

VERTEX TECHNOLOGY ACQUISITION CORPORATION LTD

(Incorporated as an exempted company in the Cayman Islands)

(Company Registration No. 378671)

UPDATE ON THE PROPOSED BUSINESS COMBINATION OF VERTEX TECHNOLOGY ACQUISITION CORPORATION LTD WITH 17LIVE INC.

- INTERIM FINANCIAL INFORMATION ON THE TARGET GROUP

1. INTRODUCTION

The board of directors of Vertex Technology Acquisition Corporation Ltd refers to the announcement made on 2 October 2023 ("**First Announcement**") in relation to the Proposed Business Combination.

Unless otherwise defined in this announcement, all capitalised terms used in this announcement shall have the same meanings as set out in the First Announcement.

2. HISTORICAL INTERIM FINANCIAL INFORMATION OF THE TARGET GROUP

The information on the Target Group and the Vendor was provided by the Target Company and the Vendor. In respect of such information, the Company and the Directors have not independently verified the accuracy and correctness of the same and the Company's responsibility is limited to the proper extraction and reproduction herein in the context that the information is being disclosed in this announcement.

The Company understands that the Target Group had recently completed the preparation of their financial statements for the six-month period ended 30 June 2022. Further to the First Announcement where a summary of the consolidated financial statements of the Target Group for FY2020, FY2021 and FY2022 was provided, the Company wishes to provide an update on the Target Group's interim unaudited consolidated financial statements for the six-month period ended 30 June 2023 ("**1H FY2023**"). A comparison against that of the six-month period ended 30 June 2022 ("**1H FY2022**") and consolidated financial statements of FY2022 is shown in the table below. A report on the consolidated financial statements of the Target Group for 1H FY2023 will also be included in the Circular.

Despite a moderate decline in its revenue during 1H FY2023 resulting mainly from the normalisation and resumption of economic activities after the ease of the COVID-19 pandemic restrictions and its strategic shift to focus on profitability by targeting quality users over scale, the Target Group has demonstrated improvements in its margin and strong cash flow generating capabilities:

- (a) Gross profit margin improved from 32.7% in 1H FY2022 to 41.8% in 1H FY2023, which is primarily attributable to: (i) increasing contribution from its high-margin in-app game revenue, which is not subject to revenue sharing arrangements; (ii) a decrease in channel costs resulting from optimised payment methods; and (iii) a decrease in server and bandwidths costs resulting from improvement in operating efficiency.
- (b) Adjusted EBITDA increased from US\$4.3 million in 1H FY2022 to US\$15.8 million in 1H FY2023, which is primarily attributable to: (i) a decrease in selling expenses resulting from the

Target Group's strategic shift to return-driven marketing strategy; and (ii) a decrease in employee benefits expenses arising from a more streamlined staffing structure implemented by the Target Group as part of its cost optimisation initiatives.

- (c) Adjusted net profit increased to a profit of US\$9.4 million in 1H FY2023 from a loss of US\$4.0 million in 1H FY2022.
- (d) Strengthened capability in net cash flows from operating activities as demonstrated by a positive cash flow from operations of US\$9.4 million in 1H FY2023, primarily attributable to an increase in operating income and working capital in 1H FY2023 notwithstanding the one-off retrospective tax paid in Japan in 1H FY2023.

2.1. Results of Operations of the Target Group

(US\$ millions)	1H FY2023	1H FY2022	FY2022
Operating revenue	151.0	200.4	363.7
Gross profit	63.1	65.5	126.1
Operating income	13.0	1.1	10.1
Loss for the period / year	(118.2)	(42.0)	(51.0)
<i>Non-IFRS Financial Measures</i>			
Loss for the period / year	(118.2)	(42.0)	(51.0)
Add: Revaluation loss on financial liabilities ⁽¹⁾	127.6	38.0	55.9
Adjusted profit/(loss)	9.4	(4.0)	4.9
Operating income	13.0	1.1	10.1
Add: Depreciation	1.1	1.6	2.6
Add: Amortisation	1.3	1.1	2.3
EBITDA	15.4	3.8	15.0
Add: Share-based payments	0.4	0.5	0.8
Adjusted EBITDA	15.8	4.3	15.8

Note:

- (1) Refers to the revaluation loss on the financial liabilities at fair value through profit or loss (comprising preferred shares and warrants), which are not expected to recur after the Completion.

2.2. Financial Position of the Target Group

(US\$ millions)	30 June 2023	31 December 2022
Cash and cash equivalents	39.9	39.3
Total current assets	63.8	69.0
Total non-current assets	35.6	34.4
Total assets	99.3	103.4
Total current liabilities ⁽²⁾	61.4	284.6
Total non-current liabilities ⁽³⁾	340.2	2.0
Total liabilities	401.6	286.6
Total equity	(302.3)	(183.2)
Total liabilities and equity	99.3	103.4
Net current assets/(liabilities)	2.3	(215.6)

Note:

- (2) The current liabilities as at 31 December 2022 includes financial liabilities at fair value through profit or loss (comprising preference shares and warrants) of US\$211.1 million. In April 2023, the preference shareholders have agreed to extend the redemption date of the financial liabilities to 31 December 2025. As such, the financial liabilities relating to preference shares have been classified as non-current liabilities in the interim balance sheet as at 30 June 2023.
- (3) The non-current liabilities as at 30 June 2023 includes financial liabilities at fair value through profit or loss (comprising preference shares) of US\$337.7 million.

2.3. Cash Flows of the Target Group

(US\$ millions)	1H FY2023	1H FY2022	FY2022
Cash flows from/(used in) operations	9.4	(4.6)	3.5
Net cash flows from/(used in) operating activities	4.0	(16.1)	(10.5)
Net cash flows used in investing activities	(0.8)	(0.6)	(0.8)
Net cash flows used in financing activities	(0.8)	(2.6)	(4.2)

3. UPDATE TO RELATIVE FIGURE UNDER RULE 1006(b)

Pursuant to Rule 1015 of the Listing Manual, shareholders' approval, amongst others, must be obtained for a "very substantial acquisition" or "reverse takeover" as defined in Chapter 10 of the Listing Manual. Rule 1006 of the Listing Manual sets out the computations for relative figures, and where any of the relative figures is 100% or more, or if the transaction is one which will result in the change in control of a listed company, such a transaction is a "very substantial acquisition" or "reverse takeover".

The relative figures for the Proposed Business Combination using the bases of comparison set out in Rule 1006 of the Listing Manual are shown in the table below where the relative figure for Rule 1006(b) has been updated based on the 1H FY2023 net profits of the Target Company and the Company.

Rules	Bases	Relative Figures
Rule 1006(a)	Net asset value of the assets to be disposed of, compared with the Company's net asset value	Not applicable ⁽¹⁾
Rule 1006(b)	Net profits attributable to the Target Company, compared with the Company's net profits	(3,976%) ⁽²⁾
Rule 1006(c)	Aggregate value of the Purchase Consideration given for the Proposed Business Combination, compared with the Company's market capitalisation based on the total number of issued shares excluding treasury shares	467% ⁽³⁾
Rule 1006(d)	Number of equity securities issued by the Company as Purchase Consideration for the Proposed Business Combination, compared with the number of equity securities of the Company in issue	444% ⁽⁴⁾
Rule 1006(e)	Aggregate volume or amount of proved and probable reserves to be disposed of, compared with the aggregate of the Company's proved and probable reserves	Not applicable ⁽⁵⁾

Notes:

- (1) Rule 1006(a) of the Listing Manual is not applicable to an acquisition of assets.
- (2) Computed based on the Target Company's net loss before tax for 1H FY2023 of approximately US\$115.3 million and the Company's unaudited net profit before tax for 1H FY2023 of approximately US\$2.9 million (approximately S\$4.0 million based on exchange rate of US\$1.00 : S\$1.356).
- (3) Computed based on (i) the Purchase Consideration of approximately S\$922.9 million (equivalent to approximately US\$680.6 million), and (ii) the Company's market capitalisation of approximately S\$197.7 million (computed based on the Company's issued ordinary share capital of 41,606,000 shares and the volume weighted average price of the shares of S\$4.7517 on 29 September 2023, being the last full market day on which the Company's shares were traded prior to the date of the SPA). The Company does not have any treasury shares.
- (4) Based on 160,162,651 Consideration Shares and up to 24,408,000 Earnout Shares and the Company's issued ordinary share capital of 41,606,000 shares.
- (5) Rule 1006(e) of the Listing Manual is not applicable as the Company is not a mineral, oil and gas company.

Notwithstanding the negative relative figure computed under Rule 1006(b) of the Listing Manual, the relative figures computed under Rules 1006(c) and 1006(d) of the Mainboard Rules exceed 100%. Accordingly, the Proposed Business Combination constitutes a "very substantial acquisition" or "reverse takeover" pursuant to Chapter 10 of the Listing Manual. In addition, as the Vendor and/or the Vendor Shareholders (if so nominated by the Vendor) will hold a majority of the enlarged share capital of the Company upon Completion, a change in control of the Company will arise immediately upon Completion. Accordingly, the Proposed Business Combination is subject to, *inter alia*, the approval of the Shareholders at the EGM and the approval of the SGX-ST pursuant to Rule 1015 of the Listing Manual.

The Proposed Transactions (which includes the Proposed Business Combination) will be tabled for

Shareholders' approval at the EGM in the Circular to the dispatched to Shareholders of the Company in due course.

4. INDEPENDENT MARKET RESEARCH REPORT

The Target Company had commissioned Frost & Sullivan (S) Pte Ltd (the “**IMR Consultant**”) to conduct an independent study on the industry that the Target Group operates in. To this end, the Company will be including the report from the IMR Consultant titled “*Independent Market Research on the Media and Entertainment Industry with a Focus on the Interactive Video Streaming Platform, V-Liver, and Live Commerce Industries*” dated 23 October 2023 (the “**IMR Report**”) as an appendix to the Circular.

Please refer to [Annex A](#) of this announcement for a copy of the IMR Report.

5. INTERESTS OF DIRECTORS AND CONTROLLING SHAREHOLDERS

As at the date of this announcement, the Company's Non-Executive Chairman, Mr. Chua Kee Lock (a) has interests as a direct or indirect individual investor in GPs that manage the Vertex Funds, which are shareholders of the Target Company; and (b) is a member of the investment committees (“**ICs**”) formed by the fund managers appointed by the GPs which manage the Vertex Funds in his individual capacity. Mr. Chua's participation in the GPs and ICs of the Vertex Funds is in his individual capacity and not for and on behalf of the Sponsor Group. There are no representatives from the Sponsor Group in the GPs and ICs of the Vertex Funds. In addition, Mr. Chua has provided an undertaking to recuse himself from voting in his capacity as a member of the ICs in the Vertex Funds, in respect of any decision in relation to an initial business combination with a portfolio company that is under any of the Vertex Funds.

As at the date of this announcement, the Sponsor has invested in the Target Company through Vertex Legacy Continuation Fund Pte. Ltd., Vertex Ventures SEA Fund III Pte. Ltd. and Vertex Growth Fund Pte. Ltd.. The Sponsor is a wholly-owned indirect subsidiary of Temasek, being as at the date of this announcement, a Controlling Shareholder (as defined in the Listing Manual) of the Company. In addition, as at the date of this announcement, Temasek's indirect wholly-owned subsidiary, Pavilion Capital Holdings Pte. Ltd., which wholly-owns Pavilion Capital Fund Holdings Pte. Ltd. and which in turn wholly-owns Pav Investments Pte. Ltd., has also invested in the Target Company. As at the date of this announcement, the Target Company has issued existing warrants to Innoven Capital Singapore Pte. Ltd., which is an affiliate of Temasek. Each of the Sponsor, Vertex SPV, Pav Investments Pte. Ltd. and Innoven Capital Singapore Pte. Ltd. is an independently-managed Temasek portfolio company. Temasek is not involved in the business or operational decisions of these entities, including their decisions in relation to the Target Group and the Company.

Save as disclosed above, none of the Directors or Controlling Shareholders (as defined in the Listing Manual) of the Company has any interests, direct or indirect, in the Proposed Transactions.

6. RESPONSIBILITY STATEMENT

The Directors collectively and individually accept full responsibility for the accuracy of the information given in this announcement (save for the information on the Target Group in paragraph 2 above) and confirm after making all reasonable enquiries that to the best of their knowledge and belief, this announcement constitutes full and true disclosure of all material facts about the Proposed Transactions and the Company, and the Directors are not aware of any facts the omission of which would make any statement in this announcement misleading (save for the

information on the Target Group in paragraph 2 above). Where information in this announcement has been extracted from published or otherwise publicly available sources or obtained from a named source, the sole responsibility of the Directors has been to ensure that such information has been accurately and correctly extracted from those sources and/or reproduced in this announcement in its proper form and context.

7. CAUTION IN TRADING

Shareholders and potential investors are advised to exercise caution in trading their shares as there is no certainty or assurance as at the date of this announcement that the Proposed Transactions (including the Proposed Business Combination) will be completed. The Company will make the necessary announcements when there are further developments on the Proposed Transactions (including the Proposed Business Combination). Shareholders are advised to read this announcement and any further announcements by the Company carefully, and should consult their stockbrokers, bank managers, solicitors or other professional advisers if they have any doubt about the actions they should take.

BY ORDER OF THE BOARD
VERTEX TECHNOLOGY ACQUISITION CORPORATION LTD

Jiang Honghui
Executive Director and Chief Executive Officer

24 October 2023

Credit Suisse (Singapore) Limited and DBS Bank Ltd. were the joint issue managers for the Company's initial public offering (the "**Offering**"). Credit Suisse (Singapore) Limited, DBS Bank Ltd. and Morgan Stanley Asia (Singapore) Pte. were the joint global coordinators, joint bookrunners and joint underwriters for the Offering.

ANNEX A

STRICTLY PRIVATE AND CONFIDENTIAL

Independent Market Research on the Media and Entertainment Industry with a Focus on the Interactive Video Streaming Platform, V-Liver, and Live Commerce Industries

23rd October 2023

3G	: The 3rd generation of cellular network
4G	: The 4th generation of cellular network
5G	: The 5th generation of cellular network
ACG	: Animation, comics, and games
AI	: Artificial intelligence
APAC	: Asia-Pacific
ARPU	: Average revenue per-user
ARPPU	: Average revenue per-paying user
Asia/Asian	: Philippines, Singapore, Malaysia, Thailand, Indonesia, Japan, and Taiwan
AVOD	: Advertising-based video-on-demand
CAGR	: Compound annual growth rate
COVID-19	: Coronavirus disease 2019
DAU	: Daily active user
DLC	: Downloadable content
FLV	: Flash video format
GDP	: Gross domestic product
HEVC IP	: High-efficiency video coding intellectual property
ICT	: Information communication technology
IP	: Intellectual property
Livers	: Live streamer
MAU	: Monthly active user
Mbps	: Megabyte per-second
MENA	: Middle East and North Africa
OTT	: Over-the-top
PC	: Personal computer
PUGC	: Professionally curated user-generated content
QC	: Quality control
RPG	: Role-playing game
RTMP	: Real-time messaging protocol
SaaS	: Software-as-a-Service
SEA	: Philippines, Singapore, Malaysia, Thailand, and Indonesia
SMB	: Small and medium-sized business
SNS	: Social networking service
SVOD	: Subscription video-on-demand
TAM	: Total addressable market
TVOD	: Transactional video-on-demand
UGC	: User-generated content
UI	: User interface
USA	: United States of America
V-Liver/Vliver	: Virtual Idol
VOD	: Video-on-demand
Vtuber	: Virtual YouTuber
WebRTC	: Web real-time communication
YoY	: Year-on-year

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The market research process for this study has been undertaken through secondary/desktop research as well as primary research, which involves discussing the status of the industry with leading participants and experts. The research methodology used is the Expert Opinion Consensus Methodology.

Quantitative market information is subject to fluctuations due to possible changes in the business and industry climate. Frost & Sullivan's estimates and assumptions are based on varying levels of quantitative and qualitative analyses, including industry journals, company reports and information in the public domain.

Forecasts, estimates, predictions, and other forward-looking statements contained in this report are inherently uncertain because of changes in factors underlying their assumptions, or events or combinations of events that cannot be reasonably foreseen. Actual results and future events could differ materially from such forecasts, estimates, predictions, or such statements.

This study has been prepared for 17LIVE INC. ("the Company"). No part of this study may be otherwise given, lent, resold, or disclosed to non-customers without our written permission. Furthermore, no part may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without our permission.

Frost & Sullivan has prepared this study in an independent and objective manner, and it has taken adequate care to ensure its accuracy and completeness. We believe that this study presents a true and fair view of the industry within the limitations of, among others, secondary statistics and primary research, and it does not purport to be exhaustive. Our research has been conducted with an "overall industry" perspective, and it may not necessarily reflect the performance of individual companies in the industry. Frost & Sullivan shall not be liable for any loss suffered because of reliance on the information contained in this study. This study should also not be considered as a recommendation to buy or not to buy the shares of any company or companies as mentioned in it or otherwise.

Authorized Signatory

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1 MACROECONOMIC OVERVIEW FOR SELECTED COUNTRIES IN ASIA

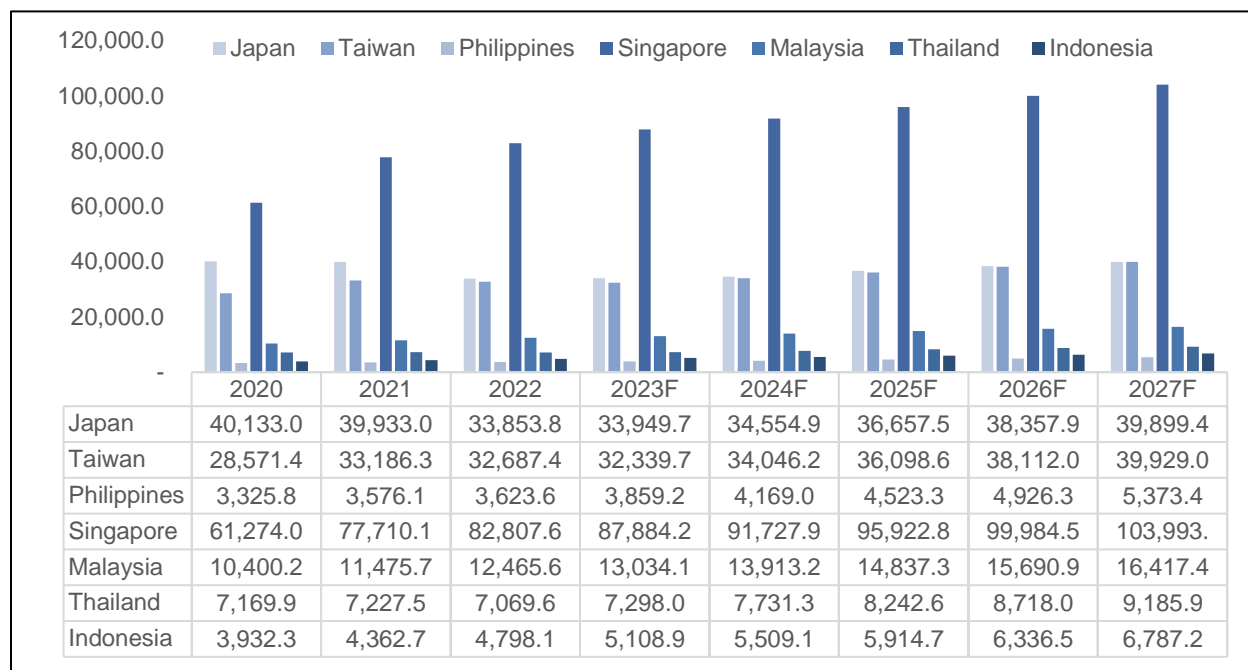
1.1 GROSS DOMESTIC PRODUCT (GDP) PER CAPITA

The **GDP** per capita for 5 selected countries in Southeast Asia (**SEA**) being Singapore Malaysia, Thailand, Philippines and Indonesia as well as Japan and Taiwan (collectively ‘**selected countries in Asia**’ or ‘**Asian**’) increased from USD 154,806.7 in 2020 to USD 177,305.7 in 2022, growing at a compound annual growth rate (**CAGR**) of 7.0% during the period, notwithstanding the 32-year plunge of the Japanese yen’s value against the US dollar. The opening up and growth of the other economies in the wake of the easing of COVID-19 restrictions largely offset the yen’s decreased value. Frost & Sullivan expects this GDP growth to moderate in the post-pandemic forecast period (2023-2027), recording a CAGR of 4.8% as consumer confidence improves in the wake of stabilized economics.

Of the Asian countries, Singapore had the highest GDP per capita at USD 82,807.6 in 2022, followed by Japan and Taiwan with a GDP per capita of USD 33,853.8 and USD 32,687.4, respectively. The GDP per capita in Indonesia, Malaysia, Thailand, and the Philippines ranged between USD 3,623.6 and USD 12,465.6 in 2022.

The following chart illustrates the Asian countries’ GDP per capita from 2020 to 2027.

Figure 1-1: GDP per Capita at Current Prices in Selected Countries in Asia, 2020–2027F



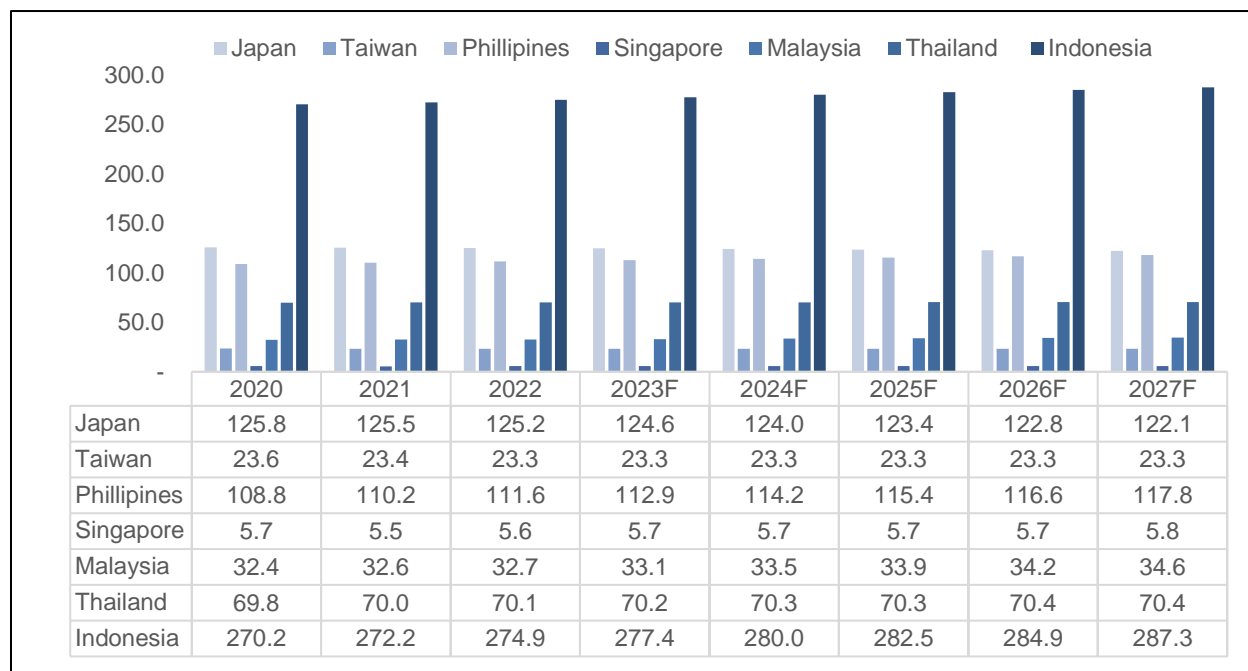
Source: IMF World Economic Outlook 2023, Compiled by Frost & Sullivan

1.2 DEMOGRAPHIC AND SOCIOECONOMIC TRENDS

1.2.1 Population and Age Group

The rapidly aging population in Asian countries coupled with declining fertility rates are posing significant challenges to the economies.

Figure 1-2: Total Population of Selected Countries in Asia in Millions, 2020–2027F



Source: World Bank, Compiled by Frost & Sullivan

This aging population has contributed to an overall shrinking population. Experts forecast Japan’s population, one of the oldest countries in the world with a median age of 48.6 years, is expected to decline during the forecast period. Its 2022 population reached 125.2 million people, with individuals under 20 years old making up approximately 11.8% of the entire population. This decrease in population size could limit the country’s economic growth because of increasing healthcare costs and the reduced availability of young people in the workforce. To circumvent this challenge, the government is encouraging the elderly to lead healthier lifestyles, increasing the age of retirement, and introducing incentives to help young couples in raising children.

Figure 1-3: Population by Age Group in Selected Countries in Asia, 2020-2027F

		Japan	Taiwan	Phillipines	Singapore	Malaysia	Thailand	Indonesia
2020	0-14	11.9%	12.8%	30.9%	12.2%	23.3%	16.1%	25.7%
	15-64	58.5%	72.0%	63.8%	74.7%	69.7%	70.1%	67.6%
	65+	29.6%	15.2%	5.2%	13.2%	7.0%	13.9%	6.7%
2021	0-14	11.8%	12.7%	30.6%	12.0%	23.0%	15.8%	25.5%
	15-64	58.4%	71.4%	64.0%	73.9%	69.8%	69.7%	67.7%
	65+	29.8%	16.0%	5.3%	14.1%	7.3%	14.5%	6.8%
2022	0-14	11.6%	12.6%	30.3%	11.8%	22.7%	15.5%	25.2%
	15-64	58.5%	70.7%	64.2%	73.0%	69.8%	69.3%	67.9%
	65+	29.9%	16.7%	5.4%	15.1%	7.5%	15.2%	6.9%
2023	0-14	11.5%	12.6%	30.0%	11.7%	22.4%	15.2%	24.9%
	15-64	58.5%	70.0%	64.4%	72.2%	69.8%	68.8%	68.1%
	65+	30.1%	17.5%	5.6%	16.1%	7.8%	16.0%	7.0%
2024	0-14	11.3%	12.5%	29.7%	11.6%	22.2%	14.9%	24.5%
	15-64	58.5%	69.3%	64.5%	71.3%	69.7%	68.3%	68.2%
	65+	30.2%	18.2%	5.8%	17.1%	8.1%	16.7%	7.3%
2025	0-14	11.2%	12.5%	29.4%	11.5%	22.0%	14.6%	24.2%
	15-64	58.4%	68.6%	64.7%	70.4%	69.6%	67.9%	68.3%
	65+	30.4%	18.9%	6.0%	18.1%	8.4%	17.5%	7.5%
2026	0-14	11.1%	12.5%	29.1%	11.4%	21.8%	14.3%	23.8%
	15-64	58.4%	67.9%	64.8%	69.5%	69.5%	67.4%	68.4%
	65+	30.5%	19.7%	6.1%	19.1%	8.7%	18.3%	7.8%
2027	0-14	11.0%	12.4%	28.8%	11.3%	21.6%	14.0%	23.5%
	15-64	58.4%	67.2%	64.9%	68.6%	69.5%	66.9%	68.5%
	65+	30.7%	20.5%	6.3%	20.1%	9.0%	19.0%	8.1%

Source: UN World Population Prospect; World Bank; Compiled by Frost & Sullivan

Despite having a prominent forward looking technology industry, especially in semiconductor manufacturing, seniors still dominate Taiwan’s population. With its fertility rate declining and life expectancy rate improving, Taiwan is now facing an aging population with a median age of 41.3 years old, and population numbers have been shrinking since 2020.

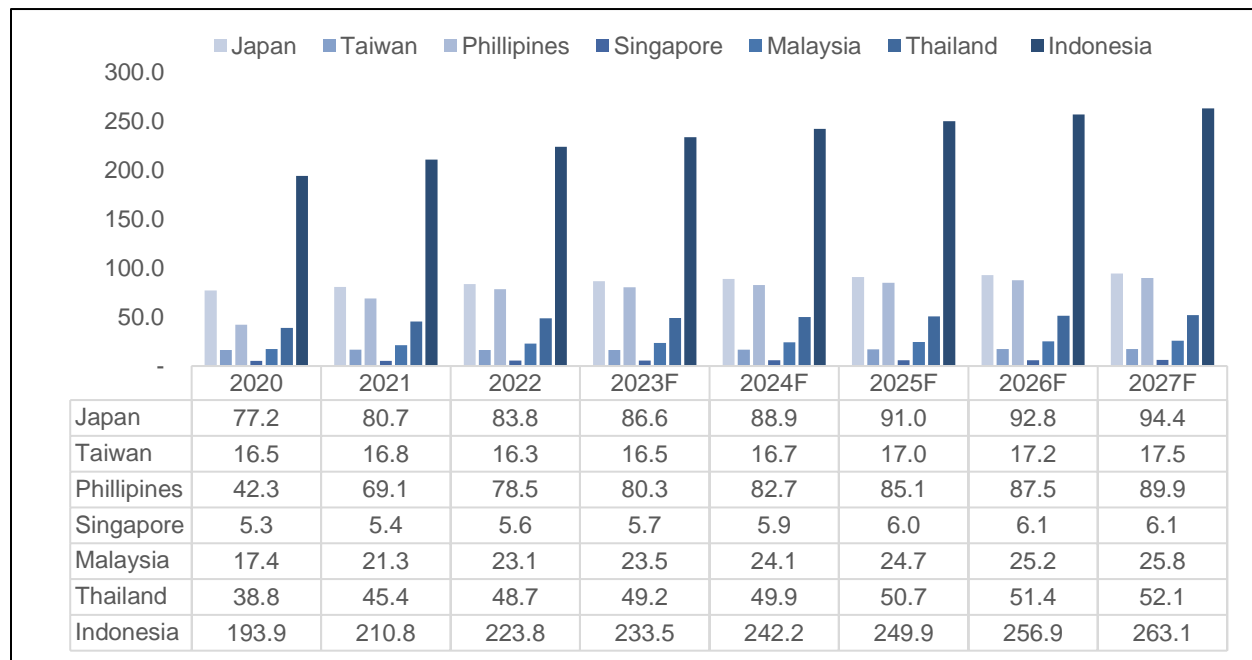
Indonesia, the fourth-most populated country in the world and the most populous country in SEA will have an estimated population of 282.5 million by 2025, a CAGR increase of 1.0% over 2023 to 2027. Although Indonesia’s total fertility rate has been declining, the United Nations expects the country to have a relatively young population in upcoming years, as its median age in 2020 was an estimated 29.7 years and will increase moderately to 31.0 years in 2025.

1.3 DIGITAL INDICATORS

1.3.1 Smartphone Users

Smartphone penetration in Asian countries has driven economic development and reflects the growing standard of living among the Asian diasporas. Smartphones elevate living standards by providing easy access to information, services, and online education. They enhance communication, promote economic empowerment through digital platforms, improve productivity with various tools, and offer essential services in emerging markets, all contributing to a better quality of life. All Asian countries registered an increase in smartphone usage as the device became an integral part of life, especially in the wake of the COVID-19 pandemic, during which more people conducted economic transactions online. The following chart depicts the number of smartphone users in the Asian countries from 2020 until the end of our forecast period in 2027.

Figure 1-4: Number of Smartphone Users in Millions in Selected Countries in Asia, 2020-2027F



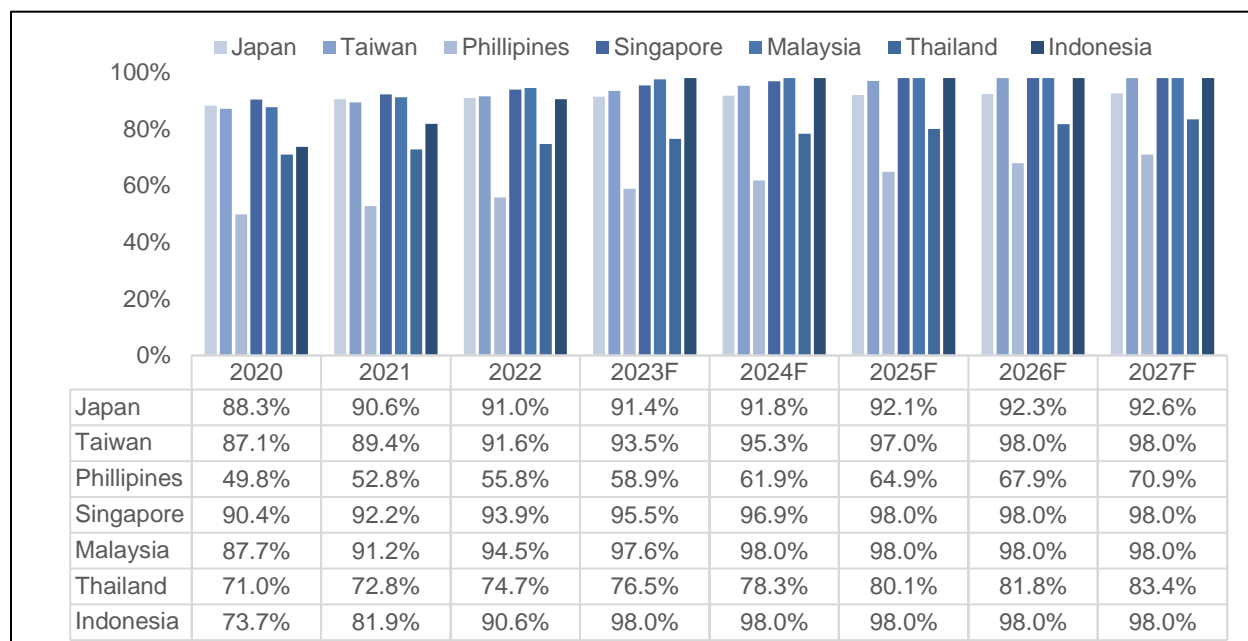
Source: Statista¹; Interviews with selected industry participants; Frost & Sullivan

¹ Japan: Statista. (October 5, 2023). Number of smartphone users in Japan from 2019 to 2023 with a forecast until 2028 (in millions) [Graph]. In Statista. Retrieved October 19, 2023, from [Japan: number of smartphone users 2028 | Statista](#); Taiwan: Statista. (August 14, 2023). Number of smartphone users in Taiwan 2017-2028 (in millions) [Graph]. In Statista. Retrieved October 19, 2023, from [Taiwan: number of smartphone users 2017-2028 | Statista](#); Phil: Statista. (September 26, 2023). Number of smartphone users in the Philippines from 2019 to 2028 (in millions) [Graph]. In Statista. Retrieved October 19, 2023, from [Smartphone users in the Philippines 2028 | Statista](#); Singapore: Statista. (September 12, 2023). Number of smartphone users in Singapore from 2019 to 2028 (in millions) [Graph]. In Statista. Retrieved October 19, 2023, from [Singapore: smartphone users 2028 | Statista](#); Malaysia: Statista. (August 14, 2023). Number of smartphone users in Malaysia from 2013 to 2028 (in millions) [Graph]. In Statista. Retrieved October 19, 2023, from [Malaysia: number of smartphone users 2013-2028 | Statista](#); Thailand: Statista. (August 14, 2023). Number of smartphone users in Thailand from 2013 to 2028 (in millions) [Graph]. In Statista. Retrieved October 19, 2023, from [Thailand: number of smartphone users 2013-2028 | Statista](#); Indonesia: Statista. (September 19, 2022). Number of smartphone users in Indonesia from 2018 to 2028 (in millions) [Graph]. In Statista. Retrieved October 19, 2023, from [Indonesia: smartphone users 2028 | Statista](#).

1.3.2 Internet Users and Penetration Rate

Internet penetration in the Asian countries has been growing on account of rising demand and associated efforts by the respective governments in instituting infrastructure projects to provide their populations with internet access. The Philippines continues to have the lowest penetration, while Malaysia, Japan, Singapore, and Taiwan have penetration rates of more than 90%. In 2021, Japan spent an estimated record USD 2.4 billion on information and communications technology (ICT) and internet infrastructure. The focus on digitization and improving the internet economy has resulted in a robust internet ecosystem with high-speed connectivity. Ookla² reported Japan’s median fixed internet connection speed at 150.3 megabits per second (mbps). According to industry sources, the country had an estimated total of 112.8 million internet users in 2022. As of 2023, Taiwan had 22.3 million internet users, with an internet penetration rate of 93.5% and with a median fixed internet connection at 124.4 mbps.³

Figure 1-5: Internet Penetration Rate in Selected Countries in Asia, 2020-2027F⁴



Source: Statista⁵; Interviews with selected industry participants; Frost & Sullivan

² Ookla, the company behind Speedtest, is the global leader in fixed broadband and mobile network testing applications, data, and analysis. (<https://www.speedtest.net/about>)

³ Kemp, Simon. Digital 2023: Taiwan. [Digital 2023: Taiwan — DataReportal – Global Digital Insights](https://www.digitalinsights.io/reports/digital-2023-taiwan). 13 February 2023. Date accessed: 13 July 2023.

⁴ Data for internet and smart phone users and penetration rates are averages and is contingent on the time of capture of this data which may affect the consistency of such metrics across countries.

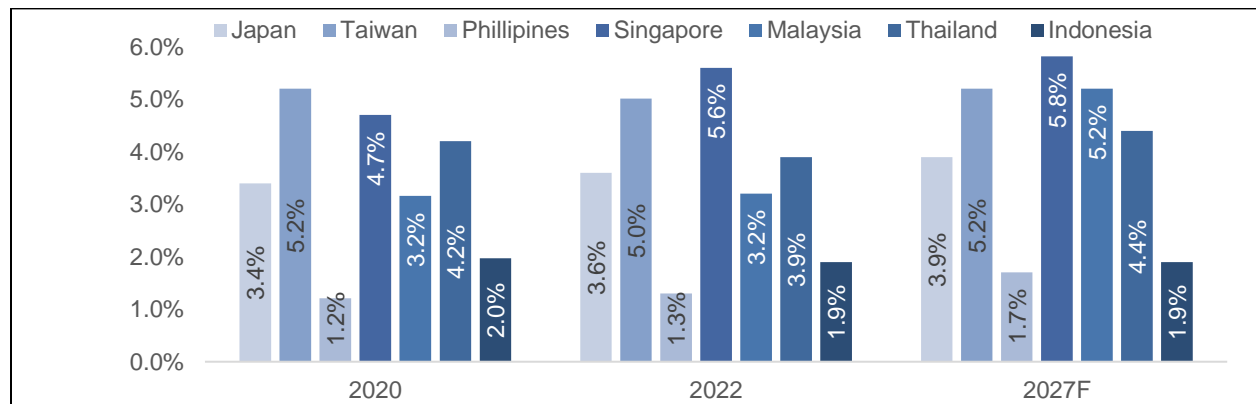
⁵ Internet - Japan. (n.d.). Retrieved October 23, 2023, from <https://www.statista.com/outlook/co/digital-connectivity-indicators/internet/japan>; Internet - Taiwan. (n.d.). Retrieved October 23, 2023, from <https://www.statista.com/outlook/co/digital-connectivity-indicators/internet/taiwan>; Statista. (July 25, 2023). Internet penetration rate in the Philippines from 2019 to 2028 [Graph]. In Statista. Retrieved October 23, 2023, from <https://www.statista.com/statistics/975072/internet-penetration-rate-in-the-philippines/>

1.4 TRENDS ON PERSONAL ENTERTAINMENT SPEND AS A PROPORTION OF TOTAL INCOME

As each country enters the recovery phase following the pandemic, most nations are readjusting and concentrating on returning their economies to pre-pandemic states.

On average, all countries in Asia spent less than 5% of their total income on personal entertainment during the pandemic, with the lowest spenders among them being Indonesia and the Philippines, which spent less than 2% of their income on personal entertainment. As the effects of the pandemic declined and the economies returned to normalcy, discretionary spending improved, and Asian economies saw an uptick in personal entertainment expenses. For instance, Taiwan, one of the nations least affected by the pandemic, recorded among the lowest decline (6% in 2020 versus Malaysia’s nearly 50% decline) in absolute entertainment spending among the Asian countries. Asians continue to spend the most on shopping, and movies/entertainment have grown in popularity, especially after the pandemic, during which all outdoor entertainment centers closed.

Figure 1-6: Estimated Personal Entertainment Spend as a Proportion of Total Income in Selected Countries in Asia, 2020, 2022 and 2027F



Source: Industry sources; Frost & Sullivan

1.5 OUTLOOK—IMPACT OF COVID-19 AND SHIFT IN CONSUMER ENTERTAINMENT

The COVID-19 pandemic significantly impacted the interactive video streaming industry and shifted consumer entertainment preferences, including causing a surge in viewership demand for online streaming platforms. With people staying at home because of lockdowns and social distancing measures, more people consumed digital content, which accelerated the shift from traditional television viewing to online streaming. Factors such as convenience, the availability of a wide range of content, and the ability to watch on demand have driven this shift. Furthermore, the entertainment industry adapted to the shift in consumer behavior by embracing live streaming and online platforms. Virtual concerts and live events and performances have become popular, allowing artists and entertainers to connect with their audiences remotely. Platforms such as YouTube Live, 17LIVE, and TikTok are live streaming more events and performances. The interactive video streaming industry has experienced an emergence of new platforms and technologies catering to different forms of content, including gaming, podcasts, and educational content. This diversification provides consumers with a wide array of options to choose from based on their interests and preferences.

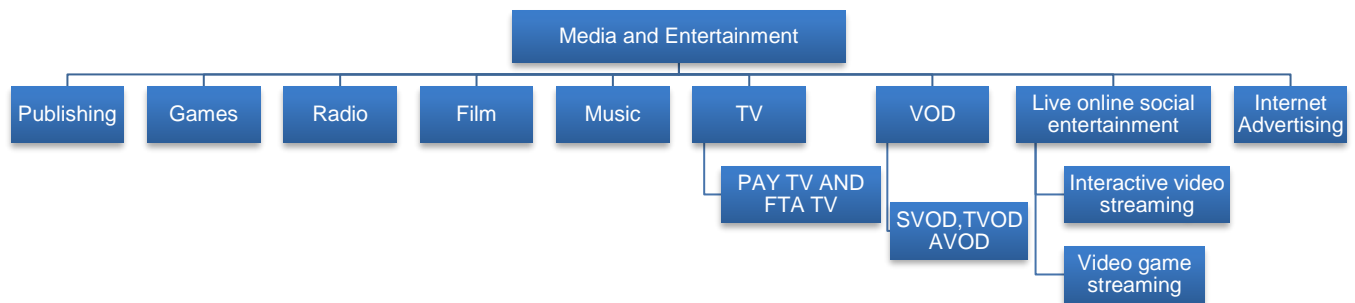
Internet - Singapore. (n.d.). Retrieved October 23, 2023, from <https://www.statista.com/outlook/co/digital-connectivity-indicators/internet/singapore>; Statista. (July 25, 2023). Internet penetration rate in Malaysia 2013-2028 [Graph]. In Statista. Retrieved October 23, 2023, from <https://www.statista.com/statistics/975058/internet-penetration-rate-in-malaysia/>; Statista. (July 25, 2023). Internet penetration rate in Thailand 2019-2028 [Graph]. In Statista. Retrieved October 23, 2023, from <https://www.statista.com/statistics/975067/internet-penetration-rate-in-thailand/>; <https://www.statista.com/outlook/co/digital-connectivity-indicators/internet/indonesia#internet-penetration>

Frost & Sullivan believes that, while the initial surge in growth that the industry experienced during the pandemic has receded, many of the shifts in consumer behavior and preferences are likely to continue in the forecast period.

2 OVERVIEW OF ASIA MEDIA AND ENTERTAINMENT INDUSTRY

2.1 INDUSTRY DEFINITION AND SEGMENTATION

Figure 2-1: Media and Entertainment Industry Definitions and Segmentation, Asia⁶



Source: Frost & Sullivan

The following provides the definition and scope of each segment (and related sub-segments) of the media and entertainment industry:

- a) **Publishing:** The publishing segment comprises books (including books targeting the general consumer, educational publications, and professional books), magazines (including both consumer magazines and trade magazines) and newspapers (including daily, weekly, and monthly newspapers).
- b) **Games:** The gaming segment covers mobile, personal computer (PC), and console games, including physical discs and digital versions of the games, additional downloadable content, gaming subscription services, and in-app purchases. The segment excludes gaming hardware or devices themselves (i.e., mobile devices, PCs, and game consoles).
- c) **Radio:** The radio segment includes consumer subscriptions to radio services and advertisements by radio stations and networks.
- d) **Film:** The film segment comprises box office sales and advertisements in cinemas. However, it does not include digital film sales, advertisements on digital film media, merchandise related to films, or concessions.
- e) **Music:** The music segment comprises physical music discs, digital music, and live music but does not include merchandise or concessions related to music artists or other musical acts.

⁶ Asia, for the purpose of this IMR, includes all the countries in Asia with the exception of China, Hong Kong, Afghanistan, North Korea, Macau, Yemen, and the European and African Nations of Russia, Turkey, Egypt, and Azerbaijan

- f) **TV (Pay TV and Free to Air (FTA) TV):** The pay TV segment comprises basic and premium TV channel paid subscriptions, including broadcast, network, sports, and/or professional entertainment content, and the advertisements these channels show. The FTA TV segment refers to video content broadcasted on FTA television networks, including advertisements.
- g) **Video on Demand (VOD):** This segment refers to an interactive television technology that enables users to watch long-form video content on demand, unlike video content that users consume through traditional live linear programming. VOD services consists of 3 categories:
- o **Subscription VOD (SVOD):** This paid model requires consumers to pay a monthly fee to access the broad catalog of movies and TV series offerings.
 - o **Transactional VOD (TVOD):** Also known as pay-per-view, consumers pay for the video(s) they select.
 - o **Advertising-based VOD (AVOD):** This free model allows consumers to view video content without paying in exchange for watching advertisements.
- h) **Live Online Social Entertainment:** This segment refers to platforms that allow users to broadcast live video content through the internet and is not under VOD services. Under this segment, viewers can watch the content via their own endpoint devices. Some differentiators set this segment apart from VOD, such as through the inclusion of more social elements and diversified monetization methods. This segment does not include platforms such as Facebook Live and Instagram Live, as their genesis is in social networking platforms, and the live feature is only 1 among the many features that are present on the main platforms. 17LIVE INC. primarily operates in this segment.

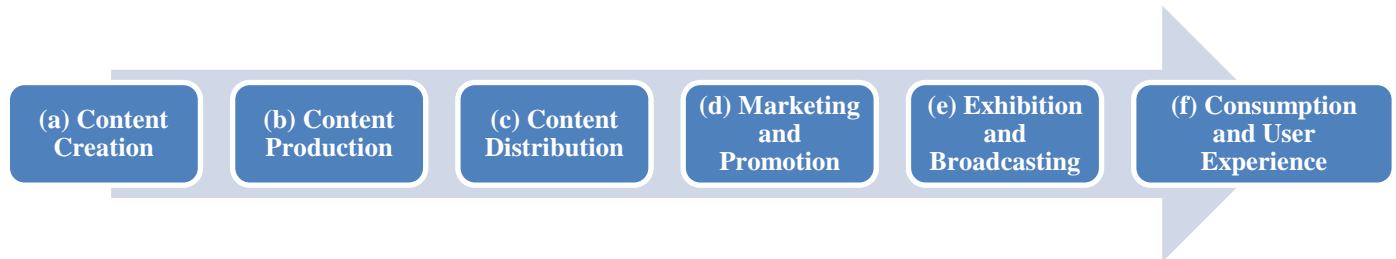
The live online social entertainment can be sub-divided into 2 categories:

- o **Interactive Video Streaming:** This sub-segment consists of companies that started out offering live interactive video streaming as their main business, and it also features a virtual gifting business model, in which viewers buy virtual gifts online and send them to their preferred streamer, which the streamer can then cash out at a predetermined rate. Companies operating in this space include 17Live, Lang Live, Bigo Live, Showroom, and Pochocha.
 - o **Video Game Streaming:** This sub-segment consists of companies that focus on streaming video game content. Unlike interactive video streaming, which emphasizes the streamers and their interaction with their audience, the entertainment content of video game streaming emphasizes the gameplay elements, and to a smaller extent the reactions of the videogame streamer to the game they are playing. Notable platforms include Twitch, Caffeine, and Mobcrush.
- i) **Internet Advertising:** The Internet advertising segment comprises advertisements on online platforms, including paid search, display, and classified advertisements

2.2 VALUE CHAIN AND ECOSYSTEM ANALYSIS

The ensuing information explains the 6 steps that make up the media and entertainment industry value chain and the typical business models they follow:

Figure 2-2:- Media and Entertainment Industry Value Chain and Ecosystem Analysis, Asia



Source: Frost & Sullivan

- a) Content Creation:** Content creators, such as writers, authors, screenwriters, musicians, filmmakers, and artists generate ideas, develop concepts, and create original content, such as movies, TV shows, music albums, books, video games, and news articles.
- b) Content Production:** Once the creators develop their content, it moves into the production phase, in which production companies, studios, and recording labels engage in activities such as filming, recording, editing, special effects, sound design, and artwork creation.
- c) Content Distribution:** After the production phase, publishers and distributors make the content available to the target audience. Distribution channels vary depending on the type of media and include cinemas, DVD/Blu-ray sales, CD sales, and VOD and digital platforms.
- d) Marketing and Promotion:** When the content is available for distribution, marketing agencies, publicists, and advertising companies create awareness and generate interest among the target audience using many avenues, such as ad campaigns, public relations, press releases, trailers, and posters.
- e) Exhibition and Broadcasting:** Theaters, broadcasters, streaming platforms, and event organizers display or broadcast content to the audience by way of activities such as theatrical screening, television broadcasts, radio broadcasts, live concerts, and streaming on various platforms.
- f) Consumption and User Experience:** Finally, the audience consumes the content by attending a movie in the cinema, watching a TV show at home, listening to music on a streaming platform, or playing a video game. User experience, accessibility, and convenience are important factors at this stage.

Apart from the core value chain, the media and entertainment industry relies on additional revenue streams, such as merchandising, licensing, product placements, endorsements, and sponsorships, which contribute to the overall profitability of the content and associated intellectual property.

2.3 KEY TRENDS IN THE INDUSTRY

Demographic Shift and Social Media's Contribution Toward the Industry

Millennials⁷ account for an estimated 25%, or approximately 1.1 billion people, of Asia's population. Researchers refer to them as digital natives because they are the 1st generation to have grown up in a world of digital technology. They have a comprehensive awareness of digital tools, digital literacy abilities, and a natural aptitude for interacting with the online environment, and their exposure to and experiences with digital technology have significantly changed the ways in which they connect with others, communicate, work, and learn. Gen Z⁸ are digital natives and have several traits in common with Millennials. This generation lives in a time when technologies are in their most advanced stage yet, and Gen Z's behavior has significantly altered the way individuals perceive social media.

Both Millennials and Gen Z use social media extensively, as pioneers and fluent users, respectively. As of July 2023, Thailand, Malaysia, The Philippines and Indonesia reported an above-average⁹ time spent on social media, with The Philippines topping the charts at an average of 3 hours and 44 minutes of time spent daily. According to industry experts, the country also had the largest number of social media users¹⁰ who were inclined to follow influencers or other experts on social media. While Millennials experienced the development of smartphones, Gen Z entered a world where people were already using mobile devices on a wide scale. The Millennials have been at the forefront of social media's explosive growth, with this generation favoring platforms such as Instagram, Snapchat, and TikTok, which provide more interactive and visual content.

Social media has significantly contributed to the media and entertainment industry's growth and will continue to do so in the forecast period. Frost & Sullivan believes that social media has revolutionized the marketing methods of media and entertainment companies, the impact of influencers and live streamers on social media, and the means by which the general population engages and perceives entertainment content today.

Rise of the Digital Platform

Utilization of the internet in the media and entertainment industry has resulted in a significant interdependence between the two. The internet allows multiple platforms to distribute content—including over-the-top (OTT) services, such as VOD platforms, live streaming services, and music streaming platforms.

The evolution of technology affects consumer behavior. Most people want ease-of-use, personalization, and a hands-on consumer experience, which is becoming more possible as digital platforms apply the latest technology. For instance, with artificial intelligence (AI) and machine learning, streaming services analyze user data, such as past viewing patterns and search history, to create personalized content recommendations, which are more likely to lead to a positive viewing experience. This strategy has helped them boost engagement and lower churn.

⁷ Frost & Sullivan defines the millennial population as individuals born between 1981 and 2000 (i.e., people between the ages of 20 and 39 as of 2020).

⁸ Generation Z, or Gen Z, comes after Millennials and refers to those who were born between the late 1990s and the early 2010s.

⁹ Regional average of Asian countries

¹⁰ Approximately, 40-45% of social media users aged 16 to 64 who follow influencers or other experts on social media.

Awareness Globally Towards the Attractiveness of the Asian Market

Companies and global consumers are becoming increasingly aware of and interested in Asia's media and entertainment industry. With the significant possibilities of business integration and content creation in Asia, many big players have already started building their engagement in the Asian market. Netflix and Amazon Prime, for instance, have invested in creating more Asian-focused content, such as K-drama series and Indonesian action movies, and have introduced Asian representation in their original content.

According to industry sources, Netflix spent an approximately USD 1.9 billion on local content in APAC in 2022. With 47% of their earnings coming from Korea, Japan, India, Australia, and a few SEA nations, experts see this move as a means to capitalize on the growing demand for Asian content.

The Asian market is attracting global audiences, giving it the potential for a much stronger stance in the global media and entertainment industry. Because of this shift toward Asian content, Frost & Sullivan believes that a growing trend and potential for the cinema and OTT VOD industry exists in Asia, especially in terms of produced content.

Notwithstanding the opening of economies post the pandemic where there has been an uptick in moviegoers and outdoor activities, Frost & Sullivan believes that the trend of watching one's favorite icons and stars on the various interactive video streaming platforms and OTT services will continue, as people have grown accustomed to the convenience of viewing their chosen video any time of the day. Therefore, the potential of outdoor entertainment is not likely to affect the OTT and interactive video streaming sectors.

Convergence of OTT Platforms

Increasingly, consumers view OTT services as mainstream market services rather than niche services and are now gravitating towards them, rather than the traditional means of consuming entertainment, because of the industry's growth and benefits. The emergence of numerous OTT VOD platforms has upended the traditional entertainment market, and many traditional companies are gradually offering OTT services as the market exhibits steady and mature growth. For instance, RCTI, one of Indonesia's largest television companies, introduced RCTI+ as a means of embracing this new kind of entertainment.

Many people have switched from traditional to OTT platforms because the latter are more engaging, personalized, and mobile-first focused. Approximately 64% of users aged between 16 and 34 and 57% of users aged between 35 and 45 use smartphones to access OTT services. The shift in consumer behavior and the increasing level of internet penetration¹¹ in Asia are driving this growth in competition for OTT services. The convergence and disruption of OTT services has affected a variety of media, including television, music, radio, and movies and is likely to have a greater impact in the forecast period.

Gaming Industry and Interactive Video Streaming—The Future of Media and Entertainment

Asia has contributed significantly to the growth of video games, which has a growing addressable market and is likely to continue to supply new players and innovative gaming concepts. Japan is well-known for its console gaming, while South Korea is well-known for its online gaming and eSports scenes. The internet

¹¹ Asia's internet penetration rate was approximately 64.7% in 2022, and it will continue expanding with technology advancements during the forecast period.

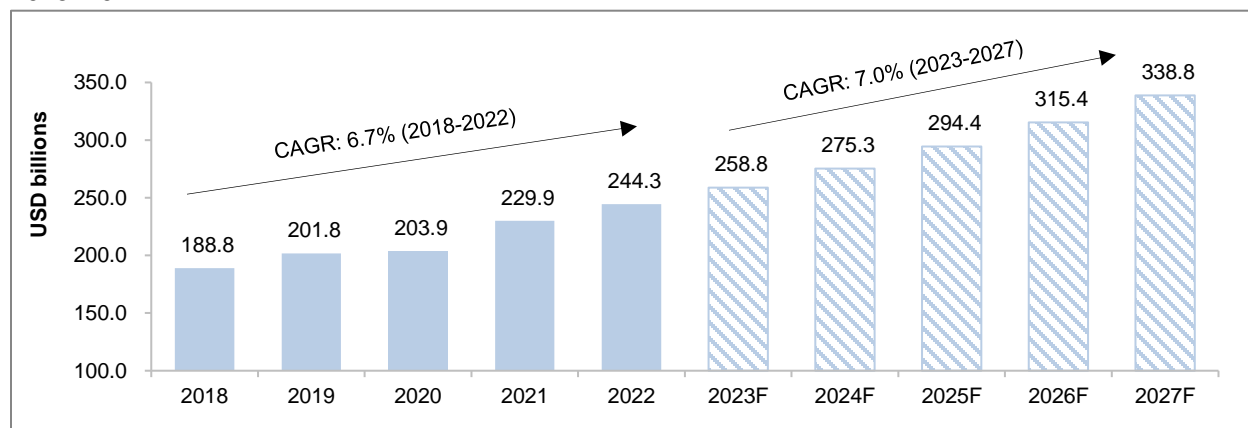
driven gaming era is forcing traditional console behemoths to rethink their strategies, while new competitors from China and SEA are also gaining traction in the global gaming market.

Frost & Sullivan is optimistic about the gaming industry's potential, especially in combination with the immersive OTT services that platforms for live streaming video games offer. While Twitch, YouTube Live, and regional Asian streaming services, such as Nimo TV, have given new life to the gaming industry and its adjacent community, these platforms and the emergence of numerous well-funded eSport teams and competitions are likely to serve as catalysts for a flourishing eSports industry in SEA. Mobile gaming breakthroughs, pioneering interactive video streaming platforms, and a strong eSports presence in Asia can potentially contribute to the growth of Asia's media and entertainment industry.

2.4 MARKET SIZING, FORECAST, AND SHARE ESTIMATES

Driven by the aforementioned factors, the total revenue for the Asian media and entertainment industry increased from approximately USD 189 billion in 2018 to USD 244 billion in 2022 and is expected to reach USD 339 billion by 2027 registering a CAGR of 7% in the forecast period (2023-2027).

Figure 2-3: Market Size and Forecast of the Media and Entertainment Industry (USD billion), Asia, 2018–2027F



Source: Frost & Sullivan; Other industry sources

Figure 2-4: Market Size and Forecast of the Media and Entertainment Industry (USD billion), Asia, 2018–2027F

Year	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F
TV	61.1	60.6	56.3	59.1	61.2	60.5	59.7	58.9	58.0	57.2
Internet Advertising	32.5	38.6	41.1	50.1	55.9	62.9	71.1	80.6	91.2	103.3
Publishing	50.7	51.5	50.4	52.7	53.7	54.7	55.7	56.9	58.2	59.5
Gaming	21.8	23.3	27.8	31.1	32.7	36.0	39.7	44.1	48.8	54.0
VOD	6.3	9.6	14.0	19.6	19.6	21.5	23.7	26.0	28.4	31.1
Music	6.0	6.3	6.4	7.3	7.8	8.4	8.9	9.6	10.2	10.9
Cinema	6.5	7.1	2.4	3.2	5.9	6.2	6.6	7.0	7.5	8.0
Live Online Social Entertainment	1.5	2.3	3.6	4.9	5.7	6.9	8.2	9.7	11.3	13.3
Radio	2.5	2.4	1.9	1.9	1.9	1.9	1.8	1.7	1.6	1.6
Total	188.9	201.7	203.9	229.9	244.3	258.8	275.3	294.4	315.4	338.8

Source: Frost & Sullivan; Other industry sources.

3 OVERVIEW OF INTERACTIVE VIDEO STREAMING PLATFORM MARKET

3.1 INDUSTRY OVERVIEW

3.1.1 Evolution of the Interactive Video Streaming Market

Interactive video streaming initially began on PC/desktop-based devices because of technical limitations, which primarily confined streamers to fixed, indoor locations and restricted users' viewing experience to times when they had access to a PC/desktop. However, technology advancement has changed this, including the availability of higher bandwidth through the implementation of 4G networks, increased smartphone adoption, improved smartphone capabilities, and a larger number of mobile broadband users.

The emergence of mobile applications has reduced technological barriers in establishing interactive video streaming platforms and brought greater convenience for both streamers and viewers. Interactive video streaming platforms globally are now concentrating their efforts on enhancing their mobile applications by introducing more interactive and engaging features and improving user interface (UI) design.

Figure 3-1: Evolution of Interactive Video Streaming Services, Early 2000s–2027

	Live Broadcasting		Interactive Video Streaming		
	Early 2000s	2010–2014	2015–2018	2019–2022	2023–2027
Content	- UGC	- UGC with enhanced content quality - Emergence of gaming-only live stream platforms	- UGC with increased content diversity and more powerful tools for content control - PUGC - Strengthened content control and monitoring	- UGC with increased content diversity and more powerful content control - PUGC - Alliances with functional applications, such as gaming, online shopping, and healthcare	- Increasing popularity of Vliwer segment in interactive video streaming industry - Improved online shopping experience through live commerce platform
Access	- Web-based online access	- Mobile apps - Web-based online access	- Exponential growth of mobile users with mobile broadband - Web-based online access	- Mobile apps expected to be the mainstream while online access is complementary	- Mobile apps expected to be the mainstream while online access is complementary
Technology	- Web-based broadcasting technology	- Development of mobile apps - Video quality enhancement - UI enhancement	- Enhancement of interaction channels and payment methods - Quality control & monitoring - Beautification tools	- Augmented reality/mixed reality/artificial intelligence (especially machine learning) integration - Analytics	- Augmented reality/mixed reality - Artificial intelligence - Blockchain
Revenue Streams	- Advertising (e.g., ad-roll)	- Emergence of virtual gifting/reward model	- Virtual gifts - Subscriptions	- Virtual gifts - Subscriptions - Value-added services	- Virtual gifts - Subscriptions - In-app purchases

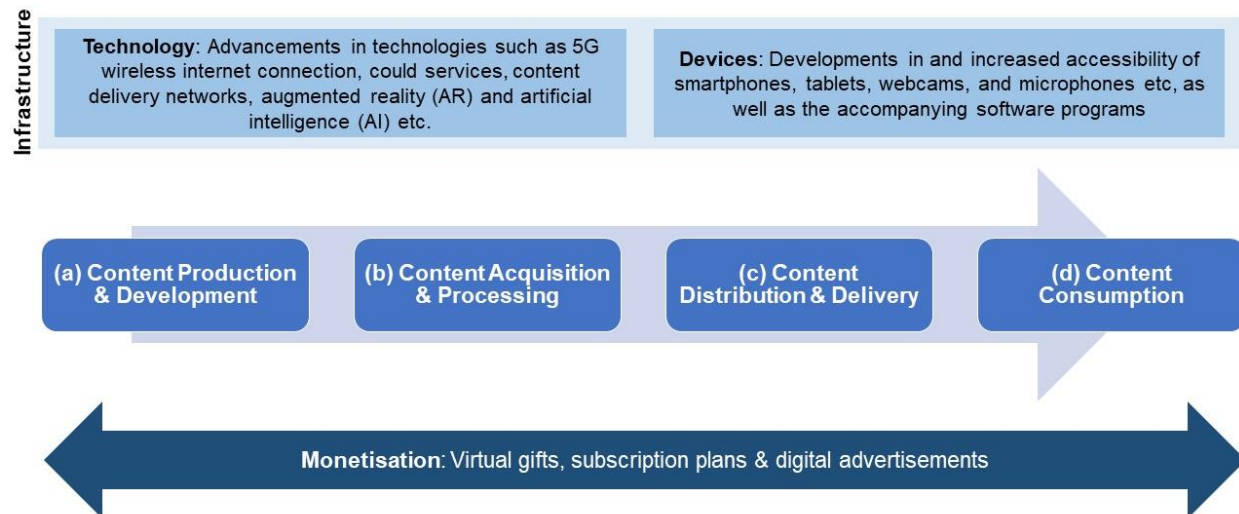
					- Value-added services
Consumer Base	- Limited	- Millennials (especially gamers)	- Millennials - Generation Z	- All demographics	- All demographics
Geographical Presence	- Started in Western countries	- Western countries - China	- Northeast Asia - Southeast Asia - North America	- Whole of Asia - North America - Europe - Middle East and North Africa	- Whole of Asia - North America - Europe - Middle East and North Africa

Source: Frost & Sullivan Analysis

3.1.2 Industry Value Chain

The interactive video streaming value chain consists of 4 steps. As the graphic below explains, each step employs various technologies to fulfill the services and enhance users' experience.

Figure 3-2: Interactive Video Streaming Value Chain and Ecosystem Analysis, Global, 2022



Source: Frost & Sullivan Analysis

Infrastructure: Various technologies enable the high-quality live streams that consumers experience across multiple platforms. Multiple video streaming technologies power the entire value chain, including streaming protocols that enable the delivery of media across the internet, codecs that convert raw video files into shareable digital files, and content delivery networks that enable the seamless broadcast of live stream videos. Additionally, creators employ AI and augmented reality (AR) technologies to make live edits and enhancements to the captured video and personalized content recommendations to users. Developments in devices such as smartphones, tablets, and microphones and the increased affordability of these devices have made live stream accessible to the average consumer, and the growing penetration of smartphones and high-speed wireless internet have enabled consumers to live stream anytime, anywhere.

(a) Content production and development: In the pure-play interactive video streaming market, streamers generate most of the content. Popular content genres include singing, painting, and animal streaming. Many streamers generally produce, capture, and stream from their homes. Interactive video

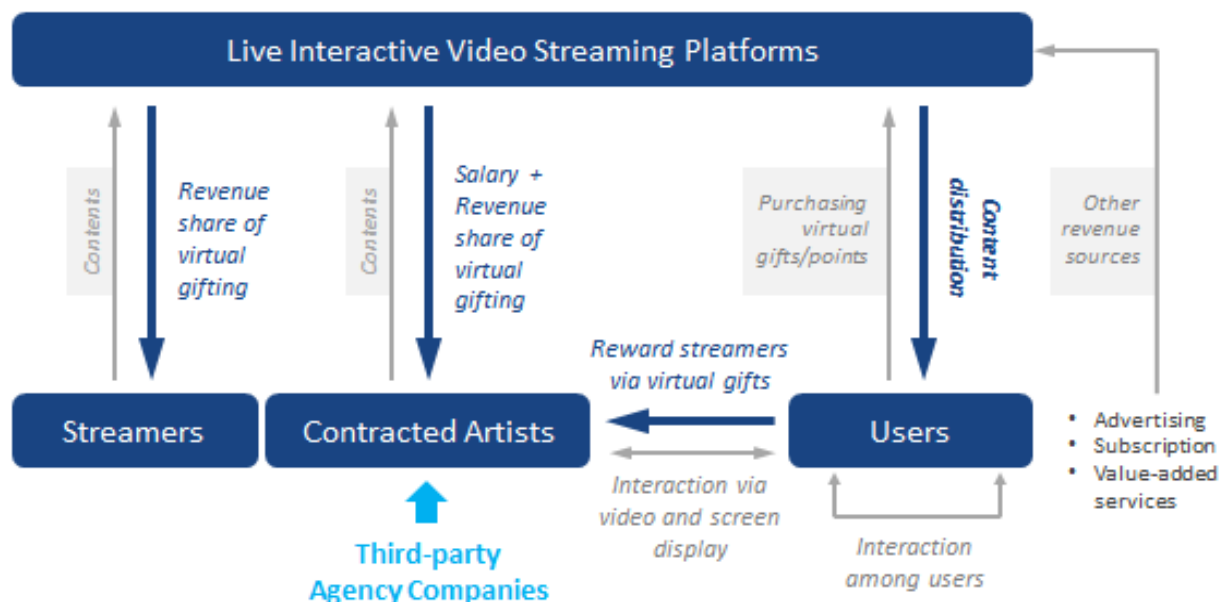
streaming platform companies may provide their top streamers with the support of operational teams to help with aspects such as image design, copywriting, business development, and market analysis to deliver high-quality content and generate revenue. Interactive video streaming platforms are increasingly producing their own unique content programs to capture more users and market base.

- (b) Content acquisition and processing:** To increase user retention, interactive video stream platforms acquire (and train) top live streamers by offering them contract agreements. To ensure that the published content observes local laws and regulations, platforms engage in pre-screening and content monitoring—typically leveraging AI and manual monitoring. AI-powered filter programs help to spot and filter illegal and unfriendly content, such as obscene language and sexual content.
- (c) Content distribution and delivery:** Interactive video streaming platforms have built-in technologies, such as web real-time communications and real-time messaging protocol, that enable low-latency streaming of UGC.
- (d) Content consumption:** The younger population and middle-aged men with relatively higher income levels largely make up the user base of pure-play interactive video streaming, and users generally consume live stream content via the platform apps they have installed on their smartphones or tablets and accessed through wireless internet connections.

Monetization: Content monetization consists of 3 distinct segments. First, the monetization process begins with viewers of live streams who purchase virtual gifts for their preferred streamers, which the streamers can sell back to the platforms, thereby initiating a revenue-sharing model based on a mutually agreed-upon ratio. Second, interactive video streaming companies derive revenue through sale of user subscription plans, granting users access to exclusive content and privileges in exchange for a recurring fee. Third, platforms can effectively monetize their reach by offering digital advertising spaces to brands that align with their target audience, thus facilitating targeted marketing opportunities.

17LIVE is mainly involved in content acquisition, processing, distribution, and delivery. It has both contracted and non-contracted streamers and uses both AI software and a moderation team to filter illegal and unfriendly content. The majority of 17LIVE’s revenue comes from the sales of virtual gifts and subscription plans.

Figure 3-3: Interactive Video Streaming Market Business Model Analysis, 2022



Source: Frost & Sullivan Analysis

3.1.3 Key Drivers

Widespread availability of affordable internet

Since access to live streaming content requires owning a smart device and having access to affordable and stable internet services, the global availability and affordability of internet services, particularly in Taiwan and Japan, has played a significant role in facilitating the industry's growth. In Taiwan specifically, smartphone ownership has been increasing. According to industry sources, close to 90% of the population owned a smartphone in 2022, and this percentage will continue to increase. Among the countries in scope of this report, the penetration rate of smartphones in Japan is one of the highest, accounting for 91.9% in 2022.²

In addition, the availability and affordability of internet in SEA presents both opportunities and challenges. Many countries in SEA have made significant strides to promote public access to ICT and improve internet accessibility. In SEA, Philippines continues to have the lowest penetration, while in Malaysia and Singapore, penetration rates exceed 90%. According to industry sources, about 20% of SEA residents still do not have internet access due to higher price of fixed broadband in countries such as Indonesia, the Philippines, and Thailand.¹² However, the region is becoming increasingly wireless through devices such as smartphones and tablets. Smartphone penetration in SEA has been rapidly increasing and will continue to grow. Some countries, such as Indonesia and the Philippines, report a 100% mobile penetration rate.¹³

Furthermore, the penetration rate of 5G technology, both in Taiwan and Japan, has grown rapidly, increasing from 2.3% in 2020 to 19.0% in 2022 in the case of Taiwan, and increasing from 16.5% in 2020 to approximately 94.2% in 2022 in Japan, where it will reach 98% in 2023.¹⁴ This significant increase in 5G coverage has improved network speeds, enabling users in both countries to enjoy higher-quality interactive video streaming experiences. Additionally, the cost of mobile internet in Taiwan and Japan has become more affordable. From 2019 to 2022, the price of 1 GB of mobile data in Taiwan significantly decreased, and in Japan, the cost decreased approximately 15.2% from 2020 to 2022. This affordability factor plays a crucial role in making the internet more accessible in both countries, potentially leading to an expansion of the customer base in the interactive video streaming industry.

The advancement of mobile payment

The penetration rate of mobile payment in Taiwan has experienced substantial growth, increasing from 21.6% in 2020 to 34.3% in 2022.¹⁵ The rapid 12.6% increase during a span of just 2 years represents the most rapid growth among 11 surveyed internet applications.¹⁶ Consumers are preferring mobile payment¹⁷ options on interactive interactive video streaming platforms in Taiwan, using payment platforms, such as

¹² Aaron Raj. Internet Accessibility and Affordability still a Connectivity Hurdle in Southeast Asia. [Internet accessibility and affordability still a connectivity hurdle in Southeast Asia \(techwireasia.com\)](https://www.techwireasia.com), 7 June 2023. Accessed 13 July 2023.

¹³ E-ASEAN. Connecting to grow. [E-ASEAN | ASEAN Investment](https://www.esri.cao.go.jp/jp/stat/shouhi/kekkanoyouten2022.pdf). Accessed 13 July 2023.

² Cabinet Office. Consumer Trends Survey. <https://www.esri.cao.go.jp/jp/stat/shouhi/kekkanoyouten2022.pdf>.

³ Taiwan Network Information Center. Taiwan Internet Report 2022.

¹⁴ https://report.twinc.tw/2022/en/assets/download/TWNIC_TaiwanInternetReport_2022_EN.pdf, n.d. For Taiwan, the penetration rate of 2020 was calculated based on the population using 5G network above 12 years old and the penetration rate of 2022 was calculated based on the population using 5G network above 18 years old. If we adjust to the same base, it is expected that the penetration rate of 5G will be even higher in 2022.

¹⁵ Taiwan Network Information Center. Taiwan Internet Report 2022.

https://report.twinc.tw/2022/assets/download/TWNIC_TaiwanInternetReport_2022_CH.pdf, n.d.

¹⁶ Ibid. The 11 surveyed applications include online shopping, online sales, mobile payment, crypto currency, reading e-books, online learning, watching free videos, online games, online apps for making friends, food delivery.

¹⁷ Mobile payment refers to the use of mobile phones to make monetary purchases through a credit or debit card or through direct debit at the bank account or debit a pre-paid wallet.

Neweb Pay and MyCard. Notably, more than 70% of people in the 30–39 age bracket uses mobile payment services, which gives them a sense of familiarity when paying through the live streaming application.¹⁸

Japan experienced similar adoption of mobile payments, with PayPay dominating the mobile payment market, followed by RakutenPay and D-harai. The usage of mobile payments has increased from 34.4% in December 2019 to 51.8% in February 2022 and is likely to reach 80% in 2023. Nearly 75% of Gen Z have adopted mobile payments, which is 5% more than Millennials. Such high adoption rates are a significant impetus for the interactive video streaming industry in these countries.¹⁹

Similarly, SEA is experiencing an increase in real-time digital payments. In countries such as Singapore and Malaysia, the volume of real-time online payments is likely to increase significantly in 2024.²⁰ Mobile payment wallets have become a vital part of the SEA consumer landscape. According to industry sources, consumers in Indonesia prefer platforms such as GoPay, Dana, and Ovo, while in Malaysia, Touch'nGo and Grabpay dominate. Frost & Sullivan believes the increase in online payments is significantly impacting the interactive video streaming industry, facilitating its growth and expanding opportunities for content creators to monetize their broadcasts.

The growing disposable income and spending in SEA

According to OECD, SEA's economy is expected to grow by 4.6% in 2023 and 4.8% in 2024.²¹ This growth can contribute to higher disposable incomes, giving individuals more funds to spend on entertainment and leisure, including live streaming. The increase in disposable income is also likely to lead to more consumer spending on virtual gifts, donations, and subscription services on these platforms, directly benefiting live streamers and platforms alike. The projected growth in the region's economy, coupled with the popularity of gaming and eCommerce, supports the potential for the interactive video streaming industry to thrive in SEA.

Improvements in the quality of live streaming because of technological advancements

Technological advancements, including the emergence of 5G, AI, and the metaverse, have significantly contributed to the enhancement of live streaming quality. For instance, the improved network capabilities that 5G has facilitated, coupled with the implementation of edge computing, have reduced latency, thereby elevating the overall quality of live streaming experiences. Additionally, the adoption of High-Efficiency Video Coding Intellectual Property bonding technology has enabled high-quality video coverage during live events.

Moreover, these technological advancements have improved video quality and made solutions more accessible by reducing their implementation costs. AI, machine learning, and deep learning technologies have played a crucial role in enhancing content-filtering efficiency. Platforms can leverage these technologies to identify and filter out inappropriate content, such as sexual or terrorist-related materials. AI has enabled live stream applications to efficiently analyze users' viewing history round-the-clock to provide personalized content recommendations, improving user retention.

Furthermore, AR and virtual reality (VR) technologies have increased interactivity and immersion in live streaming. Viewers and live streamers may utilize various filters, and multiple on-site VR panoramic cameras allow remote audiences to experience the real environment of the venue, without any blind spots, and independently select their preferred viewing angles. Overall, advancements in technologies, such as

¹⁸ Ibid.

¹⁹ Soumu. https://www.soumu.go.jp/main_content/000724576.pdf

²⁰ Finfan. The rise of real-time digital payments in Southeast Asia. [The rise of real-time digital payments in Southeast Asia \(finfan.vn\)](#). Date accessed: 13 July 2023.

²¹ OECD. Economic Outlook for Southeast Asia, China and India 2023. [Overview-Economic-Outlook-Southeast-Asia-China-India.pdf \(oecd.org\)](#). 2023.

5G, AI, and the metaverse, have significantly improved the quality, accessibility, interactivity, and immersion of live streaming, enhancing viewers and live streamers experiences and capabilities.

Increasing variety of entertainment programs and better interactive video streaming platforms

The availability of a diverse range of entertainment content has significantly contributed to the attractiveness and therefore, the expansion of interactive video streaming platforms. These platforms offer a wide array of content, including live chat shows, music performances, gaming streams, and cooking shows. This variety caters to different interests and preferences, attracting a larger audience base. By offering an extensive selection of entertainment programs, interactive video streaming platforms can capture the attention of various demographics and engage viewers for longer durations. In addition, interactive video streaming platforms have increasingly developing their own in-house content, as opposed to relying on UGC alone, to draw viewership and enhance user retention. For instance, leading pure-play in interactive video streaming companies are commonly hosting and producing live music shows and/or competitions.

Culture of fandom in Japan and growing popularity of Vlivs

The Japanese fandom culture holds a unique and prominent place, particularly when it comes to anime, manga, games, and related media. Japanese fans exhibit a deep passion and devotion toward their favorite franchises, characters, and idols. This fervent fandom culture extends beyond mere appreciation and has evolved into an immersive subculture that involves cosplay (the practice of dressing up as anime characters), fan art, fanfiction, merchandise collection, and attending conventions or events. Anime conventions and events have become popular gathering places for fans to celebrate their favorite shows, cosplay as their beloved characters, and engage in different anime-related activities. These events provide opportunities for fans to interact, share their love for anime, and showcase their creative talents. In East Asia, anime is the second-most in-demand genre, behind only the superhero category and just ahead of science fiction. Within the region, the popularity of anime is not the same everywhere. Predictably, it is most popular in East Asia, followed by SEA. The impact of anime extends beyond entertainment. For example, to a certain extent, the influence of anime is evident in various aspects of SEA society namely fashion trends, art, and even tourism.

The intersection of the well-established fandom culture surrounding anime, manga, games, and similar interests with the emergence of Vlivs presents notable advantages. Fans seek to engage with their beloved characters or games and desire interaction with fellow enthusiasts. Fans strongly desire others to recognize them as devoted members within the community. The introduction of Vlivs in this context brings significant benefits. Being digital entities, Vlivs possess an inherent longevity that is advantageous both for the companies and the fans themselves. This is especially so for Vlivs that are managed by companies, as fans need not worry about their idol retiring or any unforeseen circumstances that could alter their perception or connection, because even if the person behind the Vlivs retires, the company that holds the rights to the idol can replace the voice artist behind it. This perpetual availability and stability provide a sense of reassurance and continuity for fans, ensuring an enduring bond with their Vlivs and the associated fandom culture.

3.1.4 Growth Challenges

Concerns about AI and privacy protection

Concerns surrounding AI and privacy protection pose significant challenges to the interactive video streaming industry. Users are wary of platforms mishandling their personal data or sharing it without their consent. Additionally, the use of AI algorithms for content filtering and moderation raises questions about censorship and the risk of algorithmic bias. Security vulnerabilities and the lack of transparency in AI decision-making exacerbate these concerns. To overcome these restraints, interactive video streaming platforms must prioritize privacy protection, transparency, and ethical AI use by implementing robust data privacy policies, addressing algorithmic biases, and enhancing security measures. Building trust and ensuring user confidence in data handling and content moderation are vital for the industry's growth and sustainability.

Decreasing screen time and declining entertainment expenditure post COVID-19

Taiwan

The interactive video streaming industry experienced significant growth during the COVID-19 pandemic and social distancing restrictions, as people sought digital content and services amidst limited outdoor activities. According to industry sources, the global number of hours people spent watching live streams greatly increased between 2019 and 2020. However, with the pandemic wearing out, people are gradually returning to physical activities and spending less time consuming digital content, including interactive video streaming. Daily internet usage has decreased from 2022 levels, indicating a potential decline in live streaming consumption. Additionally, the economic disruptions from the pandemic have significantly decreased Taiwanese households' expenditure on entertainment. The share of recreation, culture, and education in household expenditure dropped from 9.53% in 2019 to 6.43% in 2021, with spending decreasing from NTD 77,322 to NTD 54,700.²² This decline in entertainment expenditure poses a challenge to the revenue sustainability of interactive video streaming platforms, as it may affect viewer gifting and subscription fees. As a result, interactive video streaming platforms may face constraints in their revenue growth and long-term viability.

Japan

The outbreak of the COVID-19 pandemic hindered one's ability to attend physical events and seek traditional forms of entertainment, such as nightlife activities, social gathering, and outdoor sports events. As a result, individuals in Japan turned to virtual entertainment alternatives to fulfill their leisure needs, leading to an increase in the number of users and a higher penetration rate of live streaming users. According to Frost & Sullivan, the market experienced a year-on-year (YoY) growth rate of approximately 55% on average between 2019 and 2022. However, it is worth noting that the pace of growth will moderate during the forecasted period. While the pandemic created favorable conditions for the interactive video streaming market's rapid expansion, Frost & Sullivan anticipates that the YoY growth rate will stabilize at approximately 23% between 2023 and 2027. Despite this moderation, the market size remains substantial, underscoring its' resilience and long-term potential.

²² National Statistics, Republic of China (Taiwan)

SEA

Screen time in SEA, as in other parts of the world, saw a surge during the pandemic because of various factors, such as remote work, online education, and limited opportunities for social interaction. People spent increased amounts of time on their screens for entertainment purposes, including watching movies, playing video games, using social media, and live streaming. According to an industry survey in Singapore, out of the list of common pandemic leisure activities, Singaporeans intend to reduce spending on video streaming services along with online shopping and online gaming.²³ Thailand reflects a similar scenario, where the resumption of normalcy following the pandemic has led to a decrease in internet usage and online purchases among local internet users. Frost & Sullivan believes that the influence of the COVID-19 pandemic on online viewership and spending in SEA overall will decrease as the region moves closer to a state of normalcy and gradually returns to pre-pandemic patterns.

Platforms need to find ways to stand out given heightened competition and saturated market conditions

Heightened competition and a saturated market pose significant restraints for the interactive video streaming industry, necessitating platforms to find innovative ways to stand out. As more platforms enter the market, the competition intensifies and fragments the audience base. With numerous platforms vying for viewer attention, it becomes challenging to capture and retain a substantial user base. To overcome these restraints, interactive video streaming platforms must seek innovative strategies to differentiate themselves. This can include offering unique and exclusive content, implementing novel features or interactive experiences, fostering a vibrant community, or targeting niche audiences. Platforms need to continuously adapt and evolve to stay relevant in a highly competitive environment and stand out from the saturated market.

In Taiwan, a trend exists among interactive video streaming platforms to recruit top live streamers from one another by offering more competitive salary packages. However, the sustainability of the high revenue both live streamers and platforms generate is questionable as the market returns to normalcy from the peak lockdown stages. As a reference, according to the China Association of Performing Arts, Mainland China has approximately 24,000 multi-channel network (MCN) companies, a number that has remained relatively stable since 2021. However, more than 30% of these companies reported a decrease in profitability in 2022.²⁴ Additionally, the annual revenue of prominent Chinese platforms, such as Huya and Douyu, experienced a significant drop of 20%–30% in 2022 compared to 2021.²⁵ This decline is reflected in the earnings of top Chinese live streamers, who used to earn in excess of tens of millions of RMB per year in 2020 and 2021 but earned only 1 to 2 million RMB in 2022, representing just one-tenth of their previous revenue during the COVID-19 pandemic.²⁶

The Japanese interactive video streaming market is competitive and platforms such as 17LIVE, Pochocha, and Showroom are vying for users' attention, and standing out and attracting a large user base can be challenging because of limited differentiation in features and content. Pochocha's successful strategy involves assigning ranks to live streamers, incentivizing popular streamers to use the platform and attract more viewers. This unique revenue-sharing model helps platforms tap into the influence of top streamers and drive user engagement.

²³ Adobo magazine. Insight: Singaporeans' spending on leisure expected to increase despite inflation, shifting away from pandemic activities. [Insight: Singaporeans' spending on leisure expected to increase despite inflation, shifting away from pandemic activities - adobo Magazine Online](#). 11 May 2022. Accessed: 14 July 2023.

²⁴ China Association of Performing Arts. Report on the Development of China's Online Performance (Live Streaming and Short Videos) Industry (2022-2023). [中国网络表演（直播与短视频）行业发展报告.pdf \(capa.com.cn\)](#). 30 May 2023.

²⁵ Ibid.

²⁶ Industry sources

3.1.5 Key Trends

Virtual streamers phenomenon

Virtual streamers, known as Vtubers (virtual YouTubers), have become a prominent phenomenon in the streaming industry. Kizuna AI, often regarded as the first Vtuber, gained significant recognition after starting her virtual streaming journey in 2016. With more than 4 million subscribers across various channels, she has played a pivotal role in popularizing the Vtuber concept. Vtubers can similarly engage in various activities, such as gaming, cooking sessions, song performances, and interactive Q&A sessions with their fans. They have garnered a substantial following on video sharing and social media platforms, with dedicated fan bases and corporate sponsorships. This emerging trend has captured the attention of companies in Japan and China, leading to investments in the creation and management of these virtual influencers.²⁷

While the market for virtual streamers in Taiwan is still in its early stages, it shows promising growth potential, especially among Gen Z. The widespread popularity of anime in Taiwan, coupled with the establishment of the Taiwan Vtuber Association, indicates a growing interest in Vtubers. In contrast, virtual streamers are very popular in Japan because of a variety of factors, such as the possibility of not showing their faces and the option of choosing an ideal visual. VLivers make up a large part of the interactive video streaming market in Japan and present the fastest-growing trend in the industry.

Frost & Sullivan believes that as this trend continues to gain traction, virtual streamers are likely to become more prevalent in both Taiwan's and Japan's streaming landscape, attracting a dedicated fan base and potentially leading to developments in the industry.

AI-generated streamers

The progress of AI technology has enabled the emergence of AI streamers representing a notable advancement within the virtual streamers segment. Unlike human-backed virtual streamers, AI and machine learning algorithms power AI streamers, eliminating the need for human involvement in their live streams. Prominent examples of AI streamers on platforms such as Twitch include Neuro-sama, the AI Seinfeld Show, and the Athene AI Show. Live interactions with AI streamers tend to be relatively restricted for now because of the limitations of technology. However, with AI technology developing so quickly, the quality and capabilities of AI streamers is expected to catch up with those of human-backed virtual streamers in the forecast period. As AI algorithms continue to advance, the potential for more engaging and interactive experiences with AI streamers is expected to increase.

Success of nagesen gifting in Japan

Japanese users tend to engage in gifting practices and often expect some form of reciprocity as a gesture of appreciation. They may communicate directly with content creators (referred to as a liver) and make specific requests. In Japan, numerous apps and services offer gifting capabilities within interactive video streaming platforms. For example, YouTube's live streaming feature, YouTube LIVE, enables users to give gifts to streamers using the Super Chat feature. Other popular interactive video streaming apps with gifting features include 17LIVE, TwitCasting, Showroom, and NicoNico Live.²⁸

According to industry experts, a small percentage (close to 5%) of viewers have given gifting money (*nagesen*) to the streamers while a majority watched without ever gifting during live streaming. Most of those people have gifted between 100 yen and 300 yen in a single instance. Approximately 20% of people

²⁷ City University of Hong Kong. More Kawaii than a Real-Person Live Streamer: Understanding How the Otaku Community Engages with and Perceives Virtual YouTubers. <https://www.cs.cityu.edu.hk/~zhiconlu/assets/pdf/CHI2021Vtuber.pdf>. May 2021.

²⁸ Business Insider. TikTok がついに「投げ銭」機能を 2021 年から開始。ライブ配信者の収益化元年に？ . <https://www.businessinsider.jp/post-225576>.

chose 500 yen to 1,000 yen, and a smaller group of people gave between 1 yen and 100 yen. On the contrary, approximately 5% of the gifting population gifted more than 10,000 yen. The most common platform that users mentioned that practiced gifting was YouTube, followed by 17LIVE, TwitCasting, and Showroom.

Otaku and Hikikomori population's affinity with interactive video streaming

The Ministry of Health, Labor, and Welfare of Japan recognizes *Shakaiteki hikikomori*, known as social withdrawal, as a condition in which an individual voluntarily isolates himself within his home for a duration of more than six months and refrains from participating in social activities, such as attending school or work. Notably, this condition does not involve psychosis, which refers to a severe mental disorder affecting an individual's thoughts, emotions, and perception of reality. Instead, feelings of social anxiety, introversion, or other factors lead individuals to retreat from society and limit their interactions with the outside world.²⁹ According to estimates, the number of individuals who fall under the broader definition of *hikikomori* in Japan, which includes those who primarily stay at home but venture out for errands related to their hobbies, is approximately 696,000 nationwide.³⁰

An *otaku* is typically a young individual who displays a strong interest and extensive knowledge in subjects such as anime, manga, video games, and related fandoms. An *otaku* is passionate about a broad range of popular culture, not just fixated on computers or computer games. Some *otaku* may find it challenging to engage in face-to-face interactions and socialize with others in real life, preferring online communities.³¹ However, not all *otaku* share this difficulty. Some *otaku* possess well-developed social skills and actively participate in both virtual and real-life communities related to their interests. While some individuals identify themselves as both *otaku* and *hikikomori* because of shared social difficulties, the terms describe distinct aspects of behavior and do not necessarily go hand in hand. *Otaku* may have social difficulties, such as finding it challenging to engage in face-to-face interactions; however, it is not a defining characteristic of being an *otaku*. Many *otaku* actively participate in fan communities, attend conventions, and engage in both online and offline interactions related to their interests.

The engagement of *otaku* and *hikikomori* individuals presents opportunities for the interactive video streaming industry. Their targeted interests and dedicated engagement make them a valuable audience for specialized content. Interactive video streaming platforms can provide a space for them to gather, interact, and foster a sense of belonging within the community. The online accessibility of live streaming accommodates their preference for virtual interactions, while the inclusion of Vlivs and characters enhances their connection and immersion. By recognizing and catering to their interests, the live stream industry can tap into a passionate and engaged viewer base, contributing to growth and community-building.

²⁹ Saito K. *Hikikomori no hyouka: shien ni kansuru gaidorain*. Tokyo: Japan's Ministry of Health, Labour and Welfare, 2010.

³⁰ Japanese Cabinet. 第2節 若年無業者, フリーター, ひきこ.

³¹ https://www8.cao.go.jp/youth/whitepaper/h25shonpen/b1_04_02.html

³¹ Cambridge Dictionary. *Otaku*. <https://dictionary.cambridge.org/pt/dicionario/ingles/otaku>

3.1.6 Key Metrics Comparison

Taiwan

According to a survey conducted by the Taiwan Network Information Center, 77% of Taiwanese internet users watch live streams and online videos or listen to music during their time on the internet. In addition, 56.6% of Taiwanese internet users indicated live stream as one of their online entertainment activities. Among them, 61.3% are male and 51.6% are female.³² Live streaming is most popular among people aged 15 to 19 and 35 to 39 where 64.7% and 62.4% of respondents in the respective age groups watch live streaming.

Japan

According to industry sources, nearly half of Japanese netizens watch live stream videos, and it is most popular among people aged between 20 and 30, as more than 60% of such internet users in that age group were inclined to watch live streaming videos as of 2022. Industry experts opine that nearly one-fifth of Japanese internet users have experience as live streamers, making this social activity significantly popular among all age-groups, especially among Gen Zs.

China

China has a large interactive video streaming market with stable growth. The amount of live stream users in China reached 751 million, accounting for 70.3% of Chinese netizens as of December 2022, a 7% increase compared to December 2021.³³

³² Taiwan Network Information Center. Taiwan Internet Report 2020. <https://www.twNIC.tw/doc/twrcp/202012e.pdf> . n.d.

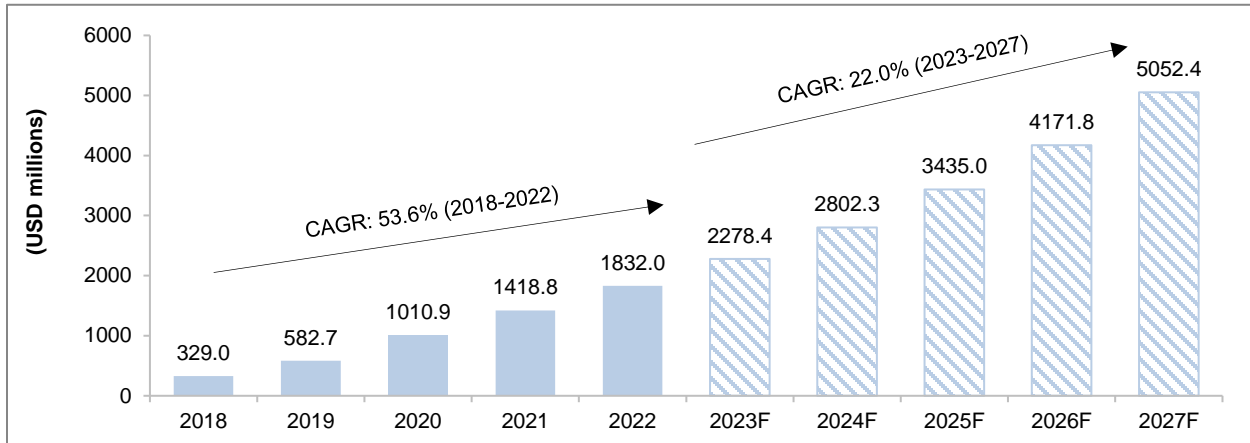
³³ China Internet Network Information Center. The 51st Statistical Report on China's Internet Development. <https://cnnic.cn/NMediaFile/2023/0322/MAIN16794576367190GBA2HA1KQ.pdf> . Mar 2023.

3.2 JAPAN

3.2.1 Market Size

The interactive video streaming market in Japan has witnessed significant growth, attaining a market size of approximately USD 1.8 billion in 2022. One of the primary drivers of this expansion is the increasing popularity of virtual live streaming. Vliviers, with their immersive and interactive experiences, played a pivotal role in generating approximately 34.4% of the total market size in 2022.

Figure 3-4: Revenue Forecast of Interactive Video Streaming Segments (USD million), Japan, 2018-2027F



Source: Frost & Sullivan’s primary interviews, desktop research, and analysis

Note:

1. Sources include a combination of (i) Interviews with industry and in-house experts; (ii) company reports and other presentation materials including but not limited to news articles, press releases, and publicly available industry data; (iii) Frost & Sullivan’s desktop research on sources including but not limited to databases of industry associations, trade bodies, and government agencies.

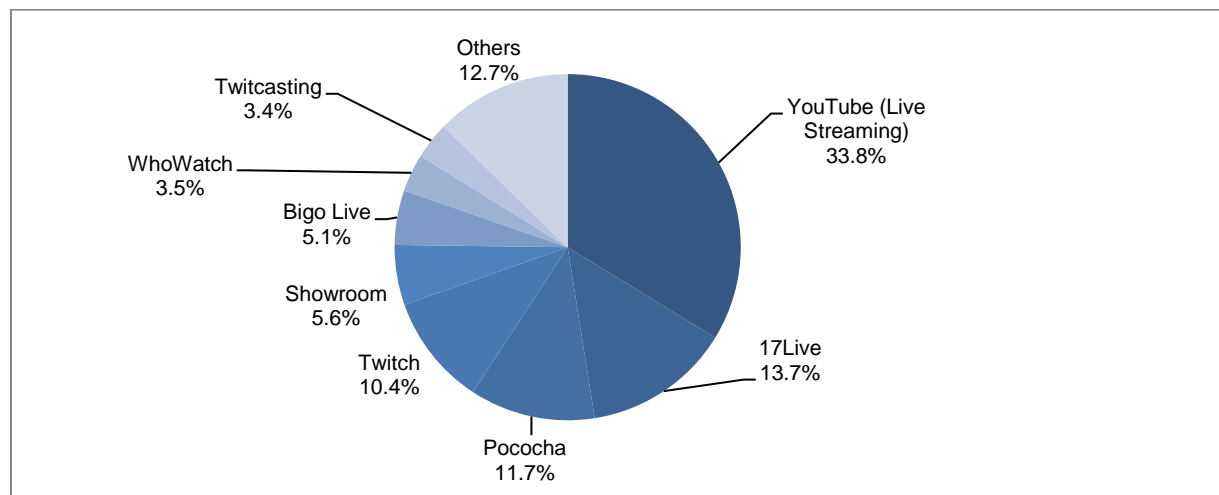
The interactive video streaming market in Japan is expected to continue to grow at a CAGR of 22.0% from 2023 to 2027, albeit at a gradually decelerating pace. From 2023 to 2025, the expansion of virtual live streaming is expected to drive market growth at a CAGR of 22.0%. This immersive and interactive form of content consumption is likely to attract a growing audience and stimulate market expansion. In the subsequent years of 2026 and 2027, the growth rate is likely to stabilize at 21%, indicating a natural progression toward market maturity and reaching saturation points in certain segments. Frost & Sullivan believes that this underscores the persistent demand for interactive video streaming services in Japan, suggesting potential opportunities for market development.

3.2.2 Competitive Landscape and Market Share

In the Japanese market, the leading platforms in terms of revenue within the interactive video streaming sector include YouTube, 17LIVE, Pococha, Showroom, Twitcasting, WhoWatch, and Bigo Live. As of 2022, 17LIVE was one of the market leaders, with a market share of 13.7% by revenue. Since entering the Japanese market in August 2017, 17LIVE has experienced consistent YoY growth, surpassing Showroom to secure its position. When considering virtual live streamers' revenue (**Figure 3-5a**), YouTube Live led the market in 2022, capturing 33.8% of the market share, because it has adopted a live streaming video system with accessible entry requirements, attracting prominent companies, particularly those managing Vlivs, since its start in Japan in 2011. DeNA owns the 3rd- and 5th-largest players, Pococha (with a market share of 11.7%) and Showroom (with a market share of 5.6%). Showroom has consistently reported low YoY revenue growth since it launched in 2015, whereas Pococha has established itself in the market since its entry in January 2017.

Twitch and Bigo enjoy market shares of 10.4% and 5.1%, respectively. Twitch, a platform that mainly focuses on game livestreaming, is still growing in Japan since it started in 2017. Bigo Live, originating from Singapore, entered the Japanese market in early 2016 and localized its content specifically for Japan in 2018. WhoWatch, which launched in 2015 and operates exclusively in Japan, accounted for 3.5% of the market share in 2022, and other smaller players collectively accounted for 12.7% of the market share in 2022. Notably, the aggregate value excludes TikTok revenue from the overall market sizing.

Figure 3-5a: Market Share by Revenue, Interactive Video Streaming Market, Japan, 2022E



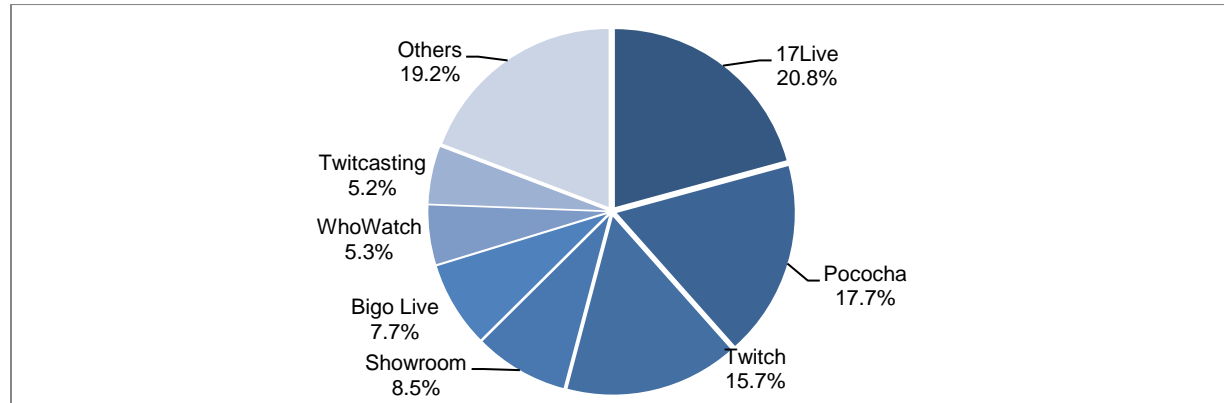
Source: Frost & Sullivan's primary interviews, desktop research, and analysis

Note:

1. Frost & Sullivan's estimated market players' revenue based on 1) Mobile applications' estimated gross revenue and overall industry observation of interactive video streaming market, 2) Quarterly financial reporting by public listed companies, 3) Company disclosure. The interactive video streaming market estimates for Japan include Vliver.
2. In the 3-5a chart, out of YouTube's 33.8% market share, only approximately 20% corresponds to pure-play live streaming, while the other 80% is composed of virtual live.
3. The Others category includes smaller apps that provide only interactive video streaming and do not account for more than 5% of the market share. This includes (but is not limited to) Hakuna Live, MixChannel, LiveDreamer, マシェ LIVE, 21Live, and Live Me.

Nevertheless, when considering only pure-play interactive video streaming (which disregards the Vlivers segment, as presented in Figure 3-5b), YouTube is not considered³⁴ as a player in the market, leaving 17LIVE as the top provider with 20.8% of the market share.

Figure 3-5b: Market Share by Revenue, Pure-Play Interactive Video Streaming Market, Japan, 2022E



Source: Frost & Sullivan’s primary interviews, desktop research, and analysis

Notes:

1. Frost & Sullivan’s estimated market players’ revenue based on 1) Mobile applications’ estimated gross revenue and overall industry observation of interactive video streaming market, 2) Quarterly financial reporting by public listed companies, 3) Company disclosure. The interactive video stream market estimates for Japan include Vlivier.
2. In the 3-5b chart, only pure-play revenue was considered, YouTube is excluded from this analysis.
3. The Others category refers to smaller apps that only provide interactive video streaming and do not account for more than 5% of the market share. This includes (but is not limited to) Hakuna Live, MixChannel, LiveDreamer, マシエ LIVE, 21Live, and Live Me.

3.2.3 Operational Performance

Among the pure-play interactive video streaming companies, 17LIVE led in revenue and operational performance³⁵, showcasing a strong gross profit margin, average revenue per user (ARPU), and average view duration per daily active user (DAU). However, in the overall interactive video streaming landscape, which includes virtual live streaming, YouTube outperforms 17LIVE.

Figure 3-6: Operational Performance for Select Apps, Japan, 2022E

Metrics/App Names	17LIVE	Poccocha	Showroom	YouTube (overall interactive video streaming)	YouTube (Without VLiver)
MAU	350,000	301,311.8	144,306.4	>1,050,000.0	~215,000
Gross Profit Margin (%)	41.6	28-32	26-30	40.0	28%-32%
Est. ARPPU (USD)	301.0	210-230	190-220	406.4	285-325
Est. ARPU (USD)	59.9	59.4	59.2	49.1	47.9
Average View Duration per DAU (minutes)	106.0	100.9	92.7	150.0	40-50

Source: Frost & Sullivan’s primary interviews, desktop research and analysis

Note: Sources include a combination of (i) Interviews with industry and in-house experts; (ii) company reports and other presentation materials including but not limited to news articles, press releases, and publicly available industry data; (iii) Frost & Sullivan’s desktop research on sources including but not limited to databases of industry associations, trade bodies, and government agencies.

³⁴ Virtual livers provide most of YouTube’s live streaming revenue, which explains why their revenue is so much lower when this area of the market is disregarded (Figure 3-5b).

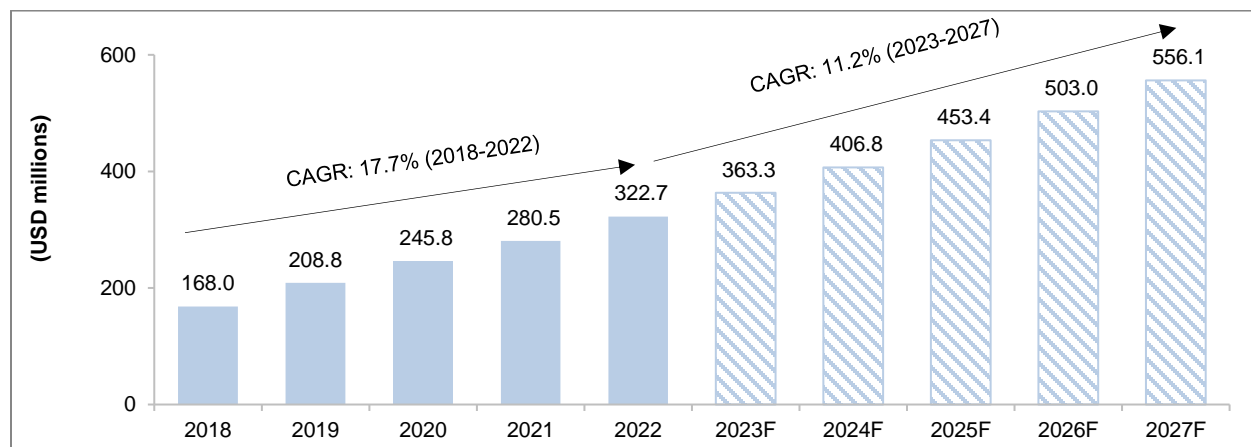
³⁵ Operational Performance for the purpose of this report comprises MAU Gross Profit Margin, ARPU, ARPPU, Average View Duration per DAU (in minutes)

3.3 TAIWAN

3.3.1 Market Size

According to Frost & Sullivan’s market forecast, the interactive video streaming segment registered a CAGR of 17.7% between 2018 and 2022 reaching a market size of USD 322.7 million in 2022. Going forward, the market is expected to grow at a CAGR of 11.2% reaching a market size of USD 556.1 million in 2027. The introduction of new segments such as new content and services, to attract and retain viewers strongly fueled this growth in the pandemic years. However, the market also faced new challenges during the pandemic, such as the competition for screentime from other modes of entertainment, including OTT streaming services. Additionally, Taiwan is expected to be a mature market in the interactive video streaming segment in the forecast period resulting in a slower and normalized growth rate. Hence, its earning potential will remain strong but without the same levels of growth as in the late 2010s³⁶. Frost & Sullivan estimates that with the growth of the market and the introduction of new technologies and trends, such as the use of Vlivs, the DAU of interactive video streaming platforms will reach 300,000 by the end of the forecast period.

Figure 3-7: Estimated Revenue Forecast of Interactive Pure-Play Interactive Video Streaming Segments (USD million), Taiwan, 2018-2027F



Source: Frost & Sullivan’s primary interviews, desktop research, and analysis

Note:

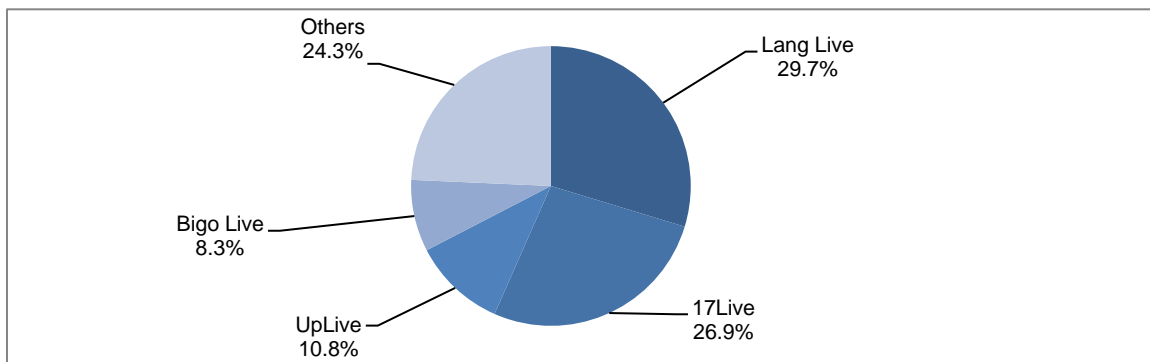
1. Sources include a combination of (i) Interviews with industry and in-house experts; (ii) company reports and other presentation materials including but not limited to news articles, press releases, and publicly available industry data; (iii) Frost & Sullivan’s desktop research on sources including but not limited to databases of industry associations, trade bodies, and government agencies.
2. The market size does not include Vlivs live streaming as it remains a nascent market in Taiwan.

³⁶ Interactive video streaming began to grow rapidly in the mid-2010s with the launch of homegrown interactive video streaming company 17Live in 2015 and other companies, such as Lang Live, UpLive, and Bigo Live, which make up the crucial players in the interactive live video streaming market in Taiwan.

3.3.2 Competitive Landscape and Market Share

Taiwan's top interactive video streaming apps include 17LIVE, Lang Live, UpLive, and Bigo Live. The market also consists of smaller players, such as True Love Live, 1024 Live, and PD Live. As of 2022, 17LIVE commanded 26.9% market share by revenue in Taiwan. Since its launch in 2015, 17LIVE has maintained its position as one of the top two leading companies in the Taiwanese interactive video streaming market. Together with Lang Live, the Company owns more than half of Taiwan's interactive video stream market. 17LIVE further solidified its position by acquiring MeMeLive in 2019. Lang Live, another Taiwanese company that was launched in 2016 and owned 29.7% of the market share. Lang Inc. acquired Lang Live in 2020, bolstering its presence in the market. UpLive, which began operations in China in 2016 and swiftly entered Taiwan in the same year, was the 3rd-largest with a 10.8% market share. Bigo Live, which started its operations in Singapore and launched in Taiwan, Hong Kong, and Macau in late 2016, occupied 8.3% of the market share in Taiwan, coming in at 4th place.

Figure 3-8: Estimated Market Share by Revenue, Pure-Play Interactive Video Streaming Market, Taiwan, 2022E



Source: Frost & Sullivan's primary interviews, desktop research, and analysis

Note: Frost & Sullivan's estimated market players' revenue based on 1) mobile applications estimated gross revenue and overall industry observation of the interactive video streaming market, 2) Quarterly financial reporting of publicly listed companies, and company disclosures 3) The market share allocation does not include Vlivs live streaming as it remains a nascent market in Taiwan. 4) For both leading companies, 17Live and Lang Live, the reported revenues used for the calculation of respective market shares are predominantly derived from their pure-play interactive video streaming services in Taiwan; i.e. at least 98% of the reported revenues consist of pure-play live stream revenue.

3.3.3 Operational Performance

Among the major players in Taiwan’s pure-play interactive video streaming market, 17LIVE and Lang Live dominate the market with a combined market share of 56.6% in 2022. These 2 market leaders outperform their competitors, UpLive and Bigo Live, in all selected operational metrics (Figure 3-9). Even though Lang Live has a higher MAU and average view duration per DAU than 17LIVE, the latter has a more effective monetization strategy and more paying users, outperforming Lang Live in terms of ARPPU and ARPU.

Figure 3-9: Operational Performance for Select Apps, Taiwan, 2022E

Metrics/ App Names	17LIVE	Lang Live	UpLive	Bigo Live
MAU	114,000.0	192,480.0	57,744.0	38,496.0
Gross Profit Margin (%)	19.9	28.0	<40 ¹	<37.6 ¹
Est. ARPPU (USD)	350.0	260.3	96.9	<452 ¹
Est. ARPU (USD)	63.3	41.4	50.1	58.2
Average View Duration per DAU (minutes)	81.0	130.0	120.0	NA

Source: Frost & Sullivan’s primary interviews, desktop research, and analysis

Note: 1. Figures denote overall Company numbers. Geographical split pertaining to Taiwan was not available as on date of this report preparation. Sources include a combination of (i) Interviews with industry and in-house experts; (ii) company reports and other presentation materials including but not limited to news articles, press releases, and publicly available industry data; (iii) Frost & Sullivan’s desktop research on sources including but not limited to databases of industry associations, trade bodies, government agencies, such as National Development Council (Taiwan), Taiwan Statistical Data Book.

3.4 COMPANY POSITIONING³⁷

3.4.1 Sales and Market Strategy

Japan

17LIVE's strategy for the Japanese market comprises initiatives in various areas. It aims to establish itself as a prominent Vtuber agency by focusing on Vlivs management, collaborating with established companies, and nurturing talented V-Livers. This new strategy means that 17LIVE is likely to be the 1st virtual live platform to manage Vlivs among the players in this report. The company plans to develop Vlivs-related products, incorporating technological advancements and expanding its content portfolio. Additionally, it is venturing into mobile game development and recognizing the potential of interactive games that allow users and streamers to play together. The company also integrates live commerce into its platform, providing an alternative revenue option for streamers and enabling SMB merchants and major brands to tap into their user base. Furthermore, the company organizes diverse offline events to foster engagement, support streamers' growth, and create immersive user experiences. It also invests in cutting-edge streaming technology to develop its own technology to optimize the user experience and focus on talent acquisition and management, training programs for streamers, and in-person gatherings to support community building. With a focus on customer retention, 17LIVE provides personalized services, incentives, and loyalty programs to enhance user satisfaction.

Streamers generate revenue through virtual gifting and subscriptions, and the company organizes offline events and festivals for streamers to interact with their fans. Through these initiatives and dedication to quality content, 17LIVE aims to establish a strong presence in the virtual entertainment industry in Japan while prioritizing user satisfaction, streamer growth, and innovative streaming technology. According to

³⁷ Unless otherwise specified, this section on Company positioning (ListCo positioning) has been drafted based on information provided by the Company/ListCo. Frost & Sullivan has not conducted any independent diligence on the data or information thus obtained.

Frost & Sullivan, 17LIVE is the first Vlivier agency with its' own live streaming platform and is poised for a significantly strong growth in the forecast period.

Taiwan

17LIVE adopts a multi-pronged approach to increase brand awareness and market penetration in Taiwan. The company regularly hosts offline events, such as newbie exclusive programs, to incubate new streamers and music events featuring the 17LIVE's musician streamers. In addition, 17LIVE participates in various government events, such as Taiwan Lantern Festival and Creative Expo Taiwan, to increase its brand exposure. On top of building an offline presence, it engages in strategic partnerships to spread brand awareness through different channels. For instance, by sponsoring a professional basketball team, Kaohsiung Steelers, 17LIVE has incorporated its name into its logo and enjoys publicity at each of the baseball team's sporting event and press release. Thus far, 17LIVE is the only pure-play interactive video stream platform with such a co-branding strategy with a leading professional sports club. Additionally, the company collaborated with Sanrio, a leading Japanese entertainment company, and Supau, a top Taiwanese drinks brand, to promote itself.

Offering localized content is a crucial success factor for attracting and retaining live stream users. 17LIVE has adopted a unique strategy in Taiwan by engaging with politicians from various political parties and inviting them to participate in live streaming on its platform. Some of the Taiwan politicians that have appeared on 17LIVE's platform include the Taiwan President, Tsai Ing-Wen, and the former Mayor of Taipei, Ko Wen-je. The platform's original content offerings include live singing competitions, fortune telling programs, and outdoor game shows.

3.5 OPPORTUNITIES

Horizontal and Vertical Integration³⁸

Taiwan's interactive video streaming market has reached a mature stage and is experiencing consolidation. Three major players, 17LIVE, Lang Live, and UpLive, hold a combined market share of about 65%, with 17LIVE alone accounting for 26.9% of the market. This dominance has resulted in other players, such as Bigo Live, gradually fading out of the Taiwanese market. In Japan, the interactive live streaming industry has also seen significant development and expansion. Several major players, such as 17Live, Pochocha and Twitch, have established a dominant position, holding a combined market share of around 54.1%. While Taiwan is in a consolidation stage, Japan's market is well established, with companies adopting various forms of vertical integration to strengthen their market position. Three of the main vertical integration approaches are content creation, technology development and monetization.

In the pure-play interactive video streaming industry, quality streamers are a crucial success factor, as users tend to follow the streamers rather than the platform. However, online celebrities or influencers typically have a limited lifespan, making it unsustainable for the streaming platforms to rely solely on UGC for revenue. To address this, interactive video streaming platforms have developed in-house programs to enhance user stickiness and retention. For example, 17LIVE offers unique content, such as fortune-telling programs and outdoor game shows, as part of its product differentiation strategy, which other leading players in interactive video streaming market will likely adopt. Similar to Taiwan, having quality streamers is a key success factor for live streaming platforms in Japan. These platforms focus on attracting and retaining top content creators to appeal to their audiences.

Interactive video streaming companies may also pursue vertical integration, which can offer significant benefits in Taiwan's relatively mature market. By vertically integrating their operations, interactive video streaming companies can have more control over the entire production process, from sourcing talent and

³⁸ Vertical integration refers to the integration of two firms that are involved in different stages of the supply chain or production process. Horizontal integration occurs when a company expands its business by acquiring or merging with similar companies in the same industry and at the same level of the supply chain.

creating content to delivering it to users. This allows for streamlined operations, increased efficiency, and improved coordination between different aspects of the business. It reduces reliance on external partners and platforms, providing greater autonomy and flexibility in decision-making. With inhouse teams for talent management, content production, and marketing, interactive video streaming companies can eliminate intermediary costs and capture more value their services generate. This can result in higher profit margins and increased competitiveness in the market.

Live Commerce

Taiwan's eCommerce penetration rate exceeded 50% in 2022³⁹. As the demand for online products and services continues to increase, retailers in Taiwan are intensifying their efforts to expand their eCommerce presence. In this regard, many retailers are incorporating live commerce into their overall eCommerce strategy. Live commerce offers a highly interactive and real-time engagement experience leveraging the urgency created during limited live commerce sessions. Consequently, Frost & Sullivan believes that the conversion rate of live commerce is expected to surpass that of traditional eCommerce.

Live commerce in Japan is still in its early stages but shows growth potential. Only a small percentage of respondents have made purchases through live commerce platforms, indicating a low adoption rate. However, owing to enthusiasm and momentum surrounding live commerce, the companies in the eCommerce industry are actively working to enhance its popularity. The market's expansion will require a shift in Japanese society's online shopping behavior, which may take time owing to cultural reasons. Nonetheless, the lack of a dominant player in the market presents an opportunity for early entrants to establish themselves and access potential revenue.

V-Livers

V-Livers present significant opportunities for the interactive video streaming industry. Due to their digital nature, V-Livers can attract a global fan base, transcending language and cultural barriers. This expands the reach of interactive video streaming platforms and increases their market presence. Moreover, V-Livers provide diverse monetization channels through virtual gifting, merchandise sales, and paid subscriptions, generating sustainable revenue streams for both the personalities and the platforms. Collaborations with other content creators, virtual or real, offer cross-promotion opportunities and expand brand exposure. V-Livers accelerate technological advancements, utilizing cutting-edge technologies, such as motion capture and AI-generated content. By embracing these virtual personalities, interactive stream platforms can tap into their innovative potential, attract a wider audience, and stay competitive in the evolving landscape of online entertainment. According to Frost & Sullivan, V-Livers are a significant revenue source in Japan's interactive video industry and will positively impact its growth in the forecast period. The industry's size is visible in the market size section for Japan—accounting for 34.4% of the total market size in 2022. Besides live streaming, one of the most promising opportunities in this market is virtual talent agencies, such as AnyColor and Hololive.

³⁹ Taiwan Network Information Center. Service Application Overview. https://report.twnic.tw/2022/TrendAnalysis_globalCompetitiveness.html. 2022. n.d.

4 OVERVIEW OF INTERACTIVE VIDEO STREAMING PLATFORM MARKET IN MAJOR SOUTHEAST ASIAN COUNTRIES

4.1 TRENDS (DRIVERS AND RESTRAINTS)

Following the internet adaptation and development of allied sectors in the region in 2015 and thereafter, the media and entertainment industry witnessed an increase in the number of content creators who used live streaming to share snippets of their lives with their followers. Various influencers in different industries, including beauty bloggers and professional gamers, saw live streaming as an effective way to stay connected with people. As a result, live blogging platforms, such as Bigo Live, have seen a massive increase in popularity in Indonesia and Thailand. Social media and eCommerce companies have also begun offering various live streaming solutions. Countries such as Thailand are at the forefront of live stream adoption, with many digital consumers making online purchases using live streams.

Indonesia: Interactive video streaming platforms in Indonesia provide localization features, including local language support, localized content curation, and customer service in the Indonesian language. This localization strategy enhances user experience and fosters a deeper connection with the local audience. The Indonesian government has implemented live streaming content regulations to address content moderation, copyright infringement, and user protection issues. Platforms must comply with these regulations to operate legally in the country. Social media personalities are also popular live streamers in Indonesia. These personalities often live stream their daily lives, hobbies, ideas, and opinions on various topics. Some of the most popular social media personalities who live stream in Indonesia include Awkarin, Jess No Limit, and Raditya Dika. Pure-play interactive video streaming platforms in Indonesia have integrated social commerce features, enabling viewers to purchase directly from live streams. For example, Uplive, a live streaming platform, incorporates eCommerce elements, allowing streamers to sell products and viewers to make real-time purchases.

The Philippines: Filipino streamers often organize charity streams, donation drives, and fundraising events, leveraging their live streams to raise awareness and support various social causes. Being the country with the lowest internet penetration in SEA, it has a smaller fraction of the addressable market. However, with the 2nd-largest population in SEA, the Philippines market is likely to be a perfect geography for interactive video streaming companies to expand their operations.

Thailand: Thailand is one of the largest internet consumption countries in the world, with individuals using it for an average of more than 8 hours per day. Social media platforms have a significant presence in Thailand, with platforms such as Facebook, LINE, BIGO, and Instagram enjoying wide usage. Thais use social media for various purposes, including connecting with friends and family, consuming news and entertainment, and engaging with brands and businesses. With people spending most of such time on social activities, online live streaming has a significant opportunity in the country. The Thai government has been actively promoting digital transformation and internet connectivity across the country. Initiatives such as the Digital Thailand strategy aim to improve broadband infrastructure, provide internet access to rural areas, and foster the growth of the digital economy.

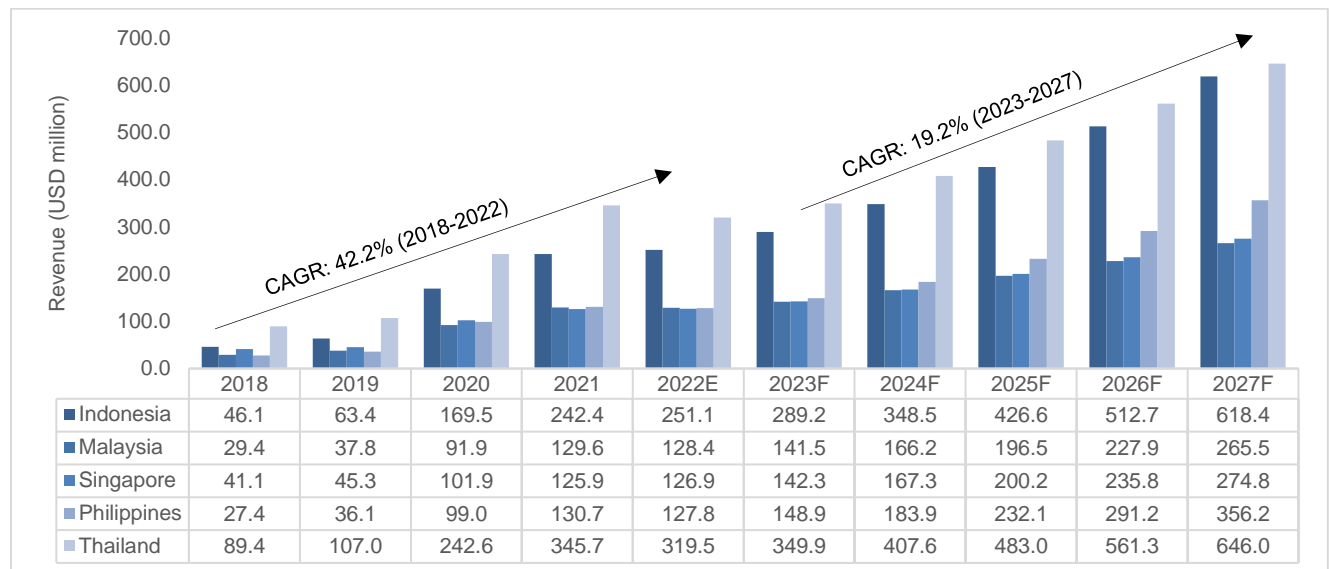
Malaysia: Live streaming and eCommerce have started to converge in Malaysia. Brands and retailers leverage live streaming to showcase and sell products directly to consumers. Live shopping events and product demonstrations have become popular, allowing viewers to make real-time purchases during the live stream. Malaysia has one of the highest internet penetration rates globally, with more than 95% of individuals using the internet, according to the World Bank in 2021. In line with its high population, Malaysia is home to one of the largest addressable audiences for live streaming among SEA nations. The Malaysian government has launched various initiatives to promote digital transformation and internet accessibility. Programs such as the National Fiberisation and Connectivity Plan aim to improve broadband infrastructure and expand internet connectivity throughout the country. More than 95% of the internet population uses social media in the country, with platforms such as Facebook, Instagram, and Twitter being popular for social networking, content sharing, and communication. The appeal of connecting with friends, sharing updates, and consuming content has contributed to high internet usage.

Singapore: Technological advancements in streaming technology have improved Singapore's overall live streaming experience. These advancements include better video quality, reduced latency, and enhanced interactivity, making live streams more engaging and accessible. Singapore has one of the highest monetized customer penetration rates for interactive video streaming platforms, with the average revenue per user being one of the highest in SEA. This factor contributes to a large market size for Singapore in live streaming, even with a relatively low population. About 90% of live streaming conversations center around Millennials and Gen Z or those aged between 18 to 34. This group is also more supportive of live streaming content and mostly uses these platforms. The Media Development Authority of Singapore provides guidelines for online content, including live streaming. To ensure responsible content creation and distribution, these guidelines cover various aspects, such as classification, content ratings, and age restrictions.

4.2 MARKET SIZE

The interactive video streaming market in SEA recorded revenues of USD 233.3 million in 2018 and reached USD 953.6 million in 2022 at a CAGR of 42.2%. A booming internet market and increasing digital awareness owing to the COVID-19 pandemic fueled this growth. Going forward, the market is expected to reach USD 2160.9 million, recording a moderated CAGR of 19.2% from 2023 to 2027.

Figure 4-1: Estimated Market size and forecast of Interactive Video Streaming (USD million), SEA, 2018-2027F



Source: Frost & Sullivan's primary interviews, desktop research and analysis

4.3 OUTLOOK

With increasing internet and smartphone penetration levels, improvements in digital infrastructure, and various SEA governments' digitalization and smart nation efforts, the quality and penetration rate of live streaming in the region will continue growing. The industry in SEA is expected to benefit from the emergence of new monetization models as live stream adoption increases. Notably, the model of virtual gifting, as researchers observed in Northeast Asian countries, such as China, Japan, and Taiwan, will not sustain in SEA owing to the lack of super-spending users who are willing to splurge on expensive virtual gifts for their favorite streamers.⁴⁰

A crucial area of growth is the continued expansion of live commerce. According to Frost & Sullivan, Vietnam, Thailand, and Indonesia are the leading markets in live commerce penetration and market size by gross merchandise value. Popular platforms in the region for live shopping include major social media platforms, such as Facebook, Instagram, and TikTok, and leading eCommerce platforms, including Shopee and Lazada. Despite the dominance of Facebook and Instagram as major social media platforms hosting live commerce, they lack live shopping engagement tools and integration with eCommerce engines, such as conversion tools (e.g., a check-out function). As a result, a growth opportunity in the SEA live commerce ecosystem lies in live commerce enablers, such as enterprises that provide full-stack solutions for hosting live commerce on multiple channels, streamlining the process of collecting customer orders from these various channels, and promoting products and live events.

Another growth area in SEA's live stream market is game live streaming. Owing to the popularity of eSports in the region, SEA has 40 million esports viewers according to industry sources, with gaming content fast becoming mainstream entertainment. According to industry sources, more than 50% of the region's online users consume gaming video content, with YouTube Live and Twitch being the region's most popular gaming live stream platforms. As the gaming industry continues to expand, more game live streaming apps will enter the region to capture this fast-growing market.

As live streaming becomes more prevalent in the region, governments will step up regulatory measures for content moderation and copyrights. Also, as awareness about potentially harmful social media content grows, many countries have implemented or are in the process of introducing laws to protect users from online harm. For instance, Singapore proposed a new Code of Practice for Online Safety and the Content Code for Social Media Services that would legally require social media platforms, which most, if not all, interactive video streaming platforms fall under, to implement safety standards and content moderation processes.⁴¹

⁴⁰ KrAsia. "Live streaming in Southeast Asia: from 'in-real-life' broadcasting to shopping and gaming". <https://kr-asia.com/live-streaming-in-southeast-asia-from-in-real-life-broadcasting-to-shopping-and-gaming>. 30 Sep 2019.

⁴¹ The Straits Times. "S'pore joins other places that have enacted or proposed laws to regulate online content". <https://www.straitstimes.com/singapore/spore-joins-other-places-that-have-enacted-or-proposed-laws-to-regulate-online-content>. 20 Jun 2022.

5 BRIEF OVERVIEW OF V-LIVERS LANDSCAPE

5.1 INDUSTRY OVERVIEW

Japan

The Animation Comic and Games (ACG) culture, which encompasses anime, comics, and games, originated in Japan and has evolved over time. Various economic and social events, including Manga (a form of Japanese comics) and anime, have influenced the development of ACG. Even during the economic crisis years in Japan, the ACG industry remained stable and continued to produce influential works. The emergence of the internet facilitated the promotion of ACG culture globally, and online communities dedicated to discussing anime and Manga flourished.

The V-Livers concept in Japan deeply connects with ACG. The 1st appearance of a V-Livers in Japan was in 1982. It started with Lynn Minmay coming from the anime series Super Dimension Fortress Macross. The songs Lynn Minmay performed as an idol singer became a hit within the series, and she would later become the 1st fictional singer to garner major real-world success⁴². In 1989, the radio program All Night Nippon introduced Yui Haga, where multiple voice actors and singers took on roles as radio personalities, swimsuit gravure models, and singers⁴³.

Following Lynn Minmay, Hatsune Miku originated as a character within the Vocaloid software, which Crypton Future Media (Sapporo) introduced in 2007. Vocaloid is a virtual female vocal (synthetic voice) singing software. The emergence of user-friendly free software for creating 3D character dances gained immense popularity among the younger generation, who primarily consumed internet content rather than traditional television. Many consider these 2 characters the beginning of the virtual live concept in Japan today, although the name was still not coined back then.

Since 2010, the anime industry has experienced significant expansion across various fronts, including distribution, collaborations, stage performances, and exhibitions. One recent trend of virtual streamers and idols became especially popular with the lockdowns owing to COVID-19. A notable area of growth is the virtual live music performed by V-Livers. These virtual idol concerts have transformed the music production, consumption, and performance experience in our digital society. The concerts are known for their unique blend of technology, animation, and live music performance.

The COVID-19 pandemic resulted in a temporary suspension of live presentations by real and idols, leading to the growth of V-Livers owing to their continued availability online. Nevertheless, in Japan real-life concerts are regularly held for V-Livers, where the idols are displayed on screen or as a hologram. While the pandemic has temporarily hindered this upward trajectory, a substantial demand remains for immersive user experiences centering around anime.⁴⁴ V-Livers, such as Hatsune Miku and KD/A (a virtual girl group of Riot Games to promote its video game League of Legends and its in-game products), have gained significant popularity. These V-Livers have garnered massive fan bases and achieved chart-topping success. The concept has expanded to include virtual avatars similar to real people, for example, Travis Scott's virtual concert on Fortnite. V-Livers have emerged as a captivating and influential aspect of ACG culture, engaging fans and pushing the boundaries of multimedia entertainment⁴⁵.

⁴² Kotaku. The Fictional (Yet Amazingly Popular) Singers of Japan. <https://kotaku.com/the-fictional-yet-amazingly-popular-singers-of-japan-5940894>

⁴³ RYM. Japanese Idol Compendium. <https://rateyourmusic.com/list/Fyaos/%E2%9C%AFjapanese-idol-compendium%E2%9C%AF7/>

⁴⁴ Nikkei Asia. "Japan's music industry rises again in new 'age of discovery'". <https://asia.nikkei.com/Business/Business-trends/Japan-s-music-industry-rises-again-in-new-age-of-discovery>

⁴⁵ Rouse. An alternate dimension: Virtual idols. <https://rouse.com/insights/news/2020/an-alternate-dimension-virtual-idols>.

Taiwan

Taiwan's V-Liver concept is nascent and is significantly different from the North Asian market, which is more developed. The animation industry started developing in recent years because of the sharp increase in mobile device usage in the country and the development of new media platforms, such as the interactive video streaming industry, from 2016 onward⁴⁶. This resulted in new opportunities and markets for content creators to leverage. The concept of V-Liver became popular as technology advanced in areas such as motion capture and gesture control.

Moreover, Taiwan has also experienced the development of the ACG sub-culture since the 1990s, when most of the fan population were adolescents⁴⁷. This translated into physical conventions, such as Comic World, a quarterly event Taiwan has held since 1997, with turnouts of approximately 5000 participants at each event⁴⁸. The popularity of the ACG sub-culture has grown tremendously during the past decade, with events, such as the 2023 Taichung International ACG Expo in Taiwan, continuing to see many visitors⁴⁹. The growth of the ACG sub-culture has the potential to spill over to the V-Liver concept in Taiwan, which Vtubers are driving from the Japanese market. Momosuze Nene is a Vtuber from Japan with a strong following outside of Japan in countries such as Taiwan and Hong Kong, with an average fan gifting between 30,000 to 50,000 Taiwan dollars⁵⁰. The adoption of V-Liver in Taiwan is likely to increase in the forecast period owing to the existing Japanese Vtubers and the ACG culture that has established itself within the country.

SEA

The ACG culture has flourished in SEA during the past decade, with animation titles taking up a sizable proportion of the total share of minutes watched in the media and entertainment industry. On Netflix in Indonesia, about 18% of the total minutes watched were anime titles, lagging behind only more established content, such as Korean (31%) and American titles (29%)⁵¹. Frost & Sullivan estimates that this preference is likely to be consistent among most SEA countries because of the cultural and geographical proximity to Japan, which has seen a significant expansion of anime during the past few decades.

V-Livers in SEA are still nascent entities with only a handful of use cases. One such case was the launch of Project Kavvai, a program to identify and develop V-Livers in ASEAN⁵². Aozora Kurumi was the 1st V-Livers under this program and was going to generate online content in areas such as gaming and lifestyle⁵³. However, Kurumi was only active for 1 year and retired from the space in 2022. Kurumi would remain in the broader ecosystem of V-Livers as part of Project Kavvai, as the region continued to embrace the concept of a V-Livers⁵⁴.

From these experiences, the region has increasingly noticed the potential of V-Livers in areas such as brand and marketing, which drives the acceptance and usage of V-Livers in SEA. The increased accessibility of animation titles and collaborations with mainstream media are crucial drivers that is likely to improve the general acceptance of anime in SEA⁵⁵ and generate a second-order effect to boost the

⁴⁶ Animation and Visual Effects Association. <https://www.avataiwan.org/簡介與緣起?lang=en>. Date accessed: 13 June 2023

⁴⁷ Jin-shiow, Chen. The Comic/anime Fan Culture in Taiwan: With a Focus on Adolescents' Experiences. <https://core.ac.uk/download/pdf/51288538.pdf>. 1 January 2003. Date accessed: 11 July 2023.

⁴⁸ Ibid pp 3

⁴⁹ Sean, Lin. Taichung International ACG Expo kicks off. FocusTaiwan. <https://focustaiwan.tw/culture/202304010008>. 4 January 2023. Date accessed: 11 July 2023.

⁵⁰ Ching-hsuan, Hung. Japanese Vtuber, a virtual anime pop idol and show host sets Taiwan alight. Radio Free Asia. <https://www.rfa.org/english/news/china/taiwan-vtuber-08062022083451.html>. 6 August 2022. Date accessed: 11 July 2023

⁵¹ Culture Group. 2023 Culture Drop | The Anime Impact. <https://culturegroup.asia/content/culture-drop/2023-culture-drop-the-anime-impact/>. 8 June 2023. Date accessed: 18 July 2023.

⁵² Sivakumar, Yoganeetha. airasia retires first virtual idol Kurumi after one year. <https://www.marketing-interactive.com/airasia-retires-first-virtual-idol-kurumi-after-one-year>. 5 July 2022. Date accessed: 18 July 2023.

⁵³ Lai, Adrian. Malaysian Airline AirAsia is Debuting A Virtual Idol in Southeast Asia. <https://sea.ign.com/airasia/171710/news/a-malaysian-airline-is-debuting-a-virtual-idol-for-gaming-in-southeast-asia>. 6 May 2021. Date accessed: 18 July 2023.

⁵⁴ Sivakumar, Yoganeetha. airasia retires first virtual idol Kurumi after one year. <https://www.marketing-interactive.com/airasia-retires-first-virtual-idol-kurumi-after-one-year>. 5 July 2022. Date accessed: 18 July 2023.

⁵⁵ Cameron, Robert. Brands Should Harness the Power of Anime in Their Marketing Strategy in Southeast Asia. <https://www.brandinginsia.com/brands-should-harness-the-power-of-anime-in-their-marketing-strategy-in-southeast-asia/>. 13 June 2023. Date accessed: 18 July 2023.

5.2 DRIVERS

Transformative technologies fuel the increase of V-Livers

The rise of V-Livers in the late 2010s, particularly in countries such as China, can be attributed to significant investments in this area and the advancements in modern technologies, such as voice and motion capture and AR.⁶⁰ These investments have paved the way for notable developments in motion capture technologies, leveraging ML and AI. Consequently, the visual effects of V-Livers have become more accurate and can now be produced faster.⁶¹ The enhanced motion capture capabilities are crucial for V-Livers, as they enable a more realistic experience, capturing many actions with greater detail through various sensors tracking the movements of the streamer in real time. Furthermore, the availability of faster internet connections has played a vital role in supporting the utilization of bandwidth-intensive technologies, improving the overall quality of V-Livers and live performances. This attracts a larger user base to participate in virtual live events, creating a more engaging and immersive experience for the audience.

Immersive collaborative platforms facilitate growth of V-Livers, revolutionizing fan engagement

Collaborative platforms have facilitated the emergence of V-Livers by providing a global reach, enabling UGC, and fostering interaction and engagement between fans and V-Livers. These platforms have allowed fans to actively contribute to the V-Liver ecosystem while facilitating direct interaction and a sense of ownership. According to Frost & Sullivan, combining technology and fan engagement has transformed V-Livers into a cultural phenomenon, shaping new entertainment trends and monetization opportunities. Frost & Sullivan believes that such user-engagement for the audience and additional revenue for V-Livers are likely to serve as an impetus for future growth of V-Livers in the country.

V-Livers provide reliable monetizable assets

V-Livers, whether based on AI or personified by individuals behind avatars, offer unique opportunities for monetization and asset reliability.⁶² AI-based V-Livers are seen as reliable assets owing to their consistent performance and lack of personal life issues that could impact their popularity.⁶³ This reliability attracts investors and donors interested in supporting these V-Livers. Additionally, the anonymity and separation of their virtual and real lives make them appealing from a branding perspective, allowing their identities to remain hidden and focusing solely on their work as V-Livers.

V-Livers may also contribute to increased merchandise sales in 2 main ways. Firstly, they possess a dedicated and passionate fan base that eagerly purchases merchandise related to their favorite idols, including clothing, accessories, and collectibles. Brands can capitalize on this by collaborating with V-Livers to offer exclusive merchandise and customized products, tapping into the existing fan base's enthusiasm. Secondly, V-Livers enable brands to explore virtual selling, leveraging technology to connect with customers and sell products or services remotely. This approach proves valuable in instances where there are limited physical sales channels, as brands can engage with fans through virtual events, live streams, social media, and VR experiences, creating interactive and immersive shopping opportunities.

⁶⁰ Y. Q. Wang. A Brief Analysis of the Development of Chinese Virtual Idol Industry Empowered by 5G+Motion Capture Technology-Taking the Virtual Idol Group A-SOUL as an Example. Journal of Physics: Conference Series. <https://iopscience.iop.org/article/10.1088/1742-6596/2278/1/012011/pdf>. 2022. Date accessed: 14 June 2023

⁶¹ Salvi, Nikhil. Machine Learning for Motion Capture: How AI is transforming the accuracy and speed of motion capture in visual effects production. 22 March 2023. Date accessed: 15 June 2023.

⁶² Phuc, Dang. Virtual Idol: A Product of Advanced Technology You Need to Know. <https://animost.com/ideas-inspirations/virtual-idol/>. 16 January 2023. Date accessed: 15 June 2023

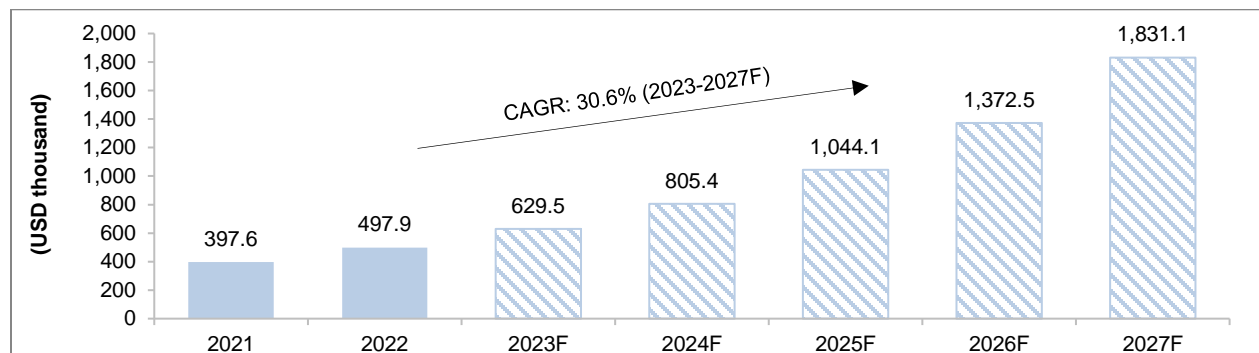
⁶³ Shen, Lu. Why China's falling in love with virtual idols. Protocol. <https://www.protocol.com/china/virtual-idols-metaverse-china>. 12 October 2021. Date accessed: 13 June 2023

5.3 MARKET SIZE

Taiwan

Frost & Sullivan estimates that the market for V-Livers in Taiwan will grow from USD 0.6 million in 2023 to USD 1.8 million in 2027, with a CAGR of 30.6% for the period. The current market size of V-Livers in Taiwan is much smaller than in Japan. The existing Vtubers from Taiwan are driven by individuals as opposed to Vtuber agencies which are lacking in Taiwan. The adoption of advanced technology, which already exists in the Japanese market, will drive future growth of V-Livers. These technologies are likely to enable more sophisticated motion capture and facilitate the development of new content for V-Livers. The recognition of the reliability and effectiveness of V-Livers in the interactive video streaming industry is also likely to attract more investors driving it further. Additionally, enterprises targeting Gen Z consumers will show increased interest in leveraging V-Livers as a crucial marketing strategy to engage with this younger demographic.

Figure 5-1: Estimated Revenue Forecast of V-Liver Livestreaming (USD thousand), Taiwan, 2022-2027F



Source: Frost & Sullivan’s primary interviews, desktop research and analysis

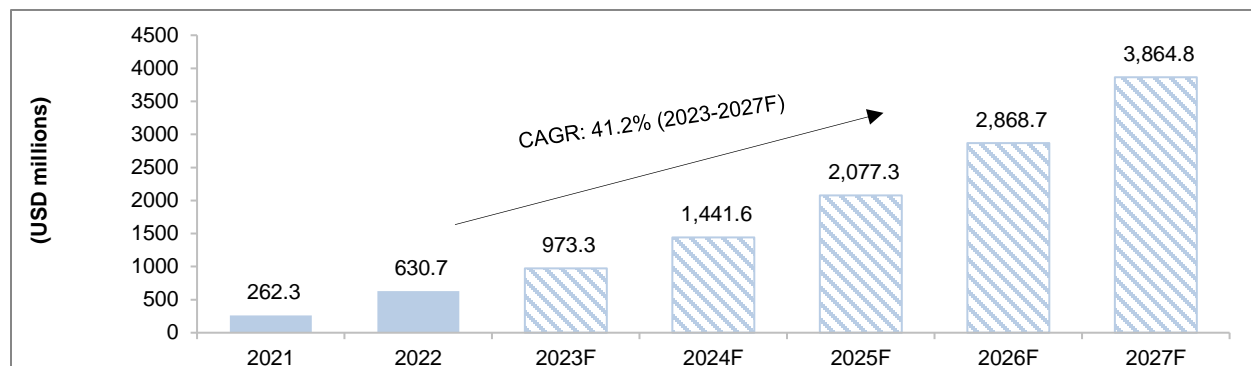
Note:

1. Sources include a combination of (i) Interviews with industry and in-house experts; (ii) company reports and other presentation materials including but not limited to news articles, press releases, and publicly available industry data; (iii) Frost & Sullivan’s desktop research on sources including but not limited to databases of industry associations, trade bodies, and government agencies.
2. The market size is estimated as total addressable market (TAM), calculated based on the estimation of the total revenue from the V-Liver market which consists of Vtubers (virtual idols on YouTube) and idols on the interactive video streaming platforms who use virtual avatars.

Japan

Frost & Sullivan estimates that the market for V-Livers in Japan is expected to grow from USD 973.3 million in 2023 to approximately USD 3,864.8 million in 2027, at a CAGR of 41.2% for the period. The current market size of V-Livers⁶⁴ in Japan largely comprises Vtubers created by individuals which makes up the majority of V-livers in terms of numbers of creators, however, in terms of monetary value, the bigger share of revenue still originated from those created by the V-liver companies. The introduction of new technologies and better internet connection is expected to drive future growth, improving the experience of virtual live streaming.

Figure 5-2: Estimated Revenue Forecast of V-Liver Livestreaming (USD Million), Japan, 2021-2027F



Note:

1. Sources include a combination of (i) Interviews with industry and in-house experts; (ii) company reports and other presentation materials including but not limited to news articles, press releases, and publicly available industry data; (iii) Frost & Sullivan's desktop research on sources including but not limited to databases of industry associations, trade bodies, government agencies.

5.4 DEMOGRAPHICS

According to Frost & Sullivan, most V-Liver followers belong to the Gen Z. This trend is global, including in markets such as Taiwan and Japan. In Taiwan, more than 75% of V-Liver viewers fall within the age range of 16 to 23. Whereas, in Japan, Holo Live and NIJISANJI, to which the majority of popular Vtubers belong, state that about 45% of their viewers are between the ages of 18 and 24 and about 30% between the ages of 25 and 34⁶⁵. These age groups represent a significant consumer segment owing to its strong technological exposure and awareness of the latest trends within the entertainment industry. In contrast, fans of traditional idols encompass a more diverse range of age groups. This diversity stems from V-Liver followers' exposure to technology from a young age, fostering a greater appreciation and acceptance of animated content. On the other hand, the followers of in-person idols seek companionship and, therefore, prioritize interactions with real individuals. This preference for genuine human interaction contributes to the diverse nature of in-person idol consumers.

⁶⁴ There were approximately 20,000 V-Livers in Japan at the end of 2022.

⁶⁵ PIA. 【設計者が解説】なぜ課金する？若者人気拡大中の「VTuber・バーチャルアイドル」の押さえておきたいポイントと、セグメント活用方法. <https://data.pia.co.jp/news/pia-segments/5362/>

5.5 GLOBAL OUTLOOK

V-Livers are expected to achieve significant growth in the upcoming decade, primarily in East Asia, particularly China and Japan. Taiwan, owing to its proximity to these countries, is likely to benefit from a spill-over effect. The technological advancements within the V-Liver landscape is expected to drive this anticipated growth, resulting in faster response speeds and shorter development cycles for new idols owing to improvements in AI. Furthermore, this growth is likely to generate new opportunities in marketing and advertising, as brands recognize V-Livers as valuable collaborators that offer improved access to the target demographic of 16 to 23-year-olds⁶⁶. Frost & Sullivan believes that as these developments gain traction, global brands will take notice, potentially expanding the wave of V-Liver adoption beyond East Asia and into Western markets. This in-turn is likely to create new revenue streams for the V-Livers and catalyze sustained growth.

⁶⁶ Mengyuan Ge. China's virtual idols are reshaping the ways brands reach Gen Z consumers. KrAsia. <https://kr-asia.com/chinas-virtual-idols-are-reshaping-the-ways-brands-reach-gen-z-consumers>. 29 January 2022. Date accessed: 4 July 2023.

6 BRIEF OVERVIEW OF LIVE COMMERCE

6.1 INDUSTRY OVERVIEW

Live commerce, or livestream shopping, is an eCommerce model that integrates online shopping with interactive video streaming. It entails a live broadcast in which a host or influencer showcases and demonstrates products in real time to an audience virtually, allowing viewers to interact, ask questions, and make purchases directly through the live stream. Live commerce has gained popularity owing to its ability to create engaging, interactive, and entertaining shopping experiences. It bridges the gap between traditional retail and online shopping by providing a unique blend of entertainment, social interaction, and product discovery.

Live commerce typically takes place on eCommerce websites and social media platforms. Brands and resellers would partner with influencers or individual creators to conduct live shopping events on these platforms. These influencers and individual creators would develop the content for live streams, likely in collaboration with the retailers and brands, including the products they plan to promote, the storylines, and the scripts. Many live commerce hosts produce, record, and stream live shopping events from their homes or at retail storefronts. Users usually consume live commerce content via the platform apps they install on their smartphones or tablets and access through wireless internet. Platforms publishing these live shopping events usually allow viewers to interact with live commerce hosts through chat functions and reactions. Retailers and platforms are responsible for ensuring a seamless customer journey on the sites of live commerce, especially the checkout processes. Typically, a link for live shopping viewers to purchase the items would appear on-screen. To ensure a frictionless customer journey, retailers and live commerce platforms must ensure their systems are well-integrated.

China

In recent years, the live commerce market in China has rapidly expanded, and China is now one of the most important participants in the global live commerce market. The COVID-19 lockdown has shifted consumption from offline to online, stimulating the live commerce market to expand on both the demand and supply sides. Mass consumer goods, including apparel, food and beverages, cosmetic products, and consumer electronics, initially contributed to the market expansion in China.

According to the China Internet Network Information Center, the users of live commerce in China experienced significant growth from 220 million in 2018 to 372 million in 2020 and 515 million in 2022, representing a five-year CAGR of 23.7%. As of December 2022, 68.6% of domestic live-streaming users use live commerce on domestic live commerce platforms (led by Taobao, Douyin, and Kuaishou), which are continuously improving their business operations and infrastructures to enhance merchants' and users' experiences.

Going forward, Frost & Sullivan believes that the live commerce market in China is expected to continue its' growth momentum, with a greater variety of product categories and types and enhanced product and service quality. Nevertheless, it is forecasted that user scale and penetration growth in China may slow down in the forecast period given the existing high-base. Taobao, Douyin, Kuaishou, and other domestic live commerce platforms will continue establishing differentiated competitive advantages to drive user traffic and revenue.

Taiwan

Taiwan's live commerce market follows China's model, incorporating live streaming on comprehensive eCommerce sites, short video platforms, and social media. Facebook and YouTube are the most popular platforms for social media live commerce, while Line entered the market in 2018 but remains smaller. Momo and Shopee are the top choices for eCommerce platforms with live stream functions. Brands are considering developing their own live stream channels on their official websites to avoid processing fees on social media or eCommerce platforms. According to industry sources, more than 70% of internet users in Taiwan have participated in live commerce streams, indicating a significantly high penetration rate for live commerce. Moreover, more than 25% of internet users make purchases during live stream sessions. Owing to the relatively high conversion rate of live commerce, retailers are increasingly emphasizing live streaming as a crucial marketing strategy.

Japan

The live commerce market in Japan is still in its relatively early stages, showing slower progress despite the COVID-19 pandemic acting as a catalyst. The slow growth may be due to the preference for in-person shopping experiences and the dominance of established eCommerce platforms. However, consistent YoY growth has indicated the market's potential. The future trajectory of the live commerce market in Japan heavily relies on the platforms that facilitate its integration. Live commerce predominantly occurs on popular social media platforms, such as Instagram and YouTube Live. Influencers and sellers conduct live sessions on these platforms and separate websites, announcing product availability and details. These interactive live sessions generate high levels of engagement, resulting in sold-out products and significant shopping activity. However, a notable constraint in the Japanese market is the lack of integrated platforms seamlessly combining live commerce and social media. Existing platforms provide separate services rather than a unified live commerce experience. This limitation hampers the widespread integration of live commerce into popular platforms and presents a hurdle to this practice's overall growth and adoption. Several players contribute to the live commerce market in Japan, with SHOWROOM holding the largest market share, followed by platforms such as Base and Mirrativ.

6.2 KEY DRIVERS

Increasing shift in consumer preference toward mobile-first shopping

A notable increase in consumer preference for mobile-first shopping reflects a shift in shopping habits. With smartphones' widespread availability and convenience, more consumers rely on mobile devices for shopping. Several factors drive this trend, including the ease of browsing and purchasing products on mobile apps, the ability to shop on the go, and the seamless integration of mobile wallets and payment options. The trend of mobile-first shopping will continue, and as technology advances and mobile devices become more sophisticated, consumers will increasingly rely on their smartphones for shopping, prompting retailers to prioritize mobile optimization and create seamless experiences across devices.

Growth of influencer marketing

The exponential growth of social media usage has led to the emergence of influencers or microcelebrities⁶⁷. A research study revealed that young consumers often refer to social media platforms, such as Instagram or YouTube, to gather information from product reviews before making purchases. Social influencers' recommendations on these platforms often shape consumers' buying decisions. Younger social media users perceive endorsements by these online celebrities as more credible and relatable.⁶⁸ As a result, retailers increasingly employ influencers to market products on social media live streams as a crucial marketing strategy.

Integration of live stream and eCommerce platform to create interactive and engaging shopping experiences

Advancements in live commerce technology have integrated live stream features with eCommerce platforms, enabling accessible checkout options during live streams and real-time interactions between buyers and hosts. This seamless combination of audience engagement and instant purchase is a crucial enabler of social media commerce. The increasing consumer demand for interactive and engaging shopping experiences in Japan drives live commerce, which allows consumers to participate in real-time product demonstrations, ask questions, and receive immediate responses, creating a personalized and immersive shopping journey that appeals to Japanese consumers.

⁶⁷ Croes & Bartels. Young adults' motivations for following social influencers and their relationship to identification and buying behaviour. <https://www.sciencedirect.com/science/article/pii/S0747563221002338>. Nov 2021.

⁶⁸ Ibid.

6.3 GROWTH CHALLENGES

Efficiently scaling and streamlining logistical operations is crucial for the successful expansion of live commerce

Effective logistics and distribution channels are crucial in ensuring a smooth last mile user journey in live commerce. Uncertainty in parcel arrival time is a common pain point for online shoppers, highlighting the importance of flexible logistics services. However, for interactive video streaming companies primarily focused on live commerce, establishing an efficient logistics network can be challenging, as they may lack expertise in eCommerce logistics. For example in Japan, a crucial challenge is the availability of products to meet the demand that live commerce sessions generate. The success of live commerce campaigns often exceeds expectations, resulting in inventory shortages and difficulties in fulfilling customer orders promptly. Technical problems, particularly server-related issues, also challenge the smooth functioning of live commerce in Japan. Robust server infrastructure is necessary to handle the high traffic volume and real-time interactions during live sessions. Any technical glitches or server failures can disrupt the live commerce experience, leading to customer dissatisfaction and missed sales opportunities. Therefore, investing in the necessary technical infrastructure is crucial to ensure live commerce operations run smoothly.

The risk of fraud can pose a challenge to the live commerce industry

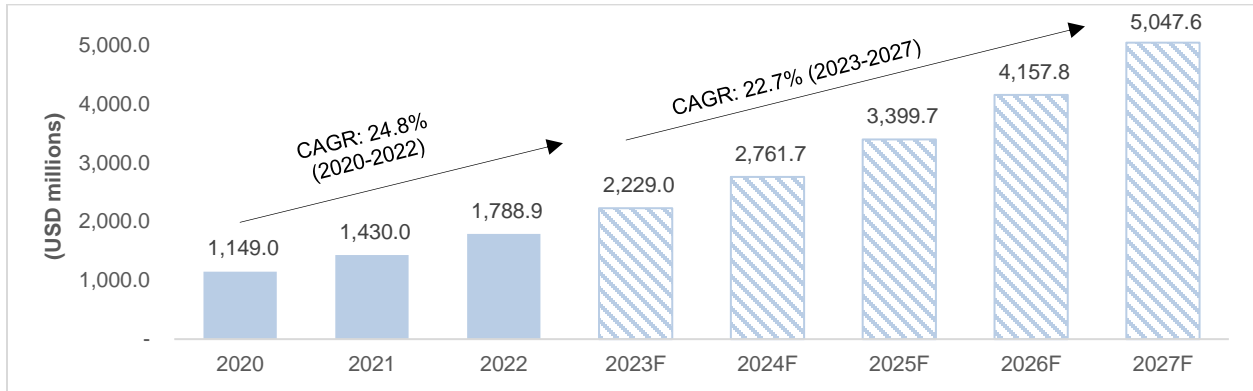
The risk of fraud poses a significant challenge in the live commerce industry, as the real-time nature of transactions and the lack of physical interaction make it harder to verify the authenticity of sellers and products, requiring stringent measures to ensure consumer trust and mitigate fraudulent activities. In Taiwan, for example, regulations on online businesses are lacking, contributing to a lack of trust in online sellers, including live commerce hosts. Consumers remain vulnerable to online fraud and consider buying from individual influencers riskier than purchasing from an established brand or retailer. The perceived risk of not receiving the agreed products (or that products will be below expectations) restrains consumers from purchasing through live stream shopping channels. Hence, effective regulation to ensure consumer safety when engaging in online transactions is a crucial enabler for live commerce's future growth.

6.4 MARKET SIZE

Taiwan

Frost & Sullivan forecasts that Taiwan's social media live commerce market is expected to grow from USD 2,229.0 million in 2023 to USD 5,047.6 million in 2027, at a CAGR of 22.7%. The COVID-19 pandemic and lockdowns have greatly accelerated the growth of online retail, including social media live commerce. The closure of physical stores fueled this trend, prompting consumers to turn to online platforms, including Facebook and YouTube, for purchases. Group bulk purchases, especially among middle-aged consumers with limited access to overseas products, have become popular in Taiwan. While growth will remain strong post-pandemic, it may moderate as the initial surge in online shopping subsides.

Figure 6-1: Estimated Revenue Forecast of Social Media Live Commerce (USD million), Taiwan, 2020-2027F



Source: Frost & Sullivan's primary interviews, desktop research, and analysis

Note:

1. Sources include a combination of (i) Interviews with industry and in-house experts; (ii) company reports and other presentation materials including but not limited to news articles, press releases, and publicly available industry data; (iii) Frost & Sullivan's desktop research on sources including but not limited to databases of industry associations, trade bodies, government agencies.
2. The market size is estimated as TAM, calculated based on the estimation of total revenue from live commerce sales on social media platforms in Taiwan; i.e., it does not include live commerce sales on eCommerce platforms or revenue of companies that offer live commerce as software-as-a-service

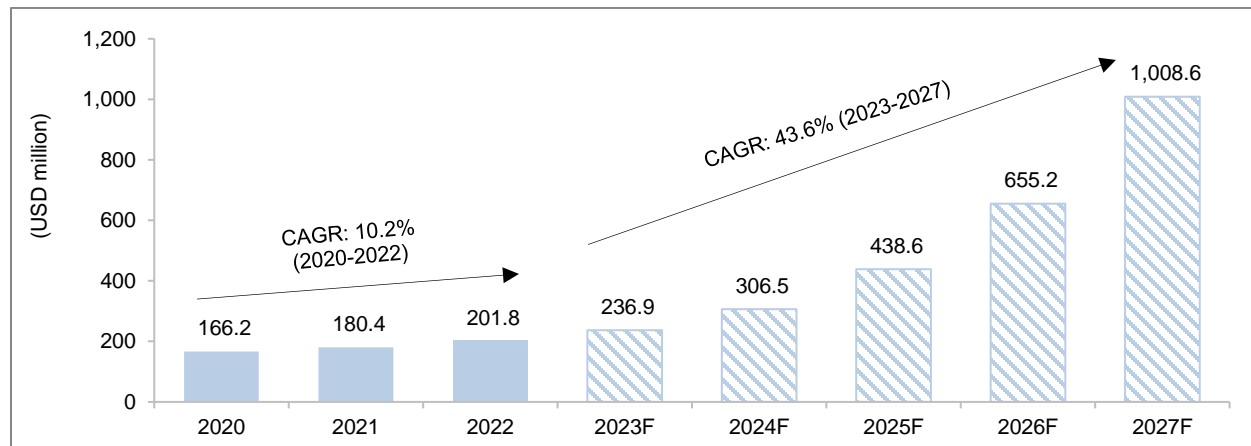
Japan

While currently small, the live commerce market in Japan shows significant potential. As platforms and brands invest in expanding and improving live commerce offerings, companies can tap into untapped market segments and drive growth. The market size of live commerce in Japan was about USD 201.8 million in 2022 registering a historical CAGR of 10.2% over 2020-2022. Going forward, it is expected to grow from USD 236.9 million in 2023 to USD 1.0 billion in 2027 at a CAGR of 43.6%. The market size includes social networking services (SNS), Software-as-a-Service (SaaS), and dedicated mobile applications. Among the different segments, SNS platforms dominate the market, accounting for approximately 60% of the market share in 2022. SaaS solutions comprise a 10% share, while dedicated live commerce apps, such as Showroom and Base, make up the remaining 30%.

In Japan, industries often use live commerce as a marketing tool and promote collaborations between influencers and brands or live stream events featuring popular personalities. Live streaming activities typically take place on platforms such as YouTube, Instagram, or Facebook, while sales happen on separate dedicated websites.

Frost & Sullivan believes Japan's live commerce market experienced a slower onset of growth in the historical period, and is likely to register a faster growth rate starting in 2024. This is because major retail players in Japan, such as Shiseido, Isetan, and LaLaport, are currently entering the live commerce market and leveraging their already established brand name for sales and engagement with customers. These established brands' entry in the market is likely to contribute to the expansion and accelerated growth of live commerce in Japan.

Figure 6-2: Estimated Revenue Forecast of Live Commerce (USD million), Japan, 2020-2027F



Source: Frost & Sullivan's primary interviews, desktop research and analysis

Note:

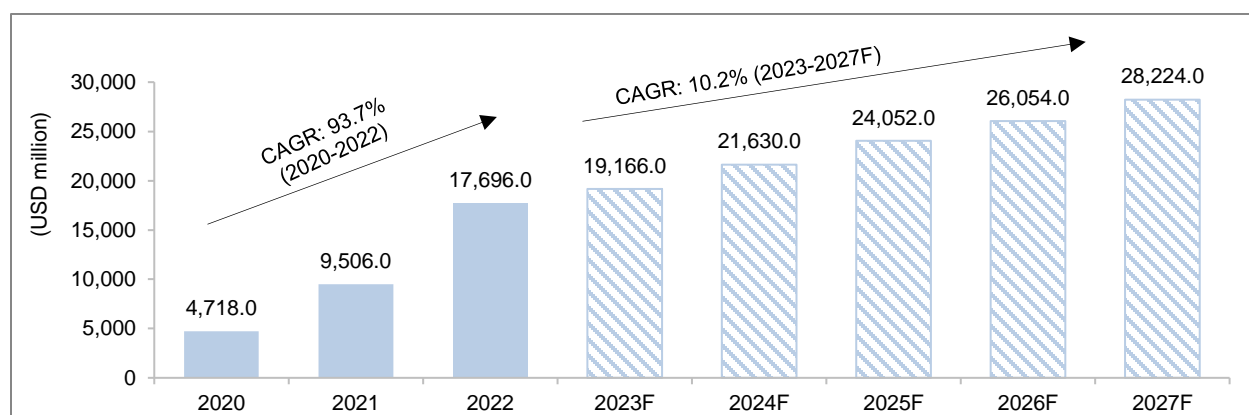
1. Sources include a combination of (i) Interviews with industry and in-house experts; (ii) company reports and other presentation materials including but not limited to news articles, press releases, publicly available industry data; (iii) Frost & Sullivan's desktop research on sources including but not limited to databases of industry associations, trade bodies, government agencies.
2. The market size is estimated as TAM, calculated based on the estimation of total revenue from live commerce sales on social media platforms in Japan.
3. The market size reflects the live commerce conducted through SNS, SaaS and platforms.

China

China's live commerce market has significantly expanded during the last 5 years because of multiple factors related to supply and demand. According to Frost & Sullivan, the market size of the live commerce industry in China, in terms of revenue, has increased from RMB 33.7 billion (USD 4,718 million) in 2020 to RMB 126.4 billion (USD 17,696 million) in 2022 at a CAGR of 93.7%. On the supply side, the primary market drivers are the massive investments in manpower, capital, and traffic by major live commerce platforms, the increasing diversity of product categories and types, the development of live streaming and relevant technologies, the improvement of streamers' professionalism, and the expansion of MCN live streaming process management services.

Going forward, China's live commerce market is likely to maintain its growth momentum, albeit at a lower rate, owing to the market maturity of the live commerce sector. According to Frost & Sullivan, the market size of the live commerce industry in China, in terms of revenue, will reach RMB 201.6 billion (USD 28,224 million) in 2027 at a CAGR of 10.2% during 2023–2027. In parallel, the user base of live commerce in China is also expected to grow from 515 million in 2022 to 607 million in 2027.

Figure 6-3: Estimated Revenue Forecast of Live Commerce (USD million), China, 2020-2027F



Source: Frost & Sullivan's primary interviews, desktop research and analysis

6.5 TRENDS

Collaboration with global and local brands

Live commerce in Japan is characterized by collaborations between global companies, local entities, and influencer-driven brands. Industry leaders, including Uniqlo, Shiseido, and Nike, have explored live commerce through platforms such as Instagram and are experimenting with SaaS services on their websites. This indicates a growing interest from established brands to leverage the interactive nature of live commerce and engage with consumers in real time. The trend extends beyond fashion to include various sectors, such as beauty and makeup.

Increased use of immersive technologies

Features such as AR/VR in product demonstrations, enhancements, advertising, and customer service are emerging. AR allows consumers to visualize products in real-world environments, giving them a better sense of how they will look or fit in their own space. VR, on the other hand, creates virtual environments that users can explore, enabling a more interactive and engaging shopping experience. These technologies are likely to enable an immersive and personalized social shopping experience. In the future, consumers will directly interact with a live commerce host in a virtual shop through avatars. Several social VR start-ups

have received more funding, as investors have started to see social VR's potential.⁶⁹ Social media giants, such as Meta, have also made tangible investments in metaverse technology. The company acquired Oculus VR, Inc., a leading company in immersive VR technology, for USD 2 billion in 2014.⁷⁰

7 SUMMARY PROSPECTS AND OUTLOOK

The Asian interactive video streaming industry is likely to continue its' growth trajectory in the forecast period reaching a cumulative market value of USD 7.7 billion in 2027. V-Liver and Live Commerce are also expected to register considerable growth in the forecast period reaching market sizes of approximately USD 3.8 billion and USD 6 billion respectively.

Japan is likely to be a key contributor to this growth in growth and is expected to attract more entrants and competition among streaming services. This trend reflects the increasing popularity and demand for streaming content in Japan. The market is expected to continue to grow also owing to the increasing popularity of virtual live streaming, particularly V-Liver experiences. This immersive and interactive form of content consumption is likely to attract a growing audience, indicating potential opportunities for market development, such as in live commerce. While live commerce in Japan is still in its early stage, its' future depends on integrating live commerce into platforms such as 17LIVE, where influencers and sellers can conduct interactive sessions to promote and sell products.

17LIVE's strategy for expansion in the Japanese market comprises initiatives in different areas. These initiatives include a V-Liver (as 17LIVE's main strategy in the Japanese market is to establish itself as a prominent Vtuber agency), a mobile game (as 17LIVE is venturing into the development of a mobile game that encompasses a diverse range of genres to cater to various player preferences), real-time and game - interaction (with the Live x Game project merging live streaming interactions with immersive gameplay, aiming to create an engaging and interactive experience), live commerce (with 17LIVE's live commerce strategy involving integrating HandsUp, a live commerce system solution, into the 17LIVE platform), and events (with 17LIVE organizing a diverse range of events that offer streamers and users unique and immersive experiences).

In Taiwan, the interactive video streaming market has seen rapid growth in the past decades because of the introduction of new programs and services during the pandemic. While Taiwan is a mature market in the interactive video streaming segment, the introduction of new technologies and trends, such as the use of V-Livers, is expected to contribute to the industry's overall growth. The V-Liver industry in Taiwan is still in its early stages compared to the more developed North Asian markets.

However, recent years have seen increased mobile device usage and the emergence of interactive live video streaming platforms drive the animation industry's growth. Additionally, the ACG sub-culture in Taiwan, which has seen significant growth over the past decade, has the potential to influence the V-Livers. In Taiwan, live commerce has become a thriving trend in the eCommerce market, and social media has played a crucial role in driving the growth of live commerce, with Facebook and YouTube being the most popular platforms for social media live commerce. A crucial competitive advantage that 17LIVE has over popular social media live commerce platforms in Taiwan, such as Facebook and YouTube, is strong relationships with Japanese merchants owing to its existing HandsUp customer base in Japan. This is likely to allow 17LIVE to facilitate the export of Japanese products to the Taiwan market. Such cross-border trade remains limited to Taiwanese eCommerce platforms. In addition, the company has a ready pool of live streamers who are well-versed in hosting live stream sessions, a skill required for effective and engaging live commerce. The company also has a wide pool of existing users that retailers can tap into to expand

⁶⁹ BeyondGames.biz. Metaverse Startup Raises Funding From Oculus Investors. <https://www.beyondgames.biz/21848/metaverse-startup-raises-funding-from-oculus-investors/>. 26 April 2022.

⁷⁰ Meta. Facebook to Acquire Oculus. <https://about.fb.com/news/2014/03/facebook-to-acquire-oculus/>. 25 March 2014.

the reach of their products. Given that 17LIVE's target audience is generally middle-aged males with relatively high income levels, retailers should curate their products and brands to cater to such an audience.

SEA has seen a surge in the popularity of live streaming platforms, with social media and eCommerce companies offering their own live streaming solutions. The implementation of localized features and regulations in these countries has enhanced the user experience and compliance. Live streaming and eCommerce are converging, allowing brands and retailers to showcase and sell products directly to consumers. The main area of growth is the continued expansion of live commerce, particularly with live commerce enablers that provide full-stack solutions, streamlining customer orders and promoting products and live events across multiple channels. Given 17LIVE's experience with HandsUP as a live commerce system solution, the company is likely to tap into this growth opportunity in SEA's live commerce ecosystem. In addition, the company's expertise in managing live streamers is expected to enable it to offer talent management services, which could differentiate it from other solution providers.

8 APPENDIX

8.1 HISTORY OF LIVE COMMERCE IN CHINA

Stage I: Emergence (2016)

Live streaming has an early origin in China, and domestic PC-based entertainment websites (e.g., games and live shows) were the ones that first employed this format. Later on, the ecology of the interactive streaming industry gradually matured as well-known gaming platforms, such as Huya and Douyu, shifted their focus to mobile live streaming.

For China, 2016 was the 1st year of live commerce. Taobao officially introduced its live streaming to eCommerce in May after a three-month trial run, while JD launched its live streaming function 4 months later that year. In 2016, China had 325 million users of live streaming, with more than 300 platforms providing internet live streaming services and a market size of more than RMB 25 billion in terms of gross merchandise volume (GMV).

Stage II: Rapid Development (2017–2020)

During this period, Taobao started to develop its influencer system (红人体系) and successfully spread the concept of live commerce to broader consumer groups during the Double 11 shopping festival. Live streaming has become the highlight of its major promotions. Taobao also launched its standalone live commerce app, Taobao Live (later renamed DianTao), before the Chinese New Year in 2019. Meanwhile, leading short video and social content platforms, including Douyin and Kuaishou, started to enter the live eCommerce market in March and June of 2018, respectively. They have also gradually launched and enhanced their key eCommerce functions and tools, such as shopping carts and shop entrances, to strengthen their capabilities and competitiveness during these years. Overall, leading live commerce platforms in China progressed toward integrating upstream and downstream resources at this stage.

Around this time, the live commerce market also made refinement, with the rapid emergence of professional market participants, such as MCNs. Most of China's leading live commerce platforms have cultivated their own super streamers with an annual GMV of more than 10 billion, or even over a billion, in a single live streaming session. For instance, the 2 largest live commerce streamers in China, Viya and Li Jiaqi, generated RMB 31.1 billion and RMB 21.9 billion of GMV in 2020, respectively. In addition to professional and amateur streamers, many celebrities and major open leaders became important participants in the live commerce broadcast rooms. Factory and shop hosts also began to make an impact, demonstrating a distinct trend toward popularization.

By the end of 2020, China had registered 8,862 live commerce-related enterprises with 1.23 million registered streamers. The GMV and revenue of the live commerce market in China reached RMB 1.3 trillion and RMB 33.7 billion, respectively, in 2020.

Stage III: Standardization (2021-2023)

With approximately 430 million users and a GMV of RMB 2.4 trillion in 2021, the live commerce industry has become one of the main sectors of the Chinese internet economy. China's live commerce industry has become increasingly normalized while embracing standardized reform.

Between 2021 and 2023, the Ministry of Commerce, the Cyberspace Administration of China, and other relevant departments have successively issued a series of supportive policies encouraging the deep integration of live commerce with the domestic offline economy and regulatory policies to guide the live commerce platforms, streamers, service providers, and other market participants in implementing partial corrections and stabilizing the market.

It is worth noting that Douyin, Taobao, and Kuaishou are all able to provide their users with a differentiated experience based on their own competitive advantages and remain the 3 most dominant live eCommerce platforms in China, accounting for more than 80% of the market in terms of GMV. However, the user traffic of top-tier streamers is gradually being shared with mid-tier streamers and corporate-owned streamers simultaneously.