

Table of Contents for Disruption and PPPs

Disruption and PPPs

Table of Contents

How can private sector adoption of emerging technologies be supported within existing and future PPP projects? How can new technologies be harnessed to strengthen PPP projects going forward? Which parties should bear the burden of the risk of obsolete and stranded assets? And how can governments “future-proof” their pipeline PPPs?

[Download Full Report](#)

[Download](#) [Chatbot](#) [View](#)

Photo Credit: [Image by Freepik](#)

PPP Contracts in An Age of Disruption Table of Contents

Watch this space. This section is based on the Report "[PPP Contracts in An Age of Disruption](#)" and will be reviewed at regular intervals. Visit the [Content Outline](#), or [Download the Full Report](#) to find out more. Let us know what you think by taking a [Quick Survey](#).

Find a full outline to [contents](#), [figures](#), [tables](#), [boxes](#) and [modules](#) found on the [Disruption and PPPs](#) Section in the Public-Private Partnership Resource Center, or [download the full report](#) for more.

I. PPP Contracts in An Age of Disruption

- [Defined Terms and Abbreviations](#)
- [Executive Summary](#)

Chapter 1 - Context and Aim

Chapter 2 - Disruptive Technology, Infrastructure and PPPs

- [How are Infrastructure PPPs Impacted by Disruptive Technologies](#)
 - [Which disruptive technology opportunities are relevant for PPP infrastructure projects](#)
 - [What are the challenges of disruptive technology for PPP infrastructure projects](#)
- [Disruptive Technology in the Context of Other Global Disruptions](#)

Chapter 3 - Enhancing "Innovation Resilience" and the Adoption of Disruptive Technology throughout the PPP Project Cycle

- [Project identification, screening and appraisal](#)
- [Considerations related to procurement](#)
- [Structuring the PPP contracts: addressing risks and opportunities related to technological innovation](#)
- [Managing Technological Change in Existing PPP Projects](#)
 - [Contractual obligations to adjust the project to a changing technological environment](#)
 - [PPP contractual provisions that permit regular adjustments](#)
 - [PPP contractual provisions and legal mechanisms that permit adjustments in exceptional situation](#)
 - [Renegotiation, government step-in rights, termination and dispute resolution](#)
- [Process for Assessing and Resolving issues related to Disruptive Technology](#)

Chapter 4 - Case Studies

- [Case Study 1: Mongolia - Addressing Disruptive Technology through Renegotiation and Energy Regulation](#)
- [Case Study 2: Australia - Considering Future Technology Improvements to Victoria Water Desalination Plant](#)
- [Case Study 3: United States, Maryland - I495 and I270 Project](#)
- [Case Study 4: Portugal - Renegotiation of PPP Highway Contracts after Global Financial Crisis.](#)
- [Case Study 5: Puerto Rico - Technological Upgrades and Contract Extension for P 22 and P5 Toll Roads](#)

Chapter 5 - Conclusion and Next Steps

Appendixes

[Appendix A - Examples of Disruptive Technologies and their Application to infrastructure](#)

[Appendix B - Disruptive Technology in the Energy Sector](#)

[Appendix C: Disruptive Technology in the Transport Sector](#)

List of Figures

[Figure A.1: Share of New Electricity Capacity, 2001–2021](#)

[Figure A.2: Renewable Energy Components in Current NDCs](#)

[Figure A.3: The Falling Cost of Renewable Energy](#)

[Figure A.4: Ride Sharing Market Size Worldwide in 2021 and 2026](#)

List of Tables

[Table A.1: Fuel Shares of Primary Energy and Contributions to Growth in 2019](#)

List of Boxes

[Box 1: The Rise of Renewables](#)

[Box 2: Coal Project Decommissioning and the Just Transition for All Framework](#)

[Box 3: Importance of Assessments that Account for Technological Changes: European Stranded Assets in the Utility Sector, 2010–2015](#)

[Box 4: Encouraging Innovation through Procurement: Alternative Technical Concepts \(ATCs\) in the United States](#)

[Box 5: Broadband PPP Project in Meurthe-et-Moselle, France: Importance of Award Criteria in the Face of Rapid Technological Change](#)

[Box 6: Pan Am Games Athletes' Village in Canada](#)

[Box 7: United Kingdom: Office of Gas and Electricity Markets \(Ofgem\) - Framework for Price Control Incentivizes Innovation](#)

[Box 8: Legitimate Expectations under the Energy Charter Treaty](#)

[Box 9: Japan- PPP Contracts Include Nuanced Force Majeure Definition Building on Experience from Previous Disasters](#)

[Box 10: Mandatory Insurance for Natural Disasters for PPPs in Chile](#)

[Box 11: Renegotiation of the United Kingdom National Air Traffic Services \(NATS\) PPP after Decline in Demand Due to 9/11 Terrorist Attacks](#)

Related Resources:

Pandemics and PPPs

- [Pandemics and PPP Resources](#)
- [Pandemics and PPP Blogs](#)
- [Pandemics and PPP Contracts](#)
- [Pandemics and PPP Case Studies](#)

Climate Resilience and PPPs

Sections

[Disruption and PPPs](#)

[Disruption and PPPs](#)

[Post Pandemic and PPP](#)

[Pandemics and PPPs](#)

[Climate Resilience and PPPs, Aerial view of forest by lake with reflection](#)

[Climate Resilience and PPPs](#)

Research and Publications in PPPRC

BROWSE BY REGION

- [East Asia and Pacific \(EAP\)](#)
- [Europe and Central Asia \(ECA\)](#)
- [Latin America and Caribbean \(LAC\)](#)
- [Middle East and North Africa \(MENA\)](#)
- [North America \(NA\)](#)
- [South Asia \(SA\)](#)
- [Sub-Saharan Africa \(SSA\)](#)

BROWSE BY SECTOR

- [Power & Renewable Energy](#)
- [Urban & Cities](#)
- [Water & Sanitation](#)
- [Transport](#)
- [Telecom & ICT](#)
- [Solid Waste Management](#)

BROWSE BY Topic

- [Asset Recycling](#)
- [Climate](#)
- [Disruption](#)
- [Emission Reduction Credit](#)
- [Fragile and Conflict-Affected States \(FCS\)](#)
- [Gender](#)
- [Innovative Revenues for Infrastructure](#)

The resources on this site is usually managed by third party websites. The World Bank does not take responsibility for the accuracy, completeness, or quality of the information provided, or for any broken links or moved resources. Any changes in the underlying website or link may result in changes to the analysis and recommendations set forth in the Public-Private Partnership Resource Center. The inclusion of documents on this website should not be construed as either a commitment to provide financing or an endorsement by the World Bank of the quality of the document or project. If you have any comments on any of the links provided in the Public-Private Partnership Resource Center, please get in touch [here](#)