

Can digital consumer metrics predict investment winners?

White paper

Alpha-DNA
Investment
Management

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Abstract

Alternative data sources are becoming an instrumental new source of insight for investors. One of the most interesting types of alternative data types available to investors is the consumer metrics and volu-metrics used by marketing executives to track digital interaction and digital penetration. An entire ecosystem of companies have sprung on to the scene that compile and sells this data to marketing executives to help them better understand digital penetration. Let's refer to the collection of this data as the Digital Footprint.

Our key research question is: **Can this Digital Footprint predict which companies will make good investments?** In other words, can it find market winners by providing insight that the market is currently unable to identify? The answer is 'Yes' if we can identify companies that will surprise the markets with their near term revenue and EPS performance. To answer this question, we have converted the Digital Footprint in to Digital Surprise Signal for the purpose of this study.

The Digital Surprise Signal is a systematic stock selection score designed to forecast revenue and earnings surprises for 2000+ companies based on changes in consumer demand estimated from their Digital Footprint trajectories. The algorithms underpinning the Digital Surprise Signal leverage alpha-DNA's proprietary organization of near real-time commercially available online consumer behavior information across multiple web Site, Search and Social platforms. The estimated change in demand is compared to market expectations for revenue to determine how likely a company is to surprise.

About alpha-DNA

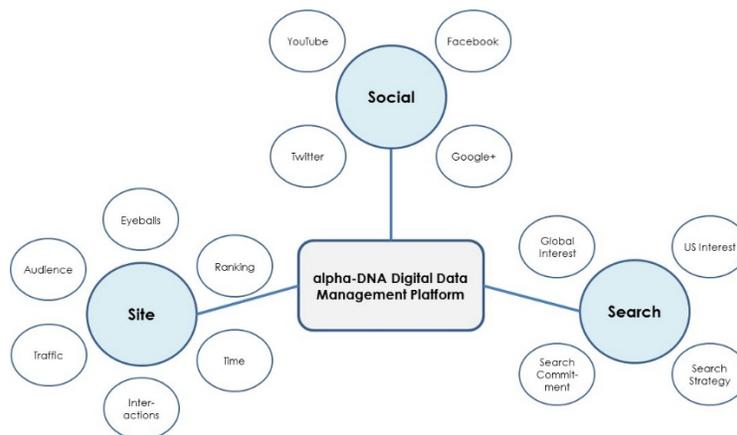
alpha-DNA was founded in 2014 with the primary goal of leveraging real-time digital information within scalable consumer analytics frameworks to improve high value financial decisions. alpha-DNA client engagements span across hedge funds, private equity firms, banks, market research and strategy consulting firms, all with the primary focus on assessing digital performance of companies/brands and translating that into forward looking topline growth acceleration expectations.

Introduction

The web, by its very nature, creates real-time and comprehensive data about online consumer behavior. Digital behavior is fundamentally correlated with online and offline consumer demand, both in B2C and B2B contexts. Customers not only buy products and services online, but also compare, research, seek support, recommend, and review them, extending the applicability of online behavior into the offline world. Consumer demand is a primary driver of revenue, and sharp changes in consumer demand manifest in a company's revenue performance, but market expectations lack contemporaneous company-specific fundamental data during the course of the fiscal quarter; new fundamental data from digital sources can better "predict the present" and identify trajectory changes.

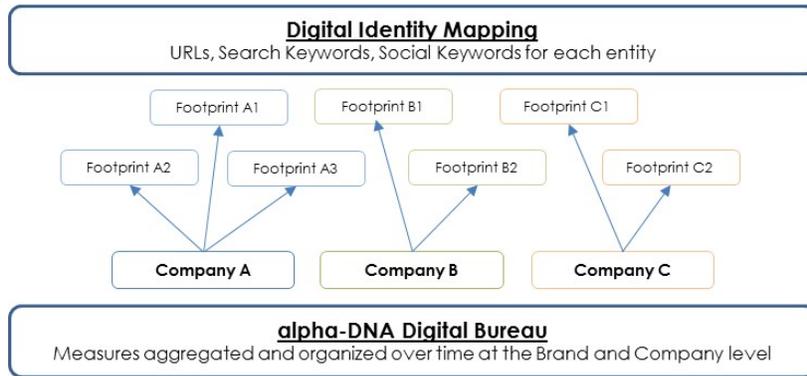
Digital Data

At alpha-DNA, we have collected multiple types of digital performance measures, from multiple commercially and publicly available data sources. The data is broad-based and includes various data types across web site, search and social platforms. Data is sourced from multiple providers for the same type of data to reduce noise, and data sources are continuously re-evaluated and appropriately re-weighted over time. In terms of scale, on a monthly basis alpha-DNA tracks more than 75 billion digital consumer interactions to hone in on change in velocity across businesses.



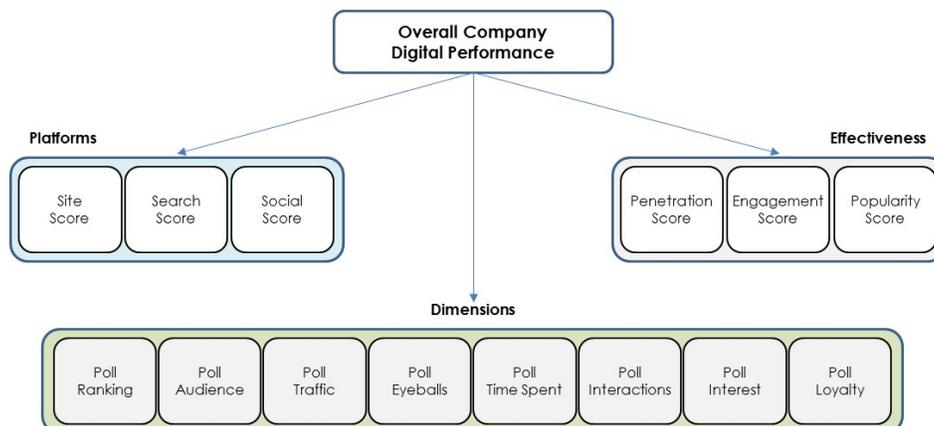
Digital Bureau

We have defined the digital identities for over 2000 companies and all of their brands by building, maintaining and updating a proprietary Digital Bureau of companies and brands. Entity definitions for a company and brand need to be updated continuously, often times manually, and cannot be bought off the shelf. Raw digital data is then cleaned and aggregated into time series associated with each digital entity. Furthermore, aggregating all the digital entities of all the brands owned by a company to represent a single Stock Ticker has its own weighting and algorithmic complexities. This unique dataset is a key component of the Digital Signal's value.



Digital Performance

alpha-DNA has developed a proprietary scoring system to rank the 2000+ companies every month on their overall performance strength across digital platforms (site, search, social) and consumer effectiveness (penetration, engagement, popularity). A “poll of polls” approach is used to combine many different digital dimensions sourced from multiple datasets to create weighted performance scores.



Constructing the Surprise Signal

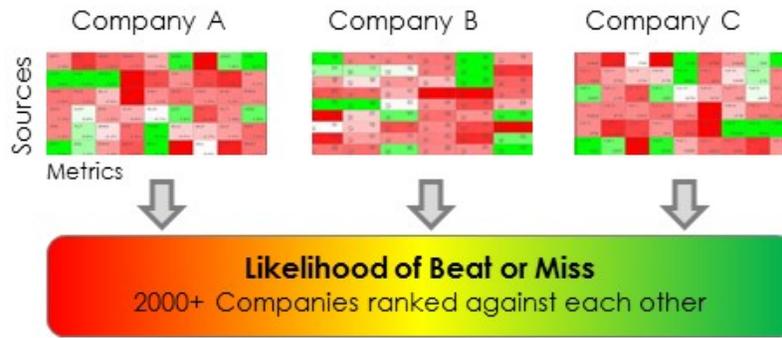
alpha-DNA algorithms systematically establish empirical relationships between digital demand trajectories and revenue change for each of the 2000+ companies looking back 2 to 3 years in history for each Stock starting in 2011. Two different sets of heuristics are used to measure change in digital momentum for a company and underlying consumer demand:

1. Longitudinal time-series relationships between revenue and digital growth, and
2. Cross-sectional measures of digital strength for a company relative to its direct competitive peers.

More than 2400 model formulations are considered for each Stock Ticker at any given point time, from where the average of the best alpha-DNA estimates is compared against the sell side analyst consensus to create a proprietary index of a company's likelihood to beat or miss next

quarter's revenue and EPS expectations. The algorithm seeks concordance across measures created from multiple data types and sources to separate signal from noise and generate confidence in the final assessment of beat or miss.

Poll of Polls by Company



alpha-DNA's Digital Surprise Signal is rooted in fundamental customer demand analytics, and benefits from a balanced exposure to multiple data sources. This broad-based approach enables institutional investors to unlock value from a very deep data set and delivers a straightforward decision-making tool based on a diversified measure of consumer demand.

There are several challenges to overcome when building such a Digital Surprise Signal. Digital behavior continues to evolve over time – the last 15 years have seen dramatic shifts in web surfing, intelligent search, consumer reviews, blogs, and social networks. It is critical that the algorithms be able to adapt seamlessly to the ever-changing types and sources of trackable digital consumer behavior over time. Given no single source represents a pure measure of consumer demand in today's exploding landscape of digital content, the Digital Surprise Signal takes into account measures of similar types behavior from multiple datasets.

Investible universe

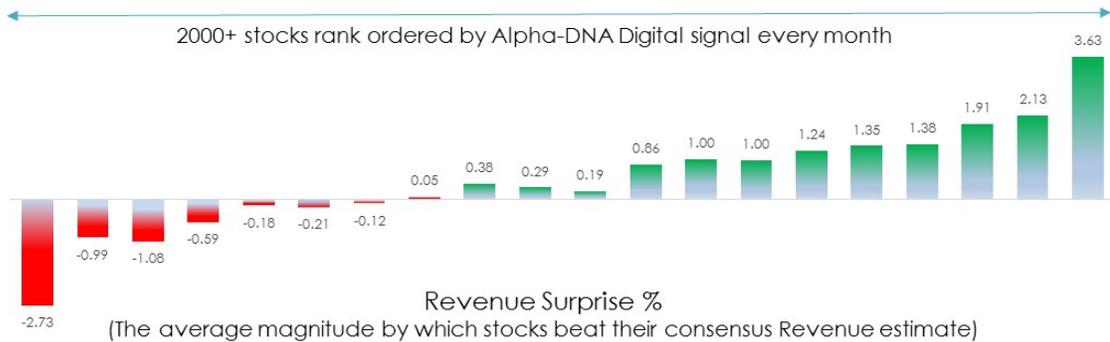
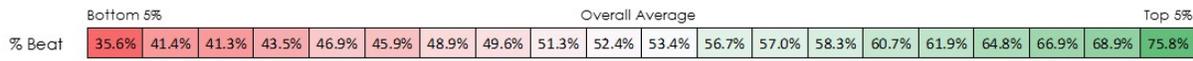
In order to ensure that our results were not driven by illiquid stocks, when performing our research, we restricted our universe to stocks with a minimum USD market cap of \$100mm, minimum median trading volume of \$1mm over the prior month, and a minimum nominal price of \$4. These values were based on as-was, unadjusted data available at the time.

The result is a universe of approximately 2,000 U.S. names, encompassing both B2B and B2C companies but excluding financials. The total number in the universe will fluctuate slightly over time as a result of overall market liquidity and analyst coverage.

Surprise prediction

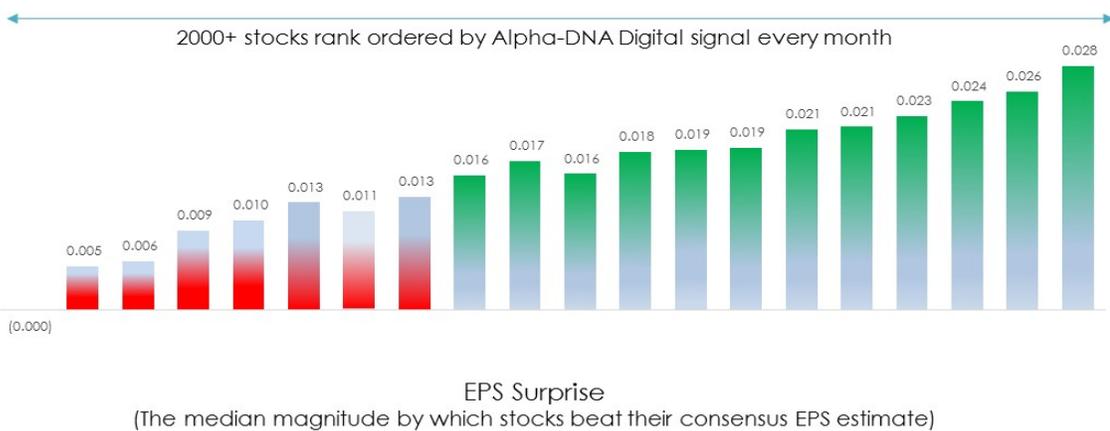
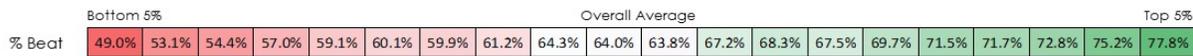
The Digital Surprise Signal correctly predicts both the likelihood of a revenue beat and the magnitude of revenue surprises. The bottom 5% of stocks as ranked by the Digital Surprise Signal beat consensus revenue estimates only 35.6% of the time, whereas the top 5% beat consensus estimates 75.8% of the time, with the likelihoods being largely monotonic for the intervening bins:

Odds of Revenue Beat
(The percentage of stocks that beat their consensus Revenue estimate)



Corresponding to the Revenue Beat, the Digital Surprise Signal correctly predicts both the likelihood of an EPS beat and the magnitude of EPS surprises. The bottom 5% of stocks as ranked by the Digital Surprise Signal beat consensus revenue estimates only 49.0% of the time, whereas the top 5% beat consensus estimates 77.8% of the time, with the likelihoods being largely monotonic for the intervening bins:

Odds of EPS Beat
(The percentage of stocks that beat their consensus EPS estimate)





Summary

Our Digital Surprise Signal clearly identifies companies likely to surprise the market with their EPS and Revenue results. The foundation of our study is two components: The Digital Footprint and the Digital Surprise Signal itself. The Digital Footprint represents the consumer metrics and the consumer volu-metrics. The Digital Surprise Signal is the algorithms required to convert the Digital Footprint in to insight.

Our conclusion is clear: digital consumer metrics CAN identify investment winners. However, without experience in organizing and analyzing this kind of data, the insights will be difficult to produce and rely upon. In other words, the design of your analytic approach to creating a predictive signal will matter. In fact, it will matter more than the Digital Footprint itself.

In the end, the Digital Footprint is one of the keys to finding investable market patterns among individual stocks. But the results will only be repeatable when supported and designed by marketing analytics expertise.

If you'd like to find out more about our research and our scoring, email us at wayne.ferbert@alphadnaim.com or register at our website at www.alphadnaim.com