



MORE RISKS MORE UNKNOWNNS



**The Oliver Wyman Risk Journal
in the Time of COVID-19**

What to do about climate change,
cyberattacks, AI, data, and pandemics

INTRODUCTION

We learn more about COVID-19 each day. Yet, a great deal remains unknown. We still need to learn how we are going to defeat the virus and get the world economy back on track.

In that context, there is both increased risk and opportunity ahead for companies. Learning from each other, companies will need to find a path ahead that ensures the health of their teams and enables their businesses to prosper in what may be a radically changed workplace and world.

Our ninth edition of The Oliver Wyman Risk Journal reflects our thinking about the challenges and opportunities ahead. I hope you will find the ideas useful as you find your own path.

Best,

A handwritten signature in black ink that reads "Scott McDonald". The signature is written in a cursive, slightly slanted style.

Scott McDonald
President & CEO
Oliver Wyman Group

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RETHINKING TACTICS

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The background of the image is an airport baggage claim carousel. Two signs are visible, one for carousel 828 and one for 829, both featuring a yellow suitcase icon. The scene is dimly lit with blue and white tones. The main title is overlaid in large, bold, white, sans-serif font.

USING DATA TO DEVELOP CONTAGION CONTAINMENT STRATEGIES

This research can help organizations plan for different COVID-19 scenarios



Barrie Wilkinson and Helen Leis

It has been difficult for healthcare systems and businesses to plan for the impact of coronavirus because of the lack of historical comparisons for outbreaks of this magnitude and severity. But the virus' rapid spread across Asia, Europe, and the United States is starting to generate a critical mass of data from which plausible — even likely — regional contagion scenarios are emerging.

Based on work with observed data collected thus far by the World Health Organization (WHO) and the Johns Hopkins Center for Systems Science and Engineering, we have been able not only to detect the effects of containment in limiting the growth in cases, but also to measure how the different containment measures across time and across regions have created variations in outcomes. As Tedros Adhanom Ghebreyesus, director general of the WHO, said recently: This is the first pandemic in history that we can contain.

OUR FINDINGS

The growth in new coronavirus cases is often described as exponential, or ever-constant compounding growth. While this is true during the early stages of a viral outbreak, the full shape of an epidemic curve is an “S-curve”, in which growth in cumulative cases eventually slows and starts to flatten out.

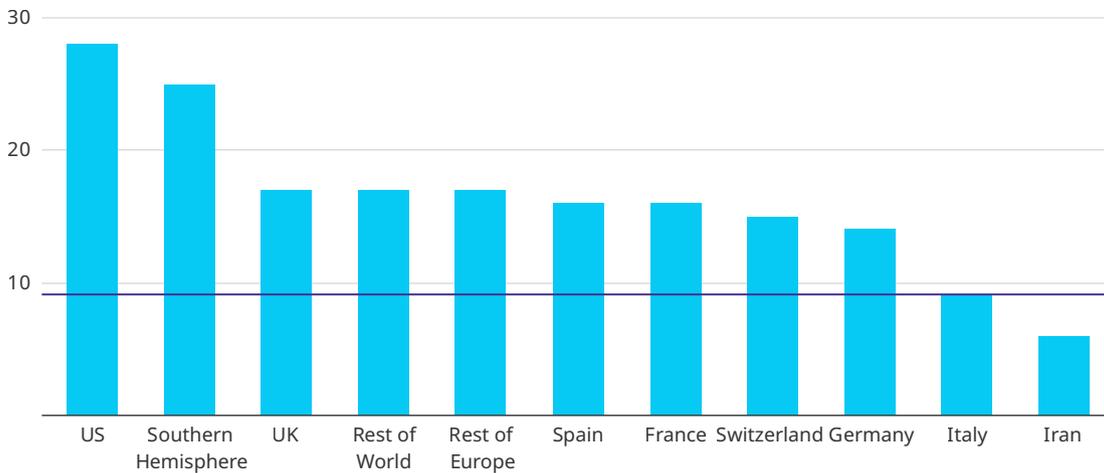
Theoretical models predict this flattening of the curve because, eventually, the population becomes saturated with so many cases that there are fewer people left to infect. But in China, we discovered a very different kind of flattening: The outbreak stopped growing without getting anywhere near the saturation point. There are still more than 1 billion Chinese citizens that have not yet been infected and who show no sign of becoming infected anytime soon.

This flattening of the curve was caused by the Chinese containment effort. Nonetheless, given the huge variance in how regions are responding to outbreaks, hospitals and businesses could be caught off-guard if they fail to recognize the scenario that applies to their locality.

For example, our analysis shows that new cases plateau once the daily growth rate falls below 9 percent. This suggests Iran and Italy have reached their peaks, while the United Kingdom may not reach its peak until mid-April and the US likely won't reach that threshold until after that.

Heading For A Peak

New cases of COVID-19 tend to plateau once the daily growth rate falls to 9%, as it has in Italy and Iran.



Note: Growth rates as of March 25th, 2020
Source: Oliver Wyman analysis

TIPPING POINT?

This poses an important question for policymakers, businesses, and medical practitioners who are trying to anticipate the number of cases that will be coming through hospital doors in the coming weeks. Should they be planning for a flattening of the curve only when 60 percent to 80 percent of the population has been infected? Or should they expect the curve to flatten much earlier than this — that is, when the coronavirus reaches only a small subset of the population? The short answer: It depends on the containment measures that are put in place.

What follows are some suggestions for how organizations can begin to plan for different outbreak scenarios based on our research findings.

BEWARE THE EARLIEST DATA

When tracking and forecasting the potential number of new cases for a region, it's important to understand that the early stages of data collection can be highly volatile. The number of new cases generally becomes more predictable after regions have at least 100 confirmed cases.

Before there are 100 confirmed cases in a region, the numbers can bounce around - from five cases to, say, 50 in one day — as undiscovered cases come to light. The number of confirmed cases could also spike as areas move from limited to more extensive testing.

CONTAINMENT MEASURES MATTER

Our scenario modeling shows that the degree and timeliness of containment measures such as social distancing can alter the number of new cases in an area by orders of magnitude over an eight-week period.

Containment measures can take a few days to put in place, but once they take hold we see a steady decay in the growth of cases and an eventual flattening of the curve. In a country with cases growing at 40 percent per day, an unconstrained outbreak could easily convert 100 cases into 180,000 cases in an eight-week period. However, with high levels of containment in place this 40 percent growth will drop steadily each day, eventually falling to 20 percent, 10 percent and then 5 percent. Along this containment path, 100 cases become more like 4,000 cases over the same eight-week period, creating a different scale of problem for the healthcare system to process.

But such an improvement in case numbers doesn't come for free. Extensive testing with rapid results, widespread and mandated school and business closures, and quarantines with digital or physical monitoring to ensure compliance are all essential.

We have calibrated our model to reflect high, medium, and low levels of containment across different regions. The curves for high levels of containment were calibrated to the Asian experience of rapid containment. However, to date we haven't witnessed any western regions successfully replicate equivalent levels of containment in Asia. So we are recommending Western users to read from our low- or at best, medium-containment curves.

Countries may struggle to implement even a medium level of containment — entailing testing with rapid results for suspected cases, region-wide school closures, mandated working from home, limited travel, and high individual compliance with quarantines. If authorities implement a medium level of containment one week after detecting the first 100 cases in an area in which cases are growing by 40 percent daily, our model indicates growth to 11,000 cases over eight weeks.

BE DECISIVE AND AGGRESSIVE

Policymakers must balance numerous factors when assessing their containment strategy, with the impact on healthcare systems being traded off against long-term damage to the economy. But our experience to-date shows that decisive and aggressive action to contain the outbreak can pay dividends in the long run. Attempts to delay containment efforts have so far only delayed the inevitable by a week or so — while potentially adding a large multiple to the levels of stress on healthcare systems.

CONCLUSION

These scenarios are only a starting point for conducting a more detailed analysis based on the particular circumstances of different locations. But the data make one thing clear: If companies and hospitals tie their futures to a strategy based on a single potential scenario, they might miss the mark by an order of magnitude. The richer the understanding of the possibilities, the less destabilizing the outbreak will be — and the sooner life can begin to get back to normal.

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This article first appeared on the [World Economic Forum Agenda blog](#).



FEEDING A NATION STUCK AT HOME

Food retailers have a chance to make meaningful connections with customers



Marc Rousset

In recent years, there has been a steady decline in home cooking: More than half of all meals are now eaten away from home, according to the United States Department of Agriculture. Consumers don't have the time to cook, and their skills are the worse for it. Food retailers, as the main suppliers of ingredients for home cooking, have watched their share of consumer spending on meals erode.

But the onset of the COVID-19 virus means cooking from home will have to make a comeback. Work-from-home directives, closed schools, and shuttered restaurants will profoundly reshape food consumption in the short term — and possibly over the longer term, too. Food retailers' immediate priority is to keep shelves safely stocked, as worried consumers buy more than usual in anticipation of spending a long time at home. But as measures to combat the pandemic continue, grocers will have a unique opportunity to provide solutions that help consumers to cope and reduce their anxiety over putting wholesome meals on the table.

Here are some ways they can go about this.

SAFELY STOCK STORES

Food retailers should take immediate actions to limit virus transmissions, which means following a long punch list of to-dos. These include cleaning stores thoroughly, limiting contact with associates, increasing express pickups and online orders, moving to contactless payments, and using disposable bags and cups. Customers want to continue to shop their local grocery store, knowing that health-and-safety compliance is the bedrock of solid store operations.

Some grocers have also fixed certain times for essential services employees such as healthcare and emergency professionals, many of whom are working long shifts and do not have time to wait in line. Stores could consider dedicated shopping hours — say, in the early morning — for the elderly and other at-risk populations to reduce their exposure to other people.

Measures against virus transmission are also needed in supply chains. Fortunately, these have long focused on minimizing “touches” — something that will, quite literally, help manage the spread of the virus. A high degree of mechanization will keep goods out of people's hands, reducing risk. Retailers should also carry out a rapid end-to-end supply chain evaluation: How are pallets built? Do they have enough trucks on the road?

In addition, retailers can rethink the splits of warehouse shifts and reduce hours worked in stores, so that restocking can take place with fewer people in stores and with associates crowded together less.



INNOVATIVE PRODUCE PACKAGING

Products can be bundled in ways that make them easy to prepare and create mental shortcuts for easier buying. Precut vegetables and fruit save time and bring fresh raw ingredients more easily into the home. And the broad range of produce, meats, and other fresh departments offer endless possibilities for meals. Thoughtful promotions and programs can draw attention to easy-to-cook fresh ingredients and help create complete meals. Retailers can also make tweaks to production planning schedules and even sourcing.

ENGAGE WITH CONSUMERS

Food retailers can engage proactively with customers electronically to provide information, support, and ideas to those for whom regular in-home preparation and dining have been the exception, not the rule. Communicating in-store is not enough — especially now that the in-store staff is stretched to the limit. Social media, email, and websites will be the critical channels to reach consumers — so corporate staff should be given the chance to act as key influencers. In-store education can take the form of simple callout labels and hung signs to highlight value-added products, minimizing the potential to tax an already overburdened staff.

REPURPOSE PROMOTIONS

Repurposed promotions can be a powerful tool to encourage customers to try new fresh products and put meals on the table that they can be proud of. Small merchandising and operational changes such as bundling the product can go a long way to support consumers stuck at home. Now that demand is a lot less elastic, grocers may be tempted to pull back on promotions. That could make sense in order to control demand for items in high demand and to make up for higher costs — there was already a shortage of drivers, and trucking could become more expensive. However, it's important that retailers continue to deliver value to the customers who need it most, and not be seen as exploiting a situation for short-term gain.

MAKE A MEANINGFUL DIFFERENCE

At least one thing is certain for 2020: It will be a year like none before for grocery stores. The recession that followed the 2008 financial crisis reduced spending in restaurants by \$47 billion between 2006 and 2010, according to the USDA. This time, there will be a far larger immediate impact, though hopefully shorter.

That means food retailers have a rare opportunity to make meaningful connections with customers by reshaping their habits to put wholesome meals on the table.

Shocks like the one we are experiencing can leave an enduring impact on consumption habits and brands. Consider a retailer that caters regularly to 5 million households. If demand for food away from home drops by a half, that would drive over \$100 million of demand into its stores each week, according to our analysis of USDA data. Funneling that volume into fresh categories would not just boost struggling grocers' bottom lines, it would also engender loyalty and grow brand equity, which is built up in fresh-food categories. These effects could have a profound and long-lasting positive impact not just for the industry, but also for the well-being of society as a whole.

Marc Rousset is a Boston-based partner in the Retail & Consumer Goods practice.



CYBER RISK GROWS AS CRIMINALS EXPLOIT CORONAVIRUS CRISIS

The coronavirus crisis is shuttering schools, businesses, and entire communities in an effort to slow the spread of the pandemic

Paul Mee and Rico Brandenburg

Cybercriminals have begun to actively exploit this crisis, with millions of employees now working remotely, security and IT teams subject to new and heightened demands, supply-to-demand volatility, and escalating psychological stress.

In recent days and weeks, we have witnessed a significant uptick in email scams and malicious website domains using the pandemic as a lure, as well as attacks with targets as high profile as the computer system at the US Health and Human Services Department.

Fortunately, there are strategies and practical steps businesses, management, and workers can take to help reduce the impact of heightened cyber risk to their organization.

THE MOST VALUABLE TARGETS

Several factors are contributing to the current crisis. Businesses and employees are stressed by the human and financial implications of the pandemic. Entire companies, school districts, and government agencies have shifted in just days to remote working, often overwhelming existing infrastructure and associated support systems. Even the most prepared companies that have advanced security, communications, and control capabilities will never have encountered this array of crisis-level challenges before. Cybercriminals are exploiting companies that are already under tremendous stress, proliferating malware inside of coronavirus news and desperately needed information packs, and extorting organizations to pay ransomware to ensure business continuity through the pandemic crisis.

Some of the most vulnerable targets include critical infrastructure providers, such as those in healthcare, energy, and financial services. Businesses that provide critical, highly sought-after services, such as utility companies, government agencies, and online streaming platforms, are experiencing far greater demand than normal and are feeling significant strain.

And, given the interconnected nature of supply chains and increasingly seamless digital commercial ecosystems, organizations need to consider where weak links may be in their supply chains, regardless of size or type of business. Those smaller and medium-size enterprises, which often lack sophisticated capabilities, are particularly vulnerable as they pause business-as-usual activities due to government dictate or quickly find means to migrate employees to remote working.

CHALLENGING TIMES

While business continuity, and even survival, has become the key priority, companies and employees are now exposing themselves to significantly increased cyber risk. Under high-stress scenarios, we are more likely to observe exceptions to security standards, such as the use of personal devices and public Wi-Fi networks, each with a significantly lower level of security protection relative to typical corporate infrastructure.

Even conscientious workers may unintentionally add risk by moving data, for pragmatic purposes, onto unsecured computers and personal devices. Potential exposure of sensitive information heightens legal and reputational risks with the exploitation of certain information going undetected where computers are not appropriately secured and monitored.

Where cyber incidents do occur, companies face difficulties communicating and executing quick and coordinated responses. Remote working will potentially challenge security teams in their ability to comprehensively identify threats and to isolate, protect, and, where needed, restore services and good data following an attack. Additionally, with an expectation that up to 60 percent of the adult population could become infected with the coronavirus, the health and well-being of the security workforce must be considered and backup plans established and tested. Even redundancies may be challenged, especially if there is limited geographic diversification of facilities or if multiple locations are simultaneously impacted.

As the crisis lingers — and based on our own analysis, scenarios of more than six months of major disruption are plausible — many corporations will look to reduce their workforce and, with that, the likelihood of disgruntled employees increases. Combine this with challenged security controls when working remotely, and insider risk will increase. The time for heightened diligence in this regard is now.

An organization is only as strong as its weakest link, and third parties have typically been a key area of vulnerability. Third-party suppliers and vendors will face the same challenges raised above. In some instances, they will be amplified by disrupted cash flows, lower level of preparedness to address the heightened risks, and/or high pressure in meeting evolving customer needs amid supply-chain challenges. It will be important for an organization to communicate and have visibility into its third-party vendors' security status to understand their increased security risk.

TAKING ACTION

There are a number of things an organization should and must do. We consider that there are at least five areas that should take priority.

Review business continuity plans and develop playbooks to account for the new challenges. These efforts should include, but not be limited to, preparing for the temporary or permanent loss of key staff and leadership, the evacuation of a security operations center, or a serious attack where only a portion of staff are able to work.

Increase awareness among the workforce regarding the risks of handling confidential or sensitive information when working remotely by being proactive in communicating and coaching teams on organizational policies and the best “dos and don’ts.”

No organization or business is an island. Engage with peers and relevant industry groups to ensure insight on threat intelligence and best practices.

React quickly to this “new normal” by reassessing risks and ensuring that detection, response, and mitigation efforts are aligned accordingly. Review the security status of the most critical third-party suppliers and vendors, and be prepared to strengthen oversight. Tighten security controls across the highest risk areas, and apply tactical controls to mitigate increased insider threats by rogue or naïve employees.

Rapidly test the readiness of management, security, and the organization more broadly for this new way of operating. Examine preparedness levels by running drills for the main cyber risks that recognize new constraints, practices, and procedures (such as working remotely) and with potentially fewer resources and less expertise available.

The weight given to these actions will vary depending on the criticality of the organization to the citizens and security of a nation, as well as the operating model, distribution, technology, and culture of the organization — plus several other idiosyncratic factors, weaknesses, and exposures.

Overall, a stark reality remains: Organizations must combat the present coronavirus crisis on multiple fronts. And, in doing so, management needs to take all necessary steps to ensure business continuity through the pandemic, with the organization being fully prepared to deal with the heightened cyber risk associated with this unprecedented global event.

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This article first appeared on [BRINK](#).



BANK RISKS HIDING IN PLAIN SIGHT

Why enterprise risk management
is the future for banks

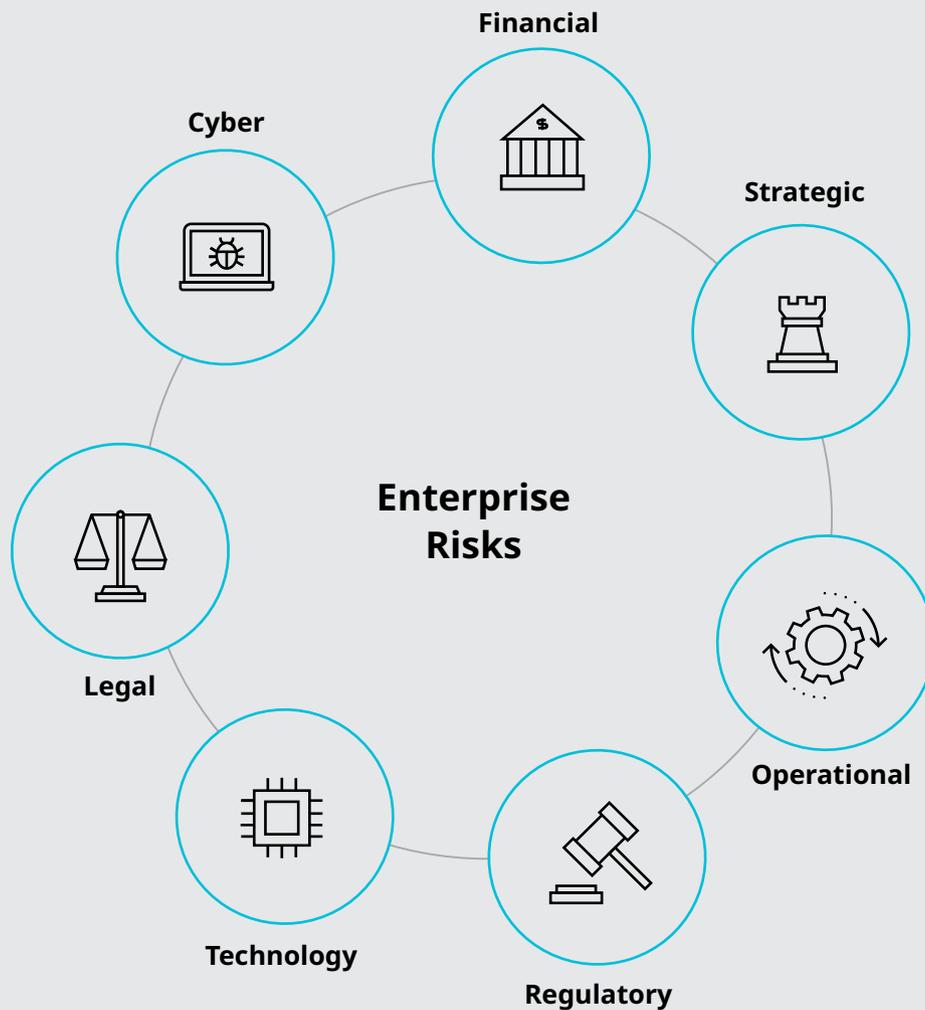
Jeffrey Brown, Michael Duane, and Til Schuermann

Regulators and risk managers have made great strides in controlling the forces that sparked the financial crisis more than a decade ago. But their success in fighting the last war could be feeding a false sense of security now as new threats appear on the horizon.

The softening economy is only one potential storm banks face today. In an era of rapid technological innovation, new threats are emerging almost daily in cybersecurity, artificial intelligence, blockchain, and other areas.

Bank Enterprise Risks

Banks have a good grasp of financial risk. They're less experienced when it comes to nontraditional risks such as cyber, strategic, operational, regulatory, technology, and legal risk.



IGNORING THE BIGGER PICTURE

The trouble is some banks are so preoccupied with financial risks that they are missing the bigger picture. That's where enterprise risk management can help.

As its name implies, enterprise risk management seeks to control the broadest possible set of risks, from purely financial ones such as market and credit risk — the drivers of doom during the last crisis — to nonfinancial threats such as reputation risk.

Enterprise risk management emerged as a discipline during the 1990s, when banks were expanding internationally and deregulation in the United States allowed for a much more robust set of products and services, requiring a far broader view of risk. The goal was to recognize and measure all forms of financial and nonfinancial risk, so the firm could safely maximize its risk-taking. But at many firms, the enterprise risk function became little more than a dumping ground for all the ancillary risks that didn't fit neatly into the financial-risk category.

A decade ago, the industry was walloped with a one-two punch of credit and market risk, which pushed several firms to the brink of collapse (and a few into the abyss). The next crisis, however, is likely to be different, sparked not by financial risk but by nontraditional risks that create exposures across the business silos of the organizational structure.

The growth of such risks in recent years, fueled by an explosion of technological innovation, is virtually unprecedented in the history of banking. This puts a premium on firms' abilities to make connections and to recognize the complex whole is far more than the sum of its parts.

Some banks are so preoccupied with financial risks that they are missing the bigger picture.

NONTRADITIONAL THREATS ON THE RISE

While banks have a sophisticated understanding of financial risk, some are less experienced with nontraditional threats such as cyber risk, strategic risk, operational risk, regulatory risk, and legal risk. Such threats can have real impacts on financial performance across the enterprise.

Making matters trickier, these risks aren't easily quantified. While a high-risk loan, for example, can result in a specific dollar loss attributable to the lending function, an embarrassing customer-service blunder can harm revenues across the enterprise — for years.

Technology risks can be just as vexing. How to quantify, for example, the risk of a bank's smart speaker application unexpectedly spouting racist insults?

IDENTIFYING ALL THE RISKS, NOT ONLY FINANCIAL ONES

After the financial crisis, regulators placed stress testing at the center of enterprisewide risk assessment activities. This amplified the importance of comprehensive risk identification. But useful stress-test forecasts need to include all the various risks to which the enterprise is exposed — not just financial risks.

Implementing a comprehensive enterprise risk management program isn't easy, of course—particularly among firms whose risk management functions have calcified along traditional lines. It requires an organizational mandate.

Fifteen years ago, enterprise risk management was little more than a backwater at many firms. The action all took place in the individual risk silos.

We now know better the importance of synthesizing these risks in a compelling and easy-to-understand way, and of considering the ways in which discrete risks can interact with one another. But practice hasn't always caught up to theory. Enterprise risk management needs to help tell a coherent story. It cannot be viewed as the organizational unit of last resort for activities that don't fit anywhere else.

Banks that embrace enterprise risk management today will be positioned to respond quickly to unforeseen troubles tomorrow. Those that do not run the risk of making a new set of mistakes during the next crisis that could cost shareholders and employees — and, perhaps, weaken the banking system itself.

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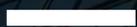
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This article first appeared on the [World Economic Forum's Agenda blog](#).



INVEST IN PEOPLE TO BEST MANAGE THROUGH DISRUPTION

Employee development is more effective than short-term responses to disruption



Bill Heath and Antonios Christidis

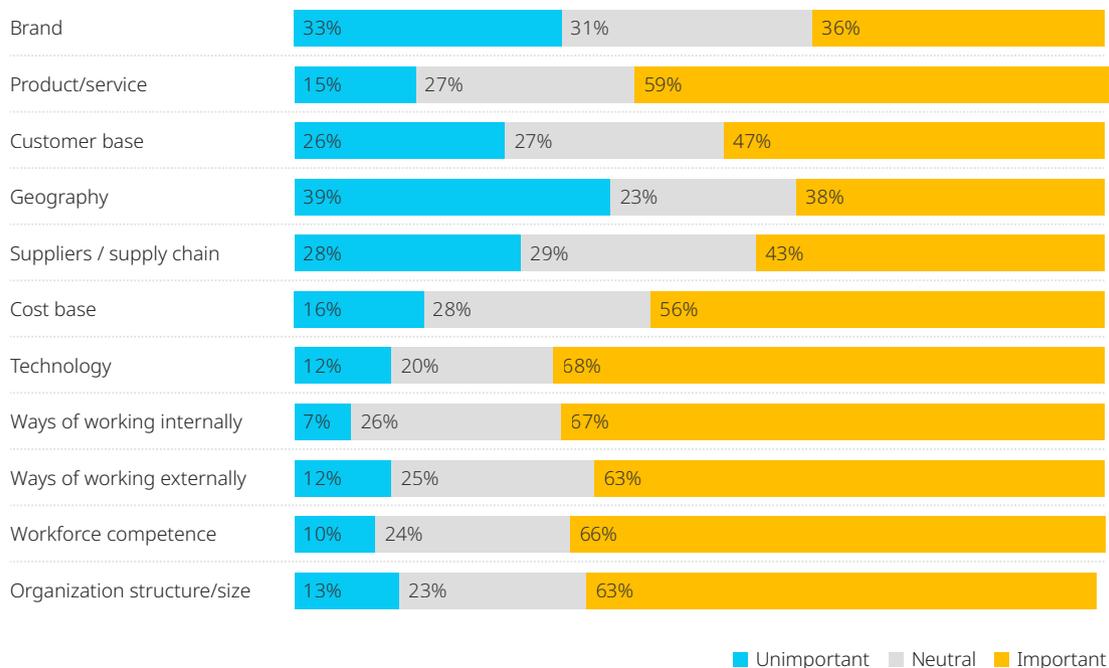
Faster product development cycles and rapidly evolving technologies are accelerating business disruptions. Companies facing recurring transitions typically respond by cutting costs, exiting a geographic area, streamlining supply chains, or revamping their brand. But which of these strategies is the most effective response to disruption?

We surveyed 954 managers in North America and Europe to better understand the keys to surviving disruption and found that a majority of respondents felt they had successfully managed through upheavals. Surprisingly, most deemed the above strategies as less important to their success than investment in their work cultures to develop workforces capable of reacting nimbly to the blistering pace of disruption.

To become more resilient in the face of sudden change, most respondents felt it was just as important to improve the way their people work and to update their skills as it was to introduce new technologies. Specifically, they thought it was important that employees help to deliver their corporate strategies — and that leaders act as positive role models and promote a work environment based on trust.

Tackling Disruption Requires Making Changes.

Managers rank handling disruptions involving their workforces as important as those concerning their products and technology.



Source: Oliver Wyman disruption survey of 954 managers in North America and Europe, with results taken from those who regarded themselves as successful at managing disruption

INTEGRATE PEOPLE AND STRATEGY

Many survey participants felt they were effective at managing disruption. Of these, 77 percent reported that their business and people strategies were closely linked. In contrast, only 35 percent who said that their business and people strategies were minimally integrated reported high success.

One bank we worked with, for example, executed a successful digital transformation by linking its business and people strategies through crowdsourced ideas from their employees. When the management team held an innovation competition that allowed employees to voice their aspirations, it sparked hundreds of suggestions (many of which were implemented) and boosted employees' investment in realizing the bank's goals. By putting people first, the bank came up with a system that benefited its customers.

SHOW EMPLOYEES THEY ARE VALUED

Empowered and engaged employees are more likely to go the extra mile to help their company succeed in times of adversity. Indeed, 80 percent of respondents to our survey who felt they successfully managed disruption believed that employee communication and engagement were highly important to their success.

Clearly, business leaders who persistently demonstrate their commitment to employees through words and actions are more likely to earn trust and loyalty. And those qualities help companies survive disruptions and thrive thereafter. For example, one bank recovered from a scandal after, among other things, its new CEO started openly communicating with employees, investors, and other stakeholders through daily LinkedIn posts that expressed his excitement about the future while also acknowledging the challenges of the past. At first, the posts went unanswered. But eventually, they resulted in a broad, two-way dialogue with employees.

In a similar vein, leaders of energy firms can help keep accident numbers low — despite downsizing due to low oil prices — by repeatedly visiting employees, prioritizing their safety, and following up with concrete actions such as reengineering equipment and amending procedures.

INVEST IN WORKFORCE DEVELOPMENT

Another way managers successfully persuade employees to stay on and help their companies survive disruption is by investing to improve their skills. Some organizations fill skills gaps by hiring new people with needed capabilities while removing employees or automating tasks to limit redundant skills, but companies that invest in their people often fare better.

In fact, an overwhelming two-thirds of respondents felt that updating working practices and skills — along with adding new technologies — was key to managing disruption. In contrast, only 44 percent of managers felt that downsizing worked.

Although companies may hope to address skills gaps by simply hiring new talent wholesale, this approach isn't always feasible, because they aren't alone in their need for new skills. Companies may not be able to find (or afford) the talent required. That's why even tech giants at the leading edge of creative disruption invest heavily in strategic workforce planning and learning and development as a means to increase internal mobility. They allow their employees to experiment with new projects beyond the barriers of their departments. Lumbering legacy giants are also finding that investing in their people is the fastest way to reinvent their organizations. Companies facing obsolescence with people trained in a different era are discovering that it is possible to rapidly retrain current employees while engendering a culture of perpetual learning.

A DISRUPTION-READY CULTURE

Many leaders view investing in their employees as a complex problem and long-term priority. They focus more immediately on pressing, short-term issues such as cost reduction and regulatory reporting. But our findings suggest that leaders will be most effective if they prioritize developing their workforces during ordinary or even prosperous times, rather than waiting for a skills gap to explode. For example, by consistently communicating fresh ideas about future pathways, management teams at some technology companies have been able to persuade employees to stay on even when their main product line suddenly became obsolete.

Before businesses are disrupted, leaders should double down and focus on their existing employees by communicating and engaging with them, investing in their development, and ensuring an appealing post-disruption environment. The very factors that build resilience and bolster a company through potentially jarring transitions are the same as those that will create an employee-friendly environment that may prevent it from being blindsided by change. In an age of technical wizardry and virtual solutions, an age-old solution may still hold sway: It's an engaged and committed workforce that makes a company great.

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This article first appeared in [MIT Sloane Management Review](#).

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THE HEAT IS ON BUSINESSES TO RESPOND TO CLIMATE CHANGE

The world's greatest risks are environmental

John P. Drzzik

Concerns about climate change have been rising over the past 10 years, and this year the top five long-term risks in the World Economic Forum's Global Risks Report were all in the environmental sphere. With all key indicators pointing to a bad situation getting worse, both the public and private sectors need to accelerate their climate risk mitigation and adaptation efforts.

The long-term impacts of climate change, such as temperature and sea level rises, and recent spikes in extreme weather events, such as wildfires and tropical storms, are compromising critical infrastructure, crop production, and the livability of many heavily populated areas. Climate-related risks are also amplifying growing tensions stemming from trade, geopolitical, and domestic conflicts.

For business leaders in particular, the combination of environmental risks and interconnected risk areas is creating pressure for action to address near and long-term threats as well as investment and growth opportunities.

CLIMATE RISK IMPACTS AND INTERCONNECTIONS

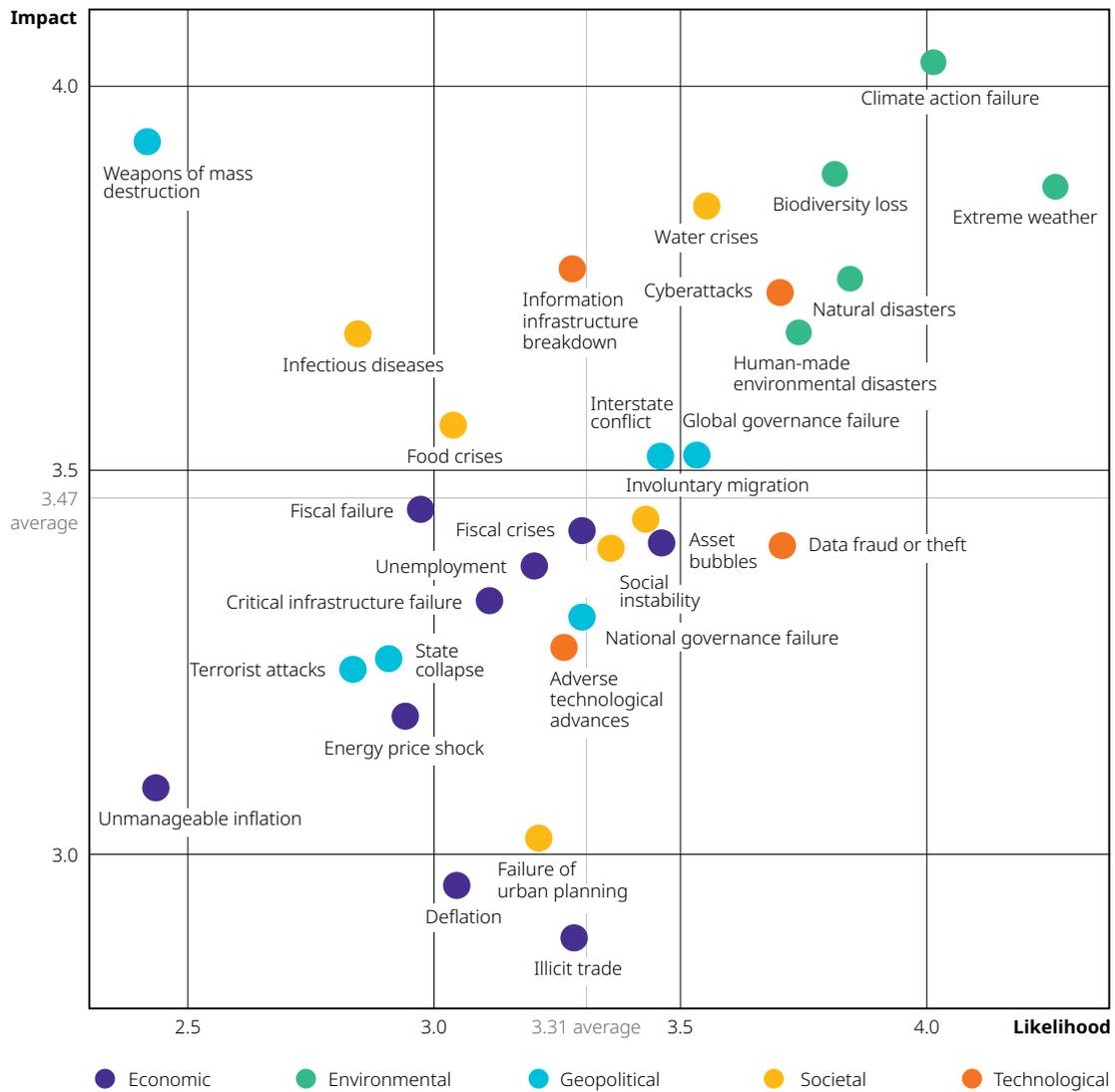
Climate change is striking more rapidly than many expected. It has already had significant consequences, and its impact will grow in the coming decade.

Polar ice is melting more quickly than anticipated, with significant implications for sea-level rise and exacerbated geopolitical risk as neighboring states in the Arctic compete for new shipping lanes and natural resources. A growing proportion of the world's population is now more exposed to catastrophic flood risk due to the combination of climate shifts and rapid urbanization in coastal and low-lying areas.

Australia is experiencing a continent-scale wildfire emergency, with more than 5 million hectares burned. California's catastrophic 2018 wildfire season caused over \$22 billion in direct property damages, bankrupted a local utility, and left that state to suffer routine blackouts to protect infrastructure and reduce liabilities. Shifts in seasonal temperature and rainfall are damaging crop yields, increasing the stress on countries dependent on agricultural output, and intensifying disputes over water resources.

Climate change is also exacerbating biodiversity loss, which was already accelerating due to deforestation, industrial expansion, pollution, and population growth. Recent reports have brought greater attention to the irreversible consequences on biodiversity within and between species, which threatens food security and — in a vicious circle — amplifies climate change impacts. For example, damage to coral reefs increases flood risk and deforestation in the Amazon increases the potential for drought and fire.

The Global Risks Landscape 2020



Top 10 risks in terms of **Likelihood**

- 1 ● Extreme weather
- 2 ● Climate action failure
- 3 ● Natural disasters
- 4 ● Biodiversity loss
- 5 ● Human-made environmental disasters
- 6 ● Data fraud or theft
- 7 ● Cyberattacks
- 8 ● Water crises
- 9 ● Global governance failure
- 10 ● Asset bubbles

Top 10 risks in terms of **Impact**

- 1 ● Climate action failure
- 2 ● Weapons of mass destruction
- 3 ● Biodiversity loss
- 4 ● Extreme weather
- 5 ● Water crises
- 6 ● Information infrastructure breakdown
- 7 ● Natural disasters
- 8 ● Cyberattacks
- 9 ● Human-made environmental disasters
- 10 ● Infectious diseases

Source: World Economic Forum Global Risks Perception Survey 2019-2020

PRESSURE FOR CHANGE

There is mounting pressure for change to mitigate and adapt to the direct impacts of climate risk and its connected downstream risks. There was a marked uplift in climate activism this past year, including nonviolent civil disobedience actions and the prominence of green agendas as an electoral issue. However, multilateral progress was limited, with COP25 in Madrid ending in disappointment.

Pressure is also getting channeled to the private sector, with employees criticizing management actions on climate change and the targeting of pension funds to divest from fossil fuel assets. Investors and rating agencies have also exerted pressures on companies, whether through engagement on low-carbon transition or net-zero emissions plans and investments or through inclusion of climate risks in ratings methodologies.

There have also been growing demands for transparency, with financial regulators such as the Bank of England stress testing banks and insurers against climate scenarios, policymakers proposing mandatory climate-risk disclosure legislation, and litigation against companies failing to disclose climate risk.

BECOMING MORE STRATEGICALLY RESILIENT

The risks for companies will grow due to both the direct impact of climate change on business operations and supply chains as well as the greater demand for action from increasingly concerned stakeholders. The clamor for action on governments may also reach a point where they respond in a disorderly way with heavy-handed and disruptive interventions that impose significant costs on companies.

Companies can proactively manage climate change risks and pressures in a number of ways.

Companies should actively monitor legislative and regulatory developments so they don't get caught out by policy changes or unexpected regulation. Some developments are motivated by strong and sudden public pushes, such as the anti-plastic movements, while others, such as auto-emission standards regulations, fall prey to conflicting expectations and can catch an industry off guard.

Companies should prepare for increasing pressure on climate issues from all of their stakeholders — investors, customers, employees, and communities. Could there be demands from investors to withdraw from certain sectors, such as fossil fuels? Could employees initiate a walkout over climate change responses? Will customers boycott unsustainable products? Or could there be litigation tied to lack of action on climate change mitigation or adaptation?

Risk quantification and scenario planning is a positive step. Companies should critically analyze their climate change risks, from physical exposures to policy changes to transition challenges to financial impact. Today's improved data and computing power means that potential sources of disruption — for operations, markets, customers, and investments — can be modeled and better incorporated into overall risk management and business plans. More rigorous analysis also can help companies identify risk indicators to monitor, and fulfill the likely expansion in requirements for climate-risk disclosure by institutional investors, lenders, and legislatures.

TURNING RISK INTO OPPORTUNITY

The pressures stemming from climate risk also create significant opportunities for businesses to align their strategies with the direction of change.

New and expanded product and market opportunities will be created. Some will be oriented to specific areas, such as renewable energy, regenerative growing practices in agriculture, or sustainability-linked financing. Many more companies have the opportunity for climate risk-related product, service, and supply-chain innovations that will attract customers, investors, and employees with a heightened sensitivity to the issue. In fact, according to CDP, companies have reported opportunities arising from the low-carbon transition to be worth \$2.1 trillion compared to around \$1 trillion of downside risk.

The private sector should also aim to capture some of the benefits of climate resilience investments. The World Bank estimates that investing in new resilience infrastructure generates around \$4 in benefit for every \$1 invested. The private sector should closely collaborate with the public sector in the co-development of financing incentives and de-risking mechanisms to enable relevant technology or infrastructure investments.

The role of the private sector in enabling the rebuilding and improved resilience of communities following catastrophic disasters should also expand. Risk transfer from the public to the private sector via insurance or other risk financing mechanisms can help strengthen community resilience to future climate change impacts. Asia's SEADRIF is a first-ever risk transfer mechanism that helps reduce the burden of catastrophic disaster costs on public finances through innovative risk financing, insurance, and climate resilience solutions.

While business leaders should aim to create greater resilience for their companies to climate risk, the same understanding of climate dynamics can help them pursue these and other opportunities for growth.

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This article first appeared on the [World Economic Forum's Agenda blog](#).



CHILDREN NEED TO KNOW ABOUT HACKERS

We need to start teaching young children
about cybersecurity

Paul Mee

There are basic lessons children need to learn early in life to ensure their safety. Look both ways before crossing the street. Wear seatbelts. Avoid talking to strangers.

It's time to add another to the list: Beware of hackers and cyber creeps.

In this era of rapid technological advancement, children need to immerse themselves in technology at a young age in order to start learning the skills they will use throughout their lives.

But they also need to be warned about the risks that accompany all those cool smartphone and computer applications. All too often, that isn't happening.

Elementary school teachers should include these cybersecurity basics in their everyday curricula. At a minimum, every young child should know how to keep their information private, to refrain from responding to strangers, and to report anything unusual to an adult. Today, many don't.

Cyberattacks are nothing new, of course. But what is less understood is the extent to which children increasingly are being targeted. About one in four youth in the US will experience identity theft or fraud before they reach the age of 18, according to a 2019 estimate by the consumer credit reporting company Experian. Fraudsters are targeting their clean credit histories and, increasingly, their virtual wallets.

What's more, about one in five American young people experience unwanted online exposure to sexually explicit material, while one in nine experience online sexual solicitation, according to a recent study published in the *Journal of Adolescent Health*.

The main reason hackers and online fraudsters focus on youth is because children have easy access to the internet and smartphone apps and only minimal knowledge of the risks. Nearly half of American children ages three and four use the internet from their home, according to the National Center of Education Statistics.

Voluntary programs in the US and elsewhere teach cyber literacy in greater depth than most national standards require. They range from cyber summer camps and national competitions to education modules for teachers to use in the classroom. But many are designed primarily for middle school and high school students. In Israel, for example, the Cyber Education Center's Magshimim program teaches high school students computer programming skills and how to mitigate different types of cyberattacks.

A handful of voluntary programs provide online safety resources for elementary school students, beginning in kindergarten. Through its National Integrated Cyber Education Research Center (NICERC), the Department of Homeland Security offers free full-year K-12 STEM and cybersecurity courses to teachers and school districts. The Air Force Association's national CyberPatriot education program offers free teaching modules like "security showdown" to teach kindergarteners what information is safe to share with strangers online, and publishes children's books like Sarah the Cyber Hero.

The combination of technological advances, higher interconnectivity, and delays in cyber awareness permits global cyberattacks to spread like contagions. Targets are bigger than ever before and are leaving broader collateral damage.

Cyberattacks are no longer just concerns for companies and governments. During the summer of 2019, a series of attacks on school district systems prompted Louisiana Governor John Bel Edwards to declare a statewide emergency.

It doesn't have to be this way. As teachers incorporate more online educational tools into their curricula and parents permit children to play with online apps, they can simultaneously teach students of all ages basic cybersecurity skills and encourage them to become cybersecurity experts themselves. Children can be equipped to protect themselves from cyber-threats automatically, just like they look both ways before crossing the street.

Kids can soak up basic cybersecurity skills as rapidly as they pick up new technologies. We owe it to them to make that possible.

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This article first appeared in the [World Economic Forum's Agenda Blog](#).



RETHINKING DATA GOVERNANCE

It's time to redefine how data is governed,
controlled, and shared

Doug Elliott, Lisa Quest, and Ana Kreacic

The first chapter of the Fourth Industrial Revolution has been powered by an explosion of data harnessed by extraordinary advances in technology and the spread of connected devices. As a result, seven technology companies are now among the eight most highly valued companies in the world. The success of the next chapter in the world's digital transformation depends on governments and companies ensuring data is used in a way that balances benefits across the broader economy and society as a whole.

Pressure is mounting for regulatory and other frameworks that will allow innovation to continue while addressing rising concerns over how data is used. Governments are trying to combat the propagation of fake news and the use of data for illegal purposes, such as trafficking and terrorists' communications and recruitment activities. In a connected world, companies grapple with the balance between data security on the one hand and innovation, personalization, and interoperability on the other, while consumers are increasingly worried about their privacy.

But how can data be better governed, controlled, and shared?

We have identified five potential futures for public and private stakeholders to consider:

FUTURE #1: GIANT PLATFORMS CONTROL DATA

To a large extent, this is where we are today. Companies now use data to add value to almost every aspect of life, enhancing people's social lives, lowering business costs, and providing services and information that facilitate all manner of daily interactions.

To achieve this, many employ cookies and device-tracking technology to follow online activity and infer information such as preferences. They then use these not only to improve their own services but also to send notifications and targeted advertising. As platforms, their access to unique aspects of data activities, along with the accumulation of data and analytics, has produced deep network effects. Each platform also has its own approach to how much data is shared and how much control consumers have.

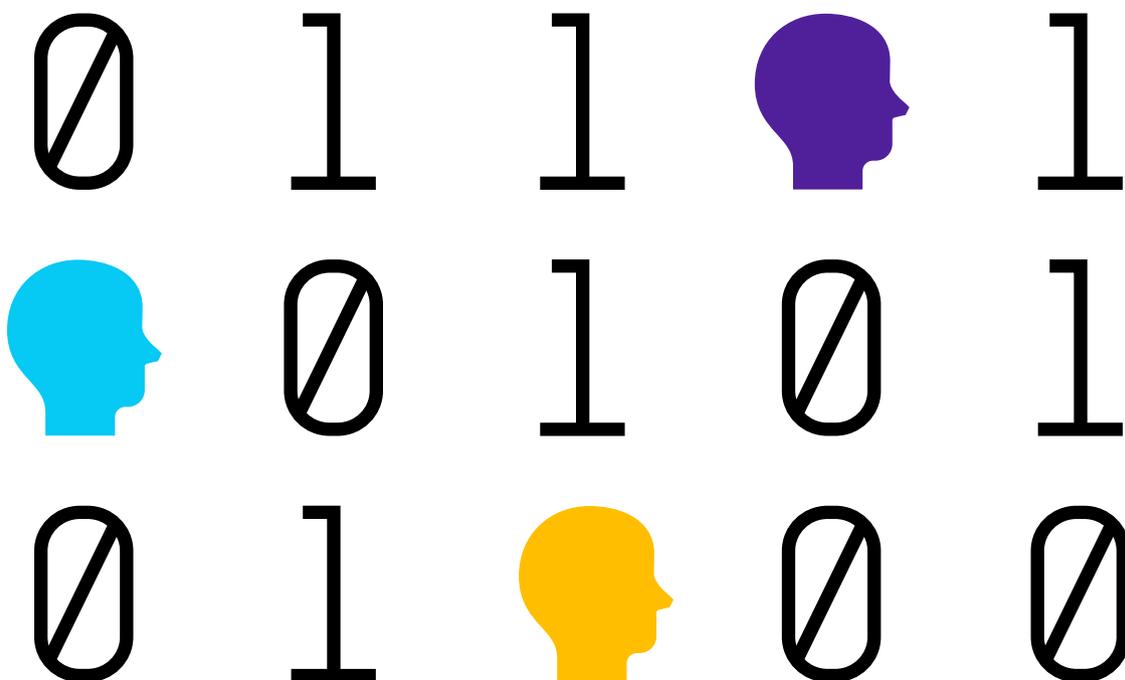
Now questions are being raised over the impact of these techniques as digital technology spreads into other industries. If today's regulatory status quo continues, big tech firms may become even more influential. They could continue to amass data and talent, investing billions of dollars in research and development and acquiring artificial intelligence (AI) startups and companies in traditional businesses such as retail and healthcare.

FUTURE #2: PROTECTIONS PUT USERS IN CONTROL

As firms amass more data, some governments have introduced digital protections. These rules increase data security requirements and controls on personal information and treat the right to privacy as a priority and a human right. If people feel more secure about going online, they may be further encouraged to take advantage of connected digital services, whether commercial or government.

The most prominent example is the European Union’s General Data Protection Regulation (GDPR), under which users can demand that a firm erase their data or transfer it to another company. They can also ask why their personal data is collected, how it is used, and for how long it will be retained.

As these regulations evolve, questions arise about second- and third-order impacts and the resulting trade-offs. For example, increased operational expenses and constraints could raise the cost of doing business and increase barriers to entry, limiting the ability of new competitors to gain footholds. Restrictions on sharing data with third parties could also make it harder for firms to collaborate on data-driven innovation.



FUTURE #3: UTILITIES ENCOURAGE DATA SHARING

Data utilities could offer a simpler way for users to manage data without having to manage consent with every firm with which they come into contact. Marketplaces, where firms could trade consumer data, would give individuals centralized control over how information about them is used and shared.

Consumer-centric data utilities may not replace the need for baseline data protections entirely, but they could streamline the complex web of data management responsibilities that consumers now have. Models could also emerge that allow individuals not only data control but also data monetization. At least one firm already enables individuals to pool their data for surveys and other uses in exchange for a fee.

Alternatively, data utilities run by coalitions of firms could help businesses exchange aggregate, rather than individual, data. Sharing aggregated data could help alleviate privacy concerns associated with sharing individual-level data and facilitate the sharing of “data insights” that help solve broader challenges, for example, in public health.

All of this naturally raises the question of who would create and run these utilities and for what purpose. Would they be run by companies for profit? Or by governments for the public good? Many other details would also need to be worked out.

FUTURE #4: PROTOCOLS ENABLE DATA SHARING AND EXCHANGE

Global standards for data rights and obligations could be embedded in the very fabric of the internet through rules and protocols around data exchange.

The internet could serve as a precedent. In its early days, it was restricted and focused on non-commercial exchange. The World Wide Web standards were adopted in 1990, embedding critical principles for the connection of servers including that any person could share information with anyone else, anywhere. After commercial use of the internet was allowed in the mid-1990s, these shared protocols and principles enabled tremendous innovation.

The question would be whether this approach should (or could feasibly) be adopted for handling people’s data, given the complexity and number of constituents and the impacts that new protocols could have on them. Less was at stake when internet protocols were established. The Sovrin Foundation, a private sector, international non-profit, is currently taking a first step in examining the merits of this approach. It is developing a system to allow individuals to manage their digital IDs online through open-source, self-sovereign identity. This future state requires significant global cooperation, and while there are precedents like the internet, there aren’t many.

FUTURE #5: GOVERNMENTS CONTROL DATA

Though much data is already crossing borders, governments increasingly consider data and digital infrastructure as critical for national security and economic competitiveness. As a result, just as emerging economies in the past wanted to foster domestic auto production, today many want their own technology industries to thrive.

Some governments have started to write rules on where data infrastructure and technology reside, creating national-level constraints on technology investments by foreign companies or powers, and potentially increasing their means of social control but also their ability to foster local economic development and take advantage of the AI revolution.

Russia's Data Protection Act, for example, requires operators to store and process individuals' personal data in databases located in the country. A 2018 law in India requires that certain types of data be physically located in India. China has wide-ranging data localization rules, restricting the transfer of data overseas and limiting data imports, and has looked to develop its data infrastructure and computing capabilities through significant investments. Germany and France have recently announced their own initiative, called Gaia-X, to decrease dependence on foreign data infrastructure.

Such barriers and constraints may prioritize national goals over global innovation and business effectiveness. Finding the right balance between multiple objectives will be crucial.

THE NEXT CHAPTER

The second chapter of the Fourth Industrial Revolution has the potential to bring great benefits to people around the world: healthcare that is individualized for maximum benefit at minimum cost and intervention, e-government that enables efficient access to services, and cars that rarely crash.

Delivering the potential of digital technology will require new approaches to data management and, in some cases, new regulations. Governments and businesses will need to find the right balance between safeguarding individuals' data and ensuring that innovators can keep striding forward.

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A cityscape at dusk with silhouettes of people walking on a bridge. The background features several modern skyscrapers with illuminated windows, set against a deep blue twilight sky. In the foreground, the silhouettes of three people are walking across a bridge with a railing. The overall mood is professional and forward-looking.

URBAN DIGITAL SKILLS GAP

How cities should prepare
for artificial intelligence

Kaijia Gu and Timocin Pervane

While there is much discussion about how artificial intelligence will continue to transform industries and organizations, a key driver of AI's role in the global economy will be cities. How cities deal with coming changes will determine which ones will thrive in the future.

Many cities have plans to become “smart cities” armed with AI-driven processes and services, such as AI-based traffic control systems, to improve residents' lives. But simply adopting these new technologies won't be enough to guarantee their success. Jobs that exist today may not exist tomorrow. Completely new jobs will need to be filled quickly. Many people today don't yet have the skills needed for the jobs of the future. Yet cities cannot just shrink and grow their populations and talent at will.

To realize the potential of AI, city administrations have to work with local employers to plan for new opportunities — along with possible painful transitions — that their communities may experience. Many US cities once dependent on manufacturing industries have made the shift to knowledge-based economies, including cities like Pittsburgh, Pennsylvania; Rochester, New York; and Madison, Wisconsin. In order for these economies to continue to prosper, cities — along with organizations and education experts — need to assess and prepare for AI-related skills gaps.

URBAN SHIFTS

As with other technological revolutions, the move toward widespread use of AI will likely trigger urban shifts in cities. To better understand the scope of these changes, we conducted three studies. First, we examined how many people in American cities work in jobs with a greater than 70 percent probability of being automated. Applying a framework developed by Oxford University researchers Carl Benedikt Frey and Michael A. Osborne to 24 major US cities, we found that between 33 percent and 44 percent of people work in jobs considered at high risk, including retail salespeople, cashiers, office workers, and other service-related jobs.

That means millions of people will likely need assistance in transitioning to new jobs and roles as soon as within the next five years. In cities like New York and Los Angeles, with millions employed, many workers will need to find new professions (such as those in highly vulnerable roles such as tax preparers, loan officers, bank tellers, receptionists, and administrative assistants) as the nature of work is completely transformed. Even in global tech hubs like San Francisco and San Jose, California, about 400,000 people currently work in similarly vulnerable roles.

We surveyed more than 9,000 people in 21 major global cities to discover to what extent they expect, and may already be experiencing, displacement as a result of new technologies. These findings reaffirmed that transitions to AI-related jobs could prove problematic within the workforce. While most people (69 percent) expect their respective cities and residents will benefit in some way over the next 20 years from new technologies like AI, nearly half (45 percent) also expect their own jobs will be automated within the next decade. One-third of respondents in North America and Europe felt unsure about their city government's vision for how to cope with technological change.

To dive deeper into this issue and quantify the extent to which more than 100 global cities are prepared to meet AI-related challenges, we conducted a series of expert interviews. This included speaking with 50 experts across academia, city governments, and business to determine what “prepared” really looks like in terms of cities’ readiness for broad social and economic changes.

The data we collected showed that, in order to capture new prospects created by AI while minimizing risks, cities need to take advantage of four essential qualities: a vision for responding to technological change; a city administration able to activate new plans; a strong foundation of top talent, top employers, and top educational institutions; and the momentum to seize new opportunities.

No city excelled across all four dimensions — most cities currently lead in only one or two facets. [Singapore](#) and [Dubai](#) have detailed visions for how to be leaders in the coming era of technological change. Singapore’s Digital Economy Framework for Action boldly states that it should seek out new digital opportunities for its businesses and people. Government agencies in Dubai publicly say they are examining ways to adopt new technologies and to recruit leading AI research labs and innovators, in part to support the United Arab Emirates’ broader AI strategy to eventually lift the UAE’s gross domestic product by 35 percent.

Administrations of European cities such as Stockholm, which has strong intellectual property laws and open immigration policies, stand out when it comes to being able to implement AI-related plans. Megacities like London, New York, and Paris have the rare trio of top talent, top employers, and top educational institutions. Asian cities like Hangzhou and Shenzhen, China, are focused on succeeding in an era of AI and rising fast, in large part because they now have the universities and startup ecosystems that enable them to attract companies. Indeed, although until recently known as a sleepy fishing village, Shenzhen is now often called the Silicon Valley of hardware. concern by conducting thoughtful workforce analysis and forging public-private partnerships.

Millions of people will likely need assistance in transitioning to new jobs within the next five years.

HOW CITIES AND COMPANIES CAN PREPARE

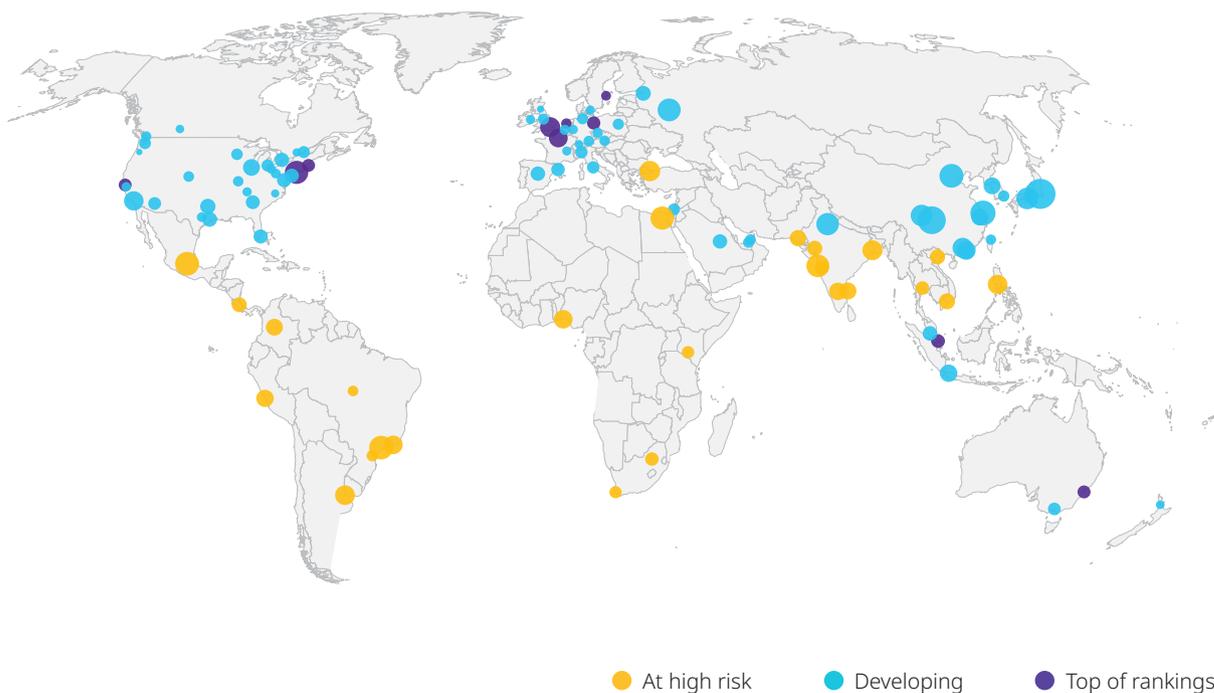
So, what should cities and local companies do to set themselves up for success amid the coming shifts? First, city administrations should start to assess how well their communities are positioned for the coming technological changes. Since AI applications and other technologies spread quickly and see adoption at varying rates across different locations, it can be difficult for cities to

keep track of the pace and degree of a given technology's impact. But cities might approach this

City administrations need to examine the composition of jobs in their current workforce and what skills will be in high demand going forward. For example, Bertelsmann Foundation worked with the National Association of Workforce Boards to develop a detailed perspective on how Riverside (Calif.) policymakers and workers are [prepared for the future of work](#). Once cities determine what the future workforce will look like, they can better understand the extent and nature of the gap between where they are and where they need to be.

No City Is Ready To Face The Challenges Of Ai

Cities need to make substantial improvements to fully prepare for the impacts of next-generation technology. No city is ranked among even the top 20 across all four vectors, and none appears in the top 10 across three vectors.



Source: Oliver Wyman Forum Analysis

Second, cities need to remain in close communication with employers so that they have a better understanding of new AI use cases — and how they'll impact the workforce for better or for worse. City administrators should research if local companies are running pilots to automate customer service. They will have to prepare for the impact from not only one company's successful pilot, but also from other local employers with similar employees.

At the other end of the spectrum, city administrations should assist with re-skilling and development efforts for the local community so that residents and employees can find new opportunities when necessary.

One way to achieve this is for cities to appoint chief digital officers to play this role, as has been done in New York, Melbourne, Boston, London, and Athens. Some cities have also started to provide financial support, as in Hong Kong, where the Continuing Education Fund was recently doubled in size to prepare for re-skilling people who lose their jobs due to automation.

At the same time, companies should be community-minded and make cities more aware of their needs. Companies know where job cuts are likely, while cities have the responsibility for dealing with the impact. To ease the transition, companies and cities will need to work together to reduce the risks to local communities by putting them in a stronger position to grasp AI's possibilities. New skills gained from job exchange programs can help people rapidly resettle and possibly land even more rewarding jobs.

Finally, cities should invest now in retraining programs designed to mitigate the risks posed by the widespread adoption of AI by arming people with the skills required to realize its promise. These should be introduced concurrently with childhood through 12th-grade educational initiatives. Eventually, cities will have to revamp educational programs if they want residents entering the workforce in the future to have the skills required to tap into, and possibly even create, AI innovations.

The majority of our survey respondents expect to feel the impact of AI within five years. There is no time to waste.

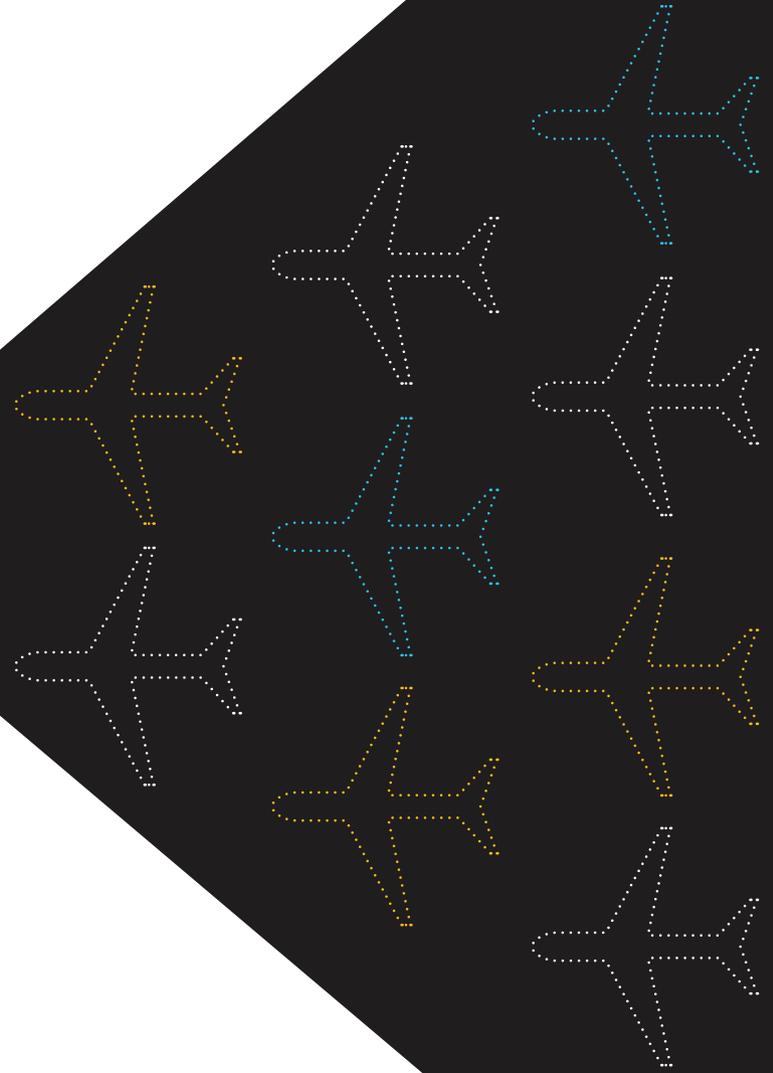
Kaijia Gu is the London-based leader of the Oliver Wyman Forum's City Readiness initiative.

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GROUND ED BY THE VIRUS

How COVID-19 is transforming aviation's outlook



Tom Stalnaker and Khalid Usman

Except for healthcare, there are few industries more severely affected by the latest coronavirus pandemic than global aviation. Airlines around the world are confronting the challenge of a sharp decline in demand, complicated by almost total uncertainty about when the virus will be under control and travel can return to normal.

Many of the hardest hit countries, such as the United States and Italy, have seen ticket sales plummet. In Italy, in recent weeks, the drop exceeded 80 percent at times.

In the US, failure to conduct early, broadscale testing and to respond more aggressively have led to a rapid spread of the virus. The number of confirmed US cases of COVID-19 — the name for the disease caused by the coronavirus — was close to 400,000, as of April 8, according to the US Centers for Disease Control and Prevention. That's five times higher than the official COVID-19 count in China, where the population is four times the size of the US.

The collapse in demand has led major airlines worldwide to announce severe cost-cutting measures, request government assistance, and, in the case of certain airlines, ground fleets. Many airlines are seeing more cancellations than bookings. Unless the virus is effectively contained within the next couple of months, we expect the depressed demand environment and reduced global revenue passenger kilometers (RPKs) — a widely accepted metric of air travel demand — to persist well into 2021.

WHEN WILL IT END?

Containing the coronavirus is proving a challenge. While China — COVID-19's country of origin — reported zero new cases on March 18, it saw an uptick in new cases in the latter part of the month, almost entirely connected to people arriving from other countries. In response, on March 27, China banned virtually all foreigners from entering the country. It now requires returning Chinese nationals to go into a two-week quarantine. The government also reduced the number of international flights.

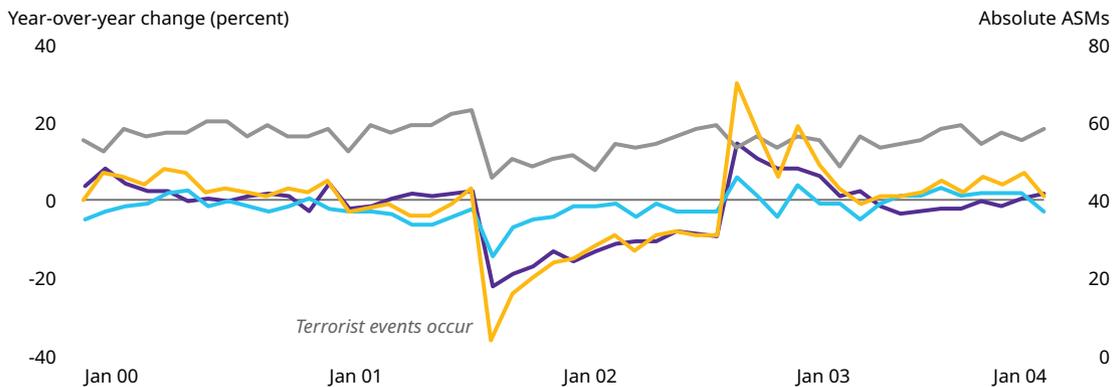
This setback is an example of why a recovery in aviation may take longer than many had hoped. Travel may not return to normal until the virus is conquered worldwide and international borders are reopened.

The Pew Research Center estimates that three billion people live in countries where borders have been completely closed to tourists, business travelers, and others who are neither citizens nor residents; 93 percent of the world's population lives in countries with some cross-border restrictions on people who aren't citizens or residents. Like China, almost all nations now require citizens and residents to undergo some form of quarantine after arriving.

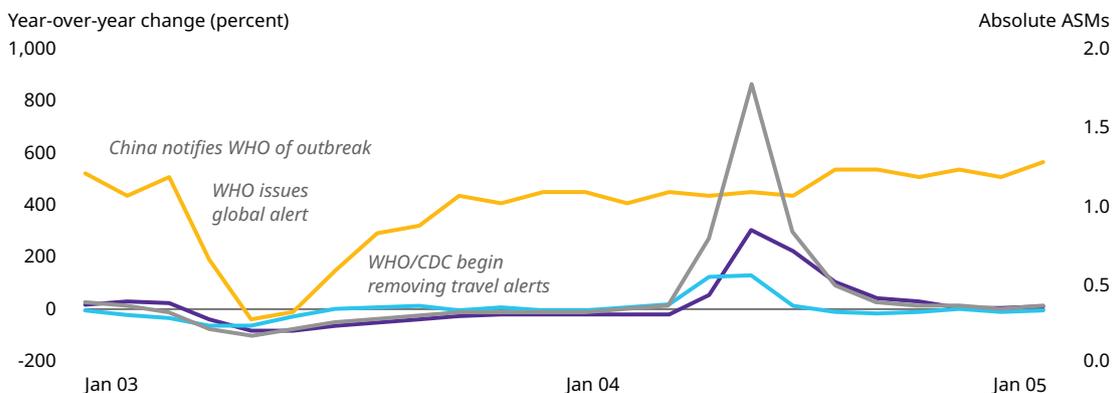
Aviation Industry Reactions To Three Historic Events

These global crises produced double-digit capacity reductions and gradual recoveries that took 12 to 18 months

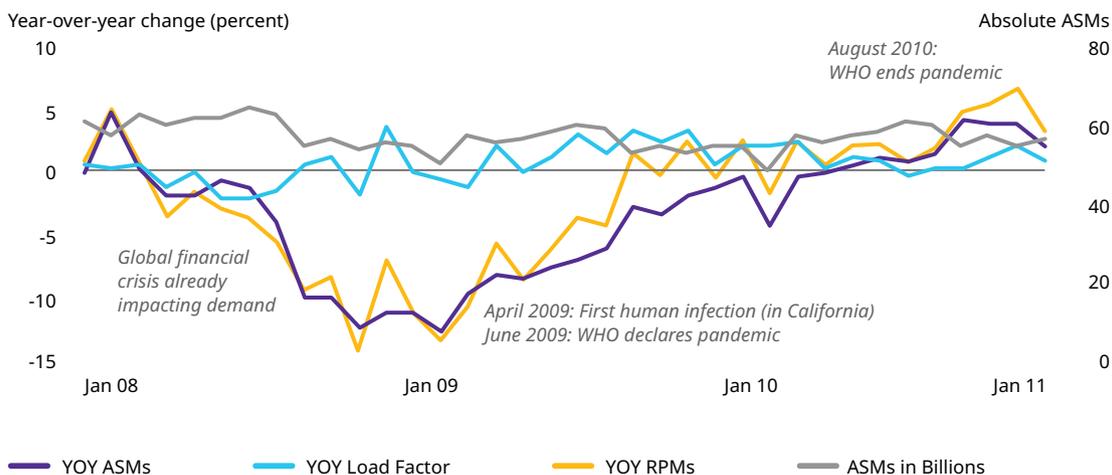
9/11/2001: Immediate impact event followed by gradual recovery (Domestic US results)



SARS: Immediate and geographically-focused impact event followed by recovery (US-Hong Kong results)



Global Economic Crisis and H1N1: Gradual impact followed by gradual recovery (Domestic US results)



Note: YOY = year-over-year, ASMs = available seat miles, LF = load factor, RPMs = revenue passenger miles, Source: Planestats.com/T100

RISING COSTS

On March 23, the International Air Transport Association (IATA) increased its global estimate on lost passenger airline revenue from the latest strain of coronavirus to \$252 billion for 2020. That was up from an estimated \$113 billion on March 5 and \$29 billion two weeks before that. The new number would put revenue in 2020 44 percent lower than 2019.

IATA also estimates that RPKs worldwide could be expected to be down as much as 38 percent this year versus 2019. It is a truly global shock, with no region left unscathed from the virus and global economic disruption.

Airlines around the world will need as much as \$200 billion in government assistance to survive, IATA now predicts. As airlines weigh financial options to bridge the demand shock, most find themselves with only enough cash on hand to make it through two months. Many have negotiated lines of credits to help them move forward.

Given the global nature of the COVID-19 pandemic that threatens to throw many economies into recession — including the world's biggest, the US — it could take passenger air travel demand anywhere from several months to two years to recover to 2019 levels. This depends on multiple factors including the speed of virus containment, restoration of confidence in air travel, and a return to normal economic and social activity.

CUTS IN CAPACITY

To cope with the impact of COVID-19, airlines have adopted a pragmatic strategy of reducing capacity in line with falling travel demand to certain geographies that are affected. Global capacity was down 19.4 percent in March and is expected to fall close to 60 percent in April, according to the OAG, a provider of digital flight data and analytics. In the US, published capacity reductions, as of April 2, indicate a decline of 49 percent in April — a number that has been rising in recent days and will likely move higher, as carriers make weekly adjustments.

During 9/11, SARS, and the 2008 financial crisis and 2009 global recession — which also included the first few months of the H1N1 pandemic — demand measured in RPKs dropped between 15 and 30 percent in the affected regions. The in-service fleet contracted quickly in response to the crises, dropping between three percent and 4.5 percent over a two-to-four-month period. The recovery period for these crises lasted about a little more than four months for every percentage-point drop in the rate of growth of gross domestic product. Ultimately, in the case of 9/11 and the 2008 crisis and ensuing recessions, demand took 12 to 18 months to recover in the affected markets.

During the 2003 SARS outbreak, demand on routes between Hong Kong and the US collapsed — with RPKs falling more than 80 percent; it took more than six months to recover. While Hong Kong suffered the second-highest death toll from SARS worldwide, its officials used what they learned during SARS about the need for early testing and social distancing to limit the impact of COVID-19.

SHRINKING GLOBAL FLEET

The contraction of the global commercial in-service fleet because of COVID-19 is already more pronounced than in any of the prior crises. A total decline in fleet size of over 20 percent is expected by the end of May, with the highest reductions in regions where the virus has already spread rapidly — Western Europe, Asia-Pacific, China, and North America. But that number is expected to rise globally for the year.

Like previous shocks to aviation, many aircraft that are not already in storage are expected to see lower utilization. A period of years may be required to recreate the close to 28,000-aircraft fleet that existed at the beginning of 2020, even if travel demand returns at a quicker pace than currently expected.

Despite record order books, the financial uncertainties caused by COVID-19 are expected to compel airlines to defer or cancel new aircraft deliveries. In the months after 9/11, new aircraft orders decreased, cancellations increased, and the pace of commercial deliveries dropped throughout 2002 and 2003. As a result of COVID-19, we expect a more significant and immediate reduction, with operators deferring or even cancelling deliveries where possible until at least the third quarter of 2020 and possibly longer. This will include some of 737 MAX aircraft delayed by the 2019 grounding of the jet by regulatory agencies.

CHINA OPENS FOR BUSINESS

China and other parts of Asia have had relative success battling the virus, using extensive testing, lockdowns, and tough restrictions. After watching air travel demand sink more than 80 percent at the peak of the infection in mid-February, Chinese domestic travel has begun to rebound in March, with bookings down by only 63 percent mid-month and domestic passenger yields stabilizing, according to IATA. Factories and businesses have reopened, and China is pushing for a return to economic normalcy.

The recent collapse of oil prices could help both airlines and the global economy recover faster. Jet fuel is one of the biggest cost line items for any airline, and jet fuel prices are now down more than 50 percent compared with the second quarter of 2019.

Our energy practice expects the price of crude to stay depressed for at least a year and potentially 18 months because of six months-worth of excess crude being held in storage depressing prices even with production cuts by Saudi Arabia and Russia. On April 2, markets rallied after President Trump claimed Russia and Saudi Arabia were ready to cut production. He said he would broker a deal at a summit he would organize.

UNEVEN RECOVERY

The COVID-19 pandemic is proving to be more difficult to navigate than prior shocks because of the significant increase in global travel over the past decade. Given that virus containment and economic recovery will be uneven, it will be vital to monitor developments in countries where the virus appears to be contained and detect early signals of rebound amid an otherwise noisy environment.

Moving forward, aviation — and the rest of the economy — will need to be agile. When making network and capacity decisions, airlines must stand ready to pivot quickly, especially given the industry's increasingly strained financial position. They should consider the probability of different recovery scenarios and understand the financial implications and risks behind each move they make.

These are unprecedented times for the industry. Air transportation systems are critical for the vitality of economies, and how governments and airlines collectively manage both the crisis and recovery will set the future course of the industry for the foreseeable future.

Tom Stalnaker is a Washington DC-based partner and global Aviation practice leader in the Transportation and Services practice.

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Rory Heilakka, Andrew Buchanan, Aaron Taylor, and Grant Alport contributed insights and research to this article.

A version of this article appeared in [Forbes](#).

A woman with long, dark, curly hair is looking out a window. She is wearing a dark top with a geometric pattern. The background shows green foliage outside the window. The text is overlaid on the lower left of the image.

A \$700 BILLION MISSED OPPORTUNITY

Ignoring women is costing financial services money

David Gillespie and Jessica Clempner

Over the past 10 years, achieving gender balance in financial services has remained a challenge across Europe and worldwide, with the industry still male-dominated, particularly at the senior level. While there are now more women in senior leadership roles globally than ever before, progress has been incremental, and there is still a long way to go — something made clear by Oliver Wyman's new [Women in Financial Services Report 2020](#). Increasingly, this lack of gender balance is to the industry's commercial detriment.

HALFWAY TO SUCCESS

Within Europe, we are used to seeing high-profile female leaders in the sector, perhaps best exemplified by Christine Lagarde. In certain places, the situation on the surface appears positive. In the UK, for example, milestones such as [Alison Rose's recent appointment as chief executive of RBS](#), and the [30% Club's](#) role in achieving increased representation of women on FTSE 100 and FTSE 250 boards, have been profiled as heralding much-needed change.

However, the numbers tell a different story. Across Europe, representation on executive committees and boards has increased, now standing at 20 percent and 29 percent, respectively, according to Oliver Wyman. But the range is broad: from 33 percent female representation in Sweden, to just 6 percent in Greece.

A PANORAMIC APPROACH

It's clear that the work that got us this far is not going to take us to the next level. In the report, we also find that, to deliver the next wave of change, the industry needs to recognize that the impact of gender balance goes beyond the workforce. There is at least a \$700 billion global revenue opportunity in better serving women as customers.

In the context of a rapidly changing and highly uncertain political and economic landscape, it is not overstating things to describe the situation as critical. Gender balance is recognized as vital to success. But at this point for many organizations, it is essential to a firm's survival.

To close the gap, capture revenue, and promote sustainable business, more needs to be done. This means taking a broader approach than has traditionally been the case and ensuring that the journey towards balance internally also extends externally to truly catering to women as customers.

THE REVENUE OPPORTUNITY

Women are arguably the single largest underserved group of customers in financial services. Despite playing increasingly influential roles as buyers of products and services, their needs consistently go unmet. As a result, firms are leaving money on the table by not listening to and understanding their women customers.

The scarce funding going to female-led companies in the small- to medium-enterprise (SME) space, and the historic bias toward a male career trajectory in wealth and asset management, have been well-documented. But our research also shows gaps in the way insurers, retail banks, and corporate and institutional banks are serving women as customers.

Lack of flexibility, combined with products and services that appear gender-neutral, but that in fact default toward men, can result in a gap in the way retail banks are serving women.

At the global level, our analysis indicates that \$65 billion could be generated for banks through mortgage and other credit approvals to existing retail customers, if women were approved at the same rate as men.

This is along with \$30 billion in net interest income through loans for female-led SMEs. Similarly, today, women invest more of their wealth in cash than stocks and bonds, compared to men. Wealth and asset managers could see \$25 billion in new fees by helping women manage their investments in the same way as they do for men.

Furthermore, if insurers sold life insurance to women at the same proportion of their income as men, an extra \$500 billion in new written premiums could be generated. In corporate and institutional banking, \$80 billion of existing revenue could be at play if banks better managed their relationships with women clients and won share from competitors.

Redressing the gender balance is not just good for society or a particular firm, it is good for business, full stop.

To close the gap, capture revenue, and promote sustainable business, more needs to be done.

How The \$700 Billion Global Revenue Opportunity Breaks Down

Insurance

What if...

insurers sold life insurance to women at the same proportion of their income as men?

\$500 Billion

of new written premiums could be created, even after accounting for differences in income

Banking

What if...

corporate and institutional banks better managed their relationships with women clients?

\$80 Billion

existing revenue controlled by women as clients could be captured from competitors

What if...

retail banks provided women with mortgages and other retail credit at the same rate as men?

\$65 Billion

of new net interest income and fees could be created

What if...

business banks provided women with SME loans at the same rate as men?

\$30 Billion

of new net interest income could be created

Wealth and Asset Management

What if...

wealth managers invested women's wealth in the same way as men's in stocks and bonds rather than cash?

\$25 Billion

of new fees could be created

Note: Revenue for the insurance sector is not directly comparable to the revenue for the banking and wealth and asset management sectors. Based on the standards for these sectors, insurance revenue is reflected as written premiums, a large portion of which will be paid back to the policyholders in the form of benefits, whereas banking and wealth and asset management revenues are reflected as a mix of fees and net interest income (accounting for the cost of funds), which together are retained to cover operational expenses. The comparable insurance margin on written premiums is approximately 20 percent.

Source: Oliver Wyman analysis

CLOSING THE GENDER GAP ISN'T AN ADDED PLUS

Operating in such volatile and fast-changing times as they face today, financial services firms cannot afford to overlook women, in the workforce or as customers. In Europe, headwinds will only likely increase in the near term, with the possibility of recession all too real. Historically, when the economy takes a downturn, gender balance gets put on the backburner, seen as a “nice to do” rather than the “must do”, as our analysis highlights.

At the very least, organizations would do well to recognize that increasing the proportion of women on leadership teams is likely to be a major contributor to crisis resolution in terms of increased cognitive diversity and enhanced creativity.

Cultural changes brought about by greater gender balance can aid not just internal decision-making, but also customer-product development as firms work to understand and reflect the needs of all stakeholder groups, including customers. This involves actively generating and looking at the data from a different perspective, then pulling this through into a reorientated proposition. This could be anything from life insurance that takes into account unpaid domestic work, flexible goal-based wealth advice, or mortgages with payment holidays for parental leave. Ultimately, these propositions will be better for all customers, not just women.

Similarly, in acting more on gender balance and bias, firms are likely to see a positive impact on everything from staff morale and talent influx, to brand and reputation. Internally, a gender-balanced workforce makes for a more effective business. Externally, firms will help to promote equality in society overall.

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This article first appeared on the [World Economic Forum's Agenda Blog](#).

A server rack with blue cables and green indicator lights. The rack is filled with server units, each with multiple ports and cables. The cables are bundled and secured with black straps. The green lights are illuminated, indicating that the servers are powered on. The background is dark, making the blue cables and green lights stand out.

THE RIGHT WAY TO REGULATE THE TECH INDUSTRY

Some want big tech companies broken up.
Others call for stiffer industry insight.
Who's right?

Lisa Quest and Anthony Charrie

Today's patchwork of privacy laws and industry self-regulation lack transparency and coherence and don't go far enough to protect customers and competition.

Over the past decade, tech giants have risen to become the most valuable companies in the world, all while operating with little formal, structured government oversight. But this lack of oversight has come at a cost. Today's patchwork of privacy laws and industry self-regulation lack transparency and coherence: The combination drives up the cost of innovation and doesn't go far enough to encourage healthy competition or to protect the billions of people worldwide who now rely on the products and services tech companies produce.

A growing chorus of businesses, lawmakers, and regulators are now calling for big tech companies to be broken up, while tech executives are asking for closer government regulation.

So, what is the right way to regulate the tech industry?

One way that governments can put tech companies on a level playing field, both with each other and with competitors in regulated industries, would be to introduce a regulator for the tech industry in their country. Having a regulatory regime with nationwide statutes and clearly defined rules of engagement would also cut the cost of innovation while holding companies accountable for mitigating abuses of their inventions, ranging from criminal acts like recruitment of terrorists and child pornography to socially harmful acts like sharing user data and facilitating the spread of fake news.

For a national tech regulator to be effective, it would need to adopt regulations and new supervision methods capable of staying ahead of the potential threats posed by accelerating technological change.

The first country to figure out the best way to regulate the broader tech industry could become the focal point for the next chapter of the world's digital revolution. Drawing on lessons from other regulated industries, we propose several ideas for how to accomplish this with big tech.

CREATE AN OVERARCHING REGULATORY STRUCTURE

To regulate tech, governments first need to determine the appropriate regulatory scope for the industry. Defining what is within the regulated perimeter, what is outside, and how new companies and their activities are brought in is crucial in establishing how to engage with both regulated and unregulated areas. It provides clarity for both individuals and companies on what is protected and what is not.

FOCUS ON THREE OVERARCHING OBJECTIVES

Tackle the most pressing issues facing the industry: safeguarding individuals and society from maltreatment; promoting responsible innovation and robust competition; and establishing understandable and consistent parameters for [data privacy](#) and [monetization](#).

These regulatory goals need to be reinforced by metrics that will enable an agency to judge if tech companies are complying with national statutes. If they are not in compliance, the agency should be empowered to carry out a specific range of disciplinary measures to encourage appropriate behaviors such as cease-and-desist orders, comply-or-explain requirements, fines, or legal sanctions.

DEVELOP STANDARDS-BASED REGULATIONS

Innovations coming out of tech companies and the risks that accompany them are evolving so rapidly that it's easy for regulators to fall behind. [Standards-based regulatory regimes](#) capable of adapting to technological and social change can help regulators get out in front and stay there.

Standards can be reworked for new risks, but changes to regulations and laws require extensive public consultation. With a standards-based approach, regulators can introduce new guidelines to encourage sensible innovation or, conversely, swiftly hold tech companies accountable when unforeseen risks arise.

Similar to conduct standards in the financial services and energy industries, standards-based regulatory regimes can nimbly adjust to gray areas of regulatory compliance. This is most important in the area of artificial intelligence ethics.

Having a standing body to facilitate engagement that is permanently staffed and capable of doing research and analysis ensures that information is shared and new threats are addressed.

PRIORITIZE ACTIVITY BASED ON RISK

Tech companies constantly introduce new apps, other software, and hardware globally, and there's a real chance that even if cash-strapped governments implement new regulations, they won't be able to afford adequate staffing to properly enforce them. So regulators should use a risk-based approach to prioritize the companies and activities that put the most people at risk and rank the spectrum of potential threats.

The degree of supervisory intrusiveness should be commensurate with the size of the potential risks that companies pose. Big companies may require dedicated in-house supervisory teams, while much smaller teams can oversee primarily automated data-driven reports from startups. This ensures startups are not unfairly disadvantaged due to the high costs of regulatory compliance.

MAKE SUPERVISION DIGITAL BY DEFAULT

Machine-executable regulations, integrated data platforms, and application programming interfaces for reporting should be part of the standard operating model from day one to reduce the cost of compliance for companies while increasing the efficacy of risk management. By replacing quarterly reports with technology platforms that permit regulators to pull information related to key risk indicators from companies' systems directly, regulators will be able to monitor companies more proficiently.

These techniques are being piloted in major financial services markets, including the United States, Singapore, and the United Kingdom. There are early signs that automated supervisory technologies are reducing the cost of compliance for tech companies and the cost of supervision for regulators. They are also increasing the effectiveness of risk management by reducing human data entry errors. Initiatives like the Global Financial Innovation Network of regulatory agencies worldwide, which allows companies to test new supervisory technologies and services in the financial services sector across jurisdictions, should be replicated for the tech industry globally.

One way governments can put tech companies on a level playing field would be to introduce a regulator for the tech industry

COLLABORATE WITH THE PRIVATE SECTOR

Regulators can play a key role in preventing risks from materializing by forming structured partnerships to work with tech companies to identify and address emerging risks with new regulations as quickly and efficiently as possible.

Having a standing body to facilitate engagement that is permanently staffed and capable of doing research and analysis ensures that information is shared and new threats are addressed. Such partnerships already exist in other industries. For example, the Joint Money Laundering Intelligence Taskforce formed by banks, regulators, and the government in the United Kingdom exchanges and analyzes information related to money laundering and wider economic threats.

The actions tech giants take today spur not only global growth but also potential threats. Governments should assist in rebuilding public trust in tech companies by establishing national regulators that can prevent abuses while permitting technological advances, because these companies' technologies influence the very essence of our lives, and practical action could make a real difference to billions of people. This will require well-organized, national regulatory regimes that can hold tech companies accountable while encouraging innovation and healthier competition.

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This article first appeared in [MIT Sloan Management Review](#).

THE AGE OF VOICE ASSISTANTS

What brands can do to stand out



David R. Mayer and Nick Harrison



The Internet has overturned how people shop and reshaped the retail industry. Voice assistants are about to unleash another revolution. As people increasingly shop via the likes of Alexa and Siri, they will tend to demand generic products, starting with everyday items such as batteries and eventually including more complex purchases such as electronics. Digital assistants will use algorithms to compare product specifications, make suggestions, and do comparisons, so that customers can find “the longest-lasting battery pack” or “the cheapest bag of flour.”

If digital assistants with trustworthy recommendations become a significant source of sales — and we think they will — they could chip away at all but the strongest product brands. Competition will become even more brutal as consumers switch between only one or two verbally suggested options offered by digital assistants — one being their own private label or another low-cost product. Companies that have negotiated with retailers for shelf space up to now will have to find ways to convince the digital assistants to put their products at the top of verbal searches.

That won't be a problem for the strongest brands, especially those nearly synonymous with certain products — like Kleenex tissues and Q-tips cotton swabs in the United States; or a Thermos vacuum flask in the United Kingdom; and Scotch adhesive tape in France. Since many people have strong emotional attachments to these products, a digital assistant will have to suggest them — or else consumers will go elsewhere.

But most other manufacturers will find conversational commerce a challenge. Some mass-market brands are already losing share as online shopping fragments the marketplace. A survey of 10,000 American consumers that we recently conducted found that customers consider only one-third of brands “go-to.” Customers are loyal to “go-to” brands because they perceive those brands to stand for functionally superior products that they are emotionally connected to. Unfortunately, when asked to rate 169 brands on a scale of one to seven in terms of both attributes, respondents indicated they feel most brands stand out on only one or neither front.

So how can manufacturers compete for a voice assistant's attention? And what sort of brands will survive in the new world of conversational commerce?

MAKE PRODUCT AND PRICE SUPERIORITY WORK

One approach is of course to sell at the lowest price. Without the expense of maintaining brand recognition, low-cost manufacturers can afford to give more margin to the companies behind digital assistants. However, without funds to promote its own brand, the manufacturer will effectively become a contractor, always at risk of being replaced.

Convenient, reliable, and effective products can still become the kind of star brand that people refuse to go without. So this will remain a powerful strategy, particularly for complex products requiring significant research and development, such as smart speakers that are simply better than the alternatives or a newly patented skin cream that really leads to better results.

But this advantage will not last long in less-complex categories, where manufacturers catch up with equivalent products quickly. After that happens, consumers rush to a rival brand of bathroom bleach, canned peas, or phone charger — unless they feel some loyalty toward the one they've been buying. So these manufacturers will have to use in-house data and primary research to persuade the company behind the digital assistant that featuring their brand will continue to please its customers. Alternatively, they can pay to play and give the assistant a slotting fee, just as they pay for shelf space in supermarkets. But this will likely be a fleeting, short-term fix that puts off a long-term problem.

“Go-To” Brands Will Survive Conversational Commerce

The revenues of brands perceived to be for functionally superior products that also had strong emotional connections to consumers grew faster than other types of brands over the past five years



Brand classifications: ● Comfort ● Enabling ● Go-to ● Transactional

1 Connection represents T2B% for users on “I love this brand”
 2 Progress represents T2B% for users on “This brand helps me do things I could never do before”
 Note: CAGR represents average compound U.S. revenue growth among 87 total brands with publicly available financial data within each quadrant; excludes 19 technology brands, Uber, and Lyft, given volatility
 Source: Lippincott

GO NICHE

Another strategy is to develop brands that algorithms recognize as the first choice for niche audiences. These “tribal” brands can develop strong emotional connections with customers that go beyond product specifications: They relate to people’s values and reflect their aspirations. The attraction may be the brand’s style and image — think Harley-Davidson in motorbikes, Tom’s shoes and ethics, or Method in household products and consumers’ desire for natural things. Mass-market brands can aim to meet specific niche needs, while retaining a coherent brand expression across many tribes.

Tribal brands can help digital assistants identify their products’ natural customers. Since they sell beyond digital assistants’ footprints, manufacturers can show they are likely to have a high rate of conversion with voice shoppers by sharing customer data to demonstrate their products’ connection to certain types of consumers. To do this, advances in social listening and machine learning will be especially useful now that communications about a brand are owned less and less by the brand and more and more by their audiences. Manufacturers will retain an edge if they can map out how millions of consumers’ preferences are changing in real time by analyzing social media comments, audio, pictures, and video.

MANAGE CUSTOMERS, NOT CATEGORIES

Manufacturers will also need ways to convince digital assistants that their products will realize high returns when sold in combination with others. Companies have traditionally done this by suggesting to retailers ways to grow categories, such as detergent and skin-care products. Now, online commerce is triggering a shift from category management to customer management. With the customer no longer physically confined to a supermarket aisle, algorithms can suggest products from an entirely different category — an insurance plan with an electric scooter; a recipe book with a new rice cooker; or baby toys and diapers with a car seat.

In the voice era, this practice will spread and become more sophisticated through an understanding of customer loyalties. For example, a customer who buys an environmentally friendly detergent may trade up to a bundle of eco-products including dishwasher tabs, soap, and shampoo. A customer who buys a new pair of running shoes may also buy some running clothes and energy pouches.

The savviest manufacturers will develop portfolios of products for different affinities. Some consumers see themselves as the kind of people who buy the detergent that cleans most effectively; others worry primarily about their children’s sensitive skin; and another group is concerned about the environmental effects of the chemicals used. Tide, for example, makes Core Tide for the most effective wash, Free & Gentle for hypoallergenic users, Purclean based on plants, and the low-cost Simply. Such portfolios will be attractive to digital assistants as a way to cover customers with a single supplier relationship.

THE WINDOW FOR ACTION IS CLOSING

Large manufacturers with deeper proprietary insights into customers than those of digital assistants are now in a strong position. Online retailers only have data for shopping habits within the scope of the products they sell. Search engines know what consumers look for, but this can be different from what they end up buying. Moreover, most of this analysis is based on past actions, which have their limits for predicting future behavior. Manufacturers' innovation pipelines make it easier for them to envision future trends.

Digital assistants could chip away at all but the strongest product brands.

Some of the largest manufacturers are also investing in global data centers that build individual data profiles. These can help spot trends and predict future needs – “future-casting” – while also facilitating real-time customer management. For instance, one consumer packaged goods firm can identify supply chain issues in real time through social listening, enabling it to resolve issues before they become a major problem for a retailer.

But companies that don't act now risk seeing profits migrate to the small number of winning brands that will remain. The skills required are scarce, and the capabilities are expensive to build.

Today, five-year-olds — who can't yet type — are some of the most eager users of voice technology. In a decade or so, we believe a significant share of commerce will be carried out by a generation used to shopping by voice. The adoption curve will be much steeper than that for online shopping, which has built up over the past 20 years. So manufacturers should review their portfolio of brands, focus on those that fit one of the three strategies above, and exit the rest.

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Nick Harrison is a former partner in the Retail and Consumer goods practice and is now chief strategy officer at MATCHESFASHION.

The article first appeared in the [Harvard Business Review](#).

An Arabic version of the article was written for [Harvard Business Review Arabia](#).



FUTURE- PROOFING FINANCIAL SUPERVISION

How big data and AI are hailing a new future for finance

Mathieu Vasseux

The way we conduct financial activities is rapidly evolving, driven first by the global financial crisis and now by digital disruption. This has resulted in a massive change in the demands placed on financial regulators, especially across the Gulf Cooperation Council countries, and in turn has posed a significant challenge for financial supervision in the region.

The traditional approach based on entity type is no longer sufficient and as such regulators must embrace activity-based regulation. The complex combination of risks in the financial system is shifting in ways that require new technology and new skills for risk identification and mitigation.

CONSEQUENCES OF A CHANGING FINANCIAL INDUSTRY

In an industry that is rapidly transforming, two fundamental changes pose major consequences for financial supervision.

First, correlations between financial activities and types of institution are breaking down. Payments, for example, which were once the preserve of banks and credit card companies, are now shifting outside the “regulatory perimeter,” where the light of financial supervisors does not shine — a change effected by the number of fintechs and online retailers entering the market. The same is happening with lending, as the number of non-bank platforms increases. Open banking will accelerate this trend.

Second, operational risk is moving outside of supervised entities into the firms to which they outsource critical functions, such as data storage, reporting, and transaction processing. Outsourcing critical functions does not reduce the disruption that their failure would cause to the financial system and its customers. But it does remove them from the direct purview of supervisors.

Keeping up with these developments will require corresponding changes within supervisory agencies. It will require a colossal effort to develop the necessary regulations, rules, and guidelines, as well as to ensure that the regulatory skill sets are in place to effectively supervise it.

MOVING TOWARD ACTIVITY-BASED SUPERVISION

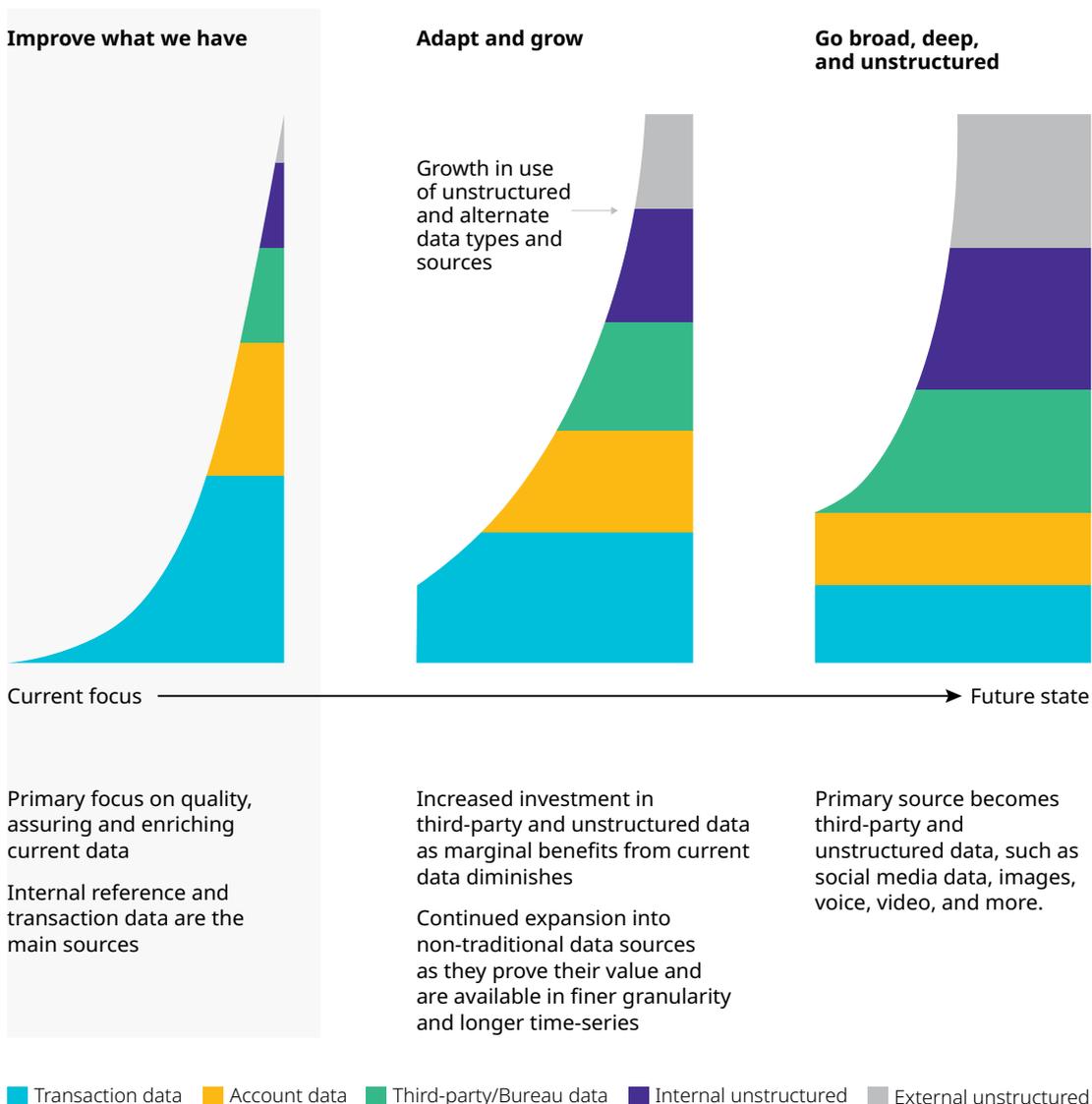
Although entities central to the financial system will still need to be covered, attention must shift toward types of activity, such as lending, payments, and data storage. The modularization of financial services will require financial supervisors to move the focus towards activity-based supervision.

Advanced analytics, big data, and AI can help GCC supervisors leapfrog regulation with risk-pattern recognition, early-warning sign als, risk identification crowd-sourcing, and social listening, as well as support economically critical functions to endure shocks regardless of what type of firm performs them.

With some of these activities now performed by firms falling outside traditional industry oversight, this may require some extension of supervisors’ legal authority in the region. It will also require changes in the way they organize themselves internally, complementing teams that cover institutions with teams covering activities.

How To Improve Early Warning Systems Through The Use Of New Data Sets

Area represents universe of potential data while curved line represents frontier of data to be utilized



Source: Oliver Wyman Data Analytics Capabilities Survey, Oliver Wyman analysis

SUPERVISORY “BLIND SPOTS”

As business models rapidly transform, the chance of supervisory “blind spots” increases. Supervisors are, by nature, outward looking. But they will need to become more “outward working,” engaging with industry participants to make sure they understand the nature and location of risks in the system.

Financial supervisors in the GCC have begun to embrace fintech, but currently lack a full-fledged regulatory environment, hence piloting in sandbox formats. It will require a colossal effort to develop the necessary regulations, rules, and guidelines, as well as the regulatory talent to effectively supervise and eradicate such blind spots.

Supervisors will also need to make better use of the same advances in information technology that are transforming the operations of financial firms — cheaper data storage and communication, digital automation of previously laborious processes, and data science. As with the firms they supervise, this technology can help them do their job better while cutting their operating costs.

For example, risk assessments now rely on data samples supplied by regulated firms and on expert evaluation of their processes and methodologies. This could soon be replaced by analysis of comprehensive data regarding the entire population of transactions, assets, or customers, observing the results of the methodologies applied rather than their apparent logic.

Advanced analytics, big data, and AI can help GCC supervisors leapfrog regulation.

EARLY INTERVENTION

With financial activity almost completely transparent to supervisors, they could become more effective in monitoring key risk indicators and intervening early to steer the industry away from emerging risks. This would require them to draw on a wider range of data sources, including alternative sources, such as blogs, social media, and industry chat rooms, and to adopt advanced analytic techniques, such as machine learning.

Digital technology could also allow supervisors to plug into the firms they supervise. Not only could data be drawn directly into supervisors' systems, but compliance could be quasi-automated by regulations being directly transmitted into financial firms' systems — at least where the rules are sufficiently quantitative or otherwise rule-based. Operating costs will be reduced on both sides.

Put another way, supervisory agencies — or parts of them at least — will need to become more like fintechs, but this also means accepting more risk in the financial system than regional supervisors are used to.

The safety of the supervisory system has relied for the longest time on very stringent rules and controls on prudential ratios and capital ratios. This will not be sufficient for fintech, where the margin for operational and disruptive risk is higher and will result in a difficult trade-off between slowing fintech development or accepting more risk both in quantum of risk and new risk types.

This transformation cannot be achieved with the current mix of staff at most supervisors. Lawyers, economists, and risk analysts will still be needed. But supervisors must enter the labor market competition for data scientists and programmers. Attracting them will require new working arrangements and career paths at supervisory agencies.

This will be a difficult transition. But if they fail to make it, GCC supervisors will find it increasingly difficult to keep up with the industry they oversee.

Mathieu Vasseux is a Dubai-based partner in the Financial Services practice.

This article first appeared in [Forbes Middle East](#).



BYPASSING BROWNOUTS

How to keep the lights on as electric vehicles hit the road

Thomas Fritz, Andrew Perry, Aditya Ranjan,
Joerg Staeglich, and Curtis Underwood



The number of electric vehicles (EVs) on the road worldwide is expected to grow to 125 million by 2030, up from four million at the end of 2018. While it took 60 months to reach the one million mark in annual sales in 2015, going from three million to four million took just six months last year. With several large countries proposing bans on sales of fossil fuel-powered vehicles, Chinese low-cost EVs headed to the West in the near future, and several established automakers switching their focus to all-electric cars and hybrids, it's clear the trend toward EV ownership will accelerate even more in the coming years.

That means more and more EVs in urban and suburban neighborhoods worldwide could be plugging in daily to recharge. Most electrical distribution networks are simply not ready to provide the additional load — especially during peak evening hours when many EV owners are likely to first plug in to recharge their cars.

Currently, drivers in the United States log some three trillion miles annually in their automobiles. While currently less than two percent of the vehicles are electric, what happens when that number increases? One study estimated that if all the cars in Texas today were EVs, the state might need as much as 30 percent more power; California would need 50 percent more. Nationwide, we calculate that the conversion of all internal combustion engines to electric vehicles could add as much as 45 percent to electricity demand.

GRID PRESSURE

Admittedly, the US Energy Information Administration estimates seven out of 10 cars will still have internal combustion engines by 2050. Even so, the grid will no doubt feel increasing pressures if sales of electric vehicles accelerate as predicted.

Europe is likely to face more of a problem, given recent edicts that start banning sales of internal combustion vehicles over the next decade and beyond. In Germany, by 2035, 37 percent of cars on the road will run on electricity. Given the current German power grid and assuming no grid upgrades, our analysis shows a significant risk for widespread blackouts as early as 2032.

These estimates are based on the “average” community. For many years, the new demand generated by EVs will be uneven, with high- and medium-density residential parts of the distribution grid seeing the first pickup. For communities where there is a heavy preponderance of EVs, challenges to the distribution grid may arise much sooner.

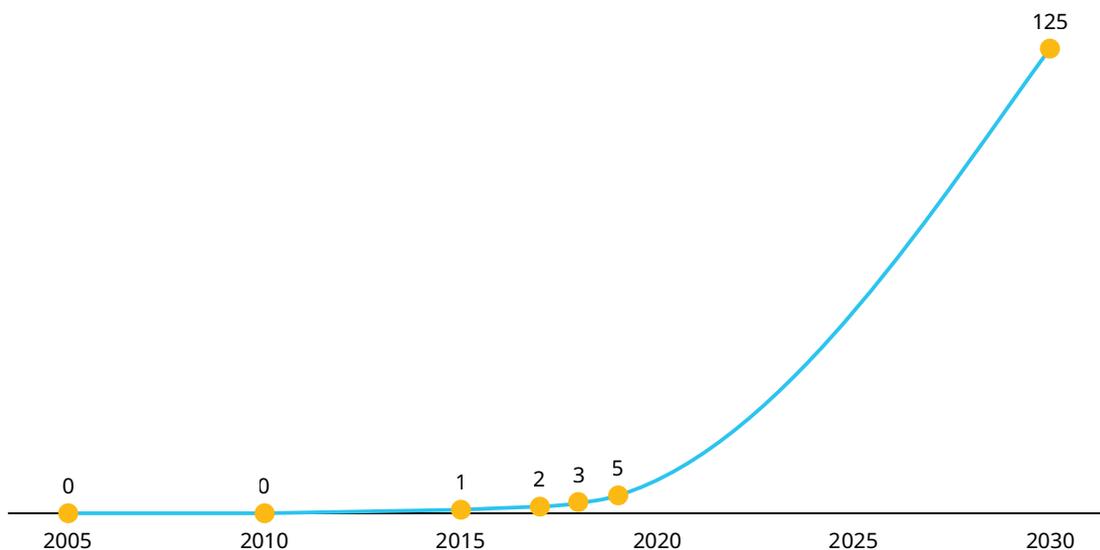
IF NOTHING IS DONE

In the United Kingdom, brownouts from electric vehicles could begin by the time they represent 25 percent to 30 percent of cars on the road if no significant action is taken, according to our calculations. That's expected by the early 2030s. Still, projections for EV adoption are notoriously hard to calculate and have generally underestimated the pace, because of the wide range of variables, including decarbonization policies, gasoline prices, the accessibility of charging stations, and the cost of EVs themselves. Today, in the UK, forecasts are wide-ranging, anticipating anywhere from 2.5 million to 10.5 million electric vehicles in the UK by 2030 and as many as 35 million by 2040.

The traditional response of distribution network operators, the businesses that manage electricity networks at the local level, would be to spend billions to reinforce residential networks. With this approach, by the time electric vehicles represent 50 percent of the cars and trucks on the road, German network operators would have had to spend an estimated 11 billion euros to prevent service interruptions, based on our data.

With the risk of outages and the danger that inadequate electricity networks may become a barrier to EV uptake, regulators and policymakers could be tempted to push for investment in residential networks to accommodate additional demand. This would be both expensive and disruptive because of the major roadwork required.

The Accelerating Adoption In Electric Vehicles (In Millions)



Source: International Energy Agency

Networks last for up to 50 years, during which much can change to turn these investments into stranded assets unless carefully thought through. Given that costs are usually passed along, consumers will be the ones paying for any mistakes made.

CHARGING ALTERNATIVES

But there are incremental options to consider that don't require substantial commitments of funds. Encouraging car park EV charging and en route rapid charging may mean that people would not need to charge at home. Alternatively, more ride-hailing might also mean fewer cars charging in the city if vehicles serving city residents are based elsewhere.

As autonomous vehicles develop and gain regulatory acceptance over the next 10 to 15 years, the result could be fleets of cars that charge in centralized depots rather than on the street, a much simpler and more efficient proposition from a charging perspective. On the other hand, if ridesharing and autonomous vehicles don't take off as predicted, the potential for power shortages in a world of individually owned electric cars becomes a more pressing and immediate problem.

Besides the sheer magnitude of investments potentially required, regulators are also confronted by two equally suboptimal possibilities: the disastrous impact of funding projects too late and the risk of stranded assets if made too early. Together, these scenarios leave networks and regulators in a quandary. Still, it is important that decisions not be rushed, so that the market can be allowed to develop as much as possible before commitments are made to large-scale infrastructure investments.

Adding to the confusion, the EV charging market is still nascent, with numerous business models competing for supremacy. Already automotive manufacturers, energy suppliers, technology players, and international oil companies are involved, adding another layer of complexity as individual players steer the market in different directions. Any major oil company with service stations has the capital to deploy a network of rapid-charging stations and influence customer behavior. At the same time, partnerships involving carmakers, supermarkets, and charging-point suppliers could lead to greater charging at "location" car parks.

INTERIM SOLUTIONS

Pursuing a smart charging option may offer one way to delay decision-making long enough to allow various mobility scenarios to play out. The most economically attractive solution to better managing the electrical power supply involves incentivizing EV owners to charge their cars at off-peak hours and coordinating charging on a staggered basis with other local owners.

This approach requires charge-points, and their associated electricity meters, to be capable of sophisticated two-way communication, so they can be controlled and managed remotely by grid operators. Monetary incentives for EV owners may be needed to encourage participation, as well as penalty pricing to ensure compliance.

The faster smart charging becomes standardized, the better networks can manage EV adoption.

Another approach entails encouraging use of photovoltaics – solar cells – and the use of decentralized, local energy storage at the point of charging, including use of the car battery itself. These can act as a buffer to avoid overloading the grid at times of peak energy demand. In some markets such as Germany where there is a longer winter and fewer hours of sun, solar solutions would likely offer limited relief.

The faster smart charging becomes standardized and mandated for all EV charge-points, the better networks will be able to manage the crunch of significant EV adoption. Whether such solutions will ultimately solve the problem is unclear, but at the very least these approaches will ease the pressure on grids and provide the industry with the opportunity to make better decisions on infrastructure needs.

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