philippines is largely composed of freelancers. This characteristic made it hard to aid workers in the creative economy during the height of the pandemic in the Philippines.

McKinsey noted that Covid-19 has been an inflection point for Industry 4.0 in general. This report noted that early adopters of Industry 4.0 were able to respond better to Covid-19 crisis. Companies which are still adopting Industry 4.0 were forced to reevaluate their progress. Industry 4.0 technologies are expected to prove valuable during trying times such as the Covid-19 crisis, and not only about the additional value it can bring to the company. Companies which have not yet adopted Industry 4.0 technologies struggled in coping with Covid-19 crisis. The absence of past experience on transitioning to new technologies, lagging underlying technology infrastructure, and COVID-19-driven cash constraints are making it difficult for these companies to catch up.

Various news reports mention that the animation industry, unlike the other segments under the creatives industry, has experienced positive traction during the pandemic. In June 2021, ACPI stated that the animation industry was negatively affected during the first few months of lockdown in 2020. After that, the animation industry recovered, citing an 85 percent to 90 percent efficiency and productivity. ACPI further noted that the smaller animation studios were also fully operational.[19] In ACPI's statement, most of the projects handled by the animation sector at this time were for entertainment projects, such as those for Disney and other Western clients.[20]

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[19] CNN Philippines. *PH animation industry pandemic-proof, can emerge big in global space - animation council.* https://www.cnnphilippines.com/entertainment/2021/6/18/PH-animation-industry-pandemic-proof--can-emerge-big-in-global-space---animation-council-.html?fbclid=IwAR3vRy3XEubu82TvECxhfJppAMsh_M_ny2R-q7TF3rRoRJJli0ifE_iGUNw

[20] See preceding footnote.

The passage of the Creatives Industries Development Act or House Bill 10107 provides the overall direction for the creative economy of the country. As will be discussed later, this bill aims to identify the structure of the creative economy, thus making the industry less fragmented. This bills also identifies the key agencies tasked to develop actions advantageous to the creative economy.

5. Government Policies Supportive of the Animation Industry

Various supportive programs and projects have been launched by different government agencies to support the animation industry. It is important to consider how these programs and projects reinforce and complement with each other. The following sections are some of the programs and projects that specific government agencies have launched and their incentive and support mechanisms.

a. General Support

Under the 2020 Investment Priorities Plan:

The animation industry is included in the "strategic services", which is part of the preferred investment activities of the 2020 Investment Priorities Plan. Animation industry is clustered under creative industries and knowledge-based services. Under this, digital or technological start-ups or activities are included. This means that the animation companies may be eligible for government incentives.

The 2020 IPP has validity of 3 years (2020-2023), subject to annual review for any changes.

Related to Intellectual Property[21]

The Intellectual Property Office of the Philippines formulated the National Intellectual Property Strategy 2020-2025.

There are five strategic goals under this:

1. Support Sectoral Advancement Through the Use of the IP System
2. Promote Innovation and Utilization/Commercialization of IP Assets
3. **Elevate the Creative and Cultural Industries**
4. Enhance the Legal System, Institutions and Structures Related to Intellectual Property
5. Demystify, Mainstream and Professionalize Intellectual Property

[21] National Intellectual Property Strategy Philippines 2020-2025. https://dtiwebfiles.s3-ap-southeast-1.amazonaws.com/Other+Publications+(Attached+Agencies)/The+National+Intellectual+Property+Strategy+(2020+-+2025)+-+Philippines.pdf

Under third strategic goal, there are three strategies. First, develop and nurture growth and development of creative and cultural industries. Second, strengthen the protection of traditional knowledge, traditional cultural expressions, and genetic resources. Third, enable access to information and knowledge on copyright and other related rights. Of these three, the first strategy has the highest relevance for the animation industry.

One broad action plan in the first strategy is the implementation of incentive programs for the promotion and development of creative and cultural industries. Another action plan under the first strategy is the implementation of the personal property security law where intellectual properties are used as collaterals or securities for loans. This also plans to strengthen support for copyright sector and creative industries through evidence-based policies and incentives implemented as a result of studies.

b. Specific Industry Programs

Under the Film Development Council of the Philippines[22]

There are two incentives related to animation production projects in the country.

Table 13. **Incentives under the Film Development Council of the Philippines**

	Film Location Incentive Program (FLIP)	**International Co-Production Fund (ICOF)**
Eligible formats	Audiovisual content including feature films (live-action, documentary, animation), short films, TV and VOD content (reality shows, series, unit), web content, music videos and virtual reality content.	Full feature films (live-action, documentary, animation.)
Eligible applicants	A company organized and registered as a business in the Philippines must apply for the FLIP, and said corporation must be a production/post-production services company accredited by the FDCP National Registry who has signed with a foreign production company	A company organized and registered as a business in the Philippines must apply for the ICOF, and said corporation must be a production company accredited by the FDCP National Registry in a co-production with a foreign production company. The project can be initiated by the

[22] Film Development Council of the Philippines. *Incentives.* http://www.filmphilippines.com/incentives

	on a production.	foreign or the Filipino production company.
Eligible contents	Any genre, except for themes that are pornographic, and without portraying the Philippines in a negative way	
Eligible requirements	Spend at least PHP8 Million (USD157, 000) on Qualifying Philippine Production Expenditures.	Spend at least PHP5 Million PHP (USD98, 000) on Qualifying Philippine Production Expenditures.
Eligible expenses	Production (studio, on-set shootings, artist/technician/crew fees, equipment rental, accommodations, food) and/or post-production (animation, visual effect, 3D conversion, editing, music and scoring, sound design, editing and mixing, voice-overs, color grading) expenses spent in the Philippines by the applicant producer from the complete provisional application date until the complete final verification date.	
Evaluation	The project will be evaluated and selected on the following: - Degree to which the work promote the Philippine culture and location - Degree to which the work contributes to the Philippine film industry - The global quality of the Project	The project will be evaluated and selected on the following: - Degree to which the work promote Philippine culture and location that contributes to the Philippine film industry - Degree to which the Filipino producer participates in the creative production of the work - The global quality and appeal of the project - The financial viability and potential success of the project - The international distribution potential through festival, theatrical release and platform in order to reach international audiences
Fund	Successful applicants can receive a 20% cash rebate of the QPPE capped at PHP10 Million (pprox..	Successful applicants can receive a grant up to PHP10 Million (pprox.. USD198,000)

	USD198,000)	
Payment	To the applicant company within 60 days after the Final Verification.	To the applicant company 50% within 60 days after the Provisional Certificate and 50% within 60 days after the Final Verification.

Source: Film Development Council of the Philippines

Under the Technical Education and Skills Development Authority (TESDA)

TESDA has established its training regulations related to animation services. These include:

- Animation
- 2D Animation
- 2D Game Art Development
- 3D Animation
- 3D Game Art Development
- Visual Graphic Design

Businessworld[23] said that there is a gap between what is taught in formal education and what is required by the job. TESDA animation courses has helped in bridging the skills gap in the animation industry of the Philippines. However, there will be more challenges in training of the animation workers in the Philippines, as the country try to push for more original content. TESDA has also been in consultation with industry players to identify the low to medium skills sets which may be in demand for the next five years. For digital animation, this includes digital ink and paint artist, and for game development, this includes back end game developer and front end game developer.

Under the Department of Science and Technology-Philippine Council for Industry, Energy, and Emerging Technology Research and Development (DOST-PCIEERD)

DOST-PCIEERD has come up with roadmap for the creative industries particularly on game, animation and film. Under this roadmap, the aim is to make the Philippines the top creative economy in ASEAN in terms of size and value. The roadmap has four main overall strategies to develop the following areas: (1) facilities and services, (2) human resources, (3) R&D technologies, and (4) S&T policies.

[23] BusinessWorld. Animation industry poised for transition from outsourcing to original content. https://www.bworldonline.com/animation-industry-poised-for-transition-from-outsourcing-to-original-content/

Strategies on R&D Technologies are segmented according to game development and animation and film development.[24]

Table 14. **Strategies on R&D Technologies under DOST-PCIEERD's Roadmap**

Game Development	Animation and Film Development
• Development of serious games and gamification apps in education, tourism, and corporate sector • Utilization of extended reality in mobile gaming applications • Development of proprietary software and software/platform-as-a-service • Prototyping of advanced gaming devices • Application of blockchain in gaming industry • Development of human-to-computer and brain-to-computer interfaces	• Development of database for Philippine indigenous sounds • Automatic music generation and AI-assisted sound engineering • Development of algorithmic video editing • Prototyping of advanced animation tools • Development of interactive moviemaking technology • Intelligent screenplay writing through AI • Development of autonomous drone cinematography system

Source: DOST-PCIEERD

Since this roadmap is new, the progress of the implementation of the roadmap is not yet available.

Upcoming Legislations

House Bill No. 10107 (Philippine Creative Industries Development Act) is filed under 18th Congress of the Philippines[25]. This bill consolidates House Bills 4692, 6476, and 8101.

The bill aims to provide the definition of the scope of creative industries in the Philippines. Based on the bill, it should include audio and audiovisual media, visual arts, book publishing and printed media, digital interactive media, creative services, and performing arts (Table

[24] PCIEERD-DOST. *Creative Industry Roadmap: Game, Animation, and Film.* https://pcieerd.dost.gov.ph/images/pdf/2021/roadmaps/sectoral_roadmaps_division/etdd/Creative-Industry---Game-Animation-and-Film.pdf

[25] House of Representatives. H. No. 10107. https://hrep-website.s3.ap-southeast-1.amazonaws.com/legisdocs/third_18/HBT10107.pdf

15). From this scope, the application of digital animation largely falls under audiovisual media and digital interactive media.

Table 15. **Scope of Creative Industries under the Philippine Creative Industries Development Act**

Creative Industries Domain	**Description**
Audiovisual Media	Recorded and live audio and audiovisual content distributed through various broadcast media Includes films, television content, animated film productions, video blogs, and other content using 2D or 3D design technology and animatronics, recorded music, music scores, compositions ready for recording, podcasts, entertaining audio or audiovisual material or content developed educational purposes or edutainment content
Digital Interactive Media	digital software programs, mobile applications and games created for and operated on interactive digital devices where user input is essential to the experience, including software and mobile apps, video games, computer games, mobile games, virtual augmented or mixed reality games, and digitalized creative content
Creative Services	Demand-driven commercial creative service work which includes and marketing, creative research and development, cultural and recreational services, and live creative experiences
Design	process of envisioning, planning, creation, and manufacturing of symbols, images, and products, whether for industrial and aesthetic purposes, spaces, and systems Application includes those services rendered in architecture, urban landscaping, interior and spatial planning, fashion and accessory making, textile development, furniture making,
Publishing and Printed Media	The creation, publication, and distribution of artistic, journalistic, and commercial literature in traditional print and digital format, including books, blogs, comics, graphic novels, editorials and commentaries, magazines, and other published media
Performing Arts	Includes services such as the training of performers, the creation,

	promotion, distribution, exhibition, and preservation of artistic shows, performances, and such other art forms including live music, theatre, musical theatre, dance, opera, circus, spoken word, and puppetry
Visual Arts	Represents activities pertaining to the creation, promotion, distribution, and preservation of works that are primarily visual in nature, including paintings, drawings, sculptures, photographs, antiques, performance art, art toys, multimedia, collages, or other similar material
Traditional Cultural Expressions	Tangible products and intangible 21 customs, practices and expressions of traditional Filipino culture and heritage, including arts and 22 crafts, gastronomy and culinary practices, cultural festivals, and celebrations

Source: Congress of the Philippines, HB10107

This bill also proposes the establishment of the Philippine Creative Industry Development Council, which will be an office attached to the DTI. Other committee members from the government are the Department of Education, Department of Science and Technology, National Commission for Culture and the Arts, Intellectual Property Office of the Philippines, Commission on Higher Education, and Department of Tourism. The bill also recognizes the participation of representatives from the private sector for each of the industries under creative industries domain.

HB10107 proposes various state support to the creative industries. Infrastructure support is given for accredited entities of creative industries. They can use the shared services facilities of the DTI and avail of other infrastructure support under the Philippine Innovation Act (R.A. No. 11293). Aside from this, R&D and innovation support is also extended under the DOST. Fiscal incentives will also be offered to eligible entities of creative industries.

Overall, these plans and programs are beneficial to animation industry. On the other hand, we see that though the initiatives are too many, there is not one lead agency which would streamline these efforts in terms of implementation, monitoring and evaluation.

6. Competitive Analysis of the Philippine Animation Industry

a. The Porter Diamond

The usual SWOT analysis looks closely at the industry. Herewith, we introduced the Porter Competitive analysis framework where we look at a particular industry with a strategic context. Two critical frameworks are explained below, beginning with the Porter's Diamond.

The Porter's Diamond looks at the factor conditions, demand conditions, context for firm strategy and rivalry and related and supporting industries – it is the quality of the business environment. Briefly, the factor conditions represent the supply of capital – human, skills and finance; demand conditions represent the market for the products of the industry whether domestic or international; context for firm strategy shows the conditions for firm competition; and related and supporting industries represent the different feeder industries and support mechanisms that the industry can draw upon as it improves its current level of competitiveness and it also provides a backdrop if an industry already has a geographical, technological and skill cluster. The Porter Diamond is presented in Figure 18.

In detail, here below are our assessment of the diamond.

Factor conditions

The key defining factor of the Philippine animation industry is talent. This talent has been honed through the years of experience and partnership with large studios abroad. This is also supported by the cultural affinity to the United States and to a certain extent to Japan which expanded largely after the anime explosion in the late 1970s.

The labor costs of animators remain to be competitive versus peer economies in the region and outside. Based on job listings in JobStreet as of January 2022, entry-level or fresh graduate animators earn about PHP15,000 to PHP20,000 per month. 3D Animators with experience of up to 4 years can earn up to PHP35,000 per month. On the other hand, animators for game development with up to 4 years of experience can have wages of up to PHP50,000 per month.

The pool of animators also continues to expand supported largely by technical and skills development program more than tertiary education graduates. TESDA graduated 2,022 animation and gaming certificate takers in 2017. At the tertiary level, graduates of computer, fine arts and engineering can easily shift skills and careers toward animation (see Table 16). During the academic year 2018/2019, about 170,000 students graduated with these degrees.

Table 16. **Graduates from Relevant Academic Disciplines for Animation**

Academic Year	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019
Engineering and Tech	49,373	57,439	56,690	59,399	63,539	70,646	76,423	82,794	86,860	87,083
Fine and Applied	2,346	2,516	3,207	2,813	3,342	4,112	2,945	4,100	4,465	3,572

Arts										
IT-Related Disciplines	49,786	54,225	66,672	72,879	72,976	74,477	77,250	73,646	77,747	81,477

Source: CHED

It is important to note that the Philippines has specific courses related to the animation industry. The course BS Entertainment and Multimedia Computing (BS EMC) can offer specialized education and training for game development and digital animation technology. One important aspect of BS EMC is the inclusion of internship program. This requires about 460 internship hours or equivalent level of output.[26] This will have an impact on the quality of the potential animation workforce, having greater view of the recent developments in the animation industry.

The challenge is largely the work condition due to the cyclical nature of the demand for animation (as yet). Many workers are freelancers and are not protected by labor and social laws. This has resulted to brain drain since there are better opportunities for animators abroad particularly those who are focused on wanting to develop concepts rather than working on designed products.

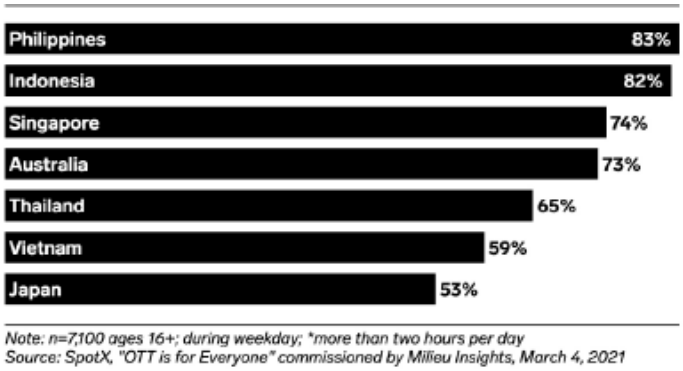
Demand Conditions

Animated products have now extended beyond the usual movie and entertainment. Various applications in industries now require animated content particularly in this pandemic. However, much of this demand are not local but international. This implies that all production processes are to be geared towards and focused on the international market.

Earlier sections of this report shows that there is a growth in global media and entertainment services, driven by online streaming services. This is also reflected in the regional setting. In one research report published under the Asia Video Industry Association (AVIA), the Philippines have high percentage of video viewers who watch over-the-top video daily in Asia Pacific region, as shown in the Figure 17.

Figure 17. **Viewers of Over-the-Top Videos in Asia Pacific, as percent of respondents per country, data as of October 2020**

[26] CHED, 2014.



Source: AVIA, 2021

Locally, animation is continued to be viewed as output of movies and entertainment. There can be lots of opportunities in local firms to develop the local market for other application of animation beyond entertainment. As mentioned earlier, global streaming services and production companies continue to push for online entertainment services.

Likewise, the skills of most Filipinos are catering mainly to the production component of the value chain where intellectual property is already assigned. Original content production and marketability to local and regional markets may be an opportunity to improve demand conditions as in the case of the animated series *Trese* where the concept came locally and partnership with a large studio made it possible to reach a wider audience.

There are few things to consider about the production of the animated series *Trese*. First, the original content is from Filipino-made comics series started in 2005. This shows that the Filipinos can create interesting original content, wherein the international audience can also relate to. As mentioned by *Trese's* writer and executive producer, the format of a police procedural found in *Trese* is similar with the Western kind of structure. This indicates that the quality of the content impacts the audience's reception of an animation work.[27]

Second, it seems that it took a long time for the creators of *Trese* comics to pitch this to be an animation series. It took about 10 years to translate the comics content into an animation work. It is possible that through technology, more audiences are becoming open to see diversity of other cultures. This may indicate that now is an opportune timing to share Filipino culture through animation.

Third, *Trese's* journey to become an animated series was not done deliberately. In 2009, a US-based producer only chanced upon a copy of the *Trese* comics. This shows that original

[27] CNN Philippines. *From ink to streaming: The road to building the 'Trese' universe.* https://cnnphilippines.com/life/entertainment/television/2021/6/10/making-of-trese-universe.html

content providers such as writers are not well connected with producers – whether local or international. This implies that there is a need for more promotions of potential content with producers.

Context for Firm Strategy

The firms are currently upgrading since the focus has mostly been on 2D animation production due to history of taking outsourcing work from US and Japan. The animation industry in the Philippines is composed of small firms with ~50 headcount. The industry also has Only a handful of animation studios with 200 headcount and dominated by 5 big studios whose revenues is 75 percent of total revenue of the industry.

Lack of original content and full-length animation films from Filipino animators since the domestic and international markets are not welcoming. There is need for local animation companies for foreign funding and management in order to bring the industry to the market and also strategize on how to capture the domestic market. This stems from the history of the animation industry in the Philippines. Over time, this trend on animation's business structure has not changed.

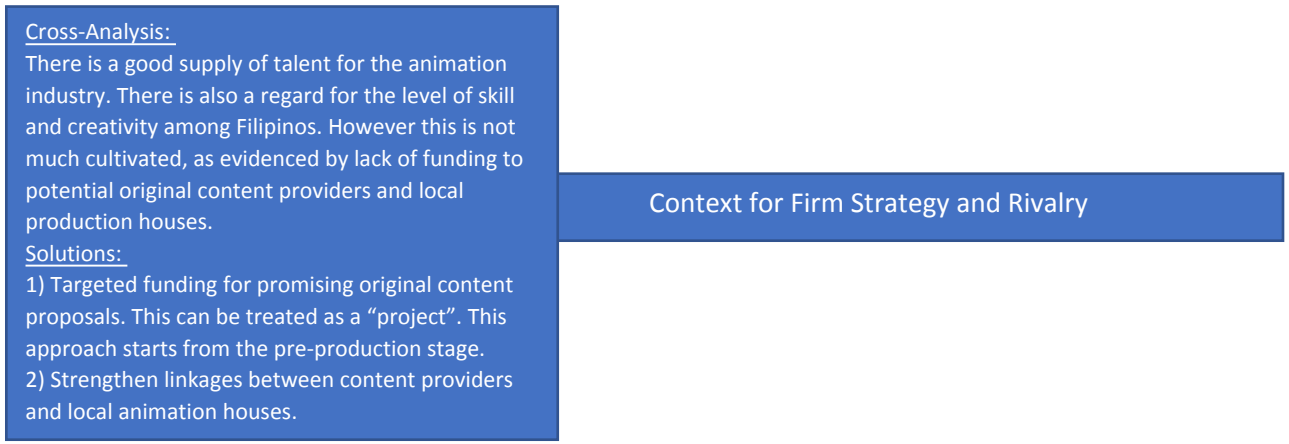
There might be a need for targeted business incentives for animation companies, especially those supporting local animation studios. One example for industry incentives is from those of France and Canada. France had strong support for its animation industry through its Centre Nationale de la Cinématographie (CNC). Canada also made a move to support its domestic animation industry through loan schemes, tax credits and broadcast quotas.

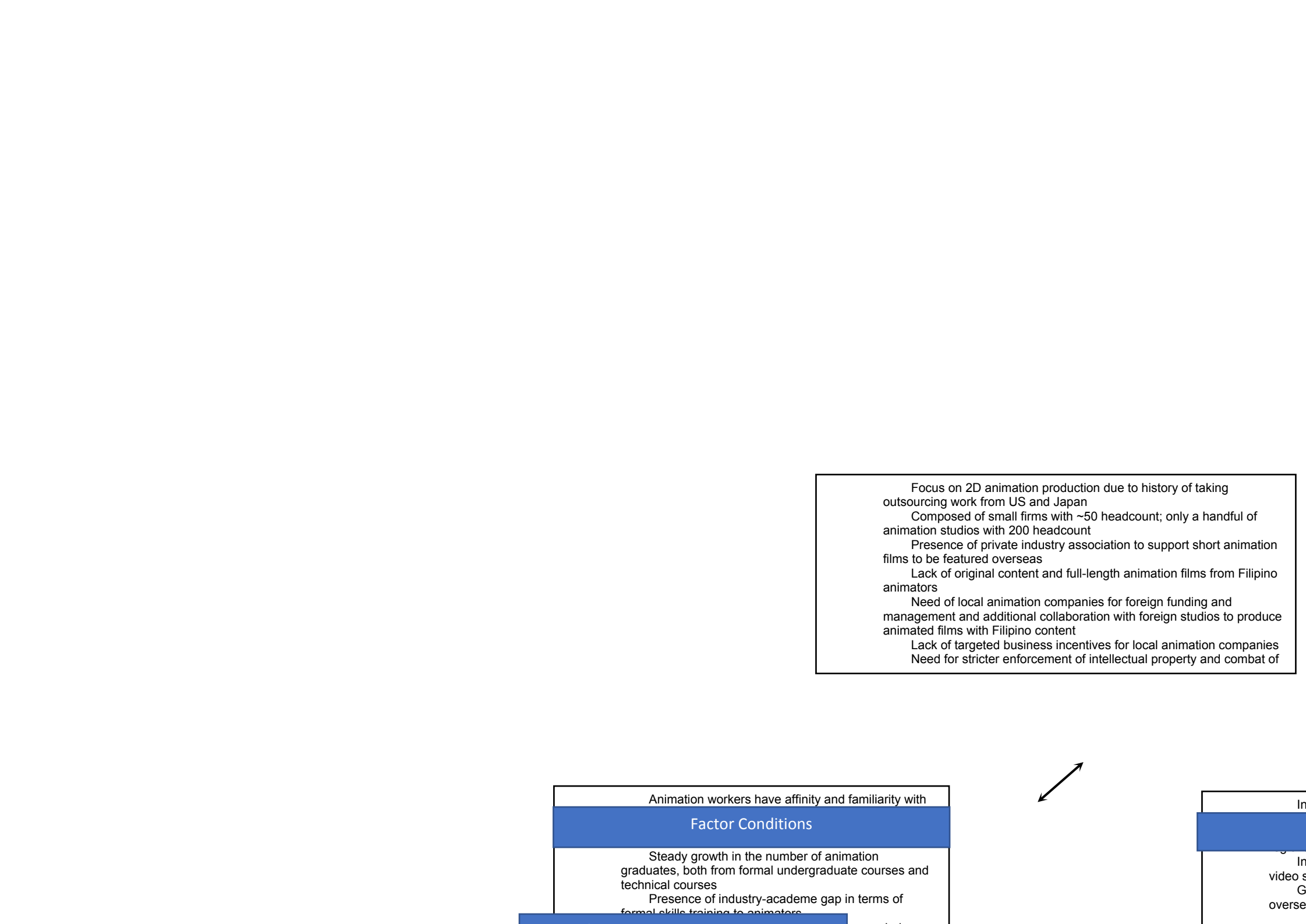
Related and Supporting Industries

The different industry associations and linkages with international studios are important source of support to develop further the industry. Growth in global media and broadcasting industry due to the Covid-19 pandemic is providing larger and broader opportunities beyond entertainment. Gaming and various VR applications also provide options for more markets to expand to. Government support is also increasing through provision of training, incentives and coordinating mechanisms to expand markets. Future support to the industry is continually being studied.

Figure 18: Summary of the Porter Diamond of the Philippine Animation Industry

PORTER DIAMOND OF THE PHILIPPINE ANIMATION INDUSTRY




Focus on 2D animation production due to history of taking outsourcing work from US and Japan
Composed of small firms with ~50 headcount; only a handful of animation studios with 200 headcount
Presence of private industry association to support short animation films to be featured overseas
Lack of original content and full-length animation films from Filipino animators
Need of local animation companies for foreign funding and management and additional collaboration with foreign studios to produce animated films with Filipino content
Lack of targeted business incentives for local animation companies
Need for stricter enforcement of intellectual property and combat of
Animation workers have affinity and familiarity with
Factor Conditions
Steady growth in the number of animation graduates, both from formal undergraduate courses and technical courses
Presence of industry-academe gap in terms of

Assessment of the Philippine Animation Industry

Overall, the Philippines has been in the animation industry for a long time. It has gained expertise on traditional 2D animation. The Philippines strong cultural affinity and established business relationship with the US serves as the springboard of the animation industry of the country. The Filipino talent for animation has also been regarded in the global industry.

It can be said that the country has been well focused on the production stage of animation. While it can be said that this is a strength, it would be a challenge if there is lack of improvement. The country has been focused on 2D animation, but the demand for animation services is moving towards 3D animation services. In addition, demand for animation services is leaning towards original content, which can be easily accessed. The Filipino culture is diverse and has potential for original content creation. Thus, in terms of services, the Philippines must start exploring higher value services.

b. The Five Forces Analysis

Another competitiveness framework that can be used for the animation industry is the five forces analysis which is an updated SWOT analysis. This analysis looks at the different factors that defines the present as well as the future direction of the industry. This part focuses on the key strengths of the Philippines in digital animation, which is services under the production and the post-production stages.

These five forces are: a) threat of substitute products or services, b) bargaining power of suppliers, c) bargaining power of buyers, d) threat of new entrants, and e) rivalry among existing competitors. Each of the five forces is explained below.

Threat of New Entrants

The Philippines remains as a competitive location for 2D animation processes. Established nearby competitors of the Philippines include China and South Korea.

China is positioned to cater to both the large domestic market for animation services as well as outsourcing location for Japanese animation studios. There is potentially high demand for animation in China, given its large population. Another driver for the development of the Chinese animation industry is the Chinese youth who are immersed in animation and online games. Chinese animation studios in Shanghai and Wuxi have developed relationship with some Japanese animation studios. In terms of government policy, China recognizes animation as one industry which have developmental potential. One opportunity for China is the

increasing curiosity of foreign markets on Chinese culture. With this, China can tap the foreign markets for their original animation content.

South Korea's animation industry is developed through the animation contracts from American and Japanese animation studios. In particular, South Korea is considered for subcontracting when Japanese animation studios lack the necessary manpower to complete the animation project. When subcontracting to South Korean animation studios, Japanese animation studios have the same decision factors when subcontracting to other Japanese studios. This is a testament of the quality of South Korea's animation services.

As discussed in the preceding section (see Animation Industry in Southeast Asia), other ASEAN countries have also been exploring their potentials for digital animation. These countries are also significant competitors for the Philippine animation industry.

Power of Suppliers

Animators in the Philippines are skilled, English-capable, and oriented to the American and Japanese culture. There is also a sizeable annual number of graduates which can be tapped for animation services.

The animation industry of the Philippines is mostly outsourced work. It is part of the Information Technology and Business Process Outsourcing (IT-BPO). Given this, it is important to identify which processes are "mechanistic" and "creative". Processes in the production stage can be considered as mechanistic in nature, and thus can be outsourced. Outsourced activities in the production stage can be classified into two activities – specifications and coordination mechanisms. Specifications refers to those work in which contractor artists must precisely follow the details from the director to achieve the original creator's goals. Coordination includes work on communicating the intent, keeping the schedule, and checking the adherence to specifications. In a way, coordination is a much more an administrative work. This is what is known as problem-solving knowledge, which is the main body of knowledge used to solve problems. These are the learnt and experienced artistic techniques.

In one way, the current exposure of Filipino animators in the industry shows that they are mainly practicing problem-solving knowledge. This sub-set of knowledge can be considered as "mechanistic", and thus considered as "codifiable knowledge". The other types of knowledge are difficult to acquire through performing outsourcing services, and basically cannot be transferred through outsourcing. These types of knowledge are seen in the

conceptualization stage. For local artists to practice these, they should be aware about the preferences of their target markets (whether international or domestic).

This creative knowledge is critical to move up the animation value chain because new technologies are now being used to enhance the production process. Production processes that are too difficult or time consuming for humans are increasingly being completed automatically, a process enabled through AI and machine learning. Some examples include metadata tagging, visual effects, and captioning/subtitling. Another area where new technologies are seen is in gaming. There is a "digital studio" model which can exist anywhere and is seamlessly connected to other studios.

Two other issues are faced by animators in the Philippines. For younger and less experienced animators, salaries offered by animation studios are low. Freelancing is a good option to earn more and build their portfolios by managing multiple projects. On the other hand, experienced Filipino animators, can find employment in other countries which offer higher salaries.

Power of Buyers

US and Japan remain as the main client markets of the Philippine animation industry. Since the Philippines is considered as an outsourcing destination, mostly for 2D animation processes, animation clients would expect competitive price ranges from local animation studios. In addition, US-based clients can easily turn to lower cost locations, such as India, especially for basic animation processes if cost is a major decision factor. In the same way, Japanese studios can consider Chinese animation cities.

Threat of Substitute

The Philippine animation industry is characterized by production and post-production processes, which is mechanistic. Technology has also impacted the Philippine animation industry's 2D work. For example, the extensive use of Flash technology for animation and its affordability opens opportunities for smaller studios to get animation projects. This creates pressure for larger animation studios to reduce their artists and animators.

In addition, technological advancements, such as AI and digitization, may serve to increase productivity among animation studios, but these may also be a problem for basic animation processes. AI can take up these low-level animation processes in the future.

Rivalry among Competitors

Considering that the Philippine animation industry is composed mostly of small companies and few large players for 2D animation (and to lesser extent, 3D animation), it has yet to witness more cooperation and partnership in doing animation projects. Rivalry can be said to be high in terms of acquiring new projects and in retaining satisfied clients. Competition is heightened since companies struggle to differentiate their services from other existing companies in the country.

In one study, larger animation studios did not practice subcontracting to other animation studios. For some larger studios, their affiliation with foreign companies and long-time clients is already an advantage in obtaining future clients.

Figure 19. **Summary of Porter's Five Forces for the Philippine Animation Industry**

FIVE FORCES ANALYSIS ON THE PHILIPPINE ANIMATION INDUSTRY

7. Recommendations

It can be said that the Philippine animation industry has already harnessed its strength for 2D animation services. The Five Forces Analysis highlights the need to explore higher value services in animation, as propelled by the changes in the level of technology and the increase in demand for animation services.

The analysis from the Porter's Diamond implies that there should be an active lead agency which would streamline all the initiatives of the government and private sector. The key solutions to improve the animation industry performance in the country can be summarized into three major points: 1) proactively discover original content locally through providing incentives to potential proposals or stories, 2) encourage partnerships with foreign firms to enable knowledge transfer in terms of skills and project management, and 3) intensify skills development across all parts of the value chain.

Based on the analysis, there are five broad segments to be considered for the development of the animation industry. While some of the initiatives have already been in progress, other action points can also be implemented.

Table 17. **Recommendations for Philippine Animation Industry**

	Action Points
Regulations	1. Support the passage of the House Bill No. 10107 which will help in identifying and organizing the animation industry of the Philippines
Infrastructure	2. Support initiatives on strengthening the broadband infrastructure of the Philippines 3. Consider setting up animation center accessible to the public which will incr about Filipino animation and provide animation companies.
Skills Development	4. Continue technical skills certification courses for animation offered by TESDA 5. Continue dialogue with industry players to understand the required skills sets for animation 6. Consider providing specialized trainings for existing animators to upgrade their skills as well as to immerse them in new technologies for

High due to brain drain from experienced animators and option for freelancing work

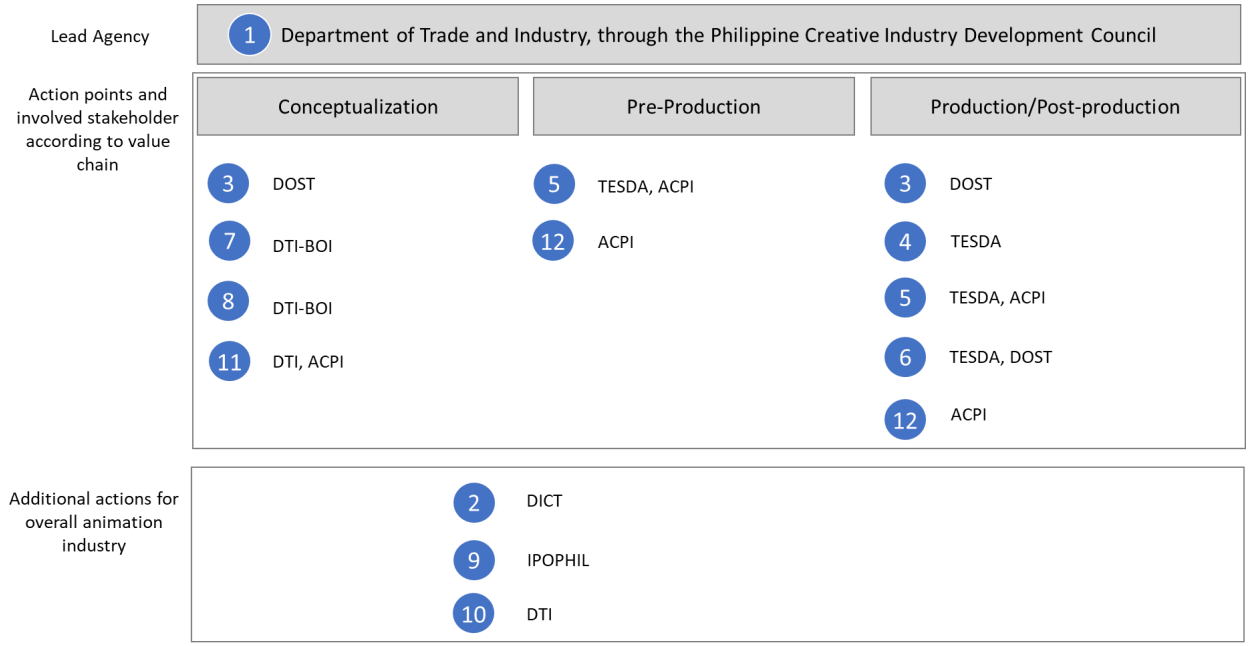
	animation.
Business Environment	7. Aside from the incentives offered by the Film Development Council of the Philippines, consider providing additional funding for original content animation promoting Filipino culture 8. Consider providing more defined incentive program for foreign animation studios who would like to set up operations in the country 9. Continue promoting intellectual property rights for animation industry 10. Consider unifying roadmaps produced by various organizations, to be spearheaded by a lead agency. It would be better if this lead agency is the one identified by the House Bill No. 10107.
Marketing	11. Continue international marketing programs, such as those from DTI and ACPI, to increase awareness about Philippine animation industry and to seek for partnerships with potential animation companies and distribution channels overseas 12. Increase industry forum targeted to students in the creatives industries and related industries

These recommendations can also be illustrated according to the value chain of animation industry. It can be said that the goal is to explore higher value services. We recognize that the country has to maintain its strength in 2D animation, but there is still much more potential when the pre-production stage is explored. This will be a holistic approach for the Philippine animation industry.

Remarkably, the Philippine animation industry does not lack supporting institutions. The private sector players are well represented by industry association, and key government offices which will support overall planning, talent development and infrastructure improvement are already identified. Given the pending bill on Philippine Creative Industries Development Act, we see that the DTI should serve as the lead agency for overall planning and direction of the country. Other industry stakeholders are seen to have specific roles according to the industry's value chain.

Figure 20 shows the role of each stakeholder according to the value chain and recommended actions in Table 17

Figure 20. **Key Stakeholders Involved in Action Points for Each Part of Animation Value Chain**



Note: Numbers represent the Action Points suggested in Table 17.

The Way Ahead: Grand Aspiration of the Philippine Animation Industry

It would be paramount to create a vision for the Philippines animation industry. This industry vision would hold all the developmental efforts. Based on the consultations with industry stakeholders, the following mission and vision can be considered for the Philippine animation industry. The vision and mission include the grand aspiration of the Philippine animation industry – animation as a productive industry.

Table 18. **Proposed Vision and Mission for the Philippine Animation Industry**

Vision	• To become a distinguished and internationally recognized original content provider of global animation projects which can inspire and connect people with natural artistry and real experiences
Mission	• Create more gainful employment and provide collaboration opportunities with local and global animation studios for Filipino animators • Increase skills competitiveness of Filipino animators which will help in creating a "Philippine animation brand" • Spur animation industry in the countryside to increase the number of

	animation studios

Setting goals and targets would also be helpful in reaching the vision and mission for the animation industry. Industry goals can come as a ratio between production process services and original content creation, and as a revenue target of USD400 million by 2030, for example.

In terms of strategy creation, there is a need to streamline existing plans, programs and roadmaps for the animation industry. It should be recognized that some proposed programs may already be existing and are being implemented. Based on the feedback from industry stakeholders, the following are the strategies for the Philippine animation industry, according to periods.

Table 19. **Proposed Strategies for the Animation Industry**

Time-Specific Strategies		
Short term (2024)	Medium Term (2027)	Long Term (2030)
• Explore partnerships with the NBDB, such as having book publishers or authors interested in making their stories animated • Set up a cooperative for freelance animation artists and small animation companies to aid growth • Support R&D projects for graphic design, motion capture, and audio post-production towards the	• Creation of a council to strengthen the commitment of stakeholders • Provide an environment that enables our artists (students) to flourish and realize their artistic vision • Embark on animation projects which can draw from diversity of culture and ideas	• Find a niche in the Metaverse 3D environment, or other emerging animation trends and tools to make the animation industry thrive • Explore the growing global market of the Non-Fungible Tokens (NFT) by aiding local digital creators to route their works in NFT auctions marketplaces • Leverage education and training that is

establishment of the creative innovation hub • Reinforce the market incentive programs of the Board of Investments (BOI) with startups. • Implement marketing strategies to renowned Filipino animators overseas to encourage projects among local animators or animation companies		more relevant with targeted policies to improve the labor market to ensure the pool of labor supply and skilled workforce
General Strategies		
• Re-brand Philippine animation works to be regarded as high-quality animation projects ○ Introduce "animation history" in the curricula of the education system to emphasize the importance and potential of the Philippine animation industry • Intensify education and skills training for animation ○ Promote more hands-on training for animation graduates to be industry-ready, or "externships" to fill in the skills gap ○ Provide more training programs for current animation students and employees • Address the competitiveness of jobs in the animation industry • Improve good infrastructure and enabling environment for animation ○ Encourage investors to fund animation projects or support animation studios ○ Build "animation sandbox" in the Philippines ○ Create a government funding agency (similar to Media Development Board of Singapore), which can help in financing local original content		

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9. Appendix

List of other animation and game development companies in the Philippines

Company Name	**Year Established in the Philippines**	**Ownership / Management (Est. Headcount)**	**Location**	**Description of Services**
Kooapps Philippines Corp.		Foreign (20-30)	Makati City	Mobile gaming studio and publisher
Definite Studios	2013	Foreign (11-50)	Quezon City	Game art outsourcing studio providing high quality 2D game art production services. Other services include 2D animation and marketing art and video services

Keywords Studios		Foreign	Pasig City	Global service provider to the video games industry
Yangyang Mobile			Mandaluyong City	Video games and mobile apps development
Taktyl Studios		Foreign	Taguig City	App, web and game development services, art and animation, augmented reality, table top and card games services
Ranida Games	2015	Local	San Pedro City, Laguna	Game development services for different platforms (mobile, web, PC and consoles); Has produced massive hits and popular online flash game franchises such as Sniper Assassin and Dragon Slayers.
Polywick Studio	2014	Local	Muntinlupa City	arts outsourcing company offering reliable 3D services for those looking for an affordable and alternative solution for their 3D Production
Animation Vertigo Asia, Inc.	2008	Foreign	Mandaluyong City	Main client is Animation Vertigo Inc. of US.
Fandom Inc.	2005	Local	San Juan City	Software development studio focused on creating games for mobile devices
Digital Arts Chef	2009	Local	Marikina City	Services range from concepts, lay-out, line art, coloring, toning, lettering to pre-press preparation.
Job and Esther Technologies		Foreign	Muntinlupa City	An international provider of software engineering expertise with heavy emphasis on technical and architectural correctness, high level of code quality and exemplary coding practices, people development, expertise building and knowledge transfer.
Cheq Systems, Inc.	2003	Local	Makati City	Software Quality Assurance
Zeenoh	2008	Local	San Juan City	In 2016, the company has partnered with Sony Interactive Entertainment as a developer for its Playstation network and launched Nightfall Series on Steam (PC) and Oculus (VR). Zeenoh is currently in the process of developing more upcoming IP's on various platform and technology.
White Widget		Foreign	Quezon City	Website and game development
Gameops, Inc.	2010	Local	Pasig City	Live Operations Provider that focuses exclusively on supporting Video Games.
Synergy88 Digital	2013	Local (51-200)	Quezon City	Animation studio and digital business solutions company; has partnership with August Media Holdings (Singapore) to create Synergy 88 Entertainment Media to produce local entertainment content
Gameloft Philippines, Inc.		Foreign	Makati City	A Vivendi Company; key focus is the development and publishing of mobile games
Nuworks Interactive Labs, Inc.	2009	Local	Pasig City	one of the biggest full-suite advertising and innovations agencies in the Philippines.
Altitude Games	2014	Local (1-50 employees)	Makati City	The Manila-based game studio behind the free-to-play mobile games Kung Fu Clicker, Holy Ship! (3rd IMGA SEA Best Quickplay), Dream Defense (2017 Android Excellence for Fall), and Run Run Super V
Gumi Asia Pte. Ltd.	2012	Foreign	Pasig City	fully owned subsidiary of gumi Inc.; a mobile social game developer with focus on providing entertainment and excitement to users worldwide.
Assistasia Philippines, Inc.	2009	Foreign	Makati City	a video game production company known for creating quality 2D and 3D production
Neun Farben Corporation	2013	Local (1-50)	Pasig City	international computer animation studio that aims to create high-end computer graphics and visual effects for films, commercials, promotional videos,

				animated short films, VR, video games, and web sites.
Redbana Philippines Corporation	2008	Foreign	Makati City	Global Mobile and PC Game Publisher and Customer Support/Community Management Service provider
Artistryware, Inc.		Local	Quezon City	Planning, graphic designing, development, testing and debugging, and publishing in various entertainment venues from cinemas and television to them parks and interactive experiences.
Thinkbit Solutions		Local	Quezon City	IT Solutions company that specializes in mobile app and website development.
Blissful Fun Animation Inc.	2017	Local	Quezon City	Pre-Production; storyboarding, character design, and animatic assembly. Background design and painting. Library: Rigging and Props design. Animation. Compositing.
Fizzbuzz		Local	Cebu City	Stop Motion Animation Content using ZING Toy products, 2D Animation, 3D Animation Web development, App development, SEO/Branding/Marketing
Ideas Quest		Local	Makati City	Advertising services, production and post-production animation services
TeamApp	2013	Local	Taguig City	An off-shoot of Holy Cow Animation; Provides services for web and mobile games and applications, interactive and immersive visual technology, and production of audio-visual presentations and commercials for television and cinemas, among others
Xentrix Toons	2016	Foreign	Makati City	Provides pre-production animation services, aside from animation production services

Note: Blank descriptions mean no readily available information through desk research.
Source: Company websites and social media profiles.