Thai Small and Medium Enterprises
Engagement in the Emerging Digital Content
and Game Industry

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Abstract—The digital content and game industry in Thailand is
growing and maturing rapidly. The Thai government is playing
an important role contributing to the development of the industry
in both business and social sectors. With respect to the business
sector, the contributions are offered in the forms of direct
investment, business privileges related to business performance
and relevant laws and regulations have been established. SMEs
are supported and encouraged to enter into the industry. They
are also assisted to make their presence known on the world
market of game and animation. In addition, the Thai government
is concerned with the social aspects. They have embraced
projects to assess issues which impact the communities. The
objective of this paper is to present an overview of the digital
content and game industry in the context of Thailand. The paper
covers the evolution of the industry, government support,
education institutes involvement, SMEs’ engagements and trends
of the industry.

I. INTRODUCTION

Since the turn of the century, Thailand has joined many
countries in the world to become a producer in the digital
content and game industry (to be called “the industry” from
henceforth). The industry has expanded continually to cover
a wide range of digital products. This includes digital
contents for entertainment and commercial work, graphic
animation and design, web application and design, computer
and video games, and mobile phone applications.
Worldwide, the total revenue of this industry is over
US$165 billion in 2005 and The International Data
Corporation (IDC) estimated that the industry will increase
to US$271 billion by 2007 [1]. The export value of
Thailand’s software industry will reach 80 billion baht (or
approximately US$2.3 billion) by 2008. However, Thailand
is encountering high level of competitions and robust
challenges for the market share. For example, countries like
India is expected to secure a total of US$950 millions in
outsourcing contracts with Hollywood animation production
houses by 2009. In addition, Japanese productions which
dominate 60 percent of the world’s animation products, have
moved into China which is a new major market for
animation. Thailand is meeting challenges with longtime
powerhouses in Asia such as Japan and South Korea as well
as new players such as India and China [2].

The Thai government has expressed its intention to
attain a leading position in the animation software industry
in computer games, mobile games and animation sectors. In
the world’s global digital market, this industry holds 12
percent and is expected to grow continually in the near
future. Thailand’s game industry is running well with the
government’s support under the national IT plan (IT2010)
through various forms of contributions and facilitations. The
government’s Software Industry Promotion Agency (SIPA)
was established to promote Thailand to become a leader in
the Asian animation and game industry. Furthermore,
Thailand is setting up to become a low-cost production hub
for high quality animation in Asia and is promoting itself as
an alternative outsourcing destination for Hollywood and
European animation projects. It is recognised that Thailand
is in a favourable position because over 90 percent of the
films and television animations showing in the United State
have been created and manufactured in Asia.

On the other hand, IT outsourcing spending in Asia-
Pacific has expected to cross the $10.5 billion mark in 2006
and IDC has estimated that outsourcing will reach $16
billion by 2010 [3]. While a growing market implies a
bigger opportunity, it also means that Thailand will continue
to face rivals in the region such as Japan, Korea, China,
India, and other countries in Southeast Asia targeting the
same industry. Nevertheless, the multimedia industry,
especially the animation sector in Thailand, is much more
developed than its neighbour countries such as Vietnam,
The Philippines and Malaysia.

A successful example is the first locally produced and
complete Thai animation movie titled Khan Khluay, (or in
English, A Banana Leaf), by Kantana Animation Co. Ltd.
Kantana invested US$3.4 million into the production in
2003 and the film has returned good dividends for the
investment from the popular box office sales. The vice­
pre­ident of Kantana has pointed out the opportunity for
animation market is going well and international attention
has been turned to Thailand as a low-cost base for producing
high quality animation and games [2].

Within the context of the digital and IT sector, the Thai
government is very interested to attract foreign investments.
It has provided easy access to visas, work permits, tax
exemptions and permission of 100% foreign ownerships. In
addition the Ministry of ICT established a “Thai Game
Cluster”. For these reasons, this paper aims to present an
overview of the digital content and game industry in
Thailand from various perspectives. The following sections
describe the historic evolution, government and education
supports, e-commerce and SMEs performance, and trends in
the industry. It is expected that this paper will provide a
background picture and a report card for readers who are
interested in the Thai digital content and game industry.
II. EVOLUTION OF THE INDUSTRY IN THAILAND

Apart from the success of Kantana, one of the biggest game companies is CyberPlanet Interactive (www.cyberplanet-i.com). The company could be considered as a representation of the evolution of the game industry in Thailand. CyberPlanet was established in 2000. It is the first Thai company which conducted research and development of entertainment software on Windows-based platforms, mobile platforms and console platforms. Its products have been exported to over 40 countries. CyberPlanet is financially supported by the SMEs Venture Capital Fund run by the Thai Government [4]. This is an example of success through government support.

Beyond CyberPlanet, the digital games in Thailand are mainly based on imported games from countries such as Japan, USA, and South Korea. Game research and development was not performed directly by Thai companies; however, there are small groups of Thai game developers working on various game projects and edutainment products.

Furthermore, the Thai government has set up the National Software Contest (NSC) project during the late 1990s. This project has been organized annually by The National Electronics and Computer Technology (NECTEC) of Thailand. The project aims to encourage and contribute software development among students in both high schools and universities in order to provide qualified and experienced workforce for the software industry. Students can submit their projects on PC, console or mobile games, and animation projects to the contest. This has shown to be very popular and generated high levels of interest among the students and the public [5].

The first Thai game forum website, ThaiGameDevX.com (TGDX), was established in 2000 which aims to become a channel for communication between the Thai game developers and a learning centre for new Thai game developers. It also serves as a website for the game industry in Thailand [6].

In 2004, the first annual conference for Thai game developers, Game Developer Exchange Conference (GDXCON), was held at Assumption University. The conference aimed to become a platform for local game developers to exchange information, knowledge, and experiences. It also serves as a channel for proposing and presenting trends, progresses and advancements in computer game industry in Thailand. The last conference was held in 2006 which focused on PC and console games development [7], [8]. So, the game industry in Thailand has evolved from government involvement to the wider community including individual developers, SMEs, and academic institutions. The following section will describe the Thai government’s support in various ways.

III. THAI GOVERNMENT’S SUPPORT TO THE INDUSTRY

The Thai government plans to propel Thailand’s animation industry to become a regional hub. This is an obvious direction and goal for entrepreneurs in both SMEs and big companies. The first stage has been targeting at the ASEAN countries. Although the government places enormous importance on the animation industry; however, this industry still subjects to various limitations such as a lack of animated professionals, segmentation of the rural and urban domestic markets, the target audiences have been limited to children and adolescences, lack of educational institutions providing training courses on animation production, high competition with potential rivals from abroad, intellectual property infringement, shortage of local infrastructure such as communication and bandwidth, and insufficient venues to showcase the animation products.

On the other hand, the practical support of the government also extends to companies in the private sector by providing tax benefits if they contribute towards the Thai digital content industry. It is therefore expected that private sector involvement will continual to develop and grow [9].

In order to overcome the aforementioned limitations, the Thailand Software Industry Promotion Agency (SIPA), has launched the first Thai Animation and Multimedia Fair (TAM) Project in 2004. The theme of the fair covered various topics related to the game development industry. Through this event, animation and game companies had a chance to present their products to customers and to promote their services. TAM also opened seminar forums for game experts to present and exchange their innovations in the animation and game areas [10].

SIPA also plays an important part in fostering the Thai Game Cluster (TGC) which is the first association of Thai game companies [11]. Moreover, SIPA has just opened the Bangkok Digital Content Centre (BDCC) for facilitating the promotion of digital content to entrepreneurs and to the public. The objectives of the centre are a) to be the focal point for developing the potential of Thai animation sector. An example is to run the biggest animation equipment and service centre in Thailand. This will be able to provide services such as motion capture, render farm systems, etc. b) to build up the industry and to reach the goal of 20% growth within three years (2007-2009). At present, the value of this industry is 3 billions baths and has about 110 animation companies. Around 1,800 employees are now currently working in the animation sector [12]. It is expected the goal is an achievable target.

With the growth of hand held devices, SIPA also formed the Mobile Application & Computer Games Project which aims to: a) train 500 personnel on mobile application & computer game design focusing on artistic graphics, animations and computer programming. The participants will receive a 6 months training on various subjects, b) meet government’s target to supply 100,000 qualified software professionals who are ready to take on work and contracts from worldwide projects by 2009, c) promote Thailand to the world computer arts arena, d) encourage Chiangmai (North) and Phuket (South) as the regional centers of innovation and R&D in mobile application and computer games under the project, ‘Techno-Tourism Centre’. Moreover, a Software Research Center was established in Khon Kaen, at the Northeast of Thailand. The government expects these three centres to become the main platforms and major software industry hubs of Thailand.
provide risk capital in co-production with large projects of mobile applications and computer game development. This has the objective to lead Thailand as a world-class production house. The outcomes from this project are expected to expand Thai software market worldwide and to create new opportunities in software industry for Thai people. Through these initiatives, it is also expected to establish SMEs in the digital content and game industry [13].

SIPA is also preparing the Animex (Animation Exchange Network). Animex is a software development network that contributes and supports marketing activities for the software developers. The next section will describe the educational support and involvements.

IV. EDUCATIONAL SUPPORT TO THE INDUSTRY

In order to reinforce the digital content and game industry workforce, SIPA is persuading and contributing towards education and training. The initiative is supported by the Special Interest Group for Computer Graphics (SIGGRAPH) which is part of the international organization Association for Computing Machinery (ACM). SIGGRAPH links the industry with educational institutes worldwide. SIPA also asserts the Thai government’s contributions towards university participations in the industry’s development. In addition, SIPA has established multimedia, games and animation programs throughout Thailand and supported intensive courses offered by Thai universities [1].

Realising the development and expansion of the digital content and game industry in Thailand, many universities have begun to take part and to play important roles in supporting Thailand to become a player in the world stage. Chulalongkorn University, King Mongkut University (Thonburi), and Assumption University are the first lot that have developed a number of related courses.

In 2004, Rangsit University is the first university in Thailand launched the Bachelor of Science degree in computer games and multimedia. This programme is run by the Faculty of Information Technology with supports from other disciplines such as arts, media and communication. The programme comprises of three core courses:

- a) creative thinking and content design,
- b) advanced programming and related disciplines, and
- c) artistry, graphic, and, animation design and development.

The programme is well-known locally and abroad. It has become a typical model for other universities which aspired to construct a similar programme. Collectively, these courses are producing graduates to meet the demands of the industry. The following section describes the status of the SMEs engagement in the industry.

V. SMEs IN THE INDUSTRY

The strategic goal of SIPA for the three software hubs in Chiangmai, Khon Kaen and Phuket is to establish and accommodate at least a minimum of 30 SME software developers at each centre. This is in addition to SIPA’s anticipation of large production projects in mobile application and computer games for the domestic and world market [13]. It is expected that in the long term, Thai SME software developers will be recognised by digital content vendors and customers worldwide. In order to fulfill the goal, SIPA supports the SMEs to be involved in international exhibitions and trade expos. In addition, E-commerce systems for B2B and B2C are the main strategic tools for promoting those SMEs and to enable them to access their target commercial groups directly. These are progressive steps to assist the production and manufacturing of mobile application and computer game software. It is also expected that the rate of production will increase continuously.

International Game Developer Association (IGDA) [14] reported that there are around 43 Thai SMEs which are manufacturing game applications. It was also observed that they are competing each other using various tactics. Samples of the SMEs and their websites are listed in Table 1:

<table>
<thead>
<tr>
<th>SMEs</th>
<th>Website</th>
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<tbody>
<tr>
<td>Chiang Mai Digital Works Co., LTD.</td>
<td><a href="http://www.cmdworks.com/">http://www.cmdworks.com/</a></td>
</tr>
<tr>
<td>E-Media Co., LTD.</td>
<td><a href="http://www.mogamer.com/">http://www.mogamer.com/</a></td>
</tr>
<tr>
<td>Future Garner</td>
<td><a href="http://www.futurecgew.co.th/">http://www.futurecgew.co.th/</a></td>
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<tr>
<td>Game No Limit Co., LTD.</td>
<td><a href="http://www.gamedevx.com/">http://www.gamedevx.com/</a></td>
</tr>
<tr>
<td>Game MAG</td>
<td><a href="http://www.animatesgroup.com/gamemag/">http://www.animatesgroup.com/gamemag/</a></td>
</tr>
<tr>
<td>Game Square Co., LTD.</td>
<td><a href="http://www.gamesquare.net/">http://www.gamesquare.net/</a></td>
</tr>
<tr>
<td>GameYuppie</td>
<td><a href="http://www.gamewypie.com/">http://www.gamewypie.com/</a></td>
</tr>
<tr>
<td>ImagMax Co., LTD.</td>
<td><a href="http://www.imagimax.com/">http://www.imagimax.com/</a></td>
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<tr>
<td>Ini 3 Digital Co., LTD.</td>
<td><a href="http://www.ini3.com/">http://www.ini3.com/</a></td>
</tr>
<tr>
<td>MovieSeer Co., LTD.</td>
<td><a href="http://www.movieser.com/javagame">http://www.movieser.com/javagame</a></td>
</tr>
<tr>
<td>NCTru Co., LTD.</td>
<td><a href="http://www.lineage2.in.th/">http://www.lineage2.in.th/</a></td>
</tr>
<tr>
<td>PieSoft</td>
<td><a href="http://www.geocities.com/">http://www.geocities.com/</a></td>
</tr>
<tr>
<td>Pinnacle Software Co., LTD.</td>
<td><a href="http://www.taionline.in.th/">http://www.taionline.in.th/</a></td>
</tr>
<tr>
<td>Polygon Devices Co., LTD.</td>
<td><a href="http://www.polygondevity.com/">http://www.polygondevity.com/</a></td>
</tr>
<tr>
<td>Second Soft Co., LTD.</td>
<td><a href="http://www.secondsoft.co.th/">http://www.secondsoft.co.th/</a></td>
</tr>
<tr>
<td>Thai Game Dev X</td>
<td><a href="http://www.thagamedevx.com/">http://www.thagamedevx.com/</a></td>
</tr>
<tr>
<td>Vihita Animation Co., LTD.</td>
<td><a href="http://www.vihita.com/">http://www.vihita.com/</a></td>
</tr>
</tbody>
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Apart from PC, mobile and console games, another area of development is the online game industry. The rate of online game activities has risen from 5.02% in 2003 to 6.4% in 2006 [15]. The figure has clearly indicated that the opportunities for operating online game businesses in Thailand are growing. Majority of the online game players are younger than 20 years old and most are supported by their parents. Because of their age, there are concerns by the government and the community on issues of addiction to online games playing and inappropriate contents in the programmes. The Thai government developed the online game regulations in 2003 in order to protect younger players from spending excessive amount of playing time, violent and inappropriate games. The regulations restrict online game playing time to 3 hours a day and banning online gambling games. This is an important direction in order to govern online game SMEs and to ensure they undertake appropriate approaches to run their online game businesses.
In addition, big telcos or mobile carrier companies, AIS (Advanced Info Service Public Co. Ltd.), True, DTAC, etc. have joined the online mobile game arena. This is a highly competitive business and the companies have developed various business strategies and tactics in order to compete with one another.

For example, AIS, the largest mobile phone operator has joined force with Ozura Mobile, a wholly owned subsidiary of Nextnation Communication and a global leading publisher and developer of mobile entertainment, to release various business strategies and tactics in order to compete with one another. Users have joined the online mobile game arena. This is a highly competitive business and the companies have developed many featured tournament games. Users simply have to download the game by joining CoreGame in order to compete in the tournaments. The winners will get points which can be redeemed for prizes at CoreGame virtual gift shop. The games are available to all AIS subscribers that are able to play multiplayer games using Thai language. Games in other languages for the Malaysians, Indonesians, China and the United States markets are currently in development [16].

VI. TRENDS OF THE INDUSTRY

SIPA is conducting and developing animation software in cooperation with universities in Thailand. It is expected that the trend will continue with emphasis in R&D and more full-scale features in the long term. The first stage of the project is to develop software intended to be used in local graphic animation productions [12]. In comparison with Korea, Japan and Singapore, the Thai industry is considered to be at an early stage of development. However, Thailand offers many advantages such as low cost of ICT skilled employees and lower operational costs.

On the other hand, Thailand is encountering competitions from other neighbouring countries such as Vietnam, China and the Philippines which are up and coming as highly competitive rivals in the industry. When compares with these countries, Thailand has the disadvantages of higher costs for business operation, well-skilled artistry and technically competent personnel, and relevant digital content technologies.

However, the industry in Thailand has good potential to grow in the near future. There are a number of factors that support the growth. The main important factor is the growing demand for domestic entertainment and edutainment content by online consumers. This demand has extended beyond the Asian region. Additionally, the Thai government has supported the industry to run partnerships with game and animation studios worldwide and they are actively seeking new customers in North America, Japan and Europe.

According to current data, Thailand employs around 1,000 animators and computer game development professionals. The digital content export is valued at approximately US$15 million; there are about 60 animation studios in operation. The industry produces about 30 hours of animation content a year. The cost of completing animation projects is much less than the production cost in the US with a saving of about 25% [17]. These indicate that Thailand has much potential to be developed in the industry for the world market.

In 2002, the global online game market was US$2 billions and it increased to US$12 billions in 2006. Online games have been increasingly popular at Thai homes. The first most popular online game among the Thai players is 'Raknarok,' which was produced in Korea. Within seven months in 2003, the number of membership jumped to 600,000 with an average number of 300,000 players per day. This figure is expected to rise continuously [18].

Within the context of Asian game market, it is noteworthy that CEO's of big game companies considered that game piracy is "good" for the growth of the industry. However, it has become a major problem and with many issues in the intellectual property perspectives. However, the online game market in Asia is still growing strong; and the Internet cafés play a large role in the growth. Although the overall number of Internet cafés is in decline, the sizes and quality of these venues are improving with better equipment and environments. Although most of these cafés are using PC machines, there are opportunities for console systems to gain a greater market share by introducing consoles. Moreover, subscription-based and micro-transaction-style games will continue to gain market share while casual games are also gaining ground. However, the biggest challenge is extensive government regulations and duties will hinder the growth of the console market in Asia [19]. That means Thailand has to be responsive and be aware of the trends within the region in order to gain a global foothold.

On another aspect, the Thai communities have taken note of the impacts by computer games upon the young players around the country. Concerned parents worry about possible behavioural changes after lengthy and frequent game playing. In particular, online games are immensely popular among the players. A great number of young people are addicted to the games and spend much more than the recommended lengths of time. A number of current games also contain unsuitable contents such as violent anti-social behaviours and/or materials of sexually explicit nature. All these trends tend to contribute to online game addiction.

While the development of the industry in Thailand has opened up many opportunities for businesses and employment, the abovementioned trends are also catching the attention from the relevant sectors such as the government, education and social groups.

In terms of the social problems impacting the huge number of young Thai Internet addicts, Centres for Internet addict avoidance, psychotherapy and consultative services have been established. In 2003, the Ministry of ICT has collaborated with related organisations and institutions such as the Ministry of Public Health, online game companies, the Federation of Internet Entrepreneurs, Internet service providers, game clubs and The National Police Office, etc. to achieve the following objectives:

• Analyse games' content for rating the games.
• Assign appropriate time for playing games.
• Tighten control on the process of licensing the online game businesses.
• Check players' registration using ID number issued by the Ministry of Interior for verification of the age of players. This includes identification of the appropriate
playing time for each player. In addition, the ID number of the parents of the young players may be used for authenticating players’ permission to play the games.

- Establish regulations for Internet Cafés which are frequented by young people after school.
- Establish an independent organisation such as the Internet Police Centre and the Internet Use Monitoring Centre for verifying the level and appropriateness of the games. The process involves young players’ parents and other parties to guard the players from addiction. Moreover, the government has opened telephone hotline as a channel for reporting and watchdog the young players’ behaviours.
- Establish a flagship project, the National Internet Clearinghouse set up by the Telephone Organisation of Thailand (TOT) Corporation Public Co., Ltd. This project aims to facilitate the use of legal low-cost games by Thai Internet entrepreneurs within their operations.
- Establish ICT community at school on a national scale in order to train teachers on the handling of cases of game addiction among young game players.
- Establish a National Multimedia Institution to encourage and develop appropriate games, animations and multimedia content.
- Encourage young players to involve with other physical or intellectual activities such as sports and travelling in order to move their concentration from game playing to other activities.
- Motivate the players’ parents to spend time and to become more involved with their children. This aims to equip the young players emotionally and physically in a healthy manner and to replace their obsession about games with positive activities.

The aforementioned objectives indicate that Thailand is upholding her social responsibility and confronting issues of online games addiction while growing the industry. However, the important actions are how to translate these objectives into actions and how to measure the success concisely. Achieving the objectives will gain more benefits to all related groups within the country.

On the other hand, the Thai Farmers Research Center (TFRC) [19] points out that the measure for rating the appropriateness of game content is rather complex. In particular, it is difficult to rate the content with inadequate manpower and insufficient implementation. In addition, TFRC indicates that checking players’ IDs would be difficult to verify as a player may use a friend’s IDs.

In term of regulations for Internet cafés, it is expected that the regulations on the opening and closing times will have implications on the revenue of the Internet shops. The government could categorise the shops into three groups: the real Internet shop, computer services and gaming shops. Different monitoring and control mechanisms could be associated with these different categories of shops.

Like the Internet usage behaviour worldwide, Thai children and their social interactions are dominated by the unremitting progress of the Internet technology. The Internet addiction problem is an intangible dilemma that Thailand cannot avoid. If all the concerning parties are able to cooperate to tackle the problem before it is too late, this will set a good example for the world. Online games should not be prohibited or forbidden from access by children as they have a part to usher the children into a cyberworld of imagination and creative thinking. Therefore, children should not be banned from game playing, but they will depend on adult intervention to direct them on how to manage their time.

VII. CONCLUSION AND DISCUSSION

In order to drive Thailand into the world digital content and game industry, the Thai government has released strategies and tactics to facilitate the emerging industry. More foreign investments are entering the industry through venture capital support. The Thai industry has produced outsourced works for studios in the U.S., Taiwan, Japan, and India. In addition, the Thai industry is getting accustomed to the best practices by international companies and organizations in order to benchmark themselves and to learn from others’ experiences. SIPA cooperates with SIGGRAPH to promote Thai’s industry to international industry leaders. They have organised showcases to demonstrate the abilities of Thailand’s industry. Such activities include organising exhibitions and seminars, and hosting an international competition for young game designers and developers.

On the World stage, Thai game and animation studios are among the successful Thailand’s multimedia enterprises. For example, Imagimax Studio has received international tributes for its 3D animation works. This includes a prize for Best Short Animation at the Asian Television Technical & Creative Awards in 2003 at Singapore. Another significant player, the Kantana Animation Co. Ltd., released Thailand’s first 3D animated film, Khan Khluay, in 2005. It also frequently receives outsourced projects from Hollywood. Both of them operate their own animation schools which have become very popular in Thailand.

It should also note that that the merchandises on the street markets in Thailand have also changed from watches, clothes and dress accessories, music CDs, etc. to digital movies and game applications including computer software. However, the market for pirated computer game software is growing rapidly. Computer game packages are on sale on street stalls and even in major shopping malls and shopping complexes. The cost of these illegal products are normally 50% or less of the official prices [20]. This presents a major deterrence and disincentive to the producers of digital contents and games.

In conclusion, Thai’s digital content and games industry is emerging as a major player in the region with the support from the government and educational institutes. They are following the trend of the industry locally and internationally. In particular, the SMEs are expected to grow and becoming exporters to the world. However, the social impacts of the technologies are having effects on the next generation and the society on the whole. It is important for the industry and relevant stakeholders to tackle the problem. This will set Thailand as an example of a responsible and successful player in the digital content and game industry.
REFERENCE


