



Appraise

An Overview of Customer Lifetime Value (CLV) Modeling
for Private Equity Firms, B2C Brands and Investment Bankers.

The Three Pillars of Appraise



1. Identify high value customers: Customer lifetime value (LTV) is a key determinant of investment risk and opportunity. Traditional excel-based approaches (such as cohort analysis) try to capture and predict customer lifetime value, but tend to ignore what makes customers unique (heterogeneity).



2. Identify drivers of high-value customers: Append customer metadata, such as acquisition channel or first purchase product info to understand what drives LTV. Optimize your marketing strategies by targeting potential customers with similar profiles as those that are most valuable.



3. Do your financial due diligence: Make better informed operational and investment decisions by leveraging probabilistic models that account for customer heterogeneity to produce highly predictive forecasts, providing clarity on both LTV distribution and company growth prospects.

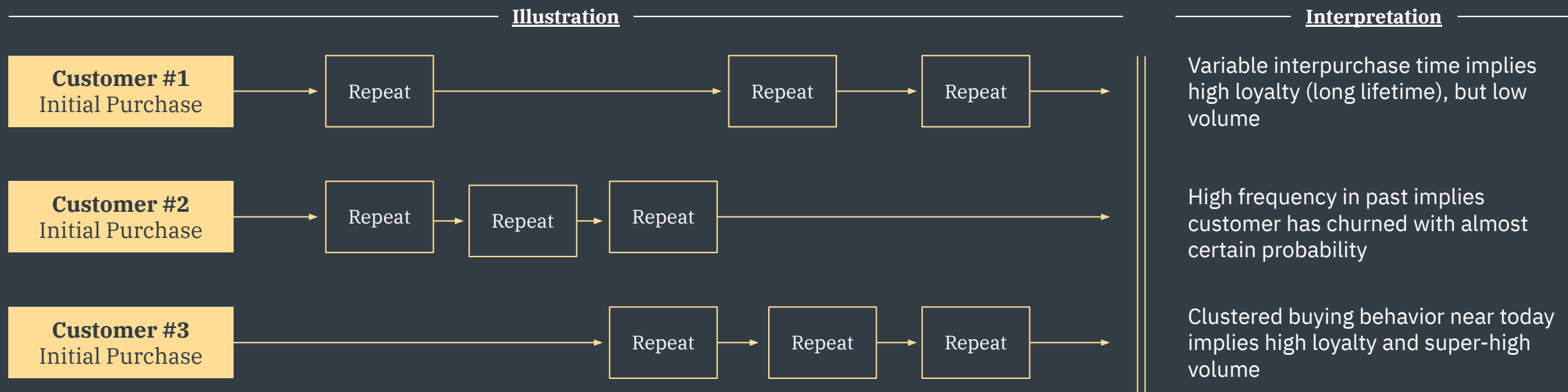
01

Customer Lifetime Value

Calculate your customer's value using probabilistic models that account for customer heterogeneity

The problem: Most models don't account for customer heterogeneity

- Each of these example customers has exactly four purchases: one initial purchase and three repeat purchases.
- Most models would treat these customers as exactly the same. However, the second customer has almost certainly churned, and the third customer is likely to be the most valuable of all three.



Our approach: Appraise leverages probabilistic models that account for customer heterogeneity

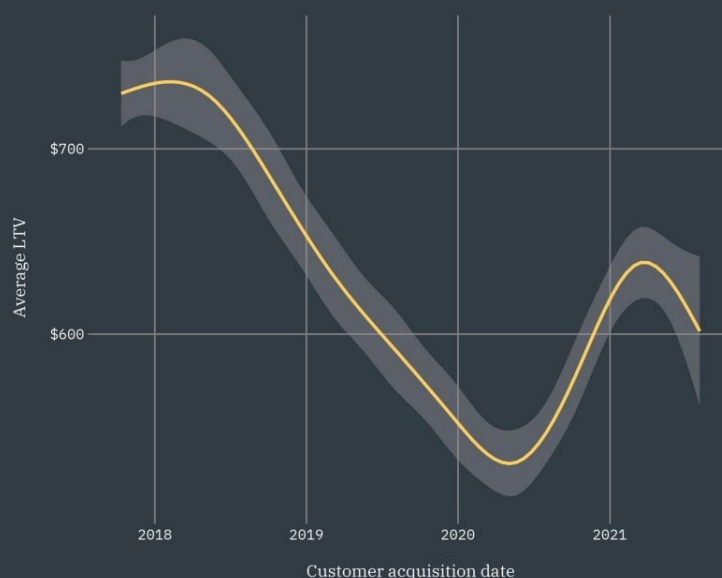
CUSTOMER	Quality	FORECASTED SPEND		CUSTOMER STATISTICS		IDENTIFIED SIGNALS
		Next quarter	Next 52	P(Active)	E(Basket)	Channel
Abegail Macie	High	\$57.25	\$85.92	● 74%	● \$50	● Search
Ella Melany	High	\$90.06	\$150.13	● 85%	● \$80	● Social
Paul Charles	Medium	\$43.18	\$60.30	● 51%	● \$35	● Affiliate
Roslyn Hervey	Medium	\$19.32	\$34.39	● 40%	● \$17	N/A
Jefferson Maynard	Medium	\$17.97	\$29.82	● 23%	● \$45	● Search
Doria Melville	Medium	\$17.25	\$27.22	● 73%	● \$10	● Affiliate
Kaitlyn Farquhar	Low	\$2.05	\$5.03	● 32%	● \$12	● Search
Everette Jarod	Low	\$1.36	\$2.02	● 26%	● \$9	N/A

Views at the customer-level

Abegail has a 74% chance of being “active” (not churned) as a customer, and on every purchase we expect her to spend \$50. She came in through Search, which is the worst channel for CLV. We expect her to spend \$85.92 over the next year.

Everette has only a 26% chance of being an active customer, and only spends \$9 per order. We expect him to spend only \$2.02 over the next year.

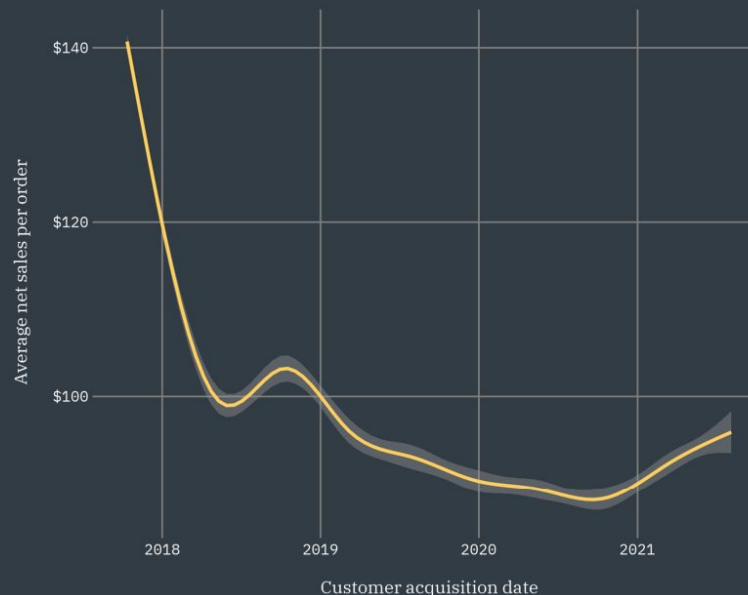
What you get: A summarized view of your complete customer base



Customer Lifetime Value

This is a plot of 5-year undiscounted LTV by customer acquisition date.

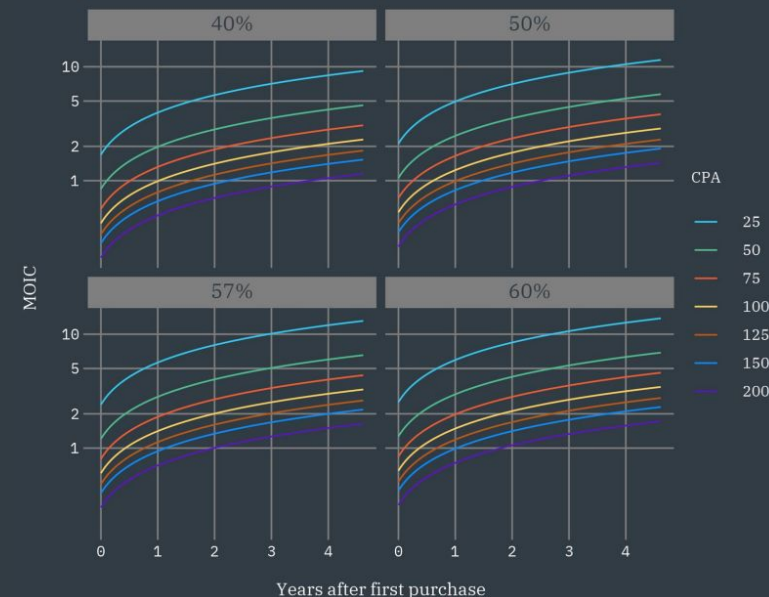
In this example, the LTV curve over time shows that customers have become less valuable over time, with an all-time low for customers acquired in 2020.



Average Order Value

This is a plot of the AOV by customer acquisition date.

In this example, the LTV has clearly been declining because the basket size has become much smaller.



Multiple on Invested Capital

These curves represent the expected return profile for customer acquisition over a five year horizon under different CPA and contribution margin assumptions.

In this example, across all customers and all channels, customers breakeven after 1 year at \$50 per acquisition

What you get: A detailed view of your complete customer base

- **Customer Lifetime Value:** Undiscounted 5-year Total LTV (including captured sales) net of returns
- **Transactions:** The total number of transactions expected per customer (including captured) over 5 years
- **AOV:** The average order value
- **% Churned:** The average probability that a given customer in the associated cohort has churned from the customer base

Cohort Summary

Acquisition Year	New Customers	Customer Lifetime Value	Transactions	Average Order Value (AOV)	% Churned
2017	31,062	\$725.59	4.84	\$138.44	83.5%
2018	24,919	\$711.11	6.79	\$103.39	76.7%
2019	36,584	\$601.06	6.42	\$93.97	72.4%
2020	53,175	\$553.20	6.35	\$89.11	65.4%
2021	28,922	\$626.95	6.79	\$92.70	56.6%

Individual Customer Summary

Customer ID	Date Acquired	Observed LTV	Expected LTV	Average Order Value (AOV)	(P) Churned
001	2017/03/05	\$425.59	\$225.59	\$133.44	3.5%
002	2019/02/03	\$511.11	\$111.11	\$153.39	36.7%
003	2018/06/25	\$401.06	\$31.06	\$93.97	82.4%

02 Drivers Analysis

Optimize your marketing strategies by targeting potential customers with similar profiles to those with the highest LTV.

The problem: You need to know the profile of your most and least valuable customers

To inform an effective acquisition strategy, you need to know;

- What customer characteristics make a customer likely to be high- or low-value?
- What purchase behaviors are indicative of high or low LTV?
- Which acquisition channels are your highest and lowest value customers coming from?



Our approach: A custom model-based approach determined by the unique drivers you care about



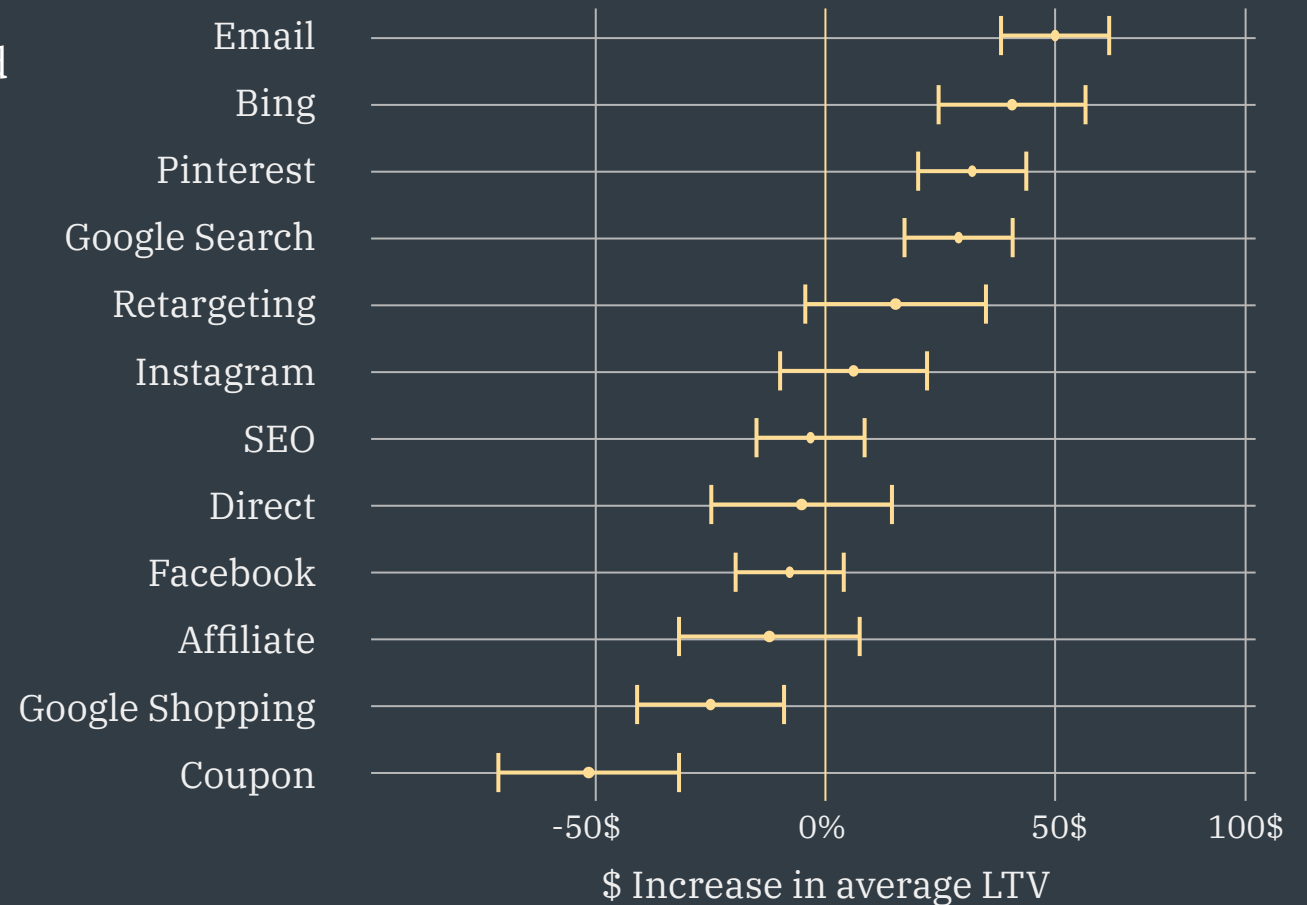
Instead of reporting misleading summary statistics, we use a statistical model that surfaces the actual drivers of LTV



Our approach strikes a balance between being fully custom and an off the shelf tool, which allows for a rapid startup and analysis, but still leaves ample room to suit your analytical needs

What you get: Accurate estimates of what truly drives high customer value so you can target look-a-like audiences

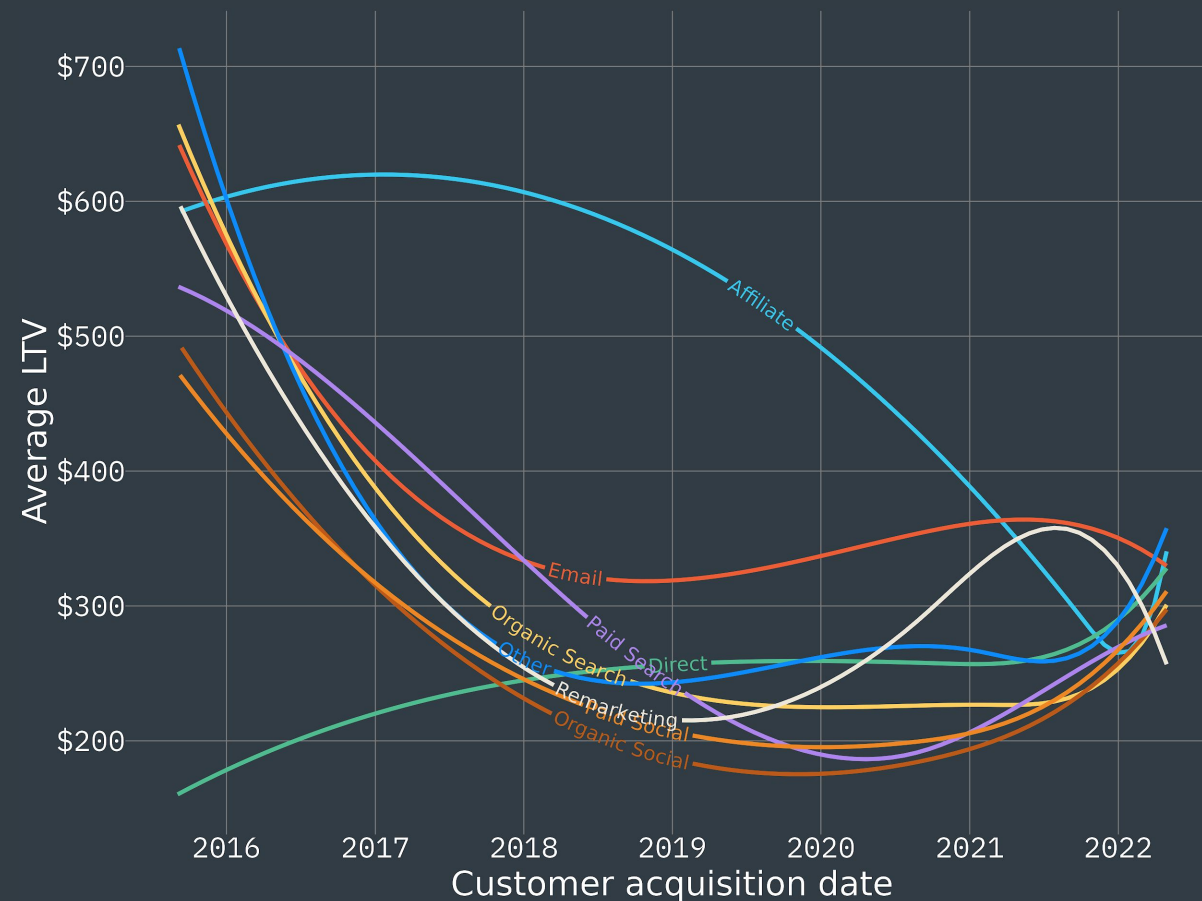
- Using customer-level data, we can build regressions that predict customer LTV, and identify the variables that predict under- and over-performance
- Drivers, such as acquisition channel, demographics, product purchases, and support interactions can be modeled in a way to identify drivers of customer profitability



What you get: An actionable breakdown of cohort LTV by your most important drivers

For example;

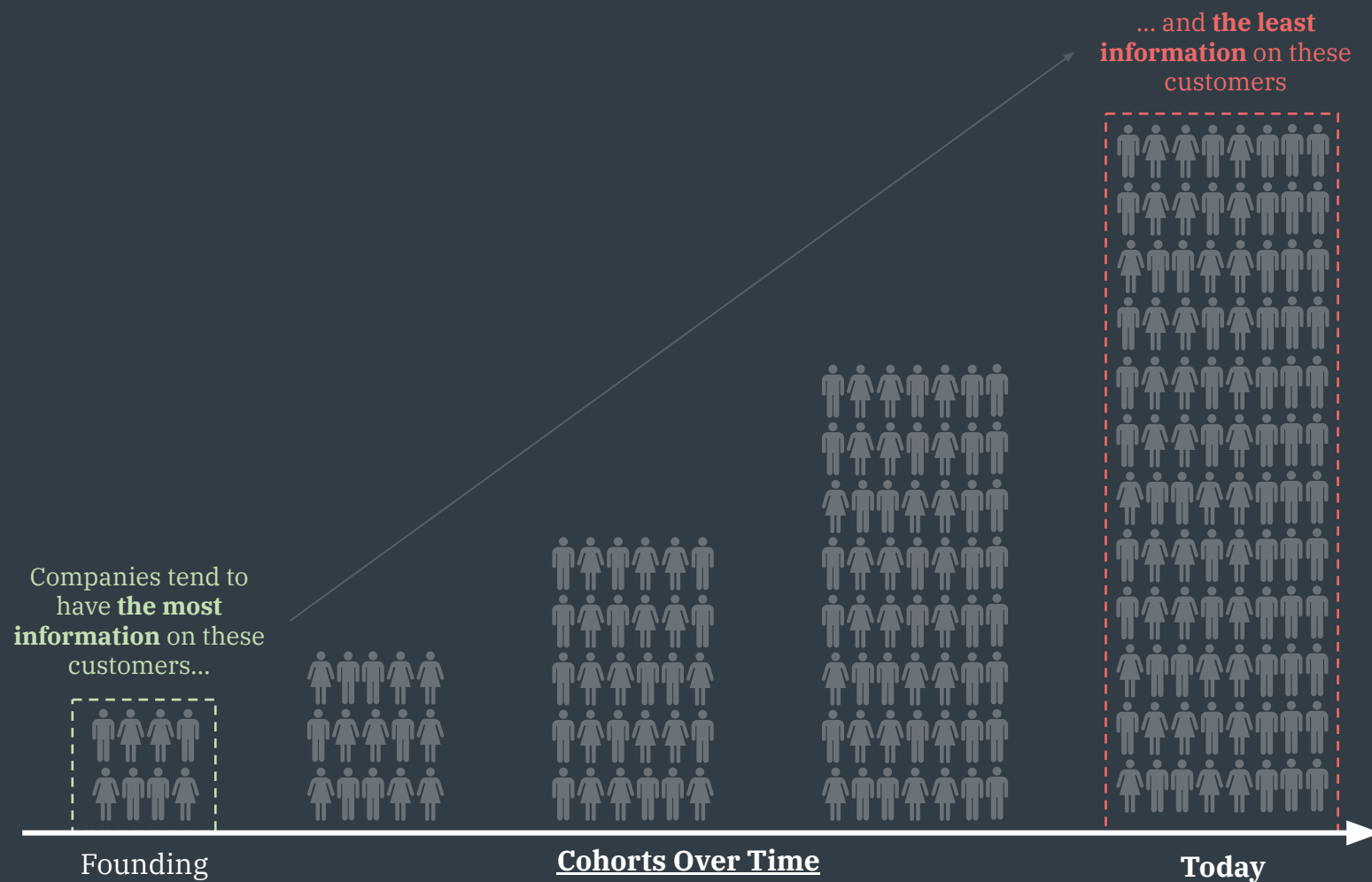
- Discover how acquisition channels drive LTV over time, and reconsider your ad spend strategies accordingly (see example graph)
- Learn how first purchase basket size influences LTV over time
- Identify which initial product purchases are most likely to have a high LTV, and incentive customers to add those products to their initial purchases



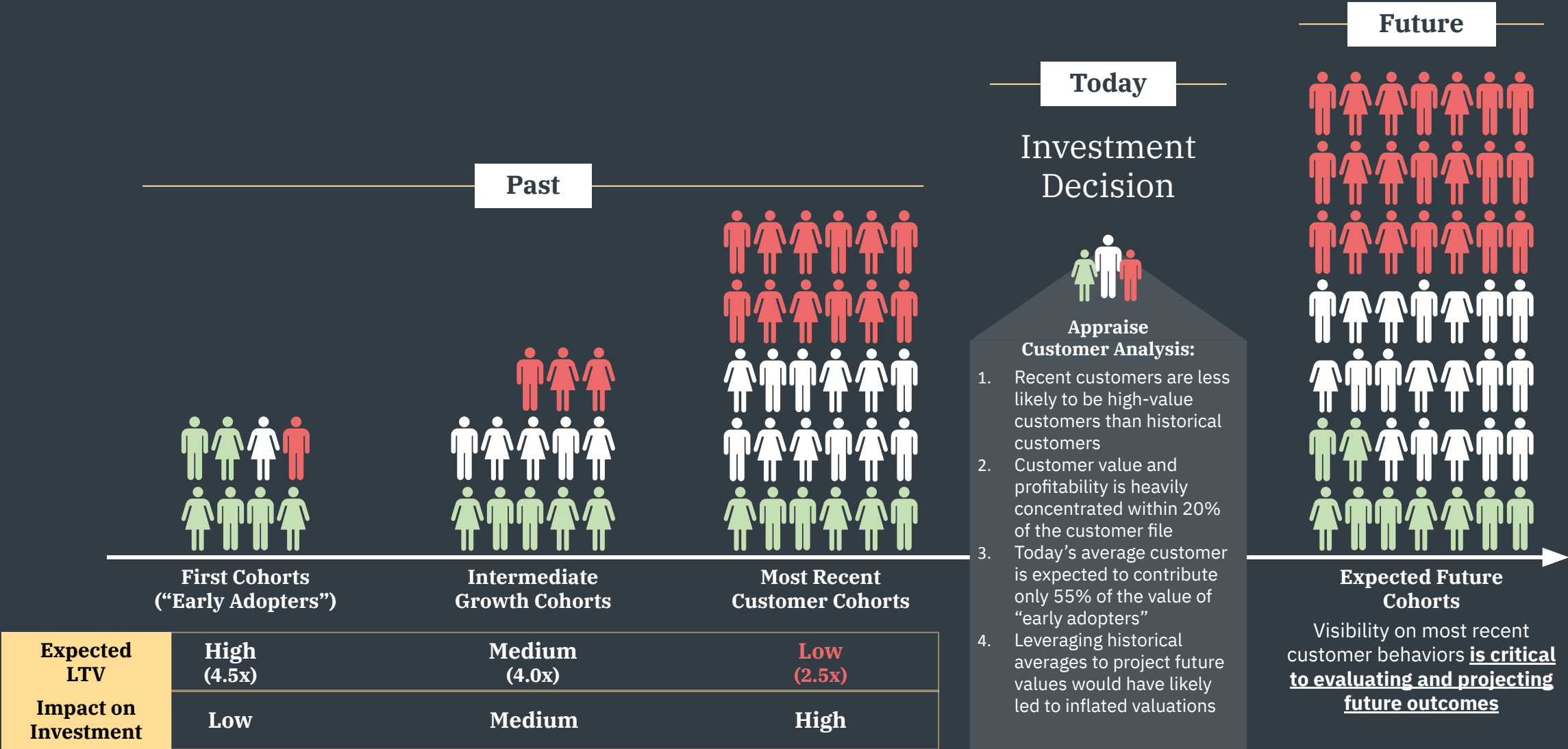
03 Financial Due Diligence

Make better operational and investment decisions with highly predictive forecasts that provide clarity on both LTV distribution and company growth prospects.

The problem: Companies tend to have the least amount of information on their most recent and relevant customers

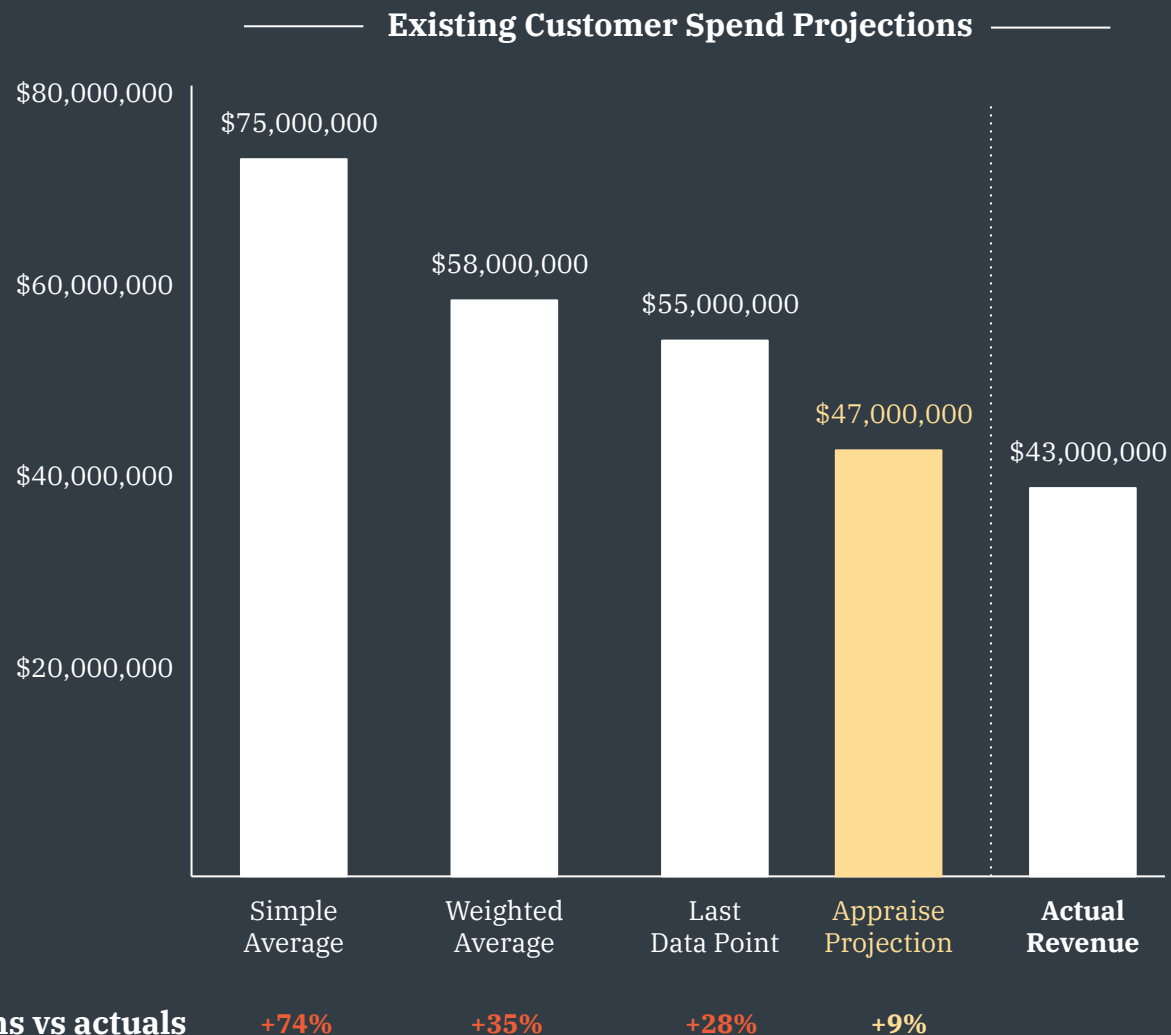


Our approach: Appraise deconstructs customer cohorts to better understand business health and go-forward prospects.

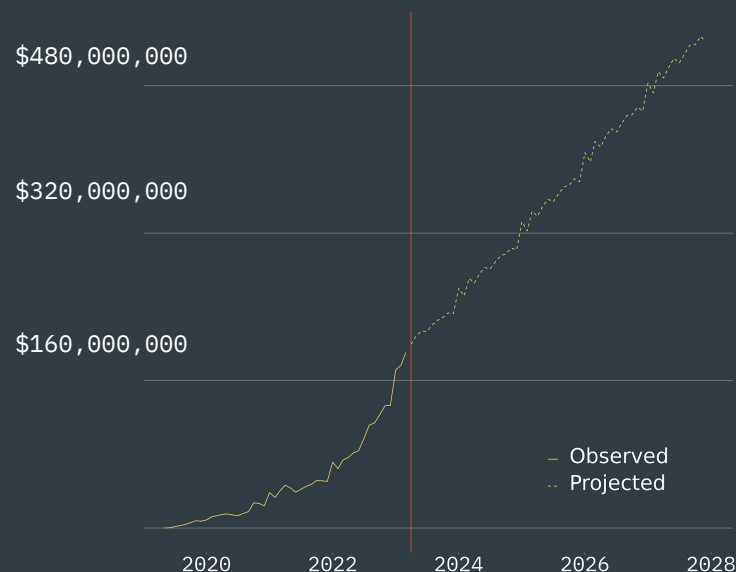


What you get: A more accurate and realistic revenue projection

- Using historical cohort behaviors to project future spend will frequently lead to over- (or under-) estimates of future performance
- In this example, the Appraise model suggested a meaningfully different future for the business vs. traditional cohort models; this example business is currently tracking slightly below, but inline with the Appraise estimate



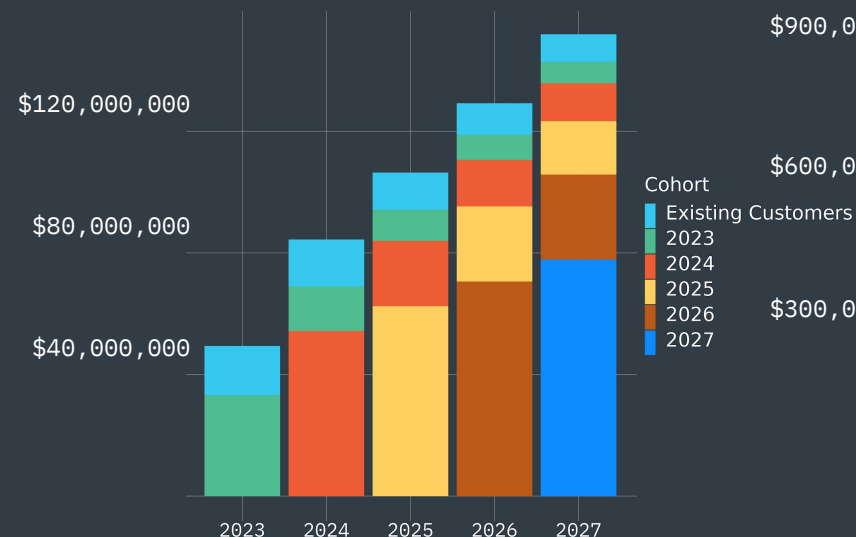
What you get: A detailed breakdown of projected revenue by various CPA and ad spend scenarios



Monthly Projected Revenue

This is a plot of observed and projected revenue.

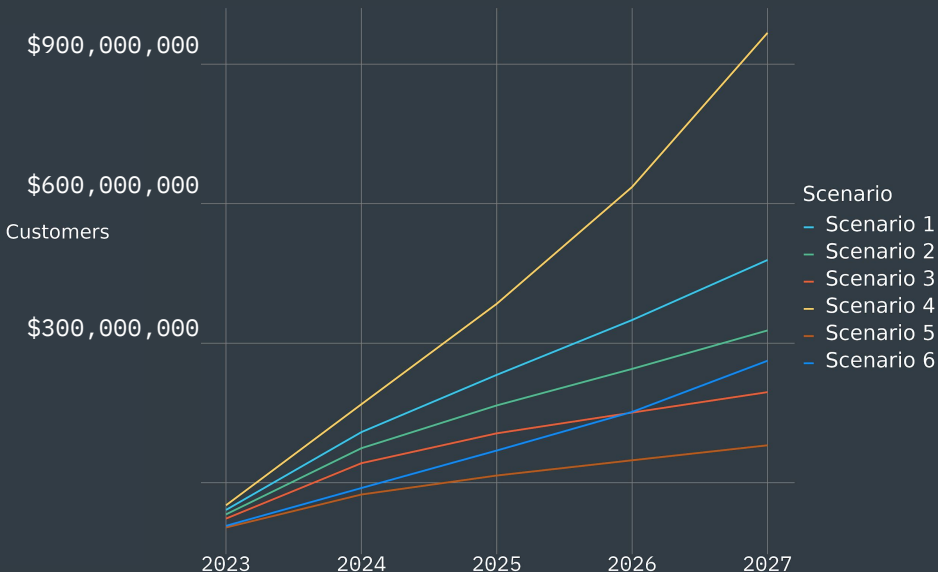
In this example, growth clearly extrapolates from the actuals, and even captures seasonal trends



Projected Revenue by Cohort

This chart breaks down forecasted revenue by acquisition cohorts.

In this example, most of the forecasted revenue comes from new customers, the share of existing customers however, becomes larger in future years, increasing to a nearly even split in 2027



Scenario Based Projections

These curves represent the revenue forecasts for various spend & CPA assumptions.

In this example, even the most pessimistic scenario (5) projects a yearly profit of at least \$20m by 2025



Getting started with Appraise

Setting us up for a collaborative success

How to use Appraise: Data Requirements

In order to get the most out of Appraise, and to align on expectations, we've created a set of guidelines around data requirements. At a minimum, we need what's detailed in the tables on the right.

We are more than happy to help you build these datasets, or do a data audit to make sure you have the data we need to successfully build the Appraise models.

Refer [here](#) for a complete overview of the guidelines.

1. LTV Analysis: Transaction Summary

Customer ID	Transaction ID	Sales Value	Items	Returns Value	Returns	Date	...
001	001_01	\$50,-	3	\$0,-	1	2016-10-12	...
001	001_02	\$250,-	4	\$50,-	2	2016-11-05	...
002	002_01	\$20,-	1	\$0,-	0	2016-10-15	...
002	002_02	\$90,-	4	\$10,-	1	2018-01-08	...

2. Driver Analysis: Customer Summary

Customer ID	Acquisition Channel	Accepts Marketing	ZIP	Loyalty Program	...
001	Facebook	Yes	22403	Yes	...
002	Google	No	54928	Yes	...

3. Financial Due Diligence: CPA & Spend Scenarios

Year	Month	Estimated CPA	Estimated Ad Spend	Scenario 1	Scenario 2	...
2024	January	\$44,40	\$2,500,00	+5%	-5%	...
2024	February	\$45,15	\$2,600,00	+5%	-3%	...

How to use Appraise: Logistics & Pricing

Logistics

Gradient operates on rapid, weekly, sprint cycles, meaning that we can get you the answers you need in days or weeks, not months or years. We’re committed to adhering to the timeline below, but this will ultimately depend on data quality and feedback loops.

What?	# of weeks
Data investigation	1 week
LTV Analysis + Driver Analysis + Financial Due Diligence	2 weeks
Analysis revisions	1 week
Synthesis & debriefing	1 week
Total	5 weeks*

Pricing

The LTV analysis is the core of our work, and is necessary for the follow-up analyses. We are however open to doing *just* the driver analysis or *just* the financial due diligence.

If you’re interested in all three, we offer a \$10,000 discount

What?	\$ Price
LTV Analysis	\$30,000
Driver Analysis (optional)	\$30,000
Financial Due Diligence (optional)	\$30,000
Total	\$90,000
<i>Bundle discount</i>	<i>-\$5,000</i>
Discounted Total	\$85,000

**If you’re on a tight schedule, timelines can be reduced for a rush fee*

We've partnered with a mix of PE firms, investment banks and B2C companies, each using Appraise for their own purposes.

See the materials below for an Appraise case study and an in-depth Appraise methodology guide

- [Case study](#)
- [In-depth Appraise methodology overview](#)

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partnered with**

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