

THE COVID-19 PANDEMIC NAVIGATOR

Observe, Orient, Decide, Act

April 2020

The world is being flooded with data and models attempting to predict how the COVID-19 pandemic will unfold for our healthcare systems and economies. Unfortunately, trying to create static point estimates — whether that is active cases, R0, lockdowns, GDP, recovery rates — is a fool's errand at this point in time. This can be seen in the wild disparity in estimates from experts, whether epidemiologists or economists, and in the gyrations of the financial markets.

This disparity is understandable: even with the best analytics, we face profound unknowns that will have major impacts on how the pandemic will play out within the epidemiology, the economy, political dynamics, and the eventual emergence of useful therapeutics and a vaccine. There are also critical differences in lockdown measures across countries and in government schemes to mitigate economic impacts. There are major unknowns in how consumers and business will respond and how behaviors and preferences may have been permanently altered.

In short, the debate about whether the recovery could be V-shaped, U-shaped, L-shaped, and so on is too simplistic and in many ways diverting attention away from more important topics.

What business leaders need are tools that provide multiple plausible scenarios, observe what is happening in real time, and help orient leaders dynamically around probable futures. Only this can enable the right decisions to be taken at appropriate times and follow through with the actions needed.

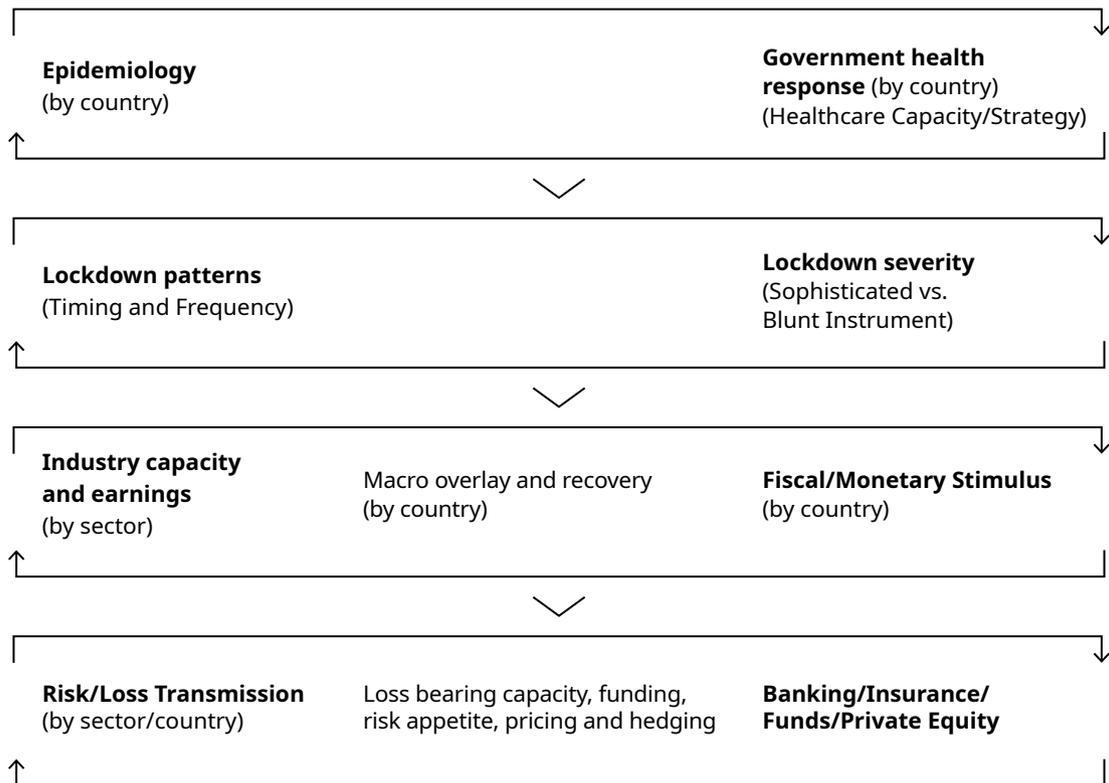
Our [Pandemic Navigator](#) fulfills this role. We have combined huge quantities of observable data that allow us to model pandemic containment actions and reactions across more than 40 countries globally and each industry sector. We are expanding the breadth and depth of the datasets driving these results daily.

As a result, we can observe what is happening globally in real time and update the likelihood of scenarios tailored to a specific industry and region. The tool is being used to support our clients in decisions from restarting production in consumer goods companies through to estimating credit losses for banks.

OUR NAVIGATOR IS COMPOSED OF MODULAR COMPONENTS

We understand the risk of building a model with so many moving parts. To mitigate this, we have broken our modeling framework into distinct modules. Each module is calibrated separately, but all talk to each other and give a robust starting point for iterating through any potential feedback loops between the various layers.

Exhibit 1. Modules of our Pandemic Navigator — Cascading the crisis through the system



Source: Oliver Wyman analysis

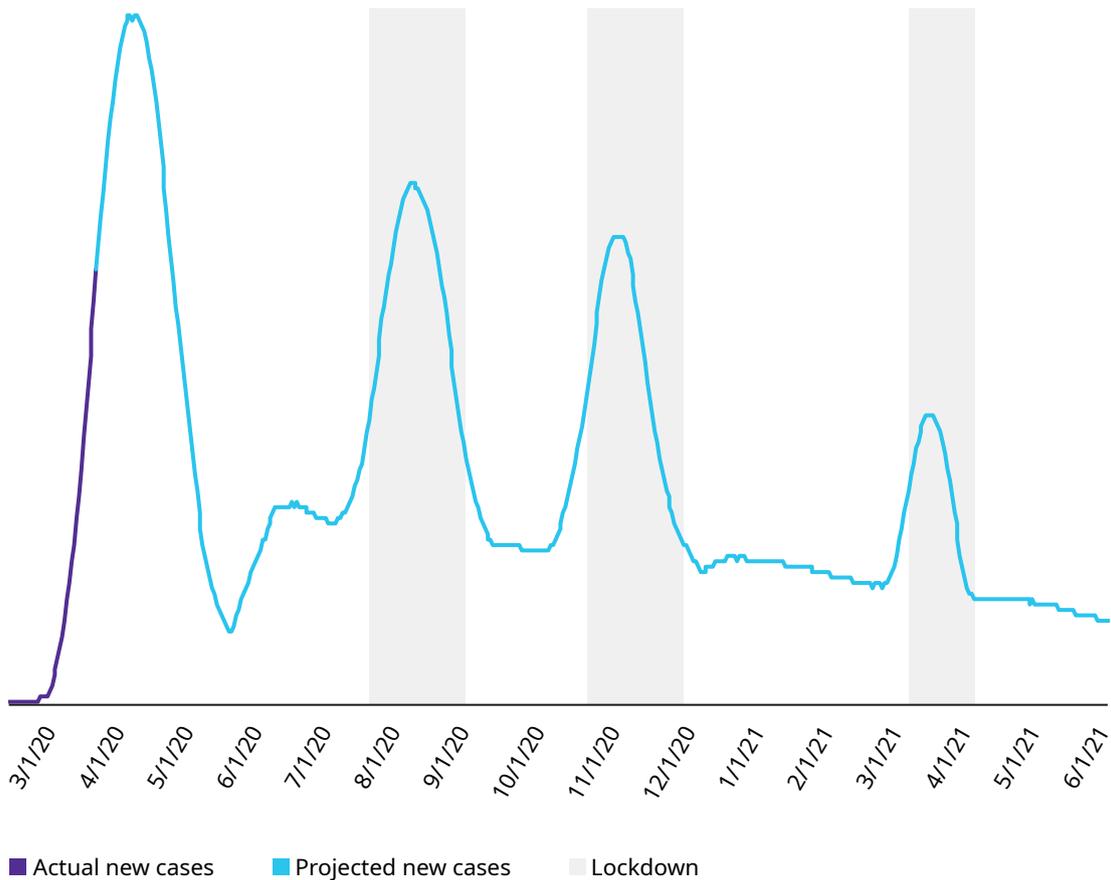
OBSERVING THROUGH DATA AND MODELS, ORIENTING THROUGH SCENARIOS

For many aspects of this framework, we already have enough data to create robust forecasts with relatively narrow error bands. For example, now that we have extensively back-tested our COVID-19 case projections across multiple countries, our confidence has grown to the point that we can say that the first wave of infections will be brought under control by early June 2020 and that many policy makers will have the ability to start loosening and lifting containment measures as early as late April 2020.

Exhibit 2. Epidemiology scenarios

Here is one example of many possible scenarios. This particular scenario includes no benefits of seasonality, a carefully managed transmission rate until an end of the summer outbreak, no vaccine, and asymptomatic cases that help drive broader immunity.

Lockdown scenario with future outbreaks



Source: Oliver Wyman Pandemic Navigator

But if we look across other inputs to our projections, there are assumptions for which uncertainty is high and the best we can do is define both a range of scenarios based on all the data currently available and a means of updating these assumptions as clarity emerges. For example, we do not know if COVID-19 is seasonal. Therefore, our scenarios include this factor and we are monitoring massive sets of emerging data to capture evolving research and empirical evidence.

The first crucial insight from this work is that there is nowhere near enough certainty yet to discount the likelihood, or determine the timing or scale, of subsequent waves of COVID-19 requiring significant further lockdowns. Hence, the debate about whether the recovery could be V-shaped, U-shaped, L-shaped, and so on is too simplistic and in many ways diverting attention away from more important topics.

THE COMPLEX INTERPLAY BETWEEN COVID-19, GOVERNMENT RESPONSE, AND BUSINESS AND ECONOMIC IMPACT

Policy makers and business leaders need to balance highly complex interactions. For governments, these are between protecting the health of their citizens and managing to a set of acceptable long-term economic consequences, or financial health for society. For business executives, decisions are even more complex, balancing employee safety and customer commitments and ultimately responsibility to equity and debt holders. Our analytics engine enables quantification of these trade-offs against underlying scenarios as shown below.

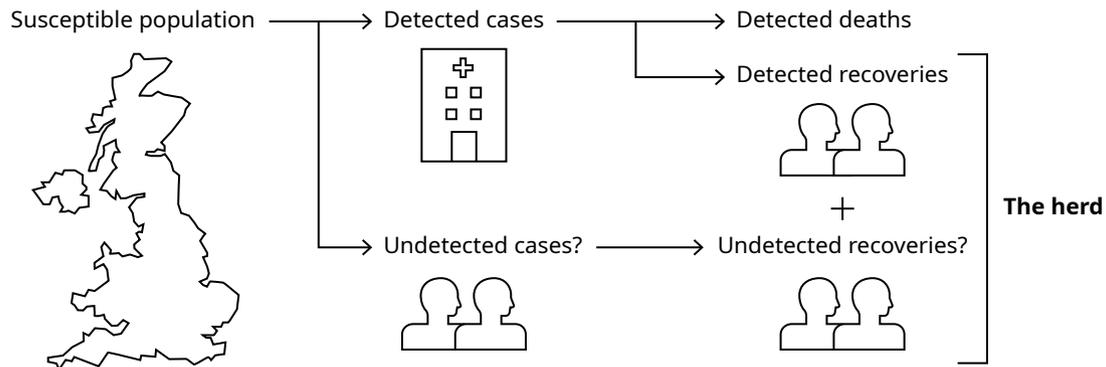
Exhibit 3. What we can observe (model) and what we need to assess (through scenarios)

	COVID dynamics	Government response	Business and economic impact
Observe (we can model)	<ul style="list-style-type: none"> • Outbreak dynamics • How the outbreak responds to various containment measures • Timing of peak cases and likely timing when the first wave ends 	<ul style="list-style-type: none"> • The types of lockdowns that were imposed in different regions • The types of fiscal and monetary stimulus used in the first wave 	<ul style="list-style-type: none"> • Short-term shocks by sector are well understood • Short-term impact on unemployment and hits to gig economy workers
Orient (we should consider scenarios)	<ul style="list-style-type: none"> • Effects of seasonality • How close we are to herd immunity, potential for mutation • Precise timing of vaccines • Timing, frequency, and severity of future outbreaks 	<ul style="list-style-type: none"> • Exit strategy from the first wave • Sophistication of future containment efforts • Balance of economic and healthcare system in public response 	<ul style="list-style-type: none"> • Speed of supply-side recovery by sector • Medium-term damage to consumer confidence • Medium-term impact of fiscal and monetary stimulus
Decide and act	<p>For Healthcare Providers</p> <ul style="list-style-type: none"> • How do we ensure appropriate surge capacity for future outbreaks without significantly increasing our cost structure? • How do we adjust underlying assumptions about baseline demand? 	<p>For Governments</p> <ul style="list-style-type: none"> • How do we responsibly move from the “blunt instruments” of lockdowns to more targeted measures? • What are the most important future containment levers to pull when subsequent waves emerge? • Do we need to develop a future stimulus plan for potential second and third waves? 	<p>For Businesses</p> <ul style="list-style-type: none"> • What is the outlook for cashflow? • How much cost should we cut? • How do we responsibly bring back our workforces, and when? <p>For Financial Services Firms</p> <ul style="list-style-type: none"> • Where should we direct capital? • How much liquidity and capital do we need?

Source: Oliver Wyman analysis

One example area requiring very careful orientation is the availability or not of eventual herd immunity.

Exhibit 4. Herd immunity in context



Source: Oliver Wyman analysis

Most pandemic models are working from the same dataset of “confirmed cases” which is biased towards the more severe cases flowing through our hospitals. An important part of extending our projection horizon to 18 months is the estimation of “undetected cases.” Our modelling team has therefore extended the Pandemic Navigator to include two routes of transmission through the detected and undetected universes which eventually come back together to make up the immune population. Our models show that this undetected community of cases play a major role in driving the outbreak because they have a greater opportunity to spread the virus. We will discuss in a subsequent paper how reducing the size of this undetected community through testing will be an essential component of containment and failure to build a robust testing capability will require more costly and aggressive containment measures.

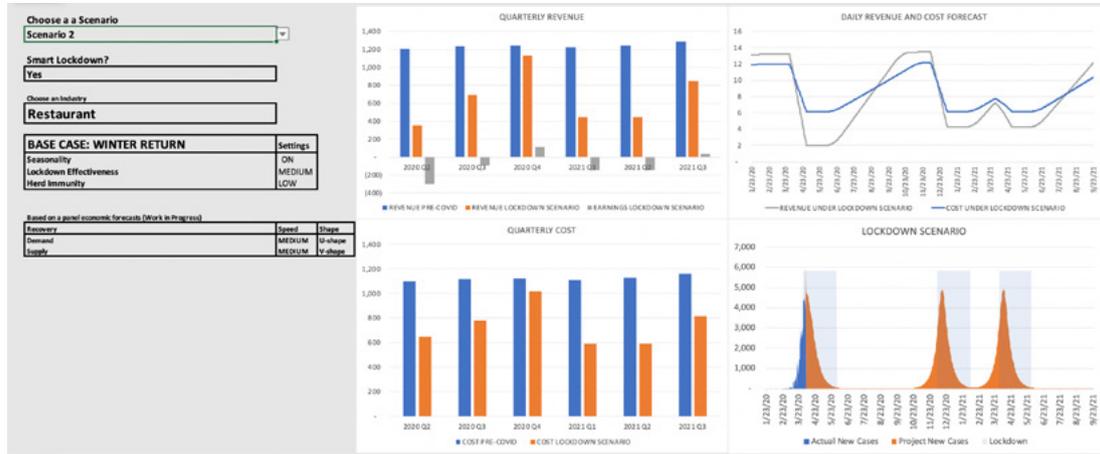
DEFINING WHAT TO ASSESS, AND HOW TO SUPPORT DECISIONS

Defining the most useful scenarios for your business

If we were to switch on and off every permutation of each assumption in the middle row of Exhibit 3, we would generate hundreds of scenarios — enough to overwhelm anyone trying to come to an important decision. As such, we have defined a number of preset scenarios that cover a broad spectrum of future lockdown patterns. For the other inputs, we have created dashboards and toggles that allow users to take their own view. Again, the framework enables dynamic predictive (near-term) scenario development and analysis (medium-term) capabilities while providing default settings for each of these assumptions, but ultimately it is for management teams and policy makers to get comfortable with their own choices. Recall the need for dynamic management — Observe, Orient, Decide, and Act.

Below is a snapshot of one such scenario we have set up:

Exhibit 5. Restaurant sector scenario



Note: These scenarios are available for 40 different industries and the sectoral inputs for the industry shocks and responses have been iterated with a panel of Oliver Wyman industry experts.

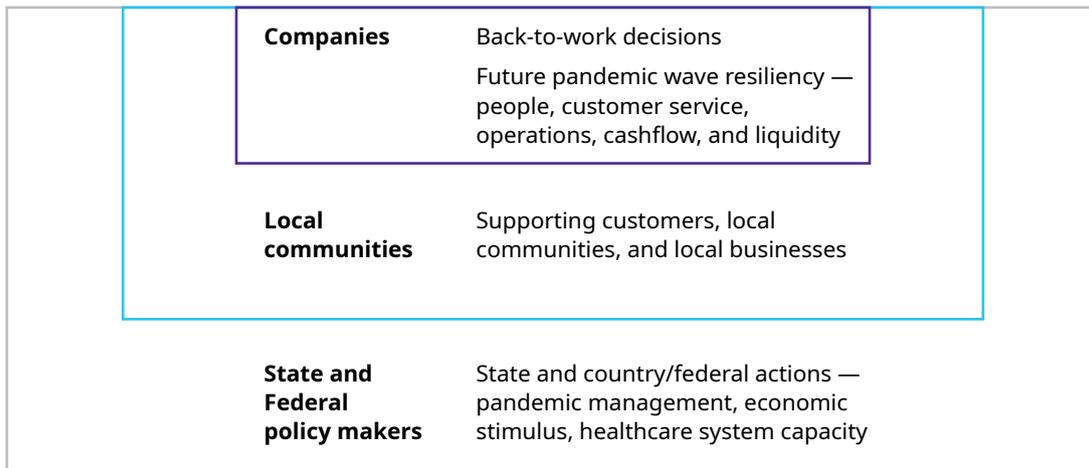
Source: Oliver Wyman Pandemic Navigator

Putting this tool to use to make decisions

So, we have a robust model calibrated to daily data across the world that is linked to predictive measures for the future infection rate of the virus in each place. The model is also linked to a forecast engine for industry earnings and downstream consequences for things like default rates for large and small businesses. What’s more, we’ve used that to develop a set of coherent, detailed scenarios we believe span a majority of the likely paths for future waves of the outbreak and policy responses. What comes next?

Now, we have a platform capable of driving informed decision making across multiple horizons for our clients, their communities, and for global policy makers.

Exhibit 6. Platform for informed decision making



How we are using this toolkit

Oliver Wyman is using this toolkit extensively with our healthcare, government, industry and financial services clients.

To learn more about the Pandemic Navigator tool, please visit:

oliverwyman.com/pandemic-navigator.

WHAT'S COMING NEXT

This Insight is the first in a series. Over the next couple of weeks, we plan to publish a series of insights on a range of topics using this toolkit. The next three insights will cover:

- Insight Series #2: Smart Containment — What it looks like and the economic and industry impact.
- Insight Series #3: Industry Capacity Management — How to navigate the difficult decisions different industries need to make on capacity based on earnings outlook scenarios.
- Insight Series #4: Financial Services Loss Absorption — How much loss is coming and what parts of the financial services system will have to prepare to absorb this.

In addition, our Health and Life Sciences colleagues Terry Stone and Helen Leis will describe scenarios and recommendations for the long haul of suppression.

Oliver Wyman is a global leader in management consulting that combines deep industry knowledge with specialized expertise in strategy, operations, risk management, and organization transformation.

If you are interested in discussing our Pandemic Navigator, please contact:

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