

Digital Finance and COVID-19

Asmaa Habeeb Alnasery, Ibrahim Khaleel Ibrahim, Mayada Mahmood Ahmed

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Abstract—The COVID-19 pandemic has impacted digital financial inclusion trends across the world in many and complex ways. In developing and emerging contexts, this crisis also holds the potential to propel an unprecedented acceleration in the process of financial digitization and turn out to be a game-changer for digital financial inclusion. The aim of this study is to illustrate the opportunities and risks associated with the surge in uptake and use of digital financial service, providing ideas on how to leverage the paradigm changes affecting the overall approach and perspective towards digital financial services on the part of various stakeholders to advance financial inclusion and development. It also seeks to showcase how digital financial services have been used in both traditional and innovative ways to mitigate the impact of the COVID-19 crisis on economies and societies, by both public and private actors.

Keywords— digital financial, developing and emerging, potential, opportunities, various, traditional and innovative.

I. INTRODUCTION

The COVID-19 coronavirus crisis is putting unprecedented strain on markets, governments, businesses and individuals. The human, economic and financial costs are increasing dramatically, with potentially huge impact on developing countries and emerging market countries in addition to developed countries and regions. Across all of these, the greatest toll is likely to fall on those least able to bear it, with terrible damage to human development across the world. This paper examines how the digital financial infrastructure that emerged in the wake of the 2008 Global Financial Crisis is being, and can be, leveraged to overcome the immediate challenges presented by the pandemic and manage the impending economic fallout. The origins of the 2008 crisis and current crisis are different: 2008 was a financial crisis spilling over into the real economy. 2020 is a health and geopolitical crisis, spilling over simultaneously into financial markets and the real economy.(1) As such, this crisis requires different approaches. This study operates at two levels:

- At the macro level, it seeks to identify areas of systemic risk and strategies and frameworks to support policy coordination and action.
- At the micro level is seeks to illustrate how digital finance tools may be able to assist addressing some of the challenges emerging.

Strategies to address financial aspects of the crisis in order to reduce the economic and human impact include: (1) ensuring sufficient liquidity to support market functioning and underpin demand; (2) intensifying information exchange on health and financial / economic matters in an effort to ensure accurate information despite forces that work against this; (3) heavy, temporary financial support for individuals; for small, medium and large enterprises to avoid loss of infrastructure and preserve the capacity for an orchestrated response (by avoiding mass insolvency); and potentially, in some cases, for governments; (4) leveraging digital finance and payments to reduce human-to-human contact, while organizing support for the elderly and other digitally excluded people who would normally use physical channels; (5) establishing a well-funded coordination body as a crisis management tool to ensure information exchange; (6) directing financial resources to medical infrastructure; and (7) directing financial resources to digital infrastructure and connectivity to support all other aspects of society and the economy, including, especially, the online facilitation of education and widespread work-from-home policies.(2)

At the same time, the digitization of financial services in the last decade offers alternative and more direct means by which it may be possible to stimulate the real economy, which will be critical in mitigating the economic impacts and maintaining social cohesion. Tools that support

financial inclusion, sustainable development and achievement of the UN Sustainable Development Goals can also provide useful tools during a crisis. These short term strategies are expected to generate deeper structural changes long-term. For now, one cannot predict the new world that will emerge post crisis, but this issue will require focussed attention going forward as the immediate situation eventually comes under control and recovery begins.(3)

The origins of the Global Financial Crisis of 2008 and the current COVID-19 crisis are very different and thus demand different responses and approaches: 2008 was a financial crisis spilling over into the real economy. 2020 is a health and geopolitical crisis, spilling over simultaneously into financial markets and the real economy, with the possibility of financial spillovers in turn worsening the human and economic impacts in a vicious spiral. The COVID-19 pandemic has shaken nations around the world. It has tested their healthcare infrastructure, battered their financial markets and left whole populations in fear and lockdown. This is a human health crisis first and foremost. The human crisis includes the economic and social consequences of the pandemic, and these secondary implications will be felt for years to come.(4)

The dependency on global trade given the function of many of these countries as natural resources producers or “global workbenches”, respectively. While the most significant impact of the pandemic is human, the immediate consequences of individual quarantine measures and lockdowns are felt through supply chains (ie. reduced operation of factories and logistic networks), and increasingly and more severely through demand channels (ie. individual and business appetite for consumption, including consumption goods produced in developing countries, and prohibitions on certain services such as travel and hospitality) globally and locally.⁶ What is more, the level of uncertainties in terms of human casualties (COVID-19) and economic damage (the interaction between COVID-19 and economic activities around the world is severely reducing trust within and between economic actors. The virus spreads within society, the loss of trust spreads within markets.(5)

In both cases, limitation of interaction, in the form of social distancing or reduced economic trade respectively, seems to be the short-term result. As the economic and human toll increases, so does the strain on the financial sector, which remains vital to direct financial resources to address the crisis and support recovery. Thus, while the impact is not focused on the financial sector, maintaining the robustness and effectiveness of the financial sector is

central to the overall battle against COVID-19. We examine here how the digital financial infrastructure that emerged in the wake of the 2008 Global Financial Crisis is being, and can be, leveraged to overcome the immediate challenges of the pandemic and manage the impending economic fallout. We explore some of the lessons arising from the use of digital financial platforms in the current crisis, including potential strategies and tools. Our examples underscore the versatility and agility of financial technology and demonstrate how the emerging digital financial infrastructure can be robust, resilient and most importantly responsive in the face of fluid and unpredictable events.(6)

In this rapidly evolving and unprecedented context, digital financial innovations are being relied upon at both the micro and macro levels to overcome everything from basic logistical means of transacting, to the strategically important financial fundamentals and everything in between. The primary measure taken to combat the spread of COVID-19, “social distancing”, will further embed digitization, ecommerce and financial technology into modern life. Beyond behavioural adaptation, widespread exposure to the cost savings, convenience and hygiene associated with digital finance will consolidate fintech usage more broadly, with potentially very important benefits for financial inclusion and sustainable development. Thus far, the digital financial infrastructure has performed resiliently and responsively. The reliability and consistency of this digital lifeline, should it continue to work well, will transform fintech from an entrepreneurial novelty to an indispensable element of modern life.(7)

II. LITERATURE REVIEW

Digital finance offers potentially important tools in directing resources quickly and efficiently to the stakeholders that need it the most. In particular we focus on the strategies and solutions available to mitigate economic and human impact. In the present situation, economic impact results from short-term factors (but these could, at some point, turn into structural factors, which would in turn require different strategies. Digital financial tools are capable of achieving traditional crisis management objectives with greater potency and accuracy than was historically possible. This may well be one advantage of governments in the current crisis which they did not have previously. The data-driven nature of digital finance provides policymakers with the ability to structure and scale stimulus with precision. The questions are whether the capability is sufficiently mature and whether the information is available, readable and in front of the decision makers. Consolidating, curating and monitoring

collected information is a core pillar of crisis-readiness that may well be tragically revealed to be lacking in the current pandemic.(8)

A. Directed financial assistance

In times of upheaval people need the means to secure the essentials of food, shelter and clothing. As long as basic market conditions still hold, and the situation has not deteriorated into riots and looting, commercial exchange will remain the only legitimate way to secure such essentials. Digital financial platforms, and digital wallets in particular, can deliver funds to those in need rapidly and accurately. One of the criticisms of banks in the current COVID-19 crisis in China has been their relatively slow response to ease the financial burden on virus victims. Although several banks in the Chinese market²⁹ have responded to the crisis with measures such as mortgage relief, credit card payment holidays and corporate loan readjustments, they have been criticized for taking too long to act. In many developed nations, it has taken much longer for banks to react and they have done so only after the government has taken the lead. The timeframe for these relief measures have been in the “weeks and months” since the virus was first discovered. China’s big-tech companies, Alibaba and Tencent, have accustomed the Chinese public to rapid and customized service in nearly all realms of digital life. We now live in a world of on-demand entertainment and Amazon Prime timeframes. As more technology companies gain digital banking licenses, banks can no longer operate as they used to. They also cannot claim to be the source of vital 'life-lines' for their customers, if they do not demonstrate the timeliness of actions during critical times. If incumbent banks want to have a place in their clients' hearts, they must respond in the way that big techs do, and see themselves as part of the ecosystems they serve.(9)

B. Public programmes

Many governments around the world have announced direct government stimulus packages to limit broad economic hardship and avert a sharp economic downturn. Some of these programs ,such as Australia’s “JobKeeper” program are premised on granular information that is to be cross referenced with other data points. Most policymakers believe the pandemic will result in a broad economic tsunami rather than disruption in only certain limited sectors (ie. travel ,hospitality). Many of the initiatives announced include those seeking to ensure sufficient liquidity to support markets, instill business and consumer

confidence (or at least allay fear) and stimulate demand.(10)

In addressing economic impact, the starting point is to identify market constraints and those groups most likely to be impacted. Effective policies and public programmes require sufficient calibration to target supply side obstacles in the provision of those essential needs that underpin social cohesion (food security, hygiene and medical supplies), in unison with stimulating aggregate demand. These targeted measures will seek to address issues relating to liquidity (temporary loss of income, business etc) and solvency .At this stage, impact is widespread across individuals, SMEs, larger firms and public institutions (such as hospitals).³⁵ Impact on governments and the financial sector is so far limited but can be expected to increase in both cases dramatically the longer the crisis continues as tax revenues, in particular, fall precipitately.(11)

In addition to mechanisms for monitoring financial and economic conditions, digital finance offers the potential to directly target financial resources rapidly to those experiencing the greatest impact. A combination of digital identity frameworks combined with widespread availability of financial and mobile money accounts provides the greatest potential for delivering resources directly to consumers.³⁶ In countries where such systems have been put in place, they should provide the foundations for the design of appropriate programmes and delivery of financial resources using algorithms prioritizing different factors such as age ,health, social commitment, professional qualifications, and others. For the time being, at least ,it appears the politics surrounding these types of social programs and assessments is less polarized than would normally be the case and more conciliatory. Governments, NGOs and international organizations should seek to work with payment, financial and telecommunications providers to use whatever resources are available in terms of rapid targeted delivery. Cheques mailed over a period of months are really unlikely to have the desired level of effectiveness.(12)

III. DATE ANALYSIS

This note explores the opportunities associated with an expansion of DFS in EMDEs where these preconditions are increasingly met, and highlights the potential risks associated with their rapid ramping up.

Box 1. The Use of Digital Financial Services Pre-COVID-19 in Emerging and

Developing Economies

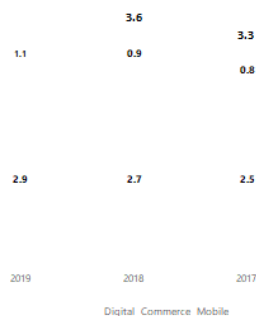
Digital payments, digital lending, and digital remittances have grown in recent years. Digital payments are noncash transactions processed through digital channels. These include digital commerce and mobile point-of-sale (POS) payments (Digital Payments Report 2019, Statista). Digital commerce refers to consumer transactions directly related to online shopping for products and services that can be made via various payment methods (e.g., credit cards, direct debit, invoice, or online payment providers, such as PayPal and AliPay). Mobile POS payments are transactions processed via “mobile wallets” (e.g.,

Year	Mobile POS	Digital Commerce	Total
2017	0.3	0.8	1.1
2018	0.4	1.3	1.7
2019	0.6	1.5	2.1

Year	Mobile POS	Digital Commerce	Total
2017	0.8	2.5	3.3
2018	0.9	2.7	3.6
2019	1.1	2.9	4.0

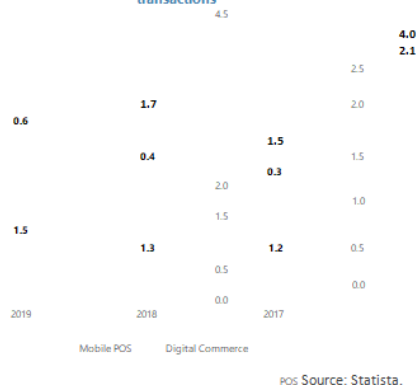
M-Pesa) where the payment is made by a contactless interaction of the mobile application with a suitable payment terminal belonging to the merchant. Both digital commerce and mobile payments have increased in

Figure B1.2: Number of users of digital payments



EMDEs over the last three years (Figure B1.1). The numbers are, as expected, largely driven by China and, to a lesser extent, India.

Figure B1.1: The value of digital payments transactions



The value of payments associated with digital commerce in EMDEs rose from \$1.2 trillion in 2017 to \$1.3 trillion in 2018 and reached \$1.5 trillion in 2019—an increase of approximately 8 percent and 15 percent, respectively. While the value of mobile POS payments is significantly

smaller—\$613 billion in 2019—these payments rose by 33 percent between 2017 and 2018 and by 50 percent in 2019, relative to the previous year. In EMDEs the number of digital payment users has also risen since 2017 starting at 3.3 billion that year and reaching almost 4.0

billion (or 64 percent of the population) in 2019 (Figure B1.2). In terms of the breakdown by type of service, in 2019, 2.9 billion users conducted digital commerce

transactions and 1.1 billion users conducted mobile POS payments.

Digital lending to SMEs (i.e., crowdlending) and to individuals (i.e., marketplace or peer-to-peer lending), through private or institutional investors via online platforms, grew by 57 percent from a combined value of \$143 billion in 2017 to \$225 billion in 2019. Over this period, business (SME) lending increased from \$96 billion to \$166 billion while consumer lending rose from \$47 billion in 2017 to \$59 billion in 2019 (Figure B1.3). In turn, the number of digital loans grew from 53.2 to 62.6 million between 2017 to 2019, with business loans growing from 31.3 to 37.3 million and consumer loans increasing from 21.9 to 25.3 over this period (Figure B1.4).

Figure B1.3: The value of digital lending

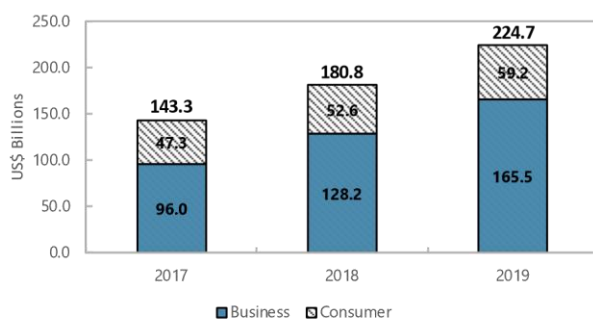
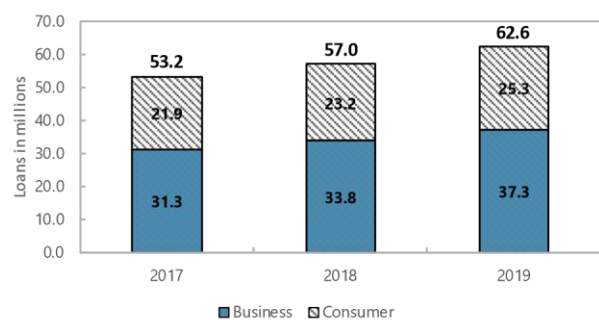


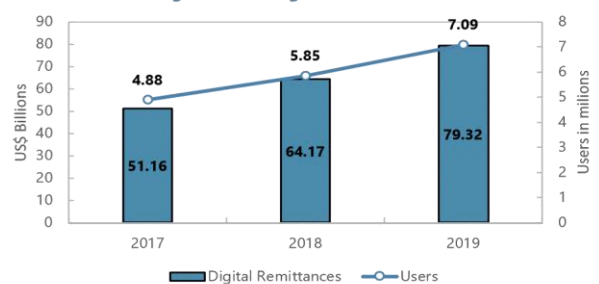
Figure B1.4: Number of digital loans



Source: Statista.

Digital remittances are cross-border money transfers made over the internet by the migrant population. The value of digital remittances (which here include those sent from advanced economies to EMDEs and across EMDEs) has grown by 55 percent between 2017 and 2019. Over this period, the number of users of digital remittances grew from almost 5 to 7 million (Figure B1.5).

Figure B1.5: Digital Remittances



Source: Statista.

The table below sets out a sample of digital tools available in various countries, how they may be relevant and who they could be used to assist.

Tools & Examples			
Tools	Example	Relevance	Beneficiary
Digital Identity	Aadhar	Identification of individual health status	Gov / Public
Transfer	e-Tunai Rakyat	Instant disbursement of fund to beneficiary in closed loop	Public / SME
Peer-to-Peer	Lending Club	Direct lending origination & ROI above central banks	SME / Public
Crowdfunding	GoFundMe KickStarter	Pre-finance products using public support	SME / Public

Invoice factoring	Funding Society	Unlocking future income to limit liquidity issues	SME
AML / KYC	Comply	Scalable identification of	NGO
	Advantage	source of fund of microdonation	
InsurTech	Ping An	Shorter reimbursement of cost to provider / claimant	Public / Hospitals
Sharing economy	Uber / Grab / Gojek	Mobilized under-utilized assets & co-ordinate resources	Gov / SME

For SMEs short term tools include the capacity to unlock future income by looking at invoice factoring solutions. However, this requires digitization of invoices, which might not be commonplace in developing markets. Moreover, in developed countries, many businesses have lost all future income due to the cessation of client orders. Another tech approach heavily reliant on current and accurate information includes strategic cash injections aimed at businesses to avoid mass unemployment, loss of infrastructure and deterioration of workforce skills thus preserving readiness for a rapid kickstart as the health crises passes. For instance, states could rely on tax authorities to trigger reverse transactions based on the last VAT, corporate tax and income / salary tax records. Certain types of businesses may also be suitable for crowdfunding (see below). Governments which have at various times limited the use of crowdfunding platforms in their jurisdictions, could support suitable campaigns by declaring officially their conditional regulatory blessing.(13)

1. Digital identity

Digitally identifying people will continue to grow in importance via connectivity to official repositories of identity data. This can provide the means for governments to pursue and implement remedial policies particular in the context of direct fiscal assistance. The financial crisis of 2008 saw substantial resources in some jurisdictions wasted through the misallocation of stimulus payments to deceased or non-existent citizens. Digital identity verification and authentication should ensure that only intended recipients receive stimulus payments. The threat of fraud and identity theft can be greatly minimized through the strengthening and support of digital identity infrastructure.³⁹ It is important to note however, that authentication and verification of an identity via a digital channel should be the focus, not in creating separate “digital identities” or avatars.(14)

2. Behaviour management

The uncharacteristic grocery store panics that have swept many developed economies are in many cases products of the digital dissemination of information. The issue of ‘fake news’ and popular misinformation through social media has been an issue of international significance for several years. The overlap between social media and digital finance has been growing with services such as WhatsApp Pay and WeChat Pay emerging as extensions of popular messaging platforms. As these payment platforms develop further and become more widely adopted, this overlap creates an opportunity for the correlation of message dissemination patterns with purchasing behaviour potentially signaling early stage panic shopping and even pinpointing the products the panic focus upon (hand sanitizer, toilet paper, pasta etc).(15)

The social distancing and quarantine policies that have been adopted in many parts of the world have also seen a massive increase in e-commerce. The use of digital platforms to shop, pay and organize delivery of all types of goods has grown exponentially in Q1 2020, and is increasing further in Q2. Depending on how long these policies remain in place, and how well the delivery services work, they will evoke behavioural and purchasing pattern change. A 2010 University College of London university study focusing on human psychology concluded that it takes 66 days to create a habit. What begins as a temporary lifestyle change, can, given enough time, become a new daily norm. As digital finance platforms take a more prominent role in people’s lives throughout this crisis some of these behavioural changes will stick. (16)

Digital purchasing platforms are being used to limit the freedom of shoppers to bulk buy through implementing quantity quotas. The growth in and sophistication of app-based and online budgeting tools has seen the potential of identifying and categorizing financial transactions improve remarkably in recent years. Open banking platforms that provide third parties with customer banking information

could also be leveraged to identify purchase behaviour, and aggregate data for panic identification and quota implementation. As Artificial Intelligence (AI) analytics develop, such sources of information can be easily correlated with other data sets (such as, for example, social media communications) to provide even more specific measures of public sentiment. The sweeping use of behaviour management in the form of lockdowns, movement freedoms and mask wearing imposed by governments may continue for longer than strictly necessary. If the population do not believe in the rationale of the behavior management protocols, as seen in many parts of the world, a backlash can occur. Therefore behaviour management needs to be done in an open and transparent way where the population understands and acknowledges its rationale. (17)

3. Information sharing

Information and trusted data are the life blood of the digital economy. From advertising to public health to detection of criminal activities, being able to access and use information is critical. As with war, in the midst of a crisis (especially this crisis), factual information can mean life or death. Establishing a well-funded, national coordinating body such as a Health Stability Board as a crisis management tool could ensure timely information exchange especially between the public and private sectors. Emergency government powers may be used to overcome data privacy and protection obstacles and intensify information exchange on health and financial / economic matters. Principles of Data Sharing and broader digital governance of information should be established. (18)

The wisdom of crowds is perhaps most apparent in the context of mass consumer behaviour. The purchasing behaviour of the consuming public provides real-time indications of trends and fashions and can, as readily, highlight public consternation and full-blown panics. Using digital financing tools to aggregate purchase information (of medical supplies, for example, or toilet paper) can help identify emerging panics. On a more practical level, various online communities around the world have begun to organically co-ordinate and crowdsource information in order to help efficiently design, manufacture and distribute medical supplies where they are needed most. These groups include engineers, chemists, logistics expert and many other professionals as discussions and ideas are moderated and filtered through various socially co-ordinated channels.(19)

4. Collective decision-making

Corporate decisions often depend on collective decision-making by boards and general meetings of shareholders.

This could, among other things, relate to the disbursement of dividends, share buy-backs or recapitalization. Keeping the economy afloat will require substitutes for in-person meetings. This is why many Parliaments around the globe have provided for digital, instead of in-person, meetings in corporate governance. In particular, most advanced economies, by way of crisis legislation, have allowed for some type of remote voting and/or virtual shareholder meetings.(20)

5. Tokenization

Liquidity supply alone will not ensure demand in the real economy if choice of goods remains limited (as it will likely be increasingly due to state intervention). Where choice of goods is limited excess liquidity will likely translate into higher prices for the few goods available. Where real goods are limited, digitally created financial goods (by way of token offerings) or new digital services (eg. entertainment and news) could partially consume the excess liquidity in an orderly manner, but mis-selling and fraud will be likely. However, tokens, online banking and mobile money schemes could also be used to channel funds faster to consumers to provide financial support and to support economic activity.(20)

IV. CONCLUSION

A crisis is not the time to try to implement entirely new digital and technological solutions. It is the time to use the digital infrastructure already in place to far greater and potentially new effects, and the best way to do this may well be for governments to convene (electronic) gatherings of financial sector and fintech experts to explore what can be done in each country. Mobile money and other payment infrastructures can be used to direct targeted payments to the people and small businesses most in need. These digital payment infrastructures offer speed and traceability. Trust and certainty need to be preserved and enhanced. Rapidly effected support payments going to those who need them most work to achieve both ends. As quarantine procedures are being implemented in most countries, millions of people around the world are being restricted from leaving their homes in what is dubbed “social distancing”. This is changing people’s habits. This change can be measured by looking at the significant spike in e-commerce activity, home entertainment use adoption⁹² (ie. streaming services) and home delivery services. Digital financial services and payment platforms are a key component of the online commercial sphere people have been forced to use.

The response to COVID-19 is essentially a largescale social experiment. The shock is priming people’s behaviour towards more online and digital options. Once

the crisis resolves, it is very likely that the habits, cost savings and convenience factors revealed to large swathes of consumers through this crisis will result in permanent behavioural changes. There is a precedent. Following the 2008 crisis, financial institutions began to favour video conference meetings over cross-border travel as part of cost cutting measures. Banks invested in the necessary hardware and people were incentivized to use these (at the time new) tools. Ten years later, videoconferencing is the norm for many meetings around the world and is sustaining many sectors (such as education and shareholder meetings) in these unprecedented times.

Given that the digital infrastructure already exists, the COVID-19 outbreak will likely be the catalyst propelling an even faster adoption of activities relying on digital financial services. In the meantime, the intelligent, creative use of digital means offers much in the battle to alleviate the social, economic, and some health consequences of the crisis. From a personal standpoint, as individuals, we each need to focus on maintaining our own health and that of those around us. We also need to focus clearly on understanding facts and analyses as opposed to panic and rumours. Take care of your health but also think, think carefully about the information you are acting upon, and think carefully about your actions from the standpoint of your friends and family. Take the time to reach out. It always helps.

From the standpoint of businesses, this is the time to think about that shop or restaurant or company that produces something you like and maybe not drop in, but see if you can order something online. And this is where the real power of digital finance comes in. The ability to use systems of ecommerce that allow us to avoid face to face interactions at times where that is necessary and better direct financial resources where they are most useful. From the wider social context, be aware that your actions have an important role in how we all go through this together, and think about what is happening in your immediate neighbourhood, and how this is progressing more broadly. And from the standpoint of industry, think about how you can use technology to reach out to governments, to businesses, to individuals, to NGOs, and to international organizations, to put your expertise to use in better solving their problems.

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