Preface

A decade after the global financial crisis of 2008, most governments worldwide are still facing severe fiscal and financial constraints. At the same time, burgeoning populations in emerging economies and rapid urbanization everywhere are putting huge strains on old and obsolete infrastructure in mature market economies and on already stressed infrastructure in emerging market economies. Large institutional investors such as pension funds and sovereign funds that collectively control as much as $100 trillion in investable assets are struggling to find prudent investments that can yield the roughly 8 percent per annum overall return on investments that their actuarial calculations require them to achieve, when fixed income investments are yielding zero or negative real returns. Privately developed and operated infrastructure, with its relatively high, long-term, risk-adjusted returns and its steady and inflation-adjusted cash flows, is an almost perfect match with their obligations.

Privately financed, developed and operated toll roads, toll bridges, ferries and other infrastructure were commonly employed in the United States (US) during colonial times, and in Europe as early as the 1200s; the Old Stone Bridge across the Danube in Regensberg that the Crusaders paid to cross is one example. However, since the 1800s, infrastructure became regarded as a natural monopoly that needed to be owned and operated – or at least heavily regulated – by governments. Thus many countries' governments have taken over the roles of planning, financing and operating infrastructure, outsourcing primarily their design and construction. Given governments' constraints, the public–private partnership (PPP) model, in which private consortia are granted concessions to finance, design, build, operate and maintain infrastructure that the government owns and regulates, has emerged as a new way to deliver and govern infrastructure assets. But delivering public infrastructure services via this kind of cross-sectoral partnerships raises many governance challenges that require new levels of knowledge, skill and capacity for the governments to procure them wisely, for the investors to deploy their capital prudently and efficiently, and for the consortia that deliver them to balance private economic interests against public benefits prudently.

Over the decade from 2008 to 2018 scholars associated with Stanford University's Global Projects Center (GPC) have been studying ways to enhance the governance of PPP projects for infrastructure service delivery at three levels: (1) enhancing governments' decision-making processes to prioritize needs for infrastructure assets rationally rather than based on local politics, and governmental agency capacity building to procure PPP infrastructure effectively; (2) capacity building and governance of institutional investors to allow them to invest prudently and effectively in infrastructure assets directly, rather than investing passively through intermediaries such as investment banks; and (3) governance of the special purpose vehicles to address conflicts of interest between debt and equity investors, and between pure financial investors and the industrial partners who design, build, operate and maintain the infrastructure so that private benefits can be equitably balanced against the public interest.

THE GLOBAL PROJECTS CENTER AT STANFORD UNIVERSITY

With start-up support from the Dean of Humanities and Sciences and Dean of Engineering, the GPC was able to bring together Stanford faculty, research associates, visiting scholars, postdocs and doctoral students from multiple departments in five of its schools who were interested in studying the complex phenomena and governance challenges associated with PPP delivery of global infrastructure projects. Beyond pulling together a multidisciplinary research collaboration of almost unprecedented breadth from Stanford, the GPC – originally called the Collaboratory for Research on Global Projects – was fortunate to be able to engage scholars from multiple universities in the US, Europe, Asia, Africa and Australia in our program of research who had similar interests and who were able to provide us with access to study global projects in their regions; hence the initial name "Collaboratory." We changed the Center's name to the Global Projects Center in 2008 after a journalist from the *New York Times* suggested that our Center's original name was way too long, and told us that, in any case, he was unsure how to spell "Collaboratory."

At the same time, the GPC was extremely fortunate to find strong encouragement, support and guidance from senior managers in some of the world's largest engineering and construction companies, international law firms, financial and management consultants, multilateral banks, investment banks, sovereign wealth funds and pension funds. They verified that the problems we were interested to study were real and important to them, helped to guide and focus our research directions, and provided us with unparalleled access to their employees and projects across the globe. The tremendous intellectual, financial and in-kind support that these real-world players have continuously provided to the GPC since its founding significantly grounded and hugely leveraged the worldwide academic resources that the GPC could bring to bear on this program of research.

Work conducted under the umbrella of the Global Projects Center has evolved through several phases over its nearly 20 years of existence. During the early 2000s, research focused on the specific challenges posed for management when workers were engaged in projects requiring the collaboration of multiple specialists, as opposed to workers in a departmental structure who were engaged in similar or identical functional tasks. Building on the work of previous management theorists such as Galbraith (1973) and Stinchcombe (Stinchcombe and Heimer, 1985), Ray Levitt, in founding the Center, concentrated early attention on the information processing demands confronting project participants and, necessarily, managers who had to design work arrangements. Information processing approaches were themselves grounded in the then-dominant "contingency" theory holding that organizational structures, under "norms of rationality," were designed to be sufficiently complex to cope with the complexity posed by the tasks confronted (Thompson, 1967). Levitt's prior work (Jin and Levitt, 1997; Levitt et al., 1999), had employed agent-based simulation techniques to model information flows in project organizations, exploring the effects of various task and team configurations on team performance. Some early global projects research associated with the GPC pursued similar modeling techniques and was focused on issues of information processing (e.g., Horii et al., 2004); subsequent work in the Center has broadened to include the effects of broader cultural, institutional and political factors on the execution and governance of projects.

Early in the life of the Center, Levitt invited Dick Scott, a leading organizational sociologist and institutional theorist, and Doug North, Nobel Prize-winning institutional economist, to join the GPC faculty. In this second phase of work, the research focus of the GPC began to examine the special challenges posed for projects by the involvement of multinational teams engaged in projects across national boundaries. The salience of this emphasis was reinforced by developing collaboration with a growing collection of research partners scattered throughout Europe, Asia, Africa and South America; a series of roundtable discussions involving senior-level management, legal and investment officials to consider the legacy and lessons of distressed and failed global projects; and by the recruitment of firms and agencies such as Bechtel, Parsons Brinckerhoff, Coudert Brothers, Baker and McKenzie, Finnish Global Project Strategies Consortium, Japanese Marine Sciences and the Asian Development Bank as industry affiliates.

Dissatisfied by the then-dominant reliance on the "cultural values" scales developed by Hofstede (1984, 1991) to depict transnational differences, the Center embraced the more inclusive "institutional pillars" framework devised by Scott (1995, 2014). This approach distinguished among three interrelated but distinctive elements making up an institutional complex: (1) the "regulative," which singled out the legal and rule-based frameworks backed by surveillance and sanctions – elements emphasized by economists; (2) the "normative," which centered on the prescriptive, evaluative and obligational dimension of social life – stressed by sociologists; and (3) the "cultural-cognitive," highlighting the shared beliefs and assumptions which underpin all social life – elements favored by cultural anthropologists and cognitive psychologists. This broader conceptual framework allowed a more comprehensive set of theoretical lenses for our research and provided a richer and more varied toolkit for examining institutional and cultural differences.

This institutional focus was further expanded to include power and political factors affecting project design, performance and outcomes. In particular, the addition of Doug McAdam (McAdam et al., 1988; McAdam, 2011) to the Center's faculty introduced social movement theory, which articulated the ways in which projects, as they unfold, generate both opposition and support from communities previously uninvolved. In these and related ways, the agenda of the Center was broadened to include not simply the built physical environment (for example, buildings and bridges) but the "built social environment" (for example, various institutions and public, private and third sector political and power systems).

As the work proceeded, our research team began to become increasingly aware of the limitations of single-case methodology. While helpful in identifying important problems and processes and in suggesting connections and arguments, it is severely limited in sorting among or testing them. Hence, we were among the first research groups in this area to embrace the innovative qualitative comparative analysis (QCA) approach developed by Ragin (1987, 2000), who pioneered a comparative method allowing researchers to numerically employ categorical distinctions allowing them to combine data from across a modest number of cases (10–20 in our case) to test and refine arguments.

Thus, the first decade of the Center's research was grounded in efforts to examine a variety of cases describing projects employing multinational participants coping with varying levels of task complexity and operating under a variety of social and political conditions. The work was guided by a combination of contingency, institutional, political and social movement theory. A fair sampling of this work is reported and summarized in *Global Projects: Institutional and Political Challenges* (Scott et al., 2011).

Phase three of the research program of the Center was guided by the same theoretical approaches, but this more recent work began to shift primary attention away from cross-national societal differences to cross-sectoral differences affecting projects. Because of initiatives in the United Kingdom, Canada, Australia, Chile and other jurisdictions and political realignments in the US, increasing attention was being devoted to public–private partnerships as a mode of harnessing governmental (public) legitimacy with private expertise and financing. Our work has concentrated on exploring the governance challenges arising from institutional differences between political bodies and public agencies on the one hand, and market-based private firms on the other. The organization fields in which the two partners operate impose quite different standards and expectation on them; their internal organizational structures are significantly different, and the norms and logics controlling and guiding their actions are divergent (Lindblom, 1977).

In addition to emphasizing the significance of the sectoral differences characterizing the two types of partners in PPPs, this recent work has also attended to the multi-stage nature of project structures. Viewed longitudinally, projects are observed to move through several stages: from conception and shaping as locations, participants and financing are brought together; through design and construction; to operation, maintenance and, finally, dissolution (Miller and Lessard, 2000). Development processes are common to every type of organizational form, but what are distinctive about the evolution through time of large-scale projects are the changing types and combinations of participants involved. Participants who are leading members in early phases may be marginal players in later stages, and participants who are strongly affected by an earlier decision may not have been party to that decision. Such issues pose singular problems for those attempting to design and participate in governance structures.

Another aspect of PPPs that has attracted attention is the problem posed in securing adequate financing. While infrastructure projects would appear at first glance to be ideal vehicles for attracting patient institutional investors such as pension funds that require long-term, steady, inflation-adjusted returns on invested capital, the failure or disappointing performance of many recent projects has dampened interest among many capital managers. The challenge of allocating cash flows and risks among various shifting coalitions of participants adds to the governance burden of project management. This line of work has been led by Ashby Monk, Executive Director of GPC.

As the GPC's interest in PPPs grew, the GPC was fortunate to engage Michael J. Garvin of Virginia Tech to collaborate on private involvement in infrastructure development. In particular, Garvin's research group at

Virginia Tech had examined regulative and financial aspects of PPPs in the United States since the early 2000s through both theoretical and case-based research (Garvin and Cheah, 2004; Garvin and Bosso, 2008; Gross and Garvin, 2011), and it had established a reputation for applications of real options theory (Myers, 1977; Trigeorgis, 1999) to infrastructure projects and PPPs. It also had a strong track record of placing graduates with some of the largest infrastructure consultants and developers in the world, such as Arup, ACS Infrastructure Development, Cintra, KPMG and Skanska Infrastructure Development. With the GPC's growing interest in PPP shaping, management and financing, Stanford and Virginia Tech began collaborative research funded by the US National Science Foundation to bring various views about governing complex arrangements such as PPPs together in a common framework.

These are among the principal theoretical frameworks utilized and techniques employed to address the problems and issues described in the present volume. The diverse perspectives on PPP governance represented by the various chapters in this book are the outcomes of this collaboration.

ACKNOWLEDGMENTS

The Global Projects Center and the editors and authors of this book have all benefited enormously from the contributions of many researchers, and our research has been financed, guided and assisted by dozens of governmental and corporate leaders. We express our very sincere appreciation to all of them for their inspiration, passion and efforts in support of our work. We want to single out some of the key contributors, while thanking all of the others whom we do not name explicitly.

The GPC's first two Executive Directors, Dr Julie Kim and Dr Ryan Orr, worked heroically to bring together the initial industry and government affiliates and shape the research agenda of the Center from its beginning. They have continued to support the center as it has evolved. Dr Ashby Monk, a co-author of two chapters in this book, is the third Executive Director of the GPC. Ashby added the investor perspective on PPP governance to our research agenda, along with a new set of highly engaged industry affiliates from global pension and sovereign funds.

To our past and present industry and government affiliates we express our heartfelt thanks for their farsighted vision in providing financial support, access and guidance for GPC's basic and applied research program. Their support provided the critical early funding and guidance for us to lay the groundwork for larger, externally funded projects aimed at understanding and enhancing PPP and investor governance.

To our “collaboratory” partners in other academic institutions we express our sincere appreciation and enormous respect for their openness to share information, contacts and ideas with us. At different times, we have benefited from deep collaborations with colleagues at: Aalto and Åbo Akademi Universities in Finland; UCL, Imperial College and Manchester Business School in the United Kingdom; QUT and Monash University in Australia; Stellenbosch University in South Africa; and Tsinghua and Tongji Universities in China.

Australia’s three eastern states – Queensland, New South Wales and Victoria – all have long histories of PPP delivery and have evolved mature PPP governance regimes and innovative new PPP delivery models. Ross Israel and his colleagues at Queensland Investment Corporation, a long-term GPC affiliate, generously organized access for the GPC to a tremendous set of contacts from all sectors of the PPP institutional field, and provided rich in-kind support for Dr Levitt’s interviews during 2016 to learn about Australia’s history with, and current governance of, PPPs.

The GPC’s Advisory Board – Duncan Sinclair, Ed Schafer, Elliott Donnelley II, Joe Lonsdale, Mei Ye, Paul Rosenstiel and Peter Pereira Gray – have provided valuable review and input to many of our initiatives over the years. We thank them for their service.

As in most university research, the real heroes behind the book are the many students, postdoctoral scholars, research associates and visiting scholars who did the 7 x 24 “heavy lifting” in developing the data, understandings, insights and theories laid out in the chapters of the book. We thank all of them for their passion, curiosity, energy and integrity, and wish them well in their careers.

Pouya Rezazadeh Kalehbasti, a Stanford graduate student, provided valuable copy-editing and organization of the chapters and figures in preparing the final manuscript. We thank Pouya for his careful assistance in organizing a coherent submission package of this manuscript to the publishers under tight deadlines.

We gratefully acknowledge financial support from the US National Science Foundation’s Grant #1334292 for a four-year Stanford–Virginia Tech collaborative research program on PPP governance, and the ongoing support of the Global Projects Center for many of the research efforts reported in this book.

All conclusions and opinions expressed in the book are exclusively those of the editors and authors. We sincerely regret any errors or omissions in our reporting of the research and take full responsibility for them.