

Industry Research Know-How

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Author: Yan Haixiang, Brigitta Vanya Sai Edgina

Disclaimer

This document is created so as to record the insights and techniques used in industry research and shed light on some of the pitfalls to avoid in order to achieve a more effective and insightful research journey. Part of the content in this document is obtained from various discussions within the team and/or as instructed by the supervisors. The sole purpose of this document is for internal communication and training. Without permission from management, such document and the information within should not be divulged to any third party under any context.

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Data Source and Reference

1. For each piece of information that comes from third party reports/opinions, one should cite the source as a measure to avoid plagiarism. The citation method employed in this organization is APA Citation.
2. For contradictory data or opinions, one could (i) present both for the reader to decide which one(s) to use, suppose both are credible and logically competent; (ii) Rely on the one(s) that come from authorities or with better credibility.
3. In-text citation and reference should be placed near the data. Formal citations should be placed at the end of the report or presentation under the section of "Reference".
4. Some commonly used data sources include:
 - Demographics and Economy – World Bank <https://data.worldbank.org/>
 - Demographics and Economy - International Monetary Fund <https://www.imf.org/en/Data>
 - Startups and Funding History – Tech in Asia <https://www.techinasia.com/>
 - Startups and Funding History - CrunchBase <https://www.crunchbase.com/home>
 - Industry Trends and Analysis - PwC Industry Insights <https://www.pwc.com/gx/en/research-insights.html>
 - Industry Trends and Analysis – McKinsey Research <https://www.mckinsey.com/mgi/our-research>

Data Processing Issues

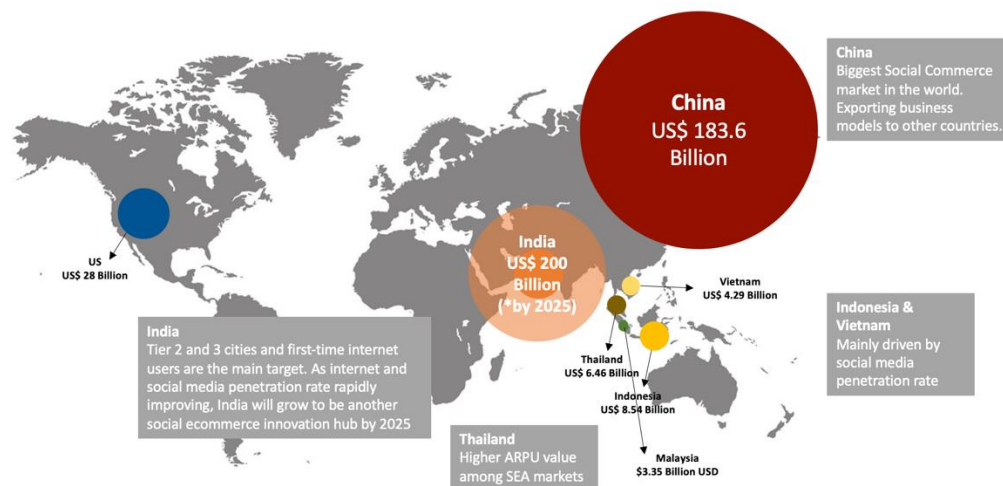
1. Collect data from the source and avoid manual transcription to avoid data misrepresentation.
2. Check data source before use.
3. Cite the source of data.
4. Delete outliers and state so in "methodologies" or other declarations.
5. Label the data that is based on estimations and/or assumptions. Provide basis of estimations.
6. Label the unit of data (eg. currency unit or base of calculating GDP etc.)
7. Create a new copy before using data, so to ensure the original data is uncontaminated for future reference.

Often-Used Data Visualization Techniques

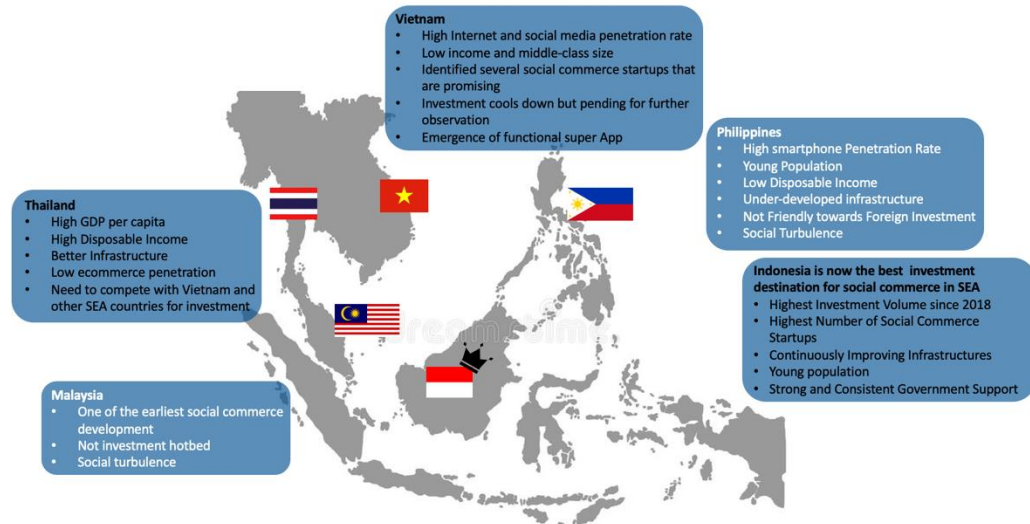
This section explores some of the commonly used and extremely effective data visualization skills in the industry research.

1. Market Comparison

Compare market sizes by plotting them in a world map, market size differences are manifested via the size of the circle. Highlights are present in the grey boxes next to the country in question.



Alternatively, market highlights can be presented in the below diagram. Text are structured in bullet points for ease of memorization.



2. Maturity Comparison

Use colors to indicate level of maturity or the magnitude of the items in question. Normally low maturity items are labeled in brown/reddish colors, while better maturity is in green.

Example is as follows:

Product Category	Business Strategy - High Priority				
	Cost of Product	Ease of Customer Use	Integration	Speed of Service	User Interface
AI/ML/Big Data	72%	83%	50%	78%	57%
Capital Raising Crowdfunding	40%	86%	47%	88%	51%
Digital Lending	49%	86%	47%	88%	51%
Digital Payments	64%	88%	68%	72%	68%
Enterprise Technology for Financial Institutions	67%	72%	78%	75%	54%

Alternatively, one can also use the progression bar as an indication:

Technology	Product Category				
	AI/ML/Big Data	Capital Raising Crowdfunding	Digital Lending	Digital Payments	Enterprise Tech for Financial Institutions
Augmented Reality	4%	0%	2%	2%	0%
Virtual Reality	4%	0%	2%	0%	4%
Speech Recognition	13%	0%	5%	2%	11%
Natural Language Processing (NLP)	30%	6%	12%	9%	19%
Deep Learning	39%	11%	12%	5%	26%
Image Recognition	35%	6%	20%	16%	30%
Robotic Process Automation (RPA)	26%	22%	41%	16%	26%
Blockchain / DLT	13%	39%	7%	35%	44%
Machine Learning	65%	22%	41%	23%	48%
Predictive Analytics	91%	61%	76%	58%	70%

Market Overview

1. Market Fundamentals

a. Industry category(s) the market in question falls into (define the scope)

Define the market is the first step to make meaningful horizontal comparison. Sometimes one company may fall across several markets/market segments. One feasible way is to split the company according to the market segments it engages in. Then make comparison individually. If such method is not available on table, make exception in the comparison or compare the company as a whole if majority of its operations fall into that range.

b. Current market size (by different standards¹)

Market size indicates profitability and opportunities for smaller players.

c. Market growth rate (by different standards²)

Market growth rate indicates the industry maturity level and opportunities for investors.

d. Major players and market share

For emerging markets, data on market share may not be published or comes from third party estimation that the accuracy comes into question. In situation like this, it is recommended to use qualitative data to identify the bigger players or base the calculation on company's self-reporting data, even sometimes such data comes with various forms and may not be as accurate as well.

e. Market pain points (if any)

If consumers are not willing to pay for the solution towards certain market pain points, it either says your service/product is too expensive or it requires

¹ See Market Sizing Methodologies

² See Market Sizing Methodologies

consumers to dramatically change their consumption behavior to do so. Hence the next strategy is to cultivate the market by extensive advertisement, achieve economics of scale by producing in large capacity, or alter your product/service to make it easier to use/consume.

f. *Market prediction (market size, growth rate, development direction etc.)*

- i. Identify the ones that are necessary and essential to understand the market potentials, while ignoring the ones that the benefit-cost analysis does not balance, or data collected are not rich enough to draw a meaningful conclusion.

- ii. Growth Rate

The value for growth rate is determined by multiple factors that affect the industry. The estimated growth rate is often anchoring to a prior (based on historical observation or data from similar markets), then adjusted upward or downward based on discrepancies in underlying factors in the future. This adjustment is subjective and often comes in a range.

- iii. Sensitivity Analysis

Identify the underlying factors that will have an impact on the market, then try different combination of factor values to see how such adjustment will impact on the final prediction. Sensitivity analysis have to be based on plausible assumptions or it is of common industry practice. Sensitivity is often based on Binomial Assumption, that is, the upward and downward movement for the next step is of equal distance from the prior:

$$\alpha_T = \frac{1}{2}(\alpha_0 d_t u + \alpha_0 d_t d)$$

Where

α_0 is the prior ($t = 0$),

α_T is the predicted value in time of T ,

d_t refers to the interval of time, which can be daily, weekly, monthly, annually or other arbitrary time span,

u is the upward coefficient within 1 unit of time, while d is the downward coefficient within 1 unit of time.

Since under Binomial distribution, the probability of upward and downward movement in the next time period is the same, we divide the prediction by 2.

The above is a Binomial prediction based on the Bachelier model, that is, the next-period movement is of arithmetic nature. The following model is based on the Black Scholes Model, which assumes the variable in question will follow exponential or non-linear movement in the next time

period and periods to come:

$$\alpha_T = \frac{1}{2}(\alpha_0 u^{d_t} + \alpha_0 d^{d_t})$$

Where

α_0 is the prior ($t = 0$),

α_T is the predicted value in time of T ,

d_t refers to the interval of time, which can be daily, weekly, monthly, annually or other arbitrary time span,

u is the upward coefficient within 1 unit of time, while d is the downward coefficient within 1 unit of time.

Since under Binomial distribution, the probability of upward and downward movement in the next time period is the same, we divide the prediction by 2.

iv. Bayesian Probability

However, in real life the variable movement for the next period may not strictly follows Binomial distribution and market prediction is an ongoing process. When new and material information is publicly available, the market prediction has to absorb this piece of information so as to avoid any arbitrage opportunity for the market participants. Hence the probability of upward and downward movement may not be strictly 50%. Under the assumption of Bayesian probability, we have:

$$P(A|B) = \frac{P(B|A) * P(A)}{P(B)}$$

In application, the above equation can be simplified to a generic prior and posterior. The updating factors are the mainstream market trends or opinions.

2. Competition Landscape

a. Identify the monopoly/oligarchy

- i. If the market is dominated by one single or few players, which is unlikely the case as an efficient government will step in and ensure level play for the health of industry development, the rest will be suffocated as investors are more willing to capitalize tangible things like market share and active users etc. Besides, although it is true that startups are more flexible in embracing a new business models and many breakthroughs are identified by them, chances are likely that the monopoly will buy over the startups for the synergic effects before they can grow big enough to confront the monopoly head to head.
- ii. Monopoly and Oligarchy are mostly observed when the market has phased out the starting days and move to reshuffling and Merger and

Acquisition, as when industry standard (the prevailing and proven money-making business model) is set, market share will become the next battlefield.

- iii. Monopolies and oligarchies will continue to dominate the market for a while, till the market demands are more or less satiated, which is demonstrated by slowing growth rate and flattening average revenue per user (ARPU). Then new business model and profitability opportunities are evacuated. The bigger players will invest in this, but the chance for new players are greater, which is manifested in the case of Pinduoduo. Hence when deciding whether a new business model will be the next big thing, apart from its capability to solve market pain points, one has to evaluate the management's intention to be acquired or develop the business independently.

Competition Landscape	Likelihood	Industry Maturity	Observation	Implication for SMEs
<i>Monopoly</i>	Unlikely	Demise or approaching demise	Price becomes unreasonable high and government intervention is on the table, which will break such deadlock. Alternatively, the industry is a sunset industry, not much profit can be seen here, and the products are not needed by the market.	Get out the industry and look for opportunity elsewhere.
<i>Oligarchy</i>	Possible	Mature	Market has achieved certain extent of consolidation, benign competition leaves players on their toes. Price remains reasonable. Each oligarchy remains competitive in expanding market	Pierce the market with new and relevant business models. Seek to be acquired by these oligarchies to realize synergic effects and fast development.

			share or exploring new market opportunities	
<i>Level Play</i>	Possible	Infancy or Reshuffling	Many players without a dominate one. Industry standard is in the making but not settled.	Observe which business models are the next big thing and engage in strategic investment.

b. Ecosystem (Identify the Enablers)

For an industry to achieve sustainable development, infrastructures and service providers have to be stable and strong. Sometimes it is possible to identify several ecosystems within one industry, for example, Android and iOS in the smartphone market. Hence the health of the ecosystem will play a role in determining a company's future development and strategic choice.

3. Market Drivers

- a. The factors that decide whether an industry will move forward and by how fast it will do so.
- b. List high level and generic drivers first, then expand out into details and more company-specific explanations. For example, "Healthy and Sustainable Ecosystem" should be the high-level drivers, "the ability to connect with enablers on WeChat mini program platform plays a key role in long-term consumer procurement capability" should be the explanations.

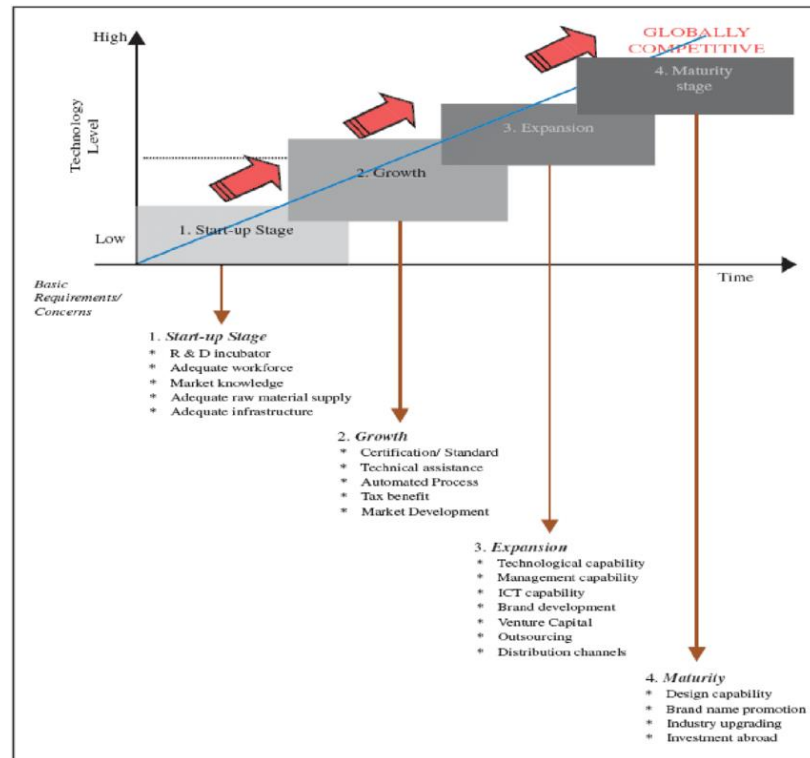
4. Winning Factors and Pitfalls

- a. *Winning factors*
 - i. Why an industry is booming
 - ii. Breaks into different development phases, and see what are the ones that the industry has done right
- b. *Pitfalls*
 - i. Why certain business ceases to exist
 - ii. Break into development phases, identify the actions that seem to be on right track but indeed wasting strategic resources and holding the company/industry back from solving the pain points.

5. Historical Development

- a. Divide into blocks and summarize each block with highlights and events that signify a shift in business model or market share etc.
- b. See what major players are doing in each phase and try to find out winning factors and pitfalls.
- c. Decide which phase is the market at now and decide the corresponding business

model and investment hotspots.



Fundamental Factors and Market Sizing

1. Fundamental Factors that Stimulate the Industry Development

When selecting fundamental factors, one has to consider (i) ease of data collection; (ii) credibility of data source; (iii) comparable across markets in question; (iv) able to explain industry developments etc. Commonly used fundamentals include:

a. GDP per capita

Compared to GDP, GDP per capita is a more comparable for countries with different population size.

b. Disposable income

i. Decide which disposable income to use, namely household or individual, urban/rural or nationwide average.

ii. Currency conversion rate

Convert local currency to world currency (US\$) for ease of comparison.

Usually take the year-end conversion rate and apply it for that year's data.

c. Aging Population

Need to determine which benchmark to use. Some countries define "60 years old and above" as aging population, while others use "65 years old and above as benchmark".

d. Internet Penetration Rate

Internet penetration rate refers to the portion of population that has access to stable internet connection. Many industries rely on this for further expansion. For

example, FinTech, Ecommerce etc. where users need internet connection to be able to access the services.

e. Size of Middle Class

Be aware of different classification standards. For example, the IMF standard or country's own definition.

f. Smartphone Penetration Rate

Similar to internet penetration rate, smart phone penetration rate refers to the portion of population that owns smart phone.

g. Social Media Penetration Rate

Be aware of the definition. Some define it as % of internet population, while others define it as % of entire population.

h. Logistics Performance Index

Published biannually. Able to apply linear interpolation for the years where such data is missing:

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$$

The assumption of linear interpolation instead of polynomial is based on the understanding of the nature of Logistics Performance Index, as it does display monotonic increasing or decreasing for most of the years since the Index is first published in 2008.

i. Ease of Doing Business Index

This index is published by the World Bank annually, indicating a country's business environment and how easy it is to open a company and fulfill compliance requirement for sustainable operation. It is often used as a proxy for a country's logistic maturity.

4. Correlation between Fundamental Drivers and Market Sizing

a. Sample size and overfitting issues

When the data size is big enough³, we can run the correlation test between individual fundamentals and the market sizing for that year. For sample size smaller than 250, the statistical results are more likely to subject to overfitting issues.

b. Correlation formula

³ Statistically speaking, a sample size of 250, aka degree of freedom to be 249 is sufficient to draw a meaningful conclusion. Data size smaller than that are more biased towards overfitting problems.

$$r_{xy} = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 \sum(y_i - \bar{y})^2}}$$

Where

r_{xy} is the correlation between two variables x and y .

\bar{x} indicates the first moment of variable x .

\bar{y} indicates the first moment of variable y .

Higher correlation score indicates the two variables tend to move concurrently given the period of time. However, this does not indicate the fundamental drivers have a causal relationship with the market sizing.

5. Single-factor and Multivariate Regression Analysis

a. Regression analysis, adjusted R^2 , and t -stats

Regression analysis is applied to identify the causal relationship between two (single-factor regression analysis) or more variables (multivariate regression analysis). R^2 indicates how well the independent variables collectively explain the dependent variable. Adjusted R^2 factors in the degree of freedom difference by adjusting the statistical calculation base to make the result less subject to data errors due to sampling biases. T-stats suggest how significant the result is. T-stats > 2 indicates a strong positive correlation between the factors.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.99857537
R Square	0.99715276
Adjusted R S	0.99572914
Standard Err	35.4878343
Observations	10

ANOVA					
	df	SS	MS	F	Significance F
Regression	3	2646355.01	882118.336	700.43503	5.0438E-08
Residual	6	7556.31828	1259.38638		
Total	9	2653911.33			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-46739.244	2747.45896	-17.011808	2.6388E-06	-53462.034	-40016.454	-53462.034	-40016.454
X Variable 1	-1224.8033	3566.94652	-0.3433758	0.74302779	-9952.807	7503.20044	-9952.807	7503.20044
X Variable 2	51329.9557	5023.31476	10.2183435	5.1201E-05	39038.3472	63621.5641	39038.3472	63621.5641
X Variable 3	54311.8024	6136.9468	8.8499712	0.00011572	39295.2345	69328.3702	39295.2345	69328.3702

b. Multivariate analysis and overfitting issues

In multivariate regression analysis, when a new independent variable is added, chances are likely that the t-stats for the existing variables will decrease, as the new factors shoulder the responsibility of explaining the dependent variable. However, it is worth noting that overfitting issues will emerge when more factors are added to the regression, as the R^2 will be inflated.

$$Y_i = \alpha_i + \beta_{i1}(X_{i1} - \bar{X}_1) + \beta_{i2}(X_{i2} - \bar{X}_2) + \dots + \varepsilon_i$$

By expanding to get a quadratic expression in α and β :

$$\hat{\alpha} = \bar{y} - \hat{\beta}\bar{x}$$

$$\hat{\beta} = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

$$\hat{\beta} = \frac{cov(x, y)}{var(x)}$$

$$\hat{\beta} = r_{xy} \frac{s_y}{s_x}$$

Where

r_{xy} indicates the correlation between x and y;

s_y indicates the standard deviation of variable y

Market Sizing Methodologies

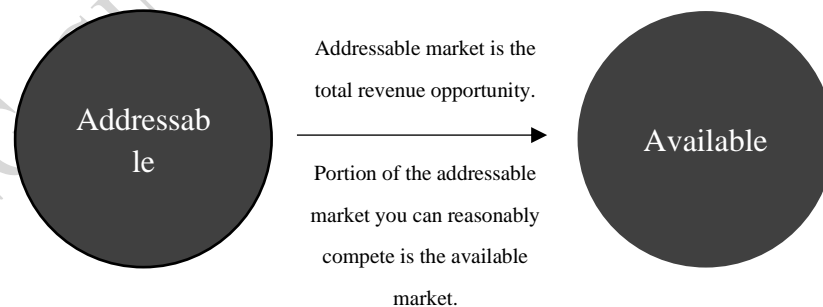
1. Market Size Estimation by Industry Experts

Normally industry experts or market research institutes will not disclose their assumptions and methodologies employed to get the market sizing results, thus the best practice is to collect as many estimations as possible from different experts, exclude the outliers, and make an estimation range.

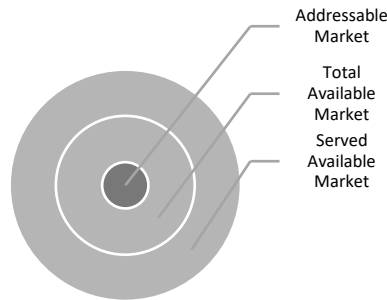
2. Base of Market Sizing

- a. Market size can be measured by Revenue Size, Gross Merchant Value (GMV), or even number of transactions completed. However, the mostly used is the revenue size. When comparing between different market sizing estimation, one has to be clear of on what base does the comparison takes place.

b. Addressable market vs. Available market



Out of the available market, two concepts have to be distinguished: total available market (TAM) and served available market (SAM).

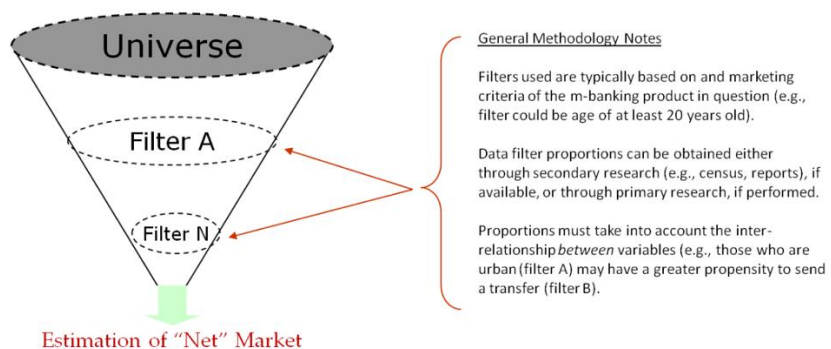


Total available market (TAM) is the market that includes all competitive products – all segments, substitutes, all channels to market. Served available market (SAM) is the market that you serve either because it is a special segment or via a certain channel.

3. Top-down Approach

a. Selection of Divisor

- i. A top-down approach can involve multiple divisors in order to achieve more precise estimation of the subject. The divisors selected need to have determining capability of the subject in question. That is, different sub-categories after the divisors have to be distinctly different. For example, commonly used divisors include city tiers, age groups, social media screen time etc.
- ii. Divisors have to be based on abundant and reliable data for them to be effective.



b. Sensitivity Analysis

There is no one estimation that depicts the reality as it is, however, one should adopt different methodologies and divisors to approach the reality. Sometimes in practice, sensitivity analysis is engaged to predict the subject value in a range rather than an exact number. Upward and downward adjustment coefficient is applied.

c. Penetration rate

Penetration rate describes the portion of a population that are served by certain service or are equipped with necessary characteristics for them to become the

consumer base of an industry. Example include internet penetration rate, smartphone penetration rate, and social media penetration

Market volume

$$= \text{Number of target customers} \\ * \text{Penetration rate}$$

d. *Comparability*

Penetration rates are estimated and published by various market research bodies, yet when try to perform horizontal market comparison, one has to ensure they all come from a universal data source to ensure comparability

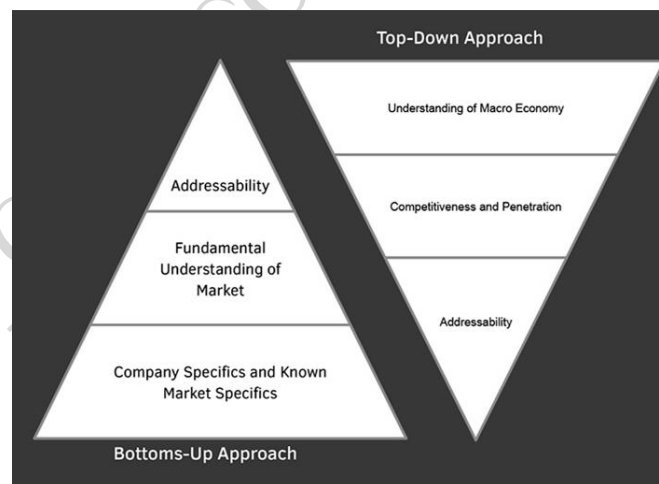
e. *Average Revenue Per User (ARPU) or Average Value*

ARPU is an average measure of how much one consumer spends money in the industry, which is used to measure the market sizing in the end.

$$\text{Market value} = \text{Market volume} * \text{Average value (ARPU)}$$

4. Bottom-up Approach

Bottom-up approach starts from major market players and work up the ladder to arrive at the market level estimation. However, company-level data may sometimes be bloated for performance measurement or competition purposes, hence when using such data, discretion should be exercised.



5. Market Sizing Prediction

a. *Monte Carlo Simulation*

Assuming the market size movement follows Brownian motion with a certain positive accelerating rate as a prerequisite, we have:

$$dS_t = S_t \mu dt + S_t \sigma \varepsilon \sqrt{\partial t}$$

Where

dS_t is the variable movement within one unit of time (dt)

dt represents one inseparable instant of time

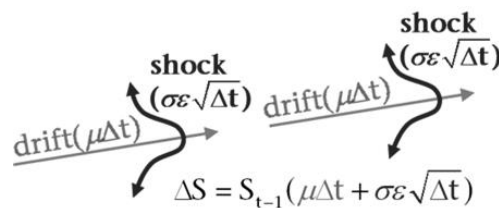
S_t is the value of the underlying variable

μ drift term than controls the direction of Brownian Motion

σ the uncertainty

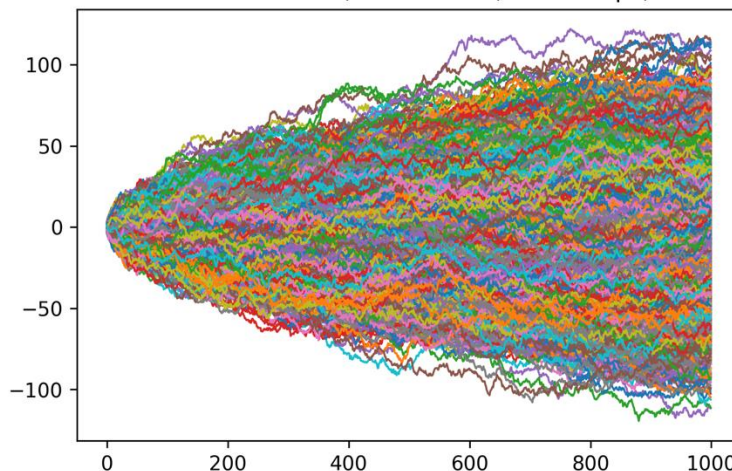
$\sqrt{\delta t}$ square root of one instant of time.

μdt controls the general direction of the Brownian motion, which in the case of industry research, the growth coefficient (or in layman's term, growth rate). The illustration below says precisely the effect of an upward drift term:



Using iteration of 10,000, steps of 1000, which in this case, 1000 days into the future, we have the following movements. It is worth noting that the uncertainty term σ can be replaced with other values for better estimation of the underlying variable:

Brownian Motion Walk, 10000 runs, 1000 steps, $\sigma = 1.0$



6. Accuracy issues

In general, a wide tolerance on market sizing is permissible under the following conditions:

- When an investment is very small within the total market
- When the study is a preliminary scan of the market
- When the chief objective is to answer the question "how are we going to get there?" rather than "where are we going?"

On the other hand, high levels of accuracy are sometimes necessary where:

- The investment is large within the total market and the investor aims to achieve a significant share within it

- Market sizes from different years are needed to show a trend
- It is necessary to split out sub cells of the market which could be attractive targets.
- Realistically, most assessments of industrial market sizing have a fairly generous tolerance; + 15 to 20 per cent is the norm, while +10 to 15 per cent is quite accurate. Researchers who claim accuracy levels of +5 per cent will in most cases be deluding themselves and their sponsors.

Fundraising History

1. Deal Size and Number of Deals

a. Deal Size

Generally speaking, the later the stage, the higher the deal size. Besides, depending on the industry and nature of business, deal size will vary too. Hence it is often wiser to compare start-up's deal size with other start-ups within a same industry and same region/country.

b. Number of Deals

When industry just started to pick up, investors are generally cautious in throwing large quantity of money, hence often the time more confident investors will try to test water by investing in limited number of start-ups and wait for the business to evolve. As industry matures, the number of deals will increase as well. When the industry has hit a plateau and bigger players will eat up smaller ones, it becomes not hard for investors to spot the ones with muscles, hence they tend to uniformly invest in a few unicorns while the smaller ones will find it harder to raise money.

M&A Activities

Apart from fundraising history, start-ups usually engage in M&A activities as an alternative method of financing.

1. M&A Databases

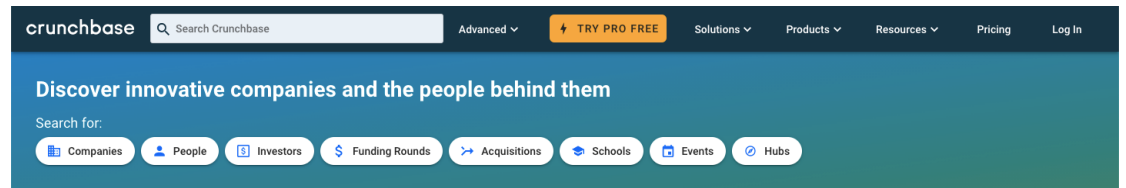
This database is used to track every mergers and acquisition transaction that has been happening in the region. The goal of having this database is to see the market trend in M&A Deal activity.

Sources for Database include:

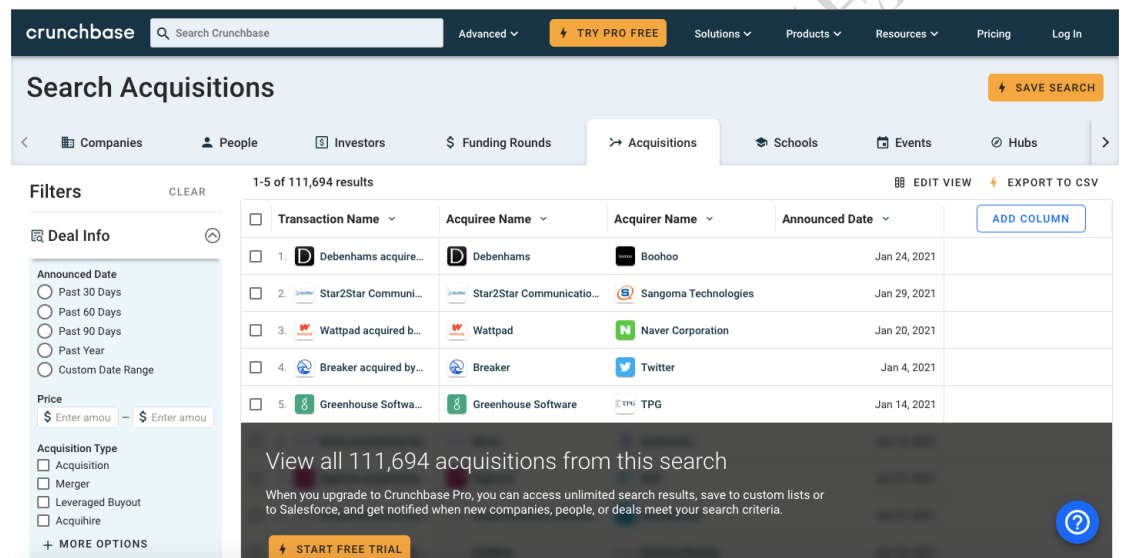
- TechnAsia
- Crunchbase
- Pitchbook

How to Use Crunchbase for M&A Deal Tracking:

(i) In crunchbase.com homepage, select the acquisition button



(ii) In the next page, please find the filter on the left side. There are 3 filters category: Deal Info, Acquired Company, and Acquiring Company. Fill them in as needed and crunchbase will list all transactions on the right side.



2. How to Build Internal Database

Since we are focusing on TMT sector, we need to filter the deals based on the acquiree company industry. The industry that we cover need to lie in these categories:

- Advertising
- Artificial Intelligence
- Fintech
- E-Commerce
- Entertainment
- Education
- SaaS
- Logistics
- Online Medical
- Social Media
- Travel

After filtering the transactions, several key information need to be included in the database to gather conclusion.

3. Data Requirements

Information for the Acquiree part:

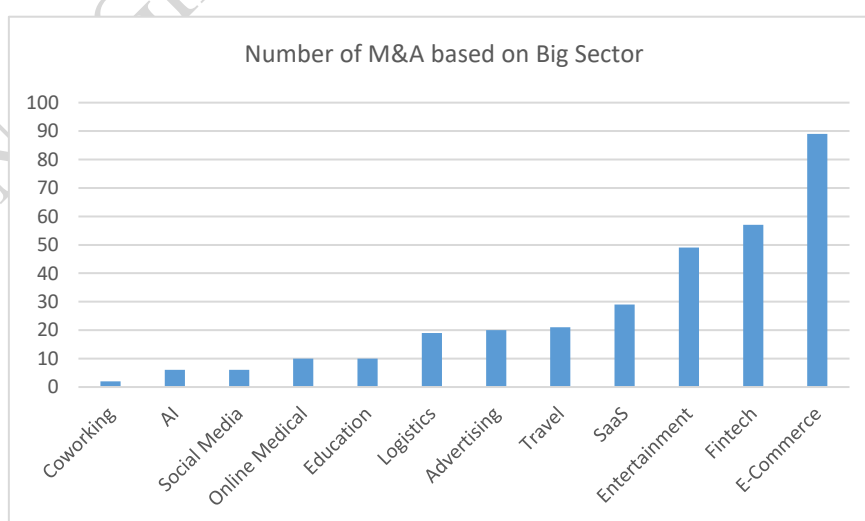
- Acquiree Big Sector
- Acquiree Name
- Announced Date
- Price Currency (in USD)
- Post Valuation (in USD)
- Acquisition Type
- Acquiree Headquarters Location
- Acquiree Description
- Acquiree Industries
- Acquiree's Estimated Revenue Range (in USD)
- Acquiree Total Funding Amount (USD)
- Acquiree's Number of Funding Rounds
- Acquiree Last Funding Type

Information for the Acquiring part

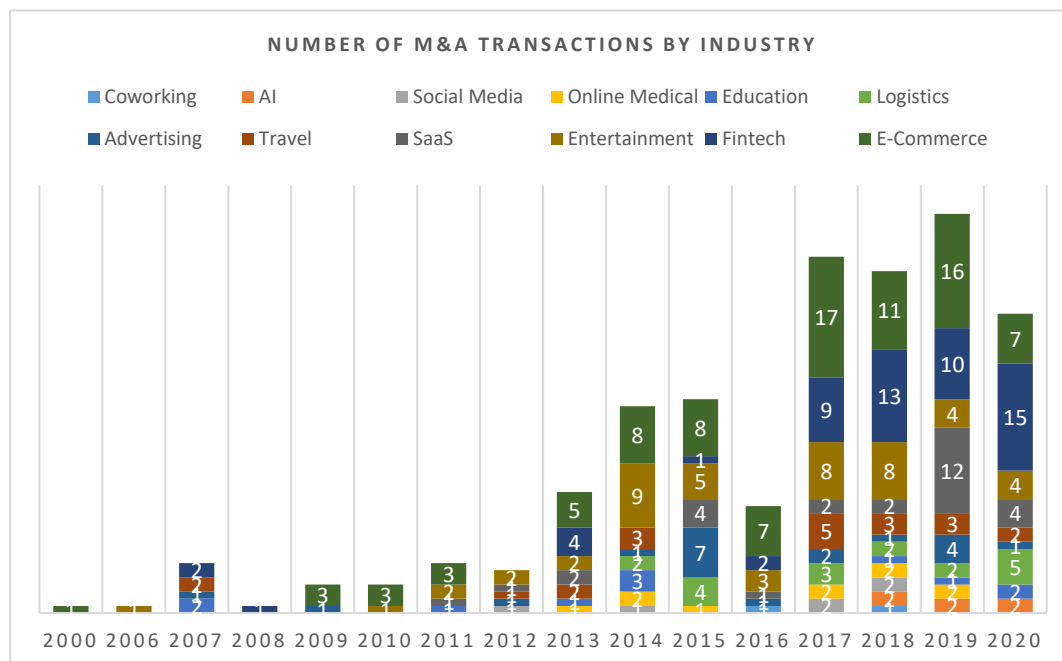
- Acquirer Name
- Acquirer's Description
- Acquirer Headquarters Location
- Acquirer Big Sector
- Acquirer Industries
- Acquirer's Estimated Revenue Range
- Acquirer's Total Funding Amount (in USD)
- Acquirer's Funding Status

4. Generating Insight from M&A Database

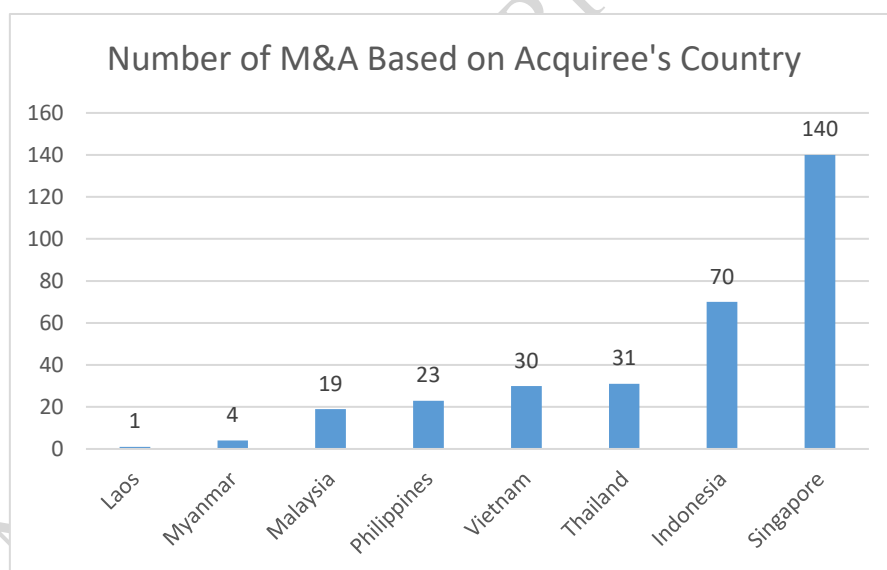
Summarize the number of M&A based on Sector, which will generate something like this:



Summarize the number of M&A based on Sector and Year:



Summarize the number of M&A based on Acquiree's Country:



5. Estimating the M&A Deal Size

Sometimes not all start-ups disclose their acquisition price to public. But the valuation of the company can be estimated using dilution percentage for each funding round of the acquiree company.

Typical Dilution for each fundraising round in Southeast Asia:

Fundraising Rounds	Dilution
Seed Stage	19%
Series A	25%
Series B	20%
Series C/D	13%-14%

Company-wise Analysis

1. *Company Fundamentals*

- Year of foundation
- Business Model
How the company provides product/service and realize revenues.
- Funding History
Linked with Deal-flow and Investor databases to identify active players in the field.
- Management Team
Expertise and relevant experience.
- Operational Performance
Examples are (i) revenue up to date; (ii) number of active users; (iii) number of cities in operation etc.
- Operation Markets
- Main Competitors

2. *Roadmap to Current Business Model(s)*

How the company (usually the successful ones) come into the playfield, and what lessons can be learnt for other new commers.

3. *Competitors*

Heed for potential M&A activities or strategic investment by large institutes. Such movements are likely to impact every player in the field and reshuffle the industry landscape.

4. *Winning Factors and Pitfalls*

What the company has done right or wrong to arrive at today's stage.

Lessons from Other Markets

1. *Market Competitiveness Comparison*

- Multivariate Regression Analysis*
Set major market drivers as independent variables and try to arrive at a dependent variable that indicate the overall competitiveness of a market.
- Logit Function*
Apply logit functions to transform the results onto a comparable scale, preferably

from 0 to 1. The logit function formula is as follows:

$$\text{logit}(p) = \log\left(\frac{p}{1-p}\right) = \log(p) - \log(1-p) = -\log\left(\frac{1}{p} - 1\right)$$

Or alternatively:

$$\text{logit}^{-1}(\alpha) = \text{logistic}(\alpha) = \frac{1}{1 + \exp(-\alpha)} = \frac{\exp(\alpha)}{\exp(\alpha) + 1}$$

2. Market Growth Gap Explained by Fundamental Discrepancies

a. Volatile Market Growth

To “smooth out” the volatile market growth rates over a period of time, we could apply the moving average function to achieve such goal.

Simple Moving Average (SMA):

$$\frac{(A_1 + A_2 + \dots + A_n)}{n}$$

Weightage Moving Average (WMA):

$$A_1W_1 + A_2W_2 + \dots + A_nW_n$$

Exponential Moving Average (EMA):

$$C - P \frac{2}{(n+1)} + P$$

Where

A_i is the time series value of variable A.

n is the number of observation in the time series.

W_i is the weighting given to each element of vector A.

C is the time-series mean.

P is the exponential coefficient

Depending on the actual needs, one selects the moving average method. Simple Moving Average assumes monotonic and arithmetic movement of the time series, while exponential moving average assigns more weights to recent observations based on the assumption that recent observation contains more valuable information that determines the next-step movement.

b. Possible Explanations

Once identified the growth gap, we then can explore possible explanations of

such gaps by looking at discrepancies or fundamental drivers that are significantly different. However, it is worth noting that such explanations are only “possible”, more rigorous numerical methods should be applied to establish the potential causal relationships among the fundamentals.

3. Promising Business Models and Characteristics

Business models work in one market might be useless in the other. Hence when deciding the promising business models, one has to take the market background as context. Besides, industry development stage is also an important consideration when deciding which business model will survive.

Then startups that fulfill the above criteria should be shortlisted in the Deal-flow database for further engagement.

4. Pitfalls to Avoid

Mainly from the lessons of the failed companies/business models.

5. Funding History and Investment Hotspots

Through analyzing funding history in the past 5 to 10 years, one can easily spot the investment trends from time to time and what are the current investment hotspots.

a. Data Source and Sub-Divisions

Tech in Asia and TB Insights provide full list of start-ups that have been invested in the past, their funding rounds, and dollar amount etc. However, for some cases, the industry category labeled in these databases may not be accurate. For example, they failed to identify the ten sub-divisions under the FinTech industry, or they have another set of division criterion that is not in line with current industry consensus. In situations like this, one should reclassify the database and come up with funding history for different sub-divisions.

b. Funding Rounds and Industry Maturity

If in a market, the majority of startups are in series C, series D, or even later stages of fundraising, one can conclude that the market has passed the initial stage and moving towards maturity. As most startups in these stages already have at least 3 to 5 years in operation, if not any longer, chances for new cooperation (especially for investment banks like FC) are lower as they are most likely have identified investors for long-term cooperation and their connections in the industry tends to come as par to investment banks.

c. Investment Hotspots

Investment hotspots are identified as the market that only picks up recently and most funding rounds secured in the market are at seed, series A, and other early stages. When the number of deals rise over the years, it is an indication for market booming as well.

Besides, it is often feasible to follow the movement of several largest investors in the field as these institutions tend to have greater exposure to industry trends and their decision tends to have reference values.

Depends on the industry and the specific country in question, sometimes 10 deals within a year can indicate booming market, whereas for market like China or the US, 10 deals a year may indicate the investment heat has passed out. Hence when deciding investment hotspots, one should compare horizontally within a country's various industry to draw a more reasonable conclusion.

d. Investment Dollar Amount and Number of Deals

Investment dollar amount and number of deals do not always move concurrently. When they differ, it may shed light on industry development phases, and thereby investment implications. The following table summarize four scenarios:

		Number of Deals	
		High	Low
Investment Dollar Amount	High	The market has reached a consensus that the development direction is correct, and the industry will boom soon.	Some startups that have received early stage fundraising has exited the market or are acquired by bigger players. Investors now tend to focus on few unicorns and increase investment amount to solidify market stance.
	Low	Early Stage. New blood introduced in the market. Dollar amount is low since investors are testing the targets and wait to evaluate the investment.	The heat has dissipated or when the country in question is small in size, this could as well indicate market picking up as investors are testing the water.

Insights by Industry Practitioners

1. Networking Techniques

a. *Reciprocal Principal*

Show the other party that we have something to offer in exchange of their opinions/data.

b. *Gradual Principal*

Engage with them gradually and hopefully build certain personal connection before engaging in business affairs

c. *Use Well of Referral*

Build extensive network, making it easier to build connection with second or third layer of social contacts.

Presentation on Research Highlight

1. What to Show and What Not

a. Things to Show

- Demonstrate our understanding of the industry (be correct, neglect the ones that are blurry)
- Unique insights that cannot be found elsewhere
- High level bullet points of our main findings
- Content that is particularly relevant to the audience

b. Things not to Show

- Data source
- Methodologies
- Business secrets and intelligence
- Too much details
- Other areas that prohibit by management

Favour Capital's Unique Contribution and Core Competitiveness

Apart from Favour Capital, the industry is filled with investment bankers, all eager to identify the next big thing in a certain emerging market. The bigger ones such as UOB, DBS, OCBC and JP Morgan all have an all-rounded and independent research team specializing on it. Their abundant capital means they can conduct country-wise field investigation independently, which will later translate to unique insights and significant contribution to the industry institutional knowledge. For smaller players and foreign capital like FC, the contribution we can make include:

1. Deep Understanding of Successful Chinese Business Models

Business models succeed in China few years back can succeed in the soil of SEA as well, after comparing the differences in the fundamental drivers. The nuances do tell a difference here, and that is how FC can select the right players from the beginning and enhance the chance of success.

2. Lessons that SEA Players Can Learn from China

FC knows the entire life-time development of the successful players in China. Knowing what should be done in what stage of corporate development and what actions to perform could be essential to help SEA players identify few minefields along the way.

3. Identify the Fundamental Gaps and Estimate How Soon SEA will Come as Par

FC analyzes how many years SEA market lags behind compared to China and what should

be done to shrink the gap.

4. *Market Sizing Techniques*

As most industry experts do not publish their methodologies used in market sizing, the methods we developed can give us a more reliable source of information.

5. *Insights by Chinese Counterparties*

Through our connection with Chinese industry experts, we can gain insights as an outsider, which sometimes are valuable for the players in SEA.

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