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Predictive vs. Anticipatory

Understanding the Best Analytic Approach to Address Your Business Goals

INTRODUCTION

> "Prediction is very difficult, especially if it's about the future."
>
> -Neils Bohr, Physicist

When Danish physicist, Neils Bohr, made this playful statement almost a century ago, he obviously did not have access to vast amounts of structured and unstructured data that could be pieced together to form some very concrete conclusions. Today, the ability to predict the future is closer to reality, at least for those in the business world. Thanks to predictive analytics, which leverages data mining, statistical algorithms, advanced modeling and machine learning techniques, businesses are able to identify the likelihood of future outcomes based on historical data.

While the practice of predictive analytics has become a fairly common practice among many companies, especially in the marketing space, it is not meant to tell you definitively what will happen in the future, particularly if you change any parameters associated with the customer set. Instead, predictive analytics can only tell you what might happen given the same set of circumstances – and it is often very good at doing just that. But at the end of the day, predictive analytics are still probabilistic in nature.

If we consider the quote by Mr. Bohr, it is meant to serve as a warning of the importance of testing a forecasting model out-of-sample. It's often easy to find a model that fits the past data well, but quite another matter to find a model that correctly identifies those features of the past data which will be replicated in the future. In other words, you can't rely on historical behavior alone; you must account for impending variables that may arise to truly be able to make accurate predictions. A common criticism of predictive analytics is that environments and people are always changing, so static, historical trends are too simplistic and sterile to say something will or will not happen with a great degree of certainty.

Enter Anticipatory Analytics.

ANTICIPATORY DEFINED

As technology has evolved, so has our ability to process data at an incredible rate, making it possible to perform what has become known as Anticipatory Analytics. While still a relatively new concept, anticipatory analytics is gaining prevalence as a methodology. It leapfrogs predictive analytics in that it enables companies to forecast future behaviors, quicker than traditional predictive analytics by identifying change, acceleration and deceleration of market dynamics. Anticipatory analytics addresses businesses more challenging issues and places the onus on the business to take an action to reach a defined outcome.

While anticipatory analytics is born out of predictive, there are clear differences that must be defined.

PREDICTIVE

Predictive analytics helps predict future behavior based on past data and behavior trends. The prediction is based on statistical models, which can range from a simple linear equation to more complex models as those in neural networks. Predictive models are very accurate when past trends continue in the future. It is not as accurate in identifying the inflexion points, or the real-time signals that may alter a future outcome.

ANTICIPATORY

Anticipatory analytics builds on the foundation of predictive analytics where we can identify and adjust predictions based on inflection points such as the acceleration and deceleration of certain business behaviors or sudden change in business direction. Anticipatory analytics helps to anticipate the future needs of a business before they show obvious signs in their respective opportunity/risk profile.

THE FUTURE IS NOW

As we have discussed, the goal of anticipatory analytics is to understand all the complexities and potential interactions that could unfold in the future, not just make sense of the past. In this way, anticipatory models are almost cognitive in nature in that they can learn and process information in real-time.

In order to make this possible, the right mixture of data, processing tools, technology and expertise plays a central role. The following developments play key roles in being able to address the future, today.

KEY ENABLERS OF ANTICIPATORY ANALYTICS

FASTER DATA MANAGEMENT

The ability to process vast amounts of data in real-time with no lag

MERGING THE PAST & THE PRESENT

The ability to seamlessly combine data and behavior trends from past risk/opportunity model outputs with current data such as real-time inquiry data, spend and purchase behavior, social media trends, and economic data predictions like spending, inflation or weather provides a holistic view of customer behavior

PROCESSING REAL-TIME SIGNALS

The capability to identify behavior changes in real time and act on them immediately

INTERMINABLE LEARNING

The proficiency to learn and evolve our understanding of customer behavior - their needs and expectations

ADVANTAGES OF ANTICIPATORY ANALYTICS

Gaining the ability to foresee and plan for risk and opportunity before they occur is incredibly powerful. With it comes many practical applications:

EXPAND PROSPECT POOL

Target businesses that may not have not met earlier qualifications based on current selection criteria but have near-term potential

OPTIMIZE ACCOUNT MANAGEMENT

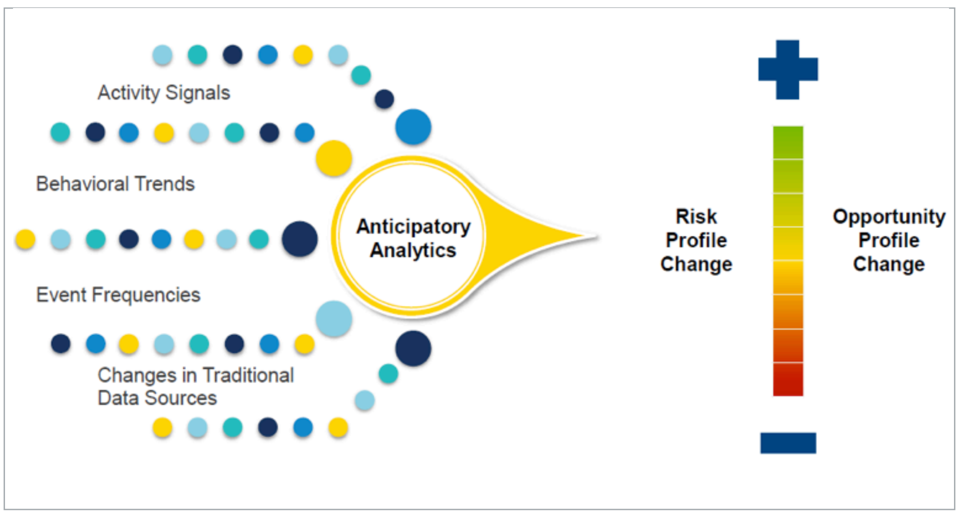
Organize sales channel and account segmentation by considering current and future opportunity profiles

IDENTIFY UP-SELL OPPORTUNITIES

Pinpoint customers that are ripe for your product/service given their growth trajectory

GET AHEAD OF COMPETITION

Increase market share by anticipating needs and getting an offer/message in market before your competition



Anticipatory analytics can help process vast, disparate sources of data to predict the likelihood of a material change in a business's risk or opportunity in the near-distant future.

ANTICIPATORY IN ACTION

Anticipatory analytics delivers benefits for every department across every industry. Let's look at a few examples.

Assume you are a marketer and you have built highly sophisticated predictive models about who's most likely to respond to your offer. This model is relying on who has responded in the past and is looking at specific behaviors and characteristics of those customers to identify patterns that help you identify similar customers to target. This works great if you are not planning to change your message or offer. But what if you want to make slight variations to your product/service and need to identify a completely different audience? The traditional predictive response model is not going to help you there at all.

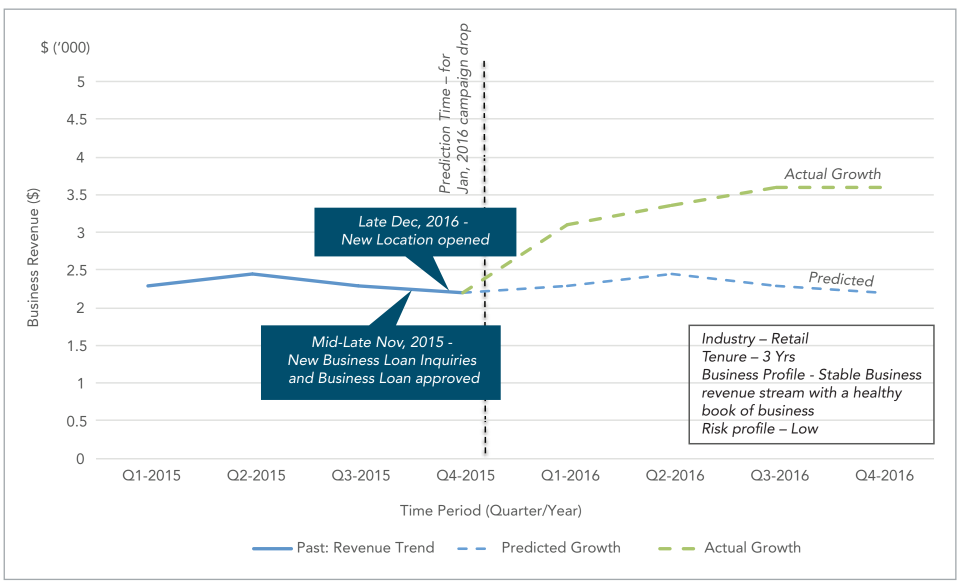
Whether you're looking at new markets or new sets of customers to engage with, you can leverage anticipatory analytics to help better understand se previously undefined targets. While it won't necessarily tell you who's going to respond to you based on who has acted in the past – everyone else is targeting them - it will tell you the companies that are likely to grow in the future, giving you the first-mover advantage.

Anticipatory analytics helps detect the most promising prospects that may make ideal customers based on real-time signals that are typically aligned to your goals.

Anticipatory Acts on Real-Time Signals

- Bankruptcy or any other derogatory event
- Loan inquires
- Change in linkage
- Change in geography
- Executive transitions
- Inquiry for insurance
- Purchase of new equipment

While anticipatory will identify those new audiences, it is up to you and your team to act on the information. You need to proactively alter your messaging/offer to meet the demands of this new audience, if you don't, the current messages will not work. Anticipatory forces you to customize your marketing to deliver the most relevant messages at precisely the right time, when the prospect is most receptive to your product or service.



Anticipatory analytics will identify the new business signals and update the growth outlook of the business providing a first mover's advantage for Jan. 2016 Campaign drop.

Now let's look at how this might be applied in the financial sector. Financial institutions are well aware of who's coming to them with a demand for borrowing money; predictive analytics helps them stay ahead of the most likely customers that will seek loans. But using anticipatory analytics, they can figure out whether this demand for borrowing is because that company's trying to grow or if the company is borrowing to keep their head above the water. By looking at real-time signals in the data, they have a much greater context behind the borrower's request. They already knew who's coming to them and what their current status was based on our risk scores, but anticipatory now gives them a much deeper view so they can fine-tune their response and messaging for these different circumstances.

Opportunity or demand is always shifting – expanding with growing businesses and contradicting with those in decline. Anticipatory looks at real-time data signals to predict the future sooner than traditional predictive analytics.

SELECTING THE MODEL ANALYTICS APPROACH FOR YOUR BUSINESS

While anticipatory is certainly an exciting new development in the world of analytics, it is not meant to replace traditional predictive analytics. Both approaches are valuable and can even work side-by-side.

For companies that have a core strategy in place and continue work on a constant path, predictive analytics does a very good job to continually look at past trends and forecast opportunities that make sense for them. This is very good for meeting short-term goals. But for any company looking for new approaches or implementing new tactics that take their strategy in new directions, anticipatory analytics may be the better choice; this typically benefits more long-term planning.

Here are instances when either predictive or anticipatory may be right for your business:

PREDICTIVE ANALYTICS	ANTICIPATORY ANALYTICS
Use When: – Past trends are robust and do not change frequently – The target variable is well defined – There are multiple samples available to build and test robust models	Use When: – You have a new product or service – Expanding a current product set to a new customer base or a new market – Your business case is dynamically changing, i.e., presence of fraud, geographical area going through major changes, etc.
Key Considerations: Very small count of target incidences, model could be over-fitted and not stable	Key Considerations: Continuously test and learn to have a good understanding of customer behaviors, needs and expectations
Examples: Risk analytics Demand Models Response Models	Examples: Fraud analytics Cross-sell/Up-sell opportunity analytics Servicing Optimization

IN SUMMARY

It is important to understand the different business situations where traditional predictive analytics can be best applied and where anticipatory analytics may be a more appropriate approach to solve the business problem. One is not necessarily superior to the other – it's about which methodology is best utilized in solving the specific business problem. Conventional response modeling, revenue potential modeling, wallet share analysis, traditional risk scoring and other analytic practices will always be important tools for businesses far-and-wide, but as more companies focus on analytics to inform growth, they'll have employ the right team and identify the right partners to work with in order to successfully leverage anticipatory analytics to gain a competitive advantage.

Looking forward, we anticipate anticipatory analytics playing an important role in your future.

> "The future ain't what it used to be."
>
> -Yogi Berra,
> Professional Athlete, Amateur Philosopher

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