RESEARCH CONTRACTING AND GRANTING WITH THE STATE OF CA:

CHALLENGES AND SOLUTIONS

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Abstract

of

RESEARCH CONTRACTING AND GRANTING WITH THE STATE OF CA:

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by

Puneet Bhullar

Current contracting and granting practices in the State of California are overly burdensome and lead to inefficient management of time, energy, and funds. These processes consume already-scarce resources for state agencies, contractors, and grantees. Worse, these processes risk reducing access to the technical expertise available through state-funded research. In order to help mitigate this problem and to maximize public benefit projects, it is critical to first understand some of the challenges contracting and granting experts face when entering into agreements with one another.

In this study, I—as an employee of the California Council on Science and Technology (CCST), guided by a Steering Committee of experts—aimed to identify common barriers in the State's contracting and granting processes, and to offer solutions that may help reduce some of these challenges. This thesis covers the first part of a larger, two-part CCST study about contracting and granting challenges pertaining to research performed with and for the State of California, from multiple perspectives: academic and research institutions, and state agencies. In this first phase of the study I focused on surveying and interviewing multiple contracting and granting experts from CCST Partner Institutions and from within CCST in order to characterize contracting

and granting from the perspective of California academic and research institutions. Concentrating on five major areas of concern as identified in an initial survey (indirect costs, staff capacity and workload, intellectual property, invoicing and reporting, and institutional risk), I discovered some of the cross-cutting challenges these institutions face when entering into contracts and grants with the State, as well as some potential solutions.

Academic partner interviews and surveys revealed several overarching themes, including the need for greater accountability and a lack of flexibility and consistency within state contracting and granting practices. These issues produce delays and inefficiencies in the execution and management of contracts and grants. I find that previous attempts to reduce difficulties have not fully addressed the issues, such that significant challenges remain to achieving efficient negotiation and enactment of contracts and awarding of grants for research. Model contracts, for example, either failed to include all intended provisions or failed at achieving broad consistency once implemented. I offer recommendations aimed at improving accountability as well as flexibility and consistency, while additionally providing other benefits. More broadly, implementation of the recommendations should improve the ability of the State to access scientific expertise for public benefit.

_____, Committee Chair
Edward L. Lascher, Jr., Ph.D.

_____
Date

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Chapter One

INTRODUCTION

In June 2016, Governor Brown signed a bill requesting the California Council on Science and Technology (CCST) to conduct an assessment to help advise state decision makers on the long-term viability of gas storage facilities in California. The legislation required CCST to deliver an assessment in 18 months. Contract negotiations began immediately, but due to challenges, work on the project could not begin until six months later, leaving only one year for the entire scientific assessment to be completed and then undergo CCST's rigorous peer review process. The shortened timeline limited the scope of work, and therefore the breadth of the assessment. Contracting difficulties extended beyond the negotiation phase; a lack of flexibility within the contract's terms and conditions led to invoicing and reporting complications, consequently delaying the project's execution. As a result, the contract needed to be restructured midway through to satisfy all parties involved, including the agency, subcontractors, and CCST. This process took resources away from the project itself, specifically the time and energy of the contract managers and staff from all the entities involved.

Soon after, in September 2016, the California State Legislature passed a bill requesting CCST to assess the ability of the State to inject biomethane into common carrier pipelines. Due to a host of other contracting challenges, the contract was not finalized until September 2017, a full year later. The time it took to finalize the contract impacted CCST's ability to start work on the project, and delayed project delivery.

As a Program Assistant working at CCST at this time, I was able to see firsthand the difficulties in the State contracting process. Every time an invoice went unpaid, I saw the strain it put on the organization and the project managers. I listened into multiple phone calls where CCST leadership had to explain to subcontractors why they were not getting paid on time. I also helped the project managers rework the budget and contract language for the project multiple times. It became abundantly clear that this process was inefficient and overly burdensome.

These experiences, however, are not unique to me nor CCST. The above examples are illustrative of larger problems facing a variety of stakeholders with respect to contracts and grants. These problems are particularly alarming given the immense workload of the State and therefore the breadth of responsibilities that must be allocated by the State to contractors and grantees. For example, contractors manage the California Poison Control System, administer and monitor professional development for the State's K-12 teachers, and develop the State's earthquake preparedness plans. Further, contractors are essential partners in conducting state projects funded by the federal government, including the State's food assistance programs for low-income citizens, and earthquake monitoring. When contracts and grants are not administered in a timely manner, a cascade of unintended consequences follows, including project delays, layoffs, and lost essential resources and services for California citizens. The California State Legislature recognized the inefficiencies of State work allocation with a subset of partners (the two state university systems) in 2010:

"The University of California and the California State University receive about six billion dollars ($6,000,000,000) from the State General Fund each year. In the 2006-07 fiscal

year, state agencies and departments entered into more than 2,500 contracts or contract amendments with the University of California and the California State University. Many of these contracts contain similar provisions, such as provisions dealing with issues relating to liability, intellectual property, the right to undertake additional research, the right to publish, hiring, personnel, invoicing, and payments. The provisions of each contract or contract amendment are typically negotiated between attorneys representing the state agencies and departments and attorneys representing the University of California and the California State University. The drafting of many of these contracts takes six months to a year, and, in many cases, the State is paying for both sides of the contract negotiations…" - (Cal Ed. Code 67326)

CCST approached me to conduct a study on this issue in order to determine if there were any changes CCST Partners, the State, or CCST could make to help streamline the process. I agreed to take this project on because of my initial frustrations with working on a state contract. I was interested to learn what stakeholders could do, if anything, to help make the process less burdensome. The overall goal of this study, carried out in two phases, is to examine contracting and granting practices and difficulties among all of CCST's Partners.

This first phase focuses on the perspectives of California academic and research institutions, as well as CCST. The report identifies some of the cross-cutting challenges these organizations face when entering into contracts and grants with one another and the State. In this phase, I also discuss possible solutions to help mitigate these challenges. This phase of the report is complete and I have based my thesis on the results.

In Phase II of this study, which CCST will conduct at a later date, CCST will interview contracting and granting experts at the state level in order to highlight some of the challenges state agencies face when contracting and granting with California academic and research institutions and with CCST. CCST will also ask state agencies to

identify possible solutions to resolve these barriers.[1] This phase of the report will be completed at a later time and does not form the basis of my present thesis. As a CCST staff member, I may or may not be assigned to complete the second phase of the report.

CCST and its Partners

CCST is a nonpartisan, nonprofit organization established via the California State Legislature in 1988 to provide objective advice from California's scientists, academic research institutions, and industry experts on policy issues involving science. CCST responds to the Governor, the Legislature, and other state entities which request credible, relevant, and independent information and analysis to inform policy decisions related to science and technology issues. CCST also works with other nonprofit organizations on projects that meet the needs of the State. Since its creation CCST has built a network of the State's foremost scientists upon which to draw for the technical expertise required to address complex and high-profile issues of interest to decision makers. CCST's Partner Institutions include the University of California system, California State University system, California Community Colleges system, Stanford University, and Caltech, as well as the federal Department of Energy and NASA laboratories located within the state.[2] CCST's ability to access the depth of expertise provided by these institutions is

[1] Due to the current pandemic, I was not able to gather the data necessary to complete Phase II at this time. CCST will continue work on this project when CCST leadership determines it is possible to do so.

[2] CCST Partner Institutions support CCST and enable CCST to leverage the collective expertise from some of the best universities and facilities in the world. Partners are represented on the Board of Directors, imparting crucial backing, support, and resources to CCST. See source: https://ccst.us/partners/

crucial to fulfilling its mission of providing independent science advice to decision makers.

The State of California relies on its incredible network of academic and research institutions to inform its most complex and pressing public policy issues, such as decarbonizing the economy, developing a sustainable transportation system, and solving the housing crisis. Academic and research institutions, including CCST, can work with almost one hundred different agencies a year. Every year, the State allocates billions of dollars to state-funded research on topics geared toward ensuring California's future and continued focus on developing sound research, industry, and policy. Despite access to these intellectual resources and a willingness to invest in them, the State's current contracting and granting practices reduce the efficiency of its investments.

CCST and CCST Partners recognize that the burdensome contracting and granting infrastructure that currently exists has developed over time due to the well-intended desire to responsibly and judiciously steward state taxpayer, rate payer, and bond financier funds. CCST and its Partner Institutions also strive to produce valuable research while using State funding wisely. This report highlights challenges and possible solutions that will ideally result in streamlined contracting and granting practices that make sense for public and private universities and federal labs in the state, and CCST.

Challenges in the management of contracts and grant agreements, as well as in the processes to secure contract and grant agreements between CCST's Partner Institutions, state entities, and CCST, impede the ability of decision makers to access relevant and timely information. As a first step in addressing this issue, on behalf of CCST, I

characterize common challenges and suggest potential solutions to overcome identified barriers in the contracting and granting process and management.

Report Purpose

This report was initiated by CCST's leadership, including its Executive Board, after discussing a number of barriers that CCST and its Partner Institutions face when contracting with each other and the State. In February of 2019, CCST hosted a leadership roundtable discussion between the CCST Executive Board, CCST Partner Institutions, and state decision makers about decision makers' access to science advice. During these conversations the issue of contracting between these institutions was raised multiple times. CCST leadership, Partners, and decision makers agreed that lengthy contract negotiations and processes were preventing important research from taking place and were ultimately wasting valuable resources. It was clear that there existed numerous and complex barriers which have impeded the ability of CCST and its Partner Institutions to fulfill their research, education, and public service missions, including CCST's mission of delivering credible, relevant, and independent information to state decision makers.

Therefore, the purpose of both phases of this study is to (1) characterize the complexity of contracting and granting issues faced by CCST Partner Institutions, state entities, and CCST; and (2) identify potential solutions to address these issues, ideally facilitating a more straightforward pathway to the generation and dissemination of scientific information. As presented in later chapters, the five high-priority topics identified in this report are staff capacity and workload, indirect cost rates, invoicing and reporting, intellectual property, and risk (e.g. indemnification, liability, warranty).

Differing expectations between negotiating parties on these issues often lead to delays in execution of contracts and grants and to inefficient use of administrative resources (in agreement preparation, invoicing, payment, communications, and project monitoring). In describing these issues, this report identifies key areas for improvement and strategies all parties could choose to implement to help streamline the contracting and granting process within the State. The focus of the report is on service-based contracts and research grants; I do not examine the challenges of information technology contracts.

I used two research instruments to gather both qualitative and quantitative data for this report – a survey and interviews. The survey instrument allowed me to gather preliminary data for the report, narrow the scope, and focus my interview questions. The survey helped me generally understand the top contracting and granting issues research institutions—including CCST—are facing. I then conducted interviews with contracting and granting experts at CCST's Partner Institutions and at CCST to get a deeper sense of why these challenges exist and why they are barriers in the contracting and granting processes. With the help of the Steering Committee and the CCST team, I coded these interviews and used the results as a basis for this study.

Possible Outcomes

Challenges in California's contracting and granting processes are not new. The California State Auditing Bureau has released several reports highlighting contracting and granting issues faced by various state agencies. These reports indicate problems due to lengthy contract negotiations and inefficient use of resources. Over the last several decades, the State has made efforts to improve these processes. The development of the

State Contracting Manual, State Administrative Manual, and the creation and implementation of the California Model Agreement and California Federal Labs Model Agreement are examples of continued efforts by the State and California's academic and research institutions to streamline both processes.

However, challenges persist. This study highlights the most frequently cited issues that are hindering the efficiency of contracting and granting. In developing this report and continuing the conversation, I propose possible strategies to help alleviate some of the challenges faced by the State, CCST Partner Institutions, and CCST when contracting and granting with one another.

Chapter Two

BACKGROUND AND LITERATURE REVIEW

The State of California is the most populous state in the nation with over 35.5 million residents. It is also the third largest state in square miles behind both Alaska and Texas. With a GDP of over $2.7 trillion, California is one of the wealthiest states in the country, as well as one of the most socially and politically influential.[3] This wealth of resources is managed by a mosaic of agencies and departments who control the operations of the State of California including maintaining infrastructure (fire and police force, roads, energy, environmental protections, emergency services, professional accreditations) and providing services for citizens (healthcare, education, and welfare). When services cannot be directly delivered by the State's civil servants, state agencies use two distinct mechanisms, contracts and grants, to engage other entities in the service and performance of public benefit projects.

Given the scale of California's footprint (in population, size, and economic wealth), the State's ability to efficiently contract with and issue grants to third parties is imperative to fulfilling the responsibilities and goals of the State and its citizens. The State's contract and granting processes can, however, pose significant administrative redundancies, inefficiencies and frustrations for all stakeholders wishing to engage in state-funded work.

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[3] See Source: https://www.latimes.com/business/la-fi-california-economy-gdp-20180504-story.html

Some challenges have arisen as a result of a lack of uniformity or consistency among agency requirements and expectations. Such expectations begin, as is often the case, in the law. The California Public Contract Code was created with the intent to ensure best practices and responsible stewardship of state funds. The State uses the Public Contract Code to set laws that encourage low cost, best value, and fair and reasonable methods for selecting contract proposals.[4] Generally, the laws and regulations governing the issuance and administration of contracts differ significantly from those governing the issuance and administration of grants. In addition to legal and legislative requirements, state agencies independently develop and layer extra internal procedures and rules for contracting and granting, possibly generated from a perceived need to augment administrative controls to prevent fraud and abuse and/or from the need to increase real or perceived accountability to ensure the agency receives a quality product on time.[5] These agency-specific rules can vary greatly from agency to agency so that a contractor or grantee experienced with one agency's requirements encounters a completely new set of administrative hurdles when engaging with a different state agency. Complicating matters further, contractors and grantees themselves (which may include public and private universities, federal research institutions, and nonprofits) have their own set of distinct practices and policies relating to the acceptance and administration of contracts

[4] Note that contracting and granting authority does not solely exist within the Public Contracting Code, but can also exist in the Government Code, the Health & Welfare Code, and the Education Code.
[5] Note that academic and research institutions may have their own process or standards in place to ensure quality and timeliness of the products they deliver. Generally, researchers are held accountable to the agreed upon terms or scope of work of the grant or contract. Following through with their commitments helps to solidify a positive working relationship that may increase the researcher's possibility of receiving future contracts and/or grants.

and grants. Each category of academic and research institution discussed in this report has its own set of practices that depend on each institution's different oversight regulations, business models, and best practice frameworks. Collectively, this diverse set of rules, practices, and procedures often leads to lengthy agreement negotiations, consequent costs and delays, and compounded administrative burdens inflicted upon all participating entities.

This report is premised on the idea that we can do better: it is possible to make changes that will improve processes and timelines for executing grants and contracts. However, we must first better understand the challenges faced under the current conditions. In this chapter, I provide a brief overview of state and federal contracting and granting practices and analyze the different efforts of the State and federal government to address past challenges. In doing so, I highlight the persistent challenges faced by contracting and granting parties within the State.

California State Contracting Landscape

A contract, in the context of this study, is an agreement between a state agency and one or more entities to perform a service; in some instances, the service is characterized as research by the contractor.[6] The statewide rules that apply to contracts stem from the State Contracting Manual (SCM) and the State Administrative Manual (SAM). The State Department of General Services (DGS) created both documents to help streamline and control the contracting processes conducted by individual state agencies.

[6] Although there is some debate on whether research should be considered a "service," the State generally views this to be true. Chapter IV of this report touches on this debate.

In this section, I first describe the contracting process and then explain the purposes of both documents, the role of DGS in maintaining the SCM and the SAM, the role of state agencies in following these two documents, subsequent issues that persist even after the release of these resources, and the results of state audit reports that examine the impact of these documents.

California Contracting Process

According to the SCM, the state contracting process varies based on the specific conditions of each contract, but generally there are eight steps agencies must follow. As depicted in Figure 1, the first step in the process is for (1) the contracting agency to identify a need for a service. In doing so, the agency must consider the type of service needed and the specific conditions of the service (e.g., ongoing or one-time, existing or new). The state agency must then (2) determine whether the service can be performed within the state civil service, either within the agency itself or by another state agency.[7] Once the agency meets these conditions, the agency must (3) consider the availability of funding for the service it is seeking.

After the agency justifies the contract and determines funds are available, the agency must (4) choose the most appropriate method to select the contractor. The method of selection will depend on the conditions of the contract and the service the agency is seeking. This means the agency can either select a contractor through a competitive bidding process via an invitation for bids or request for proposal (RFP), through a less

[7] Note that the UC and CSU systems can be considered "another state agency" for these purposes.

competitive process that limits bidding to contractors preapproved by DGS or via interagency agreement, or through a non-competitive bidding process approved under an authorized exemption. Other methods include grant funding opportunities which, unlike RFPs, are not fee-for-service. An agency must decide which method is most appropriate for the funding opportunity. Next, following law or policy guidelines, the agency will likely (5) advertise the contract opportunity for all solicitations except for an approved non-competitive contract. DGS may grant exemptions to the condition of competitive bidding if the agency is able to justify why a competitive bidding process is not necessary for the contract.

The agency will then (6) prepare the contract document with contractor input on the finalized scope of work and budget.[8] The contract terms and conditions must be approved by DGS if the budget is above a specified dollar threshold. The prepared document may undergo negotiation and changes when reviewed by the contractor, in accordance with the contractor's policies and practices. Therefore, (7) obtaining all appropriate signatures on the contract for approval and distribution may occur a significant time period after the need for the contract was originally identified by the state agency. Lastly, the agency must (8) identify a contracting manager within the agency itself who is responsible for measuring the contractor's success in delivering the services written in the contract, tracking deadlines and the quality of deliverables, and measuring

[8] Step 6 can be completed earlier in the RFP proposal process. The contract may be included in the RFP and therefore cannot be negotiated or changed once the bid is closed.

compliance to the contract terms and scope of work.[9] While these steps make up the framework for California's contracting process, it is also important to note that in the lifecycle of the contract, contract managers from both the State and the contracting institution follow numerous additional steps to ensure contract success and close out.[10]Therefore, problems develop not only in the process of implementing a contract or grant between the parties, but also in the parties' management of the contract's requirements throughout the life of the project. It is important to keep in mind that challenges can arise from a combination of factors including funding authorization, grant or contract solicitation, and the nature of the proposal itself.

State Contracting Manual (SCM)

In order to centralize business management functions and services provided to and by the State, the Legislature directed DGS to maintain, develop, or prescribe processes, procedures, or policies for contracting.[11] In response, DGS Office of Legal Services developed the SCM to help state agencies access common rules for those contracts that do not pertain to an information technology service. The manual is not intended to override statutory requirements or mandates from Executive Orders and Management Memos. Instead, the purpose of the manual is to help state agency

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[9] See Source: https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/State-Contracting

[10] Chapter 9 of the State Contracting Manual describes the different steps that contract managers must take to successfully manage a project. See source: https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/State-Contracting

[11] California Government Code § 14615.1. See Source: https://codes.findlaw.com/ca/government-code/gov-sect-14615-1.html

contracting experts who negotiate or manage state contracts understand the statutes, regulations, and state policies necessary to meet the agency's legal responsibilities.

The SCM cites the California Civil Code in defining a contract as "an agreement to do or not to do a certain thing."[12] It is a legal document which carries an obligation between two or more clearly identified parties. According to the SCM the contract must also set terms, conditions, and a statement of work, as well as the value of the contract. DGS created General Terms and Conditions and General Interagency Conditions, prior to the creation of model agreements, as boiler-plate terms for various types of contracts.

Once the state agency identifies the need for service, the agency must then consider numerous contract provisions including which terms are appropriate to include,[13] time for execution, authority and approvals by DGS Office of Legal Services or other State agencies, funding source, management of contract deliverables and payment, and bidding requirements.

Table 1 briefly summarizes the contracting responsibilities for DGS and other state agencies.[14]

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[12] CC § 1549 http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=CIV&sectionNum=1549.

[13] DGS has created and supported various boilerplate term templates over time for use in various situations. These include the General Terms and Conditions for non-IT service contracts (the "GTC"), General Terms and Conditions for Interagency Agreements (the "GIA"), Contractor Certification Clauses (the "CCC"), and (most recently) the University Terms and Conditions associated with the California Model Agreement (the "UTC" and "CMA", respectively.) See https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Standard-Contract-Language#@ViewBag.JumpTo .

[14] Note that Department of General Service's (DGS) responsibilities go beyond trainings and approvals. DGS is responsible for maintaining authority for many forms of procurement and contracting. The Department oversees other departments in which it delegates authority to ensure they follow all state laws and practices in regards to procurement. See source: https://www.dgs.ca.gov/About

Table 1: Contracting Responsibilities

Department of General Services	State Agencies
Provide training and guidance on state contracting statutes, regulations, and policies	Design and implement contracting programs to acquire services for the State
Approve final contracts over $10,000*	Obtain services, secure appropriate funding, adhere to state laws and policies
Approve contracting exemptions sought by agencies	Write contracts that protect the State's interests and obtain necessary approvals

*DGS policies allow state agencies with a consistent record of compliance to obtain a contract with a higher threshold.

It is important to note that state agencies and their in-house counsel commonly place additional terms and conditions on contracts in order to protect themselves from fraud and abuse. Agencies try to reach a balance between what DGS and the agency's internal legal counsel deem appropriate. There are different levels of risk an agency will incur based on numerous factors including the contractor, the type of service, and the audit history of the agency. Layering on additional terms and conditions often delays contract implementation and causes tension between contracting entities.

The State Granting Landscape

Distinct from contracts, a grant bestows or confers a benefit from one entity—in this case the federal or state government—to another entity, the grant recipient.[15] Grants do not require DGS approval and the SCM does not apply to grants, although the SCM does set forth criteria for the classification of an agreement as a grant. According to the SCM, a grant must: (1) fall under a specific statutory authority, (2) advance a purpose

[15] SCM Glossary of terms. See source: https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/State-Contracting

other than the direct benefit of the State, and (3) permit performance to remain under the control of the grantee, not the State. State grants may have originating sponsors, such as the federal government. In such cases, the federal government imposes rules that must be passed through, as described in the Uniform Guidance.[16] When the State issues grants under federal grant funds, the Uniform Guidance considers the State a "pass through entity" and the party receiving the funding from the State as the subrecipient.

Readers may benefit from a figure comparing key aspects of the contracting and grant processes as presented in Figure 1.

[16] See Uniform Guidance section §200.331 https://www.ecfr.gov/cgi-bin/text-idx?SID=50d040c41b6f97c9ec19a6b3a37e1a57&mc=true&node=se2.1.200_1331&rgn=div8

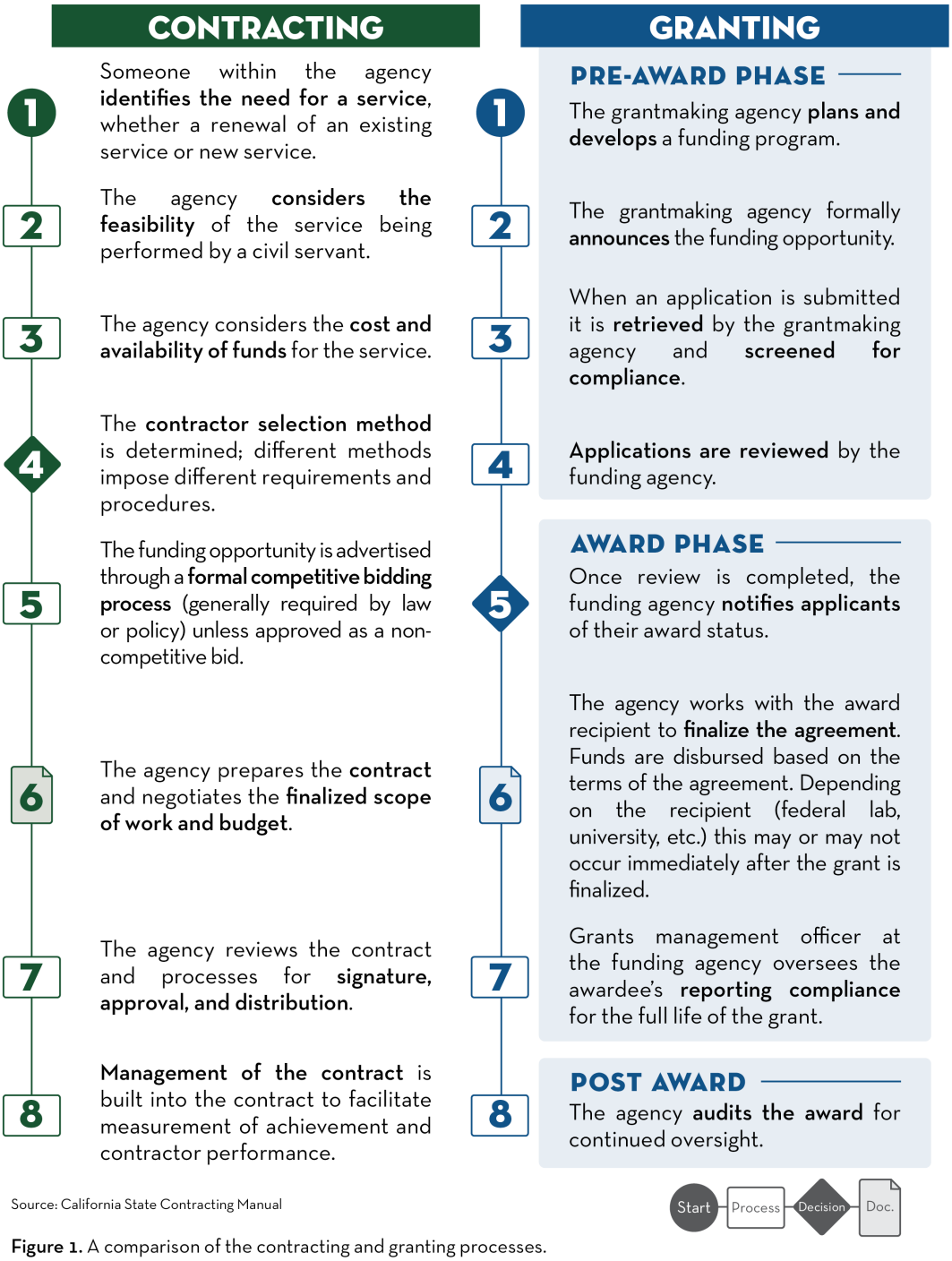

Figure 1. A comparison of the contracting and granting processes.

State Administrative Manual (SAM)

In addition to the SCM, state agencies consult the SAM. The Department of Finance created the SAM in 1953 to act as a reference source on management policies for state departments. In 1990, the responsibility of maintaining the SAM shifted to DGS. Since then, DGS has used the SAM to communicate statewide policies, procedures, requirements, and information about best management practices including policies and provisions on granting and contracting.

The SAM seeks to outline minimum guidelines for the State for research undertaken for the public's interest and concern. State departments that receive funding from the Legislature to conduct research are authorized to administer grant funds through state financial procedures. In contrast, the State Clearinghouse reviews all federally-funded grants mandated by executive order. In addition, federal funds designated for "new activities" not included in the agency's budget, previously denied activities by the Legislature and administration, and "sensitive policy issues" all require review by the Department of Finance.[17] Additionally, the State Controller's Office is responsible for auditing all funds disbursed by the State and performs independent audits of government agencies that spend state funds. The Controller's Office also performs all statewide accounting and reporting functions.[18]

Both the SCM and SAM are important to understanding how California manages both contracts and grants. These documents are intended to help clarify and centralize

[17] See source: https://www.dgs.ca.gov/Resources/SAM
[18] See source: https://www.sco.ca.gov/eo_about_func.html

contracting and granting practices among state agencies and contractors, including California's research institutions, and to ensure transparency and oversight control. However, through my review of the contracting and granting landscape resources and process, I found that there are many rules and regulations imposed centrally by DGS, the Department of Finance, the State Controller's Office, and individually by specific agencies, yielding an environment where time and effort may revolve around checking off detailed minutiae rather than performing the assigned project. To illustrate the lack of flexibility and the absence of consistency among agencies (or even programs within the same agency), one must look no further than SAM 8422.2 (last revised 8/1992) which details how invoices are to be submitted by state agencies to the Controller's Office. (These requirements are then passed down from the state agency to contractors and grant recipients):

> *"...Original copies of invoices and/or vouchers or acceptable copies (see SAM Section 8422.1) arranged in the same order as payees' names are listed on the claim schedule...*
>
> *"Adding machine tape attached to the first invoice of a claimant whenever more than one invoice from the same claimant is included in a claim. All invoices of the claimant will be listed on the tape...*
>
> *"All documents in a claim schedule will be bound together at the top by a tape or cord, passed through holes punched in the documents, and tied in a bow knot at the back of the claim schedule. This will permit easy removal for audit, correction, and any required central mailing of documents by the State Controller's Office. Be sure that necessary information is not obliterated when documents are punched. Agencies wishing to use backing sheets may use them only for small size invoices and for those invoices wherein necessary information (vendor's name, address, etc.) would be obliterated if punched."*

University faculty members and other contractors and grant recipients could use their expertise and time more efficiently to benefit the common good rather than complying

with overly burdensome and unnecessary requirements.[19] Unfortunately, certain agencies do reject invoices and deny payments if such parameters are not dutifully followed. How did state oversight processes become so detail directed and micromanaged? The answer may be found in past state audit reports and potential overcorrections by agencies to audit findings.

The Oracle Contract [20]

Many state contracting reforms resulted from the 2002 Oracle contract in which the State entered into a $95 million no-bid contract with the software company Oracle. State auditors investigated the contract, which promised to upgrade state government computer systems, and determined that it would cost California taxpayers up to $41 million more than originally estimated. It was also disclosed that a government aide accepted campaign contributions from the company days after the partnership was formed. The State later rescinded the contract, but the entire situation resulted in changes in state contracting practices. For example, the Department of IT was formally dismantled and was replaced by a new IT board with authority to conduct public hearings on select contracts and projects. In response to the Oracle contract, the State pivoted to support more oversight of state projects and contracts, increasing administrative controls and forming the framework for current contracting practices.[21]

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[19] Note that the process for submitting an invoice for academic and research institutions is the same for a private contractor. One reviewer noted that invoicing requirements have not changed likely due to the current invoicing technology used by the State.

[20] See source: https://www.zdnet.com/article/calif-bill-responds-to-oracle-scandal/

[21] One reviewer stated that procurement reform was necessary to respond to the Legislature's and Bureau of State Audit's findings, however, the State should strive for a balance between control and expediency.

California State Auditor Reports

In 1996, the Bureau of State Audits (Bureau), tasked with the responsibility of ensuring effective and efficient administration and management of the State's public funds and programs, reported on the State's compliance with laws and regulations for contracts. The report identified weaknesses in the contracting process between state departments and contractors. The report found that some state departments used interagency agreements with California universities, colleges, and foundations, requiring them to act as middleman by subcontracting to specified private contractors. They did this to simplify the process by bypassing the competitive bidding process, which would have been legally mandated had the state agency engaged the private entity directly. The report ultimately found that State departments were using loopholes within the SCM and SAM to effectively enter into sole-source contracts with private entities. Through these discoveries, the Bureau found that state departments were not (1) managing contract funds appropriately, (2) monitoring compliance with contract terms, or (3) complying with other contracting requirements.[22]

The following year, the Bureau reported on a review of contracting practices between five state agencies and their contractors. This report revealed that departments were not monitoring contractor performance and evaluating services before paying invoices. The Bureau also reiterated findings from its 1996 report, noting the State had not addressed those concerns. Lastly, the report explained the importance of master agreements in ensuring the effectiveness of contracting, but also stated that the State had

[22] See source: https://www.auditor.ca.gov/pdfs/reports/95015.pdf

not established a centralized approach that ensured departments used these agreements appropriately.[23] Based on these findings, the report indicated a need for more effective and efficient contracting practices in order to protect public interests.[24]

In 2000 and 2011, the Bureau reported on audits of the State's management and protection of intellectual property (IP). The reports highlighted copyrights, trademarks, patents, and trade secrets. Both reports concluded that it is important for the Legislature to take steps to help agencies manage and protect the State's IP. However, between the time of both audits, the State had not enacted a statutory framework to help agencies achieve this goal. Although DGS provides agencies with "government purpose" IP language, the reports found that many agencies were seeking further guidance from the State on IP.[25] According to the report, the result of this lack of direction was much variation among agencies when managing and protecting State IP. These audits pointed to the lack of uniformity in IP practices and the need for standardized practices among agencies.

Although the Bureau has been diligent in examining and reporting on inefficiencies in state contract and grant practices, they do not have authority to require changes, and overly burdensome requirements still persist, leading to additional inefficiencies. Agencies like the California Government Operations Agency[26] do exist to

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[23] Note that there is no single agency charged with monitoring deviations and determining why they occur.
[24] See source: https://www.auditor.ca.gov/pdfs/reports/96015.pdf

[25] "As of 2012, DGS was given the authority under statute to help state agencies and departments manage and protect their intellectual property assets." https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Intellectual-Property-Program
[26] See source: https://www.govops.ca.gov/

help improve management and accountability of government programs and increase efficiency in government operations. However, the problem continues to compound given that some agencies have implemented layers of additional rules and practices, heightening the level of scrutiny and administrative resources needed for contract and grant agreement management.

State Legislative Efforts to Solve Contracting and Granting Issues

In 2009, the California State Legislature tackled one piece of the complicated contracting and granting problem. Assembly Bill 20 (2009), chaptered as California Education Code §67325 et seq., focused on a large subset of the State's contracting and granting activities: those to University of California (UC) and California State University (CSU) entities.[27] In this bill, the Legislature found that:

> *It would be more cost effective and efficient if the State and the University of California and the California State University would establish standardized "boilerplate" provisions that would apply to all contracts[28] between the State and the University of California or the California State University, allowing for variations only in unusual situations.*

The new law required CSU and DGS—and urged UC—to negotiate and establish a model agreement by July 1, 2010. This agreement would serve as a template and include provisions governing (1) liability, (2) intellectual property, (3) the right to undertake additional research, (4) the right to publish, (5) hiring and other personnel-related

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[27] The University of California and California State University System are both funded through public and private funds. The university systems rely on state funding through the annual state budget and also rely on tuition and student fees.

[28] However, Cal Ed Code §67325 defines all "contracts" as "a research, training, or service agreement between the State and the University of California or the California State University, or a grant from the State to the University of California or the California State University for research, training, or service." (https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=EDC&division=5.&title=3.&part=40.&chapter=14.27.&article=)

matters, (6) invoicing, (7) payments, (8) dispute resolution, (9) travel, (10) termination, and (11) administrative overhead and indirect costs. This deadline proved unrealistically optimistic.

The two university systems and the State approached the development of the model contract with differing needs. In order to create a more uniform process, the universities sought to align federal and state requirements, as appropriate. For example, the university accounting infrastructure accommodates federal invoicing requirements, federal costing rules, and federal audit and review processes.[29] Therefore, the process for universities would be simpler if the State's invoicing and costs accounting requirements in contracts and grants were similar. Additionally, the UC Regents and CSU Board of Trustees establish travel and per diem rates for use by all UC and CSU employees, which were approved for use by the DGS Office of Legal Services.[30] Further, UC's policy of full-cost recovery of activities performed by UC (which is substantially similar to the full-cost recovery policy of the State) requires collection of indirect costs (calculated in accordance with federal cost accounting requirements) under each contract and grant. Meanwhile, the state negotiators from DGS, who sought input from state agencies, had their own priorities. For example, they needed to follow the travel reimbursement policy set by CalHR and invoicing requirements established in the SAM. Funding opportunities carry little to no extra funds to cover the universities' indirect costs, which are real costs

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[29] For example, the University of California receives seven federal dollars for every one state dollar. (See https://www.universityofcalifornia.edu/uc-system)

[30] In a comparative review of UC and state travel and per diem policies, findings revealed that the UC travel policy, in some cases, is more restrictive than the CalHR policy. Contracts and grants that require UC to use the CalHR policy would force UC to operate two different systems for monitoring travel expenses and reimbursements.

for the universities performing the research. Complicating the process further, the law required one model agreement to be constructed for a multitude of services. The model agreement was required to encompass contracts and grants for all research, training, and service activities, even though the State's procedural and administrative structures for both contracting and granting varied greatly. While two of the subject provisions—indirect cost rate and intellectual property[31] —mandated by the legislation were never fully addressed, in 2015 the parties concluded negotiations, having reached agreement on a format and set of terms and conditions that would constitute the new California Model Agreement (CMA).

The CMA comprises an executable face page and a series of exhibits, some of which are required for all agreements and some of which are optional, depending on the work to be undertaken. For example, all agreements would include an Exhibit A1 in which deliverables due to the State are described with set due dates. However, not all agreements would contain an Exhibit F, which is populated with project-specific unique terms in the event that a project must utilize state facilities or computer systems. The boilerplate University Terms and Conditions (UTC) are found at Exhibit C. Conspicuously absent from the UTC are any terms relating to patent rights or indirect costs. Despite five years of negotiations, the parties could not find mutually acceptable positions in these areas.[32] The UTC references the exhibits and the exhibits reference the

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[31] Not all forms of intellectual property were excluded from the California Model Agreement (CMA). Copyrights, trademarks , and trade secrets were included in the CMA while Patent Rights were not.

[32] The parties agreed upon two placeholder patent rights provisions in the CMA Implementing Memorandum of Understanding. In the event that a project scope necessitated patent rights language, on a case-by-case basis, the parties could negotiate whether to insert one of the two provisions into an agreement.

UTC, so that the final product is a modular agreement that can be customized in certain areas to accommodate unique project-specific requirements. To accommodate the California Education Code (Cal Ed Code) §67327(b), which alludes to possible deviations from the boilerplate terms[33], the parties included a placeholder Exhibit G that could be used to overwrite a term or condition in the UTC if a provision within the UTC was "inappropriate" or "inadequate" for a particular project. The parties anticipated that Exhibit G would be used infrequently and that the boilerplate UTC would be broadly accepted.[34]

On November 2, 2015, the parties signed a memorandum of understanding (MOU) which accomplished several things. First, it set the implementation date for the CMA by all UC and CSU university campuses and all state agencies for January 1, 2016. Second, to accommodate Cal Ed Code §67327(d)[35], the parties established a process for seeking an exemption to the legal requirement to use the CMA, consisting of approval needed by DGS, the UC Office of the President (UCOP) and the CSU Chancellor's Office (CSUCO) for each instance.[36] At the time, it was anticipated that such exemptions

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[33] "The standard provisions in a model contract agreed upon pursuant to subdivision (a) shall be used in contracts entered into between the University of California or the California State University and the State, unless both contracting parties mutually determine that a specified standard contract provision is inappropriate or inadequate for a specified contract."

[34] California Education Code at §67326(g): "The Legislature finds and declares… it would be more cost effective and efficient if the state and the University of California and the California State University would establish standardized "boilerplate" provisions that would apply to all contracts between the state and the University of California or the California State University, *allowing for variations only in unusual situations*."

[35] "The Department of General Services and the University of California or the California State University, in consultation with state agencies and departments that have contracts with the University of California or the California State University, may determine those types of contracts for which the use of the model contract would be inappropriate or inadequate."

[36] The headquarters of the University of California system is the Office of the President located in Oakland, California. President of UC, along with the Board of Regents and Academic Senate, oversee and manage

would also be infrequently exercised. Third, the MOU required the parties to routinely engage with each other to troubleshoot implementation or other end user difficulties. Finally, the MOU obligated the parties to consult with their respective constituents (campuses and agencies) annually to ascertain whether the CMA was meeting the needs stipulated by the California State Legislature.

During the first year of implementation, the parties received an overwhelming volume of exemption requests from state agencies who were unprepared or unwilling to transition to the new template and terms. In December 2016, the parties conducted the first survey of their respective CMA users to assess the first year of implementation. Overwhelmingly, UC and CSU campuses reported the following challenges: (1) many state agencies did not know of the CMA and continued to send their agency-specific contracts and grants; (2) many state agencies used Exhibit G to replace the UTC in its entirety with the agency's preferred (pre-CMA) standard terms and conditions without justification[37] that the UTC terms were inadequate or inappropriate for the work to be performed; (3) negotiations and arguments continued over such matters as indirect costs, consistent processes for federal terms that flow down to state contracts, and budget flexibility.[38]

UC systemwide operations. At each individual UC campus, the highest position is a Chancellor. Conversely, within the CSU system, the highest systemwide leadership position is the Chancellor, and each campus is run by a President. Hence the systemwide headquarters of UC is the Office of the President, and the systemwide headquarters of the CSU system is the Office of the Chancellor.

[37] Note that, while exemptions to the requirement to use the CMA must be approved by UCOP, CSUCO and DGS, the addition of an Exhibit G modified terms of the UTC within a CMA is subject to negotiation and approval by the participating state agency and campus.

[38] According to comments made on the 2016 CMA Implementation Survey

Federal Efforts to Solve Contracting and Granting Issues

The State of California and the federal government differ in their contracting and granting practices. Next, I explain the federal government's process and the attempts to centralize contracting and granting practices. I conclude this section with a look at what a model based on federal frameworks could look like using the State of Illinois as an example.

Federal Office of Management and Budget's Uniform Guidance

In order to promote general welfare among all Americans, the federal government awards billions of dollars in both grants and contracts each year. To regulate how agencies obtains services, Congress passed the Federal Grant and Cooperative Agreement Act in 1977. This law aims to guide government agencies in how to utilize federal funds. It specifically outlines when agencies should use contracts, cooperative agreements, or grants. It states that federal agencies should use contracts when acquiring services, and grants and cooperative agreements when providing assistance to the public. In an attempt to streamline practices, the Office of Management and Budget developed guidance in 1978 to help ensure agencies allocate federal funding based on this law.

At the same time that DGS, UCOP and CSU were creating a new model agreement for contracts and grants, the federal government was exploring ways to unify grant terms and conditions across all grantmaking federal agencies while simultaneously reducing the administrative burdens of award management on grant recipients. In December 2014, the Office of Management and Budget's (OMB) *Uniform Administrative Requirements, Cost Principles, and Audit Requirements* for federal awards, commonly

referred to as "Uniform Guidance" was implemented. The purpose of this document is to set a government-wide framework for issuing and managing federal grants with the goal of reducing administrative burden on awardees and ensuring the appropriate use of federal funds. Among its primary purposes, the OMB Uniform Guidance strives to (1) remove conflicting provisions that existed prior to its release; (2) establish standard language for use in grant agreements; (3) identify areas where audits are most necessary to prevent waste, fraud, and abuse; (4) provide procedures for standardizing data processing; (5) clarify cost reporting guidelines for awardees.[39] In addition to these goals, the Uniform Guidance consolidated eight OMB Circulars into one set of guidance bringing together several different types of entities including nonprofits, universities, and other state entities under a singular set of federal regulations. Prior to consolidation, different types of entities were held to different sets of federal regulations, making it difficult to negotiate specific terms. The Uniform Guidance imposes specific requirements as well as limitations on federal agencies. For example, on a federal grant, agencies cannot request progress reports from their awardees more often than quarterly; more frequent reporting is considered too burdensome by OMB. Contrary to state agencies, federal agencies are constrained in the types of additional requirements they are allowed to add to a grant award.

[39] See source: https://www.grants.gov/learn-grants/grant-policies/omb-uniform-guidance-2014.html

Federal Demonstration Partnership

Work to streamline grant management processes between federal agencies and state research institutions began in 1986 with the Florida Demonstration Partnership. Five federal agencies—the National Science Foundation, the National Institutes of Health, the Office of Naval Research, the Department of Energy, and the US Department of Agriculture—collaborated with the Florida State University System and University of Miami to test terms and conditions for research grants in the hopes of simplifying the process and creating a standard mechanism for supporting research. The project has since developed into a six-phased initiative called the Federal Demonstration Partnership (FDP). The FDP is an association of federal agencies, academic research institutions, and research policy organizations[40] who work to streamline the administration of federally funded research. Each phase of the project focuses on effective ways to maximize resources for research grants and contracts and minimize administrative costs. Among other successes, the FDP has streamlined terms and conditions to increase budget flexibility and allow for limited-time, grantee-implemented no-cost time extensions on research.[41]

The National Academy of Science's Government-University-Industry-Research Roundtable convenes the FDP and provides all staff and logistical support for the collaboration. During phase two of the project, the Government-University-Industry-Research Roundtable established the State-Grantee Relations Task Group to develop a

[40] See source: https://thefdp.org/default/about/
[41] See source: https://thefdp.org/default/about/history/

Survey of State Requirements Applicable to Externally Funded Research Activities, intended to provide understanding on state administrative requirements for research. Based on an analysis of the results, researchers determined that both state and federal agencies experience similar administrative barriers when contracting with research institutions, including lack of budget and reporting flexibility and restrictive pre-approval requirements.[42] These results provided the foundation for the Task Group to reduce administrative burdens at the federal level. This is one example of a process the State of California could implement to try to reduce redundancies and burdensome requirements at the state level.

Federal Labs Contracting Act

Even before California decided to streamline its own processes, the need to align state and federal contracting processes to access research from federal entities was clear. In 2006, the California State Legislature enacted Senate Bill 1629 (SB 1629; Chapter 256, Statutes of 2006)[43], the Federal Laboratories Contracting Act (FLCA) to help improve the State's ability to contract with the federal laboratories within the State by resolving conflicting provisions between state and federal law.[44] The legislation recognized the differences in laws, regulations, and procedures that govern research contracts between the State of California, the National Aeronautics and Space

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[42] See source: https://files.eric.ed.gov/fulltext/EJ1213143.pdf

[43] See source: https://ccst.us/governor-signs-national-laboratory-contract-bill/

[44] See source: https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PCC&division=2.&title=&part=2.&chapter=7.&article=

Administration (NASA), and the Department of Energy (DOE). FLCA directed DGS to work with California's federal laboratories to develop model terms and conditions to streamline contracting between the different entities. Both DGS and DOE approved model terms and conditions which successfully addressed the federal policies, rules, and regulations governing: cost accounting standards, procurement and acquisition, audits and oversight, full cost recovery, advance payment and reconciliation, federal rate structures, travel policies and rules, and inability to pay for insurance or indemnify or hold harmless third parties.[45] The model agreement, the Federal Labs Model Agreement (FLMA), also includes patent, data rights, and other intellectual property terms that are in accordance with DOE and federal intellectual property rules and regulations. DGS and NASA have not yet negotiated model terms for contracts.[46]

The FLMA and California Public Contract Code improve contracting practices between DOE laboratories and state agencies by clearly specifying terms that make it easier for the State to contract with the federal laboratories in California. First, the model agreement authorizes state agencies to make advanced contract payments to California-based, federally-funded research and development centers (FFRDCs)[47] prior to receiving

[45] Note as of the time of this writing, DGS technology does not make it possible to comply with ADA accessibility requirements and also post Federal Labs Model Agreement (FLMA) terms on DGS' website. Therefore, DGS had decided not to post the document online until it had been made compliant with the ADA. See source: https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Contracts-with-the-Department-of-Energy-Laboratories

[46] Note that not all federal labs have agreed to model language and the FLMA only works for select labs. The NASA labs in California, for example, must go through a standard contract approval process.

[47] All DOE Labs are FFRDCs, each operated by a DOE contractor. Additionally, NASA JPL is also a FFRDC operated by Caltech. FFRDCs are a special type of government-owned, contractor-operated research centers that conduct research and development in support of federal agencies.

services. The negotiated agreement also forbids state agencies from requiring indemnification based on product liability, intellectual property, and general liability claims. In addition, the model terms prohibit the State from directly auditing the records of federally-funded laboratories. DGS encourages but does not require state agencies to use the model contract. Therefore, contracting issues between FFRDCs and the State still occur. Many state agencies do not know the model agreement exists, meaning state agencies and federal laboratories often still negotiate specialized contracts with one another when agencies decline to accept the terms as written.[48] The State also may generate grant funding opportunities or requests for proposals that do not list the FLMA as a viable option resulting in unnecessary challenges for DOE labs.

Case Study: The Illinois Grant Accountability and Transparency Act

The State of Illinois has adopted federal guidelines to streamline the granting process, a strategy that may work for California. While the federal government implemented streamlined grant procedures for federal agencies and federal grant recipients, and while DGS and universities were creating model agreements to unify contracting and granting processes in California, Illinois was also looking for ways to save administrative resources and improve grantmaking and grant management efficiencies. In 2014, the Grant Accountability and Transparency Act (GATA) became law after the legislation was signed under then-Governor Patrick Quinn. The purpose of

[48] https://sor.senate.ca.gov/sites/sor.senate.ca.gov/files/0842%20policy%20matters%20Research%2003.18%20Final.pdf

the legislation was for Illinois to establish consistent, federally compliant requirements for all grants regardless of the source funding, and to reduce burdensome redundancies in the state granting process.[49] The state law mandated that requirements for administering state grants could be no more restrictive than Uniform Guidance requirements established by the federal government for federal grants. According to the Director of the Grant Accountability and Transparency Unit at the Illinois Governor's Office of Management and Business, before Illinois passed this law there were no uniform processes for granting even within the same agency. Once GATA passed, the State adopted the Federal OMB Uniform Guidance requirements for grant compliance. By doing so the State required agencies to follow the federal framework as opposed to relying on internal rules and processes, thus creating a uniform guideline for granting practices that drives compliance and eliminates redundancies. The Illinois OMB estimates that the implementation of GATA centralized efficiencies, saving the State hundreds of thousands of labor hours working on agreement negotiations, among other things[50]—an estimated cost savings of $250,075,000, according to the 2018 GATA Annual Report. These numbers are based on estimates made by granting experts in Illinois, who report a reduction in the time they spend negotiating terms.

Based on the reported success of GATA by the Illinois OMB, Illinois' innovation of grant management led to the replication of similar laws or frameworks in 38 states and

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[49] Citing significant duplication, Illinois' Management Improvement Initiative Committee noted that 83% of grantees receive awards from more than one state agency, and that there were over 8,000 duplications of common requirements. https://www2.illinois.gov/sites/GATA/Documents/Resource%20Library/GATA-is-Good-Government-Brief.pdf (As a comparison, the UC and CSU systems receive contracts and grants from over 100 distinct state agencies and state programs.)

[50] See source: https://www.dhs.state.il.us/page.aspx?item=83914

jurisdictions and 3 federal agencies.[51] According to the Illinois OMB, the Federal OMB is considering ways to use the GATA structure and procedures to promote grant compliance among all federal agencies. This case study illustrates just one mechanism for unifying grant management processes leading to reduced barriers in the granting process.

Despite its reported successes, implementation of GATA did not go as smoothly as intended for all parties. Based on reports from an Illinois university, there were some unforeseen negative impacts during application. For example, the Uniform Guidance requires federal agencies to pay grant recipients federally negotiated facilities and administrative rates (or indirect cost rates). However, Illinois state agencies were not prepared to cover the additional cost, almost stopping the flow of funds to grantees. As a result, the requirement to pay the full rate was edited out of the GATA rules, so that state agencies could continue to pay less indirect cost than federal agencies. Another unexpected result of GATA was that state agencies started to conduct heavy audits of grant recipients in order to double-check that they were fiscally sound stewards of state funds. The agencies did not accept the data in the Federal Audit Clearinghouse[52] and required extra certifications before entering into grant agreements, creating new audit burdens on grantees that did not exist prior to GATA.

As depicted in the box below, other national departments and state agencies are trying to streamline their contracts and solicitations processes. The New York State

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[51] See source: https://www2.illinois.gov/sites/GATA/Documents/Resource%20Library/GATA-is-Good-Government-Brief.pdf

[52] The Federal Audit Clearinghouse is a publicly accessible repository of audits of federal awardees. See source: https://facweb.census.gov/

Energy Research and Development Authority is also using methods to try to make contracting and granting more efficient. The Authority uses both competitive solicitations and unsolicited proposals, which it claims are "expeditiously and vigorously" peer reviewed before acceptance.[53] Additionally, the Department of Defense's Environmental Security Technology Certification Program (ESTCP) uses a two-phase selection process that recognizes the cost and effort required for full proposals to be competitive. Pre-proposals are first submitted for review by an ESTCP Technical Committee, who then notifies applicants whether the program will accept a full proposal and oral briefing, which the committee will hear at a later date. The program is attempting to make their proposal and solicitation process more streamlined and less burdensome for funding applicants.[54] Below is a list of additional models for readers who are interested in exploring the different methods agencies use to solicit contracting and granting proposals.

[53] See source: https://www.nyserda.ny.gov/Funding-Opportunities/Contracts-and-Solicitations
[54] See source: https://www.serdp-estcp.org/Funding-Opportunities/ESTCP-Solicitations/Funding-Process

Select Federal and State Program Models

Sole Federal Agency Models

- US Department of Energy Office of Science
- US Department of Energy Efficiency and Renewable Energy
- US Department of Energy Advanced Research Projects Agency – Energy

Multi-Party Federal Agency Model

- US Department of Defense Strategic Environmental Research and Development Program and Environmental Security Technology Certification Program

Independent & Quasi-Independent Federal Agency Models

- The National Institutes of Standards and Technology
- The National Science Foundation
- National Institute for Building Science

Sole State Agency Models

- California Energy Commission Public Interest Energy Research Program
- California Energy Commission Electric Program Investment Charge Program

Quasi-Independent State Agency

- The New York State Energy Research and Development Authority

Review of Literature on State Contracting and Granting Practices

Research on contracting and granting practices within the State of California is scarce. In this section I review a recent "Policy Matters" report by the Senate Office of Research that explores best practices for optimizing state-funded research and the elements necessary to enhance research performance.

Senate Office of Research "Policy Matters" Report

In March 2018, the Senate Office of Research (SOR) released a report outlining the State's opportunities to maximize public benefits from State-funded research. SOR

interviewed 42 research scientists and administrative leaders from 21 institutions, from both the public and private sectors.[55] Although the majority of their interviews focus on energy-related research, the report authors assert that their findings apply to all state-funded research. The report focuses on contracting methods and not the type of research conducted by the research institutions they interviewed. In addition to interviews the authors performed a literature review on research principles and programs. SOR emphasizes the need for efficient granting processes to attract California's strongest research facilities to implement state-funded research programs. Based on their research tools, SOR found that when research programs have the ability to act with autonomy, they are better able to adapt to changing research landscapes, societal needs, and opportunities. SOR also notes that flexibility in contracting and granting regulations can lead to more successful innovation practices by research programs. Furthermore, the report highlights the importance for the State to develop effective and consistent IP policies that can enhance the process by which research programs translate the knowledge they acquire into products for public benefit.

SOR's investigation revealed many factors which may impede the ability of the State to access the wealth of knowledge from research programs within the State. The report states the lack of uniformity between state agencies' uses of funding procedures and guidelines results in agencies frequently negotiating unique contracts and grants. Agencies dismiss the very model agreements that were designed to streamline the

[55] For readers interested in exploring the relationship between public and private sector research funding, Mariana Mazzucato's book, The Entrepreneurial State: Debunking Public vs Private Sector Myths, may be of interest.

process, instead introducing additional terms and conditions to both contracts and grants. The report explains that this lack of consistency ultimately creates barriers dissuading research institutions from applying for state research funds. In addition, the report points out the differences in regulatory structures between state agencies can hamper agency access to federally-funded DOE or NASA research institutions. The report concludes by stressing the need for state research granting laws and federal laws to be more closely aligned in order to attract California's advanced research programs. The findings and conclusions of the SOR report indicate that there is space for both state agencies and research programs within California to streamline processes and improve existing laws and policies to overcome some of the most pressing barriers for state-funded research. The report does not, however, indicate the difficulties the State is facing in contracting and granting with California's research institutions.[56] It does not outline common challenges between all contracting and granting entities or specifically examine key issues which this report does.[57]

Summary of the Landscape

Contracting and granting in the State of California are essential to the State's operations because they provide the State with the services necessary to meet California's needs. The State issues contracts and grants to a myriad of entities including the UC

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[56] One reviewer noted that the findings in the SOR report were not necessarily consensus-driven and several state agencies later provided counterpoints to the assertions made in the SOR report.

[57] My investigation to date failed to uncover any comprehensive source of primary data at either an agency or state-level aggregation. For readers interested in doing a deeper analysis of this issue, they can go through the Governor's Office or request that DGS provide more information about the number and type of contracts that move through each agency. I recognize that the SOR report and phase one of this CCST report examines only a small sample size of participants. I recognize that the SOR report and Phase One of this CCST report examines only a small sample size of participants.

system, the CSU system, the California Community Colleges, Stanford University, Caltech, the state's federal DOE and NASA labs, as well as nonprofits like CCST. Together, all of these parties conduct the work necessary to benefit our environment, our communities, and our everyday activities. It is safe to say that the public, the State, and the State's contractors and subrecipients all benefit from efficient operations of government, including the processes involved with issuing contracts and grants.

As discussed in this chapter, the State faces difficulties in contracting and granting with these research and academic institutions. While the State's attempts to mitigate these challenges have led to improvements in the process, serious problems remain. State agencies' ability to act autonomously by adding terms and conditions to contracts and grants creates inefficiencies. This study aims to examine specific issues CCST, CCST's Partner Institutions, and the State face when contracting and granting with one another. In this first phase of the study, I explore the responses of CCST Partner Institutions and CCST itself concerning the impacts of staff capacity and workload, indirect costs, intellectual property, invoicing and reporting, and risk issues on contracting and granting practices between the State, CCST Partners, and CCST.

Chapter Three

METHODOLOGY

In order to gather enough information to inform the analysis of this report, I utilized two different qualitative research instruments—surveys and interviews. With the help of CCST, I also gathered numerous stakeholders from state agencies, academic universities, and research institutions to initially inform the scope of the report. In this chapter I describe why I chose to use each research instrument at different points in my research, how I structured the questions, and how I used the information gathered. I will also discuss the strategy I used to solicit responses to the survey and participants for the interviews.

CCST Study Process

As an employee of CCST, I helped manage and conduct the study that lead to this report. Members of the CCST Steering Committee were appointed based on technical expertise and a balance of viewpoints. Appendix C provides information about CCST's Steering Committee membership. Under the guidance of the Steering Committee, I developed the findings based on original data and analyses and a review of the relevant literature. The Steering Committee met regularly to guide myself, as the lead author, and the study team, including CCST support staff, as I studied each of the issues identified in the scope of work. With regular interaction, I along with the rest of the study team and the Steering Committee were able to collaborate to develop a series of findings, conclusions, and recommendations defined as follows:

Finding: Fact(s) the study team finds that can be documented or referenced and that have importance to the study.

Conclusion: A reasoned statement the study team makes based on findings.

Recommendation: A statement that suggests an action or consideration as a result of the report findings and conclusions.

The committee process ensured conclusions were based on findings (facts), and recommendations based on findings and conclusions. Both myself and the Steering Committee members proposed draft conclusions and recommendations. These were modified based on peer review and discussion within the Steering Committee. Final responsibility for the conclusions and recommendations in this report lies with myself and the Steering Committee. All Steering Committee members have agreed with these conclusions and recommendations. The conclusions and recommendations expressed in this publication are those of the Steering Committee and study team[58], and do not necessarily reflect the views of CCST's Partner Institutions and Reviewers; nor do the conclusions and recommendations reflect the views of all CCST Partner Institutions from each of the categories of Partner Institutions.

Stakeholder Kick-off Meeting

In order to help inform the scope of work for the report, CCST gathered numerous experts from state agencies and from CCST's Partner Institutions. I sent out a call to participate in this meeting through CCST's network of experts. Stakeholders discussed

[58] As mentioned in this chapter, the "study team" includes myself as the lead author and CCST support staff.

many challenges they face in the contracting and granting process, including disputes over indirect cost rates and overly burdensome reporting requirements, as well as difficulties in contract and grant management, among other topics. Based on this conversation, I revised the scope of work for the report to include many more topics, most of which were discussed in the kick-off meeting.

The Survey Process

After the Steering Committee reviewed the revised scope of work, they decided it was important to narrow the scope in order to focus my research and discussion. I developed a survey to help narrow the scope of the report, to select topics for my interviews, and to gather some preliminary data for my analysis. The survey was designed to better understand which contracting and granting issues were most challenging for state agencies, CCST Partner Institutions, and CCST to overcome (see Appendix A). I selected topics based on the feedback I received during the stakeholder meeting and based on conversations with the Steering Committee. I included topics about the contracting and granting process and contract and grant management throughout the project lifespan. Ten topics were selected for the survey and approved by the Steering Committee—indirect costs, auditing and oversight, source funding requirements, invoicing and reporting, advanced payment and pre-funding, intellectual property, cost sharing, information technology, staff capacity and workload, and risk issues (e.g. liability, indemnification, warranty).

With CCST's help, I administered the survey in October 2019 using Google forms. In order to receive as many responses as possible, I cast a wide net by sending out

a call for participation through CCST's network of experts and through direct outreach from the Steering Committee. I asked everyone to forward the message along to anyone they thought would be willing to participate and give me feedback. My goal was to receive at least one response from each category of research and academic Partner (public, private, federal lab), as well as from state agencies and CCST leadership. I also stated that all responses would be anonymized for the report in order to encourage participation, and therefore do not identify individuals in the report. Based on this strategy, I was able to solicit 41 responses to the survey. The vast majority of the responses I received (32/41) were from CCST Partner Institutions and CCST. I received 9 responses from state agency experts.

In addition to the ten subject issues, the survey was designed to capture specific metrics including the estimated average length of time it takes to execute contract and grant agreements, as well as any other delays. Additionally, I used a four-point Likert scale to capture the level of delay each challenge area was resulting in for each individual respondent. The scale asked if each challenge area caused no delays, few delays, some delays, or many delays and included a "not applicable" option. I used the results of the survey to further narrow the report scope. I selected topics based on the following criteria: (1) at least one institution from each of the three partner groups identified the issue as a challenge that causes at least few delays, and (2) the issue had the most number of institutions stating it is a problem. I analyzed the responses separately for both contracts and grant agreements and came up with the same 5 issue areas that reflect barriers in the contracting and granting process and project management—indirect costs

(also known as overhead), staff capacity and workload, intellectual property, invoicing and reporting, and risk issues. The survey results provided the basis I needed to write my interview questions and to inform my preliminary analysis.

The Interview Process

As lead author, I designed interview questions with input and approval from the Steering Committee, to capture the bulk of the research needed for the analysis. I decided that interviews would be the best method for capturing the data I needed because I understood that each expert has a unique experience and offers a diverse perspective based on the challenges that they each face. Before beginning the interview, I stated the goal of my study, explained that each interviewee would receive full anonymity, and that there were no right or wrong answers. Each interview took one hour or less to complete. I was able to complete each interview in this allotted time. Note that each contracting and granting expert who participated in the survey and/or interview answered questions based on their individual expertise within their institution. Their opinions do not necessarily reflect their institutions' views on this issue; nor does an interview from one CCST Partner Institution necessarily reflect the views of another Partner Institution.

The interview questions were broken up into six main sections, one for each of the top five contracting and granting issues that came out of the survey results and an additional section about the model contracts. For each of the five issue areas, I asked participants whether they believed each challenge presented itself as a barrier to the contracting and/or granting process. If the respondent believed it was a barrier, then I asked them to explain why and elaborate on what specifically makes that issue a barrier. I

also asked participants what solutions they believe could be used to overcome each of the issues they identified as barriers. In the model contract section of the interview, I asked participants to state whether or not they used the California Model Agreement or the Federal Labs Model Agreement. If the interviewee used one or more of the model agreements I asked if they experienced any barriers when using the agreement. In addition to these sections, I asked participants how their institution tracks the contracting and/or granting process and if there were any additional topics they would like to discuss. The full list of interview questions for each institution can be found in Appendix B.

I contacted numerous contracting and granting experts from within CCST's Partner Institutions, based on a list informed by the previous calls for expertise and my own initial research[59]. My goal in this phase was to interview at least three contracting and granting experts from each of the campuses and institutions within CCST's Partners. Unfortunately, I was limited by the number of responses I received. Therefore, I interviewed at least two contracting and granting experts from each category of CCST's research and academic Partners. In addition to Partners, I also interviewed CCST leadership. In total, I conducted 18 interviews. Of these interviews I recorded 17 and transcribed each of them. I was not able to record the remaining interview but took detailed notes. All of the transcriptions and notes were uploaded to a qualitative analysis program called Dedoose, which allowed myself and the research team to code each of the

[59] As stated in the introduction, the research team attempted to contact state agencies who contract and/or award grants often to CCST and CCST's Partner Institutions; however, these experts stated they were not able to speak with me due to internal agency concerns.

interviews[60]. Each interview was coded twice in order to check for reliability. The other coder and I started with the same set of overarching codes with corresponding definitions based on the key sections of the interview. Once each of us finished the coding process, I analyzed the results together. The results of the analysis can be found in Chapter IV. Note that due to difficulties in receiving responses from state experts for various reasons including the ongoing COVID-19 pandemic, CCST anticipates a second phase of this study that will involve interviewing state agency staff.

[60] See source: https://www.dedoose.com/

Chapter Four

RESPONSES AND ANALYSIS OF PHASE I FINDINGS

In this section, I present key findings from the first phase of the study, which mainly consists of interviews with CCST Partner Institutions (personnel in academic and research institutions) as well as CCST staff and results from my initial survey. While the specific roles and duties of contracting and granting experts differ among agencies, academic and research institutions, and CCST, for the duration of this report I will refer to those personnel directly involved in negotiating, implementing, and managing contracts and grants as contracting and granting experts (CGE's). These interviews focused on the five major areas of concern identified in my earlier survey: indirect costs, staff capacity and workload, intellectual property, invoicing and reporting, and institutional risk. I summarize the overarching challenges and solutions identified by interviewees and I integrate insights from my earlier survey where appropriate. It should be noted that CCST anticipates a second phase involving interviews with state agency staff. I will report on Phase II findings in a future report.

Challenge Area 1: Indirect Cost

The survey indicated that the majority (4/7) of state participants and the majority (28/32) of Partner Institution and CCST participants who work with *contracts* specified that indirect cost rates are an issue that causes delays. Additionally, the majority (4/5) of state participants and majority (26/28) of Partner Institution participants who work with *grants* stated that indirect cost rates are an issue that causes delays.

I asked interviewees to explain whether indirect costs pose any challenges to the contracting or granting process. Over three quarters (15/18) of participants reported that they view indirect costs as a barrier to efficient contracting and granting processes. Most interview participants (12) stated that they face difficulties when trying to negotiate the indirect cost rate because the State typically does not accept the institution's standard indirect cost rates, including the rates accepted by the federal government.

Each university and research institution develops its own indirect cost rate based on operational costs which are dependent on characteristics like geographic location and type of facilities. These rates are calculated from actual costs of supporting research, reviewed and approved by the federal government, and applied by these entities to contracts and grants they receive.[61] Participants generally reported that the practice of going back and forth for indirect cost negotiation between CGEs and their counterparts within state agencies, as well as internally, slows the process down significantly.

> "I do think the process can be quite cumbersome, [it] involves a lot of back and forth, that can take time away from the work." – Contracting/Granting Expert

According to the State Administrative Manual, state agencies are required to recover all costs, whether direct or indirect, when offering goods or services.[62] The full

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[61] Stanford University uses a system called iSpace to track what rooms within different buildings in the university are used for. Tracking time and use of university facilities allows them to accurately calculate their federal indirect cost rate. The data supports negotiations for the indirect cost rate with the Federal Government. As stated in the Stanford Research Policy Handbook, "a large portion of the indirect cost recovered by the University depends on the Space Inventory." See source: https://doresearch.stanford.edu/policies/space-manual/overview/about-space-inventory

[62] The California State Administrative Manual (SAM) Section 8752 https://www.dgsapps.dgs.ca.gov/documents/sam/SamPrint/new/sam_master/sam_master_file/chap8700/8752.pdf

cost of goods or services includes all direct costs for the activity and a fair share of indirect costs which can be ascribed reasonably to the good or service provided. The University of California Office of the President (UCOP) has maintained the position that the University of California (UC) as an entity established under the California Constitution, is equally obligated to recover the full cost of activities conducted by UC.[63] UC represented to the Department of General Services (DGS) that the impetus for the state policy requiring full recovery of state agency costs in performing work was analogous to UC's policy requiring full recovery of UC campus costs in performing work. Further, UC encouraged the State to understand and agree to follow the same full cost recovery policy for UC that is followed by the State. It should be noted that some other institutions not subject to the SAM also require full cost recovery. For example, the California State University (CSU) system has systemwide policies that require individual campuses to recover all direct and indirect costs from externally-funded activities; similarly, private universities such as Caltech and Stanford also require full cost recovery for externally-sponsored projects. The California-based Department of Energy (DOE) labs, as indicated in the Federal Labs Model Agreement (FLMA)[64], also require full cost recovery and contain pre-approved rate escalation schedules.

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[63] On November 11, 1999, UCOP wrote a letter to DGS stating, "Reimbursement of UC indirect costs needs discussion and resolution at the highest levels within the State Department of Finance, Department of General Services, and UC top management. UC has indirect cost rates approved by UC's Cognizant Federal Audit Agency which UC consistently applies to all sponsors as required by Federal Cost Accounting Standards."

[64] The Federal Labs Model Agreement (FLMA) is an agreement reached between the Department of General Services (DGS) and with Lawrence Livermore National Laboratory, Lawrence Berkeley National Laboratory, and Sandia National Laboratories. These model terms have been approved by the national laboratories and by the DGS Office of Legal Services. See source: https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Contracts-with-the-Department-of-Energy-Laboratories

According to the State Contracting Manual, state agencies are required to pay a fair and reasonable price for goods and services,[65] UC has maintained the position that its campuses' federally negotiated facilities and administrative rates are de facto reasonable as they are negotiated in accordance with federal cost accounting standards and agreed upon with the cognizant federal agency. Federal labs are also required to collect federally developed indirect cost rates for their facilities. However, state agencies pay less than half the amount of indirect costs paid by federal sponsors.[66] UC has met the State part-way in this dispute, conceding that portions of the UC system infrastructure have benefited from tax-exempt financing. Taking this calculation into consideration, UC claims that an indirect cost rate of forty (40) percent[67] for projects performed on campus would be equivalent to the full-cost recovery achieved from federal sponsors for on-campus research projects (ranging from 54%-60%, depending on location).[68] However, the State unilaterally limits indirect cost rates to UC and CSU at a range of 0% to 25%, depending on the agency, without in-depth negotiation or discussion. CCST expects to illuminate the State's perspective further in Phase II of this study, which CCST will conduct at a later date.

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[65] State Contracting Manual (SCM) Chapter 4 Section C https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/State-Contracting-Manual-Volume-2-3-FI$Cal

[66] The indirect cost rates for UC campuses are currently in the range of 54.0 - 60.5 percent (On-Campus Research Rates, as of October 2019) and are comparable to other public institutions. The process for securing rate agreements with the federal government is as follows: Each campus prepares and presents a cost proposal to the university's cognizant federal agency for the purpose of negotiating indirect cost rates applicable to federally funded contracts and grants. The cost proposals are prepared according to the requirements specified in 2 CFR Part 200, using actual cost data from prior year operations. The proposals are reviewed by the federal negotiators and rates are negotiated. Please see https://www.ucop.edu/financial-accounting/resources/content/facilities-administration-rates-faq.html.

[67] IDC percentages are applied to a base of Modified Total Direct Costs, as set forth in 2 CFR §200.68.

[68] See https://www.ucop.edu/research-policy-analysis-coordination/policies-guidance/indirect-cost-recovery/state-of-california.html.

Public and private academic and research institutions use indirect cost rates to keep their administrative operations and research facilities running and therefore have an interest in recovering the full operational cost or as close to the full cost as possible. If an institution does not receive the full indirect rate, it may choose to decline the project or to cost share the unrecovered indirect costs by re-allocating funding meant for other institutional operations, or other research and development funds. These options are limited due to funding restrictions prohibiting how certain pots of funding can be used. Therefore, some universities may be forced to increase tuition costs for students in order to recover the resources necessary to maintain university facilities. Increasing the cost of education is highly controversial and not all research institutions, like the federal labs, have the option of raising tuition costs. State agencies may have many reasons to cap the indirect cost rate for contracts and grants; they have a responsibility to use state funds judiciously and comply with legislation. In some cases, having a clearer understanding of how institutions calculate their indirect cost rate may dissuade the agency from applying a cap. In Phase II of this study CCST expects to bring to light other drivers for state agencies to restrict indirect cost rates. In this future analysis I expect to learn what factors contribute to indirect cost rates that are found acceptable by state agencies.

Ironically, a few interviewees disclosed that some university researchers also have an interest in reducing institution indirect costs to drive more funding towards the direct costs of the research project itself.[69] According to the interviewees, this conflict of

[69] This is not to say all PIs hold this same belief; there are many who demonstrate they value recovering indirect costs to support the research infrastructure.

interest between institutions, researchers, and State agencies leads to long negotiations among the parties.

> *"It's just difficult because, in general, the agencies don't want to pay—they'd want to pay the least amount. The PI (principal investigator) would like as much of the award as direct costs.*[70] *So those two parties are hoping for a lower rate. And then you have the university that's requesting, you know, the federal rate. So, I don't think it's easily overcome…[agencies and researchers] don't see the value of the overhead and how it's necessary for the University to collect."– Contracting/Granting Expert*

In general, the interviewees emphasized that problems arise as a result of a lack of flexibility and collaboration among contracting entities—even when negotiations conclude between contracting staff, there are additional process pain points. For instance, interviewees pointed to delays caused by securing the required approval for a reduced indirect cost rate from those higher up in the administration, such as the CSU Chancellor's office or UCOP. Some (5) interviewees indicated that neither they nor those on the agency side have the authority to finalize decisions. The result is the involvement of numerous people who each bring different perspectives, all of which contribute to lengthier negotiations and increase the number of resources and authorization required to execute a contract or grant.

> *"First off, we have the agreement that within the CSU and UC [that] if a campus receives [a lower] indirect cost rate, then it requires additional negotiation review approval. So, you have time delays there, sometimes significant frustrations, because you'll have different viewpoints, you know, from the state agency, from the faculty, from*

[70] A principle investigator is an individual who has primary responsibility for the design, execution, and management of a research project and who will be involved in the project in a significant manner. See source: https://vcresearch.berkeley.edu/research-policies/principal-investigator-status

administration within the university, from DGS, so there is a lot of different perspectives coming into the conversation." – Contracting/Granting Expert

Furthermore, interviewees reported that the State is inflexible in rate negotiations. This rigidity, coupled with the laborious processes for CGEs to receive approval for changes from multiple people in decision making roles, leads to a lack of a collaborative effort under the successfully negotiated award.

"I was on a call and it was with a state agency and they basically took the position, you can take it or leave it. It was a very adversarial position. We're definitely interested in a partnership." – Contracting/Granting Expert

While it is in the best interest of all parties to work together to reach agreement, the nature of negotiations leads to a culture of opposition. This culture then leaves experts on either side of the negotiation unmotivated to collaborate. The implications of this issue could mean that some universities, research institutions, and nonprofits like CCST forgo contracting and granting opportunities that involve the State of California and the State is missing out on the immense research capacity of the institutions in its own backyard.

Other Indirect Costs Challenges

Although not prominently discussed, participants mentioned other challenges related to indirect costs:

- Grants prohibiting or limiting the recovery of indirect costs[71] – Some requests for proposals (RFPs) prohibit or cap the recovery of indirect costs, precluding some academic and research institutions from applying. Only institutions willing to

[71] This issue likely applies to contracts as well.

accept these limits and to supplement the project's expenses are able to apply. This puts some Partners in a position of choosing whether to decline to participate in important research or public service projects, or to recover project-related institutional costs from other sources.

- Annual increases in indirect costs – Indirect costs change from year to year due to changes in the economy, facility improvements, and other factors. Trying to account for this increase in ongoing contracts and grant agreements is difficult for institutions because state agencies are unwilling to change the rate both parties negotiated at the beginning of the contract or grant.[72] The UC and CSU can commit to not increasing an indirect cost rate mid-project for funds secured under a multi-year agreement.[73] Making this commitment, however, can put the UC and CSU at risk of running a deficit. By the end of the project, the value of the indirect cost rate decreases and due to annual rate adjustments, renewals, and no-cost extensions the University may lose out on funding. Additionally, DOE labs have no control over required rate increases. The primary sponsor may mandate an adjustment of the rate multiple times throughout a fiscal year, across multiple indirect and direct cost rates, to ensure full cost recovery. The national labs follow federal rate structures and do not view the indirect cost rate as a singular rate, but rather a multitude of rates that fluctuate over multiple years of a project.

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[72] In a competitive bidding process, sometimes the indirect cost rate is considered in the evaluation score. In this case, institutions may include estimates for rate escalations in their RFP, if possible, so the rate can be factored upfront.

[73] CMA Guidance. See: https://www2.calstate.edu/csu-system/administration/business-finance/financial-services/Pages/california-model-agreement-resources.aspx

- Inconsistency in rate acceptance – The indirect cost rates that state agencies accept differ based on the agency itself and the CGE negotiating on both sides. While one agency is able to accept full indirect cost rates others may not. This inconsistency leads to frustrations during negotiations.

Challenge Area 2: Staff Capacity and Workload

Another barrier to contracting and granting is the suite of issues surrounding staff capacity and workload. The survey indicated that the majority (5/7) of state participants and the majority (25/31) of Partner Institution and CCST participants who work with *contracts* attribute delays to staff capacity and workload issues. Additionally, the majority (3/5) of state participants and majority (23/27) of Partner Institution and CCST participants who work with *grants* stated that staff capacity and workload is an issue that causes delays. This is the only issue, other than indirect cost, that state participants specified as a cause of many delays.

I asked interviewees whether they view staff capacity and workload as a challenge during the contracting and granting process for both the academic and research institution they represent, as well as for the agency. Nearly all participants (17/18) have either encountered it as an issue themselves or acknowledged it would be an issue if they were to have encountered it. The participants highlighted three distinct issues among others – administrative burden, lack of transparency, and lack of knowledge on contracting and granting requirements.

The issue of administrative burden seems to arise primarily from a lack of consistency in processes among agencies. Generally, participants mentioned how

different the process of entering into contracts and grants with various state agencies was, and how difficult that made things for them. Different agencies and sometimes different CGEs within the same agency require different paperwork and insist upon different terms and conditions.74 This lack of consistency means interviewees would sometimes need to negotiate different terms and conditions to enter into a contract or grant agreement within the same agency and also for different years of the project. Participants mentioned that sometimes the same agency will have consistent policies, but it depends on the specific agency. The purpose of the California Model Agreement (CMA) and Federal Labs Model Agreement (FLMA) is to create consistency in contracting and granting practices. However, some state agencies often forgo the negotiated language in the model agreements in favor of their own agency-preferred terms and conditions. This situation in itself creates a resource drain because CGEs are essentially required to negotiate a different contract or grant agreement with each state agency or department instead of using one model agreement. It also puts a strain on the administrative and financial processes within institutions. Deviations from the FLMA, for example, require DOE federal labs to seek DOE approval, which can take time and is not guaranteed. Although private universities may not have a model agreement in place with the State, some do follow internal university-generated policies that require administrative approval if the State asks for deviations. A clear example is described in the Stanford University Research Policy Handbook. The Handbook states that deviations from the indirect cost

[74] The reason could be that the requirements are interpreted differently for each agency or department. CCST expects to highlight what the reasons may be in Phase II of this study.

rate[75] require written approval from the appropriate School Dean and, in some cases, by the Vice Provost and Dean of Research before submission to the Office of Sponsored Research. Therefore, requests for deviations, both away from model agreements and from internal university policies, can impact the time it takes to get into contract. There exists no central agency responsible for managing deviations or documenting why they occur.

To add to this administrative burden, most participants indicated a lack of transparency about the process itself creating further challenges.

> *"It's often difficult to figure out who I'm working with on the state side, I don't know what that person's role is…and then there will be like six people cc'd on an email, and I don't know who they are on the state side…and I'm not sure who is approving what."- Contracting/Granting Expert*

This lack of transparency causes confusion in the approval process, thus requiring extra time to communicate about contracts and grants with the correct person. Part of this problem is that CGE's negotiating on behalf of the State do not have decision making authority and need to escalate changes to terms for approval higher up, increasing both timelines and lack of clarity. Generally, participants specified that if they knew whom to talk to, they could directly explain why their institution is requiring some of the terms and conditions proposed. Instead, interviewees spend their time trying to communicate with multiple people to explain terms and conditions throughout contract and grant negotiations.

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[75] Stanford University uses an indirect cost rate that is negotiated with the Federal Government. See source: https://doresearch.stanford.edu/policies/research-policy-handbook/sponsored-project-proposals/university-commitments-pertaining-sponsored-project-proposals

Furthermore, most participants who cited staff capacity and workload as a problem also highlighted the lack of knowledge by the State of the academic and research institution's contracting and granting practices. While acknowledging that they are not entirely familiar with the state processes, participants specifically indicated that state agencies generally do not have a familiarity with their contracting and granting practices and that all groups can benefit from cross-training. Participants suggested that the implementation of training to help familiarize them with one another's policies and practices would improve the process by streamlining roles and responsibilities, and allowing for appropriate communication channels to save time. `

> *"It's important for both sides to have people who are well trained in what they are expected to do. We train our officers to understand the limitations that state entities have…it would be helpful for someone on the state side to have an understanding on how [we] operate." – Contracting/Granting Expert*

Different academic and research entities require distinct terms, conditions, and regulations to which they must comply. The lack of familiarity and training by the State leads to issues around staff capacity and workload because CGEs on the academic and research side must then explain their required terms, conditions, and regulations to multiple people throughout the process. This issue not only adds time to the negotiation, but also takes time away from other tasks and responsibilities of the experts. State agencies, however, are also required to comply with many regulations that academic and research institutions may not fully comprehend.[76] Both the State Administrative Manual

[76] In Phase II of the study, CCST will aim to understand these requirements and whether there is room for compromise.

and State Contracting Manual describe different rules that agencies must follow.[77] In addition to these requirements, the State Controller's office, responsible for conducting independent audits of agencies, requires agencies to comply with spending and reporting requirements.[78] And there are other requirements based on the type of funding, including bond funding. Legal teams within state agencies are responsible for ensuring that an agency complies with all of these different rules. In the Phase II of the analysis CCST will clarify these requirements and identify whether and how these requirements conflict with the CMA and FLMA terms and conditions.

Interviewees also raised the issue of insufficient resources to fully staff contracting and granting offices and to support the large workload of research, education, and services that academic and research institutions perform.

> "I think with my state contracts and grants, I think at both ends, it's pretty evident that the contracting offices are short staffed." – Contracting/Granting Expert

Another Staff Capacity and Workload Challenge

Although not prominently discussed, participants mentioned another challenge related to staff capacity and workload:

- Original signatures – State contracting and granting practices typically require original signatures and hard copies of contract and grant agreements, or amendments thereto, for final approval. This can cause unnecessary delays when

[77] State Administrative Manual https://www.dgs.ca.gov/Resources/SAM and State Contracting Manual https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/State-Contracting-Manual-Volume-2-3-FI$Cal

[78] State Controller's Office Reporting requirements. See source: https://www.sco.ca.gov/ard_reporting.html

numerous signatures are required from people who are located in different parts of an institution, or in the current environment of office closures and remote working necessitated by shelter in place orders responsive to the COVID-19 pandemic. Although the Uniform Electronic Transactions Act authorizes agencies to use electronic signatures for contracts, it does not require the use of them.[79] Therefore some agencies still do not use electronic signatures.

Challenge Area 3: Intellectual Property (IP) and Data Ownership

In the survey, I asked participants whether they believe IP issues cause delays in the contracting and granting process. Half (3/6) of state agency survey participants who work with *contracts* indicated that IP policies cause delays, while the majority (23/26) of Partner Institution and CCST participants stated that these policies cause delays in contracting. Additionally, of the four state survey participants who work with *grant* agreements, three stated IP issues cause delays and the twenty-six Partner Institution survey participants who work with grants, twenty indicated IP causes delays.

I also asked interviewees whether they believed intellectual property policies within their institutions posed a barrier to contracting and granting practices. Two thirds (12/18) of participants indicated that IP policies in their institutions do cause issues in the process. All of those who cited this topic as a problem suggested that challenges frequently arise when negotiating publication and data ownership rights, more so than IP

[79] California Civil Code section 1633.1 – 1633.17. See Source: https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=CIV&division=3.&title=2.5.&part=2.&chapter=&article=

policies directed to the ownership of patent rights, trademarks, copyrights, and trade secrets. Participants stated that negotiations typically center on questions about who owns the research results, and to whom such results can be released. Therefore, much of this section will focus on data ownership.

Interviewees explained that, although the State is entering into contracts and grant agreements to obtain a service in the form of research or public service, the nature of academic and research institutions is to own the work they produce and to make the results of the research or public service activity broadly available to the public. This notion is often coined "academic freedom." A restriction on such academic freedom, for example, might include a "gag clause" in which a sponsor mandates the sponsor's approval prior to any disclosure of the results. If such approval is not granted, the academic or PI is contractually prohibited from disclosing the results of their work. A "gag clause" and other conditions like it are antithetical to the missions of most research and academic institutions. Further, such clauses have been recognized as publicly injurious and ill-advised by the State legislature.[80] Note that a "gag clause" differs from advance notification before publication, called "pre-publication review" provisions, and which are commonplace in academic research. Some agencies require time to alert decision makers within agencies and the Legislature of controversial results that will impact stakeholders or policy. In this case, state agencies are not trying to bury research but are securing time to prepare for public release. Under certain circumstances, the State

[80] Senate Resolution No. 66 admonishes California public universities (UC, CSU, and CCC) from agreeing to "gag clauses." See source: http://www.leginfo.ca.gov/pub/95-96/bill/sen/sb_0051-0100/scr_66_bill_960911_chaptered.html

may elect not to release the results of produced reports because it may not be the right moment for the report to make a desired impact or because the results of the report may be too controversial. State agencies may try to include a term or condition in a contract or grant, claiming the sole right to publish. This action can directly impact the researchers who spent their time and resources working on these projects. These scholars and scientists equate the ownership of results with the freedom to build on their work for future projects and indispensable for career advancement. Graduate students, who are at the center of academic research and make up an essential part of the university and laboratory workforce, depend on publishing their research to further their thesis and meet graduation requirements. Therefore, if they work on state projects, not being allowed to publish their work risks delays in obtaining their degree and advancing their careers.

The importance of academic freedom extends beyond any one researcher's career prospects, however. "Standing on the shoulders of giants" is a well-worn metaphor highlighting the notion that the discovery of truth is built upon previous discoveries.[81] Scholars and scientists use the understanding gained by major thinkers who have gone before, and in this way, science and innovation exponentially accelerate for the benefit of all mankind. This idea exemplifies the global importance of academic freedom for research institutions and explains why the freedom to publish is a non-negotiable provision in their agreements.

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81 Isaac Newton in 1675: "If I have seen further it is by standing on the shoulders of Giants." Keith, Bonnie (2016). "Strategic Sourcing in the New Economy". Google Books. Palgrave Macmillan. Retrieved 15 August 2016.

Data ownership lies at the heart of the academic freedom-to-publish issue. Tensions arise when the state agency wants to own the data produced by a researcher. The academic and research perspective is that they should own what they produce and should have full rights to the data, its use, and disclosure consistent with privacy laws and professional research standards, including using the information to publish in academic journals. This conflict leads to longer negotiation times and becomes a barrier when entering into contracts and grant agreements. Consistent with the "standing on the shoulders of giants" metaphor, researchers are required to make data publicly available when research is funded by a federal source. The FLMA, for example, includes a Data Rights Exhibit that is aligned with federal requirements, US Patent laws, and the Bayh-Dole Act[82] regarding data rights and ownership. Despite this, the federal labs share similar concerns as universities pertaining to data ownership. The National Institutes for Health state that "data should be made as widely and freely available as possible while safeguarding the privacy of participants, and protecting confidential and proprietary data."[83] Indeed, the Department of Energy encourages open access to data and software and requires that all scientific and technical information is available to the public.[84] Other federal agencies such as the National Science Foundation also encourage researchers to share data in order to promote scientific advancement throughout the world.[85] The State of California followed suit, recognizing that cutting-edge scientific research should be

[82] The Bayh-Dole Act provides guidance for inventions that arise from federally funded government research. See source: https://grants.nih.gov/grants/bayh-dole.htm
[83] See source: https://grants.nih.gov/grants/policy/data_sharing/data_sharing_guidance.htm#goals
[84] Information is available through the DOE's Office of Scientific and Technical Information (OSTI). See source: www.osti.gov
[85] See source: https://www.nsf.gov/bfa/dias/policy/dmp.jsp

available to the broadest field of innovators by passing Assembly Bill 2192 (2018).[86] This law requires that all peer reviewed scientific research funded by the State of California be made promptly available to the public, subject to applicable privacy laws. Therefore, it is unclear in what circumstances and why state agencies include publication restrictions in contracts and grants. In Phase II of this research CCST expects to explore why some state agencies pursue the confidentiality of university-generated data in negotiations.

> *"We want to ensure that what we're doing for the public gets out to serve the public. What we're doing for research and service is something that can be taught to future students so when it comes to ownership, we want to ensure that we have the ownership of our works." – Contracting/granting Expert*

Other Data Ownership and IP Challenges

Although not prominently discussed, participants mentioned other challenges related to data ownership and intellectual property:

- Ownership rights with multiple funding sources – When a project is supported by multiple funding sources, whether the sources are federal, state, or from a foundation, the institution conducting the research may be legally prohibited from assigning ownership of certain IP rights to the State. As multiple sponsors vie for IP rights generated in the conduct of the project, the universities must carefully track and comply with their contractual and legal obligations to all parties.[87]
- Warranty for non-infringement – Some state agencies ask academic and research institutions to ensure that their research does not, and the research results will not,

[86] See source: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB2192
[87] See, for example, Bayh-Dole Act implementing regulations at 37 CFR §401, et seq.

infringe on someone else's IP rights. It is reasonable to assume that some agencies may want a guarantee that the research does not infringe on any third-party IP rights because they are spending state funds on research and would like to ensure continued rights to use the results that are produced.[88] However, institutions cannot guarantee against IP infringement for several reasons. As not all existing, third-party IP is discoverable, it is prohibitively expensive to conduct comprehensive "freedom to perform" risk assessments. IP rights could exist all over the world and the resources do not exist to identify them and match them to potential conflicting characteristics in projected research results. Patent applications, for example, are not published by or publicly available from the United States Patent and Trademark Office until (18) months after the filing date and may therefore be undiscoverable during that time. Acknowledging the impossibility of the task, even law firms are hesitant to provide firm warranties when conducting a "freedom to operate" assessment. Such assessments are extremely costly when outsourced; institutions do not have the internal resources to conduct them. State agencies would be unlikely to support the costs of such legal opinions, should they see such costs added as a reimbursable line item on a project budget.

Challenge Area 4: Invoicing and Reporting

The survey highlighted that few (2/7) state participants and the majority (26/31) of Partner Institution and CCST participants who work with *contracts* indicated that

[88] Note that the FLMA does not permit indemnification for IP infringement and no warranty is provided.

invoicing and reporting are issues that cause delays. Additionally, one fourth (1/4) of state survey participants and a majority (21/26) of CCST Partner Institution survey participants who work with *grants* stated that invoicing and reporting are issues that cause delays.

I also asked interviewees to describe what types of invoicing and reporting details their institutions are required to collect for state agencies. Then I asked if these types of details cause delays in the contracting and granting process. Two thirds (12/18) of these participants reported that invoicing and reporting requirements result in delays during negotiation of a contract or grant and/or administration of the agreement. Three indicated that it is not an issue and three others did not have knowledge of whether this issue causes delays or not. The interviews highlight two main pain points for invoicing and reporting—the lack of flexibility and overly burdensome administrative requirements.[89]

Many interviewees discussed the inability of the state contract or grant agreement to adjust for salary escalations, new titles of researchers, or the ability to accept anything other than an hourly rate for the work being done on any particular project. Some contracts and grant agreements require academic and research institutions to list the title and hourly rate of the researchers or scientists on the project. During the performance period of that contract or grant agreement, these researchers may experience title changes or a salary increase depending on the institution's policies. According to the responses I

[89] Note that this lack of flexibility and overly burdensome administrative requirements can occur during post-award and contract and grant negotiation. In some cases, state agencies add reporting requirements to try to clarify invoicing needs delaying contracts and grant agreements in the post-award stage. My interview questions did not specify when these delays occur, therefore, interviewees discussed both cases.

received from the CGEs, trying to adjust other budget categories to accommodate these escalations is difficult or impossible depending on the agency.

> *"We all get promoted in our jobs, if you promote somebody to a new job classification and a higher salary, you may not get reimbursed for the cost. They may not allow that to occur because in your budget you've budgeted for a staff scientist not a senior scientist. So, if you promote someone to a senior scientist then all of a sudden that person is what we call "classed out" of the project." – Contracting/Granting Expert*

This lack of flexibility within the contract or grant agreement can cause delays because of the amount of time CGEs, scientists and researchers, and state personnel need to meet to work out invoicing and reporting issues. When these salary increases occur, academic and research institutions do not expect the sponsor agency to provide additional funding and the scope of work for the project stays the same. However, when the institution attempts to adjust other budget categories to try and resolve the issue, the CGE can face unnecessary opposition from the state agency causing delays.

Interviewees also discussed the overly burdensome level of detail many state agencies require for invoices and expense reports. Some state agencies require backup documentation for every expense, such as, copies of timesheets and vendor invoices; others require even more documentation. Participants who consulted with their accounting departments prior to the interview indicated that overly burdensome requirements in the invoicing and reporting process can cause delays because of the amount of time it takes accounting departments and researchers to collect this information.

Due to the limited staff capacity and resources available at many academic and research institutions to support detailed invoices and expense reports, invoices can take longer to assemble, causing delays in payment. Finally, after all this information is collected, if the recipient fails to meet the agency's desired requirements, the agency can reject the invoice or hold payments, causing additional delays.

> *"A lot of times we end up being in a bind where our subcontractors need to get paid but we haven't been reimbursed yet by the State or our subcontractors are not reimbursed by the State, but they have paid us. This can persist for months at a time. Just a cycle of invoicing and payment can get really awkward." – Contracting/Granting Expert*

Other Invoicing and Reporting Challenges

Although not prominently discussed, participants mentioned other challenges related to invoicing and expense reporting:

- Vendor vs. Subrecipient – There are two competing definitions of a subrecipient in the CMA and in the State Contracting Manual. In the CMA, a subrecipient is someone with programmatic decision-making authority and in the Stare Contracting Manual it is someone providing a good or service. The state agency can deny an invoice arguing that someone classified as a vendor should be changed to subrecipient. This can cause significant delays because the amount of indirect costs the awardee can collect for vendors and subrecipients differs. The CMA definition of a subrecipient is common among most research and academic institutions and follows the federal definition of subrecipient.[90]

[90] 29 CFR § 99.210 defines a "subrecipient" of a federal award as someone who has responsibility for programmatic decision making and responsibility for adherence to applicable federal program compliance requirements and a "vendor" as a provider of goods and services. See Source: https://www.ecfr.gov/cgi-bin/text-idx?SID=bf4dc7f5a7250cc0ba8f3ef180fd803e&mc=true&node=se29.1.99_1210&rgn=div8

- Lack of clarity for deliverables – For deliverables-based contracts there often is a lack of clarity on the requirements necessary for invoice approval. There is uncertainty around what should and should not be included within each deliverable. This lack of clarity leads to denied invoices resulting in late payments.

Challenge Area 5: Institutional Risk (e.g. indemnification, warranty, liability)

Lastly, the survey indicated that the majority (4/7) of state participants and the majority (27/32) of Partner Institution and CCST participants who work with *contracts* stated that negotiating language on institutional risk is an issue that causes delays. Additionally, the majority (4/5) of state survey participants and majority (24/28) of Partner Institution participants who work with *grants* stated that institutional risk issues cause delays.

I concluded my interviews by asking participants how they manage risk with respect to liability, indemnification, warranties and the like when entering into contracts or grant agreements and whether these requirements cause delays in the process. Almost two thirds (11/18) of participants stated that it is a barrier (three stated that it is not and the other three did not have the background knowledge to provide an answer). Interviewees tended to highlight the lengthy back and forth negotiations that differ depending on the type and level of risk associated with any given project.

There is no standard level of risk that an academic or research institution can incur for every project. The level of risk depends on a multitude of aspects including without limitation, whether or not there are human subjects, activities with students, or activities involving healthcare information. Each type of risk requires an analysis to take

place within each academic and research institution. Depending on the type of risk, there are different people and departments who are involved in the risk assessment.

> *"There's a lot of back and forth…if the language is not, you know, exactly how we want it, then we have to follow up with different departments. Let's say it's an accounting risk, then we have to talk to accounting and get their buy in. If it's indemnification we have to go internally and check…the back and forth communicating and negotiating…could take any amount of time" – Contracting/Granting Expert*

These negotiations are difficult because the nature of research is unpredictable. Therefore, many academic and research institutions set up mitigation plans before they begin to execute a contract or grant agreement. Another key department involved in risk negotiations consists of the legal teams at both academic and research institutions and state agencies. Participants described how different levels of approval can cause delays because of the many levels of review required for issues like indemnification, warranties, and liability.

Another Risk Management Challenge

Although not prominently discussed, participants mentioned another challenge related to risk management:

- Lack of standard policy – There is no standard of risk or universal assessment tool that either agencies or academic and research institutions are willing to accept. Negotiations are burdensome due to non-existent standards.

Tracking the Process

The data from the survey and interviews highlighted another major theme: the need for process tracking. When I asked state agency participants who took the survey about the average length of time it takes them to execute a contract, the majority (6/8) stated that it takes an average of 1-6 months, one stated it takes 6-12 months, and another stated it takes more than 12 months.[91] The majority (19/32) Partner Institutions and CCST participants specified it takes 1-6 months to execute a contract, almost one-third (10/32) stated it takes 6-12 months, one indicated it takes over 12 months, and only two estimated it takes less than one month. I asked the same question to all participants about grant execution. Over half (5/9) of state participants indicated it takes them 1-6 months on average to execute a grant agreement and only one stated it takes 6-12 months. The rest of the participants stated that they do not work with grant agreements. The majority (22/32) of Partner Institutions and CCST participants indicated it takes an average of 1-6 months to execute a grant agreement, one stated it takes 6-12 months, two stated it takes less than one month and the rest are unsure or do not use grant agreements. Although the sample size for the survey is small and responses were based on perceptions and not tracking data, the results showed that both the contracting and granting processes are taking months to execute.

When I asked interview participants whether they are tracking the contracting and granting process timelines, they generally indicated that they record the start and end date

[91] In this context "execute" refers to the time from the initiation of negotiations to the signing of the agreement by both parties.

of the contract or grant agreement, but they are not tracking the back and forth communications that take place before the mutual acceptance of the agreement. Most accounts provided were anecdotal. Many (10) stated that their institutions do not have the resources to capture this data and two others stated their institutions were either switching to a different system that would allow for this level of tracking or, if they already have this capability, interviewees do not have the capacity to continuously update the system with new data entry points. Two interviewees stated that they did track the negotiation interactions timeline but the department that collects this data could not make it available for my analysis due to privacy concerns.

Challenges with Model Agreements

In the survey, I asked state agencies whether they use the CMA and one third (3/9) specified that they do use the CMA with amendments or added provisions, few (2/9) stated they do use the CMA with no changes, and several (4/9) indicated that they do not use the CMA because they have acquired approved exceptions to the requirement. When I asked agencies whether they use the FLMA, the vast majority (6/9) stated that they do not work with federal labs, two stated that they do not use the FLMA and only one participant indicated they use the FLMA, but with amendments and added provisions. I also asked CCST Partner Institutions and select CCST staff members whether they use the CMA or FLMA when working with state agencies and one another. One fourth (8/32) of participants stated that they use the CMA without changes, less than half (11/32) indicated that they use the CMA with amendments and added provisions, one fourth (8/32) do not work with the CMA, and the rest of the participants were not sure

whether they did or not. Additionally, none of the participants stated that they use the FLMA without changes and only one stated that they use the FLMA with amendments or added provisions. The majority (23/32) of participants stated that they do not use the FLMA, while the rest were unsure (8/32).

In addition to asking about the five main challenge areas, I also asked interviewees whether they use a model agreement or template when negotiating contracts or grant agreements with state agencies. Ten indicated that they are attempting to use a model agreement, whether the CMA (8) or the FLMA (2). Of these ten participants using a model agreement, nine of them stated they are negotiating changes to the model agreement and the vast majority (9) indicated that it is the state agency that is requesting changes to the model contracts and grant agreements.

Overarching challenges

Interviewees claimed that there is basic unfamiliarity within the State with both the CMA and the FLMA, and supposed that agencies are experiencing difficulties transitioning to using model agreements due to this unfamiliarity. According to interviewees, state agencies sometimes add their previous standard boilerplate into the model contracts because those are the terms they are most familiar with. This can lead to redundant or internally conflicting terms that do not line up with the university terms and conditions (UTC) or the FLMA.

> *"I'm thinking about the agreement I had with the ____ where I spent a considerable amount of time sort of educating the contract officer on the other side [about] the CMA and how those CMA terms already met their needs. I basically went through the terms that they kind of put into*

the scope of work, and then I marked them out and said, 'hey, these terms are already addressed here, here, and here.'" – Contracting/Granting Expert

Furthermore, individual agency policies can supersede the UTC and the FLMA. Adding provisions that conflict with the CMA or FLMA undermine the intent for efficiency for both model agreements. Participants agreed that training on how to use the CMA and FLMA would help improve negotiation time and efforts to fix redundancies or conflicting terms and conditions. DGS, UCOP, and CSU Chancellor's Office (CSUCO) mutually authored and released a CMA Guide in February 2020 to support CMA users at the state agencies and university campuses. Participants also mentioned that they are unfamiliar with the different requirements with which individual agencies must comply, suggesting the need for cross-training between state and university or lab partners.

The California Education Code allows modification of a term within the UTC if the parties mutually determine that a specified standard contract provision is inadequate or inappropriate for a particular scope of work.[92] However, interviewees indicated that state agencies take liberties to unilaterally include terms and conditions that are not specific to a project's needs, and reflect the agency's pre-CMA agency-specific boilerplate language in order to protect their internal processes. Typically, these terms increase administrative burdens on the university. While the universities believe they have policies and procedures in place to be responsible stewards of the state funds,

[92] California Education Code at 67327(b): *"The standard provisions in a model contract agreed upon pursuant to subdivision (a) shall be used in contracts entered into between the University of California or the California State University and the State, unless both contracting parties mutually determine that a specified standard contract provision is inappropriate or inadequate for a specified contract."*

participants suggested there is a lack of trust between the State and universities that results in additional terms and conditions to be added to the UTC.

> *"We have very good internal controls and we find these additional requests not really warranted ….they're a bit overreached and over-burdening and, and it does cause frustration on the faculty, it causes frustration on the staff, it causes frustration on the resources..." – Contracting/Granting Expert*

Interviewees generally agreed that state agencies seem to resist using both the CMA and the FLMA as written and accepted by DGS, UCOP, and CSUCO. In their experience, State agencies push back on the terms and conditions outlined in each model in place of agency specific terms that lead to long negotiations between CGEs.[93] Sometimes the agency will require additional documentation and paperwork if they do agree to use the CMA or FLMA. This issue presents itself in various ways throughout the contracting and granting process. For example, during negotiations some agencies take a steadfast approach to negotiations and indicate that everyone, regardless of whether they are a federal lab, CSU, UC, or private academic or research institution, are subject to the agency-specific terms and conditions included for informational purposes in an RFP. This approach precludes many academic and research institutions from replying to RFPs.

> *"Honestly, this is just my opinion of course, but it's sort of a resistance to the CMA. And I understand some of it is completely valid, such as for accounting purposes the State wants to see the budget in a certain way. But I think they're asking the institution to do a lot of the work of the CMA that not necessarily should be put on the institution…it just seems that it's a resistance to the CMA to sort of put more obstacles, that's how it feels at least." – Contracting/Granting Expert*

[93] One reviewer noted that boilerplate term templates used by the State are often not appropriate for the relationship between the contracting/granting parties. The reviewer also stated that while the terms meet state agency requirements they are often not applicable to the research that is to be conducted.

According to interviews, federal labs refrain from responding to funding opportunities if they contradict the FLMA auditing and prepayment requirements. Federal labs are subject to audits by the federal government whether it is the DOE or Department of Defense and are not allowed to undergo state-level audits. Therefore, when funding opportunities indicate that grantees or contractors must undergo a State audit, this precludes the federal labs from applying even if they are well equipped and have the best facilities or science to offer.

> "A perfect example [is the] audit clause, and this is an issue…[if the RFP language] says that anyone who receives funding under this [RFP] has to be subject to a full audit by the State of California…[we] could never sign that" – Contracting/Granting Expert

Additionally, federal labs require prepayment from the State, separate from indirect costs. This prepayment, or upfront payment, allows the lab to begin working on a project, as the lab is unable to use their existing federal funds to start a project. A typical state contract or grant agreement is formatted for reimbursement, which is not compatible with the advance payment process. Therefore, without accepting or understanding the FLMA, some state agencies are in effect excluding federal labs from applicant pools.

While federal DOE labs, the CSU, and UC systems have model agreements to help navigate the complexities in state contracting and granting, private universities such as Caltech and Stanford do not. From my interviews I learned that both of these private universities enter into comparatively fewer state-sponsored contract and grant agreements than their public university counterparts. Private universities employ some of the world's best researchers in many fields, yet there exists no model agreement to help the State

easily access this talent. In Phase II of the report, CCST will explore why the State has not developed a model agreement with private universities within the state.

Solutions

As part of my interviews I asked participants what types of solutions they thought could overcome some of the barriers they presented. The following table lists some of the challenges that were mentioned, many of which did not present themselves as common themes for the above analysis, along with the corresponding solutions that interviewees proposed. Per my methods chapter, the table is meant to distill the information I heard from the interviews. It is not meant to present my take on the best solutions, but rather to present interviewee's suggestions for potential solutions. Each of the proposed solutions listed should be evaluated independently before implementation.

Table 2: Contracting and Granting Challenges and Corresponding Possible Solutions Presented by Interviewees: Indirect Costs

Challenges	Possible Solutions
Lengthy back and forth negotiations	• Streamline the process by accepting each Partner's federally negotiated rates or in the case of the UC, the indirect cost rate escalation set forth by UC • Increase open communication • Create negotiation deadlines to hold people accountable • Negotiate a universally approved rate • Educate the State on why the costs are what they are
State's unwillingness/ inflexibility to accept an institution's standard rate or federal rate	• The State should accept the federal rates • Negotiate and accept a state approved rate • Develop alternative rates based on the types of research conducted
Conflicting perspectives on what the indirect cost rate should be	• Increase interactions between agency officials and academic and research institutions • Create more opportunities for both formal and informal interactions between researchers and CGEs
Inability of institutions to substitute the indirect cost rate (IDC)	• State agencies need to accept the proposed rates • Create clearly written funding opportunities or RFPs that indicate that IDC rates are negotiable
Inability to adjust for annual cost escalations	• Develop a mutual understanding of why rates escalate and account for yearly fluctuations
Arbitrary restrictions on rate acceptance	• Eliminate arbitrary caps on indirect costs • Weigh institutional indirect cost rates as part of a full proposal and not as a disqualifier

Table 3: Contracting and Granting Challenges and Corresponding Possible Solutions Presented by Interviewees: Staff Capacity/Workload

Challenges	Possible Solutions
High staff workload, staff shortage, and limited resources	• Hire more staff • Increase state and institution budget • Agree on a standard model agreement • Embrace current model agreements • Make funding opportunities more clear* • Disseminate workload • Develop clearly defined scopes of work and deliverables
Lack of transparency when negotiating with multiple CGEs within the State	• Institutional training on state process • Building communication lines and educating one another • Establish deadlines for returning paperwork • Give CGEs decision making authority • Create online system to track where contract and grants are in approval process
High administrative burden due to increase in required paperwork	• Clarify and fix conflicting provisions between state policies and institution policies • Develop uniform requirements • Develop CMA or UTC terms that are based on and aligned with 2 CFR 200 • Develop a mutual understanding that public research and academic institutions are not private entities
Lack of familiarity with institutional terms and conditions along with other requirements	• Training/Education
Requiring original signatures and copies	• Digitalization of required signatures and paperwork

* State agencies should develop RFPs that state the programmatic and contractual requirements that the applicants should expect to see in an award. When applicable awards from RFPs should use model agreements.

Table 4: Contracting and Granting Challenges and Corresponding Possible Solutions Presented by Interviewees: Intellectual Property, Data Ownership, and Publication Policies

Challenges	Possible Solutions
Data ownership rights **	• Avoid modifying agreed-upon UTC terms for public universities • Develop standard, mutually agreeable language for public and private academic and research institutions who do not already have mutually agreeable data ownership terms in place • State should allow universities to own the data resulting from university-generated activities. Subject to such reserved rights, universities should give state agencies rights to use the data and research results • Establish a mutual understanding of acceptable data ownership and data rights practices and policies • State should include whether data ownership rights are non-negotiable on RFPs • Allowing third party data storehouses
Publication rights and restrictions	• Avoid modifying agreed upon UTC terms for public universities • Develop standard, mutually agreeable language for public and private academic and research institutions who do not already have mutually agreeable terms for publication rights in place • Establish a mutual understanding of acceptable publication policies • State should abide by federal patent requirements in the uniform guidelines
Warranty for non-infringement/indemnification for IP	No possible solutions mentioned

**The FLMA contains a Data Rights Exhibit that is aligned with federal data rights requirements. These are general solutions, not necessary specific to the FLMA.

Table 5: Contracting and Granting Challenges and Corresponding Possible Solutions Presented by Interviewees: Invoicing and Reporting

Challenges	Possible Solutions
Overly burdensome reporting requirements for documentation	• Clear communication on internal auditing and documentation practices and controls • Create uniform and pragmatic guidelines • Digitalization of signatures and document collection • Clear articulation of documentation requirements in the contract instead of during post-award performance
Inflexibility to account for salary escalations and funding gaps	• The State should abide by federally approved accounting practices • Mutual understanding that accounting practices are not one size fit all. There are multiple ways to meet requirements for state accounting principles. • The State should be flexible to accommodate fluctuations • Simplify terms and conditions with the understanding that institutional salary/hourly rates are legitimate
Unclear requirements for invoicing and reporting leading to late payments	• Develop clear universal requirements • Institutions should be consistently aware of requirements and deadlines
Unclear definitions for vendors and sub-recipients	• The State and Institutions should agree upon a definition

Table 6: Contracting and Granting Challenges and Corresponding Possible Solutions Presented by Interviewees: Institutional Risk

Challenges	Possible Solutions
Lengthy, overly burdensome, negotiations which include different departments and people within institutions and the State	• Develop standard, mutually agreeable policies • Increase communication and mutual understanding of deal-breakers and areas of inflexibility • Set internal caps on back and forth negotiation • Uniformity and consistency
State agencies not accepting mutual indemnification	• Develop an understanding that all research and academic institutions are working to better the State of California
Lack of standard risk management policy	• Develop standard agreed upon policy language

The solutions suggested by interviewees highlighted a need for state decision makers and leaders at academic and research institutions to work together to overcome some of the barriers CGEs are facing. One theme within the solutions suggested by interviewees is the need to develop standard, universally agreed upon policies and procedures. Although the creators of the CMA and FLMA attempted to do just that, it is clear that the implementation of such model agreements was not as successful as the creators hoped, due to limited buy-in from state agencies. Stakeholders should seek to better understand why these model agreements are generally not used as intended. Whether uniform guidelines for invoicing and reporting, standard language for data ownership, or universal risk management policies, interviewees indicated that all participating state agencies and research and academic institutions should acknowledge policies and terms and conditions.

Another theme that arose within the solutions suggested by interviewees is the need for training and education. Interviewees highlighted the need for mutual understanding by both the state agencies and the research and academic institutions regarding the policies, terms, and conditions to which they are subject. For example, one of the possible solutions to limit staff capacity and workload challenges was to help academic and research institutions to understand the State contracting and granting process, and another was to provide training workshops to state CGEs on institutional policies, terms and conditions. Additionally, one of the solutions presented to help overcome lengthy negotiations over risk clauses is the establishment of a mutual understanding of deal-breakers on either side. Understanding where the State and

institutions are inflexible could not only save CGEs time when negotiating risk, but could also save time when negotiating other challenges like indirect costs, intellectual property, and invoicing and reporting terms and conditions.

Other common solutions highlighted by interviewees are for the State to either consistently use the terms and conditions within the CMA and FLMA and/or adhere to federal regulations for some of the challenges presented in Tables 2-6. These federal regulations include indirect cost rate acceptance and accounting practices for invoicing and expense reporting. During development of the CMA, discussions of indirect cost rate negotiation included a proposal to start with each institution's federally-negotiated rate and then apply specific reductions for the State. State agencies and academic institutions may want to consider this proposal again.

Another interesting solution that an interviewee presented was a strategy that the California Strategic Growth Council (SGC) and the California Energy Commission are currently using to overcome challenges with high institutional indirect cost rates. The interviewee explained that the SGC is evaluating the indirect cost rate as a weighted criterion. Instead of discounting public and private academic or research institutions for having high rates, RFP responses are scored using several criteria, each of which carries a different weight. Therefore, a higher indirect cost rate means the institution will have a lower score, but the application is not completely out of the running. While this is one interesting strategy state agencies could implement to try to eliminate caps on indirect costs, it is important to note that this strategy may exacerbate the tension between PIs and their institutions, as mentioned earlier in this chapter. PIs could argue that the institution

is jeopardizing their project score by insisting upon full indirect cost recovery. The institution is then put in the difficult position of weighing whether to share in the costs of supporting the project, seeking unrecovered institutional costs from other sources (possibly including tuition), or foregoing important research projects that faculty members wish to pursue. These tensions aside, this solution might open the door for more participation by public and private universities with higher indirect cost rates, if they might otherwise not be considered for the contract or grant despite having some of the best researchers for the job.

Summary

The interviews focused on the five key challenge areas listed in this chapter, some of which were more prominently discussed by interviewees than others. In particular, almost all interviewees (17/18) indicated they believe staff capacity and workload is a major concern. I received far more examples and feedback on this section than any other. This is also the area in which I received the most distinct and specific types of challenges. Whether CGEs are facing large workloads due to a staff shortage, lack of resources, or because they have too many different responsibilities, it is clear that the contracting and granting process itself is also imposing many administrative barriers that make it difficult to enter into contract and grant agreements.

I also found other recurring themes. All UC, CSU, and lab participants stated they believe indirect costs pose a significant challenge to the contracting and granting process, while other participants did not. The silence on this point by other participants may point more to the fact that private universities and CCST tend to receive comparatively fewer

contracts and grant agreements from the State than public universities and research institutions, rather than an absence of issues with the indirect costs charged by these entities. Interviewees also suggested that there is no single challenge causing the longest or most significant delays: it is instead a combination of these challenges that presents itself during the negotiation phase of the contracting and granting process. Participants indicated that back and forth negotiations are taking the most time, whether these negotiations are about indirect costs, intellectual property, or risk.

Generally, interviewees agreed that their priority is to partner with the State in order to advise the State using the best science and research available. While most academic and research institutions are able to work through terms and conditions in order to enter into contracts and grant agreements, the federal labs have a harder time doing this due to several deal-breakers, namely state audits and advanced payment requirements. This results in federal labs refraining from responding to many state RFPs. Further, private universities also have a hard time even being considered for state-funding, possibly due to high indirect cost rates or other issues CCST hopes to highlight in Phase II of the study.

I also found that both the CMA and FLMA model agreements can save CGEs time when used as intended, but this is relatively rare. It is more common for state agencies to negotiate specific terms and conditions within an Exhibit G modifying the UTC within a CMA agreement or within the FLMA. State agencies also lack familiarity with the CMA and FLMA, which is resulting in both administrative burden and lengthy, unnecessary negotiations.

Chapter Five

CONCLUSION AND RECOMMENDATIONS

In this chapter I summarize what I have learned, highlighting key takeaways for stakeholders to consider when trying to understand the challenges of the contracting and granting process between academic and research institutions and state entities. I also discuss some of the limitations of this phase of the study and offer suggestions for further research in addition to Phase II of this study, which will be conducted at a later date. I conclude by discussing key findings, conclusions, and corresponding recommendations.

State Contracting and Granting Inefficiencies

The challenges presented in Chapter IV of this report highlight some of the inefficiencies that exist in current contracting and granting practices. These issues indicate why contracts and grants are not administered in a timely manner and how they prevent many leading academic and research institutions from applying for funding opportunities. As a result of these inefficiencies, the State wastes billions of state research funds on the contracting and granting processes rather than on the actual research projects that are vital to state operations. Instead of optimizing research funding, these inefficiencies result in project delays, lay-offs, and a loss of essential resources for Californians. I believe the State can make changes to help improve this process and optimize State funding. This report attempts to help state decision makers fully understand these issues and why they persist, as well as recommend steps the State can take to mitigate these barriers to the process.

Key Themes

In this section, I identify some of the central ideas that arose from my research and analysis. Some of these ideas were suggested explicitly by interviewees and survey respondents, while the Steering Committee and I discerned others by examining the entirety of available information including discussions with other experts. Some of these ideas, however, did not present themselves as overarching themes or challenges from the information I gathered from the interviews, so I did not include them in the analysis chapter. Still, I believe these ideas are important to mention here because these measures may decrease resource waste while boosting business efficiencies and cost savings for the State, CCST Partner Institutions, and CCST.

Need for Accountability

As identified in Chapter IV, there is a lack of flexibility and collaboration among contracting and granting entities. All sides are generally unfamiliar with the reasons behind why the State and research institutions require certain agreement terms or follow particular processes. Over time this has bred a culture of opposition. However, I learned that academic and research institutions, including CCST, are committed to serving the State and will generally do whatever possible to try and make contracts and grant agreements work. As mentioned in Chapter I, CCST Partner Institutions and CCST all strive to fulfill a common mission which is to ensure decision makers have ready access to the knowledge and expertise generated within these institutions, including independent scientific advice, and provide community services necessary for the wellbeing of the

citizens of California. Therefore, academic and research institutions will often try to seek approval from those higher-up within their own organizations in order to make exceptions to institutional policies and to non-standard agreement provisions that conflict with model agreements already agreed to with the State as established under law. If they choose not to make such exceptions, the research institution will most likely lose the contract or grant agreement even if they are the best entity for the job. Not only does the institution lose the opportunity for the work, but the State also misses the opportunity to receive the best available researchers and service providers. Therefore, although there were no interviewees who mentioned the lack of accountability as a problem, it is important to address what happens when model agreements or standard provisions are not followed.

Unfortunately, there is no central agency, department, or unit within the State that consistently holds agencies accountable when they unnecessarily deviate from using model contracts. The Department of General Service's (DGS) authority to approve contracts entered into by state agencies has expanded the use of the CMA in that area, but there is little to no oversight for agency consistency in the area of grants. Despite the California Education Code requirements and legislative intent, DGS does not have the bandwidth or incentive to hold agencies accountable when the latter implement overly burdensome policies and try to forgo the use of the CMA and FLMA in grants or contracts that do not meet the financial threshold for DGS approval. This lack of accountability for agencies means that academic and research institutions are forced to compromise their own practices (all designed to align with federal grant requirements),

the legislatively mandated model agreements, and administrative efficiencies in order to provide services and research to the State.

Research vs. Service

Another impasse of understanding between state agencies and CCST Partner Institutions involves the classification of work to be performed and the appropriate set of terms applicable for that classification. State agencies may see sponsored research as a "good or service" to be acquired in a procurement relationship. In contrast, CCST Partners adhere to federal legal definitions that create categorically different expectations and terms for federal assistance awards as compared to the terms appropriate for the acquisition of goods and services.[94] During negotiations, there are terms and conditions that some state agencies apply to contracts and grant agreements that are typical for service contracts, but these additional terms and conditions can cause unnecessary delays in negotiations when applied to research-based contracts and grants. For example, as discussed in Chapter IV, AB 2192 (2018) requires that all peer reviewed, scientific research funded by the State of California be made available to the public. But some state agencies still include publication restrictions in contracts and grants. Another example is when agencies inappropriately reclassify some research contracts as information technology (IT) contracts, which are defined as having the primary purpose of providing

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[94] The Uniform Guidance governs federal financial assistance provided in grant agreements, cooperative agreements, and cost-reimbursement contracts, but specifically excludes contracts that a federal agency uses to buy goods or services from a contractor. (See 2 CFR §200.38). Additionally, different universities may also have diverse institutional policies and processes governing how to handle services vs research agreements. For example, see Stanford's Research Policy Handbook for their specific policies and processes. https://doresearch.stanford.edu/policies/research-policy-handbook

IT activities[95] to a state agency. Many state-sponsored projects may include IT resources (computers, servers, etc.) and some IT activity, but have a primary purpose of providing non-IT services or research. Improper classification of these contracts as IT contracts can cause significant and unnecessary delays in contract negotiation and execution. The State does not use the CMA for IT contracts; therefore, improper classification of such agreements for UC and CSU campuses necessitates completely rewriting the agreement using the appropriate terms.

As mentioned in Chapter IV, research is essentially unpredictable; academic and research institutions are not able to guarantee outcomes because researchers necessarily start their work based on a question or hypothesis. Therefore, unlike a contract for services, a scope of work for research *does not guarantee any particular result*, and often requires more budget flexibility to adapt expenditures as the research progresses, but without increasing the total contract dollar amount. Additionally, researchers continually build upon prior work; incrementally adding intellectual contributions, expanding publications, referencing results and reports in later symposia and presentations long after the sponsorship agreement has expired. Conversely, contracts for service typically end once contractors complete the commissioned service. There exists an inherent discrepancy between what the State considers a service versus research, and recognizing the differences between the two can help contracting and granting entities resolve barriers when trying to develop efficient practices, policies, and possibly more targeted and usable model agreements.

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[95] Defined in the State Administrative Manual (SAM) section 4819.2

Incomplete Model Negotiations and Implementation

Contracting and granting entities intended the CMA and FLMA to solve the challenges that the State and research institutions were facing when trying to enter into contracts or grant agreements. While the FLMA included all of the terms and conditions it intended to, the CMA did not resolve all problems it set out to. As noted above, the CMA includes uniform terms for research and service activities when differentiated terms might be more appropriate. Further, the CMA failed to include certain terms and conditions that the Legislature intended the model agreement to cover.[96] For example, the UCOP, CSUCO, and state agency representatives failed to reach agreement upon an indirect cost rate for budgets of state-sponsored projects. During these negotiations, the UC and CSU tried to use the federally negotiated rate as a starting point which they would discount for a state negotiated rate, but state agencies rejected this idea in favor of a simple single indirect cost rate for all CSU and UC campuses. Individual agencies insisted upon various rate limitations, while the UC and CSU unilaterally set out an

[96] California Education Code 67327(a): "To the extent feasible, these standard contract provisions shall include, but not necessarily be limited to, provisions relating to all of the following:
(1) Liability.
(2) Intellectual property.
(3) The right to undertake additional research.
(4) The right to publish.
(5) Hiring and other personnel-related matters.
(6) Invoicing.
(7) Payments.
(8) Dispute resolution.
(9) Travel.
(10) Termination.
(11) Administrative overhead and indirect costs."

escalating rate schedule without acquiescence from the State.[97] Additionally, as mentioned in Chapter IV, the FLMA includes terms and conditions accepted by both parties, but implementation of the model was left incomplete because agencies are not required to use the model agreement under the Federal Labs Contracting Act. Although helpful when used as intended, agency resistance to use of the existing model agreements without modification could be explained by the position that the model agreements do not fully address all needs of contracting and granting entities, and do not alleviate all of the challenges described by participants in this study. In Phase II of this study, which CCST will complete at a later date, I expect to discover why state agencies are not using the CMA and FLMA as intended.

Limitations

I, as an employee of CCST, with guidance and input from CCST and the Steering Committee of experts for this report, researched and wrote the study over a period of a year. The breadth of information and complexity of contracting and granting, both nationally and statewide, is immense. Therefore, in order to limit the study, I focused my research especially on five challenge areas as discussed in Chapter III. Furthermore, my research was constrained to a small sample size of survey responses and interviewees. I tried to incorporate as many perspectives as possible in my research but was limited by the answers I received from CCST's call for response. California houses over 100 state agencies and I received a total of 9 survey responses from contracting and/or granting

[97] See source: https://www.ucop.edu/research-policy-analysis-coordination/policies-guidance/indirect-cost-recovery/state-of-california.html

experts from within these agencies. There are also hundreds of public and private universities and research institutions in California and I was only able to interview 18 experts at these institutions. Additionally, I was not able to interview experts at California Community Colleges, of which there are 115.

Another limitation of this report was the need to finish phase I of the study before the thesis deadline and before starting on phase II of the report. While phase I of my analysis brings to light some of the challenges academic and research institutions, including CCST, face when entering into contract and grant agreements with the State, phase II of the analysis will provide the State perspective on these challenges. If I were able to start or finish phase II of the report before the thesis deadline, I might have revised the conclusions of the report to incorporate a more comprehensive perspective.

Recommendations [98]

As presented in Chapter IV, there were a number of potential solutions offered by the interview participants. Based on discussions between the lead author and the Steering Committee of experts, a number of recommendations emerged, some of which can be more readily implemented than others. Some recommendations, while important to the findings of the report, require structural and culture change, making them much more difficult to implement. Therefore, the Steering Committee reviewed the solutions presented by interview participants in Chapter IV and critically examined them based on

[98] **Finding:** Fact(s) the study team finds that can be documented or referenced and that have importance to the study.
Conclusion: A reasoned statement the study team makes based on findings.
Recommendation: A statement that suggests an action or consideration as a result of the report findings and conclusions.

criteria including feasibility, timeliness, and level of impact. Below is a list of findings, conclusions, and corresponding recommendations that the Steering Committee and I felt should be highlighted. While the different challenge areas helped the project team focus the report analysis and discussion, the recommendations themselves do not necessarily correspond to each of these areas. They are based on the overarching findings and corresponding solutions of the report and what I believe will most help streamline and strengthen the contracting and/or granting processes in California.

Finding 1a: Contracting and granting experts (CGEs) at academic and research institutions reported feeling burdened by the varying rules and regulations imposed by multiple agencies and departments, resulting in fewer resources spent on actual research.

Finding 1b: Contracting and granting experts at academic and research institutions indicated these processes are not only burdensome but also inconsistent across jurisdictions. Particularly in the case of state grants, conflicting requirements sometimes preclude highly qualified institutions from even applying for available state resources.

Conclusion 1: Inconsistencies in the State grant making process - both across state agencies and with the federal practices – is a significant barrier for CGEs.

Recommendation 1: The State of California should consider improving consistency by emulating federal grant making processes, which are mostly standardized across federal

agencies. More specifically, the State should consider emulating those processes governed by the Federal Uniform Guidance for **administrative matters** such as cost allowability, prior approvals, auditing, and oversight.

Finding 2: Interviewees who stated that staff capacity and workload is a barrier in the contracting and granting process also highlighted that state agencies lack knowledge of the academic and research institutions' contracting and granting process. Similarly, participants stated that they also do not understand the state process and the rules agencies must follow.

Conclusion 2: Without mutual understanding of each party's motivations, contracts can be difficult to negotiate and unnecessarily daunting, presenting a challenge to forging agreements.

Recommendation 2: Instituting centralized training and educational workshops for contracting and granting experts can help reduce this burden and allow for increased knowledge in the contracting and granting process. A centralized state unit, such as California Government Operations[99], or DGS, should host training/educational workshops for contracting and granting experts to understand the terms, conditions,

[99] As mentioned in my literature review, the California Government Operations agency exists to help improve management and accountability of government programs and increase efficiency in government operations. See source: https://www.govops.ca.gov/

processes, and policies required for state agency contracts and grants. California research and academic institutions should host training/educational workshops for state contracting and granting experts to explain institutional terms, conditions, process, and policies when receiving contract and grant funding.

Finding 3a: Interviewees indicated that there is a broad unfamiliarity among many state agencies with both the CMA and FLMA.

Finding 3b: Interviewees who work with the CMA also highlighted that state agencies often unilaterally modify its terms and conditions in order to remain consistent with the agencies' internal processes, rather than making modifications based solely on the needs of the project, as provided for in the California Education Code.

Finding 3c: Interviewees generally agreed that state agencies seem to resist using both the CMA and FLMA as written and accepted by DGS, UCOP, the CSUCO, and DOE labs.

Finding 3d: From Interviewee statements, it is not clear that any central entity is functioning to monitor agency adherence to the CMA or FLMA, thus negating, in large part, their beneficial intent.

Conclusion 3a: Unfamiliarity with model agreements has made it difficult for agencies to transition to using the models. Including additional terms to the model boilerplate

increases administrative burdens on all parties, as it compels additional negotiation despite the existence of model language. The considerable resources spent on these negotiations presents a barrier to straightforward contracting.

Conclusion 3b: The effective deployment of any model agreement requires coordination and evaluation from a centralized entity that functions to manage statewide agency uniform adherence to the intent of the CMA and FLMA.

Recommendation 3a: The State may wish to designate a central coordinating unit, such as California Government Operations, to develop a team to monitor the statewide use of the CMA and the FLMA. This team should review deviations in the use of the model agreements and seek to enforce the Legislature's intent that variations are allowed in the CMA "only in unusual situations" (per California Education Code §67326(g)) and only when a specified standard contract provision is inappropriate or inadequate for a specified contract (per California Education Code §67327 (b)). This coordinating unit should work with individual state agencies, DGS, UCOP, CSUCO, and California's DOE national laboratories to increase compliance in statewide model agreement use.

Recommendation 3b: The State should consider tasking this coordinating unit to identify why state agencies (1) ask for varying terms and conditions to those listed in the CMA, (2) decline to use the CMA altogether, and/or (3) use the CMA as is intended. This unit

can share this information with UCOP, CSUCO, and the DGS so they can consider the best strategy to resolving these issues.

Recommendation 3c: The State should consider tasking this coordinating unit to identify why state agencies (1) ask for varying terms and conditions to those listed in the FLMA, (2) decline to use the FLMA altogether, and/or (3) use the FLMA as is intended. This unit can share this information with the national laboratories and DGS so they can consider the best strategy for increasing the use of the FLMA.

Finding 4a: As part of the development of the CMA, the California State Legislature encouraged the UCOP, CSUCO, and DGS, on behalf of state agencies, to develop an indirect cost rate provision in the CMA. These indirect rate negotiations failed.

Finding 4b: Interview participants stated that they face difficulties when trying to negotiate the indirect cost rate for an individual project because state agencies often do not accept the institutions' specific indirect cost rates—calculated by the institutions based on operational and facilities costs—or their federally-approved rates.

Conclusion 4: Not only does the lack of acceptance of institutions' defined rates lead to back and forth negotiation over indirect cost rates that deplete all parties' resources, but it can also lead to a culture of opposition between contracting and granting parties. The

overall impact is a challenging and resource-heavy contract negotiation process that ultimately causes institutions to accept rates that do not fully support institutional costs.

Recommendation 4: The State should designate a coordinating entity, such as California Government Operations, to facilitate a negotiation between state agencies, the UC, and the CSU systems to meet the intent of the Legislature and develop an indirect cost rate for the CMA.

Finding 5: Interviewees noted that negotiations over specific contract and grant provisions, such as indirect cost rates, can cause tension between researchers and contracting/granting experts from within academic and research universities. Interview participants reported that researchers have an interest in reducing indirect cost rates to allow more funding to go directly to the project. However, contracting and granting experts from within these same institutions must abide by institutional policies that help recover facilities and operational costs for the institution that support these same projects. This tension can increase negotiation times and reduce efficiency within the process.

Conclusion 5: In order to reduce unnecessary delays in the contracting and granting process, researchers and contracting and granting experts from the same institution should have similar overall goals and be made aware of their institution's limitations/needs. Developing a mutual understanding of what is best for the research

project and what is best for the individual institution as a whole will reduce redundancies or conflict during contract/grant negotiations.

Recommendation 5: Both public and private academic and research institutions in California should provide opportunities for formal and informal interactions between researchers and contracting and granting experts at their respective institutions. These interactions will help both researchers and contracting and granting experts develop a mutual understanding about different contracting and granting provisions.

Finding 6: Some state agencies still require original signatures and hard copies of contract and grant agreements, amendments, and invoices for final approval, despite regulations that allow state agencies to accept digital signatures. Interviewees stated that this requirement can cause unnecessary delays, especially when numerous signatures are required from people spread across an institution.

Conclusion 6: Requiring original signatures and hard copies of contracts and grant agreements, amendments, and invoices creates an onerous amount of work for contracting and granting experts both within the State and at academic and research institutions. Digitizing this process could not only reduce the time it takes to execute a contract and grant agreement but also reduce some of the workload for contracting and granting experts.

Recommendation 6: The California State Legislature should consider requiring California state agencies to digitalize the contracting and granting process including digitalizing signatures and electronic submission of invoices in a format that contractors and grantees can reasonably use.

Finding 7: Academic and research institutions can enter into hundreds of contracts and grant agreements a year. Interviewees reported that there are not enough resources in academic and research institutions and in state agencies to fully support the large workload of fully-trained experts.

Conclusion 7: If no changes are made to current contracting and granting practices, then contracting and granting experts will continue to spend their time complying with what interviewees described as overly burdensome requirements from the State. Absent innovations in the process, the only way to more quickly complete grant awarding or enact contracts is additional allocation of resources to handle the current workload volume borne by contracting and granting experts.

Recommendation 7: In the current climate of limited resources across California—not only for state agencies, but also for all CCST Partners—it is imperative that all parties work toward implementation of recommendations 1-6, otherwise the only other option is additional funding to support the current burdensome processes.

Finding 8: Interviewees from private universities stated that they do not work with many state contracts or grants, which contrasted with their public university counterparts.

Conclusion 8: Private universities in California, alongside their public counterparts, are home to some of the nation's leading scientists. It is important for the State to have access to the best research available when making decisions for the public good. At this stage of my research, it is unclear why private institutions receive comparatively fewer contracts and grants.

Conclusion

Many of the recommendations above will require direct action from the State and will affect how state agencies and contracting and granting offices at research institutions operate. I understand that these recommendations will not be easy to implement and will require major cultural and institutional shifts. Therefore, if none of the recommendations are implemented, the State should consider piloting a program using similar methodology to the Federal Demonstration Partnership (FDP). As stated in Chapter II, the FDP gathers government, university, industry and nonprofit stakeholders in collaborative working groups and task forces to help reduce administrative burdens in federal research grants and contracts.[100] Stakeholders experiment with different pilot programs to understand whether their ideas will work to improve the federal granting and contracting process. Gathering a similar group in California, with the same purpose and liberties to

[100] See source: https://thefdp.org/default/

experiment with different rules and regulations, could really help to reduce inefficiencies in the State's processes.

The Next Step

I approached this study with firsthand experience of the inefficiencies that exist in the State contracting process. My research uncovered that similar contracting and granting challenges exist within numerous research entities throughout the State. Not only do challenges exist, but in some cases the issue is multiplied by the different requirements by which each individual institution must comply. I learned that in order to streamline this process, the State of California must address the barriers and inefficiencies in contracting and granting practices as highlighted in this report. Contracting and granting is an essential practice that allows the State to perform tasks that the State cannot accomplish alone in order to benefit and serve the public. Therefore, the next step is for state decision-makers to improve the contracting and granting processes by implementing comprehensive solutions. I believe that if the State decides to adopt any of the recommendations presented in this report, it is possible to make changes that will improve the practices and timelines for executing grants and contracts.

Appendix A

E-Survey Questions

https://docs.google.com/forms/d/e/1FAIpQLSdRdSY-Z36iCFeP1nuGk2R8wm8BdsS6kd-8adb_6bolt7S9OA/viewform?usp=sf_link [101]

[101] Note that each contracting and granting expert that participated in the survey and/or interview, answered questions based on their individual expertise within their institution. Their opinions do not necessarily reflect their institutions, as individual entities, views on this issue; nor does an interview from one CCST Partner Institution reflect the views of another Partner Institution.

Appendix B

Interview Questions

The following interview questions are listed by category of academic/research institution.[102]

Introduction

Thank you for taking the time to be interviewed. My name is _____ and I will be conducting the interview. Before we begin I want to explain our project:
We are writing a white paper on the challenges in the contracting and/or granting process between CCST Partner academic and research institutions, state entities, and CCST. We have two major goals: (1) to characterize the complexity of contracting and/or granting issues faced by CCST Partner Institutions, state entities, and CCST; (2) to identify possible solutions to address these issues which would improve the process by which science informs policy, leading to increased demand for science advice.

We hope this interview will take less than 1 hour. Please remember there are no right or wrong answers. We are interested in your thoughts, perspectives, and ideas. The responses you provide should be based on your experience. When you feel comfortable doing so, you may speak for your institution/agency as well.
We are recording this conversation to ensure we capture all of your thoughts accurately. Rest assured, the information you share will not be attributed to you individually. We are interviewing multiple experts from each institution/agency. We do intend to use this information to discuss your institution/agency and general system-wide challenges, as appropriate.

Do you have any questions before we begin?

[102] Note that each contracting and granting expert that participated in the interview, answered questions based on their individual expertise within their institution, however, their opinions do not necessarily reflect their institutions, as individual entities, views on this issue.

Public Research Institution Questions

General Questions

1. In your experience at (_Institution Name_), have you worked with both contracts and grant agreements?

2. Which state agencies and research institutions do you most commonly contract with? Which agencies and research institutions do you most commonly grant with?

3. Is your institution currently using the California Model Agreement (CMA) and/or the Federal Labs Model Agreement (FLMA) for grant agreements and/or contracts?
   Probe: If no, why did your institution decide not to use one or both model agreements?
   Probe: If yes, how often is your institution negotiating amendments or other types of changes to the model? Which party is most often requesting changes?
   Probe: What specific terms and conditions, if any, are being negotiated most often?
   Probe: How long are these negotiations taking?

4. Has the CMA and/or the FLMA made it easier for your institution to grant and/or contract? If so, how?
   Probe: If no, did the CMA and/or the FLMA have the opposite of its intended effect? If yes, how so?
   Probe: Have either the CMA or FLMA saved your institution time? In what way?

Overhead Question

1. What percentage overhead is your institution requesting for contracts/grants?
2. Can you explain whether overhead/indirect costs pose any challenges to contracting and/or granting?
   Probe: Does the percentage overhead required by your institution make it difficult to enter into contract and/or grant agreements? How so?
   Probe: What steps can be taken to overcome these difficulties?

Staff Capacity/Workload Question

1. Do issues such as workload, management, accountability, and availability of resources cause delays in the contracting/granting process? Why?
   Probe: How can your institution and/or agencies make the process more efficient?

Intellectual Property Question

1. Do intellectual property policies within your institution affect the way you negotiate or execute contract/grant agreements? If so, how?
   Probe: If it is a barrier, are there any ways your institution and/or agencies can be of help? How?

Invoicing and Reporting Question

1. What details is your institution required to submit to state sponsors for contracts? Grants?
   Probe: What kinds of invoicing and reporting details is your institution required to collect from contracting subcontractors? Granting subawardees?
   Probe: Do these requirements cause delays? If yes, how and at what point in the process?
   Probe: Are there any steps your institution and/or state agencies can take to solve this issue? How?

Risk Question

1. How does your institution manage risks such as liability, indemnification, warranty and the like when entering into negotiations over a contract/grant with agencies?
   Probe: Do these negotiations/requirements relating to liability, indemnification, warranty or other risk provisions cause delays? If yes, how?
   Probe: Are there any steps your institution and/or agencies can take to solve this issue? How so?

Closing Question

1. To what extent does your institution track the contracting and/or granting process?
   Probe: Do you know how long it takes for a contract or grant to move through each step of the process? If yes, how long?
   Probe: Can you identify where in the process the contract/grant is most delayed, if at all?

2. Have I missed anything that is important to know about the contracting/granting process?

Federal Lab Research Institution Questions

General Questions

1. In your experience at (_Lab Name_), have you worked with both contracts and grant agreements?

2. Which agencies and research institutions do you most commonly contract with? Which agencies and research institutions do you most commonly grant with?

3. Is your institution currently using the California Model Agreement (CMA) and/or the Federal Labs Model Agreement (FLMA) for grant agreements and/or contracts?
   Probe: If no, why did your institution decide not to use one or both model agreements?
   Probe: If yes, how often is your institution negotiating amendments or other types of changes to the model? Which party is most often requesting changes?
   Probe: What specific terms and conditions, if any, are being negotiated most often?
   Probe: How long are these negotiations taking?

4. Has the Federal Labs Model Agreement made it easier for your institution to grant and/or contract? If so, how?
   Probe: If no, did the FLMA have the opposite of its intended effect? If yes, how?
   Probe: Has the FLMA saved your institution time? In what way?

Overhead Question

1. What percentage overhead is your institution requesting for contracts/grants?
2. Can you explain whether overhead/indirect costs pose any challenges to contracting and/or granting?
   Probe: Does the percentage overhead required by your institution make it difficult to enter into contract and/or grant agreements? How?
   Probe: What steps can be taken to overcome these difficulties?

Staff Capacity/Workload Question

1. Do issues such as workload, management, accountability, and availability of resources cause delays in the contracting/granting process? Why?
   Probe: How can your institution and/or agencies make the process more efficient?

Intellectual Property Question

1. Do intellectual property policies within your institution affect the way you negotiate or execute contract/grant agreements? If so, how?

Probe: If it is a barrier, are there any ways your institution and/or agencies can be of help? How?

Invoicing and Reporting Question

1. What details is your institution required to submit to state sponsors for contracts? Grants?
   Probe: What kinds of invoicing and reporting details is your institution required to collect from contracting subcontractors? Granting subawardees?
   Probe: Do these requirements cause delays? If yes, how and at what point in the process?
   Probe: Are there any steps your institution and/or state agencies can take to solve this issue? How?

Risk Question

1. How does your institution manage risks such as liability, indemnification, warranty and the like when entering into negotiations over a contract/grant with agencies?
   Probe: Do these negotiations/requirements relating to liability, indemnification, warranty or other risk provisions cause delays? If yes, how?
   Probe: Are there any steps your institution and/or agencies can take to solve this issue? If so, How?

Closing Question

1. To what extent does your institution track the contracting and/or granting process?
   Probe: Do you know how long it takes for a contract or grant to move through each step of the process? If yes, how long?
   Probe: Can you identify where in the process the contract/grant is most delayed, if at all?

2. Have I missed anything that is important to know about the contracting/granting process?

Private Research Institution Questions

General Questions

1. In your experience at (_Institution Name_), have you worked with both contracts and grant agreements?

2. Which state agencies and research institutions do you most commonly contract with? Which agencies and research institutions do you most commonly grant with?

3. Is your institution currently using a model agreement to try and enter into contract and/or grant agreements?
   Probe: If no, why did your institution decide not to use a model agreement?
   Probe: If yes, how often is your institution negotiating amendments or other types of changes to the model? Who is asking for these changes?
   Probe: What specific terms and conditions, if any, are being negotiated most often?
   Probe: How long are these negotiations taking?

Overhead Questions

1. What percentage overhead is your institution requesting for contracts/grants?
2. Can you explain whether overhead/indirect costs pose any challenges to contracting and/or granting?
   Probe: Does the percentage overhead required by your institution make it difficult to enter into contract and/or grant agreements? How?
   Probe: What steps can be taken to overcome these difficulties?

Staff Capacity/Workload Questions

1. Do issues such as workload, management, accountability, and availability of resources cause delays in the contracting/granting process? Why?
   Probe: How can your institution and/or agencies make the process more efficient?

Intellectual Property Questions

1. Do intellectual property policies within your institution affect the way you negotiate or execute contract/grant agreements? If so, how?
   Probe: If it is a barrier, are there any ways your institution and/or agencies can help mitigate it? How?

Invoicing and Reporting Questions

2. What details is your institution required to submit to state sponsors for contracts? Grants?
   Probe: What kinds of invoicing and reporting details is your institution required to collect from contracting subcontractors? Granting subawardees?
   Probe: Do these requirements cause delays? If yes, how and at what point in the process?
   Probe: Are there any steps your institution and/or state agencies can take to solve this issue? How?

Risk Questions

1. How does your institution manage risks such as liability, indemnification, warranty and the like entering into negotiations over a contract/grant with agencies?
   Probe: Do these negotiations/requirements relating to liability, indemnification, warranty or other risk provisions cause delays? If yes, how?
   Probe: Are there any steps your institution and/or agencies can take to solve this issue? How?

Closing Questions

1. To what extent does your institution track the contracting and/or granting process?
   Probe: Do you know how long it takes for a contract or grant to move through each step of the process? If yes, how long?
   Probe: Can you identify where in the process the contract/grant is most delayed, if at all?

2. Have I missed anything that is important to know about the contracting/granting process?

CCST Questions

General Questions

1. Which agencies and research institutions does CCST most commonly contract with?

2. Is your institution currently using a model agreement to try and enter into contract?
   Probe: If no, what is the reason CCST decided to refrain from using a model agreement?
   Probe: If yes, how often is CCST negotiating amendments or other types of changes to the model?
   Probe: What specific terms and conditions, if any, are being negotiated most often?
   Probe: How long are these negotiations taking?

Overhead Question

1. What percentage overhead is CCST requesting for contracts?

2. Can you explain whether overhead/indirect costs pose any challenges to contracting?
   Probe: Does the percentage overhead required by CCST make it difficult to enter into contract? How so?
   Probe: What steps can be taken to overcome these difficulties?

Staff Capacity/Workload Question

1. Do issues such as workload, management, accountability, and availability of resources cause delays in the contracting/granting process? Why?
   Probe: How can CCST and/or agencies/Partners make the process more efficient?

Intellectual Property Question

1. Do intellectual property (IP) policies within CCST affect the way CCST negotiates or executes a contract? If so, how?
   Probe: If it is a barrier, are there any ways CCST, Partners and/or agencies can solve it? How so?

Invoicing and Reporting Question

1. What details is CCST required to submit for contracts?

Probe: What kinds of invoicing and reporting details is CCST required to collect from subcontractors?
Probe: Do these requirements cause delays? If yes, how?
Probe: Are there any steps CCST and/or agencies can take to solve this issue? How?

Risk Question

1. How does CCST manage risks with respect to liability, indemnification, warranty, or the like when entering into a contract negotiation with agencies and/or Partners?
   Probe: Do these negotiations/requirements relating to liability, indemnification, warranty or other risk provisions cause delays? If yes, how so?
   Probe: Are there any steps CCST and/or agencies can take to solve this issue? How so?

Closing Question

1. To what extent does CCST track the contracting process?
   Probe: Do you know how long it takes for a contract to move through each step of the process? If yes, how long?
   Probe: Can you identify where in the process the contract is most delayed, if at all?

2. Have I missed anything that is important to know about the contracting/granting process?

Appendix C

CCST Steering Committee Members

The Steering Committee (SC) oversees the report author(s), reaches conclusions based on the findings of the author(s), drafts recommendations.[103]

Full *curricula vitae* for the SC members are available upon request. Please contact the California Council on Science and Technology (916) 492-0996.

Steering Committee Members

- **Timothy Sullivan,** *Retired* California Public Utilities Commission (Chair)
- **Steve Bohlen,** *Former* Lawrence Livermore National Laboratory (LLNL)[104]
- **Randi Jenkins,** University of California Office of the President (UCOP)
- **Edward (Ted) Lascher,** California State University, Sacramento (CSU Sacramento)
- **David Mayo,** California Institute of Technology (Caltech)

[103] Note that each contracting and granting expert that participated as a Steering Committee member guided and contributed to the report as individual experts within their institution, however, their opinions do not necessarily reflect the views of their institutions, on this issue.

[104] As of June 1, 2020, Steve Bohlen became the Acting State Geologist and head of the California Geological Survey. On this date his official position as a Steering Committee Member ended, after the report had already been approved for peer review.

Timothy Sullivan; Steering Committee Chair
Retired Executive Director of the California Public Utilities Commission

Timothy Sullivan served as the Executive Director of the California Public Utilities Commission from December 2014 to his retirement in early 2018, a time of rebuilding relationships with the California legislature and of improving infrastructure safety, with a special focus on gas safety and wildfire prevention. In addition, Tim worked to serve Californians by overseeing Commission programs to reduce greenhouse gases from power production and programs to fulfill the Commission's historic mission of consumer protection. Tim's 37-year career in service to California included work as an administrative law judge, as an advisor to gubernatorial appointed Commissioners, and as an assistant professor of public policy. Tim Sullivan earned a Ph.D. in 1980 from Harvard's Kennedy School of Government in public policy and an AB from Yale in 1972, where he was a mathematics major. In retirement, Tim is an active volunteer in community, professional, and alumni organizations.

Steve Bohlen, Ph.D.
Retired Executive Director of the California Public Utilities Commission

Steve Bohlen became Acting State Geologist and head of the California Geological Survey on June 1, 2020. He re-joins the Department of Conservation (DOC) from the Lawrence Livermore National Laboratory, where he led the Energy and Homeland Security Program. In that role he has also served as an advisor to the Legislature on ways to achieve California's carbon neutrality goals through carbon removal and negative emissions strategies. He had previously served DOC as State Oil and Gas Supervisor from 2014-2015, leading organizational restructuring and laying the foundation for a modern, science-based program to regulate oil and gas under the guiding principle of public and environmental safety.

As President and CEO of Joint Oceanographic Institutions from 2000-2008, Steve led the global effort in scientific ocean drilling and the Integrated Ocean Drilling Program and the systems engineering and deployment of the US National Science Foundation's Ocean Observatories. From 1995 through 2000, Steve was Associate Chief Geologist for Science at the US Geological Survey. He was responsible for the scientific priorities and funding of the broad portfolio of USGS research, including the National Earthquake Hazards Reduction, Climate Change, Global Energy, and Minerals Resource programs.

A graduate of the Dartmouth College, Steve earned a Ph.D. in geochemistry from The University of Michigan in 1979. Following a postdoctoral fellowship at UCLA, he became a tenured professor at Stony Brook University in New York.

Randi Jenkins
Senior Research Policy Manager, University of California Office of the President

Randi L. Jenkins is a Senior Research Policy Manager with the University of California Office of the President, which develops policies to facilitate research and foster compliance with ethical, legal and regulatory standards. She provides coordination and support to the ten UC campuses in numerous areas including intellectual property (IP) and industry sponsored agreements. Since its implementation in 2016, she has served as the UC liaison to the California State University Chancellors Office and the California Department of General Services with respect to the administration of the California Model Agreement. Previously, she served the Office of Research at the UC Davis campus for twelve years in several related capacities. As an IP Licensing Officer, Randi protected, marketed, and advanced the commercialization of university IP. As Associate Director at the UC Davis Sponsored Programs Office, she managed the teams and technology integral to the negotiation and management of research agreements sponsored by external sponsors (totaling over $750M annually). Randi graduated from the UC Davis School of Law in 2002. In addition to being a member of the California Bar, she is admitted to practice before the USPTO. She obtained a B.S. degree from UC Davis in Genetics in 1997.

Edward (Ted) Lascher
Professor and Chair, Sacramento State University Department of Public Policy and Administration

Edward Lascher is professor and chair, Department of Public Policy and Administration at Sacramento State. He previously served as Sacramento State's interim dean and associate dean for the College of Social Sciences and Interdisciplinary Studies, as well as acting director of the Center for California Studies. Lascher teaches courses on such topics as collaborative policy making and research methods. His recent research has focused especially on direct democracy. He is coauthor of *Initiatives without Engagement: A Realistic Assessment of Direct Democracy's Secondary Effects* (University of Michigan Press, 2019). He has also published many articles in a variety of academic journals.

David Mayo
Director of the Office of Sponsored Research, California Institute of Technology

David Mayo is the Director of the Office of Sponsored Research at the California Institute of Technology. In this capacity he is responsible for pre-award and non-financial post-award services supporting $390M in research awards annually. David is directly responsible for review and interpretation of existing and emerging government policies and regulations, development of institutional policies and procedures, and development and implementation of training programs for campus staff in the area of research administration. Prior to his appointment at Caltech in 2002, David led the pre-award office at the University of California, Santa Barbara, where he worked in research administration in various capacities since 1981.

David has been a member of the National Council of University Research Administrators (NCURA) since 1988 and currently serves on its Board of Directors. David served as NCURA President in 2008, received its *Distinguished Service Award* in 2009, and received NCURA's highest honor in 2012, the *Outstanding Achievement in Research Administration Award.* David has served on numerous NCURA working groups and committees. He is a content creator for NCURA's on-line and in-person training programs, as well as a frequent presenter at its national and regional conferences on topics such as: federal and industry contracting, regulatory compliance, subcontracting, subrecipient monitoring and award management. David participates in the Council on Governmental Relations as a member of its COVID-19 Federal Award Impact Workgroup. David also participates in the Federal Demonstration Partnership, for which he is a member of its Subawards Subcommittee.

Appendix D

Expert Oversight and Review

Expert Reviewers:

Andrew Chang, Andrew Chang & Company

Sue DeRosa, LOM Consulting

Laurie ten Hope, California Energy Commission

Theresa Tom, Stanford University

Alecia Ward, Lawrence Berkeley National Laboratory

Michelle Wong, Lawrence Berkeley National Laboratory

Report Oversight and Report Monitor:

Richard C. Flagan, California Institute of Technology, CCST Board Member

Appendix E

CCST Study Process

California Council on Science and Technology (CCST) studies are viewed as valuable and credible because of the organization's reputation for providing independent, objective, and nonpartisan advice with high standards of scientific and technical quality. Checks and balances are applied at every step in the study process to protect the integrity of the studies and to maintain public confidence in them.

CCST has adopted a thorough Conflict of Interest Policy and conducts a rigorous conflict screening process that is overseen by outside counsel. As detailed in CCST's Conflict of Interest Policy, unavoidable conflicts are disclosed to the public.

As described below, this Report pertains to the contracting and granting practices and difficulties faced by CCST and CCST's partners. Given the unique nature of this Report, CCST's leadership determined that any individual with expertise pertaining to the Report would have an inherent interest in the Report. Under these circumstances, the conflict of interest is "unavoidable." As a result, members of the Steering Committee and Peer Review Committee were not excluded from participating in the Report. Other than this exception for unavoidable conflicts, CCST followed its standard Study Process as described below.

Entities Involved in the Study Process
The study process, including accepting and defining projects and building the teams to carry them out, involves a number of entities that are a part of CCST.

1. **CCST Leadership** – Consisting of the CCST Executive Director and the CCST Deputy Director, these positions are generally involved in interfacing with the sponsor and working through the initial ideation of the project and securing the contract. They work with the Board on all steps after ideation.
2. **CCST Board of Directors ("Board")** – Consisting of directors from CCST's academic and research partner institutions as well as independent directors often from industry, philanthropy or with a policy background. The Board gives final approval to take on a peer-reviewed report.
3. **CCST Advisory Panel** – Consisting of experts approved by the CCST Board of Directors, the CCST Advisory Panel is instrumental in working with CCST staff throughout the process to identify experts to help inform the development of the statement of task and participate in various roles throughout the course of the study.
4. **Program Committee** – A subcommittee of the CCST Board, the Program Committee oversees and advises the programs by which CCST fulfills its mission to provide science advice to inform decision-making in the State of California. The Program Committee provides oversight throughout the study process.

Study Process Overview—Ensuring Independent, Objective Advice
For 30 years, CCST has been advising California on issues of science and technology by leveraging exceptional talent and expertise.

CCST enlists the state's foremost scientists, engineers, health professionals, and other experts to address the scientific and technical aspects of society's most pressing problems.

CCST studies are funded by state agencies, foundations and other private sponsors. CCST provides independent advice; external sponsors have no control over the conduct of a study once the statement of task and budget are finalized. Authors and the Steering Committee gather information from many sources in public and private meetings but they carry out their deliberations in private in order to avoid political, special interest, and sponsor influence.

Stage 1: Defining the Study
Before the author(s) and Steering Committee selection process begins, CCST staff, and other CCST experts as needed and identified by the CCST Advisory Panel work with the study sponsors to determine the specific set of questions to be addressed by the study in a formal "statement of task," as well as the duration and cost of the study. The statement of task defines and bounds the scope of the study, and it serves as the basis for determining the expertise and the balance of perspectives needed for the study authors, Steering Committee members, and peer reviewers.

The statement of task, work plan, and budget must be approved by CCST leadership in consultation with CCST's Project Director. This review sometimes results in changes to the proposed task and work plan. On occasion, it results in turning down studies that CCST believes are inappropriately framed or not within its purview.

Stage 2: Study Author(s) and Steering Committee (SC) Selection and Approval
Selection of appropriate authors and SC members, individually and collectively, is essential for the success of a study. All authors and SC members serve as individual experts, not as representatives of organizations or interest groups. Each expert is expected to contribute to the project on the basis of his or her own expertise and good judgment.

To build the SC and Author teams, CCST staff solicit an extensive number of suggestions for potential SC members and authors from a wide range of sources, then recommend a slate of nominees, and send invitations to each provisional SC member and author to complete a non-disclosure agreement (NDA), a conflict of interest (COI) form and submit their current Curriculum Vitaes (CVs). The NDA is essential for ensuring an environment which supports frank and open discussion among study participants, both in establishing the team and as the study is ongoing. CCST staff send the COIs and current CVs to outside counsel for a thorough COI review and then organize all results and

recommendations from the outside counsel. CCST organizes an in-person meeting for the provisional SC and lead authors to discuss the balance of the committee and evaluate each person for any potential COIs based on the outside counsel feedback. Any issues raised in this discussion are investigated and addressed. CCST sends the proposed study participant list and associated COI information, including any recommendations or concerns noted at the in-person meeting, to the Program Committee of the CCST Board for final approval. In some cases, the Program Committee is asked to review potential COIs ahead of the in-person SC meeting at the discretion of CCST Leadership. While the lead authors attend the in-person meeting for the discussion of their own potential COIs, they do not contribute to the discussion of the provisional SC Members' COIs. Members of a SC and the lead author(s) are anonymous until this process is completed.

Careful steps are taken to convene SCs that meet the following criteria:

An appropriate range of expertise for the task. The SC must include experts with the specific expertise and experience needed to address the study's statement of task. A major strength of CCST is the ability to bring together recognized experts from diverse disciplines and backgrounds who might not otherwise collaborate. These diverse groups are encouraged to conceive new ways of thinking about a problem.

A balance of perspectives. Having content expertise is not sufficient for success. It is also essential to evaluate the overall composition of the SC in terms of different experiences and perspectives. The goal is to ensure that the relevant points of view are, in CCST's and the Program Committee's judgment, reasonably balanced so that the SC can carry out its charge objectively and credibly.

Screened for conflicts of interest. All provisional SC members are screened in writing and in a confidential group discussion about possible conflicts of interest. For this purpose, a "conflict of interest" means any financial or other interest which conflicts with the individual's service because it could significantly impair the individual's objectivity or could create an unfair competitive advantage for any person or organization. The term "conflict of interest" is beyond individual bias. There must be an interest, ordinarily financial, that could influence the work of the SC or that could be directly affected by the work of the SC, for an individual to be disqualified from serving. Except for a rare situation in which CCST and the Program Committee determine that a conflict of interest is unavoidable and promptly and publicly disclose the conflict of interest, no individual will be appointed to serve (or continue to serve) on a SC used in the development of studies while having a conflict of interest relevant to the required functions.

SC members and authors continue to be screened for conflict of interest at regular intervals throughout the life of the committee. (In addition to the SC and Authors, co-authors, peer reviewers and CCST staff working on each project are also screened for COI.)

Point of View is different from Conflict of Interest. A point of view or bias is not necessarily a conflict of interest. SC members are expected to have points of view, and CCST attempts to balance these points of view in a way deemed appropriate for the task. SC members are asked to consider respectfully the viewpoints of other members, to reflect their own views rather than be a representative of any organization, and to base their scientific findings and conclusions on the evidence. Each SC member has the right to issue a dissenting opinion to the study if he or she disagrees with the consensus of the other members. COIs are updated throughout the study process to capture any new or updated information and to ensure a continued lack of conflicts.

Other considerations. Membership in CCST is taken into account in SC selection. The inclusion of women, minorities, and young professionals are additional considerations.

Stage 3: Author and Steering Committee Meetings, Information Gathering, Deliberations, and Drafting the Study

Authors and the Steering Committee typically gather information through:

1) meetings;
2) submission of information by outside parties;
3) reviews of the scientific literature; and
4) investigations by the study authors and/or SC members and CCST staff.

In all cases, efforts are made to solicit input from individuals who have been directly involved in, or who have special knowledge of, the problem under consideration.

The lead author(s) maintain continued communication with the SC as the study progresses through frequent updates and background meetings.

For larger reports, lead authors may request additional authors to ensure the appropriate expertise is included. Every author must be approved by the SC Chair(s) and CCST staff. Some of the additional authors may become section leads. The lead author reviews and approves the work of all other chapter authors, including section leads.

During the course of a report, authors' duties may shift which may change the lead author or section lead designations. Any such changes must be made in conjunction with CCST staff and the SC Chair(s). If the reorganization of author responsibilities or the addition of a new author raises conflict of interest concerns, they are presented to and resolved by the Program Committee.

The authors shall draft the study and the SC shall draft the Executive Summary which includes findings, conclusions, and recommendations (FCRs). The SC deliberates in meetings closed to the public in order to develop FCRs free from outside influences. All interim analyses and drafts of the study remain confidential.

Stage 4: Report Review

As a final check on the quality and objectivity of the study, all CCST full commissioned reports must undergo a rigorous, independent external peer review by experts whose comments are provided anonymously to the authors and SC members. CCST recruits independent experts with a range of views and perspectives to review and comment on the draft report prepared by the authors and the SC. The proposed list of peer reviewers is approved by the Program Committee to ensure all report sections are adequately reviewed.

The review process is structured to ensure that each report addresses its approved study charge, that the findings are supported by the scientific evidence and arguments presented, that the exposition and organization are effective, and that the report is impartial and objective. Peer Reviewers will be made aware of any COIs that have been disclosed on the website by CCST.

The authors and the SC must respond to, but need not agree with, reviewer comments in a detailed "response to review" that is examined by one or more independent “report monitor(s)" responsible for ensuring that the report review criteria have been satisfied. After all SC members and appropriate CCST officials have signed off on the final report, it is transmitted to the sponsor of the study and the sponsor or CCST can release it to the public. Sponsors are not given an opportunity to suggest changes to the content of the reports though may ask clarifying questions about findings, conclusions, and recommendations. All reviewer comments and SC deliberations remain confidential. The names and affiliations of the report reviewers are made public when the report is released.

Appendix F

Phase II Draft Scope of Work and Interview Questions

CONTRACTING and GRANTING STUDY
PHASE II
SCOPE OF WORK

OVERVIEW

The California Council on Science and Technology (CCST) is called upon to provide credible, relevant, and independent information and analysis to inform policy decisions related to science and technology issues. A critical component of fulfilling this mission is improving access to science by ensuring that decision makers have an easy avenue to seek independent expertise when needed. However, challenges in the contracting and/or granting process between CCST Partner Institutions (Appendix F.I), state entities (Appendix F.II), and CCST can impede the ability of decision makers to access relevant and timely information. In Phase I, which ended July 2020, CCST prepared a report that characterized challenges and posed possible solutions to overcome barriers in the contracting and/or granting process based on the perspectives of CCST and CCST's research Partner Institutions. In Phase II, CCST will focus on the perspectives of state entities by analyzing the challenges agencies face when contracting and/or granting with CCST Partner Institutions and CCST, as well as potential solutions that stakeholders can implement to attempt to mitigate some of these barriers and improve the processes necessary to allow science to inform policy.

PROJECT TIMELINE AND TASKS

Timeline and tasks:
Development, review, and completion of the study may take at least 6 months.

Table 1. Contracting White Paper Estimated Timeline

Task	Description	Estimated Task Times	Overall Timeline
#1	Finalize scope of work, including interview questions	2-3 weeks after SOW is drafted and approved by CCST leadership	2 weeks after start
#2	Stakeholder Interviews	1-2 weeks after SOW is finalized	1 month after start
#3	Data Synthesis	3-4 weeks after interviews begin	2 months after start
#4	Draft of Phase II	4-5 weeks after data synthesis	3-4 months after start

#5	Review Draft of Phase II	4-5 weeks after draft is complete	5-6 months after start
#6	Final Phase II report	2-3 weeks after review is completed	6-7 months after start

Contracting and Granting Study Tasks
CCST will complete the following tasks as part of the report.

Task #1: Finalize Scope of Work and State Interview Questions
CCST will finalize a detailed SOW and State interview questions that address the goals of the study. These documents will reflect findings and conclusions of the Phase I report of the study. CCST will discuss the finalized SOW and interview questions with steering committee members and CCST leadership before interviews begin.

Task #2: State Interviews in Partnership with a State Entity
CCST will partner with a California State entity that will assist CCST in scheduling formal phone interviews with contracting and granting experts from state agencies. These interviews will be based on the questions developed in Task #1.

Task #3: Data Synthesis
CCST study authors will examine the results from Task #2 and analyze the data in order to determine where issues persist in the contracting and granting process and to help identify possible solutions to the problem based on the State perspective.

Task #4: Draft of Phase II
CCST will take the results from Task #3 and draft a report that addresses the following:

- Current practices for contracting and granting within the State with: CCST, federal labs, public academic research institutions, and private academic research institutions
- Policies and practices of the State that facilitate contracting and granting between the State and academic/research institutions
- Policies and practices of the State or CCST Partners/CCST that delay or prevent contracting and granting between the State and academic/research institutions
- Potential opportunities to overcome identified contracting and granting barriers for the State, CCST Partners, and CCST

Based on our survey from Phase I and expertise of the Steering Committee, the study will focus on the following five overarching issues:

- Indirect Cost Rate
- Staff Capacity/Workload
- Intellectual Property
- Invoicing and Reporting

- Risk (Indemnification, liability, warranty, etc.)

Task #5: Peer Review of Phase II
The Phase II draft will be reviewed by the steering committee, state agency experts, and other stakeholders and experts with knowledge of contracting and granting. Reviewers may include steering committee members, those individuals who were interviewed in Task #2, and additional experts as required to cover the full breadth of the scope of work.

Task #6: Final Phase II Report
CCST authors will respond to peer review comments from Task #5 and finalize the report.

Release of Phase II
CCST will complete the Phase II report along the timeline estimated above and will share with CCST Partner Institutions and other stakeholders as soon as practicable thereafter. The CCST Board may determine at that time to make the report publicly available.

Appendix F.I
CCST Partner Institutions

A. Public Academic Research Institutions
The University of California System
California State University System
California Community Colleges

B. Private Academic Research Institutions
Stanford University
California Institute of Technology

C. Federal Labs
NASA Ames Research Center
NASA Jet Propulsion Laboratory
Lawrence Berkeley National Laboratory
Lawrence Livermore National Laboratory
Sandia National Laboratories – California
SLAC National Accelerator Laboratory

Appendix F.II
State Entities to be Interviewed
(Draft, final list will be informed by Task #1-2)

California State Agency List

A. Office of the Governor
    a. Office of Planning and Research
    b. Office of Emergency Services
B. California Public Utilities Commission
C. Transportation Agency
    a. Department of Transportation
D. Health and Human Services Agency
    a. Department of Public Health
E. Department of Food and Agriculture
F. Natural Resources Agency
    a. Department of Water Resources
    b. Department of Conservation
    c. Energy Commission
G. Government Operations Agency
    a. Department of General Services
H. Other
    a. Department of Education
    b. Office of Traffic Safety

Appendix F.III
Draft State Interview Questions
The following list of interview questions are in draft format and will be approved by Steering Committee members in Phase II.

Introduction

Thank you for taking the time to be interviewed. My name is _____ and I will be conducting the interview. Before we begin I want to explain our project: We are writing a white paper on the challenges in the contracting and/or granting process between CCST Partner academic and research institutions, state entities, and CCST. We have two major goals: (1) to characterize the complexity of contracting and/or granting issues faced by CCST Partner Institutions, state entities, and CCST; (2) to identify possible solutions to address these issues which would improve the process by which science informs policy, leading to increased demand for science advice.

We hope this interview will take less than 1 hour. Please remember there are no right or wrong answers. We are interested in your thoughts, perspectives, and ideas. The responses you provide should be based on your experience. When you feel comfortable doing so, you may speak for your agency as well.

We are recording this conversation to ensure we capture all of your thoughts accurately. Rest assured, the information you share will not be attributed to you individually. We are interviewing multiple experts from each agency. We do intend to use this information to discuss your agency and general system-wide challenges, as appropriate.

Do you have any questions before we begin?

Agency Questions

General Questions

1. In your experience at (_agency name_), have you worked with both contracts and grant agreements?

2. From the list of CCST partner institutions in front of you, which institutions do you contract with? Which institutions do you most commonly grant with?

   List of CCST Partner Institutions:
   1. CCST
   2. California State University (CSU)
   3. California Community Colleges (CCC)
   4. California Institution of Technology (Caltech)
   5. Stanford University
   6. University of California (UC)

7. Lawrence Berkeley National Lab (LBNL)
8. Lawrence Livermore National Lab (LLNL)
9. NASA Ames Research Center
10. NASA Jet Propulsion Lab (NASA JPL)
11. Sandia National Laboratories
12. SLAC National Accelerator Laboratory

Probe: Many contracting experts we have interviewed from private universities have indicated they have very few active contracts/grants with the State of California. What is your sense of why this would be the case?

3. Is your agency currently using the California Model Agreement (CMA) and/or the Federal Labs Model Agreement (FMLA) for grant agreements and/or contracts?
   Probe: If no, why has your agency decided not to use one or both model agreements?
   Probe: If yes, do you use the model template as it is written or do you negotiate amendments and provisions? Which party is most often requesting changes?
   Probe: How many months, on average, is it taking your agency to negotiate amendments or other types of changes to the model before the agreement is signed?
   Probe: Do the model templates meet your agencies needs or requirements?
   Probe: What specific terms and conditions, if any, are being negotiated most often?

4. Has the CMA and/or the FMLA made it easier for your agency to grant and/or contract? If so, how?
   Probe: If no, did the CMA and/or the FMLA have the opposite of its intended effect? If yes, how so?
   Probe: Have either the CMA or FMLA saved your agency time? In what way?

Indirect Cost Rate Question

1. Can you explain whether overhead/indirect costs pose any challenges to contracting and/or granting?
   Probe: Does the percentage overhead required by CCST and our partners make it difficult to enter into contract and/or grant agreements? How so? Are there differences in how IDC is considered for public versus private universities?
   Probe: What barriers, if any, prevent the State from providing institutions with full cost recovery? How do state agencies calculate indirect cost rates and decide what they can or can not pay?
   Probe: Is there a certain percentage where contracting/granting becomes more difficult? If so, what percentage?
   Probe: What steps can be taken to overcome these difficulties?

Staff Capacity/Workload Question

1. Do issues such as workload, management, accountability, and availability of resources cause delays in the contracting/granting process? Why?
   Probe: How can agencies and CCST's partners make the process more efficient?

Intellectual Property Question

1. Do intellectual property policies within your agency affect the way you negotiate or execute contract/grant agreements? If so, how?
   Probe: If it is a barrier, are there any ways your agency or CCST and our partners can be of help? How?
   Probe: When do state agencies pursue confidentiality in University/Lab generated data in negotiations? Is there a difference in how public versus private universities are considered when it comes to intellectual property?

Invoicing and Reporting Question

1. What kinds of invoicing and reporting details is your agency required to collect from contracting partners? Granting partners?
   Probe: Do these requirements cause delays? If yes, how and at what point in the process?
   Probe: Are there any steps your agency and/or CCST and our partners can take to solve this issue? How?

Risk Question

1. How does your agency manage risks with respect to liability, indemnification, warranty, or the like when your agency is entering into a contract/grant negotiation with CCST or our partners?
   Probe: Do these negotiations/requirements relating to liability, indemnification, warranty or other risk provisions cause delays? If yes, how so?
   Probe: Are there any steps your agency and/or CCST and our partners can take to solve this issue? How so?

Closing Question

1. To what extent does your agency track the contracting and/or granting process?
   Probe: Do you know how long it takes for a contract or grant to move through each step of the process? If yes, how long?

   Probe: Can you identify where in the process the contract/grant is most delayed, if at all?

2. How does your agency decide whether to use a contract vs. when to use a grant agreement? Do you use similar terms and conditions for each type?

3. To your knowledge, are the contracting and granting requirements from the State interpreted similarly across departments and agencies?

4. Have I missed anything that is important to know about the contracting/granting process?

Appendix F.IV
Comprehensive List of Possible Research Questions and Hypothesis[105]

Research Questions:

1. **What contracting/grant-making challenges are (1) CCST partner institutions, (2) State entities, and (3) CCST facing when trying to work with one another?**
2. **What legislative and/or administrative action might address these challenges at the State level?**
3. **What best practices might help address these challenges at an institutional level?**

Hypothesis:

H_{A1}= Stakeholders are currently experiencing challenges related to contracting and/or grant-making.

H_{A2}= Stakeholders are currently experiencing challenges with the California model agreement and Federal Labs model agreement.

H_{A3}= Stakeholders are currently experiencing overhead (also known as indirect costs, also known as Facilities and Administrative or F&A) challenges related to contracting or grant-making.

H_{A4}= Stakeholders are currently experiencing intellectual property challenges related to contracting and/or grant-making.

H_{A5}= Stakeholders are currently experiencing staff capacity/workload challenges related to contracting and/or grant-making.

H_{A6}= Stakeholders are currently experiencing invoicing and reporting challenges related to contracting and/or grant-making.

H_{A7}= Stakeholders are currently experiencing risk (e.g. indemnification, liability, warranty, etc.) challenges related to contracting and/or grant-making.

[105] Question list will be refined ahead of interviews with the Steering Committee for Phase II.

Appendix F.V
Phase II Outline[106]
(Draft, final outline will be informed by Task #1 and #2)

I. Introduction
   1. CCST Overview
   2. Phase I recap
   3. Phase II goals
II. Additional Background
   1. Clarify contracting and granting requirements and identify whether and how these requirements conflict with the CMA and FMLA.
III. Methods
IV. Analysis
   1. Indirect Cost Rates
      A. Common challenges
      B. Questions we want to answer: why isn't the state accepting federal or institutions IDC rate? What drivers do state agencies have to restrict IDC rates?
   2. Staff Capacity and Workload
      A. Common challenges
   3. Intellectual Property/Ownership/Publication Rights
      A. Common challenges
      B. Questions we want to answer: why do some state agencies pursue confidentiality of university-generated data in negotiations?
   4. Invoicing and Reporting
      A. Common challenges
   5. Risk Management
      A. Common challenges
   6. Challenges with the model agreements
      A. Questions we want to answer: we are model agreements not being used as intended?
      B. Is there any room for compromise? What specific terms are most problematic?
   7. Data collection
   8. Proposed Solutions
   9. Discussion on solution themes

[106] Chapter topics are not in any particular order. We will add additional topics as they surface during conversations.

V. Conclusion
   1. Key themes
   2. FCRs
   3. Conclusion remarks
      1. Improving Process Efficiencies
      2. Better Aligning Terms and Conditions