

Editors

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BEYOND THE PANDEMIC?

Exploring the Impact
of Covid-19 on
Telecommunications
and the Internet

Beyond the Pandemic?

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Beyond the Pandemic? Exploring the Impact of COVID-19 on Telecommunications and the Internet

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List of Abbreviations

4G	Fourth generation of mobile communications
5G	Fifth generation of mobile communications
AI	Artificial intelligence
ATUI	African Telecommunications Union
AWS	Amazon Web Services
BEREC	Body of European Regulators for Electronic Communications
BR	ITU-R Bureau
BSI	British Standards Institute
C&W	Cable & Wireless
CAPEX	Capital Expenditure
CCTV	Closed Circuit TV
CDN	Content Delivery Network
DSA	Digital Services Act
EC	European Commission
EdTech	Educational Technology
EECC	European Electronic Communications Code
EU	European Union
FCC	Federal Communications Commission
FTC	Federal Trade Commission
FWA	Fixed Wireless Access
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GP	General Practitioner
HIPAA	Health Insurance Portability and Accountability Act
ICT	Information and Communication Technologies
IMT	International Mobile Telecommunications
IoT	Internet of Things
ITU	International Telecommunications Union
ITU-R	Radio Sector of the International Telecommunications Union
IXP	Internet Exchange Point
LLA	Liberty Latin America
Mbps	Megabits per second
MNO	Mobile Network Operators
NB-IoT	Narrowband Internet of Things
OECD	Organisation for Economic Co-operation and Development
OIO	Open Internet Order

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OTT	Over-the-top
RR	Radio Regulations
RRB	Radio Regulations Board
SARS	Severe Acute Respiratory Syndrome
SDG	Sustainable Development Goal
SMS	Short Messaging Services
TVWS	TV White Spaces
UCC	Uganda Communications Commission
UHF	Ultra High Frequency
VA	Veteran's Affairs
VPN	Virtual Private Network
WFH	Work from Home
WHO	World Health Organisation
WRC-19	World Radiocommunications Conference of 2019
WRC-23	World Radiocommunications Conference of 2023

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Preface

We have all been affected by COVID-19. Since the emergence of the virus in late 2019, it has wrought far-reaching social and economic changes. As the virus spread, both within and between countries, governments imposed restrictions – these were wide-ranging in nature, often unprecedented, and sought to limit what individuals and companies could undertake. Individuals were instructed to work from home (WFH) where possible and education at all levels moved online to reduce the ability of the virus to spread, resulting in empty city centres and bustling suburbs on the one hand and creating challenges for parents to home-school their children on the other.

Companies changed how they operated. Some companies ceased to operate as the spread of the virus negatively impacted global value chains, reducing, and in some cases completely cutting, the flow of manufactured products between countries. While some companies continued to operate, albeit at much lower levels of activity than prior to the start of the pandemic, others saw dramatic increases in demand for their services. Perhaps nothing better epitomises this than the growth in demand for online video conferencing software, with ‘zoom’ being used to describe video conferencing regardless of which software is actually being used.

But not everyone experienced the pandemic in the same way. Those working in knowledge-intensive industries were able to WFH; not only did this mean that they could maintain their employment, but it also removed them from crowded offices and public transport where the virus could be easily transmitted. Of course, WFH was not without a myriad of challenges: homes became offices, bringing family members into close contact for long periods of the day, and they also became schools, forcing parents to juggle their work commitments with those of educating their children.

Working at home was not an option for those employed in other parts of the economy, such as those in the construction or healthcare sectors. In these and other sectors, economic activity ground to a halt, resulting in unemployment and the accompanying financial hardship for individuals, and people were exposed to the possibility of contracting COVID-19 as they went about their work.

Experiences were also different between countries. Some countries tried to minimise the impact of the pandemic, keeping as much of the economy open as possible, while others imposed wide-ranging and sometimes long-lasting restrictions that severely curtailed the liberties of individuals and shut down large parts of the economy. As the pandemic spread around the globe, countries sought to

learn from one another, resulting in a high degree of commonality in the strategies adopted by governments. Having said this, the responses also highlighted the institutional differences that exist between countries, in terms of how restrictions were imposed as well as the financial support provided to both individuals and businesses.

Given the highly disruptive nature of the pandemic, global in scale and protracted in time, many have sought to comment on its impact. Not only has social media been awash with commentary, but countless academics and research organisations have published articles and reports on the impact of COVID-19. A voluminous literature soon emerged, but one that was often characterised by its snapshot nature – many more articles, for example, appeared that described the technological solutions to monitor those with COVID-19 than those that evaluated how such approaches have fared over time. Similarly, the imposition of various lockdown restrictions was associated with numerous commentaries on their immediate impact, with far fewer examining their consequences over the long term or the extent to which the restrictions imposed to tackle successive waves of the pandemic interacted with one another.

This volume emerged out of informal bilateral discussions among the authors of the various chapters that questioned the initial (snapshot) assessments of the impact of COVID-19. These discussions asked, in essence, a simple but intriguing question: what will the impact of COVID-19 be in the longer term? The initial assessments of the impact of COVID-19 were rooted in the uncertainty and dynamism that characterised the emergence of and reaction to the virus. In essence, the emergence of COVID-19 in China and its subsequent global diffusion generated a lot of responses and associated commentary but ascertaining what they meant for the longer term was challenging given how fast events were changing. Now, over two years after the initial emergence of COVID-19 and after successive waves of the virus have occurred, we have the opportunity to look back at events and assess in a more reflective manner the impact of COVID-19.

Given the enormity of the pandemic, it is simply not possible to cover everything within a single volume. Instead, our approach towards the content of the volume has been guided by a desire to shed light on three related questions. Firstly, what happened? Secondly, how did the pandemic affect different parts of the economy, and thirdly, how did COVID-19 shape key (on-going) policy debates? These questions are not addressed to the same degree in each chapter, enabling as a consequence the chapters to offer a focused analysis of a sector or policy issue. Sometimes this analysis is detailed, while on other occasions a ‘big picture’ approach is adopted. Not only does such an approach illustrate the scope of the pandemic and its impacts, but it also enables the nuances and subtleties of its impact to emerge as well. Insights from each of the chapters are brought together in the conclusion where we return to the aforementioned three guiding questions.

This volume lays the foundation for future explorations of the socio-economic impact of COVID-19. As noted above, the volume is not comprehensive in its coverage. One way future research could build on the analysis contained within the volume is to examine what happened in other sectors. Manufacturing and construction are examples of such additional sectors, as are logistics and

hospitality. Another way is to expand the policy debates that are examined, with perhaps the most pressing being how to tackle the multiple digital divides that the pandemic exposed.

We are acutely aware that the bulk of this volume draws on the experience of developed countries. This does not reflect the global nature of the pandemic. It does, however, reflect how the book was conceived and, to a lesser extent, the networks of the three co-editors. Subsequent efforts need to build on the insights from this volume, expanding the analysis of the impact of COVID-19 on developing countries and critically assessing how they fared. Integral to these assessments, which will be described in detail in each country, is also an evaluation of the effectiveness and efficacy of the responses that were implemented to tackle the pandemic. This will entail identifying and then assessing the institutional response that was undertaken, by governments as well as regulatory agencies, as well as cataloguing and critiquing how businesses sought to cope with the impact of the pandemic.

Such an assessment, regardless of the country, is not easy. It will require extensive amounts of data covering the whole period of the pandemic as well as the whole economy. A lot of data did emerge as the pandemic took hold. Google Mobility reports, for example, which was published for many countries and cities around the world, illustrated how the use of public transport or visits to supermarkets or parks were affected by the pandemic and the restrictions imposed to limit its spread. This was complemented by official statistics that illustrated, among other things, the impact of the pandemic on employment, the incomes of individuals and economic activity in different parts of the economy and regions of the country. Companies also published reports detailing the impact of the pandemic on their operations, demonstrating how they had responded as well as how they had sought to support their customers and suppliers. And news organisations also played a role in aggregating and disseminating COVID-19-related data; the *BBC*, like many other news agencies, devoted a considerable proportion of its efforts to the pandemic, while the *Financial Times* placed its coverage in front of its paywall.

There are signs, however, that the initial enthusiasm to collect and share COVID-19-related data is abating. Perhaps due to a combination of factors such as the protracted nature of the pandemic and gradual adjustment to COVID-19 through successive waves of the virus, combined with the costs and the insights that it offers into how a company operates, there appears to be fewer data available. Declining COVID-19-specific data, coupled with the less frequent collection and publication of that data that is still available, will impact the ability to understand the impact of COVID-19 in both the near and longer term.

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