MDEC

MINISTRY OF DIGITAL

MD MALAYSIA DIGITAL

SOUTHEAST ASIA GAME DEVELOPMENT INDUSTRY

TALENT ECONOMICS REPORT 2024

Research Collaborator:
TalentCorp GROUP OF COMPANIES

MALAYSIA MADANI

Research Partner:
A·P·U ASIA PACIFIC UNIVERSITY OF TECHNOLOGY & INNOVATION

> TABLE OF CONTENTS

FOREWORD BY CHIEF EXECUTIVE OFFICER

Malaysia Digital Economy Corporation (MDEC)

Dear members of the game development industry,

I am pleased to present our 6th industry report focusing on the game development ecosystem in Southeast Asia. Since 2015, MDEC has actively collaborated with key regional partners, including the Southeast Asia Games Association and organisations such as Asosiasi Game Indonesia (AGI), Thai Game Software Industry Association (TGA), and others. This ongoing regional partnership has led to the publication of five comprehensive reports that provide insights about our digital content industry.

As part of our commitment to thought leadership, we aim to equip industry stakeholders with the knowledge needed to drive innovation, foster collaboration, and position Southeast Asia as a global hub for game development. Through initiatives such as the LEVEL UP KL conference, SEA Game Awards, Digital Content Creators Challenge (DC3), Digital Content Fund (DCG) and Malaysia Digital Content Festival (MYDCF), MDEC is dedicated to creating opportunities for learning, networking, and showcasing local talent on an international stage. These efforts reflect our vision for a vibrant, sustainable game development ecosystem in Malaysia and across Southeast Asia.

The global games market is projected to reach USD 187.7 billion by 2024, highlighting significant growth opportunities for the region. To fully leverage this potential, we must address critical aspects of our regional talent landscape, including compensation trends and workforce development. As we navigate towards fast-evolving industry, understanding talent economics become instrumental in attracting and retaining skilled professionals who contribute to our competitive edge.

YBrs. En. Anuar Fariz Fadzil
Chief Executive Officer
Malaysia Digital Economy Corporation (MDEC)

> With the right talent development strategies and government policies, the region is poised to continue its growth as a global game development hub, attracting more international investments and enhancing its role in the global game development ecosystem.

Aligning our talent strategies with international standards is essential not only for enhancing our attractiveness to global investors but also to fostering a diverse and inclusive workforce that drives innovation. By addressing disparities in compensation and ensuring competitive remuneration, we strengthen our position as a preferred destination within the global gaming ecosystem, laying the foundation for sustainable growth in Southeast Asia's game development industry.

MDEC remains dedicated to fostering a robust game development ecosystem in Malaysia and throughout Southeast Asia, guided by the development of the Action Plan Blueprint for Creative Digital. This strategic blueprint outlines key initiatives to drive growth, innovation, and global competitiveness in the digital content industry. I extend my gratitude to our partners, Asia Pacific University (APU), TalentCorp Malaysia, and the Southeast Asia Games Association, for their invaluable collaboration and support.

As we look into the future, let us utilise the insights presented in this report to strengthen our strategies and policies. Together, we can unlock the immense potential of Southeast Asia's gaming industry and pave the way for continuous success.

YBrs. En. Anuar Fariz Fadzil
Chief Executive Officer
Malaysia Digital Economy Corporation (MDEC)

FOREWORD BY GROUP CHIEF STRATEGY OFFICER

Talent Corporation Malaysia

TalentCorp is honoured to serve as the strategic research partner for the Southeast Asia Game Development Industry Talent Economics Report 2024, led by MDEC. This collaboration underscores our commitment to driving Malaysia's digital content industry forward by ensuring that our talent strategies are aligned with the evolving demands of the gaming and digital sectors.

The insights highlighted in this report will be instrumental for policymakers, industries, and academia, to better understand the evolving talent landscape of the games and digital content sector in Southeast Asia. By shedding light on salary trends, job satisfaction, and career progression, this report provides valuable data that will guide our talent strategies and initiatives. This, in turn, will ensure that Malaysia remains an attractive destination for skilled professionals, fostering a thriving ecosystem that supports the growth of our digital content industry. Progress in the gaming industry opens doors for young talent, offering them the opportunity to turn passion into innovation, creativity into careers, and imagination into impact.

Importantly, this report highlights the critical role of collaboration among key stakeholders in closing skills gaps and addressing talent needs. TalentCorp is eager to leverage this platform to deepen cooperation across Southeast Asia, working alongside industry leaders, academia, and policymakers to build a robust regional talent pipeline that meets the growing demand for highly skilled professionals in the gaming sector.

En. Nazrul Aziz
Group Chief Strategy Officer
Talent Corporation Malaysia

Progress in the gaming industry opens doors for young talent, offering them the opportunity to turn passion into innovation, creativity into careers, and imagination into impact.

As Malaysia stands on the brink of a transformative digital era, continuous reskilling and upskilling are critical to staying ahead. Through strategic initiatives like our Impact Study of AI, Digitalisation, and the Green Economy on the Malaysian Workforce, will provide data-driven insights to guide policy and industry, contributing to TalentCorp's Malaysia National Skills Registry (MyNSR) and the MyMAHIR platform. Additionally, the establishment of MyMAHIR Future Skills Talent Council (FSTC) will identify essential skills and drive training initiatives to bridge the skills gap, ensuring a workforce that is innovative, diverse, and skilled, ready to meet future challenges while promoting sustainable growth and inclusivity.

On behalf of TalentCorp, I extend our deepest gratitude to MDEC, our industry partners, and the experts who contributed to this report. Together, we have crafted a strategic guide that will serve as a valuable resource in shaping the future of Malaysia's workforce and ensuring we remain competitive in the digital landscape, prepared for the challenges and opportunities ahead.

En. Nazrul Aziz
Group Chief Strategy Officer
Talent Corporation Malaysia

FOREWORD BY RESEARCH PARTNER

Asia Pacific University of Technology and Innovation (APU) Malaysia

Game development has always been more than just a mere profession for me; it has always been my lifelong dream to be involved in this industry. As someone deeply committed to the advancement of the game development talent ecosystem, I am honoured to contribute to MDEC's Southeast Asia Game Development Industry Talent Economics Report 2024. Over the years, I have been involved in several initiatives, including the Malaysian Government's Economic Transformation Programme (ETP) Entry Point Project (EPP14) Initiative to create awareness and visibility for game development in this country and designed to strengthen our local talent pipeline.

These initiatives have allowed me to witness first-hand the incredible drive, creativity, and ambition that exist within our region's talent pool through various government drivers like the Malaysian Digital Economy Corporation (MDEC) and our Ministry support. However, to sustain this momentum, we must continue to support emerging talents through education, training, and industry collaboration. This report is a key tool in identifying the key challenges and opportunities that lie ahead for talent development in the Southeast Asian Game Development industry.

Assoc. Prof. Ts. Dr. Tan Chin Ike
Head of School (Computing) and Lead Researcher
Asia Pacific University of Technology and Innovation
Kuala Lumpur, Malaysia

> We must remain committed to pushing the boundaries of innovation and ensuring that our talent pipeline remains strong and resilient.

I am confident that the insights in this report will contribute to the further growth of the region's talent ecosystem and foster the development of world-class game development talents and studios that can compete on the global stage. As we look to the future, we must remain committed to pushing the boundaries of innovation and ensuring that our talent pipeline remains strong and resilient.

I would also like to convey my sincere thanks and support to Asia Pacific University of Technology and Innovation (APU), a Premier Digital Tech Institution member, recognised for their unwavering commitment to grow our nation's tech-centric talent pool; and my fellow researchers in helping craft this report.

APU Research Team

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EXECUTIVE SUMMARY

In 2024, the global games market is expected to reach USD187.7 billion, reflecting a 2% year-on-year growth [1]. Despite this positive outlook, the global game development industry faces significant challenges, evidenced by over 5,000 job cuts reported by February 2024. Notable companies, including Microsoft, Riot Games, and Unity, have downsized primarily due to economic pressures, organizational restructuring, and cost optimization [2]. This dual trend of market growth alongside workforce reductions highlights the evolving dynamics within the games industry, necessitating adaptive strategies for both companies and employees to navigate these changes.

Amid these global challenges, Southeast Asia continue to emerge as fast-growing region for game development industry [3]. The region over the past decade has seen strong growth and a healthy talent development ecosystem that is fuelled by the region's increasing development of original game titles, external development/outsourcing, consumption of global games, rising economic factors and awareness of game development as a viable career choice.

This report delves into the In-depth analyses of the economic and talent ecosystem dynamics from six key countries within the Southeast Asia Game Development region: Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam.

By focusing on variables and factors such as renumeration, gender, studio sizes, qualifications, experience, and areas of specialization, this report sheds light on the evolving workforce and the cost of talent within this rapidly developing sector in the region. The report highlights disparities and trends in remuneration, offering crucial insights into the interplay between studio growth strategies and talent demands. The report aims to provide a critical insight into the current challenges and future opportunities to underscore the importance of talent development, specialization, and ecosystem support as crucial drivers of a sustainable industry growth for Southeast Asia.

Among the key findings are:

1. Most of the talents in the industry can be classified as young adults with nearly 80% of the workforce is composed of individuals under the age of 35 years.
2. A significant gender imbalance in the game development industry, with the majority of workforce being men, while women are underrepresented.
3. 63% of respondents hold undergraduate degrees, reflecting a well-educated workforce with a strong emphasis on formal education, particularly in Malaysia and has become the industry norm in recent years.
4. Gender disparity in earnings within the Southeast Asian game development industry contributes to salary gap, indicating that men generally receive 16% higher compensation than women. Overall, the survey data reveals a persistent and widening gender pay gap that increases with experience.
5. At the entry-level salary rate, male fresh graduates in the game development industry earn an average of USD701, compared to USD658 for female counterparts, indicating a 6% pay gap.
6. The average monthly salary by three major specialisations as below:
   - Game designers earn a monthly salary of USD1,017.08, making this specialization the lowest compensated compared to other roles in the game development industry.
   - Game artists earn an average of USD1,449.44 per month.
   - Game programmers earn the highest average salary, with a monthly average salary of USD1,780.6.
7. Indonesia's average salary in the game development industry is USD516 per month, while Malaysia's is USD1,275, with both countries positioned lower than their regional peers. Among entry-level positions, Indonesia, Vietnam, and the Philippines offer the lowest compensation, while Malaysia ranks third highest, reflecting adherence to minimum wage policies.
8. At the entry level, employees with a Diploma earn an average of USD600, while Degree holders earn USD681, representing a 14% higher salary; Postgraduate Degree holders earn USD641, which is 7% more than Diploma holders but 6% less than Degree holders.
9. Average salary by major specialisation and years of experience *(see table below)*:

Major Specialization/ Years of Experience	Entry Level	1 to 3 years	4 to 5 years	6 to 9 years	More than 10 years
Game Artist	US$653	US$728	US$700	US$1,482	US$4,289
Game Designer	US$638	US$605	US$1,449	US$1,115	US$6,250
Game Programmer	US$658	US$993	US$1,173	US$1,470	US$7,500

01

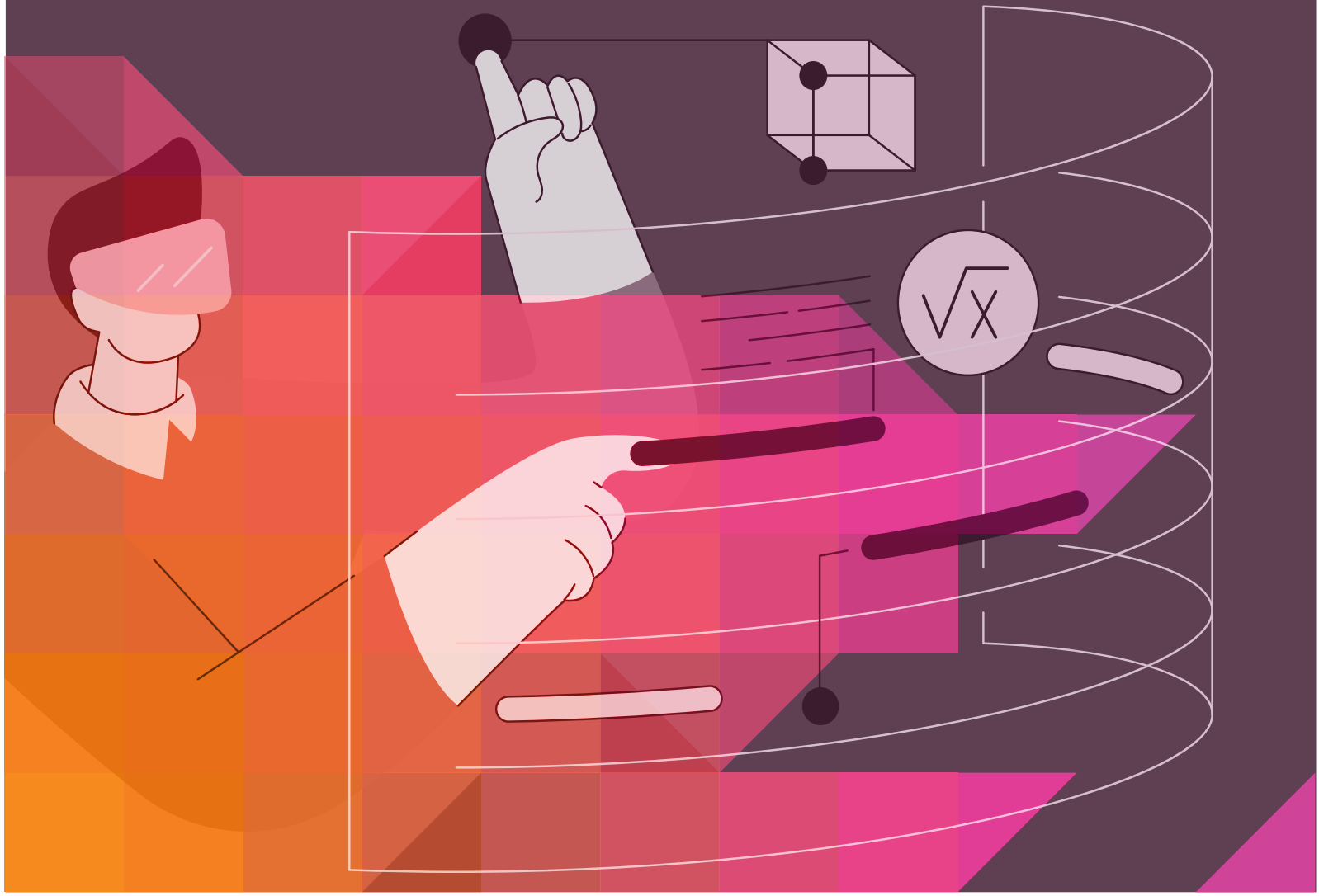
OBJECTIVES

The objective of the Southeast Asia Game development industry Talent Economics Report 2024 is to provide insights on the talent pay scale as well as the state of supply and demand of the game development industry talent ecosystem.

A comprehensive research and analysis of the Southeast Asia game development talent landscape was conducted, comparing the employee pay scales with key talent variables such as gender, academic qualifications, work experience, areas of specialization and job scope. Associated areas within the talent ecosystem such as the employee's perception of job satisfaction among talent pools, the potential development of different skill sets (such as game design, game art, game programming, and other important supporting areas) and studio's long-term strategic talent hiring were also researched and analyzed. This 2024 Talent Report aims to ultimately provide employers, policymakers, and various stakeholders with an understanding of talent development, specialisation, and ecosystem support as critical drivers of sustainable industry growth in Southeast Asia; and list actionable insights and strategic recommendations to optimize talent strategies, promote sustainable growth, and strengthen Southeast Asia's standing in the global game development market scene.

02

BACKGROUND



Southeast Asia is one of the most promising global video game markets, representing approximately 4% of overall global video games consumption.

While the entire Asia-Pacific region including China, Korea and Japan hold the largest share globally in the games market, Southeast Asia generates the largest revenue especially in mobile games. It is predicted that by 2025, the game development industry in Southeast Asia will generate USD6.5 billion in revenue, at an impressive Compound Annual Growth Rate (CAGR) of 7.1% from 2021 to 2025 [3]. This remarkable growth is attributed to the combined revenue stream from esports, game in-app purchases, game microtransactions, and premium game sales, in addition to revenue generated by game development exports (in-house, outsourced, and own intellectual property development). Indeed, Southeast Asia is one of the most lucrative markets for investors, publishers, developers, and gamers, driven by consistent annual revenue growth, relative stability, and ample access to talent. This region is characterized by a strong presence of major international studios who have set up their presence in the region as well as local studios focusing on both out-sourcing/work-for-hire and own intellectual property (IP). While this region may not have the technical expertise or established infrastructure as the more established game development regions or hub but the talent pool in this region is seen to continuously improve and enhance their skills to deliver high-quality internationally recognized work.

Southeast Asia is a strong and established outsourcing hub which has directly impacted the technical and knowledge transfer process for the talents in this region. Since overheads and talent costs are comparatively lower there than in the North America, Europe or Japan, the region resources especially in skilled talents are popular among foreign game studios. Some of the world's most notable titles such as Assassin's Creed, Mortal Combat, Call of Duty, Gears of War 4, Street Fighter 5, Baldur's Gate 3, Last of Us Part 2, Unchartered 4 and FIFA were partially produced in Southeast Asia.

Many independent studios in Southeast Asia have now also become more active in developing their own IPs. The degree of IP development varies across the region and studios but over the last few years, we have seen the level of quality and complexity increase with regional games winning international awards and garnering attention. At the heart of this is the talent development ecosystem, arguably Southeast Asia's most valuable asset and commodity in growing the game development industry. The 2024 Talent Report will provide employers, policymakers, and various stakeholders with an understanding of talent development growth potential and critical information strategically solidify Southeast Asia as the premier provider for talents.

03

TERMINOLOGY AND METHODOLOGY

Terminology

The report will use the terms Video Games Industry to denote the entire Industry ecosystem typically encompassing all aspects of the production, marketing, distribution and sales of digital games and its related hardware (consoles and devices). It also covers the players, streaming, content creation, and fan communities in its scope.

1. **Game Development**, however, refers to the development and production of video games. According to the Game Development Council of Malaysia, game development is the processes, techniques, theories, and practices related to the creation of predominantly digital games but can also extend to non-digital games as well as game-based applications.

2. **Game Development** is a process that involves a combination of multi-disciplinary sets of knowledge and skills ranging from programming to psychology, and from artistic flair to business acumen. Game Development is a fusion of three major specializations, namely **Game Technology (programming), Game Art** and **Game Design**.

3. When used as a singular term, game developers cover any of these three areas of specializations. There are other supporting roles in the game development process which is termed as operational support services and technical support services *(see model).*

4. **Operational Support Services** include leadership and management roles, marketing/ business development, administrative services such as finance, procurement, building services and human resources.

5. **Technical Support** covers engineering roles and IT support roles.

6. The **Game Development Talent Ecosystem** refers to the structured pathway through which individuals progress from secondary education (high school) into structured Higher Education (Colleges, University Colleges and Universities) or unstructured Higher Education (Technical and vocational education and training academies and centres) and ultimately transition into the game development industry, where they begin their careers as professionals. This ecosystem is designed to nurture and equip talent at each stage, ensuring they are ready to contribute to the industry upon entering the workforce.

7. **Talent Economics** refers to the study and analysis of the compensation structures, pay scales, and financial dynamics surrounding the employment of skilled individuals within an industry. In the context of game development, talent economics focuses on understanding the factors that influence salaries, benefits, and career progression for professionals at various levels, from entry-level developers to senior developers.

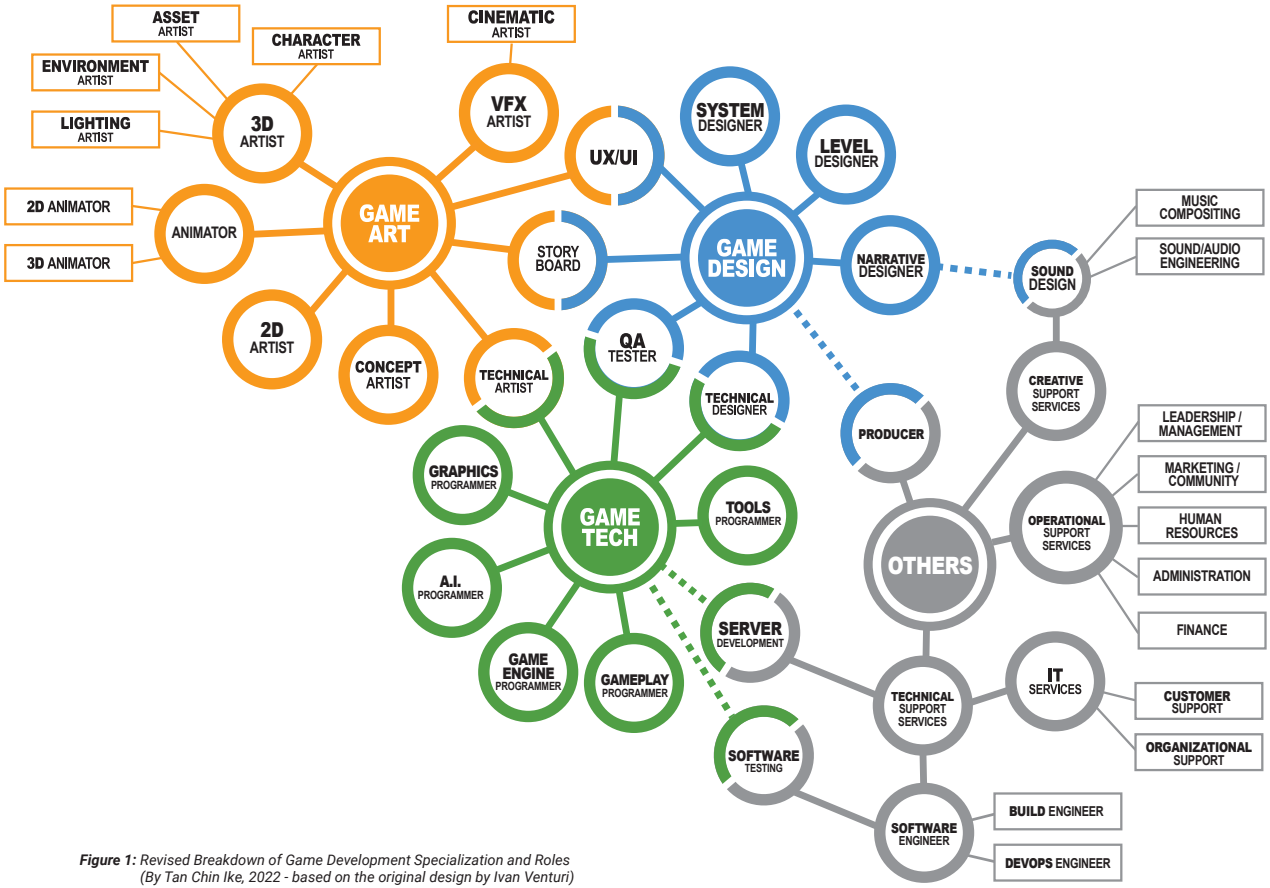


Figure 1: *Revised Breakdown of Game Development Specialization and Roles (By Tan Chin Ike, 2022 - based on the original design by Ivan Venturi)*

Methodology

The methodology for the report was developed through five key phases:

1 > **Goals and Objectives: Establishing the aims and targets of the research.**

2 > **Data Gathering: Collecting information on the current talent ecosystem state of the Southeast Asian Game Development industry.**

3 > **Benchmarking: Comparing the Southeast Asian Game Development Industry from a Talent Perspective against other successful counterparts.**

4 > **Analysis and Synthesis: Examining and integrating the survey data.**

5 > **SWOT Analysis and Recommendations: Conducting a SWOT analysis and providing strategic recommendations.**

PHASE 1

Establishing the aim and targets of the research.

The primary aim of this research is to uncover the strengths and weaknesses of talent economics in the Southeast Asian Game Development Industry, focusing on five key pillars: talent costs, talent demographics, demands, specializations, and talent retention strategies. These pillars define the scope of the research, guiding the selection, organization, and presentation of information.

The objective is to develop strategic recommendations to accelerate the growth and development of the game development industry in Southeast Asia through a comparative analysis.

PHASE 2

Collecting information on the current state of the SEA game development industry.

During phase 2, primary and secondary data was gathered through online surveys to determine game development industry capability and capacity in the Southeast Asia especially in Malaysia. The surveys targeted both company and individual game development industry players from six nations using two surveys:

A total of 295 game development respondents from Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam participated in the first part of the survey, while a total of 48 game development studios across Southeast Asia participated in the second part of the survey.

01 **Company Survey:** This survey aimed to understand the nature and size of businesses within the game development industry.

02 **Individual Survey:** This survey gathered demographic and professional information, including age, gender, skill level, working experience, areas of expertise, and most importantly pay scale.

The questions were designed to obtain relevant industry data and intelligence, providing a general snapshot of the current state of the industry based on five key pillars: talent costs, talent demographics, demands, specializations, and talent retention strategies as follows:

01 **Talent Demographics:** This section investigates the variable of each respondent in terms of age, gender, skill level, working experience, areas of expertise, and most importantly pay scale.

02 **Talent Costs:** This section investigates the financial aspects of hiring and keeping talent in the game development industry. It covers salary benchmarks, benefits, and other compensation-related factors that affect the overall cost of talent in Southeast Asia.

03 **Demands:** This section focuses on the current and future needs for various roles within the game development industry. It identifies which skills and positions are in high demand and how these demands are changing over time.

04 **Specialization:** This section explores the specific areas of expertise that are most sought after in the regional game development industry. It includes specializations like game design, game programming, game art, and other related game support areas, highlighting trends and emerging fields.

05 **Talent Retention Strategies:** This section examines the approaches and strategies that game studios in Southeast Asia use to attract, develop, and retain talent. It provides insights into recruitment practices, talent development programs, and retention strategies. This section checks also on job satisfaction factors.

These pillars offer a thorough understanding of the talent ecosystem in the Southeast Asian Game Development Industry, especially in Malaysia. Survey results help stakeholders make strategic decisions to drive the industry's growth and sustainability.

PHASE 3

Comparing the SEA game development industry against other successful counterparts in the region.

In Phase 3, China was chosen as a reference for the SEA game development industry because China is the largest video game market in in the Asean region. Apart from the size, China has been recognized over the last decade as a leader in talent and resources globally. Germany and Saudi Arabia have also emerged as significant players in the global video game industry, contributing uniquely with their own advancements and innovations. This report seeks to establish the similarities and differences, in a SWOT analysis framework, for selected areas of the China, German, Saudi Arabian, and SEA markets. Here are some key points to consider:

01 **Market Size and Growth:**

China: China is the world's largest video games market, generating over USD45 billion annually. The market is dominated by mobile games and major companies like Tencent and NetEase [4][5].

SEA: The Southeast Asian video games market is smaller but rapidly growing, with revenues expected to reach RM6.5 billion. Countries like Indonesia, Thailand, and Vietnam are key contributors to this growth [6]. There is a growing interest in eSports and localized content that resonates with cultural preferences [4].

Germany: Germany's video games market is expected to generate around USD5.36 billion in revenue by 2024, with an annual growth rate (CAGR) of 9.05% from 2024 to 2027 [7]. This market includes a large portion of online and mobile games, and there's a growing interest in eSports and immersive media technologies [7].

Saudi Arabia: Saudi Arabia's video games market is on track to generate around USD998.20 million in revenue by 2024, with an annual growth rate (CAGR) of 8.53% from 2024 to 2027, reaching about USD1.276 billion by 2027 [8]. This growth is fuelled by supportive government policies, the rising popularity of eSports, and significant investments in game development infrastructure [9].

02 **Regulatory Environment:**

China: The China video games industry is heavily regulated, with strict content controls and licensing requirements. Recent regulations have also imposed limits on gaming time for minors [10][11].

SEA: The regulatory environment in Southeast Asia varies, with some countries having more relaxed policies. This diversity presents both opportunities and challenges for game developers and publishers [3][12].

Germany: The German game development industry operates under strict regulations, especially concerning online gambling and gaming. Recent changes in regulations have created new opportunities and challenges for operators, aiming to balance and enhance market competitiveness [13].

Saudi Arabia: The game development industry in Saudi Arabia operates under a regulatory framework that balances growth with cultural sensitivities and content.

03 **Industry Ecosystem:**

China: China has a well-established ecosystem with robust infrastructure, significant investment in technology, and a large pool of skilled professionals [10][14].

SEA: The Southeast Asian game development industry is developing its ecosystem, with increasing investments in local studios, talent development programs, and regional collaborations [3][4].

Germany: Germany has a well-established game development ecosystem with robust infrastructure, significant technological investments, and a skilled workforce. The country hosts numerous game development studios and major game development events like Gamescom [15].

Saudi Arabia: Saudi Arabia is rapidly building its **video games** ecosystem with substantial investments in technology and infrastructure. The country is home to a growing number of game development studios and hosts major eSports events, contributing to its goal of becoming a leading player in the global video games industry [16].

04 **Innovation and Trends:**

China: China companies are at the forefront of game development innovation, leveraging technologies like AI, VR, and blockchain to create immersive experiences [10][14].

SEA: While Southeast Asia is still catching up in terms of technological advancements, there is a strong trend towards mobile-first innovations and the integration of social and video games platforms [3][17].

Germany: Innovation in Germany's game development industry is driven by a focus on high-quality game development and the integration of new technologies. There's a strong trend towards creating immersive and socially connected game experiences (Gamescom, 2024) [18].

Saudi Arabia: Innovation in Saudi Arabia's game development industry is driven by a focus on integrating new technologies and creating culturally relevant content. There is a strong trend towards mobile games and eSports, with significant investments in cloud game services and infrastructure [9].

05 **Global Recognition:**

China: China video game companies have achieved significant global recognition, with titles like "Honor of Kings" and "PUBG Mobile" gaining international acclaim and large player bases worldwide [3][10].

SEA: The Southeast Asian video game industry is starting to gain global recognition, with successful titles and eSports teams making a mark on the international stage. Continued growth and innovation could further enhance the region's global presence [19].

Germany: German video games companies and titles are gaining international recognition, with several successful games and developers making a significant impact globally. The country's game development industry is renowned for its quality and innovation [15].

Saudi Arabia: Saudi video game companies and eSports teams are gaining international recognition, with the country emerging as a significant player in the global game development and eSports markets. The government's Vision 2030 initiative aims to further enhance Saudi Arabia's global presence in the game development industry [9].

06 **AI and Immersive Media (AR, VR, XR):**

China: China game developers are increasingly using AI to enhance gameplay, personalize user experiences, and optimize game development. There is also significant investment in immersive media technologies like AR, VR, and XR [4][13].

SEA: The adoption of AI and immersive media in Southeast Asia is growing, with local developers exploring these technologies to innovate and differentiate their offerings. While still in the early stages, there is potential for significant growth as the region's technological infrastructure improves and investments increase [3].

Germany: German game developers are increasingly incorporating AI and immersive media technologies into their projects. The use of AR, VR, and XR is on the rise, enhancing video games experiences, although Germany is still catching up with China's rapid advancements [15][18].

Saudi Arabia: Game developers in Saudi Arabia are increasingly using AI and immersive media technologies to enhance video games experiences. The use of AR, VR, and XR is on the rise, driven by technological advancements and government support for innovation in the video games sector [16].

By comparing China, SEA, Germany and Saudi Arabia, stakeholders can gain a comprehensive understanding of the global video games landscape, identifying unique strengths and opportunities in each region to enhance their competitive strategies.

PHASE 4

Analysis and Synthesis

The survey data attained in phase 4 were analysed and integrated to derive significant and useful knowledge about the overall game development industry talent acquisition, market and strategic outlook.

They are important to generate the set of strategic proposals that will be implemented in the future and build up the presence of strong contenders in Southeast Asia, thus effectively utilizing the potential of the game development industry of the region.

PHASE 5

Demand Analysis and Recommendations

Finally, results and discoveries of the detailed analysis and integration of the collected surveys data were demonstrated through compelling graphics and results.

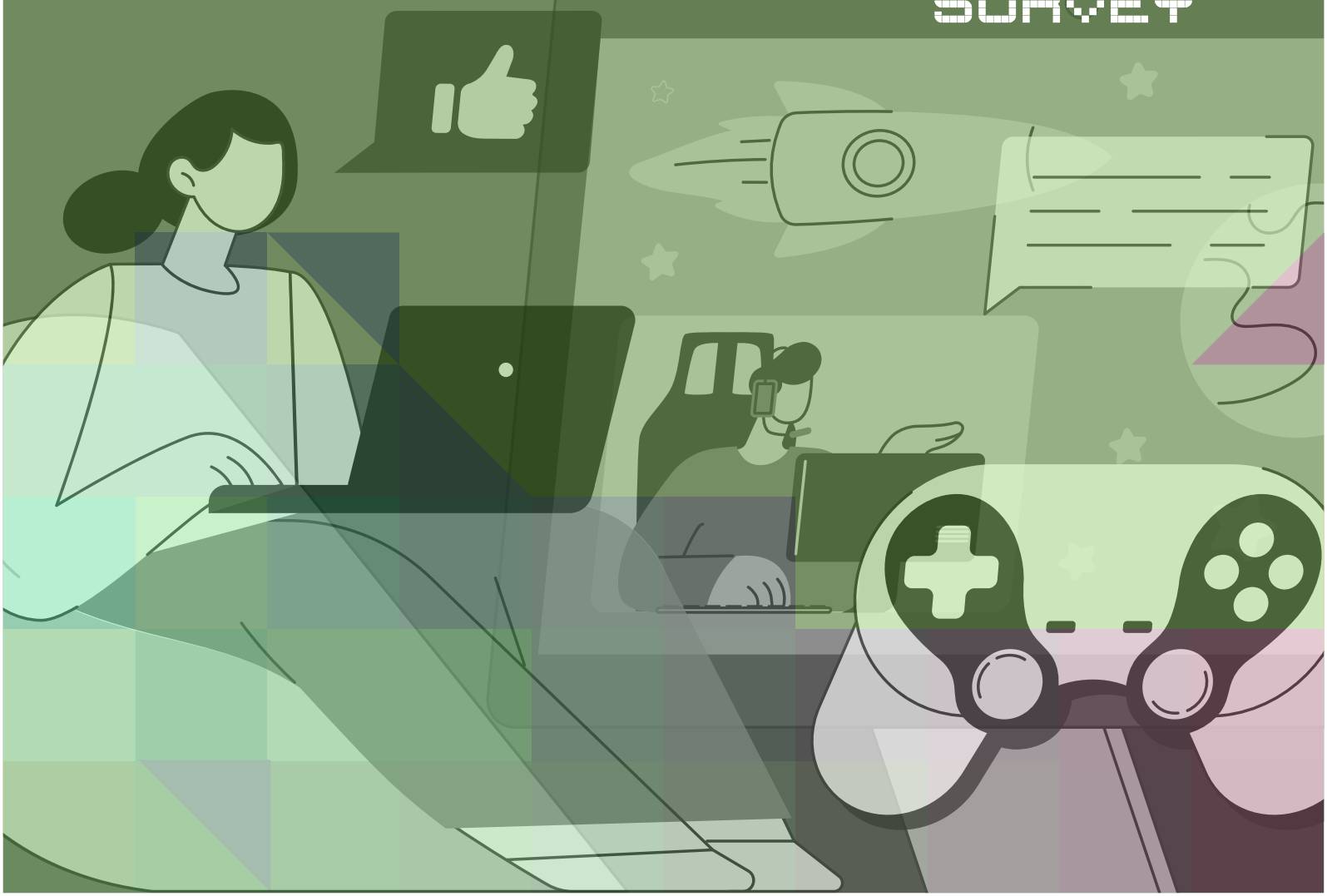
An analysis was conducted of the game development industry's talent ecosystem to reach viable solutions for the growth of the regional game development industry and capitalise on advantages and prospects to gain long-term competitive advantage.

Research Data Limitations

There exist some salary disparities between academic qualifications, specifically in terms of diploma and undergraduate degree holders. It is important to acknowledge that the research represents a current snapshot of the talent ecosystem, not a longitudinal study that would allow for tracking individual salary growth over time. Additionally, the sample size contributes to the observed disparities, as it includes a variety of factors beyond academic qualifications, such as working experience and specialization, which can also affect the overall data. This small sample size may have produced research data that lacks the comprehensiveness and precision needed for robust analysis, potentially limiting the generalizability and accuracy of the findings.

04

FINDINGS FROM THE GAME DEVELOPMENT INDUSTRY TALENT SURVEY



Overview - Southeast Asia

Two surveys were conducted with the first one concentrating on talent economics focusing on pay scale, experience, qualifications and other relevant variables. The second survey focused on game studios of various sizes to ascertain growth and to provide a snapshot of the talent requirements for these studios. A total of 295 game development respondents from Malaysia, Indonesia, Philippines, Singapore, Thailand and Vietnam participated in the first part of the survey, while a total of 48 game development studios across Southeast Asia participated in the second part of the survey. Key findings from both surveys are discussed below.

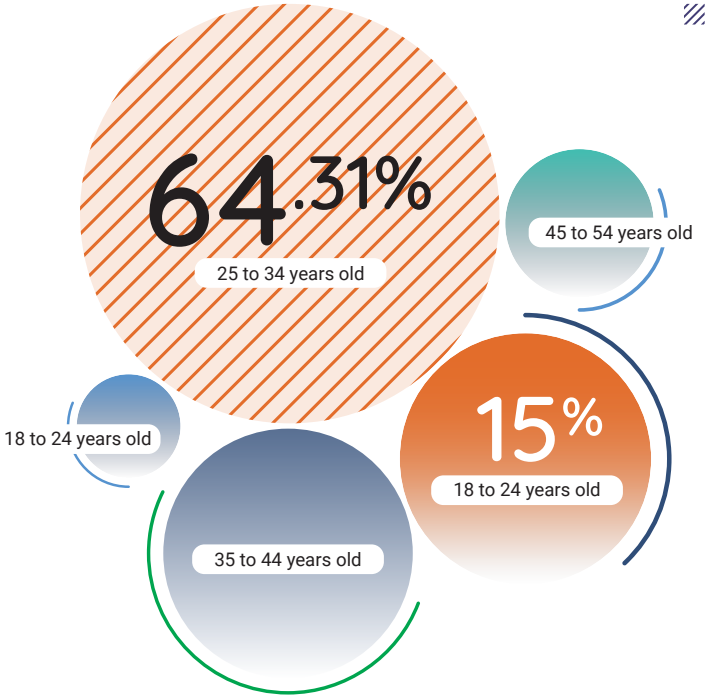


Figure 2: *Talent Demographics - By Age*

Talent Demographics: Key Characteristics of the Game Development Industry Survey

The demographic data from the initial phase of the Talent Economics survey reveals that most of the talents in the industry can be classified as young adults. Specifically, 64% of the respondents fall within the age group of 25 to 34, with an additional 15% aged between 18 and 24. This means that nearly 80% of the workforce is composed of individuals under the age of 35, emphasizing the youthful nature of the sector and its alignment with a rapidly developing economy. In contrast, only around 20% of employees above the age of 35. The 2023 International Game Developers Association (IGDA) Developer Satisfaction Survey [20] also has similar statistics with the 28-37 age brackets representing the predominant category (38%) while the 18-27 age brackets were at 18% with a total of 56% in the age group of 18 - 37.

Furthermore, the survey highlights a pronounced gender imbalance. Out of the total participants, 237 were men (80%), 58 were women (19%) and 2 (1%) identified as other gender types, representing the reality of a very male-dominated game development industry as also indicated by the 2023 IGDA survey. The IGDA survey also stated that its respondents were predominately male (63%). Only 31% identified as female while around 5% were identified as other gender types. The not-for-profit Women in Games which was founded in 2009 has also highlighted that in 2020, the global average statistic of women working in the game development industry is 22%. While this disparity is concerning, the evidence is that the gender population sample for the Talent Economics survey represents the general gender ratio in this industry. The Women-in-Technology UK reports that around 70% of employees in the UK game development sector are male, which is also in-line with their national average in the wider technology industry where around only 26% of the workforce are females [21].

This disproportionate representation underscores the need for initiatives aimed at fostering greater gender diversity and inclusivity within the industry. Addressing these disparities could contribute to a more equitable and balanced work environment. For instance, clear support structures for women, such as maternity leave, flexible working arrangements, provisions for menopause, and well-defined career progression pathways, are critical for fostering an inclusive workplace culture. This holistic approach not only attracts diverse talent but also ensures that employees from all genders are supported in their professional growth and well-being. Non-for-profit organizations and associations like Women in Games International, Malaysia-Singapore (MYSG) Women in Games community and the Women in Games Hangout (WiGout) have done a great deal in the past to push up the awareness and visibility of the gender imbalance in the game development space.

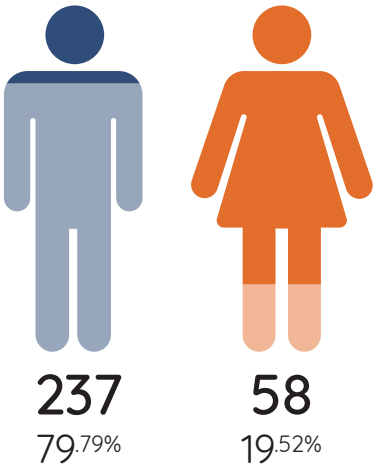


Figure 3: *Talent Demographics - By Gender*

Interesting enough a recent study in 2024 [22] [23] show that:

- Women make up 41% of global mobile gamers.
- In Japan, 48% of mobile gamers are female.
- In United States, 63% of mobile gamers are female.
- 46% of gamers worldwide are female.
- In the UK, 52% of all gamers are women.
- In China, 48% of all gamers are women.
- In Southeast Asia, 53% of gamers are female.
- Women over 18 represent a significantly larger portion of the video games population than boys under 18.
- 33% of girls between the ages of 10-18 self-identify as gamers.

The imbalance remains from gamers and game developers. Finding out the reasons why this is so, is beyond the scope of this report for now.

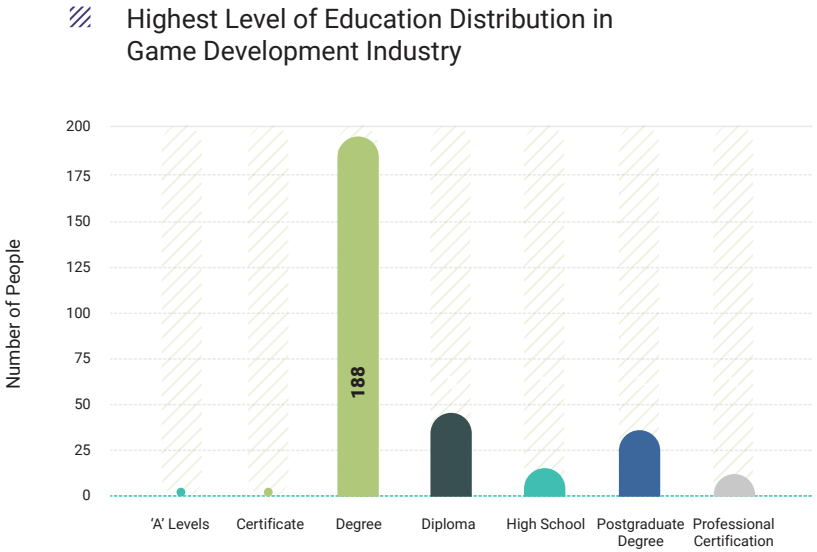


Figure 4: *Talent Demographics - By Qualifications*

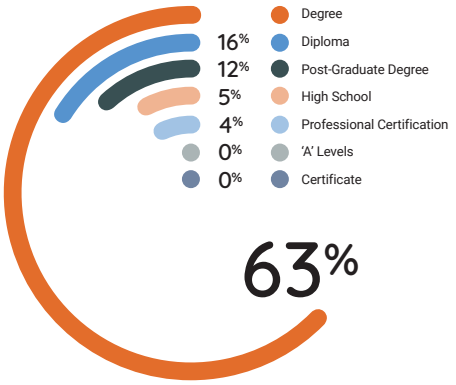


Figure 5: *Talent Demographics - By Qualifications (Percentage)*

The demographic data from the initial phase of the 2024 Talent Economics survey reveals significant insights into the educational qualifications of employees within the game development industry in Southeast Asia. The data highlights that a substantial 63% of respondents hold undergraduate degrees, making this the most common qualification among employees. This is followed by 16% with diploma-level qualifications and 5% who have only high school-level education. Furthermore, 12% of respondents possess postgraduate degrees, while the remaining 4% hold some form of professional-level certification.

This distribution reflects a predominantly well-educated workforce, with a clear emphasis on formal education, particularly at the undergraduate level, which suggests that degree-level qualifications are becoming the norm in the industry, at least within the past few years.

When compared to the 2023 IGDA survey, the growth in undergraduate qualifications is notable with 45% of respondents had an undergraduate degree and 25% had post-graduate degree. This considerable increase could underscore the industry and public's shift towards higher educational standards over the past few years. However, it is important to note that in 2023 report, more than 80% of the respondents had attained a degree or diploma while only 5% had professional certification or high-school diplomas. Despite slight differences in categorization, the overall distribution reflects a similar focus on formal education and industry-specific training. This comparison suggests that while the industry's educational profile has evolved, the balance between academic and specialized qualifications remains relatively stable, with a growing emphasis on higher education.

- Talent Cost: Comprehensive Pay Scale Analysis for the Southeast Asian Game Development Industry. Conducting a comprehensive pay scale analysis in the Southeast Asian game development industry is key to promoting competitive compensation and fostering equitable practices across the region. Below are the unique insights of the industry's dynamics.

1. Gender Pay Gap in Southeast Asian Game Development Shows Men Earn 16% More Than Women:

The data on average monthly salaries by gender within the Southeast Asian Game Development industry reveals a notable discrepancy. Women in games can be seen earning an average of USD1,341.61 per month, while on the other hand of the spectrum men in games earns an average of USD1,598.84. This indicates that, on average, men working in the video game development industry tend to earn approximately USD257.23 (16%) more per month than women. This salary gap highlights an existing gender disparity in earnings within the game development industry in Southeast Asia, suggesting that men tend to receive higher compensation compared to women.

According to the latest data from Brightmine, a leading global provider of people data, analytics and insight which conducted a salary benchmarking for video games companies in the UK - the basic annual salary for men in games is around £49,695 while the female basic annual salary is £41,174. This is an industry a pay gap variation of £8,521 (17%) [23]. According to the report which surveyed more than 25 games studios covering over 3,000 games employees in the UK, this is higher than the 14.7% average for all UK industries apart from the technology industry which has an astonishing 25.8% gap.

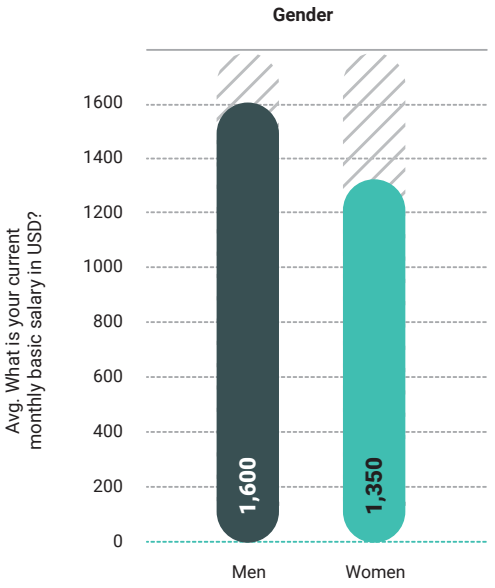
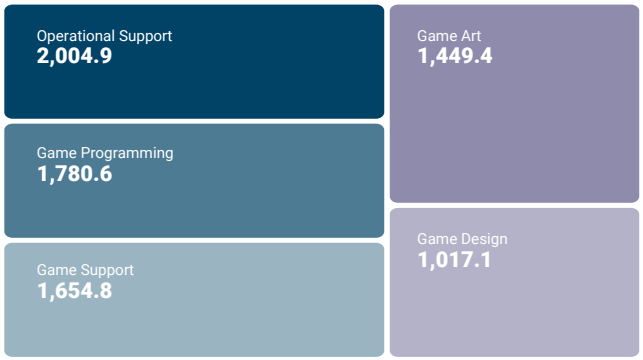


Figure 6: *Pay Scale vs Gender - Findings from Talent Economics survey*

The data obtain from the UK game development industry provides a benchmark for the gender pay scale disparity which indicates that Southeast Asian is more or less following the same trend of gender pay scale disparity as the UK. Addressing this disparity may require targeted efforts to ensure equitable pay and opportunities for all genders in the game development industry - and in return may encourage more female game developers in the game development industry. The reality might be that the sector is actually missing out on a lot of potential ideas, viewpoints and innovative content from female game developers not to mention a diversity of skills as well.

Addressing this is important as the global game development industry is growing at a phenomenal rate with more and more content being churned out annually. The gender imbalance is evident in the most popular video games of today, where almost 75% of the main characters featured are male protagonist. Research has consistently shown that diversity within creative enterprises lead to enhanced productivity, innovation, and profitability. The game development industry, in particular, presents a unique opportunity to capitalize on these benefits, given the high level of engagement from younger demographics. According to a 2024 research [22], females now represent half of gamers, with Gen Alphas (born in the years of 2010 and 2024) in the Asia Pacific Region having a 49% vs 51% female to male ratio. While Gen Zs (born in the years of 1995 to 2012) is reported to have a similar ratio of 47% vs 51%. Both these groups represent the major consumers and spenders of video game content for the upcoming decade or so.

2. Game Programmers Earn the Most, Game Designers the Least, and Operational Support Roles Lead in Compensation.



The data on average monthly salaries by specialization within the Southeast Asian Game Development industry highlights notable differences in earning potential across various specializations namely Game Technology (programming), Game Art and Game Design – with an added fourth category classified as technical support and operational services. *(Refer to Section - Terminology and Methodology)*

Figure 7: *Pay Scale vs Specialization - Findings from Talent Economics survey*

The survey data reveals that game designers, on average, earn a monthly salary of USD1,017.08, making them the lowest-paid specialization in comparison to other roles within the game development industry. This disparity is not unexpected, given the relatively limited number of positions available in game design compared to other specializations. In contrast, game artists earn an average of USD1,449.44 per month, reflecting a 30% increase in compensation over game designers. This higher remuneration for artistic roles is likely due to the industry's predominant focus on art, particularly within the Southeast Asian region, where many studios emphasize artistic production. Historically, the region has been recognized for its art-centric approach to game development. For instance, early studios such as Game Brains and Sherman 3D, which emerged in Malaysia in the mid- to late-1990s, were primarily art-outsourcing firms. Similarly, international studios like Ubisoft (Singapore), Codemasters Studios, and Polyassets United (Malaysia) established themselves in the region during the early 2000s, further solidifying Southeast Asia's reputation as an art-focused hub for game development. Local Malaysian studios such as Igloo Digital Arts (now Lemonsky Games) and Passion Republic have also contributed to this art-driven landscape by providing high-quality outsourcing services in the mid-2000s.

Game programmers, however, earn the highest average salary, with a monthly income of USD1,780.6. This represents a 43% increase over game designers and an 18.5% increase over game artists, suggesting that technical expertise in programming is highly valued within the industry. The premium placed on programming roles reflects the demand for technical skills and the critical role that programmers play in the development process, further underscoring the financial rewards associated with this specialization.

The survey data reveals that employees in non-development roles, including IT services, engineering support, customer support, and publishing, earn an average monthly salary of USD1,654.79. This figure surpasses the average earnings of both game artists and game designers but remains below that of game programmers. The higher salary range for these support functions is likely attributable to their essential role in ensuring the smooth operation of game-related processes, maintaining the quality of games, and fostering player satisfaction. These roles are critical in sustaining the overall functionality, performance and marketing of the game, which may explain the relatively higher compensation in comparison to development positions.

Operational Support roles, which encompass the management and oversight of studio operations, command the highest average salary at USD2,004.93 per month. This represents a significant increase compared to all development-related specializations, likely due to the strategic and managerial responsibilities inherent in these positions. This category includes roles such as studio managers, finance managers, and talent and human resource managers, all of whom play a pivotal role in the day-to-day management of game development studios. Although it may be an unfair comparison to directly juxtapose these management-level positions with creative roles such as game artists and designers, the data provides insight into the salary scales associated with operational and managerial positions within the game development sector.

Overall, the data demonstrates a clear trend in which technical development roles, such as programming, and operational management positions tend to command higher salaries compared to creative (game art and game design) and support roles. This trend underscores the premium placed on technical expertise and management capabilities within the industry, reflecting their critical contributions to the success of game development processes.

3. Indonesia Ranks Lowest in Monthly Average Salaries at USD516, Followed by Malaysia at USD1,275 and the Philippines at USD1,363.

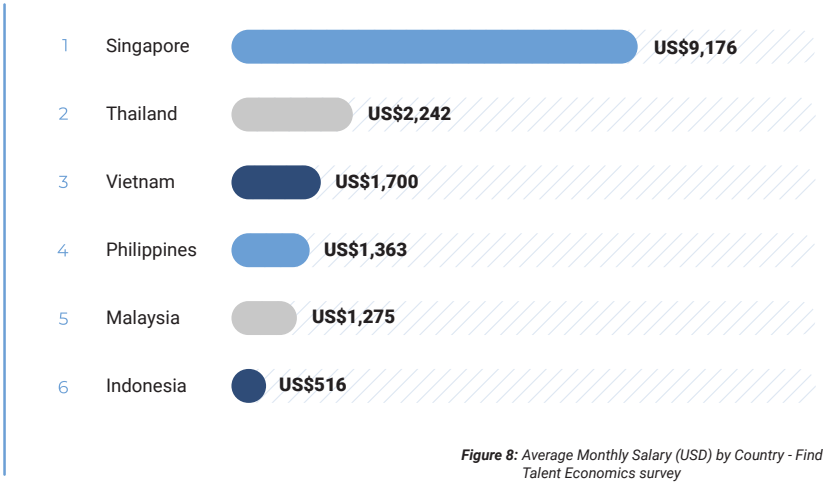


Figure 8: *Average Monthly Salary (USD) by Country - Findings from Talent Economics survey*

The data on average monthly salaries within the game development industry in Southeast Asia reveals significant disparities across different countries in the region. Indonesia reports the lowest average salary, with employees earning USD516 per month, marking a substantial gap in compensation compared to other countries in the industry. Malaysia follows with an average salary of USD1,275, representing a notable increase from Indonesia but still positioned on the lower end of the spectrum when compared to other regional counterparts.

The Philippines, with an average salary of USD1,363, shows a moderate increase compared to Malaysia, further highlighting the variance in earning potential within the region. Vietnam, however, presents a more significant rise, with an average salary of USD1,700, indicating better compensation levels relative to neighbouring countries. Thailand demonstrates an even greater increase, with an average salary of USD2,242, reflecting a substantial boost in earnings within the industry.

Singapore, however, stands out with a markedly higher average salary of USD9,176 per month, a figure that far exceeds those of the other countries surveyed. This stark difference underscores Singapore's position as a leading market for high salaries in the games industry, attributed to its well-developed and competitive industry landscape. Furthermore, many international studios in Singapore serve as operational and marketing hubs for larger global companies, contributing to the higher salary scales. Singapore's status as a global financial centre, coupled with its high standard of living, is reflected in its significantly elevated average salary levels.

Overall, the data illustrates a clear regional disparity in compensation within the games industry, with most Southeast Asian countries earning considerably less than Singapore. This trend aligns with broader reports indicating that Singapore has the highest average salary in Asia, with an annual average of USD51,921. These salary variations not only highlight economic differences within the region but also emphasize Singapore's unique position as a hub for the broader international game development business and marketing operations.

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4. Higher Educational Attainment Correlates with Increased Salaries in Game Development, with Diploma and Degrees Earning above USD1,500 Average Monthly Salary.

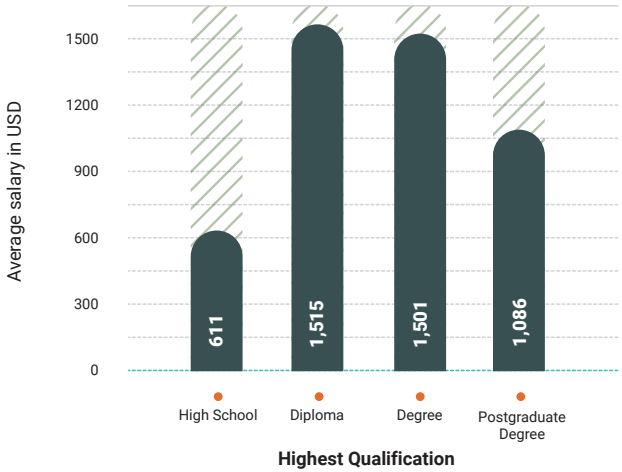

Figure 9: *Average Monthly Salary (USD) by Qualifications - Findings from Talent Economics survey*

The data on educational qualifications and corresponding average monthly salaries within the game development industry in Southeast Asia demonstrates significant variations based on the level of education attained. While some industry professionals argue that hiring studios place greater emphasis on a candidate's portfolio rather than formal qualifications, many video game companies prioritize candidates with degrees during the hiring process. Although a degree may not be an absolute requirement, employers often prefer candidates with undergraduate degrees in computer science, software engineering or related fields, which provide foundational knowledge and technical skills relevant to game development.

This research indicates that individuals with only a high school diploma earn an average salary of USD611 per month, the lowest among the educational levels surveyed. Those holding a diploma earn approximately USD1,515 per month, representing a substantial 147.9% increase in earnings compared to high school graduates. Employees with an undergraduate degree earn an average of USD1,501 per month, suggesting that while a degree offers additional value, the difference in salary between diploma and degree holders is relatively insignificant. However, as mentioned before - the salary disparities between diploma and degree holders are quite evident in the data collected. However, it is important to note that this data represents a snapshot and not a longitudinal study, which would allow tracking individual salary growth over time. A significant factor contributing to the higher salary increases among diploma graduates is the presence of many diploma holders from the early years of the industry, who now occupy senior or lead positions. As a result, their salaries have seen greater increases compared to more recent graduates.

In contrast, individuals with a postgraduate degree earn an average salary of USD1,086 per month, reflecting that although there may be advanced expertise and specialized knowledge typically associated with this level of education, it may not be reflected in the overall salary scale. The assumption is that these individuals are working in the academic sector which has a lower salary baseline. Overall, the data underscores a clear correlation between educational qualifications and earning potential within the game development industry, with diploma and undergraduate degree qualifications offering the most pronounced salary advantages.

SIDENOTE:
Southeast Asian Academic Qualification Offerings Table.

There is growing number of academic institutions are offering programmes dedicated to game development or those that incorporate game development as a significant portion of their curriculum in Southeast Asia. These offerings span across various academies, colleges, community colleges, polytechnics, and universities both Private and Public, and while the list may not be exhaustive, it highlights notable institutions based on available information. The focus here is on programmes that are either fully dedicated to game development or have at least more than 20% of their modules related to either a specific area of game development like game art, game design or game programming; or general game development.

There are several academies, institutes and specialized colleges across Southeast Asia that offer game development programmes focusing on the practical and skill-based learning - that can be considered as Technical and Vocational Education and Training (TVET). These are not formal academic qualifications and usually do not follow the prescribed number of credits hours or duration as normal diploma or degree programmes. Not all vocational training centres are covered in this list.

Polytechnics (or community colleges) in countries like Singapore and Malaysia often provide diploma programmes that include game development as part of a broader information technology or multimedia design curriculum. Some of these polytechnics have dedicated tracks in game development, while others offer general computing programmes with substantial game-related coursework.

Both Private or Public universities across Southeast Asia offer bachelor's and post-graduate degree programmes tailored to game development. Some institutions blend game development with software engineering or digital media, allowing students to specialize in areas such as game design, programming, or game art. The universities mentioned here either offer dedicated game development programmes or programmes with at least 20% of their modules dedicated to this field.

Limitations and Gaps in Coverage
While every effort has been made to include a wide range of programmes, some may have been omitted due to a lack of detailed publicly available information regarding module structures or specific focuses on game development. Vocational training institutes have only been partially covered, as their offerings are often tailored toward short-term skills training rather than full academic qualifications. Additionally, there may be institutions that are not listed due to oversight or limited accessibility to curriculum data.

MALAYSIA

UNDO Academy	Diploma in Game Development (TVET Type)
Claz'room College	Advanced Diploma in 3D Modelling & Game Art (TVET Type)
Todak Academy	Professional Diploma in Game Development (TVET Type)
SBIT Training Academy	Professional Diploma in Videogame Programming (TVET Type)
Kolej Komuniti Selayang	Diploma in Games Art
Kolej Poly-Tech MARA, Ipoh	Diploma in Game Design
Politeknik Metro Kuala Lumpur	Diploma in Information Technology (Digital Technology)
Politeknik Tuanku Syed Sirajuddin (PTSS)	Diploma in Information Technology (Digital Technology)
Universiti Pendidikan Sultan Idris (UPSI)	Diploma in Game Designs & Development Bachelor of Design (Digital Games) (Hons)
Management and Science University (MSU)	Diploma in Games Design and Animation Bachelor of Arts (Hons) in Game Design
University Malaysia of Computer Science & Engineering (UNIMY)	Diploma in Game Development
Raffles University Kuala Lumpur	Diploma in Digital Game Art
Widad University College	Diploma in Game Design
The One Academy (DIGIPEN)	Diploma in Game Design Bachelor of Arts in Game Design Bachelor of Science in Computer Science and Game Design
Asia Pacific University of Technology and Innovation (APU)	Bachelor of Science (Hons) Computer Games Development
UOW Malaysia University College	Bachelor of Game Development (Hons)
Multimedia University (MMU)	Bachelor of Computer Science with modules specialized in Game Development
Universiti Tunku Abdul Rahman (UTAR)	Bachelor of Science (Hons) Game Development Bachelor of Arts (Hons) in Games Design
Tunku Abdul Rahman University of Management and Technology (TARUMT)	Bachelor of Computer Science (Honours) in Interactive Software
UCSI University	BA (Hons) Game Design
UNIKL	Bachelor of Game Development Technology with Honours
Universiti Teknikal Malaysia Melaka (UTeM)	Bachelor in IT (Game Technology)
Universiti Teknologi Mara (UiTM) Puncak Alam Campus	Bachelor of Creative Game Design (Hons)
ASWARA Malaysia	Bachelor of Digital Games Art with Hons

SINGAPORE

Mages Institute	Game Design and Technology Diploma (TVET Type) Advanced Diploma in Game Development (TVET Type)
Nanyang Polytechnic	Diploma in Game Development and Technology
Temasek Polytechnic	Diploma in Immersive Media and Game Development
Republic Polytechnic	Diploma in Design for Games and Gamification
Ngee Ann Polytechnic	Diploma in Immersive Media
Singapore Institute of Technology	BA in Game Design BS in Computer Science and Game Design
James Cook University	Bachelor of Information Technology (Interactive Technologies and Game Design)
Singapore Institute of Management	Bachelor of Computer Science (Game and Mobile Development)
Digipen - Institute of Technology Singapore	Bachelor of Arts in User Experience and Game Design Bachelor of Science in Computer Science and Game Design Bachelor of Science in Computer Science in Interactive Media and Game Development

INDONESIA

Politeknik Elektronika Negeri Surabaya (PENS)	Diploma Game Technology
Bina Nusantara University	Bachelor of Computer Science (Game Application and Technology)
Gadjah Mada University	Unlisted
University of Indonesia	Unlisted

PHILIPPINES

FEU Institute of Technology	Bachelor of Science in Information Technology with Specialization in Animation and Game Development
De La Salle-College of Saint Benilde	Bachelor of Science in Game Design and Development
De La Salle University - Laguna Campus	B.Sc in Interactive Entertainment (Game Art and Design) B.Sc in Interactive Entertainment (Game Development)
University of Santo Tomas	B.Sc in Computer Science (Game Development
CIIT College of Arts and Technology	Bachelor of Science in Entertainment Multimedia Computing
University of the East (Manila)	Bachelor of Science in Entertainment and Multimedia Computing (Specialism in Game Development)

VIETNAM

British University Vietnam	BSc Computer Games Design and Programming (Hons) BA Game Art (Hons)
Royal Melbourne Institute of Technology (RMIT), Vietnam	Bachelor of Design (Games)

THAILAND

Mahidol University	Master of Science in Game Technology and Gamification
King Mongkut's University of Technology Thonburi	Bachelor of Digital Design Game Design & Production
Bangkok University	Bachelor of Science (Games and Interactive Media)
Chiang Mai University	Bachelor of Science Program in Digital Game (2567)

5. Game Development Salaries Vary by Studio Size, with Larger Firms Offering Higher Compensation.

The data on studio sizes and corresponding average monthly salaries within the game development industry in Southeast Asia reveals notable differences between initial and current salaries based on company size and employment type in the games industry. While it is expected that working within a large studio generally does grant a higher salary, the aim of this research is to explore the variations of increase of salaries in various sized game development studios.

Initially, freelancers or self-employed individuals start with the lowest average salary of USD386, while those at companies with more than 500 employees receive the highest starting average of USD1,137 - representing a 194% increase over freelance earnings. It is important to note that there while there are actually very few studios in Southeast Asia with over 500 employees, the survey could also take in consideration international studios with a combined workforce across multiple studios or branches globally. As for current salaries, employees at companies with fewer than 10 staff earn an average of USD1,083, which is higher than their initial salary. In contrast, for employees at companies with 11 to 50 staff, the current average salary is USD1,217, which represents a modest increase from their initial starting average of USD608, marking a 100% increase.

At mid-sized companies (51 to 100 employees), the current salary averages USD1,506, a 55% increase from the initial average of USD967. Similarly, employees at companies with 101 to 500 workers experience significant salary growth, with a current average of USD1,758, a 128% increase from the starting salary of USD770.

Employees at companies with more than 500 employees enjoy the highest current average salary of USD5,293 a 365.7% increase from their initial starting salary of USD1,137. This substantial growth underscores the enhanced earning potential within larger organizations as employees advance in their careers. Overall, the data illustrates that while initial salaries vary considerably across different studio sizes, there are significant salary increases associated with larger companies. This trend reflects the higher earning potential and career advancement opportunities available within more substantial organizational settings, especially as the workforce progresses to senior roles and more specialized positions in larger studios. The disparity in salary growth between smaller and larger studios further emphasizes the benefits of working within larger, internationally recognized game development studios, particularly in regions where the industry is still developing.

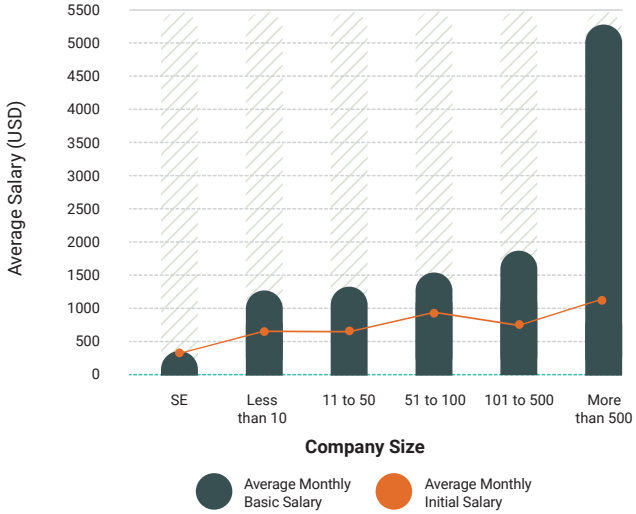

Figure 10: *Average Monthly Salary (USD) by Company Size - Findings from Talent Economics survey*

6. Salary Progression in Game Development Correlates with Experience, with Significant Increases for Senior Roles.

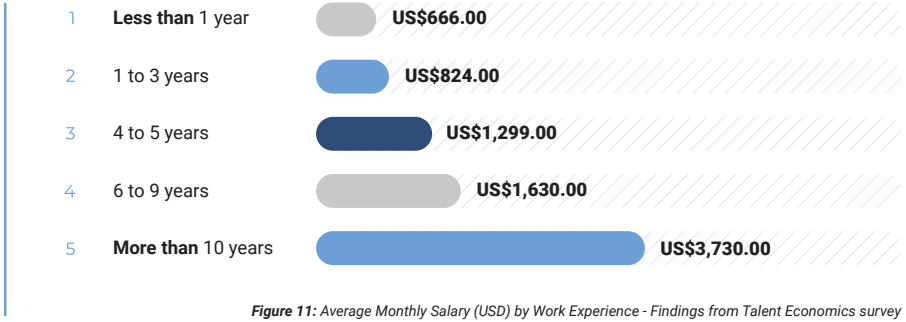

Figure 11: *Average Monthly Salary (USD) by Work Experience - Findings from Talent Economics survey*

The data on salary growth based on years of working experience within the game development industry in Southeast Asia reveals substantial variation as professionals progress in their careers as expected. The analysis of the surveyed data provides an overview of how salaries evolve over time and the industry's increasing value on experience and long-term commitment.

At the entry-level, game developers with less than one year of experience earn an average salary of USD666. This base salary reflects the industry's standard for individuals in the Southeast Asian game development industry. After one to two years of service, game developers can expect to see their average salary rise to USD824, reflecting a 24% increase over entry-level salaries. This growth indicates that early-career game developers start to see some rewards as they gain experience, though salary progression remains limited during the initial stages as they continue to develop their skills in junior roles.

The data shows a more substantial salary increase for professionals with four to five years of experience, where the average salary reaches USD1,299. This represents a 58% increase compared to those with one to two years of experience. This significant jump suggests that this is a pivotal career stage, likely coinciding with promotions to mid-level positions or greater specialization in their roles. This actually reflect the industry's increasing demand for more experienced professionals at mid-level positions.

Game developers with six to nine years of experience earn an average salary of USD1,630, marking a 26% increase from the four to five-year category. While this growth is still positive, it is considerably lower than the previous jump, indicating that salary progression starts to stabilize at mid-career levels. At this stage, developers may occupy more senior positions, though further salary increases may be tied to incremental promotions or increased responsibilities rather than rapid salary growth.

For game developers with more than 10 years of experience, the data reveals the most significant salary jump, with an average monthly salary of USD3,730. This represents a 129% increase over the six to nine-year category, highlighting the industry's recognition and reward for long-term expertise. Individuals with more than a decade of experience are likely to occupy senior leadership positions, such as lead developers, art directors, or project managers. This substantial salary increase reflects the high value placed on specialized knowledge and extensive experience within the game development industry.

7. Entry-Level Salary Disparities in Game Development Show 6% Difference Between Genders, Widening to 16% with Experience.

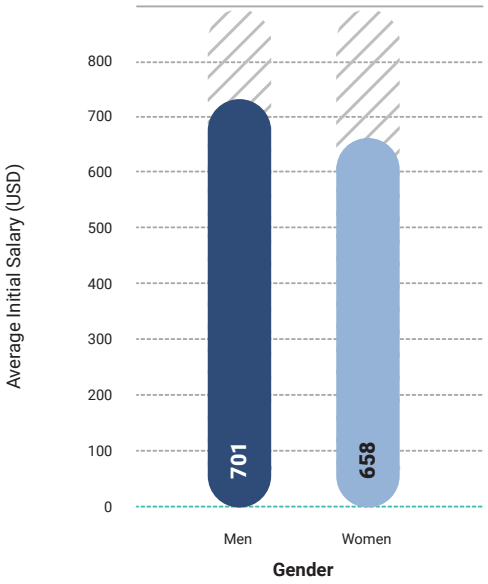

Figure 12: *Average Entry Level Monthly Salary (USD) by Gender - Findings from Talent Economics survey*

At the entry level salary rate, male fresh graduates in the game development industry tend to earn an average of USD701, which is slightly higher than their female counterparts who earns an average of USD658, reflecting a 6% difference less compared to male.

This difference suggests that, even at the entry level, there is already a small discrepancy in the starting salaries for males and females in the game development industry in Southeast Asia. Although the difference is not substantial, it does indicate a slight gender disparity even at the beginning of their careers.

While the difference in entry-level salaries is relatively small (6%), the gender gap widens significantly with experience, as male game developers earn approximately 16.1% more than females in the game development industry at higher career levels. This suggests that while males and females start at almost similar salary levels, male developer's earning potential increases more substantially over time. Experienced male game developers earn an average monthly salary of USD1,598.84, which represents a 128% increase from their entry-level salary (USD700). While experienced female game developers earn an average monthly salary of USD1,341.61, which represents only a 103% increase from their entry-level salary (USD658).

The sample size for the "others" gender category is too small (0.6% of participants) to draw meaningful conclusions. Therefore, this demographic has not been included in the analysis.

8. Salary Trends Show Growing Gender Pay Gap Across Career Stages.

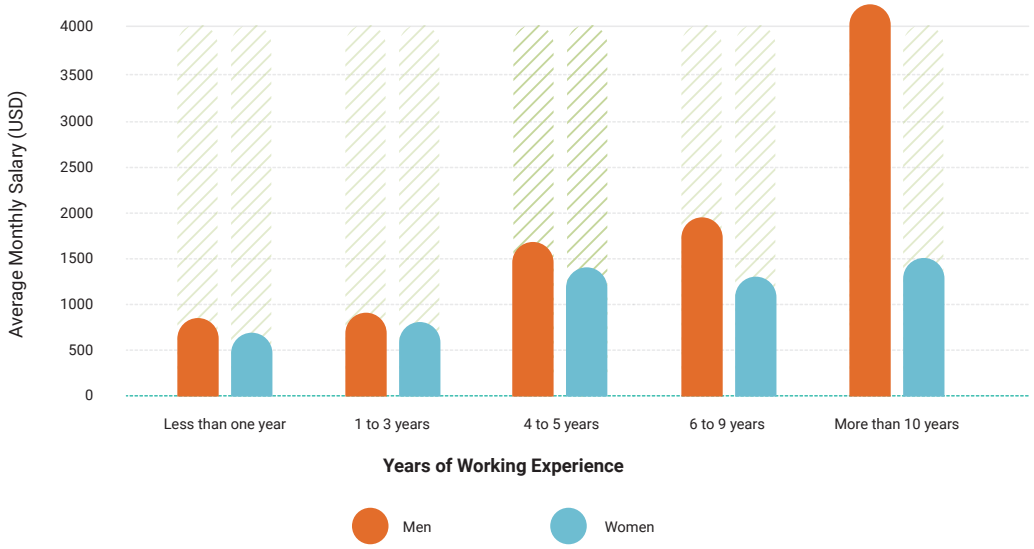

Figure 13: *Average Monthly Salary (USD) by Gender and Work Experience - Findings from Talent Economics survey*

The data provides a detailed comparison of salary growth between male and female game developers in the game development industry in Southeast Asia. It captures the progression of salaries based on years of experience and highlights notable disparities in earnings between male and female developers at various stages of their careers.

At the early-stage career of game developers, between fresh graduate and one to three years of experience, the analysis shows that male fresh graduate game developers earn an average monthly salary of approximately USD701, while their female counterparts earn USD658, as stated in the earlier section.

However, as both male and female employees gain around one to three years of experience, the salary increases remain modest for both genders. Male game developers earn an average salary of USD884, while female game developers earn USD860. The gender gap at this stage remains minimal, with males earning approximately 3% more than females. Both genders experience a similar rate of salary growth during this period, indicating comparable career trajectories in the early stages of their careers.

During the mid-career phase, the salary gap between males and females becomes more noticeable in the four to five years of experience category. Male game developers earn an average monthly salary of USD1,206, while their female counterparts earn USD1,003, reflecting a significant 20.2% difference in favour of males. At this stage, males are likely benefiting from promotions, role specialization, or access to higher-paying positions. The faster salary growth for males at this point indicates a divergence in career progression between the genders.

For employees within the six to nine years of working experience category, the salary gap widens further. Male game developers continue to see consistent salary growth, earning USD1,377 on average, while females earn approximately USD1,106, resulting in a 25% salary difference. The data suggests that males are increasingly more likely to secure mid-level or senior roles, leading to greater salary growth. In contrast, females' salaries increase more slowly, pointing to a widening gender pay gap as experience grows.

At the late career phase of more than 10 years of experience, the research reveals a substantial difference in salaries between male and female game developers. Male game developers earn an average of USD2,504, while females earn around USD1,732, reflecting a 45% difference in favour of males. This substantial gap indicates that males are more likely to occupy senior leadership or executive positions that command significantly higher salaries. In contrast, the salary growth for females slows down, suggesting potential barriers to career advancement, with fewer females reaching top-tier roles in the industry, as suggested by the survey data.

Overall, the survey data highlights a persistent and growing gender pay gap in the game development industry in Southeast Asia, with the gap widening as experience increases. At the entry level, the pay gap is relatively small at 5%, but as developers gain more experience, the gap widens significantly. By the time developers reach 10 or more years of experience, males earn 45% more than females on average. This analysis underscores the need for greater focus on gender equity, particularly in terms of career advancement and salary progression for female game developers in the industry.

Baldur's Gate 3. Image Credit Larian Studios

9. Educational Qualifications Impact Salary Growth in Southeast Asia's Game Development Industry, with Degree Holders Leading in Earning.

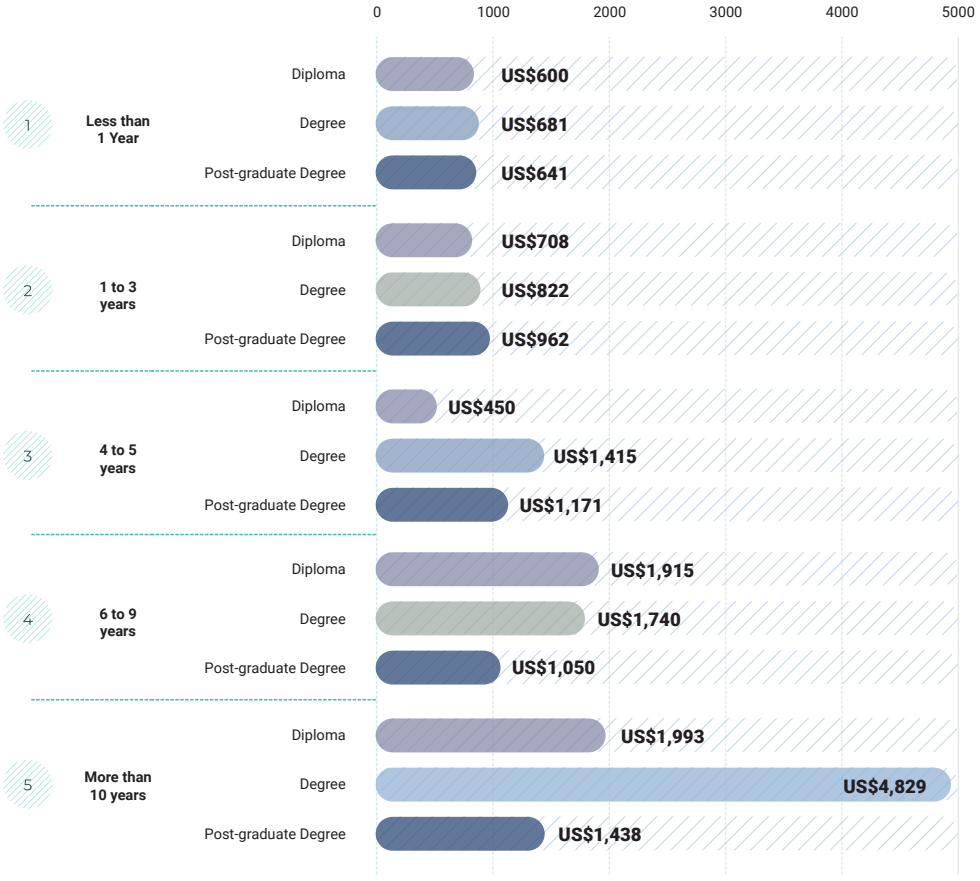

Figure 14: *Average Monthly Salary (USD) by Qualification and Work Experience - Findings from Talent Economics survey*

The data provides insights into the relationship between average monthly salary and academic qualifications across different experience levels in the Southeast Asian game development industry. The analysis shows clear distinctions in how educational background influences salary growth across various career stages, from entry-level positions to those with more than a decade of experience.

At the entry level, employees with a Diploma earn an average of USD600, while Degree holders earn USD681, reflecting a 14% higher salary for degree holders. Post-graduate Degree holders earn USD641, which is 7% higher than diploma holders but 6% lower than degree holders. This indicates that, early in their careers, individuals with a degree have the highest starting salaries, while postgraduates have an advantage over diploma holders but still lag behind those with undergraduate degrees.

For employees with one to three years of experience, the average salary for Diploma holders is USD708, while Degree holders earn USD822, representing a 16% increase in salary for degree holders compared to diploma holders. Post-graduate Degree holders earn USD962, which is 36% higher than diploma holders and 17% higher than degree holders. This suggests that, during the early career stages, postgraduate degrees offer greater earning potential compared to diplomas and undergraduate degree.

Employees with four to five years of experience see significant salary variation. Diploma holders earn USD450, while Degree holders earn USD1,415, showing a substantial 214% increase in salary for degree holders over diploma holders. Meanwhile, Post-graduate Degree holders earn USD1171, which is 114% higher than diploma holders but 32% lower than degree holders. The wide gap in salary for diploma holders suggests that degree and postgraduate qualifications offer significant financial benefits at this stage of one's career.

For those with six to nine years of experience, the salary gap narrows slightly. Diploma holders earn USD1,915, while Degree holders earn USD1,740, reflecting a 9% lower salary for degree holders compared to diploma holders. However, Post-graduate Degree holders earn USD1,050, which is 45% lower than diploma holders and 39.7% lower than degree holders. This suggests that diploma holders experience more robust salary growth during mid-career, and that postgraduate degree holders may lag behind in terms of financial returns at this stage. This could also be the fact that diploma programmes were offered more than undergraduate degrees six to nine years ago in the region.

For employees with more than 10 years of experience, the data reveals significant salary growth across all qualification levels. Diploma holders earn USD1,993, while Degree holders experience a substantial jump to USD4,829, marking a 142% increase compared to diploma holders. Post-graduate Degree holders earn USD1,438, which is 28% lower than diploma holders and 70.2% lower than degree holders. This indicates that degree holders command the highest salaries at senior levels, while postgraduate qualifications do not yield as significant financial rewards at this career stage.

The analysis of salary growth based on academic qualifications in the Southeast Asian game development industry reveals that, while degrees offer the highest earning potential at all career stages, postgraduate qualifications offer less consistent financial returns - perhaps that this level of qualifications are more suited for those in the academic line. Again, it is crucial to acknowledge that this research represents a current snapshot of the talent ecosystem, not a longitudinal study that would allow for tracking individual salary growth over time. A significant number of diploma graduates from the early years of the industry, many of whom now hold senior or lead positions, have experienced greater salary increases, which may be the reason why degree salaries dip at the six to nine year experience mark.

10. Game Programmers Lead Salary Growth in Southeast Asia's Game Development Industry, with Game Designers and Artists Catching Up at Senior Levels.

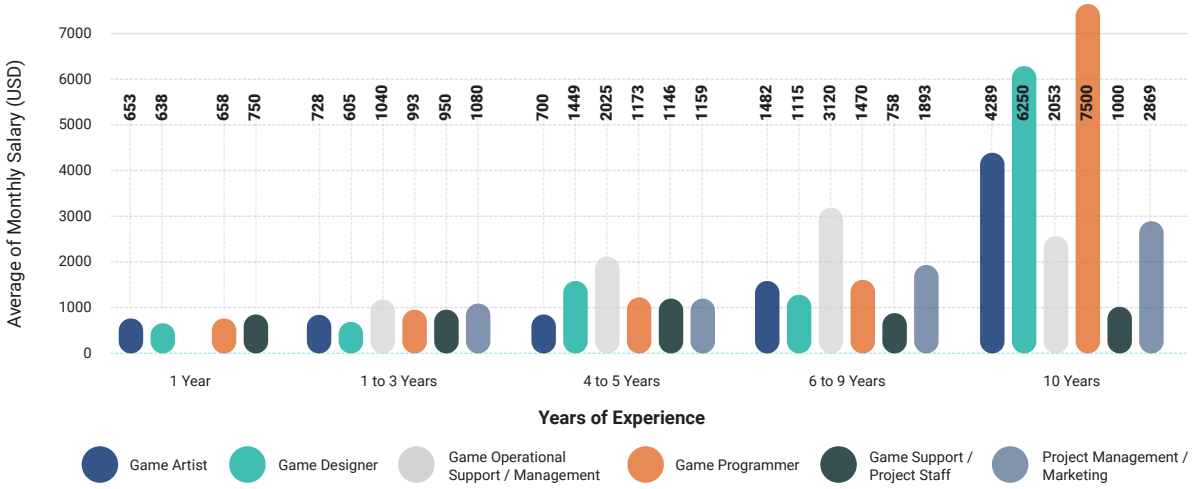

Figure 15: *Average Monthly Salary (USD) by Specialization and Work Experience - Findings from Talent Economics survey*

To define the roles, we referred to the Terminology and Methodology section, which outlines that the field of game development is divided into three major specializations: Game Technology (programming, tools, engines, etc.), Game Art (2D and 3D assets, concept artists, UI/UX designers), and Game Design (narrative designers, level designers, system designers, etc.). Game Operational Support/Management encompasses leadership and management roles such as directors, chief executive officers, chief operating officers, studio managers, and similar positions.

For the purpose of this report, marketing and business development roles have been excluded from operational support services and instead grouped under Project Management and Marketing Services, which also covers project management roles. Lastly, Game Support/Project Staff includes production-related positions such as producers and production coordinators, along with supporting roles like sound and audio compositing, translation and localization services, and other technical support functions.

The data provides insights into how average salary growth is influenced by years of experience in the Southeast Asia Game Development Industry according to areas of specialization. For professionals with less than 1 year of industry experience, Game Artists and Game Designers earn USD653 and USD638, respectively. In comparison, Game Programmers have a 0.7% higher starting salary at USD658, while Game Support/Project Staff roles start at USD750, around 15% higher than the technical positions. These are probably individuals working in some other industries and making the transition to the game development industry.

As professionals advance to 1 to 3 years of experience, Game Programmers continue to lead with an average salary of USD993, an impressive 51% increase from their entry-level salary. In contrast, Game Artists and Game Designers earn USD728 and USD605, respectively, reflecting an increase of 11% and 6% compared to their entry-level salaries. Game Support/ Project Staff roles see a slight rise to USD950, showing an increase of 27% compared to the entry-level salary for these roles. At this stage, the research sees the Game Operational Support/Management and the Project Management/Marketing coming in at USD1,040 and USD1,008 respectively - perhaps a role that requires some degree of experience first hence the one to three years' worth of experience.

By the four to five-year mark, Game Operational Support / Management roles experience the highest salary jump, reaching USD2,025, representing a 95% increase from the one to three years category which is not surprising seeing that these are managerial positions. Game Programmers also see modest growth, with a salary of USD1,173, a 18% rise from the previous category. Meanwhile, Game Designers see a more significant increase, with salaries of USD1,449. This represents a growth of 140% for game designers compared to the one to three years range. This indicates that experienced game designers are sought out in the industry although there is a scarcity of jobs in this field. Game artists salaries are stagnant at this point.

Between six to nine years of experience, Game Operational Support / Management roles continue to see strong growth, with salaries jumping to USD3,120, a 54% increase from the four to five-year category. At this point, experienced game artist sees a huge jump salary with earnings of up to an average of USD1,482, an impressive 112% increase, most likely due to the shortage of mid-level and senior artist positions. Game programmers continue to see an increase of salaries of around 25% with earnings reaching and average of USD1,470. Game design roles are plateauing at this point.

11. Southeast Asia's Competitive Wage Landscape in Game Development Creates Opportunities for Studio Growth and Investment in Emerging Markets.

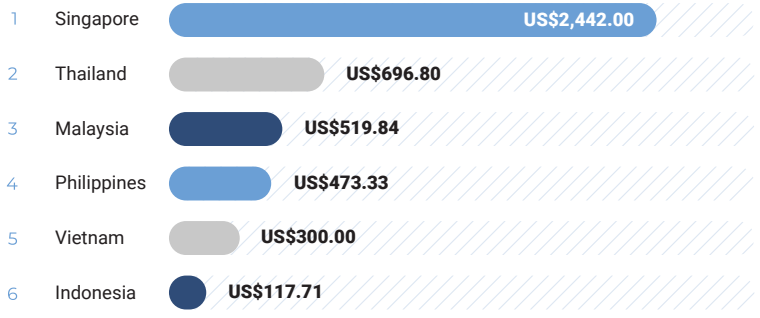

Figure 16: *Average Initial Salary by Country - Findings from Talent Economics survey*

At 10 or more years of experience, we see the most significant jumps for Game artists, Game Designers and Game Programmer roles - these are all taking on the lead roles and thus getting paid more handsomely with senior game artist positions (most likely technical artists) getting USD4,289, Game Designers earning USD6,250 most likely as overall game directors and last Game Programmers with the highest salary at this junction - earning around USD7,500.

The data highlights significant regional disparities in entry-level and experienced salaries within the Southeast Asian game development industry.

Singapore stands out with the highest entry-level salary at USD2,442, which is significantly higher than any other country in the region. The salary gap between entry-level and experienced hires is substantial, with experienced professionals earning approximately 276% more than fresh graduates. Thus, it is very evident that Singapore stands out as the clear leader in both entry-level and experienced salaries.

Thailand offers the second-highest entry-level salary at USD696.80, but it is still significantly lower than Singapore's. The salary for experienced employees (USD2,241.60) represents a 222% increase over entry-level salaries, highlighting that while Thailand offers decent compensation for fresh graduates, there is strong salary growth potential as professionals advance in their careers.

Malaysia ranks third for entry-level salaries at USD519.84. However, when looking at the average salary for experienced employees, Malaysia ranks fifth, with an average salary of USD1,274.69. The gap between entry-level and experienced salaries is 145%, which is smaller compared to other countries like Thailand and Singapore. The fact that Malaysia ranks higher for fresh graduates but lower for experienced employees suggests that while the country offers relatively decent starting salaries, the rate of salary growth as professionals advance may be slower. This could be due to Malaysia's focus on art and outsourcing services for most of its studios. This might change over time as more and more in-sourcing studios handling in-country development starts.

The Philippines and Vietnam both offer moderate starting salaries but see significant growth at senior levels, indicating that professionals can expect to earn considerably more as they progress in their careers. The Philippines offers an entry-level salary of USD473.33, placing it fourth in the region. Experienced professionals earn USD1,363.33, representing a 188% increase over the entry-level salary while Vietnam's entry-level salary is USD300, placing it near the bottom of the list. The gap between entry-level and experienced salaries is significant, with a 467% increase, one of the highest in the region. Experienced employees earn USD1,700, which is relatively competitive at more senior levels

Indonesia, despite having the lowest salaries, still sees a considerable increase from entry-level to experienced positions, although overall compensation remains lower compared to other countries in the region. Indonesia offers an entry-level salary at just USD117.71, reflecting the country's relatively nascent game development industry and lower cost of living. Experienced professionals earn USD515.55, representing a 338% increase over entry-level salaries.

The analysis is that Singapore dominates the salary landscape due to its well-established infrastructure and role as an international hub. Countries like Thailand and Vietnam also show potential for strong salary growth, particularly at senior levels. Malaysia, while competitive for fresh graduates, may need to focus on increasing opportunities for career advancement to close the gap with regional leaders at higher experience levels. Indonesia offers the lowest salaries overall, reflecting its developing game development industry, but it still presents growth potential for professionals as the industry expands.

05

TALENT PERSPECTIVE:

DEEP DIVE INTO THE MALAYSIA'S GAME DEVELOPMENT INDUSTRY

1. Male Developers Earn 21% More than Females, Indicating a Need for Equitable Compensation Practices.

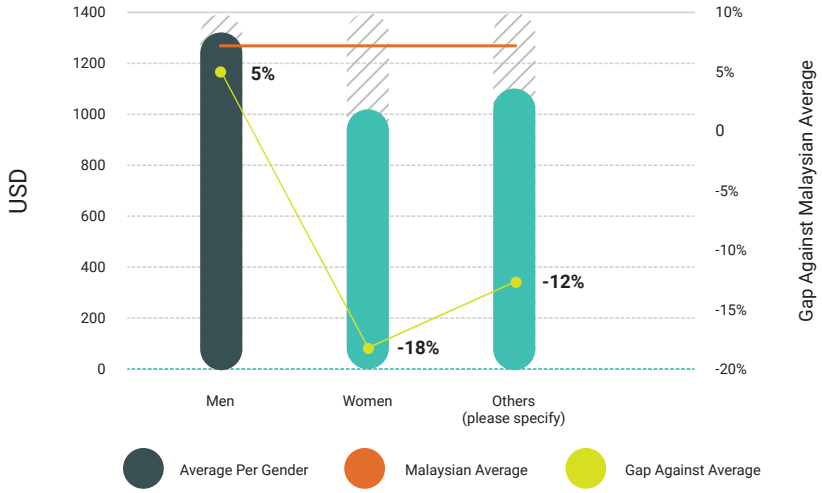

Figure 17: *Average Monthly Salary in Malaysia by Gender - Findings from Talent Economics survey*

The comparison of average monthly salaries by gender within the Southeast Asian game development industry reveals that the discrepancy in Malaysia is more pronounced than the regional average. Specifically, the surveyed data indicates that in Malaysia, male game developers earn an average of USD1,317 per month, while female game developers earn USD1,030 per month. This denotes that females in the industry earn approximately USD287 less per month than males, which translates to a 21% lower average salary.

Notably, there is a third category labelled as "Others," which earns an average monthly salary of USD1,097, which is 17% less than the average male earnings. To fully understand whether this wage disparity is due to differences in skill level, experience, or potential prejudice, more comprehensive data is required.

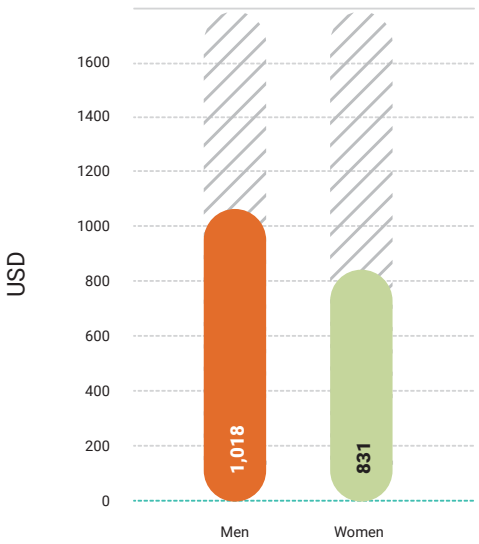

Figure 18: *Average Monthly Salary in Malaysia by Gender (MEDIAN) - Findings from Talent Economics survey*

When examining the data using the median monthly salary-a statistical measure that identifies the middle value in a data set and is less influenced by outliers-the discrepancy remains evident. Males have a median salary that is US$187 higher than that of females, representing approximately a 22.5% higher median salary for males compared to females. The rationale for using the median in this analysis is that salary distributions are often skewed due to extreme values at the high or low ends. By utilizing the median, the research is able obtain a more accurate representation of the central tendency of salaries within each gender category, minimizing the impact of outliers.

This persistent discrepancy, observed in both mean and median salary comparisons, suggests a notable gender pay gap in Malaysia's game development industry. The data highlights that males earn a significantly higher salary than females, underscoring the similar patterns from the regional perspective and requires a need for further investigation into the underlying causes of this disparity and potential measures to promote equitable compensation practices within the industry.

2. Salary differences in Malaysia's game development industry show that compensation across various specializations is generally lower compared to the broader Southeast Asian region.

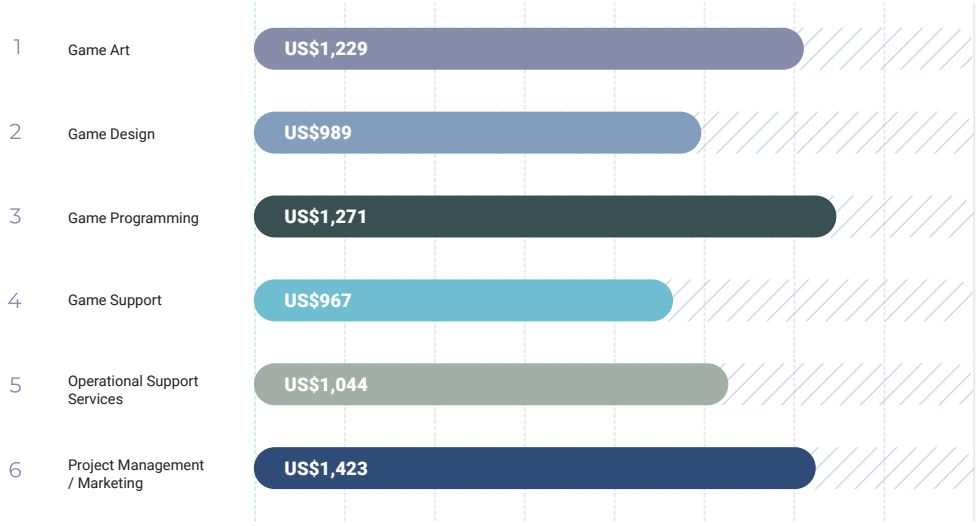

Figure 19: *Average Monthly Salary in Malaysia by Specialization - Findings from Talent Economics survey*

The comparison of average monthly salaries by specialization within the Southeast Asian game development industry reveals that the discrepancy in Malaysia is more pronounced than the regional average. Specifically, while Malaysia follows the broader regional trend in terms of salary structure across different specializations, the overall compensation levels tend to be lower across all roles.

Malaysian Game Designers in earn the 2nd lowest average salary at USD989, which aligns with the general industry trend where game design roles tend to be lower-paid due to the limited number of design-specific positions available. The emphasis on art and technical skills in the region could explain this lower compensation for game designers. In comparison with the Southeast Asian average of USD1,017.08, game designers in Malaysia earn 3% lower than Southeast Asian counterparts.

Malaysian Game Artists earn an average salary of USD1,229, reflecting a 24% higher compared to game designers. This higher salary for artistic roles is consistent with Malaysia's and Southeast Asia's long-standing focus on art outsourcing, particularly in studios known for providing high-quality art assets to international projects. However, the earnings are significantly lower than the Southeast Asian average of USD1,449.44, a 15% difference. This gap highlights that while Malaysia is known for its art-centric studios, compensation for artists is lower than in the broader region, possibly due to an abundant supply of art talents from other countries like Indonesia or lower local production costs.

Malaysian Game Programmers earn the second-highest average salary at USD1,271, which reflects a 28% increase over game designers and 3% over game artists. While programming and tech-related skills are highly valued in the industry, the salary gap between programming and art roles in Malaysia is not as large as seen in the broader Southeast Asian perspective, possibly indicating a more balanced demand between art and programming talent in the local market. Game Programmers in Malaysia earn USD1,271, which is considerably lower than the Southeast Asian average of USD1,780.59, a 29% difference. This substantial gap suggests that programming roles in Malaysia are not as highly compensated as in other Southeast Asian countries, potentially due to a lower demand for local programming talent or a focus on outsourcing technical tasks abroad. However, with studios such as Electronic Arts, Larian Studios and Playstation Studios setting up studio in Malaysia, the need for engineering and technical roles may increase over the next few years.

Game Support roles (USD967) and Operational Support Services (USD1,044) are slightly lower paid compared to technical and creative roles. Game support roles encompass customer service, IT services, and quality assurance, whereas operational support may include finance and HR positions. The relatively lower salaries reflect the non-technical nature of these roles, despite their importance in the day-to-day functioning of the industry. Operational Support roles in Malaysia (USD1,044) earn significantly less than the Southeast Asian average of USD2,004.93, a 48% difference. This may reflect the fewer opportunities for high-level management positions within Malaysian game studios, particularly in comparison to larger studios in other countries like Singapore and Thailand, where these roles are more established.

Project Management/Marketing roles earn the highest average salary at USD1,423, which is 44% higher than game designers and reflects the managerial and strategic importance of these roles in coordinating the development and marketing of games. These positions are often pivotal in ensuring the commercial success of game titles, which may justify the higher remuneration. The Project Management/Marketing role in Malaysia (USD1,423) is lower than the broader Southeast Asian average for similar roles, although this role still commands the highest salary within the Malaysian market.

Generally, while Malaysia follows similar trends to Southeast Asia in terms of the structure of salaries across specializations, the overall salary levels tend to be lower, particularly for technical and managerial roles. The focus on art outsourcing and overall smaller indie type studios may account for the comparatively lower compensation, especially for roles that require higher technical expertise or operational management. Despite these differences, the higher salaries for project management and programming roles in Malaysia reflect the global trend where leadership and technical skills are critical drivers of salary increases within the game development industry.

3. Game Programming Offers Highest Entry-Level Salaries, Followed by Game Art and Game Design.

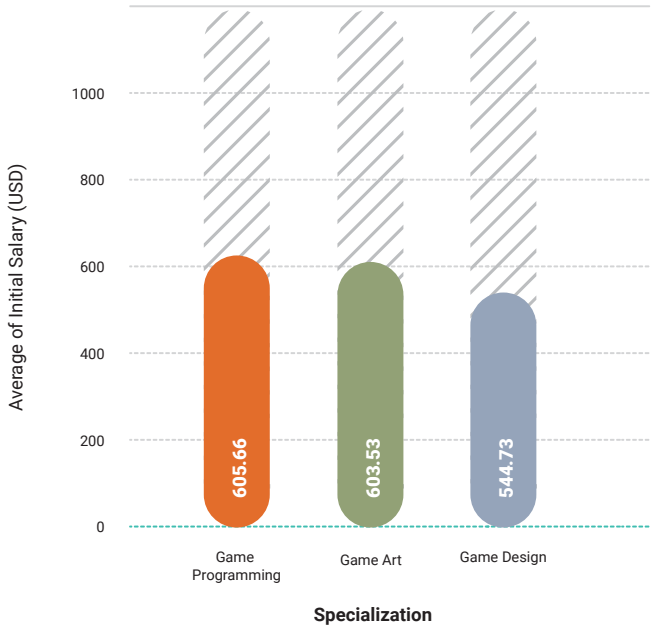

Figure 20: *Average Initial Salary in Malaysia by Key Specialization - Findings from Talent Economics survey*

The findings of fresh graduate average monthly salaries within the game development industry based on area of specialization provides some insights of talent economics when comparing the entry-level salaries of Game Programming, Game Art, and Game Design to their average monthly salaries for these specializations in Malaysia.

Game Programming fresh graduates offers the highest starting or entry level salary among the three specializations listed. This is expected, as programming roles in game development require a high level of technical proficiency in coding, software development, and problem-solving. While the entry-level salary is modest compared to other regions or more senior roles, it reflects the high demand for technical skills in the game development industry. Game programmers typically see more significant salary growth as they gain experience, given the critical role they play in building the game. The entry-level salary for game programmers in Malaysia is modest at USD605.66, which is common for fresh graduates or professionals just entering the industry. However, with an average monthly salary of USD1,229, the data shows that game programming is a highly valued specialization, with the potential for significant salary growth as professionals gain experience. This 103% increase from entry-level to the average salary highlights the importance of technical expertise in programming, as well as the increasing demand for such skills in the region. As programmers advance in their careers, their ability to take on more complex tasks and leadership roles leads to much higher compensation.

The entry-level salary for **Game Artists** is USD603.53, which is only marginally lower than that of game programmers. Game artists are responsible for creating the visual elements of games, such as art assets, character models, environments, textures, and gameplay animations. In Malaysia, where art outsourcing is a common practice, game art professionals are in high demand. However, despite the creative and technical skills required for these roles, entry-level salaries remain relatively modest, reflecting that most fresh graduates are still honing their craft and building their portfolios. The average monthly salary for game artists in Malaysia, however, is USD1,271, indicating a 111% increase from entry-level pay. The data reflects the strong demand for game art in the region, where many studios focus on outsourcing art production. While the entry salary is on par with game programming, the long-term salary trajectory is lower compared to programmers, reflecting the higher value placed on technical skills over creative skills in terms of compensation. Still, the robust increase in salary for game artists underscores their essential role in the region's art-centric game development ecosystem.

Game Designers earn the lowest entry-level salary at USD544.73. The fact that game designers start with the lowest average salary reflects the notion that designing compelling game experiences requires a longer learning curve. Game Designers often need to accumulate more experience and demonstrate a solid portfolio of work to command higher pay as they progress in their careers. The average monthly salary for game designers is USD989, which is only 82% higher than the entry-level salary, indicating slower salary growth compared to programming and art roles. This more gradual salary increase suggests that game design roles may not be as immediately lucrative in Malaysia for now. The limited number of available game design positions in the region may have contributed to this slower growth.

The salary data reveals a clear distinction between the three specializations in Malaysia. **Game Programming** stands out as the most financially rewarding role over time, reflecting the high demand for technical skills. **Game Art** also provides solid earning potential, though slightly less than programming. **Game Design**, while integral to the creative process, offers slower salary growth and is less financially lucrative at both entry-level and mid-career stages, likely due to the competitive and limited nature of this role in the industry.

4. Salary Trends in Malaysia's Game Development Industry Show Diploma Holders Earning More Than Degree Graduates Diverging from Southeast Asian Norms.

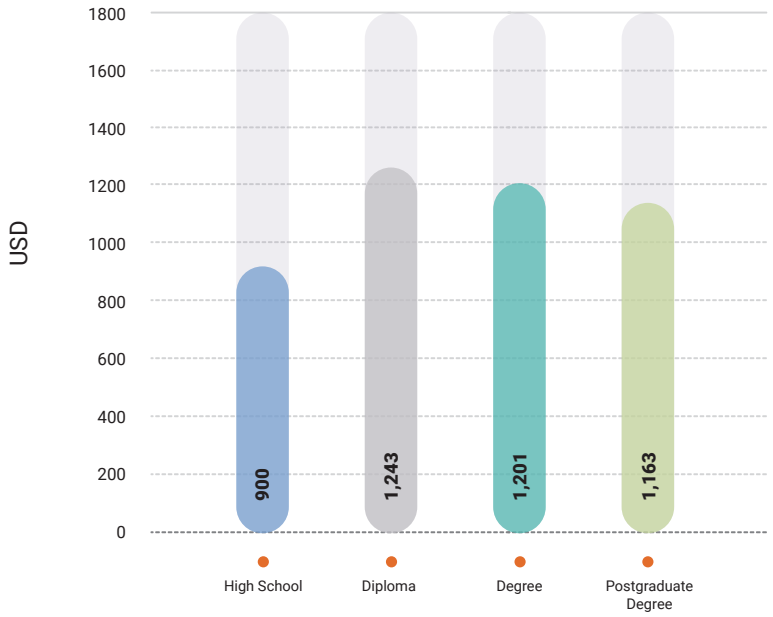

Figure 21: *Average Monthly Salary in Malaysia by Highest Qualification - Findings from Talent Economics survey*

The comparison of average monthly salaries by level of education within the Southeast Asian game development industry reveals that the discrepancy in Malaysia is notably different from regional trends. The graph illustrates the following average monthly salaries based on the highest level of education.

High School graduates earn the lowest average salary at USD900. This entry-level earning is typical, as minimal educational qualifications generally align with lower compensation due to limited skills applicable to specialized tasks in game development.

Diploma Holders earn the highest average salary at USD1,243, reflecting a 38% increase over high school graduates and indicating a significant appreciation for vocational training and practical skills in the Malaysian game development industry.

Undergraduate Degree Holders see a slight decrease in average salary to USD1,201 which represents a 3% decrease compared to diploma holders. This reversal from expected norms where a degree would typically command a higher salary suggests that the specific skills and practical training offered by Malaysian diploma programs may align better with immediate industry needs than the broader academic focus of undergraduate degrees. However, this is also expected as Malaysia tends to focus on very art-based skill sets and only recently in the past 10 years that more specialized degree programmes in game development programmes has emerged. Previously most 3D art-based programmes were at the diploma level.

Postgraduate Degree holders earn an average of USD1,163, reflecting a 3% decrease compared to undergraduate degree holders, indicating that the advanced academic qualifications typical of postgraduates do not significantly enhance earnings within the Malaysian game development industry. This suggests that the local industry may prioritize practical skills and direct industry experience over theoretical or research-focused academic training.

Undergraduate degree holders in Southeast Asia earn an average of USD1,441.14, which is 20% higher than their counterparts in Malaysia (USD1,201). This demonstrates that the regional industry values academic degrees more, especially in roles that demand higher technical expertise and more comprehensive development skills.

The unique salary structure in Malaysia, where diploma holders earn more than those with undergraduate or postgraduate degrees, reflects an industry that prioritizes practical skills and specialized training over broader academic qualifications. As mentioned earlier, this disparity arises because the data presented here is a snapshot rather than a longitudinal study, which would allow for tracking individual salary growth over time. A key factor contributing to the higher salary increases among diploma graduates is the presence of many diploma holders from the early years of the industry who now hold senior or leadership positions. Consequently, their salaries have grown more significantly compared to recent graduates with degrees. However, this trend is likely to shift over time as more degree programs become the standard entry-level qualification.

This contrasts with the broader Southeast Asian market, where higher educational attainment generally correlates with higher earnings, reflecting different industry dynamics and priorities between Malaysia and other countries in the region. Undergraduate and Postgraduate Degree holders in Southeast Asia earn significantly more than their Malaysian counterparts, with respective averages of USD1,441.14 which is 20% higher than their counterparts in Malaysia (USD1,201), and USD1,761.55 which is a 51% increase compared to Malaysian postgraduate holders (USD1,163). This reflects a regional market that values academic degrees, especially in roles demanding high technical expertise and advanced development skills.

5. Salary Dynamics in Malaysia's Game Development Reveal Competitive Pay in Larger Studios and a Thriving Freelance Market.

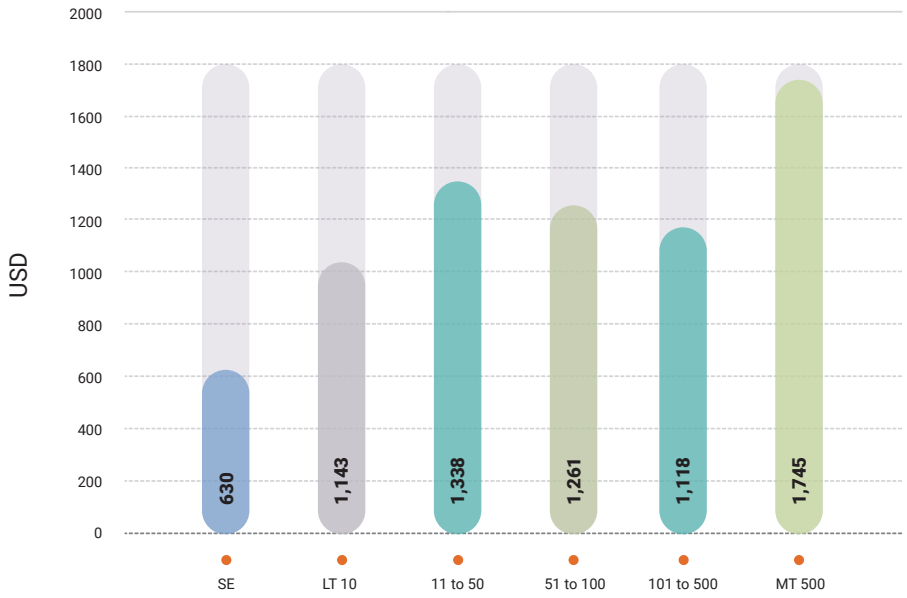

Figure 22: *Average Monthly Salary in Malaysia by Company Size - Findings from Talent Economics survey*

The comparison of average monthly salaries by company size within the Southeast Asian game development industry reveals that the **discrepancy in Malaysia** is aligned with the broader regional trends in some respects, though certain deviations are notable.

Self-Employed individuals or freelancers earn the lowest average salary at USD630, which is expected as freelancers or self-employed game developers typically face more income variability and fewer resources compared to those working in larger studios. Having said that, there are exceptions to this especially when dealing with more experienced freelancers with decades of experience behind their belts.

Small studios (usually indie studios/start-up studios) with fewer than 10 employees offer an average salary of USD1,143, reflecting an 81% increase compared to self-employed individuals. While these small companies may have limited resources, their ability to pay higher salaries than freelancers indicate that working in a team or studio environment adds more stability and better pay.

Mid-sized studios (more established indie or work-for-hire studios) with 11 to 50 employees show the next salary jump at USD1,338, representing a 17% increase over smaller studios (less than 10 employees). These companies tend to offer more structured work environments and better opportunities for specialized roles, which explains the salary increase. In comparison with the Southeast Asian counterparts, mid-sized studios in SEA pays around USD1,197.43, which is 11% lower than the Malaysian equivalent (USD1,338). This suggests that Malaysia offers more competitive salaries in smaller studios, likely due to the growing demand for specialized services and localized outsourcing expertise.

Studios with 51 to 100 employees pay slightly less on average at USD1,261, reflecting a 6% decrease from studios with 11 to 50 employees. This small drop may be due to a variety of factors, such as the transitional nature of studios in this size range, which may lack the resources or management efficiency seen in larger or smaller studios. The average salary in mid-sized companies (51 to 100 employees) in Southeast Asia is USD1,505.38, a 19% increase over Malaysian studios of the same size (USD1,261). This difference may reflect the relatively larger market and more competitive salaries in countries like Vietnam and the Philippines.

Larger studios with 101 to 500 employees see a further drop in average salary at USD1,188, a 6% decrease compared to the mid-sized range (51 to 100 employees). This unexpected decline may suggest that mid-level employees in these larger companies are more constrained by salary ceilings or that these studios prioritize operational costs over employee compensation at this growth stage.

The largest studios with more than 500 employees (MT – more than 500) offer the highest average salary at USD1,745, reflecting a 47% increase over mid-sized studios (101 to 500 employees) and a 177% increase over self-employed individuals. These larger studios benefit from more substantial financial resources, larger projects, and international reach, which allows them to offer better compensation packages, especially for senior roles or specialized technical positions. For companies with more than 500 employees in Southeast Asia, the average salary is USD5,293.27, a 203% increase over Malaysian salaries for the same size studios (USD1,745). This substantial disparity can be attributed to the presence of international studios in the broader region, especially in countries like Singapore, where higher living costs and a more competitive market may lead to higher compensation.

The data from Malaysia shows a clear trend where larger studios generally offer higher salaries, consistent with Southeast Asian trends. However, the overall salary levels in Malaysia are generally lower than those in the broader region, particularly in larger companies (more than 500 employees). Malaysia's salary structure also reflects a more competitive freelance market, with self-employed individuals earning significantly more than their counterparts in Southeast Asia. The differences in salary growth between mid-sized and large studios highlight the challenges of scaling in Malaysia, where salaries plateau or even decrease before rising again in the largest companies, potentially due to operational constraints.

6. Malaysia's Game Development Salaries Surge with Experience, Highlighting a Significant Leap for Senior Professionals.

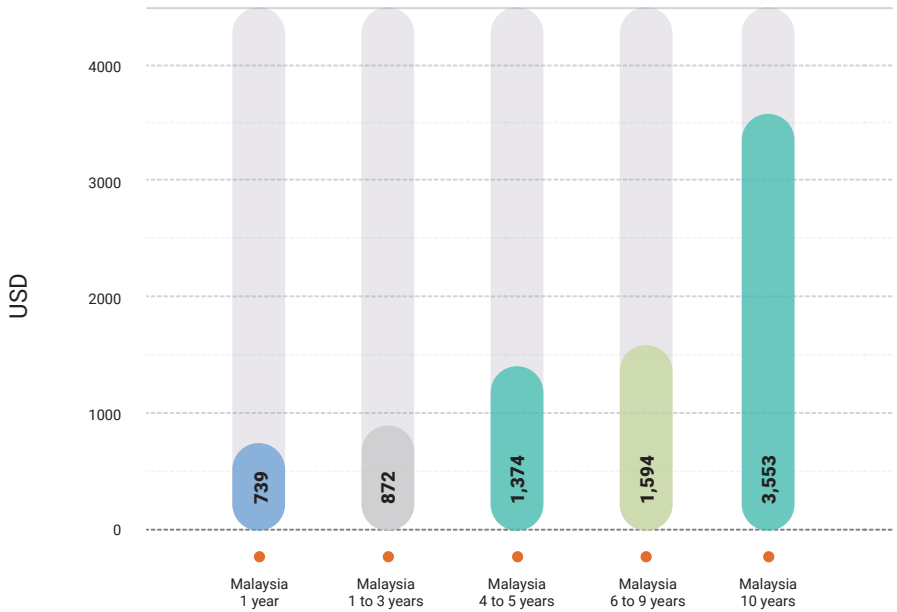

Figure 23: *Average Monthly Salary in Malaysia by Years of Working Experience - Findings from Talent Economics survey*

The data on salary growth based on the years of working experience within the game development industry in Malaysia reveals significant variations across different work experience levels. This analysis highlights how salaries may evolve over time, with considerable jumps at key stages in a game developer's career. The analysis provides some degree of comprehensive understanding of how the industry values experience and rewards long-term commitment to the field.

The analysis indicates that entry-level employees with less than one year of experience earn an average salary of USD739 per month (for an in-depth analysis - please see the section on Fresh Graduate/Entry Level Salaries - although the figure here combines fresh graduates and less than one year experience). As this represents the starting point for fresh graduates or early-career professionals, there is no increment compared to prior experience categories, as they are just entering the workforce. This starting salary reflects the industry's baseline for individuals who are still building foundational skills and adjusting to the professional environment of game development (this is a general baseline and not broken down into specialization).

A small increase occurs for game developers with one to three years of experience, where the average salary rises to USD872, representing a relatively good 18% increase. This growth suggests that early-career professionals see quite a good salary progression during the initial few years as they continue to develop their expertise. During this phase, individuals may learn crucial skills and knowledge which may explain the jump.

However, a substantial salary increase is observed in the four to five years of experience mark. Game developers in this group (irrespective of specialization) earn an average of USD1,374, marking a significant 58% increase over those with one to three years of experience. This notable jump indicates that this period is a pivotal stage in a game developer's career, where they likely advance into mid-level roles or specialize in certain areas of game development. The industry's demand for more experienced professionals who can handle complex tasks or lead smaller teams is reflected in this sharp salary increase. Indeed, most studios in Southeast Asia prefer at least one to two years of working experience prior to hiring.

For those with six to nine years of game development experience, the average salary grows to USD1,594, reflecting a 16% increase from the previous category. Although this growth is still positive, it is considerably lower than the prior jump, suggesting that salary progression begins to stabilize at mid-career. During this phase, developers may reach a plateau in their roles, where further salary increases are tied to incremental promotions or enhanced responsibilities, rather than dramatic shifts in position.

The most significant leap occurs for game developers with more than 10 years of experience. In this category, the average salary reaches USD3,553, representing an 123% increase over the six to nine years' worth of game development experience category. This substantial growth highlights the industry's appreciation for long-term expertise and perhaps even lead roles. Individuals with more than a decade of experience are likely to occupy senior roles such as lead programmers, lead artists, senior technical artist, art directors and other supervisory positions. The sharp rise in salary at this stage demonstrates that the game development industry places a premium on extensive experience and specialized knowledge. Assuming the increase from USD739 to USD3,553 takes 10 years, the yearly percentage increase is approximately 17% per year. This upwards trajectory reflects the industry's need for both highly experienced professionals, with substantial financial rewards for those who remain in the industry long-term.

7. Malaysia Offers Structured Salary Growth, Indonesia Rewards Mid-Career Advancement, and Singapore Leads in Overall Compensation.

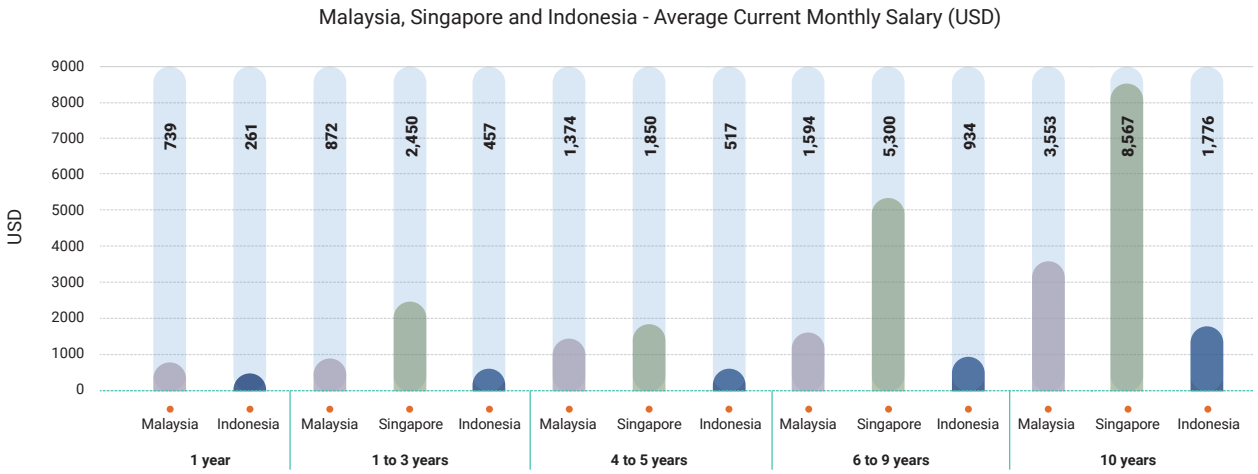

Figure 24: *Average Monthly Salary by Country and by Years of Working Experience - Findings from Talent Economics survey*

Malaysia's salary progression for game developers follows a structured path with substantial increases at key stages with a 18% jump at the first less than one year to the one to three years' worth of working experience and an overall the yearly percentage increase at approximately **17%** per year. Indonesia has a relatively lower salary range compared to Malaysia and Singapore, but similar trends of salary growth are seen.

Between the fresh grade and less than one year of working experience, Indonesian Game developers start with a relatively low salary of USD261, reflecting a modest entry-level salary. After a one-year period, the salary rises to USD457, a 75% increase, which indicates significant growth for early-career professionals. At the four to five Years mark, A smaller increase is observed at this stage, with salaries rising to USD517, which represents a 13% increase. This suggests a more modest salary progression compared to Malaysia and Singapore. The next jump occurs at the 6 to 9 years stage where salaries increase to USD934, marking an 81% growth over the previous stage, indicating a sharp increase as professionals gain mid-level experience. For 10 Years and beyond, the salary increases to USD1,776, a 90% rise compared to the six to nine years category. This suggests that even though salaries in Indonesia are lower overall, professionals with extensive experience still see significant rewards. Overall, the yearly increase is approximately 21% for game developers in Indonesia (marginally higher than Malaysia's 17%).

Singapore shows the highest salary progression among the three countries, with very competitive wages at all stages, despite missing data for the entry-level category. Data for Singapore for professionals with less than one year of experience is missing as there were no respondents in that category, but subsequent stages reveal rapid growth.

Game Development employees with one to three years of experience earn USD2,450, which is already considerably higher than Malaysia and Indonesia, suggesting a much higher starting salary in Singapore's game development industry. The salary at the four-to-five-year mark is stated at USD1,850 which is a smaller decrease compared to the earlier stage, but still represents a significant salary level. It is unclear why there seems to be a reduction, and further clarification may be needed here. Singaporean game developers with six to nine years working experience can earn up to an average of USD5,300, a 186% increase from the previous stage, marking a substantial leap in earnings for those with mid-level experience.

And lastly, Singaporean game developers with more than 10 years of experience earn USD8,567, which is the highest among the three countries, representing a 62% increase from the 6 to 9 years stage. This shows that Singapore places a premium on experienced professionals, with salaries well above those in Malaysia and Indonesia. Overall, the yearly increase for game developers in is approximately 15% over a nine-year period.

Singapore offers the most lucrative opportunities for game developers across all experience levels. This may also be due to the fact that Singapore is known for having a significantly higher cost of living compared to Malaysia and Indonesia – hence, to attract and retain talent, game development studios in Singapore need to offer competitive salaries that allow professionals to maintain a decent standard of living. Given Singapore's smaller population and limited pool of local talent, companies may need to offer higher salaries to attract foreign talent or to retain the best professionals within a smaller talent pool. Malaysia shows a more structured progression, with substantial rewards for long-term experience while Indonesia provides lower salaries but sharp increases at mid-career stages. While Singapore has the lowest yearly increase, but it is offset by the much higher salary package. This comparison reveals how game developers in Southeast Asia experience different career trajectories depending on the country they are in, with notable differences in how much experience is rewarded across Malaysia, Indonesia, and Singapore.

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8. Academic Qualifications Drive Salary Growth in Malaysian Game Development with Degree Holders Earning Significantly More in the Long-Term Career Progression.

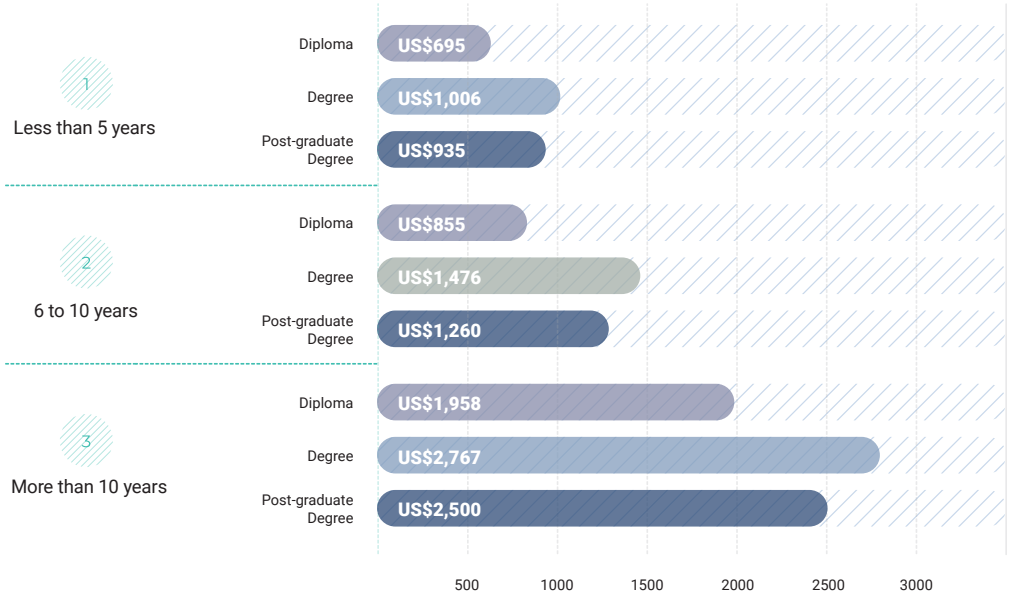

Figure 25: *Average Monthly Salary in Malaysia by Qualifications and Years of Working Experience - Findings from Talent Economics survey*

The data provides insights into how average salary growth is influenced by academic qualifications and years of experience in the Malaysian Development Industry. The analysis from this survey highlights salary levels for game developers holding diplomas, undergraduate degrees, and postgraduate degrees across three key career stages: less than five years, six to ten years, and more than 10 years of working experience.

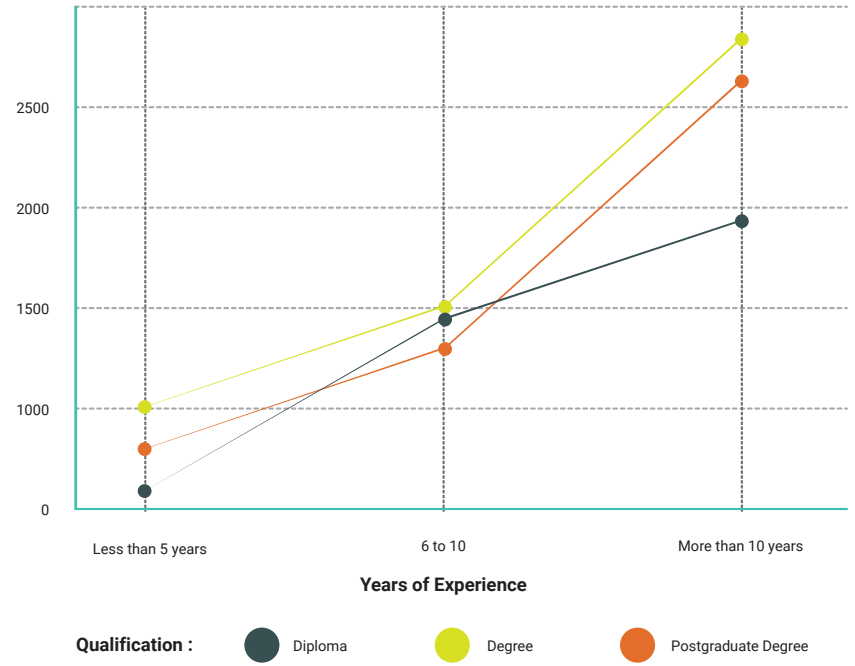

Figure 26: *Average Monthly Salary Growth in Malaysia by Qualifications and Years of Working Experience - Findings from Talent Economics survey*

At the entry-level and early stage or working, salary differences are already visible based on academic qualifications. Game developers with a diploma generally earn an average of USD695 per month, while those holding an undergraduate degree earn USD1,006, representing a 45% higher salary for degree holders over diploma holders. Meanwhile, individuals with a postgraduate degree earn USD935, which is 34% higher than diploma holders but 7% less than those with an undergraduate degree. This data indicates that while a postgraduate qualification does offer an advantage over a diploma, an undergraduate degree leads to the highest starting salaries in the early career stage.

As game developers in Malaysia gain around six to ten years of worth of working experience, salary growth continues, with notable differences across qualifications. Diploma holders see their average salary rise to USD855, while degree holders earn USD1,476, marking a 72% increase in favour of degree holders at this stage. The minimal difference at this experience level suggests that practical experience and skills may outweigh the academic qualifications. Postgraduate degree holders earn USD1,260, reflecting a 14% decrease compared to diploma holders and a 15% decrease compared to degree holders. The lower salary for postgraduate holders at this stage may reflect the fact that the benefits of a postgraduate qualification in the game development industry may take longer to materialize compared to undergraduate degrees or that these post-graduate students are working in the academic sector, generally known to pay less than industry.

The most significant salary growth occurs in the more than 10 years of experience category. At this level, diploma holders earn an average of USD1,958, while degree holders earn USD2,767, reflecting a substantial 41% higher salary for degree holders over diploma holders. Postgraduate degree holders, on the other hand, earn USD2,500, which is 28% higher than diploma holders but 10% lower than degree holders. The data indicates that individuals with a degree continue to command the highest salaries after a decade in the industry, while postgraduate degree holders also experience significant salary growth, though not to the same extent as those with undergraduate degrees.

A key factor contributing to the higher salary among diploma graduates is the presence of many diploma holders from the early years of the industry who now hold senior or leadership positions during the days when there was more diploma programmes related to the arts and creative field as compared to degrees. Consequently, these professional's salaries have grown more significantly compared to recent graduates with degrees.

The data highlights that, in Malaysia, academic qualifications have a clear impact on salary progression, though this impact varies based on career stage. This evidence based on the data suggests that, while practical experience levels the playing field in mid-career, academic qualifications-particularly undergraduate degrees-offer long-term salary benefits.

06

JOB SATISFACTION SURVEY

1. Satisfaction with Salary and Benefits Represents a Major Challenge for Malaysian Game Developers.

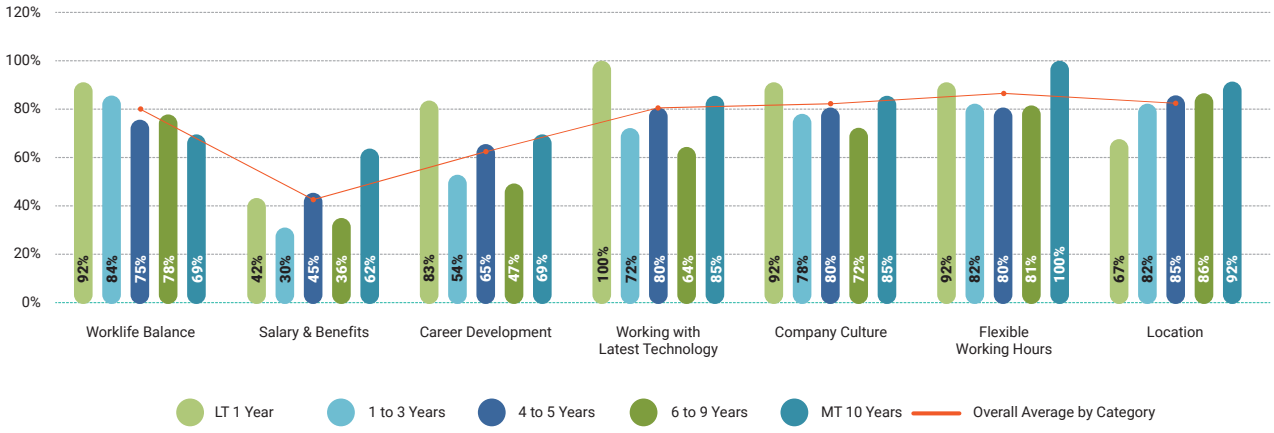

Figure 27: *Job Satisfaction Category by Years of Working Experience - Findings from Talent Economics survey*

Job satisfaction is a key indicator of the emotional response employees experience in their professional environment, and it plays a crucial role in the long-term success of an organization. However, it is important to recognize that job satisfaction is subjective, as different factors may influence each employee differently, even under similar working conditions. This analysis explores the seven verticals of job satisfaction within the Malaysian game development industry, considering key areas such as work-life balance, salary and benefits, career development, working with the latest technology, company culture, flexible working hours, and location.

Work-life balance is a critical factor for job satisfaction, especially in high-stress industries like game development. Interestingly, the data reveals that employees with less than one year of experience report the highest levels of satisfaction with work-life balance, at 92%. This may reflect the enthusiasm of newcomers to the industry, as they are still adjusting to the demands of the job. However, satisfaction levels drop sharply for employees with 10+ years of experience, reaching only 69%. This decline suggests that, over time, the demands of the job may increasingly infringe upon employees' personal lives, leading to a significant decrease in work-life balance satisfaction for more experienced developers.

Satisfaction with salary and benefits is one of the most concerning areas for Malaysian game developers, with overall satisfaction being the lowest across all categories. Employees with one to three years of experience show the lowest satisfaction at 30%, indicating that entry- to mid-level developers feel undercompensated.

This dissatisfaction is likely linked to salary growth rates, which may not meet their expectations at this stage. This is also evident in the section - Findings from the Game Development Industry Talent Survey - Analysis - Pay Scale Variation (Working Experience vs Specialization), where the variation from fresh graduate to three years of service shows the least amount of salary increase. However, for employees with 10+ years of experience, satisfaction improves significantly, rising to 62%. This suggests that while salary growth may be slow in the early years, more experienced employees eventually receive compensation that aligns with their career growth.

Career development is another critical component of job satisfaction, with relatively stable satisfaction levels across experience categories. Employees with 6 to 10 years of experience report the highest satisfaction at 69%, suggesting that this period is crucial for advancing in the industry. The stability of satisfaction in this area indicates that career development opportunities, such as promotions and skills development, may be well-established for mid- to senior-level employees.

Game development, being a technology-driven field, places a high emphasis on working with the latest tools and platforms. Interestingly, employees with less than one year of experience report the highest satisfaction in this area at 100%, likely due to the excitement of working with cutting-edge technology in a fast-paced industry. Satisfaction remains consistently high across all experience levels, with employees in the six to 10 years range reporting 64% satisfaction. This stability suggests that most developers continue to have access to the latest tools and technologies as their careers progress, contributing to sustained satisfaction.

Company culture plays an important role in creating a supportive and collaborative work environment. Satisfaction with company culture remains consistently high. The data suggests that companies in the Malaysian game development industry have strong cultural frameworks that foster a positive working environment for long-term employees.

Flexible working hours have become an increasingly important factor for job satisfaction, particularly in the tech industry. The data shows high satisfaction levels across all experience categories, with employees with more than ten years of experience reporting the highest satisfaction at 100%. This trend reflects the growing demand for work-life flexibility, which appears to be well-implemented in the Malaysian game development industry. The consistently high satisfaction rates indicate that flexible working arrangements are a strong point of satisfaction for employees across the board. This is in line with global research conducted by the World Employment Confederation which states that 83% of senior executives say that post-pandemic employees place as much value on flexibility around where and when they work as they do on salary.

Location is another factor where satisfaction levels are consistently high. Employees with 10+ years of experience report the highest satisfaction at 92%, indicating that more experienced professionals are likely to be settled in favourable locations, either geographically (proximity to home, shorter travel times or close to affordable food options) or in terms of their office environment. This trend suggests that as employees progress in their careers, they gain greater control over their work environment, leading to higher satisfaction with location.

The overall average job satisfaction tends to rise as employees gain more experience, though there are fluctuations across certain categories. Satisfaction is generally higher in areas like flexible working hours, location, and company culture, where long-term employees consistently report higher satisfaction. However, salary and benefits and work-life balance are areas of concern for mid-career employees, particularly those with one to three years of experience, where dissatisfaction with pay and work-life balance may be more pronounced.

2. Salary and Benefits Present Critical Concerns for Malaysian Game Developers Across the Specialisation.

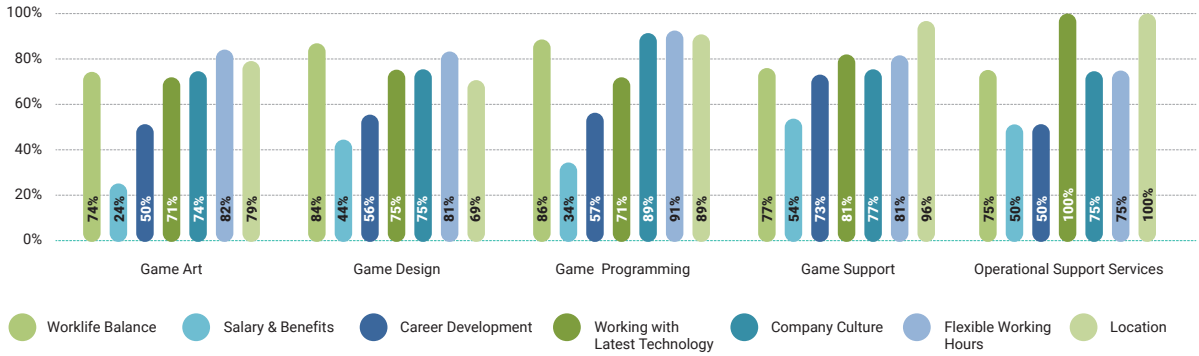

Figure 28: *Job Satisfaction Category by Specialization - Findings from Talent Economics survey*

This analysis highlights job satisfaction across various specializations in the Malaysian game development industry, including Game Art, Game Design, Game Programming, Game Support, and Operational Support Services, examining multiple factors such as Work-life Balance, Salary & Benefits, Career Development, Technology, Company Culture, Flexible Hours, and Location.

A key observation is the consistently high satisfaction with work-life balance across all specializations, ranging from 74% to 86%. However, satisfaction with salary and benefits is notably low among Game Art (24%), Game Design (44%), and Game Programming (34%), whereas it is moderate for support roles (50%-54%). The low percentages among the three key areas of specialization could indicate that salaries in these artistic and technical fields may not be competitive with industry standards, or employees may feel undercompensated for the effort required in these demanding roles. Career development shows moderate satisfaction across the board, varying between 50% and 73%. This could be due to the perception that career advancement in the Malaysia game development industry is either slow or difficult. Highly competitive roles, limited leadership positions, or niche expertise might restrict opportunities for promotions, leading to a lack of optimism about career growth.

Company culture is rated highest by Game Programming (89%) and Game Support (77%), while others show relatively similar levels of satisfaction around 74%-75%. High satisfaction with technology, especially in Operational Support Services (100%), indicates that the game development industry is highly innovative and tech driven. For roles that directly interact with new technologies, like game programming and operational support, the exposure to cutting-edge tools and systems likely boosts satisfaction, as these professionals are more likely to work with the latest platforms, software, and hardware.

Flexible working hours receive high satisfaction in all specializations, with Game Programming leading at 91%. Location satisfaction is also favourable, with all areas showing high satisfaction, particularly in Operational Support Services, which reaches 100%. Game programming, in particular, might allow more autonomy in work execution, while support roles, despite their structured nature, might also offer flexibility in shift scheduling.

01

CHALLENGES IN TALENT RETENTION IN MALAYSIA'S GAME DEVELOPMENT INDUSTRY:

INSIGHTS BY QUESS MALAYSIA

Quess Malaysia, a recruiting and staffing solutions provider, outlines the main challenges affecting the retention of game development talent in the country.

Challenge	Cause	Impact
Talented Developers Leaving for Higher-Paying Markets	Many skilled game developers, especially those with experience in AAA development, often leave Malaysia for countries like Singapore, the US, or Europe, where salaries are significantly higher. Although Malaysia has a burgeoning game development industry, salary scales are lower compared to more developed markets. Talented developers are often lured by the promise of better compensation, more prestigious projects, and greater career opportunities abroad.	Shortage of senior talent in local studios, leading to higher training costs and slowed growth.
Limited Career Growth Opportunities	The Malaysian game development industry is still relatively small compared to global hubs like Japan, the US, or China. Many studios, especially indie ones, have small teams with few opportunities for significant internal promotions. While there are talented junior and mid-level developers, opportunities for advancement into leadership or senior technical roles can be scarce.	This lack of career progression lead mid-level developers to explore opportunities overseas, where they can work on larger projects that offer clearer paths to senior positions and greater professional growth.
Skills Gap Between Local Talent and Industry Demands	While Malaysia has made strides in educating and producing game development talent, there is still a skills gap between what the industry demands and the skills that graduates possess. For instance, specialized skills like AI programming, advanced 3D modelling, and complex game design are in high demand but are not always covered adequately.	Studios need to invest in extra training. While it may extend production timelines, ultimately strengthens their workforce and help maintain competitiveness in the industry.
Competition from Regional Game Development Hubs	Neighboring countries like Singapore and Indonesia offer higher salaries and more job opportunities.	Malaysia loses top talent to regional competitors, making it harder to scale and retain expertise.

The following provides an overview of salary expectations for junior, mid-level, and senior roles within AAA and indie game studios, as well as mobile game development in Malaysia's gaming sector. Salary ranges can vary based on factors such as the studio's size, the scope of projects, and the specific skills of individuals, with larger game studios or international projects typically offering more competitive salary scale:

AAA and Indie Game Developers

Junior

Role	YOE	Salary
Game Programmer / Software Engineer	0 to 3	RM3,000 - RM5,000 per month
Game Designer		RM2,500 - RM4,500 per month
3D Artist/Animator		RM2,800 - RM4,000 per month
QA Tester		RM2,500 - RM4,000 per month

Mid-Level

Role	YOE	Salary
Game Programmer / Software Engineer	0 to 3	RM5,500 - RM7,500 per month
Game Designer		RM4,500 - RM7,000 per month
3D Artist/Animator		RM4,000 - RM6,500 per month
QA Tester		RM4,000 - RM5,500 per month

Senior

Role	YOE	Salary
Game Programmer / Software Engineer	0 to 3	RM8,000 - RM15,000+ per month
Game Designer		RM7,000 - RM12,000+ per month
3D Artist/Animator		RM7,000 - RM10,000+ per month
QA Tester		RM6,000 - RM8,000+ per month

(Source: Salary Guide for Game Development Roles in Malaysia by Quess Malaysia)

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Mobile Game Developers

Junior		
Role	YOE	Salary
Mobile Game Programmer	0 to 3	RM3,000 - RM5,500 per month
Mobile Game Designer		RM2,800 - RM4,500 per month
UI/UX Designer		RM2,800 - RM4,500 per month
2D/3D Artist		RM2,800 - RM4,500 per month
QA Tester		RM2,500 - RM4,000 per month

Mid-Level		
Role	YOE	Salary
Mobile Game Programmer	0 to 3	RM6,000 - RM8,500 per month
Mobile Game Designer		RM5,000 - RM7,500 per month
UI/UX Designer		RM4,500 - RM7,000 per month
2D/3D Artist		RM4,500 - RM6,500 per month
QA Tester		RM4,000 - RM5,500 per month

Senior		
Role	YOE	Salary
Lead Mobile Game Programmer	0 to 3	RM9,000 - RM15,000+ per month
Lead Mobile Game Designer		RM7,500 - RM12,000+ per month
UI/UX Designer		RM7,000 - RM10,000+ per month
2D/3D Artist		RM7,000 - RM10,000+ per month
QA Tester		RM6,500 - RM8,500+ per month

(Source: Salary Guide for Game Development Roles in Malaysia by Quess Malaysia)

08

SOUTHEAST ASIA'S TALENT DEVELOPMENT INITIATIVES IN GAME DEVELOPMENT

Southeast Asian countries have continuously developed, and expanded talent development initiatives specifically focused on nurturing skills and promote the growth of studios within game development industry. These initiatives aim to build local expertise in game development, design, and related fields to foster growth and innovation. Here are some notable programs across the region:

Country	Program	Focus
Malaysia	• Level Up @Schools • Game Development Council of Malaysia (GDCOM) • IDGA Malaysia Game Hangout	• Integrating game development into school and higher education curriculums. • Providing networking opportunities and bi-monthly events for indie studios and game development students at higher education institutes.
	Level Up Inc.	• An incubation program provides mentorship, funding, and business development to help studios grow and scale. • Providing networking opportunities and bi-monthly events for indie studios and game development students at higher education institutes. • Initially launched in partnership with GameFounders, the program has since expanded to include key international partners such as Global Top Round, enhancing its network and resources for Malaysian developers.
	Level Up KL	• Celebrating its 10th year, Level Up KL led by Malaysia Digital Economy Corporation (MDEC) has established itself as the leading annual game developer event in Southeast Asia, attracting professionals from across the region and beyond. • Facilitates B2B matchmaking sessions for funding, collaborations, and publishing deals. • Features hands-on workshops and masterclasses led by industry experts. • Hosts the SEA Game Awards, recognizing outstanding games developed in Southeast Asia, as well as game jams and competitions to inspire innovation and creativity among developers.

Country	Program	Focus
Indonesia	Indonesia Game Developer Exchange (IGDX)	• The Indonesia Game Developer eXchange (IGDX) is an accelerator initiative organized by the Ministry of Communication and Informatics in partnership with the Indonesian Game Association (AGI). • Aims to boost the skills of Indonesian game developers and provide them with access to funding and partnership opportunities through various programs such as IGDX Bootcamp, IGDX Academy, IGDX Career, IGDX Business, and IGDX Conference.
	Indonesia Game Experience	• Organized by the Asosiasi Pengusaha Teknologi Informasi dan Komunikasi Nasional (APTIKNAS) in collaboration with Taiwan Excellence, this is the largest game festival in Indonesia, bringing together various stakeholders in the gaming industry to create a more inclusive and sustainable ecosystem.
	Hari Game Indonesia (HARGAI)	• This national celebration is held annually on August 8th and dedicated to the vibrant and dynamic video games industry in Indonesia.
Thailand	BIDC	• Aims to strengthen Thailand's digital content industry, focusing on animation, games, and e-learning. • The event includes business matching sessions, networking opportunities, and the BIDC Awards, with support from the Thai government of Department of International Trade Promotion (DITP), Ministry of Commerce, and other partners.
Singapore	Future Gaming Conference	• Organised as a companion programme of Virtual Realms: Videogames Transformed during the two-week special event Gameplay, Future Gaming Conference brings together diverse voices from Singapore's games and interactive media industry in two panels held over two consecutive days. • Future Gaming Conference is organised in collaboration with Singapore Games Association (SGGA).
	Gamescom Asia	• Gamescom Asia, the exclusive satellite event of Gamescom, the biggest video game festival in the world was held in Singapore in 2022 and 2024. • Gamescom Asia is a premier B2B2C video game show, bringing together the breadth of Southeast Asia's video game ecosystem to Singapore.

Country	Program	Focus
Philippines	Philippine Gamedev Expo 2024	• PGDX is a platform that gives opportunity to the Philippine local game developers to showcase their talent and show the whole world that the the country's talents are capable of. • PGDX made its highly anticipated debut last August 18 to 20, 2023 marking a significant milestone as the first of its kind in Manila, Philippines. • Hosted at the SMX Convention Center and organized by CBZN Perspective and the Game Developers Association of the Philippines (GDAP), PGDX brought together global and local game development industry leaders while highlighting the burgeoning talent in the indie game scene.
	GameDev Summit	• GameDev Summit is organized with the support of the Philippines Department of Trade and Industry. A landmark global industry event in the heart of the Asia Pacific, GDS features the External Development Summit (XDS) Main Stage of prominent speakers and panelists and is in collaboration with the Game Developers Association of the Philippines (GDAP). • This professionals only B2B event is focused on strengthening the Asia Pacific industry's position and partnerships with the greater global video game development community.
Vietnam	Vietnam GameVerse	• Vietnam GameVerse is organized by the Authority of Broadcasting and Electronic Information, VnExpress, FPT Online, and Vietnam Game Alliance • It includes four main activity groups: Vietnam Game Awards - Vietnam Game Awards, which honors products, services, communities and individuals related to the game development field; the Vietnam Game Forum which takes place over two main event days, for representatives of units, businesses and experts to discuss interesting topics in the game industry or share interesting stories in the profession; and Cooperation and Investment activities.

09

TALENT FUTURE DEMANDS AND GROWTH STRATEGIES

1. Talent Landscape and Future Outlook for Southeast Asian Game Development Studios.

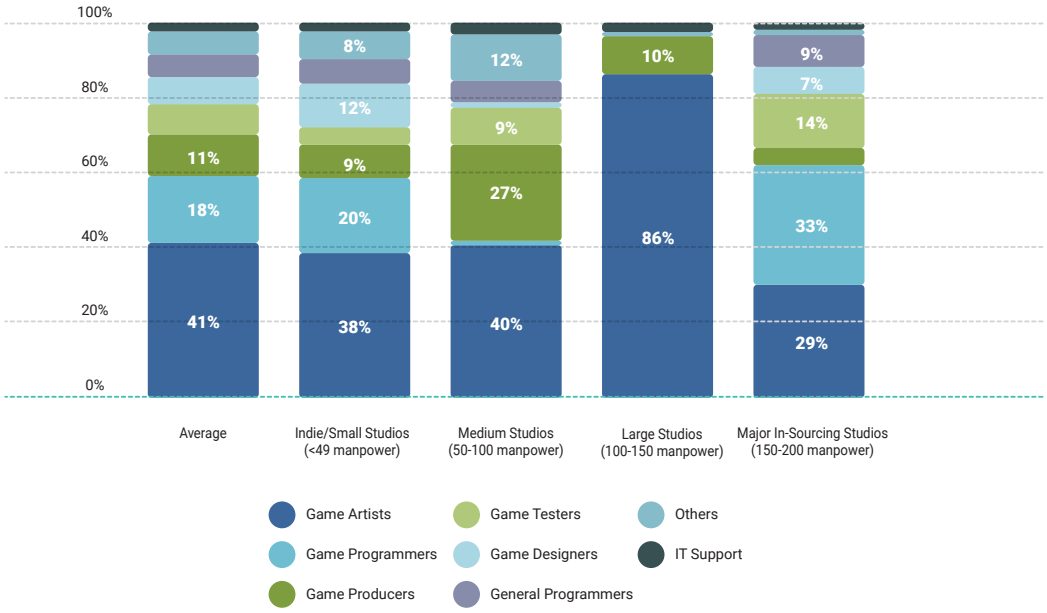

Figure 29: *SEA Game Development Team Composition by Studio Size - Findings from SEA Company survey*

This section is based on the company survey from 48 game development studios across Southeast Asia ranging from independent (indie) studios of less than 10 personnel to large Major (In-Sourcing) Studios of around 150 to 200 people. In-sourcing studios are basically international studios which has set up a presence in a particular country within Southeast Asia. More than 75% of such studios handle own Intellectual Property (IP) projects (meaning their own studio game titles).

The chart shows that **game artists** are a crucial and highly hired role across all studio sizes making up 41% of manpower demographics, particularly in **large game development studios (>=100 employees)**, where they represent the largest category with an average of 86% of the manpower makeup of the studio. This is significantly higher compared to other roles, suggesting that game art is a major focus in large-scale game development, and the demand for game artists is particularly strong. A majority of studios in this category handles outsourcing or work-for-hire projects. This large number, combined with the fact that game art outsourcing is common in Malaysia and other Southeast Asian countries, aligns with the notion that **game art professionals are in high demand**. However, the ratio of game artists is significantly smaller for Major in-sourcing studios (150 to 200 people) where projects are mostly focused on the studio's own IP development. Hence, it is understandable that a significant portion of these talents comprise of game programmers, game designers and game QA testers. This significantly differs from Large outsourcing studios where generally most of the manpower are game art related with around 10% handling the production or project management aspect of the work.

This breakdown of specialization is also seen for medium-sized studios of around 50 to 100 people - however, a larger percentage of 27% are focused on the production or project management area of specialization. This is an indication that generally the 50 to 150 people studios tend to focus largely on game art outsourcing projects.

The chart above, when combined with the salary data in the previous sections, provides a comprehensive picture of the game development ecosystem in Southeast Asia, particularly Malaysia. It highlights the **strong demand for game artists**, which is reflected in the number of hires across all studio sizes, particularly in **medium and large studios**. While entry-level salaries may be modest, the **significant salary growth** game artists experience over time is consistent with the importance of their role in an art-centric industry.

However, the indie and small-scale studios have slightly better balance between game art, game design and game programming with game art having the largest share of manpower breakdown (38%) following by game programming (20%) and game designers (12%). This is indicative of studios that are handling their own IP development as well – mostly likely mobile or PC-based projects. It is also worthy to note that the others category denotes either community, business development/marketing roles which is quite evident in indie/small studios (8%) and medium-sized studios (12%) but significantly smaller in large outsourcing studios and major in-sourcing studios – where these roles are most likely not as important or is handled by other branch studios or in regional offices.

However, when compared with the growth trajectories of these studios in terms of talent acquisition, the demands have slightly shifted (see next).

2. Rising Demand for Game Programmers with Game Art's Continued Dominance (6 Months).

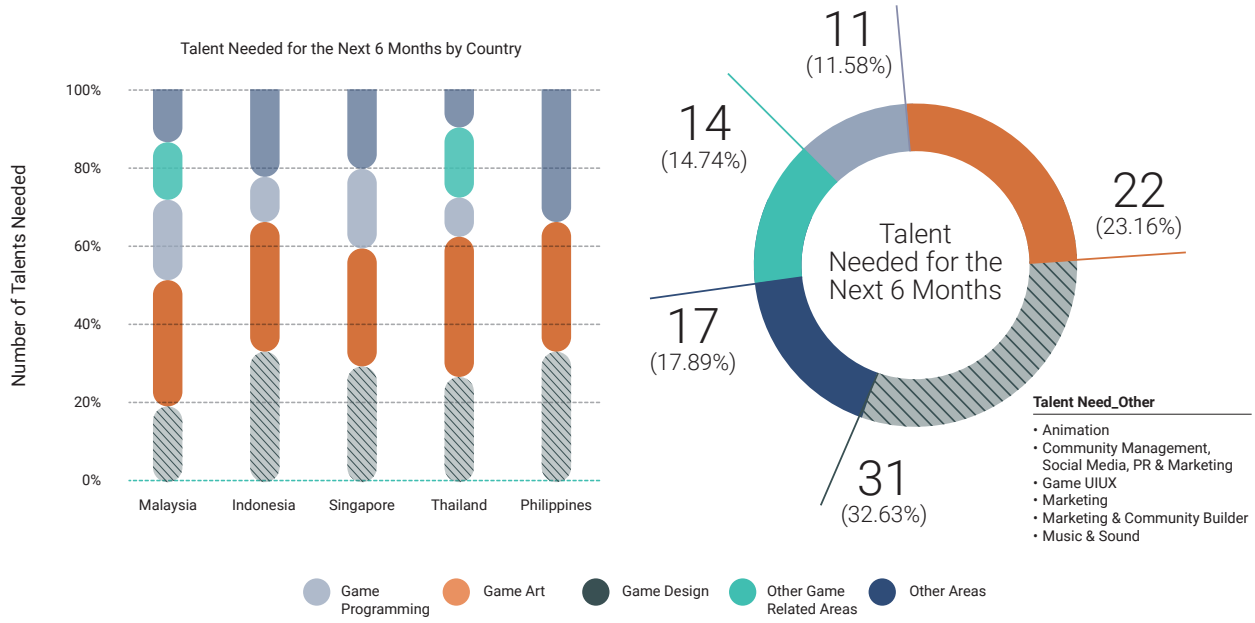

Figure 30: *Short-term Talent Demand Trends in SEA Game Development Industry - Findings from SEA Company survey*

While the largest short-term demand across all Southeast Asian countries particularly in Malaysia, Indonesia, and the Philippines are still game artists at 33%, game programmers are starting to have a larger demand ratio as game artist. Game programmers are starting to be featured in most of the studio's growth plans making up **23%** of the overall talent needed, particularly in **Indonesia** and **Singapore**, where game programming demand rivals or surpasses game artists. Game programming is clearly growing as one of the most in-demand skill across the region, making up **nearly a quarter** of the total need. As games become more technically advanced, the demand for skilled programmers is likely to **remain strong** or even increase. Studios are looking to develop more complex, interactive, and high-quality games, which require strong programming capabilities. Although **game programming** and **game art** remain the most in-demand roles in the game development industry in Southeast Asia, **game art** is expected to maintain or even grow its dominance as the region focuses mostly on work-for-hire and out-sourcing - but compared to the current ratio of game artists to both game programmers and game designers, there seems to be a shift towards more internal projects/own IPs.

In terms of other related Game areas such as in engineering (QA and Testing) and technical services, which makes up **15%** of the needed talent, with significant emphasis in **Singapore, Philippines** and **Thailand** - the numbers seem to be growing significantly. It is also important to note that as the games-as-a-service (GaaS) model continues to grow, roles focused on player experience, community management, and marketing are becoming more critical to a game's success. These roles are expected to grow steadily, especially in regions where companies are expanding their service and live-ops models. With the demand estimated to be at 12%, this shows that the Southeast Asian Game Development Industry is diversifying and more related roles in marketing, community management and support are becoming increasingly important, especially as games become more service-oriented, necessitating a continuous connection with the player base - with Indonesia and Malaysia being the main countries looking for such talents.

3. Specific Skill Demands in the Southeast Asia Game Development Industry (5 Years).

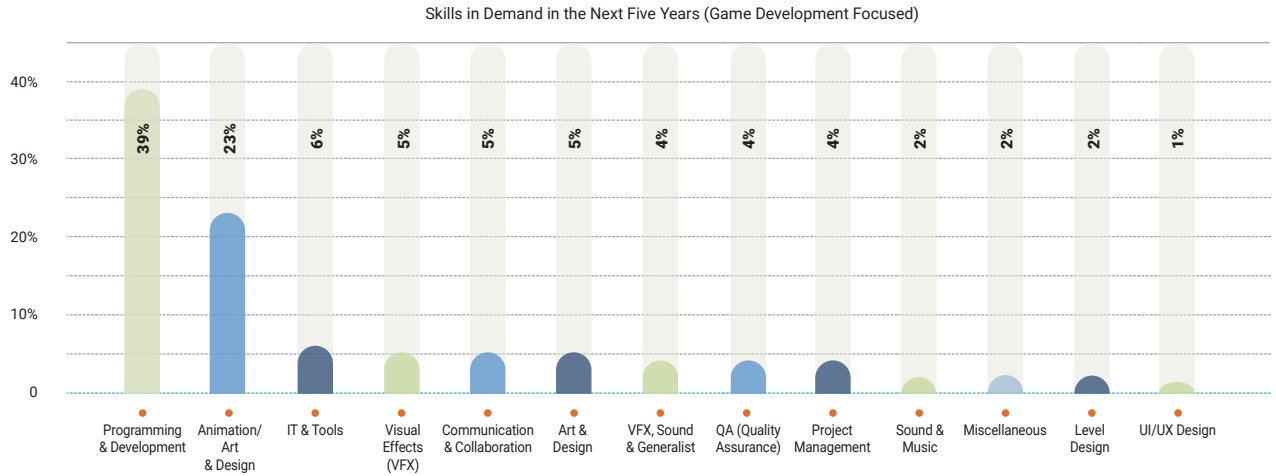

Figure 31: *Technical Skills Demands in SEA Game Development Industry (5 Years) - Findings from SEA Company survey*

This section asked studios to rank their required skill sets, focusing on both **technical skills** and general/**soft skills**, across two categories: skills specific to game development (specialized) and general "good-to-have" skills/softskills.

Game Development Specializations

The data on skill demand in the **game development sector** over the next five years highlights several key areas through percentage representation.

1. **Programming and Development** emerges as the most sought-after skill, accounting for a significant **39%**. This indicates that technical expertise is critical for the industry's growth, particularly as the region seeks to create its own intellectual property (IP) and increase its **value proposition as a regional game development hub**. The high demand for programming talent aligns with the industry's need for **high-quality game engines, code optimization, and system integration**, all of which are essential for competitive, modern game development.

2. **3D/CGI** expertise follows closely with **23%**, reflecting the strong demand for 3D-centric creative and artistic talents to create high-quality **3D art assets**. This demand is likely driven by the increasing sophistication of **visual effects, character models,** and **environmental designs** in modern games. With many studios in Southeast Asia focusing on **outsourcing 3D work** for international clients, this specialization is critical to maintaining the Southeast Asian region's competitive edge in the global market.

3. In contrast, **general art and design skills** (such as concept artists, pixel artists, UI/UX and 2D artists) make up a smaller portion at **5%**. This relatively low percentage suggests that while these skills are important, the focus is increasingly shifting toward **3D and CGI talent**, especially for projects aiming to leverage advanced visual technologies. However, it is worth noting that these general art roles still play a foundational part in early-stage concept development and game pre-production.

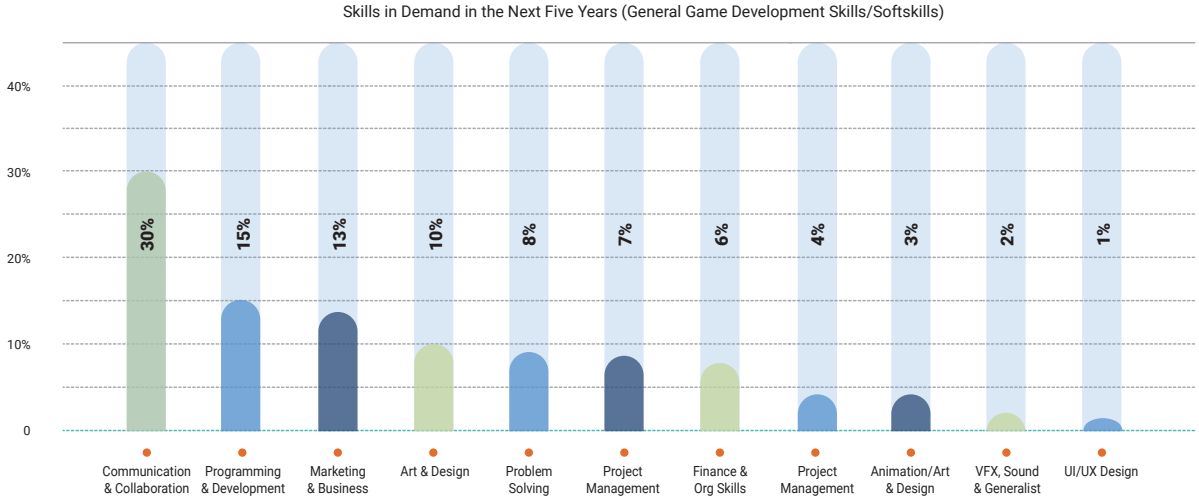

Figure 32: *General Game Development Skills/Softskills Demands in SEA Game Development Industry (5 Years) - Findings from SEA Company survey*

General Skills/Softskills Demand

1. In the broader **general requirements category, Communication and Collaboration skills** take the lead with **30%**, emphasizing the importance of **teamwork, effective communication, and collaborative problem-solving** in achieving project goals. This suggests that outside the core game development specialization, studios recognize the necessity of soft skills in managing teams and stakeholders, particularly for cross-functional coordination.

2. **General Programming and Development** follows with **15%**, indicating that while technical expertise is still in demand across industries, it is less of a priority compared to the game development sector, where it dominates. This area is focused on IT and engineering services in support of game development.

3. **General Art and Design skills** make up **10%** of the general skills demand, which shows a consistent appreciation for creative roles. These skills are likely sought in **broader creative industries** and not solely within game development, which could include marketing collateral, UI/UX design, and multimedia production.

4. **Marketing and Business skills** represent **13%**, highlighting the value of strategic marketing in driving business success. This reflects a growing recognition of the importance of **brand positioning, market research, and user acquisition strategies** to help games succeed, especially in a competitive global market.

5. **Project Management and Monetization** account for **7%**, reflecting the growing but still moderate need for structured project oversight and strategies for **game monetization**. As games-as-a-service (GaaS) models become more common, project management expertise will likely become more vital, particularly for coordinating long-term, multi-phase game projects.

6. Finally, **Problem Solving and Initiative** represent **8%**, indicating that while these traits are valued, they are not as immediately prioritized as technical or collaborative skills. This suggests that **creativity in troubleshooting** and **proactive work habits** are important but may be considered secondary to more concrete, technical skill sets in the current job market.

7. **Communication and Collaboration skills** account for **30%**, highlighting their lower prioritization in the game development specialization. While these skills are essential for **teamwork and coordination**, the industry appears to be focusing more heavily on acquiring specialized technical and artistic talent to drive growth. As Southeast Asian studios become more integrated into global supply chains, this segment may increase in importance as cross-team communication becomes more critical.

Overall, the demand for skills over the next five years reflects a dynamic and evolving landscape in the Southeast Asian game development ecosystem. **Technical skills**, particularly **programming** and **3D/CGI expertise**, are at the forefront of industry demand, as studios focus on developing proprietary IP and delivering high-quality game assets. At the same time, the general skill demand emphasizes the importance of **collaboration, communication,** and **business acumen**, underscoring the necessity of well-rounded teams that can balance technical proficiency with **effective teamwork** and **strategic planning**.

As the Southeast Asian game development industry grows, studios will likely continue to prioritize technical skills, while also gradually increasing the focus on **project management, marketing,** and **cross-functional collaboration** to remain competitive on a global scale.

4. Key Findings: Talent Outlook in the Southeast Asia Game Development Region.

The analysis of **talent landscape** and **future outlook** in Southeast Asian game development studios provides critical insights into the evolving **talent demands** of the industry. The data shows a clear shift in focus between different types of studios (indie, small-scale, medium, and large studios) and the role **specialization** that drives their projects, particularly when comparing **outsourcing-focused** and own **IP development** studios.

1 **Game Artists Lead Workforce Across All Studios Sizes**
Game Artists dominate, representing the highest share across all studio sizes, with particular emphasis in outsourcing studios where 3D asset creation is a major focus. These roles are especially prominent in large studios (100-150 employees), where game art can represent up to 86% of the workforce. This high percentage is linked to the region's role as a major outsourcing hub for game art production globally.

2 **Surge in Demand for Game Programmers**
Game Programmers are increasingly in demand, especially in studios focused on their own IP development. The data indicates that demand for programming and development skills is increasing across all studio sizes, particularly in Indonesia and Singapore, where game programming demand is beginning to surpass or rival game art.

3 **Rising Need for Production and Project Management Roles in Growing Studios**
There is a growing need for **production and project management** roles, especially in medium-sized studios or growing studios transitioning into IP creation and out-sourcing where they account for up to 27% of the workforce. These roles are critical in balancing both the creative and technical aspects of game development, particularly in complex outsourcing projects.

Baldur's Gate 3. Image Credit Larian Studios

5. SWOT Analysis: Talent Development in Southeast Asia's Game Industry.

The SWOT analysis provides a comprehensive overview of current talent state within Southeast Asia's game industry as below:

Strengths	Weakness	Opportunities	Threats
01 Established Talent Pool and Strong Outsourcing Capabilities: Southeast Asia excels in game art outsourcing, making it a key global hub for outsourcing. **02** Young Population: A large percentage of the population is young and tech-savvy, providing a pool of potential talent eager to enter the game development industry. **03** Educational Institutions: Number of universities and training centres offer programs focused on game design, development, and related technologies. **04** Cost-Effectiveness: Competitive talent costs make Southeast Asia an attractive destination for global companies to outsource their game art needs, leading to the establishment of operations in the region. **05** Cultural Diversity: The region benefits from a blend of cultural influences that contribute to unique art styles, storytelling and creativity in game design.	**01** Talent Shortages: There is a shortage of specialized talent in game programming, design, and technical services like QA and testing, potentially hindering growth. **02** Skills Gap in Advanced Roles: Universities and training centres are not yet fully aligned with industry needs, leading to a lack of advanced training in critical areas like system design and monetization. There is also a need to perhaps close the gap between technical support skills like QA and testing. **03** Lack of World-Class Triple-A IP While the SEA region has a growing talent pool and serves as a key outsourcing hub, not developing its own IP could have long-term implications for growth, independence, and competitiveness. Southeast Asian studios that primarily rely on outsourced development are often paid for services but don't share in the profits generated by successful games. This restricts their long-term growth potential. With no IP of their own, these studios remain dependent on international clients for income, making them vulnerable to global market fluctuations, contract cancellations, or shifts in outsourcing demand - making the region quite volatile to changes.	**01** Government Support: Many governments in the region are recognizing the potential of the game industry and continuously implementing supportive policies, talent development and funding initiatives. **02** Growing Focus on Own IP Development: Studios pivoting from outsourcing to IP development can showcase talent capabilities in game development, brand recognition, and market influence. **03** Growth of GaaS Models: Increasing demand for roles in marketing, community management, and live-ops presents new opportunities as more studios adopt service-based models. **04** Knowledge Transfer from Global Studios: International studios in the region offer opportunities for local talent to upskill through exposure to global best practices and advanced development methodologies.	**01** Rapid Technological Changes: The fast-paced nature of technology in game development means that skills can become obsolete quickly, necessitating ongoing education and training. **02** Growing Competitive Talent Pools and Game Development Hubs Latin America is starting to be an attractive place for development with cheaper overall talents but within same development time-zones. **03** Impact of Global Layoffs Southeast Asia has benefited from the influx of international studios and investments, which have contributed to a growing pool of skilled talent. However, global layoffs could lead to increased competition for jobs or significant brain drain of talented Southeast Asian developers as they may look for opportunities in other regions or industries as local job markets tighten, potentially slowing the growth of the local ecosystem.

6. Recommendation & Way Forward.

This section outlines recommendations and a pathway forward for enhancing talent economics in Southeast Asia's game development industry. By implementing these recommendations and adopting successful global best practices, the region can significantly strengthen its game talent development ecosystem. The proposed recommendations are categorized into two key focus areas, detailed as follows:

Recommendation for Studios in Southeast Asia

1 **Invest in Technical Skill Development**
Studios, especially those shifting toward **own IP development**, should invest in **upskilling their workforce** in areas like **game programming, AI development,** and **advanced design**. Building partnerships with **local universities** or **training institutions** can ensure a steady supply of talent in these critical areas.

2 **Diversify Role Specialization**
Studios should diversify their talent pools to include more expertise in **marketing, live-ops, and community management** to meet the growing demand for service-oriented models. This can be achieved by either **training current employees** in these areas or **recruiting specialized talent** from other industries.

3 **Prioritize Long-Term Growth in Own IP**
Outsourcing is a profitable model, but studios should look at **long-term growth strategies** that emphasize **original game development**. This will require restructuring teams to focus more on **creative roles**, including **game designers, narrative designers,** and **technical directors**, and allocating resources to innovation.

4 **Foster an Inclusive Work Environment**
Studios should regularly audit pay structures to ensure that women and men in similar roles receive equitable compensation. This process should be transparent, and discrepancies should be addressed immediately. Studios should also actively work to foster a more inclusive culture by promoting diversity and inclusion in hiring practices and team dynamics. Regular training on unconscious bias and the benefits of diversity should be integrated into the workplace to create a more welcoming and respectful environment for women. This will ensure that the talent pool would eventually encompass a larger pool of talent resources which will benefit the industry in the long run.

Baldur's Gate 3. Image Credit Larian Studios

7. Recommendation for Policymakers.

Support Specialized Training and Upskilling Programs

Governments should work with the private sector to establish **specialized training programs** focused on key areas like **game programming, 3D/CGI development,** and **game design**. This can be done through **public-private partnerships** and incentivizing **training institutions** to align curricula with industry needs. **Singapore's SkillsFuture** program offers subsidies for individuals to upskill in various fields, including game development [24].

Establishing **Advanced Game Technology Hubs** that serve as **Research and Development (R&D) Centre** or **Centres of Excellence** to promote innovation in the game development industry, cultivate talent in game technology and cross-skilling software engineers into the game development field.

Incentivize Own IP Development

i. Governments should create **incentives for local studios** to invest in **own IP development**, such as offering **tax credits or rebates** to support original game production and encourage game development that reflecting local culture and heritage. For example, France's CIJV support the development of culturally significant games [25].

ii. Establish **incubation and acceleration** for younger studios in the form of funding and grants as well as co-production opportunities to support original game production. These initiatives would encourage studios to move beyond outsourcing and establish Southeast Asia as a **creative leader** in the global game development market. **Tranzfuser** is one of the program examples under **UK Games Fund**, supporting UK graduates to build successful and commercially sustainable video game development studios [26].

iii. Providing assistance with marketing, attracting investments, and fostering relationships with international partners, as seen in **South Korea's KOCCA initiative** to promote Korean content globally [27]. Another example is the **Creative Export Canada (CEC) program** provides visibility and funding to help Canadian creative works achieve financial success abroad [28].

iv. Governments and industry stakeholders can support industry networking and community building events demonstrate the important of providing platforms for developers to connect with the key industry players.

Establish a National Game Investment Fund

i. Create a government-backed investment fund dedicated to the game development industry, similar to **Saudi Arabia's Public Investment Fund (PIF)** to drive the long-term growth and development of wider games industry globally through Savvy Games Group.

ii. This fund could channel investments into local game development studios and start-ups, fostering growth within the local game development ecosystem and attract international interest in the region.

iii. Government can set up grants or loan program specifically for game studios while also encouraging venture capital firms to invest in the industry. For example, **Business Finland** offers funding services based on company size, maturity and financial capability. Business Finland funding is typically a grant or a loan and is available for application by any company registered in Finland [29].

Develop a Strategic Roadmap for Game Development Industry

- Government to develop strategic roadmap, aiming to position Southeast Asia as a global game development hub focusing on game ecosystem development. Example is the Finnish Game Industry Policy recommendations [30].

Encourage International Collaboration

- Governments can foster **international collaboration** by offering **incentives for foreign studios** to set up development branches in Southeast Asia. These collaborations can accelerate **knowledge transfer**, improve **local talent pools**, and enhance the region's **competitiveness** in the global market. Tax Credits, talent incentives and centralized infrastructure with access to ready talents are several methods of encouraging such investments. Most of the Southeast Asian countries offer lower currency value and lower costs of living, which create an attractive environment for investment. These countries may offer a more competitive operational costs, allowing foreign companies to access a highly skilled workforce at a fraction of the cost compared to Western or more developed markets.

Support Women-Centric Programs and Incentives

- In the area of gender disparity in terms of pay scale, the Government should look into offering tax incentives and funding to studios that demonstrate gender-balanced hiring practices and promote women to leadership roles. This could later include special grants for studios that develop mentorship programs aimed at fostering women's growth in the game development industry.

  The future of Southeast Asian game development lies in its ability to **balance outsourcing with internal IP development**, foster **technical talent growth**, and adapt to the emerging **games-as-a-service** model. With the right talent development strategies and government policies, the region is poised to continue its growth as a **global game development hub**, attracting more international investments and enhancing its role in the global game development ecosystem.

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10 GLOBAL INDUSTRY PRACTICES

1. The Flourishing Indie Game Scene in Hamburg, Germany.

Hamburg is emerging as a notable hub for the game development industry in Europe, particularly recognized for its vibrant indie game scene. According to Gamecity Hamburg, there are total of 180 game development studios, employing around 2,500 people [31]. Major studios such as InnoGames, Goodgame Studios, Gamigo and Bigpoint have been founded here.

Key Findings:

01 The German Games Industry Association representing the industry on a federal level, Germany also has 11 regional associations and game representatives that speak for the games industry on a regional level [32].

02 There are several regional networks specifically for the games industry, which are partly funded by the respective states. Among other things, they connect development studios and games companies in their region, and they also put them in touch with experts from both the game development and other industries. They often provide them with guidance and resources. They offer meetings, workshops and even office space.

03 Games funding is available from a few official institutions in Germany:

- German Games Funding - provided by the Federal Ministry of Transport and Digital Infrastructure (BMVI) with an annual funding budget of 50 million euros over future years [33].
- EU's MEDIA funding programme.

04 Some key aspects of Hamburg's game initiatives:

- **Gamecity Hamburg:** The funding supports developers and game studios to create a prototype for digital games with a total of EUR400,000 per year [40]. Since 2020, a total of 31 game prototypes have been supported with the Prototype Funding. Gamecity Hamburg supports five game projects in the 2024 funding round as part of its Prototype Funding programmes [34].
- **Games Lift Incubator:** Games Lift enables indie teams to successfully develop and market their game projects by providing them with knowledge, resources, and a strong network. Up to five teams are supported per year. They receive a workshop program held by experienced industry professionals, funding of EUR15,000, individual mentoring, workspace for collaboration, and much more.
- **Games Transfer Funding:** The Games Transfer funding program is intended to enable game developers and independent game businesses from Hamburg to access national and international events where they can present their projects, acquire new business contacts, and close deals. Funding is granted for online as well as for offline events. The maximum total funding amount per applicant is EUR1,500 per calendar year [35].

In general, Germany is one of Europe's potential upcoming game development hubs. The following are some of the reasons as to why this is so:

Market Size and Growth

Germany's video game market is poised for significant growth, with projected revenues reaching approximately USD5.36 billion by 2024. This expansion is indicative of a dynamic sector characterized by a compound annual growth rate (CAGR) of 9.05% from 2024 to 2027, positioning Germany as one of the leading video games markets in Europe [36].

A major driver of this growth is the increasing popularity of online and mobile games. As smartphone usage continues to rise, mobile games has become a dominant segment, attracting a wide demographic of players. This accessibility enables casual gamers to engage with various titles, from simple puzzle games to complex role-playing games. According to a report from Newzoo, mobile games are projected to generate substantial revenues, contributing significantly to the overall market growth [37].

In addition to online and mobile games and eSports, immersive media technologies such as virtual reality (VR) and augmented reality (AR) are gaining traction in the German market. These technologies enhance the video games experience by offering new levels of interactivity and immersion. As more developers invest in creating VR and AR titles, the market is expected to attract new players and innovative projects, thereby driving further revenue growth [38].

Government initiatives aimed at supporting the digital economy also play a crucial role in fostering a conducive environment for growth. Programs designed to promote collaboration between game developers, provide funding for new projects, and support the infrastructure for eSports events contribute to a vibrant and innovative video games ecosystem in Germany. For instance, the German Federal Ministry for Economic Affairs has launched various initiatives to bolster the game development sector, encouraging creativity and entrepreneurship [39].

In summary, the combination of a growing online and mobile games sector, the rise of eSports, and advancements in immersive technologies, alongside supportive governmental policies, positions Germany's video game market for robust growth. As these trends continue to evolve, the outlook for the industry remains highly promising, making Germany a pivotal player on the global video games stage.

Regulatory Environment of Germany's Video Game Industry

The game development industry in Germany functions within a robust regulatory framework designed to ensure consumer protection, promote fair competition, and address societal concerns related to video games. This framework is particularly stringent concerning online gambling and gaming, reflecting the government's commitment to safeguarding players while fostering a competitive market.

One of the most significant developments in recent years has been the amendment of the State Treaty on Gambling, which took effect in July 2021. This legislative change established a legal framework for online gambling, including sports betting and online casinos. The new regulations aim to provide clarity and security for operators while addressing issues related to player protection and responsible gaming [40]. By licensing operators, the government can monitor activities and ensure compliance with legal standards, thereby enhancing consumer trust in the market.

In addition to online gambling regulations, the German regulatory environment also focuses on the broader gaming and video games industry, particularly in terms of content control and age ratings. The Federal Review Board for Media Harmful to Minors (BPjM) plays a crucial role in assessing game content to ensure it meets legal and cultural standards. Games that feature violence, gambling, or other sensitive topics are subject to rigorous scrutiny, and titles deemed unsuitable may face bans or require alterations before being allowed in the market [41].

Recent regulatory changes have also aimed to foster innovation and competitiveness in the game development sector. For instance, the German government has introduced funding programs to support independent game developers, allowing them to navigate the complexities of compliance while promoting creative freedom. These initiatives are designed to stimulate growth in the industry, helping developers overcome financial barriers associated with regulatory compliance [42].

Despite these advancements, challenges remain. Developers often face a complicated landscape when it comes to content rating and censorship, especially for games that test the boundaries of traditional gameplay mechanics. Balancing creativity with compliance can be a daunting task, particularly for smaller studios lacking the resources to manage regulatory hurdles [43].

Overall, while Germany's regulatory environment presents certain challenges, it also creates opportunities for operators to innovate and compete in a rapidly evolving market. The focus on consumer protection and responsible gaming is crucial in shaping a sustainable future for the industry, ensuring that it remains vibrant and appealing to a diverse audience.

Talent Development and Education

Germany is making significant strides in developing talent within its video game sector, with a strong emphasis on educational programs tailored to equip students with the skills needed for successful careers in game development, design, and digital arts. The country recognizes that a well-trained workforce is essential for sustaining growth in this dynamic industry.

Prominent educational institutions such as the University of Games in Berlin and the Cologne Game Lab are at the forefront of this initiative. These institutions offer specialized curricula designed to prepare students for various roles within the game development industry. The programs typically cover key areas, including game design, programming, 3D modelling, animation, and interactive storytelling, ensuring that graduates possess a comprehensive skill set [44]. Students engage in hands-on projects and collaborative assignments, which are crucial for applying theoretical knowledge in real-world scenarios.

Additionally, many of these programs emphasize the importance of interdisciplinary learning, combining elements from art, technology, and business. This holistic approach prepares students not just as developers but as well-rounded professionals capable of navigating the complexities of the game development industry [45].

To further bolster talent development, the German Federal Ministry for Economic Affairs and Energy has launched the "Game Initiative." This initiative focuses on promoting internships and apprenticeships within the game development sector, helping students and recent graduates gain practical experience while also establishing professional networks. By facilitating connections between educational institutions and industry players, the initiative aims to ensure a continuous supply of skilled professionals [46].

These internships are designed to give students exposure to the industry's demands and workflows, allowing them to apply their academic knowledge in practical settings. This experiential learning is invaluable, as it not only enhances students' resumes but also increases their employability upon graduation.

Events like Gamescom play a crucial role in enhancing talent development by providing platforms for networking and collaboration. As one of the largest video games conventions globally, Gamescom attracts thousands of industry professionals, including developers, publishers, and gamers. This event allows students and emerging developers to showcase their work, connect with potential employers, and participate in workshops and panels led by industry experts [47].

Moreover, such events facilitate discussions about emerging trends and technologies, keeping students informed about the latest developments in the game development landscape. Networking at Gamescom can lead to internship opportunities, mentorship relationships, and even job offers, making it an essential experience for aspiring game developers.

Germany's investment in talent development and education within the game development sector is multifaceted, involving collaboration between educational institutions, government initiatives, and industry events. This comprehensive approach not only equips students with the necessary skills but also fosters a vibrant ecosystem that supports innovation and growth in the video game market.

Industry Ecosystem

Games are a notable medium that integrates various components including language, text, sound, imagery, and interactivity to produce a unique experience. The game development industry includes game developers, publishers, educational institutions, service providers, and investors. The industry has undergone a transformation due to the blurring of traditional boundaries between developers and publishers, allowing small teams as well as larger studios to produce a diverse range of games. Publishers are currently developing games in-house with significant financial resources, facilitated by the emergence of online platforms and app stores that streamline game distribution.

Germany is esteemed for its proficiency in strategy games, management simulations, and point-and-click adventures, particularly excelling in the realms of online, browser, and mobile games. The German industry employs about 11,900 individuals in over 900 companies [48], providing job opportunities in game design, programming, graphics, and production. Educational programs customized for the game development industry are crucial for maintaining Germany's position in game development.

Game Development Studios

In Germany's game development frontier, a hotpot of various companies exists from indie developers to heavyweights of the industry. Because of the mix, the environment is dynamic and creative as well as collaborative.

Industry veterans like Ubisoft Blue Byte and Crytek have made their niche in the same market. Ubisoft Blue Byte which is situated in Düsseldorf is famous for such franchises like Anno or The Settlers. Frankfurt-based Crytek is known for its high-quality graphical capabilities and Crytek's Crysis title which enhanced the artistic game design and mechanics limit [49].

Other than these big firms, Germany has an increasing number of indie developers including YAGER and Daedalic Entertainment. YAGER based in Berlin has been in the limelight due to its interaction in storytelling and gameplay concepts in amazing titles like Spec Ops: The Line [49]. Famed for the Deponia game, Daedalic Entertainment has built a reputation for creating narrative-intensive games focusing on telling a story with characters in them. Such indie studios vasty impact the resilience of the industry by introducing different forms of modes and concepts of play [49].

Through their interaction, large publishers with small studios enable the creation of new ideas. For instance, most indie developers are assisted by larger studios in the production and marketing of games. This cross development of production can result in the creation of different projects that combine the best of both worlds and are able to offer something new in terms of gameplay and story development.

In addition, many such studios can even attend events such as Gamescom and promote their own works, learn from other developers, and establish collaborations with them. That's why such events are very important for the community, as they help to fortify links between members of the community and facilitate the flow of new ideas.

Countries like Germany who are well-structured to foster game development also have facilities like the German Games Fund that has been set up to support studios that are either starting up or have already been established. Funding such as this is very important as it will help clean up the environment and encourage creativity because there are new projects that will need funding in order to be realized.

Collaboration between studios and indie developers is the DNA of Germany's game development energy. Such a dynamic setting creates not only new ideas but also ensures the incorporation of different experiences into games.

Germany's position on the international video games market has improved owing to substantial technology and infrastructure investments. This includes investment in research and development, including, and specifically, for the further enhancement of virtual reality and augmented reality, which seems to be the future of game development. Furthermore, the country has also seen the launch of programs such as the German Games Fund that facilitates pushing out creative ideas and thus improving the growth prospects of the industry.

Gamescom and similar events are key in the development of the video games market. Gamescon brings together thousands of industry representatives, including gamers, developers, and publishing houses, which puts both opportunities and partners in front of thousands of people. It is an event that is vital for networking, partnering, and presenting fresh ideas, which is extremely helpful for fresh players in the field who are not yet well-known and need the exposure and networking.

From the perspective of developed institutions, Germany's game development's ecosystem also features educational institutions that train students for future specialists in game design and programming, and digital arts. Such educational orientation guarantees the constant emergence of qualified specialists to join the industry. Projects of cooperation between universities and the industry allow avoiding mismatch of graduates' qualification with the existing demand, which improves the ecosystem effectively.

Overall, Germany's game development ecosystem is characterized by a supportive environment that encourages growth and innovation. The interplay between established studios, technological investment, major events, and educational initiatives creates a fertile ground for the video game industry to flourish.

Global Recognition

Germany has emerged as a prominent player in the global video games industry, as local developers are increasingly acknowledged for their inventive projects. Successful titles like "Anno 1800" by Ubisoft Blue Byte and "The Settlers" showcase captivating narratives and immersive gameplay that attract both domestic and international audiences. According to Germany Trade & Invest (GTAI), foreign investors have shown a growing interest in investing in German game companies in recent years.

For example, the most recent investor in 2023 is known as Nuclear. Another indicator of positive growth in the esports industry is apparent in ESL, with significant investments being made in recent years. The government's efforts to foster international relationships, such as partnering with prominent video games conventions and endorsing esports events, have bolstered Germany's position within the worldwide video games community. The video games industry in Germany is thriving, with an annual funding of over 70 million euros provided by the central government, supplemented by additional funding at the regional level from state authorities.[50]

Funding opportunities for game developers are available in multiple regions, such as North Rhine-Westphalia, Berlin, Munich, and other areas. In contrast to other European cities such as Paris or London, the German game development industry is dispersed among various cities, including Hamburg, Cologne, Frankfurt, Bavaria, and Berlin, leading to a varied and extensive sector. [50]

Each region within Germany has its own unique focus, such as e-sports in Schleswig-Holstein, indie studios in Bavaria, and experimental art events in Berlin. The competition between these hubs provides developers with a dynamic environment for choosing the best location to establish their company.

For example, Gamescom, the world's largest video games event, takes place in Cologne, while events like a maze are hosted in Berlin. The diversity and competition present in the German game development industry offer developers the chance to pinpoint the most favorable conditions for business expansion [50].

Growing Recognition for Local Developers

The game development industry in the United Kingdom and Germany has demonstrated notable expansion in the last decade, with game studios in London and German game studios exerting substantial influence on the industry. Both countries have a notable history in game development, producing renowned titles and companies [51].

London has established itself as a centre for creativity in game development, drawing in highly skilled professionals and creating innovative games with international appeal. The city is host to accomplished studios such as Rocksteady Studios and Creative Assembly, renowned for their popular game series [51].

German game studios are renowned for their emphasis on top-tier engineering and authentic game mechanics. Companies such as Crytek and Piranha Bytes have created successful video games that demonstrate Germany's technical capabilities [51]. Both regions are recognized for their innovation and adoption of advanced technologies. Game studios in London are currently delving into the realms of virtual reality and augmented reality, whereas studios in Germany are concentrating on achieving high-performance graphics and implementing realistic physics [51]. Collaborations between studios in the UK and Germany have resulted in the development of globally appealing games that combine creative strengths with technical expertise.

Both nations also possess a thriving independent game development community, developing original titles that appeal to a global audience [51]. The governments of the United Kingdom and Germany have demonstrated their backing for their respective game development industries via tax incentives, financial support, and educational initiatives.

The game development industry in both nations plays a significant role in their economies by generating employment opportunities and attracting global talent [51]. In conclusion, game studios in London and German game studios are significant contributors to the global game development industry, setting the standard in innovation, creativity, and technical proficiency. With their collective capabilities, these regions are influencing the future of video games at a worldwide level [51].

2. The Middle East Game Development Ecosystem.

Market Size and Growth

The game development sector in the Kingdom of Saudi Arabia has been steadily rising over the last few years, driven by increasing mobile ownership, a young population, and growing interest in video game content. This growth is attributed to favourable government policies, a burgeoning eSports industry, and significant investments in game development assets. As the largest and most influential market in the Middle Eastern region, Saudi Arabia presents numerous opportunities for investors and game developers to expand their studios and grow their investments.

In 2023, the Saudi Arabian video games market was valued at approximately USD1.3 billion, with expectations to reach USD2.5 billion by 2025 [58]. This growth can be credited to several factors, including the general increase in internet access, the rising availability of mobile devices, and the government's support of the ICT and entertainment industries under Vision 2030. The Saudi video games market is projected to generate approximately USD 998.20 million in 2024, with a compound annual growth rate (CAGR) of 8.53% over the next three years [59].

Key growth factors include demographics, mobile games, eSports, government incentives, and cultural acceptance. Approximately 70% of the Saudi population is under the age of thirty, and this youthful demographic is more active in video games than ever before, making Saudi Arabia one of the fastest-growing video game markets in the world [9].

Regulatory Environment

The game development industry in the Kingdom of Saudi Arabia operates within a regulatory framework that balances growth with cultural sensitivities and content restrictions. Initiatives have been launched to create a competitive market and position Saudi Arabia as a global hub for video games and eSports by 2030.

Through its regulatory efforts in Vision 2030, the Kingdom is changing to support and grow this sector while maintaining compliance with cultural and legal standards. These regulations are designed to ensure that video games adhere to societal norms and address security concerns.

Notably, the Saudi Arabian General Commission for Audiovisual Media (GCAM) acts as the primary regulator of media, including video games. It monitors game content to ensure compliance with cultural and legal standards [61]. All game titles must undergo censorship to filter out content deemed unsuitable, such as violence, gambling, and themes considered incompatible with Islamic values. This process can impact the speed at which new games enter the market [62]. No company may operate within the video game sector without obtaining the necessary licenses from relevant authorities, including GCAM. This applies to both local and foreign game developers wishing to publish games in the Saudi market [63].

Recently, the Saudi government has demonstrated its intent to create a more conducive environment for game development. For instance, in 2023, it announced plans to streamline the process of acquiring licenses for game developers and improve cooperation with international developers [64]. Additionally, the government has begun offering grants to local game development studios to encourage the growth of local talent.

However, challenges remain within this domain. One common issue faced by game developers is the content review process, which influences the release of intellectual property (IP). The regulatory environment can also be challenging, especially for foreign investors unfamiliar with local laws [65].

In conclusion, the legal landscape for the video game industry in Saudi Arabia is complex and evolving. The government's approach seeks to liberalize the industry while safeguarding cultural values. The ongoing interaction between regulatory bodies and industry stakeholders will be crucial in nurturing a prosperous video game sector.

Talent and Education

With its high investment in developing talent in the creative and technology sectors, Saudi Arabia is continuing to develop a more comprehensive range of educational offerings in game development-related fields such as computer science, digital media, and game development.

The King Abdullah Scholarship Program, complemented by the partnerships such as with Prince Mohammad bin Salman College (MBSC). It trains the next generation of game developers [66]. Further, Mohammed bin Salman Foundation (MiSK), founded by Crown Prince Mohammed bin Salman, has supported a host of digital media initiatives, most of them aligned to developing games.

The field of study and practice related to game design and digital arts are on a growing basis, including the adoption of various academic programs for educational institutions to help build the skilled workforce in the industry. Thus, the Kingdom of Saudi Arabia is encouraging the study of game design and development at prestigious institutions in North America and Europe, under its King Abdullah Scholarship Program, with expectations of returnees enriching the local industry.

Saudi Electronic University introduces the students in the course for the specializations of digital media and computer science to the indispensable game development skills: programming, design, and interactive media. Prince Mohammad bin Salman College of Business and Entrepreneurship, in cooperation with Manga Productions and MiSK, nurtures gamers' creativity and entrepreneurship, together with media production.

Moreover, the country supports tech start-ups with incubators and accelerators such as BADIR that afford consultancy, finance, and networking opportunities to businesses in the game development sector. The government and private sector introduce workshops, hackathons, and competitions on game development. Events such as the Digital Games Conference have become annual affairs in Saudi Arabia, gathering developers around and encouraging collaboration across the industry.

Industry Ecosystem:

Benefiting from considerable investment in technology and infrastructure, Saudi Arabia is rapidly building a strong environment for the support of video games. On the path toward achieving its goal of becoming a world leader in the video game industry, the country is seeing more studios committed to game development and has begun hosting large eSports events [67].

The Saudi Arabian game development industry is an interactive ecosystem composed of various key players, including game developers, publishers, distributors, and gamers. This growing ecosystem is evolving quickly, driven by the country's heavy investment in digital entertainment as part of its bid to become a regional hub for video games.

At the core of this ecosystem are local studios creating games that are popular regionally and culturally sensitive. Several studios, such as MyTH Games and Falcon Shield, have emerged as key players in the industry. According to [68], these publishers play a vital role in bringing game titles to market through marketing, distribution, and sales, helping them reach both local and international audiences. As local studios grow and expand, collaborations with international companies are also increasing, giving these studios wider global exposure.

Distributors play a crucial role in delivering games to retailers and digital platforms, working closely with developers and publishers to ensure successful launches. Many Saudi gamers enjoy the convenience of purchasing games online through popular platforms like Steam and the Epic Games Store, as noted by Statista in 2023 [60].

Saudi Arabia's video game community is vibrant and expanding, driven by a youthful, tech-savvy population. Gamers actively participate in online games, eSports, and community events, while local conventions and tournaments provide opportunities for social interaction and competition [69].

Local governmental institutions, including GCAM, as well as sports and cultural organizations like SEF, oversee the market to ensure compliance with legal and cultural norms. Their supervision and endorsement of local developments are shaping the growth of the video game sector in the country [61][70].

Additionally, universities and training centres are offering degree programs in game design, development, and eSports management. These educational initiatives are crucial for nurturing homegrown talent and providing the skills needed to advance the sector [71].

In recent years, funding for the ecosystem surrounding the video game industry has significantly increased. The Saudi government has sought to attract international game developers while supporting local start-ups. For instance, through sponsorship, the Misk Foundation has partnered with international game companies to offer mentoring and training sessions for aspiring game designers [72].

However, like any emerging market, the Saudi video game ecosystem faces challenges, including the prevalence of talented foreign gamers and competition from more mature markets in other countries. Nevertheless, the continued support from the government and increased investment in education offer strong potential for growth. These challenges are expected to persist as the ecosystem evolves, but collaboration among stakeholders will be key to overcoming them [73].

Global Recognition

Saudi Arabia is gaining global recognition as a prominent contender in the video game and eSports industries. The government's Vision 2030 agenda directly contribute to the country's expansion in the video game industry, with large investments and partnership plans aimed at increasing Saudi Arabia's presence in the global market [9].

While Saudi Arabia has been a notable market for international games, the growth of homegrown game IP is still somewhat nascent. However, there are a few notable names making strides:

i. Falafel Games: This company is based in Saudi and has been developing Arabic-language games for Arabic speaking customers with a major interest in games that are being formatted for mobile devices. One of the most popular games is ***Strike of Nations***, highly popular regionally, while opening their doors to building games that appeal to the global market.

ii. Manga Productions: A subsidiary of the Mohammed bin Salman Foundation (MiSK), Manga Productions has participated in creating video games as well as animations. It has still brought forward the game, ***Woodcutter's Revenge***, a mobile game, having influences of Arabian folk tale and motif.

The Kingdom has successfully established itself as a premier destination for prestigious video game events and tournaments, attracting worldwide attention:

i. **Gamers8 Festival:** Launched in 2022, Gamers8 is one of the world's largest eSports events, featuring high stakes and top global competitive talent [74].

ii. **Collaboration with International Brands:** Saudi Arabia has partnered with internationally recognized video game companies such as ESL and DreamHack to host international-standard video game tournaments [75].

Strategic Investments Fueling Growth

The Saudi government and private sector are making significant investments that are fast-tracking the country's rise in the video game industry:

i. **Saudi Game Development Fund:** In line with Vision 2030's economic diversification goals, the fund is launching innovative projects and attracting international talent to the Kingdom [71].

ii. **Investing in International Studios:** Saudi Arabia has strategically invested in leading video game companies, including taking a stake in Activision Blizzard. These investments provide additional capital while promoting knowledge transfer and collaboration opportunities [76].

Rising Recognition for Local Developers

Saudi Arabian game developers are making their mark in the international video game arena with creative and culturally relevant projects:

i. **Cultural and Thematic Relevance:** Local developers are creating games that reflect Saudi culture, history, and mythology, resonating with both local and international audiences [77].

ii. **International Competitions:** Additionally, more Saudi developers are participating in international competitions and showcases, receiving awards and recognition for innovation in game design and storytelling techniques [78].

3. Benchmarking China's Position as a Leading Game Hub and Industry Leader.

Over the past ten years, China has really made its mark on the global game development industry. Thanks to its massive population and talented developers, the country's video games sector has seen rapid growth. In 2023, China pulled in USD44.6 billion in video games revenue, making up 24% of the global total and placing it just behind the U.S., which led with 25% market share and USD46.7 billion in total revenue [58]. China's phenomenal growth is not just driven by its huge local market but also by China's increasing influence on global video game trends, setting the pace for where the industry is heading.

China's rise in the game development world is fuelled by cutting-edge mobile technology, fast 5G networks, and efficient content delivery systems. The high-speed, low-latency capabilities of 5G have been a huge boost for cloud games and edge computing, driving advancements in technologies like AI, blockchain, AR, VR, and XR. *Tencent*, the world's largest video games company, has major stakes in top studios like *Riot Games, Epic Games,* and *Supercell,* underscoring China's significant impact on the global video games landscape. With global hits like *Genshin Impact* and *Honor of Kings,* alongside a booming e-sports scene, China continues to lead the way in creating innovative, high-quality games that resonate with players worldwide.

This study analyses China's leadership in the game development industry from multiple perspectives:

1 > **Market Size and Growth**
2 > **Government Policy and Support**
3 > **Talent and Education**
4 > **Industry Support Ecosystem**
5 > **AI and Immersive Media**

4. Major Findings from China Benchmarking.

Market size and growth

Mobile games now generate almost half of the total revenue in the global games industry, maintaining its position as the most popular platform for gamers worldwide [58]. China plays a major role in this market, contributing 24% of the global game revenue, with mobile games being the largest segment [60]. Tencent, with earnings of USD25.5 billion, ranks as the world's largest game development company [79]. With over 700 million players, advanced mobile technology, and solid government backing, China's game development industry and ecosystem is positioned for steady growth.

IPs like Tencent's *Honor of Kings* and miHoYo's *Genshin Impact* are hugely popular both within China and around the world, solidifying the country's position as a leader in mobile game innovator. Major esports events, such as League of Legends and Dota 2, also contributes to the growth of the market. Due to the constant advancement in technology and the government following through with its support for Artificial Intelligence (AI) especially, China's video game development industry remains vibrant, and expands its market share internationally.

Figure 33: *Content-cover by miHoYo*
(Image Credit - MiHoYo/HoYoverse, Genshin Impact - All Rights Reserved)

Government Policy and Support

China's government has risen the stakes for its video game market considerably, providing a host of incentives to promote development and go worldwide. They offer tax incumbent, subsidies and funds for local developers particularly on those trying to incorporate cultural factors within China games. Companies like Perfect World and Tencent have greatly benefited from these initiatives, creating popular games like *Swordsman Online* and *Honor of Kings,* which spotlight China's rich heritage [80]. This backing has fuelled the domestic market and helped China games make their mark internationally.

The government is also driving advancements in game technology, such as Cloud Games and Virtual Reality (VR), with major companies like Tencent and Huawei at the forefront. China's long-term strategy involves encouraging the global expansion of its games-related companies to promote Chinese culture, positioning the country as a leading force in video games and e-sports. The China government also provides incubators and funding programs to help local start-ups and e-sports teams. Additionally, China Universities has also started introducing game development related programs and technical training to develop future talent in game development and design.

Figure 34: *Major companies that drive advancements in cloud-based video games*

Talent and Education

Successful game development hubs thrive on a critical mass of skilled talents. In China's dynamic game development industry, there is a high demand for diverse technical skills, including game design, game technology, game art and game production.

Higher Education Institutes in China constantly works closely with game development studios to provide students with hands-on experience through internships and real-world projects, bridging the gap between academic learning and industry requirements.

These game development studios companies provide feedback on required skills and knowledge to encourage and build the talent development ecosystem in the country. Meanwhile, the government is fuelling the growth of the game development industry by investing in research, development, and educational programs focused on video games and digital arts. Meanwhile, the China Audio-Video and Digital Publishing Association (CADPA) is also at the forefront, offering essential resources and backing to help emerging talent thrive and make their mark.

Since 2021, more than 10,000 game development graduates have been produced annually catering to the industries' demand for skilled graduates. Through partnership, exports and collaborations, the game development industry in the country is also gaining a reputation in the international market in terms of trend and quality. Tencent and NetEase are two of the most ground-breaking companies in China that is instrumental in determining the current game development trends not only in China but also in the global stage.

Industry Ecosystem

Mobile games have emerged as the dominant force in China's game market, thanks to the widespread use of smartphones [58]). Millions of gamers now use their mobile devices as their primary gaming platforms. Major China companies like Huawei, Xiaomi, and Oppo are leading the charge, producing high-performance smartphones with advanced graphics and fast processors that enhance the gameplay experience. Backing by 5G networks, smartphones enhance the AR and VR experiences, offering faster data speeds and less lag for smoother, more responsive gameplay. With 5G, gameplay is smoother, downloads are quicker, and streaming quality is better, making real-time gameplay experiences more immersive and supporting complex multiplayer games. It drives the rapid growth of online and cloud games.

AI further enriches game experiences by powering features such as adaptive difficulty, intelligent NPC behaviour, and personalized content recommendations. AI algorithms running on smartphones offer smarter and more responsive game experiences. In addition to real time handling of challenging AI processes, 5G technology also boosts cloud AI, meaning that games can provide more live features and instantiation of a player's actions.

While that continues to be the case, blockchain is making a massive difference in gameplay by ensuring secure transactions while at the same time certifying ownership of in-game assets. It comprises such components as in-app currency and NFT (non-fungible tokens) in mobile games. With the availability of 5G, the blockchain transaction gets faster and easy thereby making the management of asset and other cryptocurrencies easier.

Figure 35: *Content-cover for games developed by Tencent (Image Credit - Tencent Games, Honor of Kings and Tencent Mobile International Limited, Player Unknown's Battlegrounds Mobile - All Rights Reserved)*

AI and Immersive Media

Many China game developers have already implemented AI to enhance the video games experience. With AI, studios can perform tasks such as creating interactive non-playable characters (NPCs), generating game content in real time, and personalizing games based on individual players' preferences. AI can assess how players engage with a game, adjust difficulty levels, accordingly, generate new levels or environments on the fly, and predict player preferences regarding the storyline. A great example is *Honor of Kings,* a multiplayer online battle arena (MOBA) game by Tencent that utilizes AI technology to better match teams based on players' skills, match experience, and expertise through performance outcome analysis. AI also plays a significant role in moderating content to prevent offensive communication in multiplayer chat functions. Another Tencent game, Peacekeeper Elite, uses AI to filter abusive language, detect cheating, and enhance matchmaking systems, ensuring a better overall player experience.

5. Strategic Insights: Key Takeaways and Future Directions.

Content Creation and Intellectual Property (IP)

In a strategic shift, China video game studios are increasingly developing their own IPs instead of relying on licensed foreign content. Successful IPs such as *Honor of Kings, Genshin Impact, Honkai: Star Rail, PUBG, Crossfire,* and *Dungeon Fighter Online* (DFO) have gained global recognition. The recent IP *Black Myth: Wukong* is renowned for its innovative gameplay and technology, rich cultural localization and narrative, and global appeal, marking a new era of independent development with international traction.

UNREAL ENGINE

Figure 36: *Recent IP Black Myth: Wukong is renowned for its innovative gameplay and technology using Unreal Engine (Image Credit - Game Science, Black Myth: Wukong - All Rights Reserved)*

Cultural Localization and Narrative

"Black Myth: Wukong brings the legendary Sun Wukong to life with cutting-edge game design, captivating both China players and international audiences who are fascinated by Chinese mythology.

Key Takeaways:

Southeast Asia (SEA) is well known for its rich cultural stories, folklore, and history. The use of myths and the incorporation of local traditions into games creates an interesting and unique experience for players. For instance, *Mobile Legends: Bang Bang,* a mobile IP by Indonesia's Moonton, features heroes from Southeast Asian countries, such as Malaysia's Badang, Indonesia's Gatotkaca, and the Philippines' Lapu-Lapu. SEA's diverse culture is a gold mine for creating new and exciting IPs for games. Developers could create new IPs by incorporating local folklore characters like Hang Tuah, Jentayu (a mythical bird), and Mahsuri into the narrative. Additionally, these games can blend mythical monsters and local festivities to appeal to both local and global audiences. This might explain why Mobile Legends: Bang Bang is so successful in Southeast Asia.

***Figure 37:** Example of characters design using cultural aspect by Southeast Asia (SEA) (Image Credit: Moonton - Mobile Legends: Bang Bang - All Rights Reserved)*

Global Appeal

Despite its deep roots in Chinese culture, *Black Myth: Wukong* has managed to attract players from all around the world. For game developers, there's a valuable lesson here. By focusing on creating high-quality games with engaging narratives, they can appeal to both local and international players. *Black Myth: Wukong* exemplifies how combining cultural elements with universal themes can capture a global audience. To gain international recognition, the next step is developing unique game intellectual property (IP).

Key Takeaways:

In the game development industry, a lack of new and interesting IP is one of the most evident problems. Investing in visual aspects, production quality, and narration is crucial to bringing something fresh to the table. Encouraging the creativity and capabilities of vertically integrated production teams to develop their own IP will assist in creating variety across different game genres. For example, *Ragnarok Online* integrates cultural elements and stunning visuals, providing players with a fresh experience. This demonstrates how a local developer can achieve global success and contribute something valuable to the global game development market.

Independent Development and Global Ambitions

Game Science, a China indie game studio, has gained considerable attention with its project *Black Myth: Wukong*. Starting from scratch, Game Science has generated significant interest as an indie studio due to its originality and high production value. The company's optimistic approach is reflected in the game, which is based on the famous Chinese novel *Journey to the West* and aims to modernize the game development industry by blending cultural narratives with advanced technologies.

Key Takeaways:

Innovation: Game Science's *Black Myth: Wukong* stands out for its rich details and imaginative storytelling, offering a fresh take on Chinese myths. This showcases how ambitious indie studios can achieve great things, with the potential for globalization even when focusing on niche markets.

Product Quality: Despite being a small studio, Game Science invested heavily in creating a well-received product. Immersive gameplay, stunning visuals, and intricate world designs have become the studio's hallmark, demonstrating that indie studios can compete in the global game development market.

Global Attention: The international interest in *Black Myth: Wukong* highlights the potential for indie studios in China to make a significant impact globally, positioning Game Science as a serious contender in the global game development scene.

Focus on Niche Markets: Like Game Science's focus on Chinese mythology, Southeast Asian studios can carve out meaningful niches by developing games that distinguish themselves through authentic cultural elements. Incorporating local myths, traditions, and cultural nuances into game narratives can attract both regional and international attention.

Focus on Quality: Southeast Asian developers need to produce games that reflect their culture while adhering to global standards in graphics, audio, and storytelling. Focusing on quality will help indie studios stand out in the global game development industry.

Explore Underrepresented Genres: There is potential for Southeast Asian studios to innovate by exploring new and underrepresented genres, offering unique games that fulfil market needs. This could include reimagining traditional board games or bringing fresh perspectives to popular genres.

Establish a Strong Brand: Creating a strong brand requires a combination of clear vision, strategic planning, and consistent execution. Core values might include creativity, inclusivity, or quality. A unique value proposition-such as distinct gameplay mechanics, storytelling, or art style-is essential for setting games apart.

Leverage Regional Strengths: Southeast Asia is famous for its diverse cultures, languages, and traditions. Studios can leverage these regional strengths to create niche games with international appeal, offering global players unique and culturally rich experiences.

Promoting Economic Benefits

The China's regulatory model also demonstrates the economic advantage of a good or a well-regulated game development sector. The strict management makes it possible to generate profitable income while bearing minimal social impacts. Hence this balance leads to sustainable growth within the industry itself and to the overall economy and society as well.

Key Takeaways:

Regions can give tax incentives to responsible game development operators meanwhile encourage the studios to assist in community development and social programs - or help to grow the talent ecosystem to encourage a sustainable talent pool. It will create a win-win situation in which economic growth is matched by social progress. By engendering a cooperative relationship between government and industry players, SEA can establish an ecosystem that fosters innovation while heeding social concerns.

Talent Development

Talent development is critical to sustaining industry growth. In China, the government and private sector have collaborated to establish specialized educational programs in game design, game programming, and game art. Universities such as the Beijing Film Academy offer tailored curricula, and companies like Tencent and NetEase work closely with these institutions to align educational outcomes with industry needs. This partnership allows students to gain practical experience through internships, preparing them for careers in game development.

Key Takeaways:

Companies in SEA can benefit greatly from tapping into diverse talent pools through international collaborations. A strong talent base is crucial for driving innovation and maintaining a competitive edge in the global game development industry. This can be achieved by promoting specialized curricula in schools and universities, offering vocational training, and fostering partnerships between educational institutions and companies. Additionally, soft skills such as teamwork, communication, and problem-solving are increasingly important, and educational programs should evolve to prepare graduates for collaborative roles in game development.

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