Real time data can lead the way out of the crisis

AI-driven Real Time Market Confidence Index enables qualified decision-making based on the coronavirus' impact on the economy.

NORDIC MORNING GROUP

MY TELESCOPE™

The Coronavirus pandemic has created the largest and most complex crisis in the global economy since the Second World War. Many companies have shut down all or part of their operations, and existing prognoses and plans are rendered void. Lack of qualified decision-making data may deepen the crisis further. Nordic Morning is therefore launching an economic trend indicator together with My Telescope. It is based on AI-driven real time data, shows current developments, and provides a basis for decision making supported by predictive analysis.

"Not even in wartime have we seen such a fast and complex impact on the economy as right now. There are patterns, but a completely new level of analysis is required to discern them. Companies have an important role in helping to ease the economic downturn, but they need reliable decision data to act, updated in real time. That is what we have created,"
says Anne Årneby, CEO of Nordic Morning Group.

The Real Time Market Confidence Index is based on the same established indicators that the market traditionally looks at: unemployment data, consumption data, GDP, PPP, political initiatives, sentiment data (attitudes about economic development) and behavioral data (behavioral economics). But unlike traditional barometers, big data analysis is done in real time using artificial intelligence. For companies, this means that they can make fast decisions based on where the economy is right now – for example in their own industry or at a specific location – as well as how the economy is expected to develop in the near future.

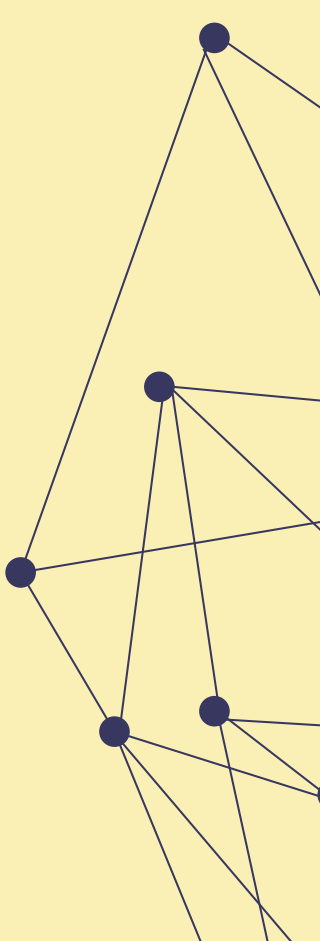
About Graviz Labs

In times of crisis, it is even more crucial to keep a finger on the pulse than normal. Fact-based, data driven decisions should already be the norm, but now it is a matter of getting that data faster. Speed is even more of the essence. It is therefore crucial to use big data, and as much in real-time as possible, without jumping prematurely to conclusions. Over the last two years, Graviz Labs with My Telescope, has been creating various hypotheses and models to understand current confidence in the market and predict how the situation will evolve on both a market level and for particular industries.

When the Corona crisis occurred, Graviz Labs used its analytical power to predict where the Corona virus will spread further, in an attempt to warn people, governments and businesses about the tidal wave heading their way. We reached an accuracy of 94% predicting the virus spread across continents. Now, as most of the world is recovering from the first shock, it is even more important to lift our heads and try to look beyond the horizon

The logic behind Realtime Market Confidence Index (RTMCI)

This white paper will provide more insight into:
- Our approach
- The use of real-time and validation
- The data sources used



1. Our approach

As a rule, we always believe in using a multiple source analysis. We deliberately take data from as many sources as we can to get an as objective view as possible. We start by looking at three different types of data:

- Perception data: i.e. how do people feel about a situation, the market, an industry or a brand?
- Behavioral data: based on behavioral economics, consumer perception of the current situation and previous experiences - how do people act, how do people consume, what anonymized digital traces do they leave behind (in line with GDPR compliance)?
- Macro trends: what are the forces at play that will significantly impact the markets, but are not directly driven by consumers themselves, such as laws and regulations, interest rates, competition, trends etc.?

How we work with the three data sources:

1.1. Perception data

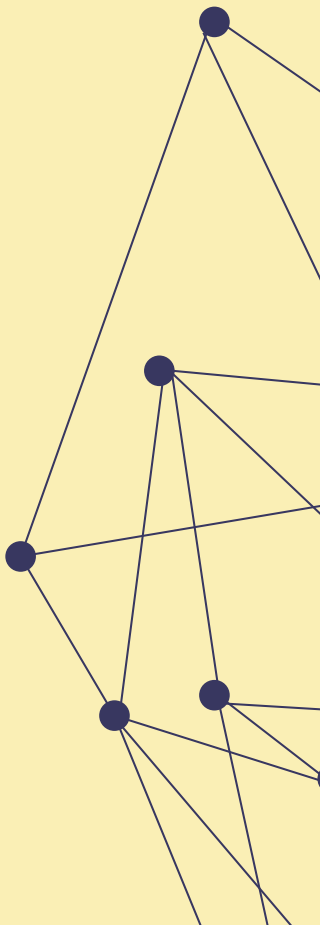
Since the start of the research for the My Telescope methodology (2016) we have been monitoring market perception. By continuously tracking indicators such as sentiment around consumption, future outlook (unemployment, sustainability, etc.) and attitudes towards trends or brands.

Taking the Corona study as one example, we followed the general impressions about the disease. Do people consider it to be “nothing more than a flu” or are they taking it seriously? These indicators show the speed with which they will move in one direction or another. By then splitting this general market view into different segments, we also get a clear view on particular industries. Now that people have got over the first fear of the crisis and what it meant for their immediate safety, they started to think about the effects on their communities and of course the economic reality of the lock downs.

One major factor in shaping perception is the role the media plays in informing the general public and shaping their views. For example, in the initial stage of the pandemic, an increase in media consumption was noticed, whereas now a general Corona fatigue has already started to set in. With increased “free” time at their disposal, different media outlets seize the opportunity to bring up other relevant topics that people eagerly tap into and think about. Something for which they previously might never have gotten the time.
Since these views will largely shape the future, monitoring all these different types of media is crucial in predicting the outcome of the crisis.

1.2. Behavioral data: What we do vs. what we say

There is one thing people say and another how they act. The correlation between perception data and behavioral data is therefore essential. Are the impressions we can gather and log from different target audiences just the views of extremists yelling in the margins, or do they actually drive the movement of the masses? And even if they are the expressions of a very loud minority, how will the majority of people react to it? Is everybody who is advocating to #stayathome, also really doing it? By looking at movement patterns from cell phone usage we can already get a good understanding on whether it is actually the case.



Continuing to use the current topic of Corona as an illustration, we follow these indicators:

- Search behavior: when people voice a legitimate concern about losing their job, do they start looking at the options of unemployment plans to better understand them?
- Surf behavior: looking at mitigating the concerns they are struggling with, what are the different types of sites with potential solutions consumers are visiting? For example, after a while there might be an increase in websites with second-hand sales.
- Channel selection: what types of social media see an increase in activity and how is this related to what is happening on the market?
- Mobility reports using cell phone usage: for example, how do people move during these times, and how would the use of parcel services be affected by this change?

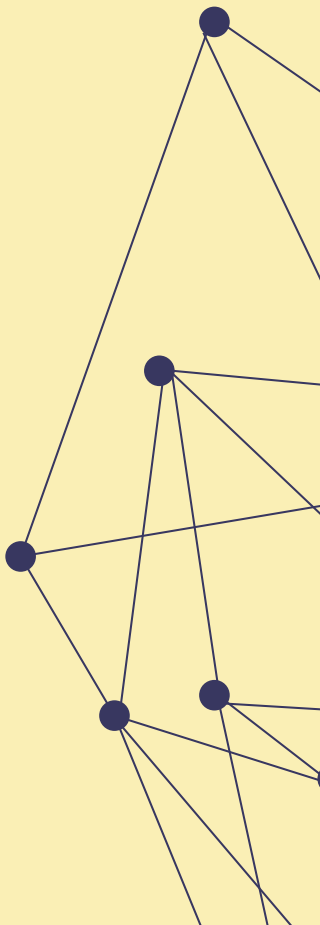
This type of data is integrated into getting a profound understanding of a particular market to better predict its behavior.

1.3. Macro trends

The market is not only driven by consumer behavior, but also by larger powers such as governmental institutions, politics, general health, demographics and a series of other factors. In our Corona case, we check whether the stimulus packages of different governments activate the markets. In most countries, unemployment has soared, and depending on the level of savings the average consumer has, it gives an indication of the amount of consumption behavior we can expect. This is then combined with the preliminary outlooks of the governments on when markets will open up again and people can get back to work. This data is crucial when making predictions.

Data points we follow are:

- GDP (Gross Domestic Product)
- PPP (Purchasing Power Parity)
- Consumer confidence index (Konjunkturinstitutet, Eurostat)
- Current unemployment figures
- Current job employment notice
- Current speed to market of Coronavirus
- Current lock down of markets and impact on economy
- Current overall market sentiment (focus on concerns)
- Current consumptions patterns



2. Modelling

2.1 Building the model

The model needs to be very agile, which is why we broke it down into multiple smaller parts forming almost a pyramid leading up to our main question - How will market confidence evolve? These are some of the more than 200 indicators that are in the different parts of the pyramid and form an overall indicator:

- How much have incomes dropped in different industries and markets?
- What does market and consumer liquidity look like?
- How many companies are insolvent?
- What groups are especially affected by the Corona crisis (demographics, regions, employment types)?
- Mental health
- Unemployment
- Confidence in authorities

Over 15.000 data sources are addressed in order to get this entire overview.

The different indicators are brought together generating a so-called compound indicator. Those are then in turn brought together and eventually lead to the overall index. This technique is also used for the calculation of GDP numbers for example, where multiple factors such as economic activity, education levels, consumer prices etc. are taken into account.

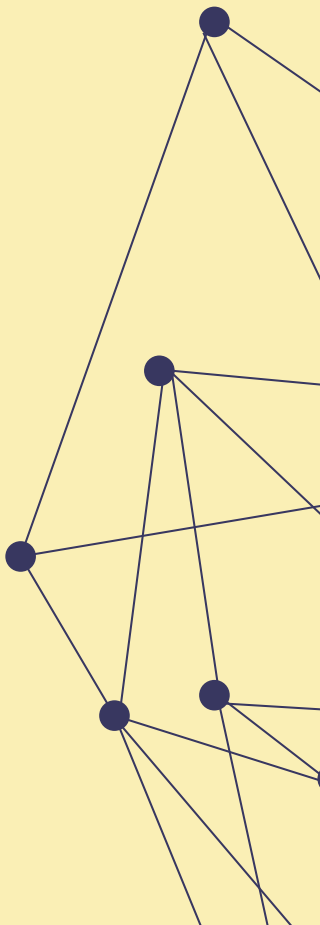
For the predictive side of the model we need to create an environment that gets as close to reality as possible. In general, we use well researched and proven models.
Where there are none, such as the Corona crisis example, we combine multiple models that create an environment to get as close to reality as possible. Each possible scenario is watched over by a “software agent”. These monitor and control certain scenarios and data streams. Then, based upon that data, they generate an outcome which in turn might trigger responses from other “agents” in the environment; just as certain actions in the market can have a domino effect on others. This occurs until a certain level of stability is reached. By then, looking at the current situation and various proposed predictive scenarios, we can see which of the scenarios is the most plausible. The data of that particular scenario within a particular part of the model will be used as the base input for the prediction that leads up to the market confidence index.

2.2 Use of real-time and validation

The biggest problem governments and specifically business leaders encounter, is that they must constantly rely on data from the recent past. Of course, it is sometimes “only two weeks old” but in a situation such as the current one, that is like driving in a car race by looking into the rear-view mirror. Big data enables us to obtain data in much shorter time frames and turn our attention to what is directly in front of us. The main challenges are then to assure the data is reliable and enables validation of the different scenarios in case of predictions. Also, here we look at the three types of data (perception, behavior and macro data) to complement and support each other.

We start by measuring people’s perception and sentiment to understand consumer state of mind and follow that up by investigating how they will act upon their words. The following step is that we see whether a significant number of people follow this action and a critical mass has been reached. This is done not only to see a trend, but also to teach our system how to calibrate the interpretation of the perception and behavioral data.

The macro data, in this case the “two week old data” on which governments and captains of industry rely now underlying the numbers, is in our case used as validation to see whether our interpretation of aggregated perception and behavioral data is correct, or see what the system needs to adjust.
For example, when we see an increased concern about the state of the economy for a certain sector, followed by an increased search for unemployment benefits, does this get confirmed by the unemployment numbers that are released at periodic intervals?



3. Data collection

3.1. Perception data:

There are multiple ways of capturing perception data and swiftly analyzing the results. We use different methods here to get a more complete picture of what is happening within society.

- Online surveys help us to answer very specific questions mainly supporting the research linked to the different industries that we track. By collaborating with a series of online vendors we can be sure of reaching the right market segment. Standardized questionnaires were made, yet with industrial nuances taken into account, to assure we can compare the data and create regression analysis. With increasingly more people at home due to Corona, we reached the sample number faster, enabling us to also process the data faster.
- Social listening provides us with an unprobed measurement of market perception and sentiment. It is more honest in the sense that nobody has directed them already with a question. Our adapted Natural Language Processing makes sure we filter the data in the right way and look for the right biases to get a more accurate representation of what the market is really feeling. By tapping into different social media platforms and forums we can go quite deep into a particular industry.
- Media is tracked as they, according to the part of the political spectrum they belong to, express the opinion of a sizable chunk of the population. As with digitization, this flow never stops and can continuously and in real-time provide us with updated sentiment data.

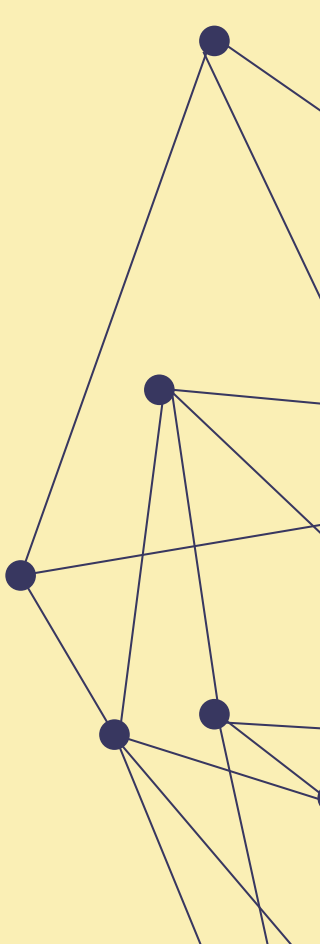
3.2. Behavioral data:

Through direct connections with multiple data sources, we are able to capture behavioral data almost instantly.

- Mobility data comes straight from looking at mobile phone movement.
- Search behavior can be directly measured and even consumption of all goods with a barcode can almost instantaneously be integrated into the platform to measure what people are actually interested in, what they are thinking of buying, what they are actually buying and where.
- Search data and search behavior can be directly measured and indicate what people are looking for.
- Visited websites to understand what consumers are actually considering as solutions to their concern or need.

3.3 Macro data:

As mentioned earlier, macro data plays an important role in the validation of our model. Depending on the purpose of the data, the macro data is used to model the impact of certain elements, like the effects of interest rates, but just as much to validate the prediction models we have created.



4. Data sources used

In order not to lose too much time having to clean the data and assure it is reliable, we connect to well-known data sources that have proven their credibility within their respective fields. Below is a list providing examples of different data sources used.

Perception data:

- Online surveys: YouGov, Pollfish.
- Social listening: Facebook, Reddit, Instagram, Twitter, forums, etc.
- Media: major media outlets in most countries.

Behavioral data:

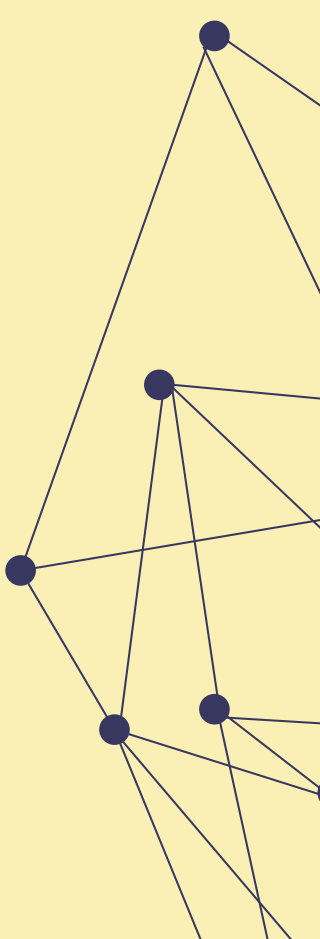
- Mobile movement data through mobile devices
- Consumption patterns from the sales of products with barcodes
- Google search databases, combined with Google Trends

Macro data:

- WHO
- SCB
- OECD
- World Bank
- Eurostat
- Konjunkturinstitutet

5. Conclusion

We have used the Corona pandemic to demonstrate how My Telescope works, to analyze the “now” and predict what lies ahead. As with Corona, the world and the markets will change and consumers will continue to behave differently than expected. Those who dare to lift their heads and rely on big data to better understand this imminent new reality, will be those winning in the market. With real-time data, we can be closer than ever to reality and adjust our models immediately, giving users of our method a direct competitive advantage. We have proven to be accurate at predicting where the virus will see its increase, we are now certain we will be able to follow where the economy will flare up first, and more importantly, when.



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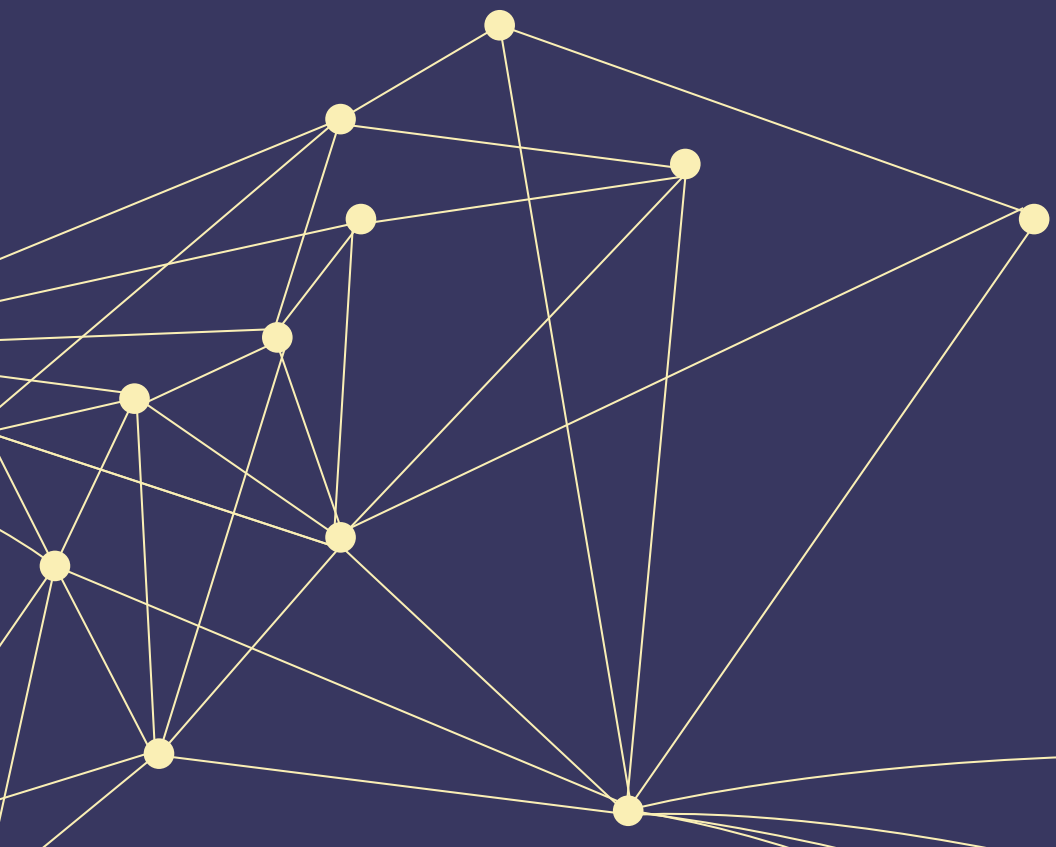

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