

GOVERNMENT CLOUD PROCUREMENT

In *Government Cloud Procurement*, Kevin McGillivray explores the question of whether governments can adopt cloud computing services and still meet their legal requirements and other obligations to citizens. The book focuses on the interplay between the technical properties of cloud computing services and the complex legal requirements applicable to cloud adoption and use. The legal issues evaluated include data privacy law (GDPR and the US regime), jurisdictional issues, contracts, and transnational private law approaches to addressing legal requirements. McGillivray also addresses the unique position of governments when they outsource core aspects of their information and communications technology to cloud service providers. His analysis is supported by extensive research examining actual cloud contracts obtained through Freedom of Information Act requests. With the demand for cloud computing on the rise, this study fills a gap in legal literature and offers guidance to organizations considering cloud computing.

KEVIN MCGILLIVRAY, PhD has published widely in the areas of law and technology. Kevin also has worked as a researcher on several EU projects including serving as the Data Protection Officer (DPO) on the prestigious Human Brain Project (HBP). Kevin currently serves as DPO for the Norwegian Tax Administration.

Cambridge University Press
978-1-108-83767-5 — Government Cloud Procurement
Kevin McGillivray
Frontmatter
[More Information](#)

Government Cloud Procurement

CONTRACTS, DATA PROTECTION, AND THE QUEST
FOR COMPLIANCE

KEVIN MCGILLIVRAY



CAMBRIDGE
UNIVERSITY PRESS

Cambridge University Press
978-1-108-83767-5 — Government Cloud Procurement
Kevin McGillivray
Frontmatter
[More Information](#)

CAMBRIDGE UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom
One Liberty Plaza, 20th Floor, New York, NY 10006, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre,
New Delhi – 110025, India
103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning, and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781108837675

DOI: 10.1017/9781108942485

© Kevin McGillivray 2022

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2022

A catalogue record for this publication is available from the British Library.

ISBN 978-1-108-83767-5 Hardback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Cambridge University Press
978-1-108-83767-5 — Government Cloud Procurement
Kevin McGillivray
Frontmatter
[More Information](#)

To Gro Caroline, Elise, and Leah Saga

Cambridge University Press
978-1-108-83767-5 — Government Cloud Procurement
Kevin McGillivray
Frontmatter
[More Information](#)

Contents

<i>List of Figures</i>	<i>page</i> ix
<i>List of Tables</i>	x
<i>Preface</i>	xi
<i>Acknowledgements</i>	xiii
<i>List of Abbreviations</i>	xv
 PART I SUBJECT MATTER	 1
1 Introduction	3
2 Cloud Technology, Organizational Aspects, and Risks	18
 PART II LEGAL REQUIREMENTS AND ADOPTION OF GOVERNMENT CLOUD	 29
3 Government Cloud Adoption: Challenges and Obligations	31
4 Location Independence, Jurisdiction, and Law Enforcement Access to Cloud Computing Services	59
5 Data Privacy and Data Protection Issues in Cloud Computing	91
 PART III PRIVATE ORDERING AND CLOUD COMPUTING CONTRACTS	 157
6 Contracts Used to Procure Cloud Services I: Study on Contract Structure and Negotiated Terms	159

Cambridge University Press
978-1-108-83767-5 — Government Cloud Procurement
Kevin McGillivray
Frontmatter
[More Information](#)

viii	<i>Contents</i>	
7	Contracts Used to Procure Cloud Services II: Standard Terms, Impact on Governments, and Lessons Learned	196
8	Conclusion	248
	<i>References</i>	253
	<i>Index</i>	286

Figures

6.1	US agency FOIA disclosure comparison (USPS and DOE)	<i>page</i> 162
6.2	FAA SLA	184

Tables

6.1	US government FOIA contracts	<i>page</i> 161
6.2	UK G-Cloud FOIA contracts	163

Preface

Much of the research in this book is a result of the PhD dissertation I submitted and defended in 2019. When I started work on my dissertation in 2013, one of my first activities was to attend a large-scale cloud computing conference in Brussels. The hotel where it was held was appropriately upmarket and the conference room was packed. The presentations consisted of five-person panels, with each person given ten minutes to present, followed by a brief discussion. Although there was some disagreement over the overall novelty of cloud computing and its global significance, everyone seemed to agree that it was going to be big. The panellists and crowd were excited and more or less everyone seemed to be on the same page.

A recurring assertion made by many of the panellists' presentations was that cloud computing was also going to save the environment. By combining data centres and centralizing computing, cloud computing would shrink the ever-growing carbon footprint being generated by computing and generally reduce the waste produced by redundant data centres. In one panel, the presenters agreed that 'cloud computing' could just as easily have been named 'green computing'. However, at the end of the panel, someone asked whether anyone on the panel actually had any hard numbers or real evidence to show that cloud computing was in fact green.

The former jubilation of the mood in the room was quickly paused. The question posed by that particular conference delegate shifted the discussion from what I had interpreted as primarily promotional to one that was much more analytical. As it later became clear, the question was a good one and the answer is nuanced. Further research on the topic has shown that cloud computing services use vast amounts of energy and in most cases leave large carbon footprints.¹ Since server farms use a great deal of energy, the 'greenness' of the computing depends largely on the source of that energy. If the server farm is located in the United States, as many are, much of that energy likely comes from coal.²

¹ See generally Jasmine N. Story, 'Cloud Computing and the NSA: The Carbon Footprint of the Secret Servers' (2014) 9 *Pittsburgh Journal of Environmental and Public Health Law* 33–65.

² Bryan Walsh, 'Your Data Is Dirty: The Carbon Price of Cloud Computing' (2 April 2014) Time Online. Available at <<http://time.com/46777/your-data-is-dirty-the-carbon-price-of-cloud-computing/>>. Providing

I was inspired to use my research as a vehicle to help bring forth a more nuanced discussion of cloud computing. In other words, I attempted to avoid ‘hype cycles’ and circumvent ‘conventional wisdom’ to take a closer – and longer – look at governments adopting cloud computing services. By obtaining actual contracts using the Freedom of Information Act (FOIA), I was able to move my research past general statements about what could or ought to be included in cloud computing contracts generally to offer a much more detailed discussion. While working with computer scientists and medical professionals on the European Union (EU) projects including Confidential and Compliant Clouds (Coco Cloud) and the Human Brain Project (HBP), I gained a much better understanding of the technical challenges involved in applying legal rules in practice. In some cases, this explained why there might be a compliance gap. In others, it helped me to pinpoint more systemic problems. In short, these steps and experiences put me in a much better position to examine what was actually happening when governments contract for cloud, what controls ought to be in place, and what the stakes are for citizens.

As I am writing this preface, the world is experiencing a global pandemic. Most EU member states are under various levels of lockdown to slow the spread of the COVID-19 virus. Almost my entire public sector organization of over 9,000 employees is now working remotely. This is unprecedented. Many public and private sector employers are now depending on cloud computing services to keep their operations up and running. Not all employers were prepared to deal with remote workers en masse. Responding adequately requires that an organization procure compliant services. To accomplish this, an organization must have an understanding of its legal obligations in order to create coherent policies.

Public administrations that did not have adequate remote infrastructure or a coherent cloud computing strategy are almost certainly taking a hard look at themselves. From video conferencing services to collaboration tools, demand for cloud computing has risen dramatically. My hope is that this book is academically interesting while also useful in addressing the many legal issues that cloud computing raises.

that ‘electricity is produced by fossil fuel sources like coal or natural gas – which together provide nearly three-quarters of U.S. power – our magical cloud may leave a very dirty footprint’.

Acknowledgements

First, thank you to my wife, Gro Caroline Sjølie, for always being supportive of my research, and also for spending many Saturdays and Sundays alone with two young and very active children so I could write. To my daughters Elise and Leah Saga, thank you for making me laugh and always helping me to keep things in perspective. Thank you to my parents, Terry and LaRae McGillivray, for their support. To my parents-in-law Tore and Ragnhild Sjølie, thank you for all of your help while I was writing this book.

Thank you to Lee Bygrave and Knut Kaasen for serving as my PhD dissertation advisors and playing a central role in helping me to complete the research on which this book is based. Thanks to Tobias Mahler and Samson Esayas for sending updates and providing comments on parts of the research that went into it. Thanks to Francis Augusto Medeiros-Logeay for providing helpful comments on earlier drafts and always lending an ear.

The primary research for this book was conducted while I was at the Norwegian Research Center for Computers and Law (NRCCL), University of Oslo (UiO). Thank you to all my NRCCL colleagues for providing a place that was not only academically stimulating but also felt like home. A special thanks to Gro Halvorsen and Karianne Stang for helping me to navigate not only the law faculty but also Norwegian culture and bureaucracy for the past ten years. I would also like to thank Arild Jansen, Dag Wiese Schartum, Olav Torvund, Tommy Tranvik, Darren Read, Luca Tosini, Heidi Beate Bentzen, Peter Davies, Laila Enerstvedt Fimreite, Siri Eriksen, Anne Gunn Berge Bekken, and Worku Urgessa. Also thanks to those at the Department of Private Law including Eli Knotten, Gørill Amesen, Ørnulf Kristiansen, and Eva Dobos.

I would like to thank my PhD adjudication committee for taking on the difficult and time-consuming task of evaluating my dissertation and also encouraging me to get the work published. Thanks to Emily Weitzenboeck for chairing the committee, Dan Jerker B. Svantesson, and Rolf H. Weber for lending his time and broad expertise to my project.

Thank you to the NRCCL, the University of Oslo, and the Norwegian Research Council for providing generous funding during my time as a PhD researcher. This book would not have been possible without that support.

The views in this book, including any mistakes, are attributable only to me.

Abbreviations

3PAO	third-party assessment organization under the FedRAMP requirements programme
API	application programming interface
AWS	Amazon Web Services
BCRs	Binding Corporate Rules
B2B	business to business
B2C	business to consumer
B2G	business to government
BEA	Battelle Energy Alliance
CASBs	cloud access security brokers
CFPB	Consumer Financial Protection Bureau
CIA	confidentiality, integrity, and availability
CJEU	Court of Justice of the European Union
CLP at QMUL	Cloud Legal Project at Queen Mary University of London
CLOUD Act	Clarifying Lawful Overseas Use of Data Act
CNIL	Commission Nationale de l’Informatique et des Libertés
CSLI	cell-site location information
CSP	cloud service provider
DCFR	Draft Common Frame of Reference
Difi	Norwegian Agency for Public Management and eGovernment
DNS	domain name system
DoC	Department of Commerce
DoE	Department of Energy
DoI	Department of the Interior
DoL	Department of Labor
DoT	Department of Transportation
DPA	data protection authority
DPbD	data protection by design and by default
DPIA	data protection impact assessment

EBA	European Banking Authority
EC	European Commission
EDPB	European Data Protection Board
EDPS	European Data Protection Supervisor
EEA	European Economic Area
EIOPA	European Insurance and Occupational Pensions Authority
ENISA	European Union Agency for Network and Information Security
EPA	Environmental Protection Agency
ESI	electronically stored information
EU	European Union
FAA	Federal Aviation Administration
FAR	Federal Acquisition Regulation
FCA	Financial Conduct Authority (UK)
FCC	Federal Communications Commission
FedRAMP	Federal Risk and Authorization Management Program
FIPs	fair information practices
FIPS	Federal Information Protection Standard
FISA	Foreign Intelligence Surveillance Act
FISMA	Federal Information Security Management Act of 2002
FTC	Federal Trade Commission FTC
GAO	Government Accountability Office
GDPR	General Data Protection Regulation
HIPAA	Health Insurance Portability and Accountability Act
FHFA	Federal Housing Finance Agency
IaaS	infrastructure as a service
ICO	Information Commissioner's Office
ICT	information and communications technology
ISO	International Organization for Standardization
ISPs	internet service providers
IT	information technology
LEA	law enforcement agency
MLATs	mutual legal assistance treaties
MSA	master service agreement
NASA	National Aeronautics and Space Administration
NEH	National Endowment for the Humanities
NIS	Network and Information Security (EU Directive)
NIST	National Institute of Standards and Technology
NSA	National Security Agency
OECD	Organization for Economic Co-operation and Development
OPM	Office of Personnel Management
PaaS	platform as a service
PAs	public administrations

List of Abbreviations

xvii

PICSE	Procurement Innovation for Cloud Services in Europe
PII	personally identifiable information
SaaS	software as a service
SCA	Stored Communications Act
SCCs	standard contractual clauses
SCOTUS	Supreme Court of the United States
SLALOM	Service-Level Agreement Legal and Open Model Contracts
SLAs	service-level agreements
SMEs	small- and medium-sized enterprises
SOW	statements of work
ToS	terms of service
ToU	terms of use
USA	United States of America
US Aid	United States Agency for International Development
USDA	United States Department of Agriculture
US DoE	United States Department of Energy
US HHS	US Department of Health and Human Services
USPS	United States Postal Service
VM	virtual machine
VPPA	Videotape Privacy Protection Act
WP29	Article 29 Working Party on the Protection of Individuals with Regard to the Processing of Personal Data

Cambridge University Press
978-1-108-83767-5 — Government Cloud Procurement
Kevin McGillivray
Frontmatter
[More Information](#)
