McKinsey & Company

Risk & Resilience Practice

Next-generation nowcasting to improve decision making in a crisis

Traditional nowcasting has served its purpose well, but the COVID-19 crisis proved challenging for most models. A next-generation approach supports critical decision making and strategy moving forward.

by Frank Gerhard, Marie-Paule Laurent, Kyriakos Spyrounakos, and Eckart Windhagen

In the face of major economic uncertainty, the ability to gather and interpret information quickly is crucial for decision makers, especially when a crisis turns into a recovery, or vice versa. Those able to understand and react to the evolving situation quickly and appropriately will not only survive but will also create a more resilient organization.

To this end, leading institutions increasingly add nowcasting—a prediction model developed in response to the dot-com bubble and the 2008 recession—to their decision-making toolbox. Nowcasting resulted from overreliance, during past crises, on typical economic data—often subject to publication lags of up to six months—which exposed many organizations to both missed opportunities and potential risks.

Nowcasting uses complex econometric techniques and contemporaneous data from a broad set of sources to provide a timely view of economic indicators and drivers and bring insights several months forward, enabling more dynamic planning. When the COVID-19 pandemic hit, many government, financial, and other institutions, hoping to capture the rapid economic shifts taking place around the world, turned to nowcasting for answers.

While traditional nowcasting has often served its purpose well—letting institutions know where they stand at the moment—it has also faced unique challenges during major unforeseen events such as the COVID-19 crisis, Brexit, and the US–China trade war, all of which created significant macroeconomic structural breaks in many of the relationships between economic indicators.

In addition, typical nowcasting models have become extremely complex, with many incorporating up to 50 drivers of economic growth and a variety of data and assumptions. And the more complex the model, the greater the number of historical relationships between variables that can change in response, rendering the model's estimates unreliable. At the same time, alternative high-frequency variables, such as data about footfall, air-pollution levels, and online searches, transmit market signals effectively but are not included in traditional models. Making robust decisions without consulting these variables can be problematic.

We therefore believe that today's approach to nowcasting should be revamped. We observe more reliable results when we reduce the number of variables by choosing only the most relevant, complementary, and robust key performance indicators (KPIs) for each sector and geography. And we find that outcomes are more accurate when models include selected high-frequency explanatory variables, which regularly provide a more consistent view of the way the economy is evolving and are more robust over time, creating resiliency in modified statistical models.

This new approach to nowcasting makes it easier to interpret estimates, understand structural breaks, and provide up-to-the-moment information. Further, by taking a close look at a nowcasted view of economic indicators, institutions can observe which industries are the most resilient, adapt accordingly, and make more informed decisions based on the latest data. Even for these more robust models, of course, organizations need a thorough check for structural breaks.

Nowcasting provides a real-time view

Timely information is never more important than during the onset of a major economic shift or when recovery sets in at a crisis's trough, as it allows institutions to monitor real-time information for policy analysis. While traditional forecasting has a role to play in such cases, nowcasting goes further, helping institutions understand both the current economic situation and the recent past, even when formal economic indicators have not yet been published. It has proven extremely effective as a predictor of GDP growth vis-à-vis published data, for example, which tend to lag by several months and force crisis-monitoring dashboards and scenario analyses to rely on outdated data or subjective views—creating the potential to not only impair decision making but also increase risk.

Nowcasting has given companies and regulators timely intelligence on which to base decisions and accurately predict the pace of a recovery.

Nowcasting has therefore been able to give companies and regulators timely intelligence on which to base decisions, identify scenarios as they materialize, and accurately predict the pace of a recovery. It has proved especially powerful when traditional models and proxies have failed to provide accurate estimates because of publication lags and has given policy makers and companies an edge when reacting to crisis situations.

Economic crises strain the model

Despite their usefulness, we recommend that institutions revisit their traditional nowcasting models. These models frequently generated implausible results during the COVID-19 pandemic and provided misleading reads of the economy—a result we expect in any situation characterized by great economic stress and uncertainty or periods of economic disruption.

The models' unreliability is primarily due to their reliance on too many variables. During a structural break brought about by a pandemic, for instance, and the resulting lockdown of countries and closure of businesses around the world, relationships between a multitude of variables break down and are unable to capture the impact of unexpected events and explain the economy in real time.

In addition, while global economic crises such as the 2008 recession have often had comparable effects across regions and industries, the pandemic-related shutdowns hit each country and sector quite differently. Countries that rely more on international travel, such as the United Kingdom, were harder hit than those that rely on intra-country travel, such as Germany. The automotive and hospitality industries ground to a halt and factories, showrooms, hotels, and restaurants closed. The demand for consumer goods, fitness equipment, and healthcare products, however, soared.

It's time for a next-generation nowcasting approach

In light of the limitations of the traditional models, we recommend a modified approach to nowcasting that uses country- and industry-specific expertise to boil down the number of variables to a selected few for each geography or sector, depending on the individual economic setting. Given the specific selection of each core variable, the relationships between the variables will be relatively stable over time, even during a major crisis. Admittedly, the more variables used, the easier it is to explain an economic shift; however, using more variables also means a greater chance of a break in some of the statistical relationships, particularly in response to an exogenous shock.

This revised nowcasting model will be more flexible and robust in periods of economic stress. It will provide economically intuitive outcomes, include the consideration of complementary, high-frequency data, and offer access to economic insights that are at once timely and unique.

For example, consumer spending can be estimated in different US cities by combining data such as wages from business applications and footfall from mobility trend reports. As a more complex example: eurozone capitalization rates are, at the time of the writing of this article, available only through January 2021. However, a revamped nowcasting model can estimate current capitalization rates in various European countries by employing a handful of real-time and high-frequency variables for each, such as retail confidence indicators, stock-exchange
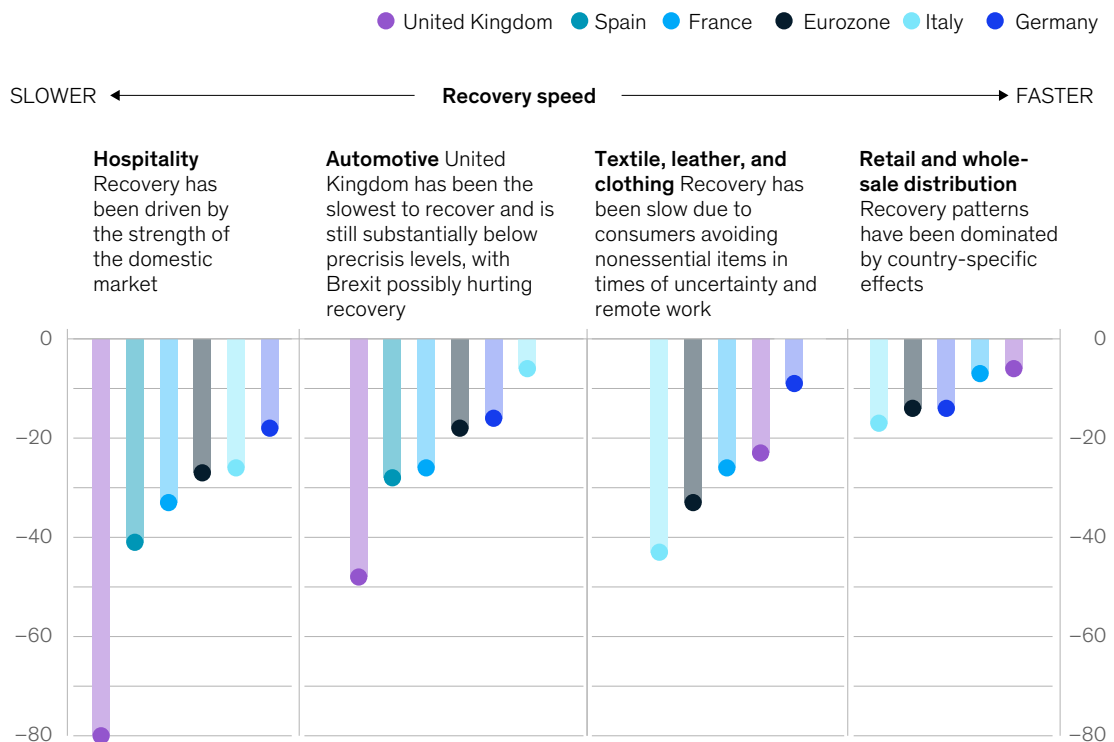
indices, price expectations, construction estimates, base-metals prices and output, and even deposits into financial institutions. The choice of variable should, of course, be guided by industry and sector experts.

Similarly, published figures for gross value added (GVA) at the sector level in Europe are available only up to the second quarter of 2020. However, by utilizing selected variables, the new approach to nowcasting can provide an estimate of GVA through the first quarter of 2021. It can also highlight the different experiences of each region and industry sector in the recent recovery. Note that the sectors reliant on in-person interactions and of a nonessential nature have been slow to recover, as have the countries more reliant on international markets (exhibit).

Exhibit

Nowcast for Q1 2021 shows differing recovery speeds by sector and geography.

Gross value added Q1 2021 as percentage of Q1 2019,[1] %

● United Kingdom ● Spain ● France ● Eurozone ● Italy ● Germany

SLOWER ◄——————————————— Recovery speed ———————————————► FASTER

Hospitality Recovery has been driven by the strength of the domestic market

Automotive United Kingdom has been the slowest to recover and is still substantially below precrisis levels, with Brexit possibly hurting recovery

Textile, leather, and clothing Recovery has been slow due to consumers avoiding nonessential items in times of uncertainty and remote work

Retail and whole-sale distribution Recovery patterns have been dominated by country-specific effects

[1]Percentage difference between nowcasted Q1 2021 and actual Q1 2019 gross value added, with precrisis levels set at zero. Comparison is made with Q1 2019 because Q1 2020 numbers may already include some COVID-19 impact.

Nowcasting supports decision making and strategy

Organizations of all types can use the up-to-date country and sector information produced by this new type of nowcasting model to support their decision making and shape their recovery strategies, taking into account the fact that individual sectors are affected differently in different countries and during different types of crises.

For government institutions, nowcasting can provide real-time insights into the current state of the economy and the direction in which it is heading. It can inform revenue planning and cash-flow management. It can provide assessments of the impact of previous policies and instruct the need for adjustments. And it can proactively prepare support packages in the event of a significant downturn in a given sector.

For financial institutions, nowcasting can help make economic assessments that support the identification of investment opportunities in specific sectors and geographies. It can also shape sales campaigns based on insights into sectoral trends and economic recovery paths; instruct lending strategies, pricing, and restrictions; and update input to the early-warning system.

Industrial businesses can also use nowcasting to provide a timely view of consumer-demand and sector evolution, allowing them to rethink their production and sales strategy.

———————

Organizations can create a new nowcasting model by first identifying the KPIs that have a lengthy publication lag and that are most important for decision making. They should then link these KPIs statistically with related variables that are available more quickly and frequently. They should have experts review the resulting model, which they can then use to support informed decision making. The model can be further refined over time based on its performance and the availability of more data to support estimates.

Once the new model is complete, organizations should be sure to integrate it into their processes and systems, enabling reliable monitoring, easy updates, and direct input into the decision-making process.

Frank Gerhard is an associate partner in McKinsey's Stuttgart office; **Marie-Paule Laurent** is a partner in the Brussels office, where **Kyriakos Spyrounakos** is an expert; and **Eckart Windhagen** is a senior partner in the Frankfurt office.