OUR VISION AT SOLVENTURE

Boost your demand planning process by anticipating business turning points

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SOLVENTURE

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STEERING THROUGH TURBULENT TIMES

Corporate leaders are facing unprecedented complexities. There is the double challenge of quickly responding to severe and unexpected turbulence and at the same time setting a decisive course of action for long-term competitive performance.

While continuously monitoring potential turbulence you are of course aware of disruptive events or demand-supply imbalances occurring in your market. Also, a lot of external data sources (trend reports, sector updates, macro-economic indicators, …) are available to monitor your markets more closely. However, these data sources are often consulted in a qualitative way and it's easy to be overwhelmed by the information overload. Still, you can be caught by surprise. How do you know when and to what degree events will affect your sales? And preferably a couple of months ahead of time?

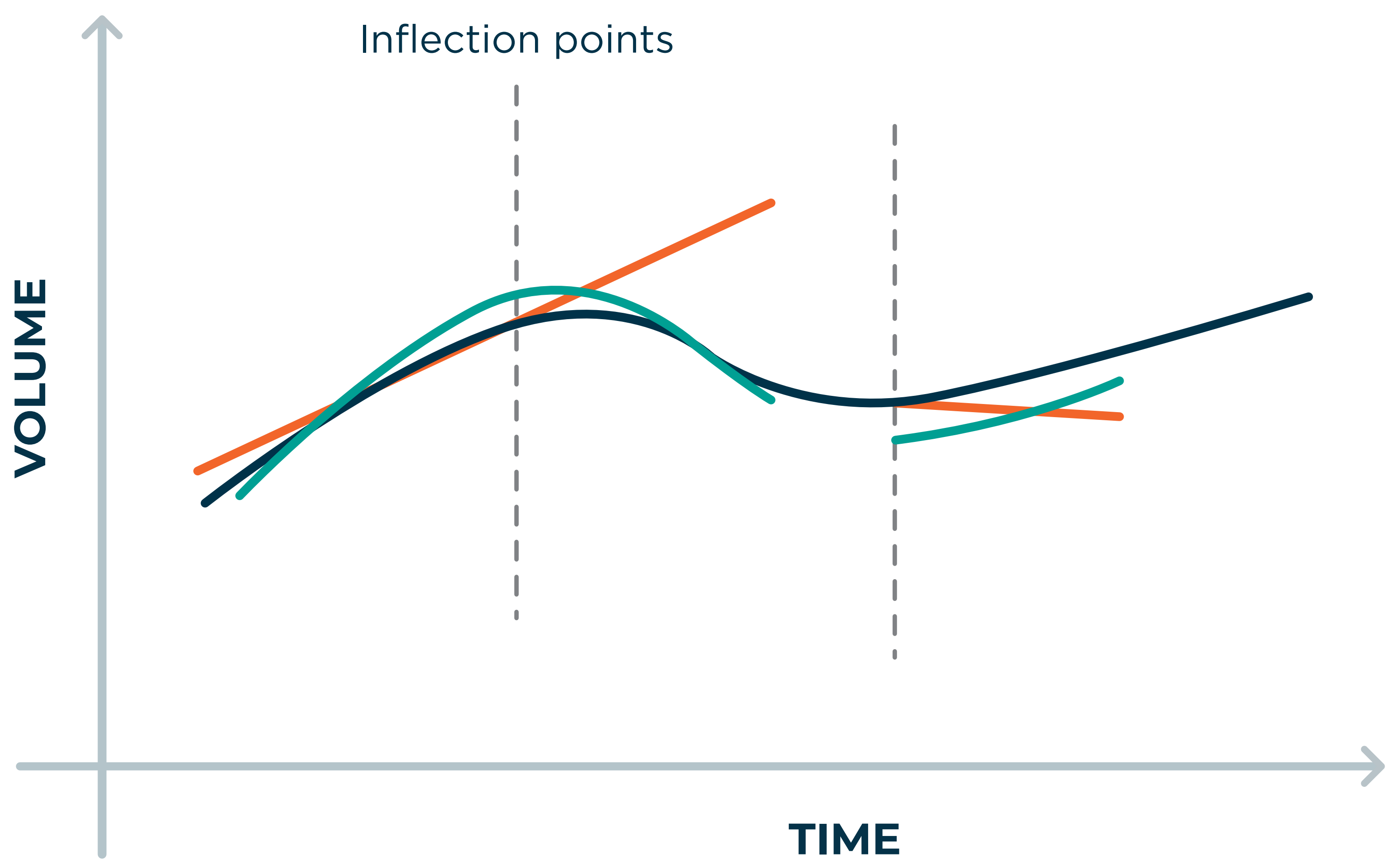
Integrating internal and external data with predictive analytics, will help you to better anticipate turning points in your sales or in your market. Quantifying the specific impact of market turbulence on your company's top and bottom line helps to steer your company through rough waters. Having better visibility gives you a strong competitive advantage in your market.

TURNING POINTS

Trends, seasonality and customer contract changes are all effects that we can derive from analyzing historical data and from involving customers or sales in the collaborative forecasting process. However sudden trend breaches or so called “market turning points” are a lot harder to foresee (e.g. market turning points due to covid, shortages, or new regulations)

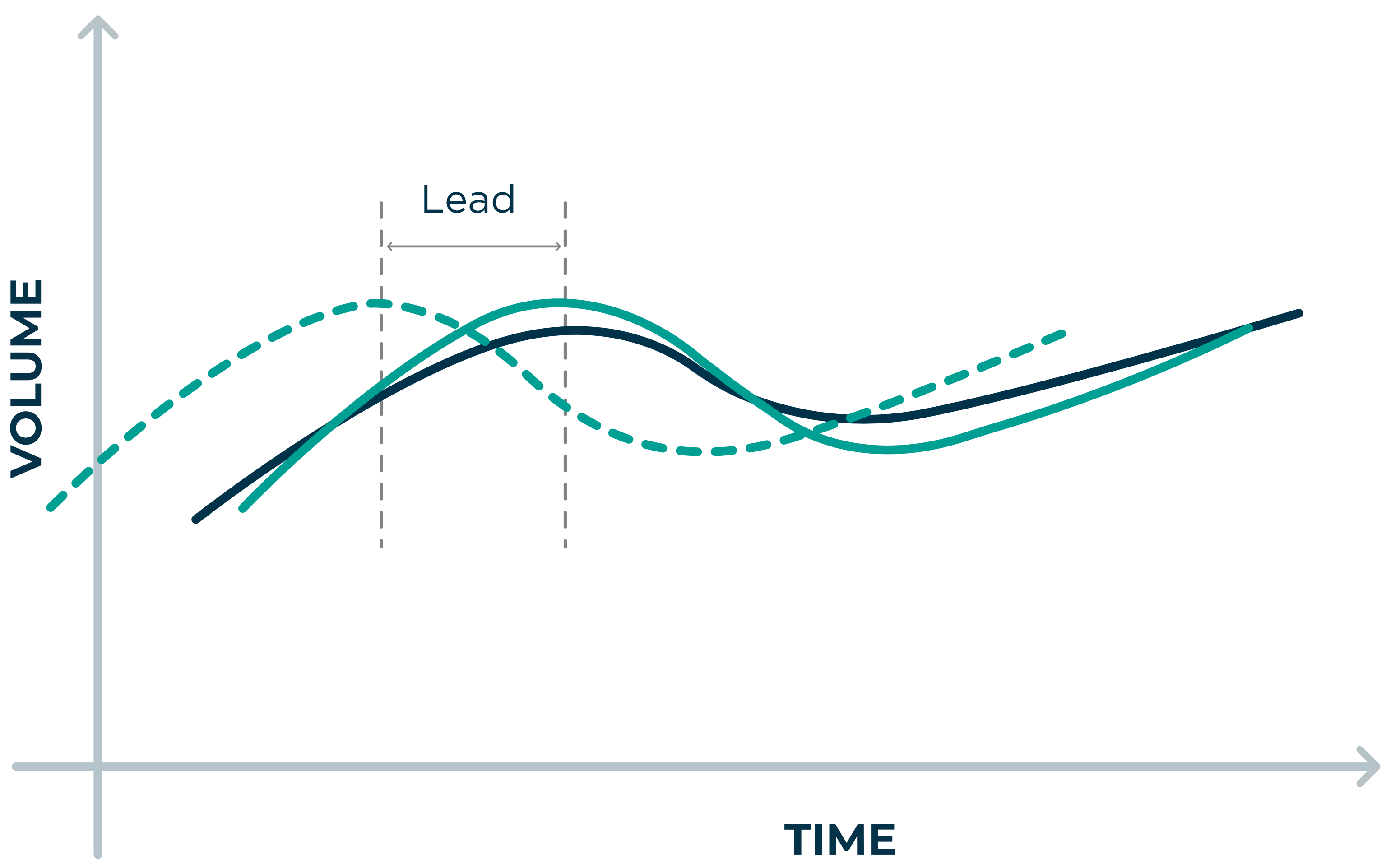
What if you could identify the same turning points (up or down) in external data as in your own company data, only a couple of months in advance?

TRADITIONAL FORECASTING VS. LEADING INDICATOR FORECASTING



- Actual sales volume
- Traditional forecast (extrapolation)
- Forecast with leading indicators

OUR METHODOLOGY: FORECASTING WITH LEADING INDICATORS



An indicator can be leading with any lead from 1 to 9 months. The bigger the lead, the better.

- Actual sales volume
- Leading indicator
- Original idicator (dotted)

INCREASED VISIBILITY THROUGH THE INTEGRATION OF EXTERNAL DATA

A common forecasting process consists of a statistical forecasting (quantitative baseline) combined with a collaborative process to add customer-specific information.

Especially during turbulent times, there are strong limitations to this common approach. The statistical forecasting fails to predict sudden turning points. The sales team does not always know where the market is going either. Relying on client input coming out of a supply-constrained environment might also not be the best idea.

Additionally, customers might still not be aware of changes occurring downstream in the value chain. This might lead to sudden changes in the order pattern or even canceling orders. These order changes can ripple through value chains with amplified fluctuations further upstream, resulting in a bullwhip-effect.

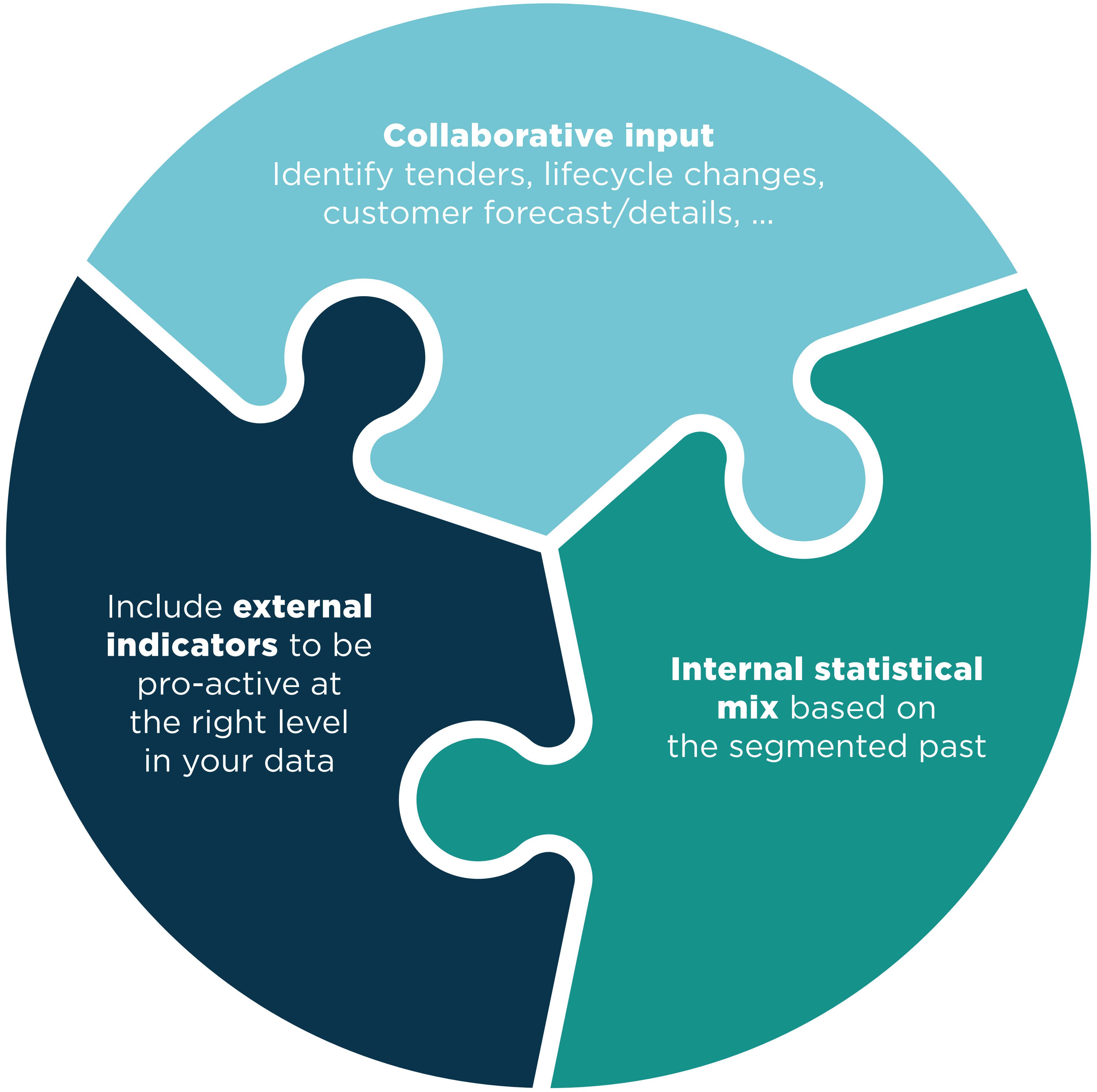
So, winning the forecasting game is about integrating ALL possible sources of information: statistical, collaborative and external data. The image on the next page describes the added value of each source and how they connect with each other.

> “Adding the macro-economic view to your processes will enable you to detect turning points ahead of time, which is a valuable competitive advantage in any market.”

1 Traditionally, the hierarchical statistical forecasting forms a quantitative baseline for your forecasting process.

2 Collaborative input from sales, marketing or customers can add the critical information that you cannot derive from a statistical forecasting baseline.

3 Integrate external data into a leading indicator forecastingmodel to identify market turning points ahead of time. Early detection of (top-line or bottom-line) disruptive turning points will be of great value in dynamic markets.



METHODOLOGY

Over the years, we experienced that it can be difficult for companies to decide which external information to use and to incorporate it in their daily practices. That is why we created a clear 4-step methodology.

Our 4-step methodology is designed to guide you trough the broad landscape of external data. These steps will enable you to get insights from external data that is experiencing the same turning points (up or down) as your sales information, months before your data is affected.

INDICATORS

Public data

Private data

MATCHING

Expert input,
brute force statistics

Combined input

FORECAST

Regression
techniques

Iterative model
improvement

WHAT IF

Data driven decision,
scenario planning

Early warning
system

STEP 1: INDICATORS

GATHER DIFFERENT SOURCES OF EXTERNAL INFORMATION

Determine which data you think is relevant for your business(es).

Talk with various departments on which indicators they experienced impacting your business. Sales, marketing, procurement, customers might all have relevant insights. Segmenting business drivers into a fish bone diagram first can also help to discover relevant data sources. What sector specific data is your company already buying today? Often a lot of money and/or effort is spend on acquiring this information, where its impact and time delay is uncertain.

Also take a look in public data sources like FRED, EUROSTAT, NBSC or other governmental agencies. Are certain economic indicators such as raw material or energy prices, industrial production or sales of certain product groups relevant for your business?

EXAMPLES OF PUBLIC DATA SOURCES

NBS

FRED ECONOMIC DATA | ST. LOUIS FED

eurostat

EXAMPLES OF PRIVATE DATA SOURCES

IHS Markit

I·C·I·S Independent Commodity Intelligence Services

EUROCONSTRUCT

LMC AUTOMOTIVE

NAHB National Association of Home Builders

STEP 2: MATCHING

IDENTIFY WHICH DATA MAKES SENSE STATISTICALLY AND BUSINESS WISE

Now that you have identified different potentially relevant data sources you can start determining which indicators can provide you with more visibility to steer your business. There are two main considerations.

The first consideration is which indicators **make sense statistically**. An easy way to get started is by performing correlation analyses. By doing these analyses you will be able to determine how well the indicators are matching your top-line or bottom-line patterns. Additionally, by time-shifting the indicators forward in time, you can determine what their most likely leading value is.

The second consideration is which indicators **make sense business-wise**. An indicator might correlate perfectly with your business patterns, but most people feel uncomfortable using indicators of which they do not understand the potential link with their business. You do not want to introduce a black-box model. Additionally not every mathematical correlation also means that there is a causality.

In this part, you need to find a balance between indicators with a strong mathematical match, and the business understanding of the indicator.

EXAMPLES OF RELEVANT INDICATORS FOR DIFFERENT INDUSTRIES

- **AUTOMOTIVE**:
  Vehicles sales, car inventories, customer confidence, interest rates
- **CONSTRUCTION**:
  Architecture billings index, building permits, construction spending
- **CHEMICAL**:
  Chemical activity barometer, oil prices, end-market drivers

STEP 3: FORECAST

AN ITERATIVE PROCESS TO CREATE A PERFORMANT PREDICTIVE MODEL

Now that you have identified your candidate indicator set, you can start developing a forecast model. The forecast model has to select (a potentially large collection of) relevant indicators and decide which leading value to use. It can take some iterations to validate the model with your business.

Next, we should evaluate the accuracy of the model. Here we suggest testing the added value of the model during historical turning points in your business. This is where using external information adds most value. In this part, you need to find a balance between indicators with a strong mathematical match, and the business understanding of the indicator. Both should be combined in the candidate indicator set, containing potentially relevant influences for the forecast model.

STEP 4: MATCHING

WHAT IF SCENARIO ANALYSIS

Monitoring the identified indicators more closely and comparing a statistical forecast baseline with a leading indicator forecast will give you early warning signals in case of upcoming turbulence.

a. When business continues evolving at the same pace, the statistical forecast and the external forecast tend to have similar directions. This means the business trend identified by the indicators is similar to what the extrapolated historical trend says. Here the external information acts as a confidence booster in what the near future is bringing.

b. If the external forecasts deviate from the statistical forecast it makes sense to see which indicator is causing the deviation and discuss the potential impact upon the sales in the demand management review meeting.

KEY TAKE AWAY

When market dynamics are evolving or uncertain times are ahead, we simply cannot trust the output of our statistical forecast. The statistical forecast then extrapolates a trend that is almost certain not to continue in the future! Here we must rely on other methods, external information, and customer information, to ensure visibility in the future. Typically, the customer information will give some visibility in the near future, while the external information can validate or challenge that information and give visibility further ahead.

BENEFITS

Detecting turning points ahead of time creates a competitive advantage in your market. This generates benefits on different levels for the organisation in general and for various departments.

- When leading indicators capture an unexpected increase in sales, there will be a lot of sales that might otherwise be missed, or would require rush orders and overtime to fulfill.
- When the indicators capture an unexpected decrease, a lot of (potentially perishable) working capital will be avoided. Additionally, production assets could have been used to produce goods for other segments, leading to potentially missed sales again.
- In case of an acquisition target, you might want to validate the business case by challenging external market projections coming from banks or sector specialists.

MARKETING

- Insigths in market dynamics
- Total market forecast
- Market share forecast

PURCHASING

- Insights in leading trends impacting raw material prices
- Direct buy vs trading
- Insights in turning points for trading and strategic buying
- Global sourcing scenario managment

SALES

- Challenge your customer with market insights (better contract/price negotiations)
- Detect turning points ahead of time leads to reduction of lost sales and service level improvement
- Ahead of competition

FINANCE

- Investor relations. Explaining the drivers of why we are behind or exceeding plans
- Predict (RM/COGS) cost evolutions to adapt provisions or inventory targets
- Investment decisions, M&A,nmarket selection
- Improve financial forecasting

SUPPLY CHAIN

- Detect turning points ahead of time. Reduce inventory and transportation costs
- Balance production
- Benchmark sales or customer forecasting input (collaborative forecasting)
- IBP/S&OP scenario management

IN SUMMARY

Improve visibility by adding external information to your forecasting process. Identify external data that has the same behaviour as your own data and detect the sales turning points a couple of months in advance.

Our 4-step methodology teaches you how to discover the indicators that are relevant for your business and how you can create predictive models with real business impact. That will enable you to perform advanced what-if scenario analysis to the underlying business drivers

These insights will create a competitive advantage in your market!

ABOUT SOLVENTURE LIFE

Every business is ultimately impacted by its macro-economic environment.

Solventure's macro-economic monitoring & forecasting solutions actively improve decision-making processes for different functions, over various industries, and across geographical regions.

These decision-making processes include sales planning & forecasting, demand management, and financial planning & analytics.

We bring "the outside in" by matching relevant indicator data with your end-market segments.

Visit life.solventuregroup.com for more information and inspiring content!

ABOUT SOLVENTURE

As Solventure we proud ourselves of being experts in designing and implementing Strategy-Driven S&OP. We do that through a unique combination of people, processes, tools and analytics. Solventure is Arkieva's, OMP's and Kinaxis's implementation partner.

Check us at www.solventuregroup.com or contact us at contact@solventure.eu for more info.