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BUILDING A FOUNDATION FOR DIGITAL ANIMATION

An analysis of the Philippine digital animation sub-sector reveals that the key areas on which resources should be focused to move up the industry's value chain are: 1) recruiting, developing, and retaining talent; 2) financing the cultivation of original content; and 3) expanding and improving the country's information communication technology (ICT) infrastructure.

In general, animators create images for a variety of media (i.e., movies, television, computer games, advertising, etc.), which are brought to life with the use of animation techniques (Castillo, 2012). In recruiting artists, firms in the digital animation sub-sector favor formal training and experience. The former is traditionally acquired by earning an art degree, which combines lessons in art history, science, and English with hands-on instruction in drawing, animation, and computer-aided-design courses. Indeed, UNCTAD (2004, as cited in Castillo, 2012) supported the "specialized education and training, including support for artistic development both in its own right and with an added business dimension" (p. 9) for animators. Experience, especially apprenticeships, on the other hand, enables animators to: 1) collect materials for their professional portfolios that display their artistic abilities and skills; and 2) work with and learn from professional animators (Kelchner, 2017).

Moreover, the literature recommends providing opportunities to upgrade skills as an effective strategy in developing and retaining talent. Digital animation firms can offer instructor-led training programs—such as seminars, workshops, and lectures—that combine the development of storytelling abilities and the use of computers in design, graphics, and animation (i.e., Flash animation, integrating sound, web development applications, etc.). Organizations can also opt to support the participation of artists and animators in their employ (i.e., subsidize fees, time off from work, recognition of training in promotion, etc.) in external seminars/workshops/conferences (Raj, 2007). Another type of training program that digital animation firms may provide is self-directed training. Preferred by artists and animators who choose to study and learn independently, employers can create and maintain a collection of books, technical journals, training software, and so forth (Raj, 2007) that the former can utilize to review, explore, and refine their skills.

Per the Animation Council of the Philippines, Inc. [ACPI] (as cited in Castillo, 2012), the sub-sector's industry association, local animation firms train artists and animators, particularly in the traditional methods (i.e., two-dimensional animation either hand-drawn or completed with the aid of computers). Providing

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more in-house training options, however, require significant investment, especially for an individual enterprise to bear. Cooperation among the members of the sub-sector, through the industry association perhaps, may therefore be a cost-effective means of continuously upgrading the knowledge and skills of local artists and animators. Workshops and seminars could be more economical if attended by participants from more than one digital firm. Learning commons that house various training materials can be maintained by the industry association with contributions (i.e., monetary and materials) from all firms in the sub-sector. The resources shall then be available for the use of all of its members. Similar to cooperatives in the agricultural sector and small-scale enterprises in the industrial sector that share equipment, the digital animation sub-sector can lighten the human investments requirement of each firm by shouldering them as a group or as an industry association.

Secondly, as most firms in the Philippine digital animation sub-sector are subcontractors (PEARL2, 2008), the creativity and skills of artists and animators are primarily used in the pre-production (i.e., creation of a prototype), production (i.e., shading, lighting, animation and visual effects, etc.), and post-production (i.e., sound, dubbing, editing, etc.) stages of the animated output process (Tschang & Goldstein, 2004). Unlike in China, India, South Korea, and Malaysia, however, there is "virtually no commercial animator producer" in the country (PEARL2, 2008). Hence, given that the sub-sector is fiercely competitive, aggressively and successfully pursuing opportunities in various content industries—such as education, web design, architecture, advertising, and so forth—call for the development, production, and promotion of Filipino ideas, concepts, and stories.

Serving as subcontractors for foreign producers provide avenues for acquiring foreign technology and design skills and learning management approaches. In the short-run, these collaborative endeavors are effective means of augmenting funding and marketing distribution limitations; whereas, in long-term, these partnerships may facilitate the local firms' movement up the value chain. At this juncture, Filipino digital animation companies could utilize joint ventures to: 1) expand in the domestic market through shows and movies with local stories/content (i.e., the case of Disney, Zheng, 2016); and/or 2) rationalize brands while managing international licensing more efficiently (i.e., the case of Sanrio; Zheng, 2016).

With an established foothold in the market, local digital animation firms could embark on the development and production of original content for commercial use (i.e., advertising, television and movies, etc.). This crucial and necessary step to move up the value chain entails conceptualization, which would employ the story-telling abilities and creativity of Filipino artists and animators (Tschang & Goldstein, 2004). A risky venture, particularly for full-fledged animation films, the entire process takes five to seven years and requires significant investments with little or no financial gain until the film is released and succeeds (Castillo, 2012). Accordingly, documented industry practices point to joint ventures with experienced domestic and/or foreign producers as among the possible sources of private investments. In addition, creating an environment that is conducive to the growth and advancement of the sub-sector is a vital element in nurturing its potential. Among the key strategies pursued by the leading economies within the Asian region include: 1) funding or grants for pilot projects, incubation programs, and trade fair participation (Singapore - Seah, 2008; Thailand – Wiwatsinudom, 2008 as cited in Castillo, 2012); 2) encourage local networks to air animation series/films by allotting a particular day/s and time slot/s for screening animation television shows with local content (China – Fei, 2008; South Korean – Young, 2008 as cited in Castillo, 2012); and 3) tax incentives. UNCTAD (2004, as cited in Castillo, 2012) argued that Intellectual Property Rights policies—protection as well as simplifying the processes for firms to access new patents and knowledge—are critical to attracting investors in the sub-sector and the creative industries, in general.

Lastly, as subcontractors, it is imperative for local digital animation firms to be able to promptly and efficiently exchange information with clients. Communication (i.e., face-to-face communication/face-to-face discourse, reports/updates, etc.) among the stakeholders in the sub-sector requires broadband service. More importantly, the output—be it a mock-up/sample/model or final version—is preferably delivered in electronic form (Tom Wesson Consulting, 2010). Skype Support (2017) determined a minimum speed

of 30 Kbps for voice calls and 1.2 Mbps for HD video calls. For better quality calls, however, Skype Support (2017) recommended 100 Kbps for voice calls and 1.5 Mbps for HD video calls. Whereas 1 Mbps is sufficient for video streaming on a laptop, "the quality would be grainy on a large screen" (Gonzalez, 2017); a higher bandwidth, 5 Mbps as best, is thus recommended for the best audio and video experience.

For the Philippine digital animation sub-sector, however, exchanging information and, indeed, delivering output are enduring challenges owing to an inadequate ICT, particularly broadband service infrastructure in the country. In 2016, the country was ranked 14 out of 15 nations in the Asia Pacific region in terms of average internet speed—3.5 Mbps versus the 6.3 Mbps global average (CNN Philippines Staff, 2016). Consequently, depending on the number of internet users, the locally available bandwidth is limited and of poor quality. Moreover, broadband service in the Philippines is expensive. Per Mirandilla-Santos (2016), the country had the second highest cost for 1-GB data, $7.10, in 2015 among the 10 ASEAN member countries. Singapore charged $7.11 per 1-GB data. Taking minimum wage into consideration, Filipinos had to work the longest, 10.17 hours, to afford 1-GB data. Myanmar and Vietnam were next in line at 8 and 6.04 hours of work, respectively. Brunei and Singapore required the least number of hours of work, 1.04 and 1.46 hours, respectively, for the service (Mirandilla-Santos, 2016).

Per Mirandilla-Santos (2016), bridging the gap between local and regional/global broadband service entail the employment of several key strategies, which includes, among others:

> 1) adopting an open access model, where segments of the internet infrastructure will be opened up to more and different players both local and foreign; (2) updating and upgrading laws and policies, which includes amendments to the Public Telecommunications Policy Act and the enactment of the bill creating a Department of ICT; (3) leveling the playing field by promoting open and neutral internet exchange points (IXPs) and encouraging infrastructure sharing; (4) updating the country's ICT strategy and plan, including the development of a national broadband plan; (5) improving spectrum management; and (6) ensuring and protecting the competitiveness of the telecommunications industry. (p. 1)

Akin to the initiatives implemented by OECD member countries, the recommended policies are expected to result in greater capacity and more affordable broadband internet service by enticing more players in the ICT industry, expanding broadband internet infrastructure, and fostering a more competitive environment in the sector. Indeed, Kelly, Mulas, Raja, Qiang, and Williams (2009) confirmed that because countries with national strategies on broadband—such as Denmark, Sweden, and Korea— "tended to be more successful in fostering broadband diffusion" (p. 3) even pro-market economies have adopted state plans that involve government participation in broadband development. Similar to the Mirandilla-Santos' (2016) suggestions, forerunners in the sector focused on "liberalizing licensing regimes, facilitating efficient access to radio-spectrum, and regulating access to the dominant operators' network" (Kelly et al., 2009, p. 4).

In the Philippines, the digital animation sub-sector is part of one of the fastest growing industries in the country, the business process outsourcing sector (BPO)—annual average growth of revenues, employment, and exports at 20%, 19%, and 22% increase per year, respectively, from 2009 to 2013 (based on the Department of Economics Statistics, 2015). All the BPO sub-sectors are internet-dependent; hence, a robust and more competitive broadband service would sustain its rapid expansion. On the macroeconomic level, the Philippine ICT Manifesto asserted that "in the ASEAN region, other factors being equal, a 1-percentage point increase in internet penetration rates translates into an additional 0.65 percentage point of GDP growth, on average" (as cited in Mirandilla-Santos, 2016, p. 4). More than the potential monetary benefits, an estimated PHP75 billion addition to Philippine GDP (Mirandilla-Santos, 2016), the positive spillovers of greater and more efficient broadband services, per Kelly et al. (2009), include "access to new technologies, allows companies to explore new business opportunities, access customers and obtain information about market prices" (p. 1).

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