
ACCELERATION OF THE DIGITAL TRANSFORMATION OF THE ECONOMY

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40 YEARS OF
GROWTH

DIGITAL TRENDS AND THE VIRUS SHOCK: INERTIA AND CHANGE

The digital transformation of the global economy has hardly been slow in the past 20 years. The first mobile phone arrived in 1989. The world wide web is 30 years old and has been broadly accessible for the past 25, while the mobile internet, just 15 years of age, is approaching full global penetration. E-commerce has rapidly expanded, and digital payments platforms leading to a broader set of digitally-enabled financial services have seen double digit growth, especially in China.¹

Looking at technological enablement across sectors and regions, the gating factor with respect to growth typically is not just the state of the technology itself, but rather the speed with which individuals, organizations, and complex systems are willing or able to change. This resistance to change is sometimes referred to as inertia, by analogy with the physics we all learned in high school, where to put a body with some mass in motion or to change its speed or direction requires the application of some force.

The new coronavirus pandemic has acted as a powerful force to overcome inertia in its various forms in markets, organizations, and individual behavior: the tendency to stick with the familiar; the behavioral and organizational propensity to under-experiment; and in an organizational setting, the disruptive aspects of changing structures and processes. In the digital economy, the pandemic did this by making economic activities that involved physical contact extremely risky. Simply put, people just stopped doing certain activities, either by choice or by policy mandate. But both people and institutions also had to look for alternatives, even when the alternatives are – or were perceived as, at least initially – imperfect substitutes. Many of these alternatives are digitally enabled.

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It is worth remembering that the digital revolution redefined remoteness. In access to information (once digitized), with respect to communication, advising, and completing transactions, distance became irrelevant, and time lags associated with distance were compressed or eliminated. Of course, it takes significant infrastructure to make this vision a reality: high speed networks, an affordable mobile internet, cloud computing, and multiple levels of security. That is why the biggest impacts of the digital revolution in terms of expanding opportunities in economics, education, and health will be in developing countries and, more broadly, in low access populations.

One way to think about the pandemic is that it made remoteness a requirement: suddenly more pervasive and much more local. Hence the rapid expansion of the digital footprint in the economy, and the substitution of digital for in-person interaction, born of necessity and risk avoidance, rather than preference. This condition of forced remoteness will last longer than many initially expected, but this episode will eventually end, perhaps with a vaccine that is, over time, made available globally. Once it does end, will economies and societies largely revert to the pre-pandemic normal? Or will the world evolve to a new normal – and if so, in what dimensions?

¹Brookings Institution, "[China's Digital Payments Revolution](#)," April 2020.



SECTOR EXPLORATIONS

Retail and Consumer

Offline and online retail – which were once separate and competitive realms at the outset of e-commerce 20 years ago, at least in conception – are converging toward integrated models. I believe, though time will tell, that many of the more permanent shifts and accelerations will have the character of hybrid models. Retail will continue a trend already underway toward the omni-channel model, with various forms of integrated off and online options. Brick and mortar won't disappear, but what one might call purely offline retail will surely shrink. Some e-commerce platforms whose mission is to facilitate and support this integration (including for smaller retail businesses) will expand.²

Education

Digital education is a more recent rapid growth trend, driven by gaps and quality problems in traditional systems on the one hand, and by accessibility, convenience, efficiency, and especially lower costs on the other.

Similar to retail, education is unlikely to shift, full stop, to online because of the important social dimensions of schooling and learning, and the fact that it is difficult for working families to function with both parents working and the kids at home all or most of the time. But most educational systems will not – and should not – revert to the almost completely offline model, either. Educators will have discovered ways in which digital systems can substantially augment the educational experience. In principle, online education can be seen as a substitute for in-person education or as a quality-enhancing form of augmentation – what economists would call a “complementary service.” During the pandemic, online has been forced toward the substitute side, but its natural role is as a complement to the classroom and school. Learning from the pandemic-induced experiments and experience will likely cause digital aspects of educational processes to expand at a much-accelerated pace. It was happening before, but rather slowly.

In addition, educational institutions at the margin of value added in relation to cost will be challenged, and I believe many will fail. The reach of stronger institutions will grow, in part because of digital capabilities. Substantial consolidation in the educational sector, especially in the U.S., where tertiary education is highly fragmented, is likely.

Healthcare and Medical Science

Medical science and healthcare are set to experience an increasingly rapid set of digital transformations, independent of the pandemic. AI applications can be found all over the map in medicine and biomedical science, from remote diagnostic applications (image recognition applications, for example), to the analysis of genetically-based disease vulnerabilities.

But the pandemic will both expand and accelerate the creation and adoption of digital tools and services in medicine and healthcare. Primary care seems likely to move from a largely offline and physical model, to a more hybrid and integrated model, somewhat analogous to the trends in retail. The drivers for this are convenience and – as a result of the pandemic – a heightened and accurate perception of risk and cost.

In recent years, virtual care has gained popularity and acceptance, while innovation has rapidly evolved the industry beyond the traditional, relatively undifferentiated “telehealth” offerings. There has been growing consumer preference to engage with providers virtually (via phone, text, or video), coupled with growing provider familiarity and acceptance. The COVID-19 crisis has acted as a significant catalyst for legal and regulatory frameworks to become much more accommodating, enabling an acceleration of large-scale adoption.

²The New York Times, [“Americans Keep Clicking to Buy, Minting New Online Shopping Winners,”](#) 13 May 2020.



An important consideration will be which parts doctors and nurses take on themselves, with existing technologies, and which elements require an outside company with appropriate infrastructure to support. Doctors and healthcare providers will likely have a clearer sense of how to enhance the services and reduce the costs, including money and time, for their patients and the populations that they serve. Accessible digital medical data should become a more urgent priority. But even here, there are issues to be addressed. Doctors and medical professionals will probably wonder whether telemedicine exposes them to increased vulnerability to liability claims, for example.

Mobile Payments and Fintech

The rapid expansion of mobile payments and a larger set of financial services was well underway prior to the pandemic. Mobile payments are especially advanced in China, where legacy systems (checks and credit and debit cards) were less developed. Mobile internet penetration and a well-conceived and low-cost system based on QR codes made it possible to move startlingly rapidly from a largely cash-based economy to one based on mobile electronic payments. One reason for the success of the system is that it required no investment in equipment for the small merchant who simply needed a bank account and a unique QR code.

The trend is proceeding more slowly in other places, but the coronavirus crisis will add momentum. In one respect, the push may be quite strong. Traditionally, there have been a number of arguments for reducing cash in the economy, mainly based on tax evasion, corruption, and money laundering. The one that is not normally mentioned, however, is that cash is touched multiple times per day by people and is a superbly efficient transmission mechanism for diseases like viruses. Credit cards are less so, but contact is still required, except online. Mobile payments systems, like Apple Pay and the Chinese platforms, are contactless. PayPal and other mobile payments providers are experiencing explosive growth in customers and payments.³ PayPal recently launched a QR-based system for mobile payments⁴, akin to the Chinese system. In addition to being contactless, it requires no equipment for the small business, retailer, or occasional seller.

One reason this acceleration is potentially significant is that mobile payments platforms, once widespread, become part of a larger platform for an expanded array of financial services, including credit, asset management, and insurance.

Cloud Computing and Technology Infrastructure

Numerous studies by McKinsey and others show that unexploited options for digital deepening, enhancement of performance, quality and speed of service, and resilience including handling peak load surges, vary considerably across companies and especially across sectors, including government. In the U.S., an unprecedented spike in unemployment insurance applications overwhelmed the online systems in many states, causing economic stress and further losses of confidence in governments' ability to competently deliver services. This failure is entirely avoidable via robust competitive cloud computing systems, and fixing it might even reduce IT costs.

³Quartz, "[The pandemic's impact on digital payments and cash, in five charts](#)," 13 May 2020.

⁴PayPal Press Release, "[PayPal Rolls Out QR Code Payments for a Touch Free Way to Buy and Sell In-Person](#)," 19 May 2020.



TRANSITORY OR TRANSITION?

There is no question that the pandemic has produced a surge in demand for and adoption of a wide range of digitally-enabled services. For investors and companies, a key question is whether and to what extent the acceleration of the range of available digital options and the rates of adoption are likely to be mean-reverting or permanent, as the risk of the driving force of the pandemic recedes.

It is an important question. There has been an explosion of demand for systems that facilitate remote communication, meetings, and collaboration. It would probably be a mistake to assume that this demand growth would continue at the pandemic-induced pace. Valuation mistakes are possible in this realm. On the other hand, a reversion to pre-pandemic levels and trends is also not a good forecast. The challenge, then, is to sort out the transitory and the more permanent accelerated transitions.

There are several reasons for believing that pre- and post-pandemic trends will not be the same – that is, once the pandemic and the attendant risks recede.

One is that actual and perceived risks will likely have shifted, and in some respects be elevated, if not permanently, then at least for an extended period. This is the marginal headwind in growth in what is likely to be an extended recovery period.

A second is that digital systems and processes are correctly perceived as a critical element of resilience, for businesses and for the economy at large, and certainly in this pandemic. Businesses that entered this period with a significant digital footprint have weathered the storm better than those that were lagging in this dimension. This is true almost across the board in terms of sectors.

A third reason to believe that at least some of the shifts in behavior will be permanent, is learning. Essentially, the pandemic forced people and organizations to conduct “experiments” that they probably would not have conducted in normal times, or would have conducted at a much slower pace.

Some of these forced experiments will lead to the conclusion that the old way of doing business or operating was preferable. In those cases, patterns of behavior and demand will largely revert, but perhaps, as a caveat, remembering that it is a good idea to maintain the ability to shift as needed in a crisis or the next shock. Experts warn that this is not the last pandemic we will see, in spite of the occasional references to a once-in-a-century shock.

Implicit in much of the writing about the virus is the proposition that a full return to “normal” (meaning pre-pandemic normal) will occur with the arrival of a vaccine. In other words, the vaccine is the on-switch for the economy. There is some truth to this. There is little doubt that an effective vaccine would dramatically reduce the risk of activities that are now risky. A host of industries may experience a sharp revival, with beneficial effects on employment and overall economic performance. But some changes will likely remain.

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RESILIENCE AND DIVERSIFICATION

An important set of questions concerns investment in resilience, involving both the private and public sectors. Resilience in this context means the ability to withstand shocks. It applies to companies, sectors, supply chains, and networks, as well as companies. In network structures, including digital networks, resilience is closely connected to redundancy.

The pandemic has elevated again the discussion of resilience in business models, supply chains, and more. The suggestion is that this will attract more attention and investment in the future. This is possible, especially if the public sector is involved, but it is not a foregone conclusion. It is hard to know whether governments saddled with large amounts of incremental debt will focus on this. History is not encouraging, or is at best mixed, on this front.

However, one important caveat needs to be understood. In many contexts, like networks, private sector incentives lead to an undersupply of resilience/redundancy. Why? Because it is costly, and because resilience in a network has the character of a public good, so that no owner or manager of a part of the network has a strong enough incentive to invest in shock-proofing things to the benefit of all the other users. The only exception to this principle occurs when a single entity owns the whole network and supplies access as a service; then investment in resilience can be sold as a quality-enhancing feature.

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The short version of this is that resilience for institutions will be elevated as a priority. Resilience for decentralized systems with multiple decision-making entities is more problematic, because it requires complex coordination and cost sharing, or public sector participation. Investment in resilience and preparedness by governments might seem obvious. But as the ancient proverb has it, “There’s many a slip ‘twixt the cup and the lip,” when it comes to hazarding predictions about government.

Diversification is a different question. Diversification in global supply chains was already a pre-pandemic trend, driven by rising incomes in China, enhanced capabilities in other countries, and, of course, the trade tensions. The pandemic will certainly not disrupt this trend, and it may reinforce it somewhat. But one of the lessons of the pandemic will be that diversification does not provide much protection against shocks that are completely global in scope, just as diversification in finance has value mainly and to the extent that assets and asset class returns are not perfectly correlated.



CONCLUSIONS

Many aspects of digital technology have been an important element of resilience in the pandemic, and in addition, they are experiencing large to very large increments in growth. These pandemic-driven accelerations may not continue indefinitely, but a reversion to pre-crisis patterns is equally unlikely in the post-pandemic economy. The challenge for investors and companies – and more broadly, societies – is to anticipate and separate the transitory deviations from trends and the likely more permanent changes.

The easier forecasts are those that reinforce existing trends and secular changes. But care is required to avoid projecting the pandemic acceleration too far into the future. Overall, speeded up digital deepening for all businesses and sectors, with special emphasis on those that are lagging, is a reasonable guess.

Hybrid business models, with a balance tipped toward digital relative to the past, across a wide range of sectors will be explored at a faster pace than would have otherwise occurred. Some of these may result in significant changes in the patterns of work, travel (including international travel), and even the way cities and towns evolve. These possibilities will take time and will be pursued in the form of experiments. While permanent shifts and long-term outcomes are always difficult to predict, we believe there is no question that the digital transformation will only accelerate globally in a post-COVID world.

POSTSCRIPT

In an earlier piece (found [here](#)), we argued that the economic shock globally would be very deep, leaving balance sheet damage. That, and continued uncertainty and risk associated with both the economy and the virus, would lead to a very slow, and probably bumpy, recovery. None of the data and more recent experience have pointed to a fundamental change in that forecast. If anything, recent data and developments have reinforced it.

We noted that the longer the lockdown, the larger and more permanent the damage. Chairman Powell of the Federal Reserve in the U.S. made this point clearly on May 13.⁵ He said the potential for long-term damage was a serious risk, and that more support was needed for the economy to prevent insolvency and loss of businesses. In the terms we discussed earlier, he was urging Congress and the Administration to move more of the balance sheet deterioration in the household and business sectors to the public sector.

It is worth pausing for a moment at this point. No one thinks that rising deficits and large increments to public debt in the context of shrinking economies is something to celebrate. It will have longer-term consequences. The issue, however, is not whether it is a good thing in the abstract to have rising sovereign debt to GDP ratios, but whether it is better than the alternative, which as Chairman Powell said clearly, is longer-term damage to productivity and employment potential. We have seen this before in crises. Policy choices tend to range from “not great” to “much worse.”

Finally, the opening process has begun with very limited information. Rapid testing – meaning testing with almost immediate results – is not widely available in most countries. That means that people are going to be in circulation who do not know if they themselves are infectious, and do not know if others in their immediate environment are infectious. Actual cases, death rates, and the prevalence of the virus in the population, are still unknown. Estimates are all over the place. As long as this condition persists, risk aversion, while not uniform across the population, will dictate cautious behavior, directly negatively impacting a wide range of sectors (many of them high employment) where close contact is inevitable. Social distancing may help, but is not a substitute for better information that lowers risk.

Ultimately, the conditions that would materially accelerate economic recovery in the context of opening up are largely not yet in place.

⁵[The New York Times, “Fed Chair Warns the Economy May Need More as Congress Hesitates,” 13 May 2020.](#)





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