MAKING BROKEN SYSTEMS WORK

A Story About Repair and Innovation

Tessa Carmen De Roy, Ed.D.

On behalf of the California College Guidance Initiative

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AUTHOR'S NOTE

I've written this document as my final contribution to the California College Guidance Initiative, an organization that I founded and led from 2013 through 2025. My hope is that the story and tools shared here will provide value to you as a reader, as you work to address long-standing systemic issues that reinforce and perpetuate inequities. While this work was an entirely collective effort, this document is not. It represents solely my perspective and is written intentionally from the first-person lens, as I do not purport to speak on anyone else's behalf. A lot of talented, passionate, and hard working people have contributed to this work over time. Though I mention some of the key contributors to this work within, it is by no means an exhaustive list.

Tessa Carmen De Roy, Ed.D.

Visit the California College Guidance Initiative Website

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INTRODUCTION

WHAT IS THE CALIFORNIA COLLEGE GUIDANCE INITIATIVE?

The California College Guidance Initiative (CCGI) was founded on the premise that all students should have an equitable baseline of access to college and career guidance and should be equitably treated in the admission, placement, and financial aid processes. What started as an ambitious idea about how to build a more functional pipeline for college going in California, is now a mature organization with the talent, capacity, and statutory authority to: (1) provide equitable college and career knowledge development opportunities to all of California's 6th-12th grade public school students; (2) streamline the college and financial aid application processes; and (3) improve the data flows educators in the state's K-12 and public higher education systems use to inform decision-making about and interventions with students.

Central to our work is CaliforniaColleges.edu, the state's official college and career planning platform. All 3.2 million 6th-12th grade public school students in California have an account on CaliforniaColleges.edu, which provides tools to help students explore career options, associated educational pathways and credentials, and the institutions that offer related degrees and programs. The website also helps students understand what they need to do to apply to college and how they can pay for it, as well as available financial aid opportunities.

For a growing proportion of 9th-12th grade students, CaliforniaColleges.edu additionally facilitates the exchange of student data between K-12 districts and the state's three public higher education systems – the University of California (UC), California State University (CSU), and California Community Colleges (CCC) – helping to streamline processes for students, and provide the colleges and universities with information that they need to support student admission and placement.

CCGI is also a rare example of how an effort initiated by private philanthropic investment can be fully institutionalized within a state budget and become a core part of the public infrastructure that supports the college-going process.

WHAT AND WHO IS THIS DOCUMENT INTENDED FOR?

The work of CCGI is ongoing. We've made significant progress toward our goals of smoothing the path to college and career for all California public school students, but the work is by no means complete. While our specific context is the intersection between secondary and postsecondary education, I believe that the lessons learned apply more broadly. This document is intended for those who are grappling with wicked problems – problems that are complex, interconnected, and difficult to solve; that require multiple stakeholders with potentially conflicting values and/or priorities to work in alignment.

Whether you are a frontline practitioner, a funder, a policy maker, or someone directly impacted by a problem, I'm hopeful that you will find this document useful. While this is limited to my perspective on this journey, I've written a document that I wish I had access to as I stumbled through this work over the last twelve years.

HOW IS THIS DOCUMENT ORGANIZED?

Section I of this document provides a brief overview and context for the story to follow. **Section II** tells the story of my experience moving this work from a notion in my head to its present state of being. **Section III** is an explanation of CCGI's organizational culture, which I believe has been central to our success. This is followed by a series of appendices that help to define terms, provide more detailed context for the issues we've been tackling, list some relevant research literature, and walk through some of the tools we've used to conduct our work that I believe to be most helpful.

AN OPENING NOTE ABOUT SYSTEMS CHANGE

The goal of closing equity gaps in access to postsecondary education is usually addressed in one of two ways. People either focus their efforts on a defined group of students, ensuring that they have the information, support, and financial resources that they need to pursue their college education, or they advocate for policies that help to lower barriers experienced by populations of students that are and have been underrepresented or poorly served on college campuses. The former "direct service" approach often gets the job done, but for a relatively small number of students. The latter is absolutely necessary, but often insufficient. Too often, the policies are either not implemented or implemented in ways that don't fix the problem. A third option, which is not often pursued, is to help shift the system so that it functions better for students. So what do I mean by systems? And how do systems shift? A system, according to systems thinking pioneer Donella Meadows, is "a set of things – people, cells, molecules or whatever – interconnected in such a way that they produce their own pattern of behavior over time."[1] Systems change, by extension, is a process of adjusting the structures and forces that act upon the system to generate changes in how the system behaves. It requires you to study a system and really understand all its moving pieces in order to figure out what shift can produce the behavior change you are hoping to see.

When my children were small, one of the books that was on heavy storytime rotation was the *Seven Blind Mice*. In this story, seven blind mice encounter an elephant, but each thinks that they have encountered something different because they are only experiencing the part of the elephant that they can see and feel from their specific vantage point. One mouse thinks they've found a flag when they touch the elephant's ear. Another thinks they've found a spear when they encounter the elephant's tusk. There are various versions of the fable, but they all impart the same lesson. No one holds the whole picture.

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[1] Donella H. Meadows, *Thinking in Systems: A Primer* (Chelsea Green Publishing, 2008), 2.

The same is true of systems. People see things from their vantage point. No one really holds the whole picture, and you can only piece the full picture together by intentionally setting out to do so. How would one even know to do so? My own experiences lent themselves to seeing an unusual breadth of the picture. I had worked with – but not in – college access organizations for a while, hearing the same stories again and again from students and the adults working with them about where they ran into barriers. I had worked with – but not in – public agencies, helping to facilitate conversations about how they could work together on interconnected issues like providing or improving mental health services for unhoused or incarcerated individuals. I had done policy and advocacy work in a local context and in the area of corporate accountability. I had a little bit of knowledge about a lot of things, but enough experience to understand that the picture was big and complicated and that I couldn't see the whole view from just my vantage point. I had to engage people from all parts of the system to build a complete picture and holistic understanding of how it functioned and where it was breaking down.

In order to know what I even wanted to map, I had to define "the system" I was hoping to change. For me, the system was defined by putting myself in the students' shoes. What experiences were they having that undermined their aspirations and/or prevented them from successfully entering, much less persisting, in college? What processes did they need to navigate and which institutions were defining those processes? Those questions helped generate the list of individuals and organizations that we would need to engage along the way, and whose pain points we would need to understand as well in order to devise solutions that were viable to move forward.

What follows is a story about that experience and all the work that stemmed from it. It's a story that will continue into the future, as making systems work better requires ongoing attention and effort.

SECTION I:
SUMMARY OF ISSUES AND OUR WORK TO DATE

ORIGIN STORY

HOW STUDENTS PAID THE PRICE FOR SYSTEMIC PROBLEMS

In 2011, a group of 114 college-bound seniors at Roosevelt High School in East Los Angeles applied to multiple CSU and UC campuses. All had completed the fifteen A-G course sequence required to meet baseline eligibility for admission to California's public universities and earned excellent grades. All were participants in a college-access program where their counselors and advisors tracked their academic progress and helped them take all the steps required to successfully apply for admission to a four-year college. Tragically, when they did so, all were declined.

It turned out that admissions officers could not recognize their 10th grade Spanish class due to administrative errors in how the course was entered into the Course Management Portal (CMP). This "source of truth" database houses all the courses that are approved as college readiness or A-G coursework, and is used by admissions officers in the public university systems to verify eligibility for admission. Thus, after years of doing everything the adults in their lives had counseled them to do, these students' aspirations were derailed by a data entry error. Worse still, students aren't given a reason for their declination. It only became clear what was happening when a colleague with deep knowledge of A-G coursework investigated the situation.

At the time, I was a program officer at The Rosalinde and Arthur Gilbert Foundation, investing in programs across Los Angeles County that helped to increase college access and success among first-generation college-going students. I received a call from that distraught colleague who shared the story with me. Having focused on college access and success for a decade at that point, I was familiar with many of the barriers faced by students, especially those who are the first generation of their family to pursue a college education. However, this issue of not having the students' completed coursework recognized in the admissions process was new to me.

As shocking and unfair as this situation was, it wasn't unique to Roosevelt High School.

Discussions with admissions officers across the state made it clear that this was a regular occurrence. It was a systemic problem. Meaning it was structural. The parts of the "machine" we call college admissions weren't working in concert. No one was intentionally

misleading the students. Educators were telling students what they understood to be true. Absent a feedback loop from the CMP to school districts, there was no way for districts to know that these courses, which met the threshold for rigor that had enabled them to be approved as A-G, weren't going to be recognized by the university systems. Absent any explanation of the disconnect that caused them to be declined admission, students were left to believe that they were deficient in some way.

This is but one of a multitude of systemic problems in the world of college access. My interest was to investigate what those problems were and then figure out which ones could be tackled and what it would take to address them at scale, meaning for all middle and high school students in California's public schools. This required a basic understanding of the players in California's college preparation and college-entry landscape, their needs and problems, and how they relate to each other as a system.

THE LANDSCAPE

So what does the college preparation and entry landscape look like in California?

THE DISTRICTS

There are 417 traditional public school districts and 584 charter school sites in California that graduate high school seniors. Roughly 450,000 students graduate from California's public high schools each year. The districts range in size from Los Angeles Unified, the state's largest district, which had 529,902 students in 2023-24, to Death Valley Unified, which had seventeen.

THE COUNSELORS

When I started this work in 2013, the counseling ratio in California was 747 students to every counselor. Of those counselors, only a subset were working on college guidance, and few had formal training since there was no standard for college guidance in their credentialing programs.

THE STUDENTS

Roughly half of all students complete the A-G course sequence, but those rates vary by demographics. Asian American and Filipino American students complete the sequence at nearly twice the rate of Black, Latinx, and Pacific Islander students. Completion rates also differ by school from 40% to 80% of the graduating class completing the A-G course sequence.[2] Students' exposure to college and career knowledge development was entirely luck of the draw. Maybe they had an elective class at some point during high school that helped them think about their goals for life after high school. Maybe not. Maybe they had access to a teacher or counselor who saw their potential and knew how to navigate the process of college applications. Maybe not.

[2] Alexandria Hurtt et al., *Addressing Inequities in College Preparatory Course-Taking,* Policy Analysis for California Education (2023), 1-12, https://edpolicyinca.org/sites/default/files/2023-07/pb_hurtt_july2023.pdf

THE COLLEGES AND UNIVERSITIES

There are three public higher education systems in California. The CCC, which is the largest educational system in the world, has 116 campuses with roughly two million students. The CSU system, the country's largest four-year public university system, has twenty-three campuses with more than 400,000 undergraduate students, and the UC has nine undergraduate campuses that enroll roughly 230,000 undergraduate students. While the community colleges are entirely open access, the CSU and UC are not. The CSU admits roughly 170,000 in-state freshman applicants. The UC admits approximately 90,000.

Training and education after high school are still essential to economic mobility.[3] There are hundreds of university outreach and nonprofit programs in California designed to help historically underrepresented students navigate the college-going process. As a funder, it became clear to me that all of those programs were asking for money to fill the same kinds of gaps. They wanted more staff to help students navigate overly complex admissions processes, case management software to help them do a better job of tracking what was happening with their student caseloads, and a curriculum that would help students understand their postsecondary options, how to identify what might be their best path, and then how to navigate the admissions, financial aid, and matriculation processes. Seeing this pattern made me wonder if it might be possible to improve the system rather than hiring more and more people to help students navigate it.

"Seeing this pattern made me wonder if it might be possible to improve the system rather than hiring more and more people to help students navigate it."

DEFINING THE PROBLEM

To answer that question, I approached The Rosalinde and Arthur Gilbert Foundation and the College Access Foundation of California (now College Futures Foundation), with whom I was consulting at the time. I asked if they would be interested in exploring why the state didn't have stronger systems in place to help guide students along the path to college and how barriers could be reduced.

Each foundation provided a small investment that covered the cost of my time and travel to sit down with people across the state to better understand all the barriers students were facing and to identify areas of shared need among students, high school educators, and the CCC, CSU, and UC admissions and outreach teams. What follows are the findings from that listening tour.

LISTENING TO STUDENTS

Focus groups with high school seniors and first-year college students across the state surfaced a series of problems. I prioritized conversations with first-generation students

[3] Marisol Cuellar Mejia et al., *Is College Worth it?,* Public Policy Institute of California (2025) https://www.ppic.org/publication/is-college-worth-it/

because we started with the premise that if you can lower barriers for the people who have the least access, you can make things better for everyone. Think, for example, about curb cuts in sidewalks. They originated as a response to the Americans with Disabilities Act, intended to increase access for people in wheelchairs, but they benefit a much larger group, including delivery people moving heavy loads on handtrucks and everyone who has ever pushed a baby in a stroller.

According to students who are the first generation in their family to navigate the college application process, the whole experience feels like a journey to a distant planet. The terminology, the different kinds of degrees and certificates, understanding what majors are and how they might connect to different careers, all feel like trying to navigate another language, culture, and environment.

Beyond learning the basic terminology, the landscape, and the deadlines for applications for admission and financial aid, students said that they needed help navigating the system. To the students, these processes fell far short of intuitive and required them to make sense of entirely new information. How, for example, did different high school courses determine what kinds of colleges they were eligible to attend, and how did information about their families' finances inform their eligibility for financial aid?

LISTENING TO K-12 DISTRICTS

In 2012, "college readiness" was a relatively new stated objective for public education in California. Historically, the focus had been on high school graduation, and the requirements for those two objectives differ significantly. There is also a widespread assumption that high schools are staffed to support college counseling. Many school districts in California have no full-time dedicated college counselors. Counselors are charged with a wide array of responsibilities, from crisis intervention to proctoring exams. Few have had a full-time focus on college guidance and those who do have untenable student to counselor ratios. For the most part, their only training is the trial-and-error experience of life on the job. At the time there were few clear expectations about what kinds of guidance all students should receive. Even today, the only statewide requirements for guidance are that students must be made aware of how to apply for financial aid by the end of their junior year of high school.

High school guidance counselors and administrators who were trying to build a college-going culture in their districts, reported the following pain points:

1. Few districts had the bandwidth to develop a comprehensive college-going "curriculum" locally, much less ensure that it remained up to date given the ever-shifting landscape of policy and procedural changes related to college eligibility, admissions, and financial aid.
2. Because they had no tools to track what was going on with the large number of students in their caseloads, they relied on students to tell them where they were having trouble. Absent a standard curriculum that ensured students understood what steps they needed to take, or how and when to take them, most students didn't proactively ask for help.

3. They had no accurate way of tracking students' A-G progress toward CSU and UC eligibility.

While they also saw the struggles faced by students and high school counselors, higher education systems expressed a slightly different set of pain points.

LISTENING TO HIGHER EDUCATION SYSTEMS

The next group I visited were the college and university campuses and statewide system offices. What they wanted was students' demographic and transcript data. In California, 417 districts graduate high school seniors each year. Each district had a different format for their transcripts. Some paid for electronic transmission through private companies like Parchment. Others did not and relied on paper transcripts, individually reviewed by counselors and/or registrars, and transmitted via the U.S. Postal Service. This presents the four-year colleges and universities with a lot of variability to manage, and that variability makes it difficult to move from manual to more streamlined and automated admissions and academic placement processes.

The community colleges also wanted high school transcript data but had no way to receive it. Since they are open-access institutions and don't require high school transcripts for admission, historically, they had no need to invest in such systems.

We learned that colleges wanted electronically transmitted transcript data in a format that could be fed into the various software programs that inform these key decisions. In the CSU, this data could be used to gain efficiencies in the admissions process and to improve the accuracy and timeliness of decisions made about applicants. Studies showed[4] that performance in high school is the best predictor of performance in college and is far more effective than standardized placement examinations. With this in mind, the CCC was looking for transcript data to inform its recommendations concerning the level of support that a student might need to succeed in transfer-level English and math classes as a way to optimize students' odds of persistence and completion.

THE NECESSARY ELEMENTS OF A TOOL BEGIN TO EMERGE

At the end of the listening tour, I had a pivotal conversation with Nathan Evans, who at the time was the director of admissions for the twenty-three CSU campuses. Nathan had worked in all three public higher education systems in California and was clear-eyed and student-centric in his assessment of the processes we make students navigate.

I shared the story with him about the students at Roosevelt High School and asked if he thought it would be possible to build a tool that would have prevented heartbreak and derailment for those students. We talked about how such a tool would need to replicate the steps that admissions officers across the state were completing manually to verify high school coursework and ensure the courses met all of the baseline requirements

[4] Terrence Willett, *Student Transcript-Enhanced Placement Study (STEPS). Technical Report,* Research and Planning Group for California Community Colleges (RP Group) (2013) https://eric.ed.gov/?id=ED577267

TRANSCRIPT DATA

Transcript data is essential to several decision-making processes. It informs decisions about admissions in the four-year colleges, how students are placed into their first-year English and math courses, and confirms high school graduation, which is a requirement for the release of financial aid to students. It contains valuable information for advisors about the subjects where students did well and where they did not; whether or not they had completed the prerequisites for placement in certain science or math courses; and, whether or not the foreign language courses they took in high school contribute to their eligibility for transfer from a community college to a CSU or a UC.

for admissions. Nathan assessed that such a tool could also significantly improve the accuracy and speed of admissions process.

Nathan then invited me to a systemwide meeting of the CSU campuses' directors of admission, where I learned that students with transcripts formatted for the purposes of admissions review were processed more easily and, therefore, more immediately. Unsurprisingly, districts with more educated and higher-income families that brought attention and pressure to bear on college-going rates and practices, were attentive to such considerations. Students from districts where transcripts were not formatted for ease of admissions decisions would get bumped to the bottom of the stack by admissions staff because their transcripts took more time to decipher.

This delayed decisions about admissions, which delayed entry into the financial aid process, often leaving students in the position of needing to commit to colleges before their financial aid packages had been approved and finalized. For a first-generation student, that's an almost impossible leap of faith. Committing to costs that they can only pay for through financial aid, before knowing how much financial aid they'd be provided, prevented many students from submitting their intent to register.

These conversations made it clear that if a tool could be built that accurately calculated eligibility for students, and the coursework from that tool were passed along to the CSU system, they could consider that data "pre-verified" for the purposes of admission and that to do so could save the system somewhere between $13 million and $15 million in admissions processing each year. Such a tool could help address equity gaps while increasing operational efficiency.

To accomplish all of this, I would need to build an organization that placed students at its center and produced the missing infrastructure—a technology platform—on a statewide scale that is relatable, reliable, and relevant to all stakeholders.

CCGI IS BORN

I formed CCGI in 2013 with the aim of addressing those long-standing barriers for students, while also meeting the needs of educators and administrators in public secondary and postsecondary institutions. From day one, CCGI's three key objectives were to provide:

1. 6th-12th grade public school students with systematic exposure to knowledge about college and careers and a streamlined college and financial aid application process.
2. K-12 educators with real-time actionable data to inform their interventions with students in order to optimize their postsecondary options.
3. Higher education and financial aid administrators with real-time actionable data to inform key decisions about admissions, placement, guidance, financial aid, and supportive services.

Twelve years later, CCGI:

- Maintains CaliforniaColleges.edu as an integrated one-stop platform for public college and financial aid applications as well as college, career, and financial aid planning.
- Provides transcript-informed accounts on CaliforniaColleges.edu to more than two million 6th-12th grade public school students across 430 school districts, with a requirement in California Education Code that all districts serving 9th-12th-grade students work with CCGI by June 2026.
- Maintains data-sharing partnerships with the California Department of Education, the CCC, CSU, UC, and California Student Aid Commission.

In addition, CCGI has:

- Been codified in several sections of the California Education Code (scan the QR code or visit www.cacollegeguidance.org/edcode for a detailed overview), many of which require other public and private entities like school districts, public college systems, and the technology vendors that support core operations of K-12 districts to align around the needs of students as they prepare for and make the transition from high school to public higher education.

- Established the first ever California High School Transcript and Student Record Portability Standard that brings K-12 districts and all three public higher education systems into alignment about how to manage, store, and transmit student records from K-12 to higher education.
- Streamlined the process of applying for admission to the CCC, CSU, and UC.
- Moved from being 85% philanthropically-funded to becoming a 100% state-funded initiative.

- Expanded from a staff of three to a team of ninety, most of whom are first-generation professionals. The team possesses cross-disciplinary expertise in school counseling, curriculum and professional development, and student record management, as well as college admissions, data architecture and engineering, and business operations.

Together, these accomplishments set the stage for meaningful equity gains at scale for California's students. Getting there, however, was not a straightforward path. It involved lots of detours, mistakes, and pivots along the way.

SECTION II:
STRATEGY AND SCALE

The purpose of this document is to share my experience, what I learned along the way, as well as the tools and frameworks that were useful to us as an organization, with a view that some of those lessons may be applied to other wicked problems that persist in public systems. Let me start with some of my primary takeaways more than a decade into this journey.

PREREQUISITES FOR ACHIEVING INNOVATION AT SCALE

RUNWAY AND RELATIONSHIPS ARE EVERYTHING

TRUST AS A PREREQUISITE FOR LEARNING FROM FAILURE

At the end of the day, the most important conditions for progress in this kind of complex systemic work are runway and relational trust. Complex work requires experimentation, which by definition means you fail as often if not more often than you succeed. You have to genuinely use failure as an opportunity to learn by doing. You have to use it as a way to refine your hypothesis, make adjustments, and try again—always keeping your efforts firmly focused on progress toward your north star. To withstand these repeated failures, you need patient financial investors and trusted colleagues who will stick with you through the messiness of the process.

ALIGNMENT ACROSS DIVERSE CHAMPIONS

The government doesn't generally have a strong appetite for experimentation and failure. So, while having public sector partners at the table is essential to scalability and sustainability, it's often helpful to start small. In CCGI's case, we started working with the CSU system and a handful of school districts that were willing to experiment. We made mistakes, we learned from them, and we refined our approach moving forward. Because it was a relatively small pilot in California terms, we were able to limit the group of people for whom we had to manage expectations. Our philanthropic partners understood that we needed flexibility, and we kept our state budget line item too small for anyone to be concerned about until we were beyond the messiest parts of the startup phase and therefore better prepared for increased levels of scrutiny.

Once we had some initial successes, we used those to expand the circle of participation. Our initial brain trust included four individuals, all mid-career and each coming from a different part of the systems we sought to influence. We had the head of admissions

for the twenty-three CSU campuses, a government relations consultant with strong relationships and deep technical knowledge about how things work in Sacramento, a K-12 leader known for her regional impact as a college access champion, and a passionate leader who could synthesize information from all of those domains in a way that enabled forward motion and sustained engagement from partners and investment from both public and private philanthropic funders.

Each of those initial champions helped to advance the work within their own circles of influence, leveraging their relational trust and subject matter expertise to both inform and promote the work. They helped us understand how to frame up the issue and our requests to their colleagues, helped build awareness among their peers, and vouched for our trustworthiness and capacity to do what we said we were going to do. With this "alliance of the willing" to help us get started, we began our journey to advance a three-part strategy of policy, infrastructure, and support for practice change.

OUR KEY POINTS OF INTERVENTION

CCGI's theory of change from day one has been that in order to shift educational systems at scale, we needed a three-part strategy including:

1. Legislative and/or institutional policies that help align people around a shared set of goals and that provide incentives for changes in organizational behaviors.
2. An infrastructure that allows people to get the accurate information and data they need when they need it.
3. Support to help people make changes in their day-to-day practices that directly impact students.

These three strategies have to work in concert. No single strategy stands on its own. The listening tour, combined with my years working within and between systems, illustrated for me that there were multiple levels at which change was necessary in order for things to feel different for students. The most obvious missing component was the infrastructure to fill informational gaps, but I had worked on social change long enough to know that the tools themselves only get you so far. This is not an instance of "if you build it, they will come." We needed to understand what would encourage uptake and adoption of the infrastructure. And we wanted to address the often overlooked need for on the ground support to help people make change.

I believe that this three-part strategy can be applied in many contexts to help address systemic challenges, but the specifics of the approach will vary dramatically. Systems change work is entirely contextual. You have to deeply understand the system you are trying to change in order to properly define the problem and craft potential solutions. Otherwise those solutions won't work in that particular system, in that particular moment in time.

POLICY

Throughout this process, our policy goal has been to change institutional rules and

incentives in a manner that created the conditions for change to occur. Today, CCGI's purpose is codified, and changes have been made to several sections of California's Education Code to articulate, reinforce, and facilitate our statutory responsibilities.[5] However, these are all relatively recent milestones. When this initiative began in 2012, California was one of very few states without some form of intersegmental educational oversight body. State policymakers were reluctant to take on state level data projects due not only to costs but to the notion that "big data" would be used by unsavory actors for nefarious purposes. Additionally, we had a governor who believed strongly that educational funding and decisions should be focused locally (as close to the student as possible).[6] In short, conditions in California were not conducive to policy change. We were forced to take an incremental approach. For more than twelve years, we would keep a close eye on the Sacramento policy landscape, constantly attuned to windows of opportunity to move the core of CCGI's work forward.

Absent statute, CCGI was able to leverage agreements with institutions to help encourage and produce change in the field. The first of those agreements came from the CSU Chancellor's Office, which determined that the data CCGI could provide to higher education would be considered "pre-verified" for the purposes of admission, meaning that the process of verifying the courses completed by a student applying for admission against the CMP to confirm they met A-G requirements could be handled once, in an automated fashion by CCGI, rather than independently at twenty-three different CSU campuses by admissions staff. To share this data, we would need to build an integration between CaliforniaColleges.edu, the college and career planning platform where K-12 districts had begun to upload students' courses and grades, and the CSU application platform, then called CSUMentor (now Cal State Apply). Doing so would streamline the process of entering courses and grades into the application, which had been a long-standing pain point for students and the K-12 educators who supported their applications (see why on **p. 24**). The data that would then be provided to the CSU would also reduce workload and improve decision-making on their end. This classic win-win immediately positioned our project as both a helpful and legitimate infrastructure for players in the college-going landscape.

The value of the course completion data was later reinforced by the UC, which also used the data for admissions. The CCC system used the data as the preferred source for their Multiple Measures Placement Service, a tool that helped to inform first-year placement in English and math courses.[7] This institutional acceptance legitimized our work, years before our purpose was established in any Education Code, and encouraged K-12 districts to participate by lowering their own pain points, such as the time it took to supervise college applications.

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[5] "CCGI in the California Education Code," California College Guidance Initiative, updated July 2025, https://cacollegeguidance.org/edcode

[6] I share the perspective that education investments should be as close to the student as possible, but I also believe that there are a subset of investments that should be maintained centrally in service of the students and the educators serving them at the local level. CCGI's work is one such investment that I believe has to be part of a centralized infrastructure.

[7] Souza, Crista. "Multiple Measures Placement Service." CCC Tech Center. Accessed June 30, 2025. https://ccctechcenter.org/projects/multiple-measures-placement-service

SETTING THE FOUNDATION

FORMING A STATE-LEVEL PARTNERSHIP

California is a big state, with more middle and high school students than twenty-one other states combined.[8] With the goals of scalability and sustainability front and center, it was clear that any infrastructure we would build to meet the needs that students, educators, and the higher education systems articulated would need to be publicly sanctioned. I had no understanding of how to accomplish such a thing, so I had to find someone who did. The first person I contracted with when I started this project was Amy Supinger, a former staffer from the California Department of Finance and the California State Legislature, who had recently facilitated the Student Success Task Force for the California Community Colleges Chancellor's Office. The recommendations from that task force were different than any I had previously seen. They didn't just state what needed to change but specified granular interventions through which the state could effect those changes. They proposed what sections of the Education Code needed to be revised and how; what budget line items could be leveraged to achieve what goals; and how to remove any technical barriers in the process. Duly impressed, I reached out to Amy with the goal of bringing her on early so that she could help me see what the options were for solving problems at scale. At the end of the listening tour, during which she participated in many of the conversations, we agreed that there was an opportunity to reduce barriers for students while meeting the needs of the systems.

As it happened, there was an existing state budget line item entitled "Student Friendly Services" that funded a website called CaliforniaColleges.edu. This line item resulted from a collaborative proposal between the CSU, UC, CCC, California Department of Education, and the Association of Independent California Colleges and Universities in 1998 that articulated the need for a "common front door" to higher education in California, as well as an "electronic transcript platform."[9] That proposal and its associated state budget line item led to the development of the first iteration of CaliforniaColleges.edu, initially launched in 2000 with information about all higher education options across the state. Unfortunately, the articulated need for an electronic transcript platform was not fulfilled; the website was running a structural deficit, and the project had not kept pace with the opportunities that more advanced technology made possible.

With a hypothesis that significant updates to the existing state platform could meet many of the needs articulated during the listening tour, we proposed a partnership to the California Department of Finance. The idea was that philanthropic investors

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[8] Vermont, Wyoming, Delaware, Alaska, North Dakota, South Dakota, Rhode Island, Montana, Hawaii, New Hampshire, Nevada, Maine, Idaho, Nebraska, New Mexico, West Virginia, Arkansas, Kansas, Utah, Connecticut and Oregon. See U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), *State Nonfiscal Survey of Public Elementary/Secondary Education, 1990-91 through 2011-12; and State Public Elementary and Secondary Enrollment Projection Model, 1980 through 2023.* (December 2013) https://nces.ed.gov/programs/digest/d13/tables/dt13_203.20.asp

[9] "History," Intersegmental Coordinating Committee for the California Education Round Table, Association of Independent California Colleges and Universities, accessed 2025, https://www.iccedu.org/history

could supplement state funding to help with the needed enhancements to the platform and provide some operating capital to pilot how CaliforniaColleges.edu could be utilized in school districts and colleges to help to close equity gaps while ultimately creating efficiencies that would save the state money.[10]

Early on in our work, I took Jeff Bell, who at the time was the program budget manager at the California Department of Finance and oversaw the entirety of the state's education budget, on a site visit to a local school district that was sharing data with its local CCC and CSU campuses as part of an early outreach program to increase college going. My goal was to demonstrate both the need and the problem we were trying to solve. Once he heard the educators talk about how they were currently doing business – sharing data on flash drives or through Google Sheets – Jeff quickly saw that the problem could not be ignored and that the state needed a more formalized system with all of the attendant privacy and security protections. Since our proposed solution only required small technical changes and minimal state investment, the Department of Finance agreed to propose an increase in the state budget line item that supported CaliforniaColleges.edu and to allow CCGI to assume management of the platform, so that we could leverage it to build out a formalized data sharing system that could be scaled to all districts across the state.

I can't overstate the importance of this early collaboration with the state. Without it, it's doubtful this work would ever have been truly scalable or sustainable. The only way to achieve universality is through public systems. (See **Appendix F** for a summary of things to consider about partnerships among government, nonprofit, and philanthropic organizations.)

It's also important to recognize the key role played by those who serve as translators of information. People who make policy, be they in the legislature or the executive branch, juggle multiple areas of responsibility, must make high-stake decisions on a regular basis, and often don't have close personal ties to the people they intend those policies to serve. For some, this stems from arrogance or ignorance, but for many, it's just a function of the pace at which they are being pummeled with demands for their time and energy. Where and when there are openings, it is essential to help them understand the context "on the ground," which, in our case, would be in a school district. While I have sometimes inhabited the translator's role, shuttling information from practitioners to policymakers, it is always helpful to hear directly from the source. So, as often as possible, we had students and educators share their experiences directly.

INFRASTRUCTURE

Historically, the term "public infrastructure" primarily pertained to physical systems (roads, railways, water systems, power grids), all ways to move people and things from point A to point B. Digital infrastructure enables the movement of information and data between

[10] Savings and redirection of resources are possible when processes become more efficient. There are also benefits to providing a centralized solution rather than having several hundred entities go through procurement processes and pay for contracts with private vendors.

parties. It can help democratize access to information and increase alignment and understanding across multiple institutions in the same ways that roadways and rail allow people to access locales they otherwise wouldn't.

In CCGI's context, CaliforniaColleges.edu is the infrastructure that enables the delivery of clear, student-friendly information about career, college, and financial aid planning at scale to ensure a baseline of access for all 6th-12th grade public school students across the state. At the same time, it leverages data to streamline the application process, provides educators with reports that help them to track progress and triage intervention, and supplies the public higher education systems with information they need to inform admissions, placement, guidance, financial aid, and supportive services.

However, Rome wasn't built in a day. For the first few years of CCGI's existence, the integration between CaliforniaColleges.edu and CSU Mentor was the only thing that meaningfully differentiated our tool from many others available on the private market.[11] However, the fact that such an integration was accomplished helped people see that change was possible. So while these gaps were not all filled at once, each small gap we filled built belief in the possibility of filling more, ultimately making the system work more smoothly for all involved. To ensure that the infrastructure we were building was, in fact, making things easier, we spent a lot of time at each step along the way with frontline educators who gave us lots of feedback about what was and was not working well.

The idea that technology could provide a form of public infrastructure was new to the state government in 2013. To this day, the state relies heavily upon the private sector to drive development of the digital infrastructure needed to run institutions, much less work across them. Those market solutions operate under a profit motive, which is inherently at odds with ensuring equity. Rarely does the state develop the capacity required to ensure that the private sector technology solutions genuinely meet the needs of the people the technology is designed to serve. Instead, public institutions purchase what is on offer and in the best case scenario, someone internal to that institution adapts the standard offerings to their local context. The idea of an organization that designs and manages a product specific to the needs of end users across the state, in order to meet equity and policy objectives, was so foreign, in fact, that for years we fought the default mental models. People couldn't understand what we were. More often than not we were confused for a technology vendor.

SCALE

One of the things that distinguishes the work of CCGI from other work focused on scaled solutions is that we weren't trying to scale an evidence-based practice. The prevailing wisdom about scaling is that you have to test interventions, demonstrate impact, and then

[11] There were and are many college and career planning programs on the private market. They are of varying price and quality, but they can only go so far. While some pieces of the college preparation and transition process are generalizable, many are not, and the kinds of streamlining that CCGI makes possible can only happen with the full collaboration of multiple public entities and requires a ton of work from which no financial profit can be derived.

try to replicate that impactful approach in different settings. But to get fully to scale, meaning universally available to all 6th-12th public school students in California, we couldn't just replicate a model. We had to change the structures that made the systems behave as they did, and one way to do that was to fill gaps.

With that objective in mind, we decided to talk with people who were experiencing the gaps themselves. The listening tour clearly identified gaps that were agreed upon by students, frontline educators, and higher education administrators alike. Research literature reinforced that many of these issues were common across the field at large. Other problems, like the lack of credit for A-G courses, were not well documented in the literature until after the fact but surfaced through the experience of the students at Roosevelt and were validated by enough counselors and admissions staff across the state that we knew it was a systemic issue.

Over the years, I have had more than a handful of funders and legislative staff accuse me of making this problem up. Typically, their response was, "If this was really a problem, I would have already known about it." I often wonder how many problems we could solve that we don't even know about if people didn't start from the assumption that they had nothing to learn.

WHY FOCUS ON SCALE FROM THE START?

Why was scale an important first step? The first and foremost reason is equity. If we only reached the districts that already had a college-going culture and were more inclined to make use of our tools and services, we would be reinforcing the opportunity gaps that students were already experiencing. Second, the thing that the relevant players all wanted out of this infrastructure was data to make their business processes more efficient. In order for people to change their business processes, you have to provide solutions that apply to a large portion of their workload. For example, the efficiencies for admissions offices are only efficiencies if they apply to the vast majority of applicants, which in our context meant in-state, first-time freshman applicants. Once the processes were streamlined, anything less than universal scale would reinforce the very equity gaps we were looking to alleviate by providing some students access to a more streamlined, timely, and accurate application process than others.

Of course, when you build a centralized statewide infrastructure, it is possible to achieve economies of scale. There had long been regional efforts in California to develop data-sharing agreements and platforms for a variety of operational and analytical purposes. However, these produced a duplication of effort, benefits in the regions that have the legal, technical, and security expertise to share data, and gaps for those who did not.

These were predominantly "one-off" regional agreements that, when examined closely, would have been very difficult to replicate, in part because they occurred in districts where there was already an "innovative" "coalition of the willing." There was also the operational reality that the rules that govern what data needs to be collected by school districts and higher education campuses are largely set in state law and interpreted at

the statewide system offices. For all of those reasons, a state-level system made sense even in a context where most of the education is locally controlled.

So how did we scale the project statewide? This was accomplished in increments, each step of which aligns pretty directly with a theory called diffusion of innovation.

DIFFUSION OF INNOVATION

Diffusion of innovation is a theory about how new ideas, technologies, or practices spread through a population over time.[12] It outlines how the characteristics of an innovation and information about that innovation are spread through communication channels and eventually advance adoption through a defined social system. The model outlines a predictable pattern of when different groups of people within a system adopt innovations based upon each group's unifying characteristics. What follows is a description of how this occurred over time at CCGI and how, at the same time, each level of adoption created a new foundation for scale, collaboration, and institutional support that contributed to constructing and expanding the infrastructure itself.

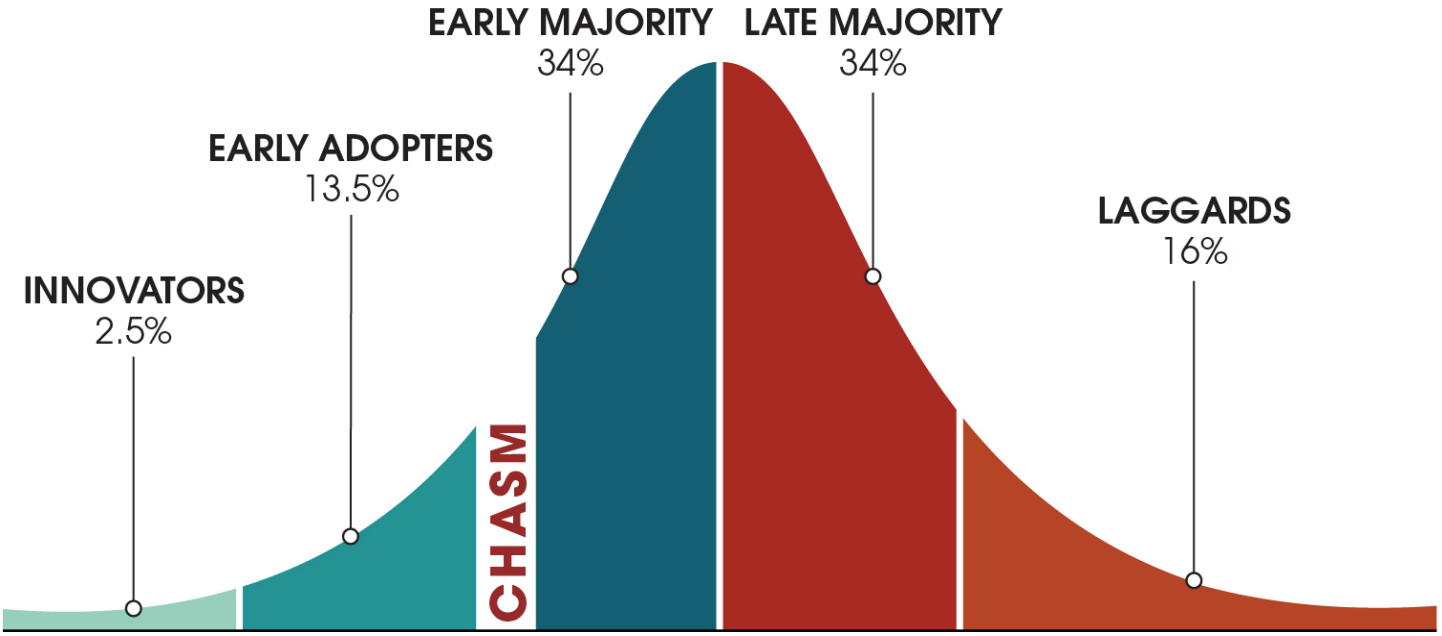

Figure 1. *A visual representation of the diffusion of innovation theory.*

Innovators

In this model, the first (and smallest) group to try out a new idea, technology, or practice is called the Innovators. They are risk takers but also often are drawn to innovations that are solving problems they have long been aware of but haven't been able to solve on their own. In our story, the first real innovator was Catalina Cifuentes. Cat had just started her job at the Riverside County Office of Education's College and Career Readiness unit when we started this project. She had joined the county from a high school counselor

[12] Everett M. Rogers, *Diffusion of Innovations* (Free Press).

job that kept her up all night rigorously reviewing student transcripts against the CMP to ensure that students would, in fact, get credit for the courses they had completed. Cat cried the first time she tested out the CSU and UC Eligibility Tools on CaliforniaColleges.edu because they worked and would vastly reduce the work it required to ensure her students would get credit where credit was due. She understood how these tools made it possible for educators across the state to do right by students.

Riverside County had some of the lowest educational attainment in all of California, and Cat was determined to change that. She knew that in order to drive a systematic approach to college access in her county she would need tools that identified which students, for example, met the baseline eligibility for the CSU or UC, but had not yet started an application; or, which students had started but not completed their applications; or, which students had completed college applications but not yet applied for their financial aid.

Once she gained access to CaliforniaColleges.edu, Cat would run the reports that provided her that data and send it to school and district leaders. Her emails contained lists of the students whose families school site staff should call individually to ensure that they were aware of the opportunities available to their children, as well as the support she and other educators in her region were ready to provide to help them through the process.

Over the years, Cat has repeatedly nudged us on how the platform could meet additional needs for both students and the adults who support them. She both affirmed and demonstrated how relatable, reliable, and relevant infrastructure could be transformative.

Early Adopters

Other early participants were individual college access champions. Although our partnerships were established at the district level to ensure that all students were gaining access to the same opportunities, these champions were often the only people in their district who were ready and willing to shift their approach to supporting students because they deeply understood the value of doing so. Those individuals helped us test out what was working and what needed to be revised in the earliest days of the project. They helped us refine how we defined the problem by helping us understand exactly what pain points needed to be addressed.

I can count on one hand the educators across the state who shared our vision for the project early on and helped us build momentum. These included educators who understood the value of our first efforts, who held a vision of what else might be possible, and who possessed a level of visible stature among their peers that could help bring other people along.

The diffusion of innovation model calls these actors Early Adopters. Early Adopters are comfortable with both risk and change. They are also opinion leaders.

I can pretty much pinpoint the precise moment that helped us move from serving

Innovators to engaging Early Adopters. It occurred at a set of high school counselor conferences convened by the CSU every year. The CSU Chancellor's Office invited us to host a session at the conference because they had already agreed to accept our data as pre-verified for the purposes of admission and because they were proactively partnering to advance the use of CaliforniaColleges.edu in school districts. During the session, we demonstrated how the integration we had developed between CaliforniaColleges.edu and the CSU application enabled students to import all of their high school courses and grades at the touch of a button. Our audience was, admittedly, a self-selected group of highly motivated counselors, but there was an audible gasp in the room when they saw how the technology worked.

This part of the application process had been a pain point for students and counselors alike for years. It was by far the most labor intensive and confusing part of the application process. To get it right, students required an enormous amount of supervision. This seemingly minor innovation saved at least an hour per application. In a state where the CSU system receives roughly 200,000 applications from in-state, first-time freshman applicants and counselor caseloads can exceed 500 students, it's easy to see what prompted that gasp.

That one innovation helped garner participation of districts that serve 10% of the state's 6th-12th grade students, but counselors kept asking, if we could do this with the CSU application, then why not for the UC and CCC? In addition to reducing the time it takes students to apply, the platform generated reports that helped the educators themselves, by identifying where students were stalled out so that they could intervene as needed.

Early Majority

In 2017, we developed an application integration with CCCApply, the statewide application to California's 116 community colleges, and a data-sharing process with the California Student Aid Commission, which enabled students and counselors to track the status of financial aid applications on CaliforniaColleges.edu. These additional and valuable integrations prompted continued growth and enabled us to increase our reach to districts serving just over 13% of students statewide. Then, as the model suggests, there was a "chasm" to cross. The chasm refers to the gap between early adopters of a new technology or product and the broader Early Majority who are mostly driven by pragmatism. To bridge that chasm, we needed to demonstrate that the benefits of our infrastructure outweighed the financial and energetic costs of changing behavior.

"Our hypothesis was that to 'cross the chasm' and push deeper into the Early Majority, we would need to eliminate fees and demonstrate increased value to districts."

Our hypothesis was that to "cross the chasm" and push deeper into the early majority, we would need to eliminate fees and demonstrate increased value to districts. For the first eight years of this project, participation in CCGI was subsidized but not fully funded by the State of California. While state investment increased incrementally over time,

districts had to pay to participate. Understanding that fees presented a barrier for some school districts, and absent sufficient funding at the state level, we turned to our institutional partners. Both the community colleges and the CSU were interested in testing out what full adoption could achieve in a region to serve as a proof point for what the project might look like at scale. We had already begun to bring an integration of the UC's application online, which we knew would demonstrate value to both students and educators who were end users of the platform. Together, these made CaliforniaColleges.edu a true one-stop application platform for the public higher education systems in California.

With the CCC and CSU, we decided to focus our efforts on expanding throughout a ten-county region in Central California, which has some of the lowest educational attainment in the state. Both system offices agreed to subsidize participation for any district in the region for a four-year period. We then had the chancellors of the CCC and CSU systems send out a joint communication to all K-12 superintendents in those ten counties, encouraging them and their teams to join the initiative. Those letters were reinforced by communications from local college presidents that invited the superintendents and their teams to regional meetings where both the colleges and CCGI staff helped K-12 districts to understand the benefits of becoming a partner. This approach enabled CCGI to nearly double our reach over a two-year period, from 450,000 students to 825,000, constituting 26% of the total student population we sought to reach. Reaching this target helped us move well into the Early Majority.

Aligning communications across the educational segments, so that everyone was promoting the use of a single tool has been a multiyear process. Students are nearly always asked to interpret multiple and sometimes conflicting messages from our educational institutions about the college-going process. One of the valuable aspects of CaliforniaColleges.edu is that it provides a one-stop, go-to, and trusted platform where students, families, and educators can count on the information being current and accurate and presented in a way that they can understand. Getting all the relevant institutions to point students to that resource is as, if not more, essential than Education Code in ensuring that students know what tool they can use to navigate the entire college-going process.

Late Majority

While all of these efforts helped us build momentum, a good amount of skepticism remained among the districts regarding the state's long-term commitment to supporting a sustainable infrastructure. This gave more reticent districts pause because implementing new technology and changing day-to-day practices are nontrivial efforts. They didn't want to do all that start-up work only to find the rug pulled out from under them. So the challenge became how to assuage those fears. As it happened, the incoming Newsom administration had a strong interest in how data and technology could be leveraged to better serve the public, and CCGI fit nicely into that interest. We worked to make the administration aware early in its tenure of CCGI's potential to move the needle at scale on long-standing educational equity issues. This was appealing to them in part because it wasn't about recreating the wheel. The wheel had been created

and tested. The next step was to scale it.

In 2019, the legislature authorized an eighteen-month planning process for the state's Cradle-to-Career Data System. From January 2020 until June 2021, a workgroup composed of representatives from fifteen state agencies, as well as other public forums, engaged over 200 people in the planning process, which informed the design of a statewide longitudinal data system for use in (1) research and policy analysis and (2) providing tools to students, families, and high school counselors to smooth the transitions between high school and college and from community college to the UC/CSU. The needs assessment conducted as part of that process continually reinforced the critical importance of developing student and educator-facing tools that helped smooth the path from K-12 through higher education, an objective articulated in the originating legislation. The workgroup elected to scale CCGI's work to fulfill those needs for students in middle school and high school as they planned for and applied to college.

Student Information System (SIS)

An SIS forms the backbone of district operations. It stores information about a wide range of student data, from attendance and vaccinations to courses and grades. Every district in the state has one, and all but a few districts purchase these systems from one of six technology vendors.

Laggards: The Final Push

Even as rapid growth continued, it was clear that there were still some real barriers to entry for the smallest school districts across the state. While the model suggests that laggards are resistant, and while there are certainly districts that would meet that description, the vast majority of the districts that had not yet partnered were actually struggling with the capacity to do so. The data files CCGI requires exceed the data capacity of districts that do not have dedicated staff to run their SIS.

At the same time, CCGI was now statutorily required to provide final transcripts to the CCCs, CSUs, and UCs as part of the state's efforts to reduce administrative burdens on students and close postsecondary enrollment gaps. However, there was no documented agreement about what such an electronic transcript should include. As part of our work through the Cradle-to-Career Data System, CCGI developed an initial standard,[13] and shared it with the public education systems to ensure it would meet everyone's needs. Once feedback was incorporated, all the systems signed off on the first ever California High School Transcript and Student Record Portability Standard.

After many years of labor-intensive workarounds to the lack of standardized data sets, the new standard allowed for alignment to a common set of rules throughout the data pipeline, of which SIS providers are a significant part. The CCGI team identified that the best way to reach the districts that lacked sufficient in-house data capacity was to require all SIS vendors to adopt the state's data standards. The SIS vendors were also capable of setting up mechanisms for real-time data exchanges that would enable a uniform cadence for refreshing data from all school districts across the state. Relying on vendors to facilitate this process will not only reduce barriers to entry for districts that

[13] The standard will be versioned over time to keep pace with changes in the field.

cannot set up that data transfer themselves, but also reduce the workload for those that already have. Eventually, the data standard will eliminate the vast majority of data discrepancies that impact students' college admissions.

This approach additionally addressed concerns from the legislature that districts would need to substantively staff up their SIS operations in order for CCGI to reach full scale. Since the mandate was put in place in June 2024, we've seen a **40% growth** in the number of districts and a **14% increase** in the number of students we serve.[14]

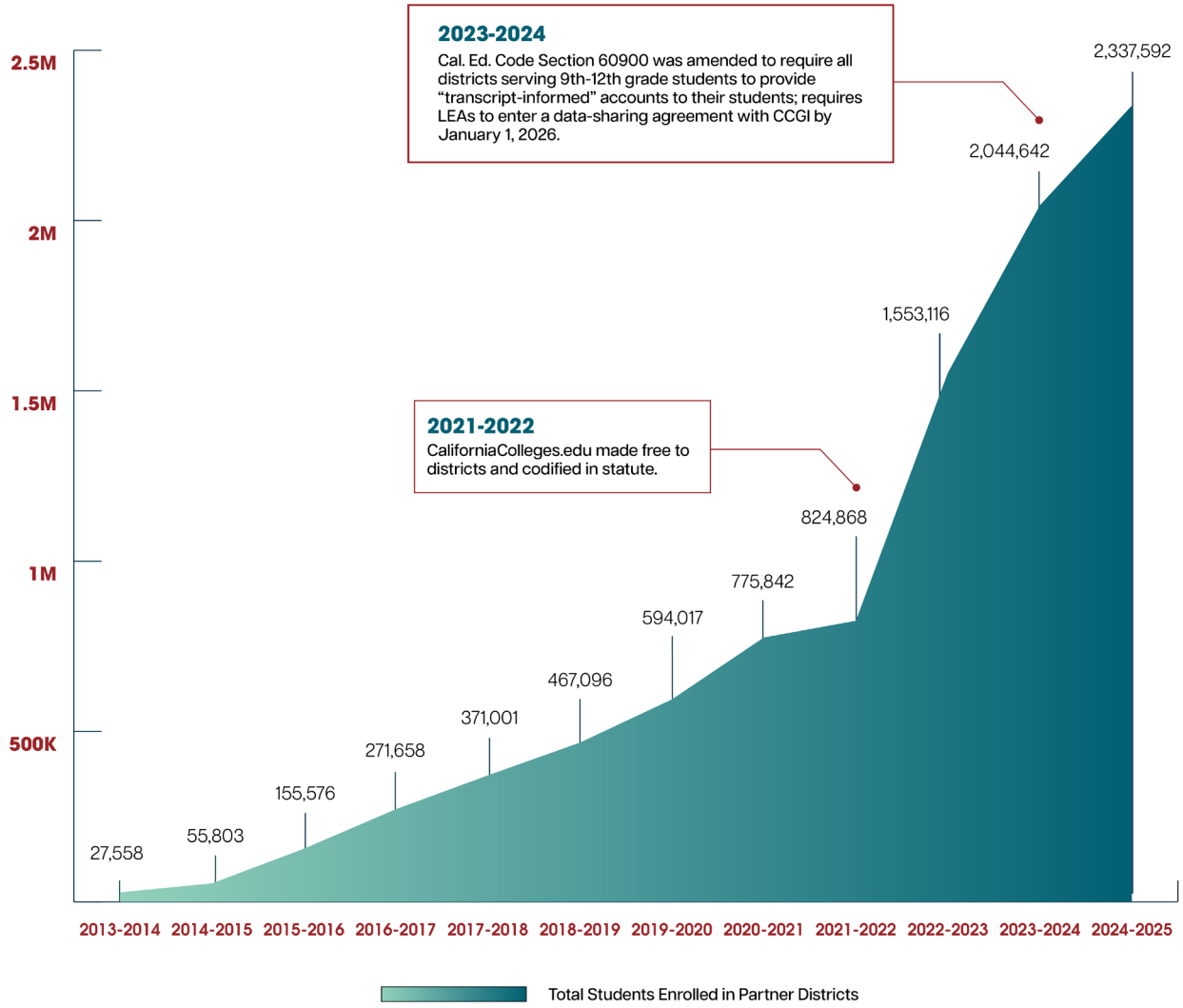

Figure 2. *Graph depicting the increase of total students enrolled in CCGI Partner Districts each academic year.*

WHAT SCALE MAKES POSSIBLE

WHAT WE'VE BEGUN: REDEFINING ACCESS

In fall 2024, the CSU system began leveraging CCGI's infrastructure to engage 17,000 high

[14] The larger districts had already been in partnership, so growth at this stage is largely the smaller districts that serve fewer students.

school seniors in Riverside County in a direct admissions pilot program. Over 70% of students in Riverside County participate in the Free and Reduced Price Meals program.[15] Only 16% of students come from families where at least one parent has a four-year college degree.[16] Students whose CCGI data showed they were eligible for admission were sent communication that informed them they were admitted to one of ten CSU campuses and then directed them to fill out the application. Even though the requirement to complete the application remained the same, the message that students would definitely be admitted, combined with fee waivers for the application, increased application rates from Riverside County by 22% over the previous year. Both college campuses and school districts across the state are now eager to replicate and expand upon that pilot, which fundamentally changed both the emotional and logistical experience for students and their families.

WHAT WE KNOW IS POSSIBLE: INFORMING COMPREHENSIVE SUPPORTS

As we approach scale, CCGI is investigating additional ways that our infrastructure can be leveraged to support student success. Among those untapped opportunities is the ability to proactively flag students who fall into specific subgroups that are eligible for supplemental funding and services. This could include foster youth, unhoused students, first-generation students, or students who have struggled academically in the past. Flagging such students will enable colleges to proactively reach out to them to ensure that they are aware of and tap into the additional support available to them.

ALL THAT'S LEFT TO BE DISCOVERED: NEW WAYS TO INCREASE EQUITY AND EFFICIENCY

I remember years ago watching a panel discussion during which Jeannie Oakes, a professor from the UCLA School of Education and Information Studies and founder of the UCLA Institute for Democracy, Education, and Access, spoke about how we just keep trying to layer new interventions on an insufficient infrastructure; how school districts were being asked to do more with less, with students who were coming to school carrying the weight of family disputes and stressors ranging from divorce to layoffs to deportations.

I believe that comment informed some deep impulse in me to build infrastructure that might have the opposite effect. I can't say exactly what else this infrastructure can solve, but we come across new problems worth solving all the time , some of which can be addressed if the systems align themselves enough to leverage the infrastructure we've built. Once at scale, the infrastructure provides an opportunity to increase both equity for students and efficiency for educators across educational systems.

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[15] "Free & Reduced Price Meals Selected County Level Data - Riverside," California Department of Education, Data Reporting Office, 2023-24, https://dq.cde.ca.gov/dataquest/Cbeds2.asp?FreeLunch=on&cChoice=CoProf1&cYear=2023-24&TheCounty=33%2CRIVERSIDE&cLevel=County&cTopic=FRPM&myTimeFrame=S&submit1=Submit

[16] "Highest Level of Parent Education, by Child's Grade Level: 2017-2019," Riverside County Office of Education, distributed by KidsData, Population Reference Bureau, https://www.kidsdata.org/region/1102/riverside-county-office-of-education/results#ind=&say=&cat=6

PURSUING SYSTEMIC CHANGE

THE INTERSECTION OF EQUITY AND EFFICIENCY

The moment I knew I wanted to pursue this work was when Nathan Evans, the head of admissions at the CSU, told me that creating a tool that could provide accurate information to students, families, and K-12 educators about how students' courses would contribute to their CSU eligibility could also yield huge efficiencies for the CSU system. Equity was far and away my primary interest, as it had been my whole career, but it was an added bonus that this work presented an opportunity to upend the notion that equity and efficiency are incompatible.

There's a prevailing notion that equity is inefficient. Not only are equity and efficiency not always at odds, there is a whole body of research about how process inefficiencies create barriers and friction points that prevent people from completing processes that can help them access the resources needed to move forward in their lives. This research on "administrative burden"[17] demonstrates that there are costs of time, effort, and psychological stress that individuals face when interacting with inefficient systems or maddening processes. These kinds of burdens disproportionately impact the most vulnerable among us.

"Applying this kind of process improvement to make the college admissions process more equitable is a significant component of CCGI's work."

Efficiency is very often about process improvement. It focuses on things like streamlining workflows, automating repetitive tasks, standardizing practices, and monitoring those things to see if they improve throughput. It's about reducing friction. Applying this kind of process improvement to make the college admissions process more equitable is a significant component of CCGI's work.[18]

Sadly, equity is often the first consideration to fall off the table in bad budget years, which is part of what interrupts progress toward achieving gains. Efficiency generally has more staying power in such circumstances.

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[17] My own introduction to this kind of process improvement resulted from work spearheaded by Lauren Asher and Bob Shireman at The Institute for College Access and Success (TICAS) in 2005. The Free Application for Federal Student Assistance (FAFSA) has always been a notoriously challenging part of the college-going process. Students and families reported that the hardest part of this application was entering information about their finances, which was needed to calculate the Estimated Family Contribution. TICAS recognized that the information needed to fill out the application was already submitted to another federal agency, the Internal Revenue Service (IRS), and that it could be shared with the Department of Education so that the entire process of entering that information could be eliminated for applicants. Their work came to fruition in 2009-2010, when the FAFSA introduced a "data retrieval tool" that has since helped significantly reduce the time and complexity of submitting the FAFSA for millions of families by enabling them to import the relevant financial information at the touch of a button, from the IRS.

[18] Donald Moynihan, Pamela Herd, Hope Harvey, "Administrative Burden: Learning, Psychological, and Compliance Costs in Citizen-State Interactions," *Journal of Public Administration Research and Theory*, 25, no. 1, (2015): 43–69, https://doi.org/10.1093/jopart/muu009

REDUCING BARRIERS ALONG THE PATH

Public higher education exists because we believe that it serves the public good. It helps to create an educated citizenry with all the attendant benefits to individuals, communities, and society at large. It helps develop a skilled workforce that fuels a healthy economy. But accessing higher education is made more complicated when students are faced with burdensome processes that create friction along their educational path. According to the National Association for College Admission Counseling College Admission Process Survey[19], more than half of the students surveyed (n = 1,000) ranked applying to college as the most stressful thing they have experienced in their academic life. This is especially prevalent among Latinx (61%), Black (60%), and Asian (63%) students.

Students in California reported that the process of applying to higher education in the state was also stressful, confusing, and time-consuming. We knew that there was information they were being asked for, often repeatedly, that could be shared between state agencies. One first-generation college student explained that for him, the application process was like trying to solve a Rubik's Cube in order to open the door that enabled him to access the pot of gold on the other side. And the inability to solve that "Rubik's Cube" leaves many students, especially those who are the first in their family to attend college, feeling like they don't belong. When the first step in the process already makes them feel inept, college begins to feel like an inhospitable environment.

WHERE STUDENTS AND THEIR HELPERS GET STUCK

The visual on the following pages illustrates what it looked liked prior to CCGI, when a student who had completed all their A-G college entry course requirements tried to match the courses that appeared on their high school transcript to the dropdown menus on the college application online portal. On the left, you'll see what a typical high school transcript looks like and we've highlighted the 11th grade courses that the student needs to enter into the application. On the right is what the drop down menus within the applications display, organized by the A-G requirements. The students' challenge is to match the courses on their transcript to those on the application. See if you can do it. The blue green boxes outline the courses that match. The dark red boxes outline the courses that do not.

[19] "NACAC College Admission Process Survey," National Association for College Admission Counseling, accessed June 2025, https://www.nacacnet.org/nacac-college-admission-process-survey/

The transcript is pulling in courses as listed in the individual school districts' SIS.

THIS IS NOT A REAL TRANSCRIPT

Demo Only High School
1000 Anywhere Street
Anytown, CA 000000

OFFICIAL ACADEMIC RECORD OF:
DEMO STUDENT
ID: 123-456-789
GRADUATED: 06/13/2023

OFFICIAL TRANSCRIPT

YEAR	CLASS	1ST SEMESTER	UNITS	POINTS	2ND SEMESTER	UNITS	POINTS
FRESHMAN	ENGLISH I	A	5	4.00	A	5	4.00
	ALGEBRA I	A	5	4.00	A	5	4.00
	SPANISH I	A	5	4.00	A	5	4.00
	MULTIMEDIADSGN	A	5	4.00	D	5	1.00
	PHYSICAL EDUCATION	A	5	4.00	A	5	4.00
SOPHOMORE	W HST/CUL 1	B	5	3.00	B	5	3.00
	ENGLISH II	A	5	4.00	A	5	4.00
	GEOMETRY 1 & 2	A	5	4.00	A	5	4.00
	ANAT/PHYS 1 & 2	A	5	4.00	A	5	4.00
	SPANISH II	A	5	4.00	A	5	4.00
JUNIOR	US HISTORY 1 & 2	A	5	4.00	A	5	4.00
	ENGLISH III	A	5	4.00	A	5	4.00
	MED SCI II	A	5	4.00	A	5	4.00
	CHEM H A/B	A	5	4.00	A	5	4.00
	HERITAGE SPAN	A	5	4.00	A	5	4.00
	CHAR AND SCENE	A	5	4.00	A	5	4.00
SENIOR	AP ENG LIT IV	A	5	4.00	B	5	3.00
	PROB & STAT 1 & 2	A	5	4.00	B	5	3.00
	CUMULATIVE TOTALS		90	71		90	66.00
	GRADE POINT AVERAGE						3.81

GRADING SCALE

A: EXCELLENT
B: ABOVE AVERAGE
C: AVERAGE
D: BELOW AVERAGE
F: FAILING
IP: IN PROGRESS

STATE BOARD OF EDUCATION · OFFICIAL SEAL ·

Demo Signature
OFFICIAL SIGNATURE

THIS IS NOT A REAL TRANSCRIPT

The drop-down menus are pulling in courses as listed in the CMP.

11th Grade	(Semester) Demo Partner High		2024-2025
* Course Title	* Course Type	* Fall	* Spring
US HISTORY 1 & 2	Select Course Type	Ex: A	Ex: A
US History 1 & 2	None	A+	A+
AP US History	Advanced Placement	A	A
	International Baccalaureate	A-	A-
	Honors	B+	B+
ENGLISH III	Select Course Type	Ex: A	Ex: A
ENGLISH III	None	A+	A+
ENGLISH LIT III	Advanced Placement	A	A
	International Baccalaureate	A-	A-
	Honors	B+	B+
CHEM H A/B	Select Course Type	Ex: A	Ex: A
CHEMISTRY A/B	None	A+	A+
ADV CHEM A/B	Advanced Placement	A	A
H CHEMISTRY AB	International Baccalaureate	A-	A-
	Honors	B+	B+
HERITAGE SPAN	Select Course Type	Ex: A	Ex: A
ADV SPANISH	None	A+	A+
SPANISH 11	Advanced Placement	A	A
ACCEL SPANISH	International Baccalaureate	A-	A-
	Honors	B+	B+

As it turns out, roughly one in four courses[20] that students were being told were approved as A-G were not recognized as such by college admissions offices for purely administrative reasons. The process for registering these courses in the CMP is not well understood in school districts. It's a situation in which errors in data entry can literally derail students' aspirations, but it's poorly controlled. It can be handled by anyone from a counselor on special assignment to the front office staff, school site by school site, or in a centralized manner through the district office.

Although this challenge is familiar to anyone who helps students fill out the applications as well as some frontline staff in college admissions offices, no one knew what could be done about it. It wasn't even entirely clear to them how many students were impacted. People doing the frontline work are rarely invited to identify problems that need solving – and even when they are, they are not able to see the whole picture from their position within it. High school counselors knew that it was difficult to find the right courses to enter in the application from the dropdown menu. Admissions officers knew that it was often difficult to verify the courses on the students' application against the CMP. Researchers knew that it was hard to match at least 25% of A-G courses as they are reported to the California Department of Education to the data in the CMP. Here were three different perspectives on the issue, none of which accounted for the problem in full, and none of which fully recognized the devastating impact on students.

CCGI: CREATING NEW FEEDBACK LOOPS

In her seminal work on systems thinking, Donella Meadows identifies feedback loops as a high-impact leverage point within systems and states that new feedback loops that deliver information to new places are especially powerful. According to Dr. Meadows, this is because missing information flows are one of the most common causes of system malfunction.[21] This is consistent with our experience at CCGI.

Among the most impactful things we've done over time is to create a feedback loop between the CMP and school districts, as well as students and families themselves. By comparing the courses on students' transcript files against what is presently listed in the CMP, we create a report that tells school districts which courses aren't actually going to be accepted by the university systems as A-G. These courses are highlighted on the student's account so that they can see the problem before it affects them. Then, the CCGI technical assistance team gets to work. They review these discrepancies with districts and show them exactly what they have to do to correct the problem.

Prior to CCGI, there hadn't been any systematic way to identify these problematic courses.

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[20] 25% was our early estimate based on internal analyses. This has since been reinforced by studies like WestEd's "Examination of Data Usability Options for Assessing Eligibility for Higher Education Admissions in California," in which a methodological footnote indicates that they are unable to match 25% of the courses provided by the California Department of Education to the data from the CMP. Mismatch rates vary dramatically from district to district.

[21] Meadows, *Thinking in Systems,* 157.

That's why the Roosevelt High School students had no way of knowing that their 10th grade Spanish class was improperly registered and would not be recognized by admissions officers. By creating a feedback loop and working with districts to fix the errors identified before students apply to college, we:

1. Avoid replicating the fate of the Roosevelt High School students.
2. Properly represent students' progress toward baseline eligibility for admissions to a CSU or UC campus, based upon whether or not a campus admissions division will be able to verify the coursework.
3. Streamline the process of entering coursework from a two-hour process into a touch of a button that automatically imports courses that are already pre-verified.

For a deeper understanding of the complexities of A-G coursework in California, see Appendix D.

CCGI: STANDARDIZING DATA IN AN AMBIGUOUS DATA ENVIRONMENT

Feedback loops are powerful but are not the only leverage point in a system. According to Dr. Meadows, an equally, if not more powerful, leverage point is to change the rules governing how a system works. After many years of labor-intensive work with school districts to help upload their coursework into CaliforniaColleges.edu and align their A-G coursework, CCGI's data services and technical assistance teams knew more than anyone in the state about the root causes of seemingly endless data discrepancies. A big part of the problem was a lack of a clear rule set for how data needed to be captured and stored. By creating the California High School Transcript and Student Record Portability Standard, we were able to put the rules in place that will lead to standardization. That standardization enables all the players in the system—private sector technology vendors, public school districts, and public colleges—to align their work in ways that best serve students. Doing so has the additional benefit of enabling smaller school districts to participate because the private sector technology companies have to align their products in ways that facilitate the requirements that school districts have to meet.

Feedback loops and data standardization, however, are not enough to produce the changes we sought in terms of equity and efficiency. For those to occur, the diverse parties that use the system needed support to change their own practice.

CCGI: SHIFTING PARADIGMS AND SUPPORTING PRACTICE CHANGE

In order to ensure that all students had access to the benefits of CaliforniaColleges.edu and all of the associated services and supports we provide, our goal was to have school districts integrate the platform into all students' 6th-12th-grade educational experiences, but the context for doing so was suboptimal. Many districts didn't have a district-wide approach or oversight for their counseling staff. Few counseling teams had more than

an hour or two of face time with students per year to focus on college and career readiness. Districts often had two separate teams working on college readiness and career readiness, each with their own plans for how to help students understand their options after high school. It was very clear to us that the tools could not just be magically integrated in this context. We would need to build awareness of the tools, help people see how the tools could help solve pain points in their work, and then train them in how to use the tools to get that done.

In the early years, many districts were taking a "wait and see" stance. Practitioners are often reluctant to change because they don't believe that the thing being introduced will have staying power. Will the funding dry up? Will leadership turnover and the new cabinet decide to shift direction? Administrators charged with leading change in these districts understood that it was a nontrivial effort and one that was only worth making if it could be sustained.

Producing behavioral change is complicated and difficult. In addition to gaining awareness, motivation, and know-how, people need to feel empowered to make changes and to overcome their own inertia. Behavioral change often involves a paradigm shift. The idea of using data to systematize guidance was a huge paradigm shift for just about everyone in school districts.[22]

When he introduced the concept of paradigm shifts in his book, *The Structure of Scientific Revolutions*, Thomas Kuhn said that the way to change paradigms is to "keep pointing at the anomalies and failures in the old paradigm … keep speaking and acting, loudly and with assurance, from the new one."[23] The goal here is to produce a collective self-confidence that change is both desirable and possible.

> "Even big complex systems are composed of human beings. Maya's ability to build authentic relationships with educators was critical to our early learning. That was true from frontline educators to district-level leaders."

Maya Ramos Clayton was CCGI's first program director, who led many dimensions of our work, and is now CCGI's Chief Business Officer. Maya was a long-time college access practitioner in the nonprofit sector but had limited experience working with school districts. When I asked her recently to reflect on our early days with the districts, she said, "We were initially met with resistance and skepticism, but we chose to see them as signals that we had more to learn." Maya was confident in the transformative potential of CaliforniaColleges.edu, and that confidence, combined with her willingness to lead with inquiry, test our hypotheses, and learn from failure, is what built our early momentum in the field. Even big complex systems are composed of human beings.

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[22] Fresno Unified was the exception to this rule as were several districts in Riverside County where Catalina Cifuentes had been socializing and demonstrating how data could be used. Not surprisingly, several of our staff, including our Chief Programs Officer Heather Allen, come from those environments where the localized efforts helped them see the need for a statewide initiative to systematize this approach for all students.

[23] Meadows, *Thinking in Systems,* 164.

Maya's ability to build authentic relationships with educators was critical to our early learning. That was true from frontline educators to district-level leaders.

Our colleague Maribel Chonhim was working in the San Gabriel Valley districts under Maya's supervision at the time. She reminded me that one of those districts, Pomona Unified, was the first to develop a district-wide "CCGI leadership team" and site-level "CCGI leads." They were also the first district to use analytics about the use of the platform by students to help support a proposal to add counseling staff district wide. They were able to do this because it was one of the first times they could articulate what more counselors would specifically enable them to do to increase college readiness, and there was a built in set of metrics to track their work. How did Maya do this? By setting up regular discussions with the administrator at the district level who was assigned to lead this partnership. He benefited from having Maya as a sounding board and thought partner. She helped him think through when and how to bring people together, what levels of buy-in needed to be in place and from whom, what logistical issues might pose barriers to implementation, and where else resistance might arise. Early evaluations of this work reinforce that though the tools on CaliforniaColleges.edu were imperfect, the genuine support being provided by our slowly growing team was instrumental to the district's willingness to stick with the process, even as challenges inevitably occurred.

It was pick and shovel work, building one relationship at a time and identifying who was willing to actually do the hard work of repeatedly testing out small changes. Slowly but surely, the work accomplished through those trusting relationships within each district began shifting the paradigm of how college-going works in California. By working within districts across the state, encouraging both formal and informal sharing across districts and bringing the voices of higher education to bear, we've saturated the field with information about what CCGI is and what it provides. Staff report that the conversations in the field are now less about who we are and what we do, and more focused on experiences that educators had with us in their previous district, or sharing among educators about how to leverage the CaliforniaColleges.edu platform to address additional challenges they are facing on the ground.

This is another place where feedback loops come into play, in this case reinforcing feedback loops. An example that Donella Meadows provides of a reinforcing feedback loop is that the more money you have in the bank, the more interest you can earn. And the more interest you earn, the more money that you have in the bank. Reinforcing feedback loops "are sources of growth."[24] So are relationships between people in networks. Momentum builds on itself from a small group to larger groups until you pass the tipping point.

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[24] Meadows, *Thinking in Systems,* 115.

SECTION III:
CCGI UNDER THE HOOD

BUILDING AN ORGANIZATION WHERE CULTURE AND PERFORMANCE MATTER

Up until now, we've been talking about CCGI as a public actor: how we pursued our objectives – the story behind building a more functional pipeline for college access for California public school students. Fundamental to this story are the inner workings of an organization that had the capacity to accomplish this feat, was designed for resilience, and could be sustained over time.

A decade into this work, it's notable how many conversations I've sat through about what needs to change that get revisited year after year. While there are complexities to making change, I am convinced that one of the primary reasons that change doesn't happen is that people don't build organizational capacity to do the necessary work. Instead, we rely on already overtaxed organizations that aren't positioned to pursue the work with the clarity and focus it requires.

Our team works at the intersection of 417 traditional school districts, 584 charter schools, 58 county offices of education, 116 Community Colleges, 23 CSU campuses, nine undergraduate UC campuses, as well as the state-level offices for each of these parts of the educational system. We are constantly thinking about how to meet the needs of students and the adults supporting them across all of those entities and how each might need to adapt internally in order to leverage the infrastructure we've put in place. That's a lot of complexity to manage and a lot of systems to learn about, irrespective of one's background.

"Our team works at the intersection of 417 traditional school districts, 584 charter schools, 58 county offices of education, 116 Community Colleges, 23 CSU campuses, nine undergraduate UC campuses, as well as the state-level offices for each of these parts of the educational system."

Each year of its existence, CCGI has had to build organizational capacity to keep pace with an extraordinary rate of growth. This has required the development and iteration of internal systems for project management, data security, talent management from recruitment through development and retention, and internal communication. It has also required the development of a strong culture, grounded in shared organizational purpose and values, and a crystal clear north star that holds the team together through the challenges of complex systems change and rapid growth. Over time, we've developed norms for how the team interacts with one another that we believe help us to produce our best work.

ORGANIZATIONAL PURPOSE

CCGI's purpose is to smooth the path to college for students in California and unify the efforts of the institutions that serve them. Specifically, we seek to close equity gaps in:

- Access to information about and tools to plan for educational opportunities after high school
- The completion of A-G coursework
- The completion of FAFSA and California Dream Act applications
- College application and matriculation rates
- Credit for completed high school coursework (A-G)
- Credit for completed dual enrollment/college coursework

Underlying this purpose are shared values and beliefs that ground our approach to doing the work together.

ORGANIZATIONAL VALUES

CCGI has five key organizational values that guide our work: Equity, Student Focus, Transparency, Integrity, and Relationship-Based Collaboration. These values stem from the following core beliefs:

VALUE	CORE BELIEF
Equity	**Biases** and **structural racism** create **inequities** that must be actively addressed in order to move to a more **just** and **equitable society**.
Student Focus	Students have a **right to educational opportunity**. In order to effect change, systems must be **designed with students at the center of the equation**. While **college may not be the right choice for every student**, that choice should be **made by the students themselves**.
Transparency	When students and their families have the **ability to view their own transcripts** and the education to **understand what they are seeing**, they can help **ensure problems are caught** before they create harm.
Integrity	**Honest, ethical behavior** lies at the core of all our work and is essential to **good stewardship** of public resources and student data.
Relationship-Based Collaboration	Improving student outcomes requires us to **change the way that educational systems operate**. Systems are composed of individuals. Creating **attentive, ongoing relationships with individuals** is central to how we create change.

We knew from day one that equity was our central concern and students our central focus, but we didn't document these core values until a few years into the work. By that time, we were reflecting on what was rather than what we hoped would be. As a small staff that was living these shared values, they informed everything about our approach to building the organization. Our values and beliefs shaped the building blocks of CCGI's organizational culture.

THE EARLY DAYS

Just as our early braintrust—Amy, Nathan, Cat, and I—had knowledge and relationships in different arenas that could help move the external work forward, I knew that we would need a mix of skills, knowledge, experiences, and perspectives internal to the team that would help us to bridge areas of work that don't often intersect. To do our work well, we had to develop deep expertise in how the K-12, higher education, and financial aid systems in California work. We needed a team that understood college guidance and transcript data, technological and program design, as well as data privacy and security.

We started with a staff of four, always with an eye toward scale but without total clarity about all the skill sets we actually needed. As much as our budget allowed, we always placed a premium on people who didn't just have the relevant skill sets and knowledge but also understood the specific contexts in which we were doing the work. Understanding how to work with large data sets is very different from understanding how to work with the peculiarities of large data sets from K-12 districts in California. We also knew we needed people who were comfortable building while flying, testing out different strategies, knowing that they would, at best, be imperfect. An early refrain was "don't let the perfect stand in the way of the good."

As a small team, we were pretty much all involved in all discussions, both because we were reliant on one another's expertise and because we were in a constant state of iteration. As we outgrew a single conference table, we had to think more about how many people needed to be in which discussions and how best to still benefit from multiple perspectives while getting more of our increasingly specialized jobs done.

THE MESSY MIDDLE

There were definitely times when our growth outpaced our capacity for thoughtful, supportive oversight of all elements of the organization. Those are periods where being overwhelmed and moving too quickly damaged relational trust and prevented people from doing their best work. There are some dimensions of our work that took years to fall into place and some that still challenge us. One very real tension in work at this scale and complexity is knowing when you have to move quickly to sustain momentum while understanding that it is often best to go slow to go fast.[25]

With a limited budget and learning as we went, we often hired people for their potential

[25] Peter Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization* (Random House Books, 2006).

rather than their demonstrated effectiveness. Sometimes, this worked as long as they had a strong cultural fit to the organization. Sometimes, it just didn't. What we've learned never works, is to hire skilled people who are not prepared or suited to function well within our organization's culture.

BUILDING A CARING, ACCOUNTABLE, AND HIGH-FUNCTIONING TEAM

The CCGI team is largely composed of first-generation professionals who experienced barriers to higher education themselves and/or former frontline educators with an up close view of the barriers their students experienced and firsthand experience of helping students to overcome those barriers. Not only does their lived experience help provide a deeper starting point for understanding the problems we are seeking to address, their deep and personal connection to the mission means that people get up every morning ready to do the hard work.

In 2021, legislation was passed that codified CCGI's purpose and provided us with a five-year scaling timeframe. As we developed the scaling prospectus that preceded this legislative change, we realized that in order to deliver on our responsibilities at scale, we would need to significantly increase organizational capacity. In 2021, we had a team of thirty-two people. By 2023, we had grown to a team of eighty-four, which required us not only to define fifty-two new Full-Time Equivalent staff, then recruit and onboard people into those positions, but also to refill a number of positions that had turned over along the way.

As we grappled with what would enable us to successfully onboard that many new people into a quickly growing team, Maya and I sat down and took the time to identify the characteristics and behaviors that we believed were making our team successful. Those key elements are described below.

VULNERABILITY

My favorite Brené Brown quote is that "people who wade into discomfort and vulnerability are the real badasses." In an environment as complex as the one in which we operate, you can't function if you can't take a learning stance each and every day. To do so requires you to admit that you don't know everything you need to know to do your job well.

Among the things that make some people uncomfortable with CCGI's culture is that we expect each of us to own our mistakes. This requires vulnerability. We do this because it's impossible to learn from a mistake you don't acknowledge. Human beings are fallible, so the best we can do is to commit to failing forward. We ask all team members to own their mistakes and learn from them.

This practice starts at the top, where you have to own not only your own personal mistakes but the mistakes of the organization as a whole. One example occurred in 2017 when we launched a new iteration of the CaliforniaColleges.edu platform.

We stress-tested the system to make sure it could accommodate usage from large volumes of students and educators. However, in October each year, districts across the state hold a "college kick-off" day, a time period when usage skyrockets because it's the one day each year that all districts reliably program some kind of college and career exploration activities. At peak usage on a particularly busy day, the system crashed. Our small but mighty product team of two at the time—Leigh Ranck and Ben Baird—got us through the rest of the college kick-off season by staying up into the wee hours of the morning, monitoring and working with our vendor on adjustments to ensure that it didn't happen again. We knew that the crash was disruptive and unacceptable. We also knew it would do reputational damage and make it difficult for end users to trust the platform moving forward. Rather than duck the incident and hope people would forget about it, we reached out to address their frustration directly. Standing in front of rooms of frustrated and disappointed counselors certainly wasn't fun, and we couldn't do anything to erase the mistake, but we owned it and told our audience about the things we were doing to correct the problem. That accountability enabled us to slowly rebuild trust and move forward.

A central benefit of owning mistakes is that it allows you to move on. Two experiences come to mind that illustrate this point. The first was a moment of dread for a communications staffer who had just joined the team. She had approved something that went to print with an error and would need to be reprinted. This was her first month with the organization, and it was a relatively costly print run. She was horrified, but she brought the error to my attention and owned her mistake. I thanked her for taking responsibility, asked what needed to happen to prevent a repeat of that mistake moving forward and within five minutes, we were on to the next subject. She never had another error go to print.

By contrast, another staffer who was overseeing the development of our analytics for a period of time would bring forth work products that I could immediately spot as inaccurate. Sometimes the work product itself was internally inconsistent, sometimes there were errors that were obvious to anyone using their common sense like the number of students completing a milestone of some kind being bigger than the total number of students we worked with. Each time that work product would be brought forward for review, I would question the accuracy and call out the errors that were obvious to me. Each time I would get some kind of justification about how the query was correct or that there was an issue with the underlying data. At no point did I get a straightforward, "Yup, that's wrong. I don't know how my team and I missed that." Despite repeated attempts to build accuracy checks into this employee's process, we never got to a point where the work was consistently accurate, and the repeated refusal to be accountable for mistakes eroded trust to the point where I dreaded working with them. Needless to say, they are no longer with the organization.

DUE DILIGENCE AND PREPARATION

Another expectation of our team is that people make good use of each other's time and seek to understand things as fully as possible before aiming to improve them. In practice,

this means that we expect both internal and external meetings to have well-prepared agendas that clarify objectives and offer context and relevant background information so participants can fully engage with each agenda item.

We also expect people to familiarize themselves with how the organization has arrived at current practices prior to suggesting better ways to do things. More than once, we've had people enter the leadership of the organization only to be fired within a year because they continued to assert that they knew better without taking the time to really understand the work and its context. This was especially frustrating because there are so many opportunities to learn at CCGI, from reading documentation to collaborating with exceptional colleagues. CCGI now models this focus on learning for all new staff through a five-week structured onboarding process during which their sole responsibilities are to build relationships, their knowledge of the work and our tools, and how the team and organization works together. New staff always comment on the value and rarity of this highly structured onboarding. It seems to be making a difference in how deeply newer people are able to engage with the work, while helping them see that we are serious about people doing so.

DOCUMENTATION

CCGI is a bit obsessive about documentation, with good reason. In a rapidly growing virtual environment that manages large quantities of sensitive data, there are documented protocols for anything that needs to be replicable, accurate, and consistent. We also expect people to document their research, learning, and thinking. Agenda items often have linked background documents that require people to minimally articulate what they know and sometimes to do significant research to help further our collective knowledge. Those documents help us to clarify and refine our own and each other's thinking.

COLLABORATION AND LEARNING

This kind of joint thinking is related to our team's valued characteristic of collaboration and learning. We believe that work benefits from multiple perspectives, rigorous questioning, and debate. We place a premium on both thought partnership and productive tension. In order to improve or innovate, you have to be willing to acknowledge when something isn't working and honestly explore how it might be improved upon. You also have to be willing to leverage different approaches to learning so that everyone can engage irrespective of learning style and offer the benefit of their unique perspective, knowledge, and skills.

DIRECT FEEDBACK

In the spirit of continual improvement and to support individual growth and development, we encourage our team members to provide one another, irrespective of organizational hierarchy, direct feedback. This feedback can be complimentary and appreciative as well as constructively critical. To do this we train everyone in the use of

nonviolent communication so that even difficult feedback isn't a personal attack. It requires people to interrogate their own responses by taking time to consider the emotion underneath their response and to get clear about their own needs as a person, a peer, a supervisor, or a direct report, before providing feedback.

SELF-REFLECTION

To provide that kind of feedback requires the next of our team characteristics, which is self-reflection. We ask people to think about their own role in a given situation and how they are contributing to progress or a lack thereof. We ask them to think about what they need from others on the team in order to keep learning and improving. We ask ourselves to collectively reflect on our work and identify where we have opportunities for growth.

DATA-DRIVEN PRACTICE

That kind of self-reflection, and for that matter any disciplined thinking, requires us to focus on facts rather than assumptions, which is one of the things we ask of staff in terms of data-driven practice. This characteristic also refers to how we track key metrics to drive strategy and workflow, and it can be inclusive of both quantitative and qualitative data, all of which is essential to making informed decisions.

STRATEGIC THINKING

Thus, our focus on strategic thinking asks staff to synthesize, analyze, and evaluate all available data points to inform potential next steps. We encourage each other to ask questions to clarify the objective or to ensure we understand one another and whatever information we are reviewing.

PROFESSIONALISM AND KINDNESS

Professionalism and kindness are perhaps the most important team characteristics as they speak to being good humans with whom teammates within our organization and colleagues outside of it will want to work. We ask all team members to behave honestly and ethically, to think before acting, to consider the potential consequences of their actions, to put team objectives above personal agendas, to support and model team culture, and to empathize with the challenges that others face.

THE SECRET SAUCE

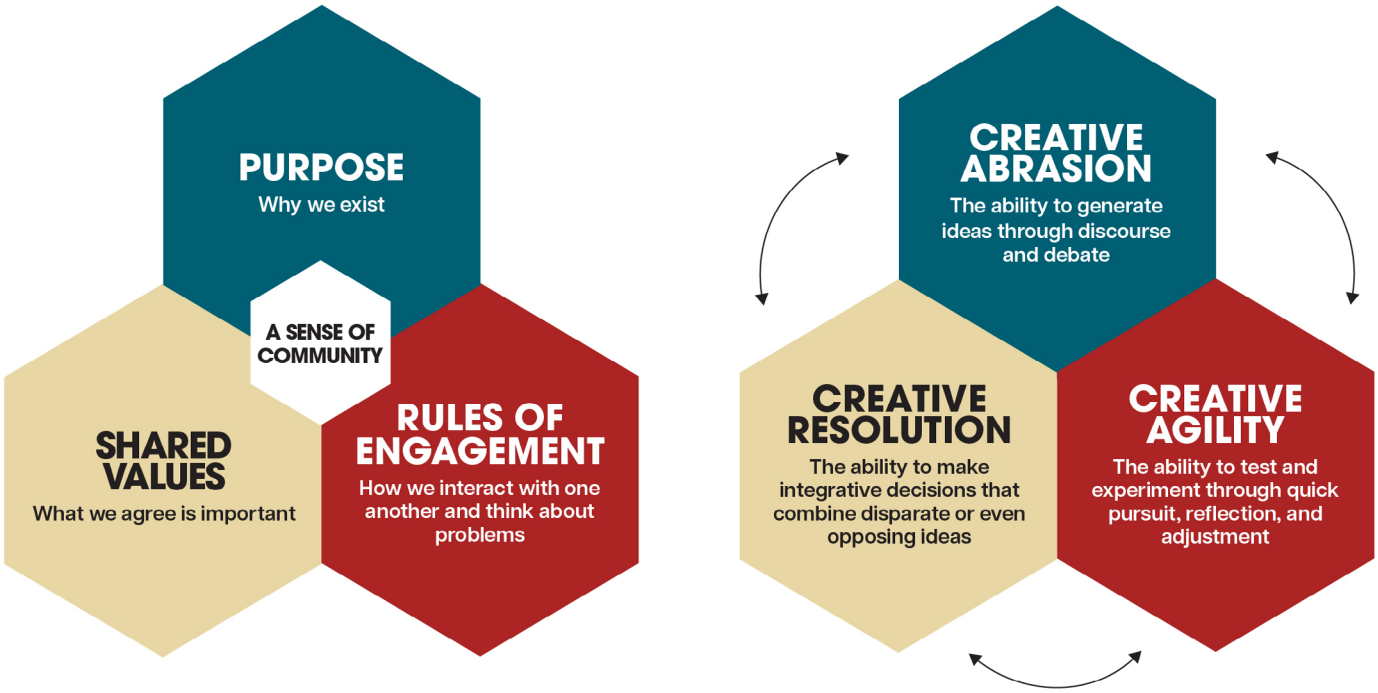
Collectively, I truly believe that these characteristics are the "secret sauce" at CCGI. Over the years, they are what has contributed to our organizational reputation. It is amazing to me how much credibility we've gained by simply doing what we said we were going to do and following through on our commitments. Early on, when our vision seemed unattainable to most people, we built trust and momentum by doing just that. That consistent follow-through became a big part of CCGI's brand.

This secret sauce, as it turns out, is also what has made it possible for CCGI to innovate.

COLLECTIVE GENIUS AS A PATHWAY TO INNOVATION

We now have a staff of ninety, and over the long haul, we've been able to develop a team that functions well and happily within a cohesive culture. Everyone understands that we hold ourselves and each other accountable to our organizational values and team characteristics. We consider mission alignment and culture fit as important as skills and experience in our hiring process.

Though discovered after the fact, I find Linda Hill's work on Collective Genius[26] resonant as we look back on what has made it possible for us to innovate and move a high volume of complex work across a state as large as California. Hill asserts that innovation requires collective rather than individual "genius." As Figure 3 encapsulates, organizations that can innovate, an essential piece of systems work, have to cultivate both the willingness and the ability to do so together.



WILLINGNESS
Innovative organizations must nurture a sense of community, which rests on three elements.

ABILITY
Organizational willingness is necessary but not sufficient for innovation to flourish. The group also needs three specific capabilities.

Figure 3. *A visual representation of Linda Hill's "collective genius" theory.*

WILLINGNESS

In order to truly innovate, people have to be operating in accordance with a shared set of values, a shared sense of purpose, and a clear understanding of how to engage with one another. Shared values are essential because they articulate what we believe and

[26] Hill, Linda A, Greg Brandeau, Emily Truelove, and Kent Lineback. 2014. *Collective Genius : The Art and Practice of Leading Innovation*. Boston: Harvard Business Review Press.

what we think is important. A shared purpose is essential because it's an articulation of why we exist. Rules of engagement—how we interact with one another and how we approach the work—are important because innovation is hard and often uncomfortable work. It requires productive tension, which requires trust and a certain amount of consistency in our expectations about what is valued within the organizational culture.

ABILITY

In Hill's model, ability includes a combination of creative abrasion, creative agility, and creative resolution.

Creative Abrasion is the ability to generate ideas through discourse or debate. Two ingredients essential to creative abrasion are intellectual diversity and intellectual conflict. For us, intellectual diversity was baked in. Our team is a group of super-smart, passionate, and talented people, each from a different discipline, with different vantage points and different tolerance for risk. It includes school counselors, data architects and engineers, technology product designers and managers, policy advocates, analysts who help upload, structure, clean, and analyze data, as well as operations and communications staff. Many have worked inside the systems we are working to influence. Some have not. The group has had all the opportunities in the world for productive tension. Because we have a safe environment, trusting relationships, shared values, and a shared sense of purpose, this kind of productive tension is exhilarating rather than threatening. It helps us to produce our best work.

Creative Agility requires people to quickly pursue multiple experiments, learn from the outcomes, and then adjust plans moving forward. You have to be willing to build the plane while flying it. You have to be willing to try and fail, refine your approach, and try again. You have to be willing and able to pivot.

One of the things we've seen at CCGI is that the more caring and connected our team feels, the more willing people are to take risks. Knowing that we have to experiment and fail forward, we've experimented a lot with what makes it possible for the team to embrace or minimally tolerate continual change. Some of the things that contribute to the requisite sense of safety are pretty simple, and the majority were staff-initiated. We have "meet your new colleague" meetings and "twenty-minute virtual coffees" where the only agenda item is to connect as humans. We have virtual spaces to share recommendations for new music, books and media, favorite cheeses, and pictures of our human and fur babies. CCGI's social committee, initiated by long-time staff member Ying Lo-Khang, has made a huge difference in fostering a sense of community and mutual appreciation. We have "high-five Fridays" to recognize and appreciate one another's wins and our interdependence as a team. A week never goes by without multiple virtual acknowledgments of birthdays and work anniversaries. We have virtual water coolers where people get together to share holiday traditions, recipes, or aspirations for the season. All of this has contributed to genuine caring among staff members and the means for caring to be reinforced in how we support one another in the work. We use nonviolent communication frameworks for feedback, plus/delta analyses or "glows and grows" to debrief our work, identify what went well, and see

where things can be improved upon. Staff turnover rates are low, and most people are genuinely happy to come to work each day.

Creative Resolution requires you to make decisions that combine disparate and sometimes even opposing ideas. According to Hill, it requires "both/and" rather than "either or" thinking in order to navigate the many paradoxes in the process of innovating.[27] This both/and approach made a lot of sense to me because it reflected how CCGI was already working. For example, Hill identifies paradoxes like "promoting improvisation and structure." This paradox, in particular, has been a long-standing discussion at CCGI. The work requires you to be totally present and ready to pivot at any time, but in order for people to feel free to pivot, they have to know what they are pivoting from and the potential implications of doing so. Another long-standing paradox has been how to invest in the team by both supporting individual members, and ensuring that the right people are in the right roles, even if it means letting some people go.

As with many startups, CCGI had far less staff retention and stability in the early years than it has in its more recent organizational maturity. While not by design, this was likely by necessity. In an environment where we are constantly reflecting on our work and testing out adjustments, we are continually learning about what is and isn't working. Sometimes, that's about software tools or internal processes. Sometimes, and far more painfully, it's about people. Over the years, I've fired a good number of highly intelligent, capable, and well-intentioned humans who just couldn't function in this organizational context. There are also many people on the current CCGI team whom I've moved around over time. Our chief product officer, for example, began as a communications manager. Our chief data officer initially applied for a job on our programs team. As Jim Collins explains in his book *Good to Great*, it is extremely powerful to have the right people in the right seats on the bus.[28] In order to achieve that, you can't be wedded to the seat people start in, and you can't be afraid to make space for new passengers.

ORGANIZATIONAL SUSTAINABILITY

A key takeaway of this narrative is that changing systems is a long process, and a lot of things depend upon the individuals involved and how they relate to one another. This raises the question of succession and of what happens when a core cast of characters inevitably changes.

When I founded CCGI in 2013, I committed to being here for a decade, naively assuming we'd have accomplished our mission by then. Instead, as I approached the ten-year mark, I recognized that there was still a long way to go. I was tired, and I was no longer the best person to lead the initiative into its next decade. The nature of the work had evolved and there were different skills needed to lead the organization well, without losing the clear north star, organizational values, or high-functioning team culture.

CCGI was still in the midst of that massive growth spurt at the time, building capacity to

[27] Hill, Brandeau, Truelove, and Lineback, *Collective Genius : The Art and Practice of Leading Innovation*.

[28] Jim Collins, *Good to Great* (Harper Business, 2001).

deliver at scale. As we built out our executive leadership team, I started to apply a lens of who might have the potential and interest in growing into the CEO position. As I write this, I am in year two of a planned transition process. During the first year, the executive team reviewed all the structural adjustments we needed to make to support a different leader most effectively and build capacity in the parts of the organization that needed to be strengthened. We began documenting anything that lived only in my head so that knowledge transfer could be institutionalized, not just shared with the next leader. We began training and coaching people into the roles they would be assuming as the leadership transition proceeded. We made space for an inevitable grieving process among those of us who had worked together closely over time.

And one year out from my actual departure, we made this transition known beyond the executive leadership team, both internally and with our external partners. We designed a process of co-leading the organization for a year, which allowed for a smooth transition and enabled us to retain the confidence of all involved.

This need for stability and thoughtful transition doesn't just apply at the highest levels of the organization. As a quickly growing organization doing complex work that requires a broad range of skills and expertise, we have spent time assessing where we have the potential for single points of failure and are testing out strategies to build our bench. The truth is that individual human beings are often what makes the difference between things working well or not, so when building for the long haul, we have to be attentive to developing the capacity of the people who we hope will carry the torch forward.

FINAL THOUGHTS

As I hope this story conveys, amidst all the complexity, change is, in fact, possible. As Adam Kahane describes in *Everyday Habits for Transforming Systems*,[29] the process is "not routine, controlled, predictable, simple, linear, quick, calm or easy; it is contextual, responsive, surprising, complex, emergent, cumulative, rough, and challenging." While there are many things that I might have done differently, there is some wisdom that I have gained in the process and some key elements of stance and attitude that I will take with me into the future, which I share below.

LEAD WITH BOTH INQUIRY AND EMPATHY

INQUIRY

Think of the favorite questions of preschoolers or kindergarteners you know. "Why is it like that?" "How does that work?" These are the same questions we ask ourselves, each other, and our practitioner partners every single day at CCGI. As a parent, I never felt I could adequately answer the seemingly "simple" questions my children would ask me at that age. On my best days, I would suggest that we try to learn about things together. The same is true in our organizational lives. As leaders of classrooms or organizations, the most helpful stance is to acknowledge when you don't know the answer to something and work with your people to see what you can collectively figure out. The amount of time we collectively spend pretending that we know the answers to things we clearly do not is a big part of what holds us back as a society.

ABOUT GOOD QUESTIONS

There is something beautiful and elegant about a good question.

When my colleague Joanna Vazquez Zelaya joined the team that helped school districts learn about CCGI, she noticed that we were not reliably able to track what the districts' next steps were to move into formal partnership with us. We would speak with districts, send them follow-up information about the next steps, and then follow up periodically to check the status. To actually create a partnership, a district had to: (1) confirm their desire to partner; and (2) execute a data-sharing agreement. These two steps were distributed among other "onboarding" activities, the sequence of which was often dependent on the finalization of an MOU. In order to plan our workflow, we needed to clarify what the process actually was to move a district to a signed contract.

[29] Adam Kahane, *Everyday Habits for Transforming Systems: The Catalytic Power of Radical Engagement* (Berrett-Koehler Publishers, 2025), 14.

At some point, Joanna suggested we add a question to our intake process. At first glance, the question, "What is your decision-making process?" looks deceptively simple. In practice, that question achieved multiple aims all at once. It helped to surface whether or not the person we were speaking to in the district was in a position to make a decision and commit the district to partner, and if not, if they even knew who was in that position or what steps were necessary to make that happen. The question helped them think through who needed to buy into the partnership, what they needed to further understand in order to effectively engage their internal colleagues, and what else was needed for us to engage them in a conversation about how best to do that.

Posing a good open-ended question is an excellent discovery tool. It allows the person you are speaking with to explain, from their perspective, what they think is pertinent. This can add to your knowledge as the person asking the question. It can also reveal knowledge gaps on both sides of the conversation.

At CCGI, we've developed a tactic we call the "hair twirl." When dealing with big problems that require people to collaborate across systems, you are often in the position of an outsider. Even if you've worked in one part of a system, chances are good that you haven't worked in all of them; so make use of your outsider status to ask all the "dumb" questions to all the right people who will generally respond generously to your interest in learning what they have to offer.

Inquiry might be the single most important tool in this kind of work. It serves multiple purposes, from eliciting input, developing buy-in, and building trust to challenging assumptions and conventional wisdom.

INTERROGATE CONVENTIONAL WISDOM

Whenever you seek to produce significant change, there is always someone, often many someones, who will tell you that it can't be done. When you ask why they believe that to be the case, they will explain it to you with great confidence. Pay close attention, take note, and then reframe those statements into questions that you can pose to as many knowledgeable people as you need to who may have greater expertise and perspectives to share.

In our case, skeptics regularly pointed to the Family Educational Right to Privacy Act, commonly known as FERPA, as an "insurmountable barrier." While it's true that FERPA places significant restrictions on sharing student data, our proposed and current uses are all explicitly named as exceptions to data-sharing prohibitions within the law itself. We learned that by making a significant investment in legal analysis very early on during the planning process. We hired an attorney who had recently stepped down from running the FERPA office at the U.S. Department of Education. Despite all of the conventional wisdom about the insurmountable constraints of FERPA, he was able to provide us with a memo that outlined all the specific ways in which our proposal was covered under FERPA and the specific lines we should avoid crossing.

WHAT'S IN IT FOR ME?

Another "insurmountable barrier" we were warned about was that "K-12 districts do not want to share their data." This was a perspective offered by people who had been involved in previous efforts that had trouble engaging K-12 districts. Our hypothesis was that districts would participate if their own pain points were being addressed, which turned out to be a pretty good hypothesis. We therefore invested time in deeply understanding what K-12 districts needed from this infrastructure. Once we understood what they needed, we could figure out how to ensure that their participation would meet those needs for both them and their students. In short, we figured out what was in it for them. You have to figure out what's in it for each person and each entity in order to succeed.

ENGAGE WITH EMPATHY

The way to figure out what people need is with and through empathy. Empathy is not just a critical capacity for being a humane person; it is a critical strategy for engaging people in complex work. The ability to see things from another person's point of view is essential, both to building relationships and to framing things in a way that others can easily make sense of, buy into, and fit into their own understanding of the world and the things they do in it. Questions to consider here are: What challenges are they experiencing? What problems are they trying to solve? What pressures are being placed upon them? The more you understand people and their issues, the better you can work with them.

SEEK CLARITY

GET PROXIMATE

Bryan Stevenson, founder of the Equal Justice Initiative, talks about the four-pronged approach to changing the world. One of those pillars is proximity. You have to get close to the problem in order to figure out the right solution. As Stevenson says, "In science and research, proximity is baked into the very heart of the discipline." In a podcast he recorded during the pandemic, he goes on to say that "if we create a vaccine for COVID … it is because the researchers and scientists understand the details of this virus with such precision and clarity that they have been able to create an answer. Innovation comes in science by the people that pull something apart with such insight and knowledge that they can then innovate … it's how we make progress."[30] We play this podcast as part of the onboarding of every new CCGI staff member because it's about how we approach our work. We expect our team to drill down on issues and challenges we are trying to understand. This means getting close to the people most directly affected by a problem. It means aiming to understand things at such a granular level that you can pinpoint where there might be a leverage point or an opportunity to make a change. It means home-growing the expertise necessary to see the change you want to see.

[30] Krista Tippett, host. "Finding the Courage for What's Redemptive." *On Being with Krista Tippett*. December 3, 2020. https://onbeing.org/programs/bryan-stevenson-finding-the-courage-for-whats-redemptive/

CAN YOU CODE IT?

With one of our key strategies being a technological infrastructure, I've developed a huge appreciation for the level of clarity that coding requires. As my colleague Ben Baird has taught me time and time again, you can't code something that isn't clear. Coding is a binary process – all zeros and ones. It requires you to know exactly what you are aiming to accomplish with each keystroke. I've come to understand that our ability to code something or not is a clear indication of how much room there is for misinterpretation. Within and beyond situations in which coding is required, there is pretty much always room for misinterpretation. Do everything you can to confirm shared understanding. It's worth the extra time and effort, and saves a lot of heartache.

IT'S ALL ABOUT COMMUNICATION

MAKE NO ASSUMPTIONS

I wish I had a penny for every time people talked past one another. Just because you think you're being clear doesn't mean others understand you. Perhaps because we are a team with lots of educators, you will often hear people reflecting back on what they believe they've just heard or understood. This practice has saved us from many misunderstandings over the years, and when we do have misunderstandings, I always wish I had used it more. While management texts will encourage "over communicating" to ensure everyone understands the message, we have found this process of reflecting back on our understanding of what we heard to be a more effective strategy.

SHOW, DON'T TELL

Actions do, in fact, speak louder than words. So does an experiential learning opportunity or a really clear visual. It is one thing to tell people that applying to a public four-year college in California is confusing. It's another thing for them to experience it directly. The same exercise I asked you to do as a reader on pp. 25-26 is what we have been asking people to do for a few years now. I wish I had started doing that sooner.

DO THE WORK

ROLL UP YOUR SLEEVES

There is no one sitting around with extra time, bandwidth, and knowledge ready to fix the problem you are trying to solve, or they would have done so already. Demonstrable proof points are helpful, especially when people are skeptical that the scale of change you seek to achieve is even possible. So is providing people with plug and play opportunities to help move your collective work forward. Silly as this might sound, you can't rely on people to do their jobs as you would want them to do them. Maybe they have too many competing priorities, maybe they don't understand the issue you are raising as well as

they would need to in order to move it forward. It is always helpful to go the extra mile. Provide people with drafts of proposed legislation, shared work plans or policy briefs, or technological specifications or data standards. Provide journalists with print ready stories. In general, do as much of the work as you can to make their jobs as easy as possible. They will thank you.

WED YOURSELF TO THE DESTINATION, NOT THE ROUTE TO GET THERE

Long-time team members at CCGI can attest that we are nothing if not adaptable. For many, the rate of change and adaptation has been dizzying. But adaptability is key to complex work. The road to the north star is long and winding. You have to know where you are trying to get to, but be flexible in how you get there. You have to constantly assess the landscape and figure out which doors will open next and how to be primed to walk through them when they do. This requires the team to be crystal clear on what they are aiming to accomplish so that they are ready to pivot when that is the strategic and advantageous thing to do.

STAY FOCUSED

Some days, it feels crazy that it's taken over a decade of my life and the productive energy of dozens of human beings to begin solving the problems we are solving. After all, what we are grappling with is only a subset of the barriers and challenges students face at specific, albeit essential, points in the education pipeline. We are frequently asked to expand our scope beyond the areas of expertise we've developed as a team and beyond the rate at which growth and effective scaling are feasible. We are asked when we will drill down into elementary grades to provide them with college and career knowledge development opportunities. When will we build tools to support students in transferring from a community college to a CSU or UC?

One essential job of organizational leaders is to buffer the team from the demands that stretch them to the breaking point. We must ensure that the resources to build the capacity required to carry out a defined body of work are in place before the work has to be completed. You have to build in time to ramp up the resources, systems, and people power to get the work done which means resisting the urge to expand beyond your scope, even when there are real additional challenges worth solving or it feels good to be recognized for good work. When you are an organization that gets things done, people will want you to do more. Doing so will, more often than not, stretch you beyond your capacity, and that doesn't serve anyone.

BE PERSISTENT AND HAVE FUN

This work is hard, and can take its toll on those doing it. There are no short-term fixes. You have to be willing to push through when the work seems impossible, when the pace and growth and demands feel punishing. This is not to say you should sacrifice yourself

or your teammates for the work, but it's true that very little worth doing is easy. Build networks of support and practices that enable you to persist without sacrificing yourself in the process. Humor, playfulness, and joy go a long way toward sustaining us through this work. Despite the seriousness of the issues to be tackled, I encourage you to laugh because the systems are absurd, laugh because it's the alternative to crying, and laugh because it reinforces our shared humanity – which, at the end of the day, is the intention behind all of this work.

BE SCRAPPY

The adjective that comes to mind when I think about our team is "scrappy." This stems from our persistence and determination to work through complex and long-standing problems without positional authority, without the ideal resources, and in many instances, without formal training. It requires people to be willing to draw on their own work and that of their peers to piece things together. It requires a particular kind of intellectual curiosity. A desire to really dig in and understand the problem and identify all the possible resources that can be brought to bear to solve it. Over time, that scrappiness has yielded an extraordinary brain trust at CCGI, much of which is homegrown knowledge.

A NOTE ABOUT IDENTITY

There is no question in my mind that my being an upper middle class white woman with a doctorate helped us make progress in this work. My relative economic stability increased my tolerance for risk and emboldened me to pursue this work without formal standing. The Ed.D. behind my last name likely garnered respect or consideration that I wouldn't otherwise have received. Skin privilege is skin privilege. I'm sure my background in philanthropy helped also, since people often associate proximity to money and power with knowledge and ability, and since funders are often more comfortable investing in people with whom they have pre-existing relationships.

Recognizing all of that, it is also true that I have a brain that sees things in systems and can synthesize a lot of seemingly disparate information. I have a strange ability to sit within grey zones and still make decisions about how to move forward, as well as the stubbornness of a bulldog. I am drawn to the spaces betwixt and between. These characteristics are not specific to my skin color, class background, or my educational attainment, and I know there are many of you out there, from different backgrounds than my own, who share these traits or others that can help you do hard things.

So if you see a potential fix, go after it. If you have the support system that enables you to pursue what you know to be right, go after it. Just make sure to surround yourself with a team that is smart, determined, and humble enough to always take a learning stance. May the force be with you.

APPENDIX A:
GLOSSARY OF TERMS

A-G Courses

The fifteen-course sequence that students must successfully complete in high school in order to meet baseline eligibility for admission to a public four-year college in California.

CaliforniaColleges.edu

A state-funded infrastructure for postsecondary planning, data-driven student guidance, and the sharing of student records from K-12 Local Education Agencies to California's public higher education systems and the California Student Aid Commission.

California College Guidance Initiative (CCGI)

CCGI manages CaliforniaColleges.edu, the State of California's official college and career planning platform for 6th-12th-grade students.

California High School Transcript and Student Record Portability Standard

The "Standard" and its associated Data Specification ("the Spec") define the data elements that are required for a high school course record to be electronically transmitted and successfully interpreted by California public colleges.

Course Management Portal (CMP)

The CMP is the database that houses information about which courses in each California K-12 district are approved to meet A-G subject area requirements. The CMP is managed by the UC Office of the President (UCOP) and serves as the "source of truth" used by CSUs and UCs to determine if a student's course record is sufficient to meet admission standards.

Pre-Verified Coursework

Courses that CCGI receives from school districts and confirms are registered A-G courses in the CMP before displaying back to students, importing into the public college applications and providing through electronic final transcripts.

Segment

A portion of the California educational system, either the K-12, CCC, CSU, and/or UC.

Student Information System (SIS)

An SIS is a comprehensive software application or platform used by educational institutions to manage and store student-related data and information.

System

A system is an interconnected set of people, entities, and/or things that have a collective purpose or function.

Systems Change

The process of shifting the structures, dynamics, and/or norms of the system to shift how the system behaves.

Tipping Point

The moment when a change or effect becomes irreversible or unstoppable, often leading to a shift in a system.

Wicked Problem

An issue that is difficult or impossible to solve because of its interconnectedness and complexity.

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APPENDIX B:
SYSTEMIC CHANGE TOOLKIT

This appendix shares some resources that we have found helpful and that perhaps you will too. It includes questions for consideration and tools that can help you to be clear and deliberate in your efforts as you work your way through complex systemic problems. Some of these are reflective prompts and tools that CCGI has used throughout its twelve-year history, and some are things we've come across more recently and/or wish we had used more systematically to define problems, scope out potential solutions, weigh decisions, and support effective implementation of changes to how work gets done.

Our experience is that the more disciplined and intentional we are in how we approach the work, the more we get done. Being intentional and disciplined is not to be confused with being rigid. Pivoting and course correcting are essential to progress. Instead, intentionality and discipline allow you to make decisions and changes in a self-reflective and transparent manner and provide documentation of your individual and collective thought processes when key issues inevitably arise more than once for consideration.

PROBLEM DEFINITION

Systemic work is about solving problems for which there is no clear and straightforward solution, often because the context isn't entirely visible or well understood. It requires a lot of work, an open mind, and an inquisitive stance to define a problem well. It also has to include the experiential knowledge of the people directly impacted by the problem. Pretty much everything flows from how you define the problem, including who needs to be involved to help fix it.

We knew that in an ideal state, we would have a systematized approach to helping students in California plan for and apply to college. We mapped the gaps between that ideal state and the current reality. And then we asked ourselves and others what kinds of adjustments needed to be made to help close those equity gaps. Following the listening tour in 2011, we convened some of the key informants from a variety of vantage points across the state, prioritizing those with the most direct experience, which in our case was students, frontline educators, and admissions officers. We laid out our understanding of the problem and a potential solution. While there was nearly complete consensus at that meeting, we continued to pressure test the thinking using a variety of different tools and prompts for reflection. What follows are some questions I'd encourage you to ask yourself and tools you can use as you move through a problem definition process.

PROBLEM DEFINITION PRINCIPLES

Center those who are most directly impacted by the problem

Push for clarity and precision

Place problems in context

Aim to understand the structures that are shaping the current situation

SOME QUESTIONS TO CONSIDER WHEN DEFINING A PROBLEM

- What is the problem we are trying to solve?
- Be as specific as possible in your description.
- Who do we know for sure experiences the problem?
  - Who else might be experiencing related problems from a different vantage point within the system?
  - When/under what circumstances?
  - What is the impact of the problem?
  - Why hasn't the problem been solved before now?
- What is the origin of the problem?
- Is the problem a problem by design? Meaning, is the problem intentional, and is the system designed to yield exactly the outcomes it is yielding?
  - If yes, you've got a political problem.
  - If no, what is contributing to the problem?
- What is the conventional wisdom about the problem, and what does it misunderstand or misrepresent?
- What parts of the problem do we clearly understand, and which parts require further investigation?
- Is the thing we've identified as the problem really the problem? Or is that a symptom of the problem?
  - NOTE: If you locate the problem as belonging to an individual, it's probably just a symptom. Root causes are generally a function of the structures and systems in place that create the context for that individual's experience.
- What is within our control, and who else will need to be involved to make decisions that are within their locus of control?

TOOLS

Some tools that we have found useful in defining problems include empathy interviews, Ishikawa/fishbone diagrams, and process and systems mapping. I find using all three of these tools helps to provide the fullest picture and enables the best thinking about how to define the problem.

PROBLEM DEFINITION TOOL:
EMPATHY INTERVIEW

The listening tour that preceded the development of CCGI was grounded in a series of empathy interviews. We continue to use them when trying to gain a holistic understanding of how relevant stakeholders think and feel about an issue.

Though intended for use with individuals, I find it helpful to conduct formal or informal empathy interviews prior to convening groups for high-stakes conversations. I then summarize the themes from those discussions with the group as a way of reflecting back their collective understanding. I do this with or without attribution, depending on the context. Ideally, this enables you to point out where there is convergence and where divergence should be collectively explored.

WHAT IS AN EMPATHY INTERVIEW?

Foundational to design thinking, empathy interviews are used to gather not just the perspective of an intended end user or stakeholder but the feelings underlying those perspectives. The goal of an empathy interview is genuine understanding rather than confirmation of an existing idea or proposal.

USEFUL WHEN	You seek to understand another person's perspective and the feelings underneath that perspective.
CAN BE USED WITH	Individuals inside or outside of your organization.

HOW TO APPROACH AN EMPATHY INTERVIEW

Though you'll want to create a list of open-ended interview questions to get the conversation started, the whole idea of the empathy interview is to follow the conversation where it naturally leads. Go down the rabbit holes with your interviewee. The idea is not to steer them back to a single topic but to see where their thinking and feelings take the conversation.

There are plenty of empathy interview guides online, but here are a few things to think about as you test this out for yourself:

BE PRESENT

It's helpful if the interviewers themselves can be fully engaged in the conversation. Consider bringing a notetaker or recording the conversation so you can fully focus on the person youare interviewing.

BE CURIOUS

Take a genuine interest in what the interviewee has to say and is experiencing.

TAKE A NEUTRAL STANCE

Ask basic questions without descriptors. Ask how the experience made them feel. Ask what they think of the existing approach to a problem. Don't insert your own descriptors about how you think they felt or how you think they will describe the approach to the problem.

CONFIRM UNDERSTANDING

Reflect back on what you heard and ask if it's correct. You never know what else you may learn by doing so.

PROBLEM DEFINITION TOOL:
ISHIKAWA/FISHBONE DIAGRAM

Internally, CCGI has used Ishikawa diagrams in any number of circumstances to consider all the potential causes of a problem, rather than moving forward based on whatever story we had made up in our heads. The example provided below focuses on how we used the tool to refine a hypothesis about why our work was stalled in a particular partner school district. This process enabled us to identify potential interventions to test out and get the work back in motion.

WHAT IS AN ISHIKAWA OR FISHBONE DIAGRAM?

An Ishikawa or fishbone diagram is a visual process of collectively brainstorming and then assessing possible causes of a problem or a barrier, often used in process improvement work but applicable more broadly. In manufacturing, Ishikawa diagrams often focus on manpower, materials, methods, measurement, and the environment. In social change work, it might be a problem of policy, process, power structures, people, and/or culture, and measurement (i.e., what is valued and therefore measured, what is made visible, and what is not).

USEFUL WHEN	You are trying to dissect and understand the root cause/s of a problem.
CAN BE USED WITH	Internal or external to your organization. Can be used by individuals but is better with groups, as you benefit from multiple perspectives and sources of knowledge.

HOW TO APPROACH THE DIAGRAM

The head of the fish is the problem as you are seeing or experiencing it. An example might be: “I miss the bus almost every morning.” Then, brainstorm each primary bone of the diagram. You can split the group into pairs or triads to brainstorm what the possible causes might be. In this example those might be: “I don’t wake up on time,” “I don’t allow enough time to walk to the bus stop,” “I always forget my backpack,” or “the bus doesn’t actually run on schedule so I’m never sure when it will arrive.”

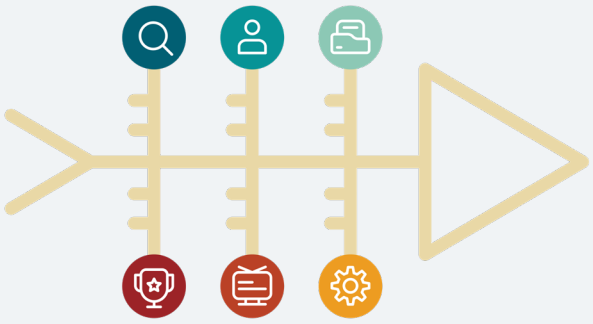
Here, it is useful to employ an additional tool called the “five whys.” Each time you come up with a possible answer, ask yourself why that might be until you get to the root of the issue.

For example: If you ask why you don't wake up on time, the answer might be, "I sleep right through my alarm"; and, if you ask why you sleep through your alarm, the answer might be that it's right next to the bed and you just shut it off and fall back out. If you ask why you do that, the answer might be that you don't get enough sleep, and if you ask why again, it might be that you go to sleep too late. You get the point. Then, list each of those possible causes on the smaller bones.

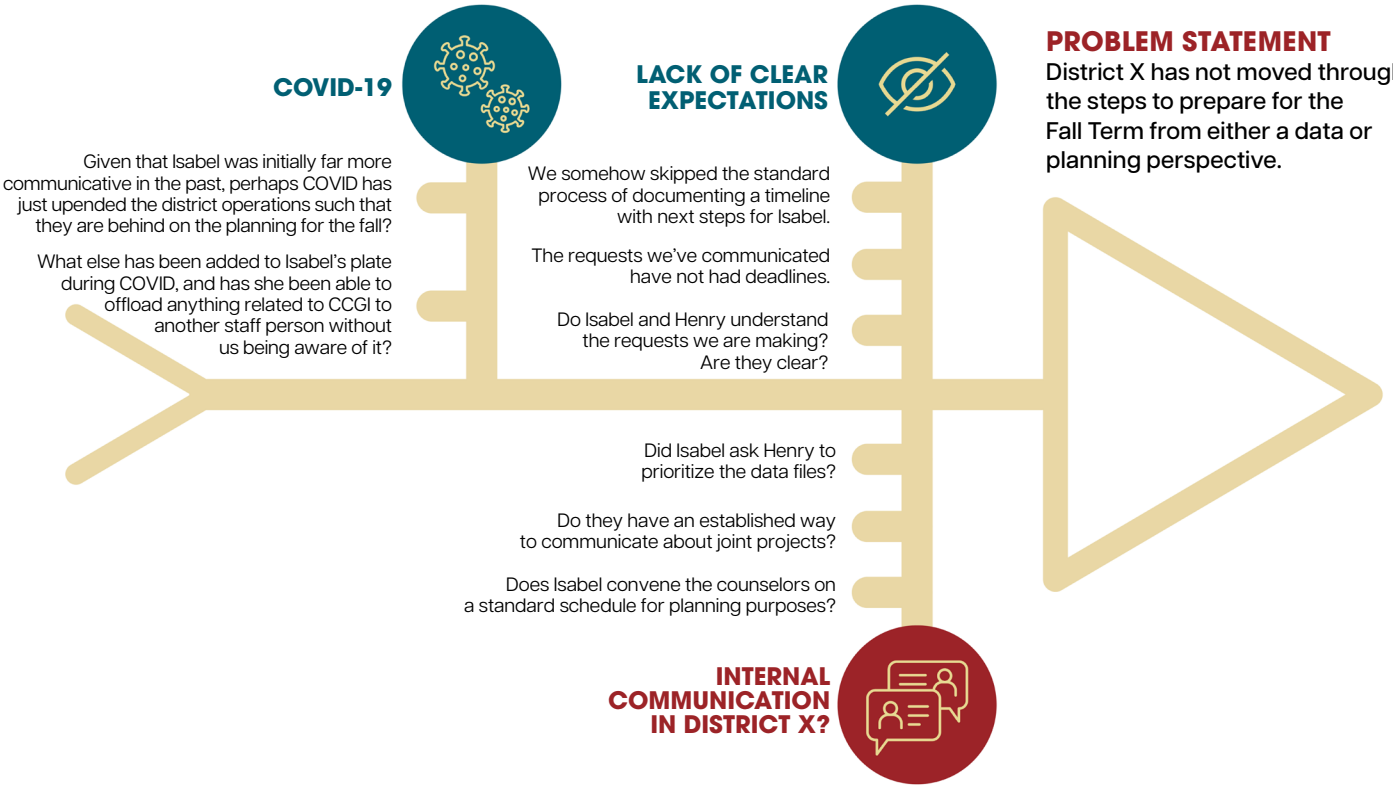
Once you've laid out a good range of possible causes, you can use the visual to explore which cause is most likely or most feasible to address and design an intervention to see if you can change the outcome.

NOTE

A fishbone diagram can be used in combination with other tools. For example, if you identify a problem that belongs at the fish head but you have a hard time identifying the causes or the sub-causes, you could use empathy interviews to gather information from a range of people and bring that back to inform the diagram.



ISHIKAWA/FISHBONE DIAGRAM EXAMPLE



PROBLEM DEFINITION TOOL:
PROCESS AND SYSTEMS MAPPING

When we discovered that students at Roosevelt had been declined admission to a CSU due to the incorrect entry of their 10th grade Spanish class in the CSU application for admission, we decided to map the system that allowed for this tragic outcome. What became clear through that mapping was that: (1) there was no way for students, families, or the educators supporting them to know why a student was declined; and (2) that making the disconnects between systems visible would help provide educators an opportunity to reconcile the situation before it impacts students. It would also provide students with the clear and accurate information that they deserve, along with the opportunity for self-advocacy.

WHAT IS A PROCESS OR SYSTEMS MAP?

This type of map is a multi-functional process for observing and then visualizing, often through diagrams, how activities, decisions, and tasks relate to one another.

USEFUL WHEN

You are trying to dissect and understand the root cause/s of a problem.

CAN BE USED WITH

Internal or external to your organization. Can be used by individuals but is better with groups as you benefit from multiple perspectives and sources of knowledge.

HOW TO APPROACH THE MAP

OBSERVE DEEPLY

Start by mapping what you know.

- What are the structures in place in this process or system?
- How do they relate to one another?
- Do they reinforce, counterbalance, or incentivize certain types of behavior?
- Where is the system or process working as designed?
- Where is it breaking down, or are the intended outcomes being derailed?

ANSWER CRITICAL QUESTIONS

1. What are the elements of the system?
2. What are the relationships between the elements?
3. How do information or processes flow as a result of those relationships?
4. What behaviors do those flows produce in the system?

DETERMINE THE ELEMENTS

In this example, we identified the following elements:

WITHIN THE SCHOOL DISTRICT

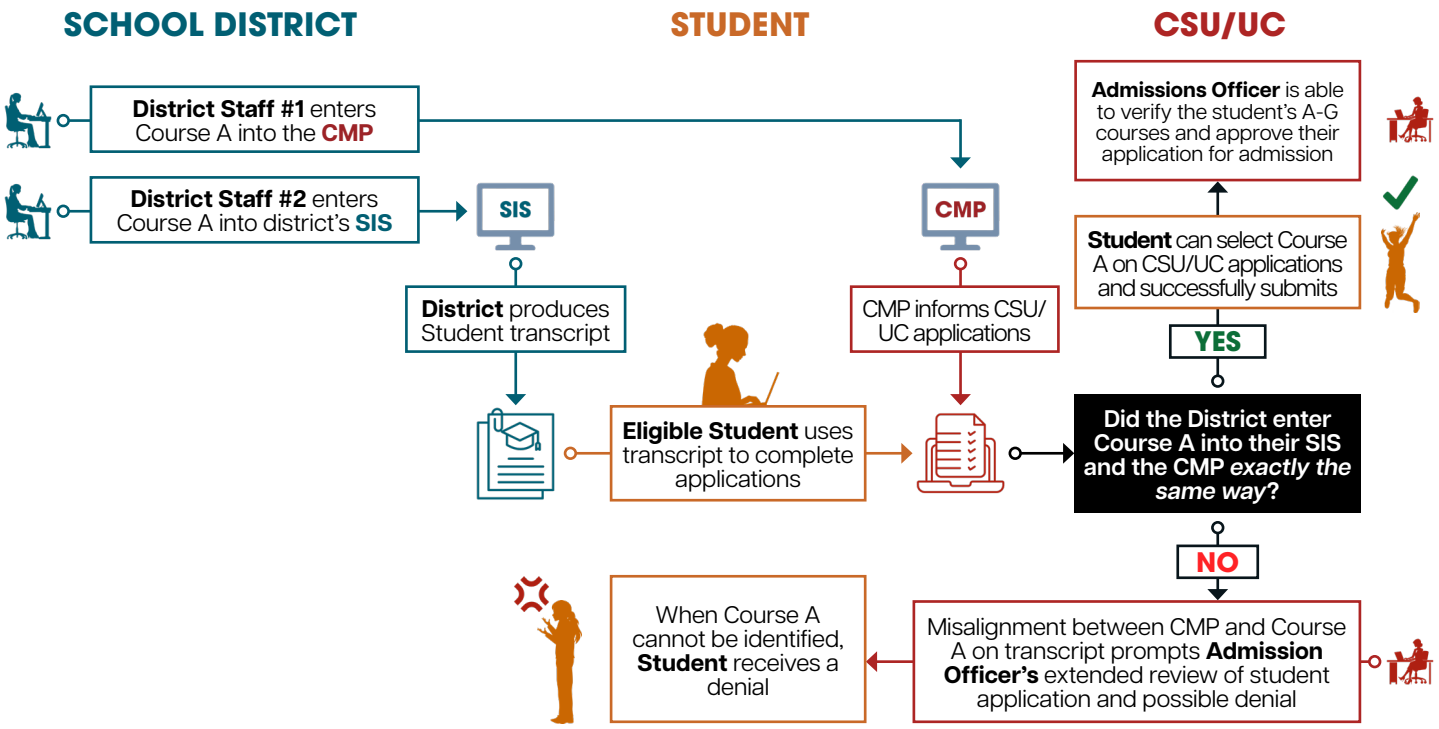
- Student
- District Staff
- SIS/Database
- Courses
- Transcript

WITHIN THE HIGHER EDUCATION ECOSYSTEM

- CMP
- Admissions Applications to UC and CSU
- Admissions Staff on Twenty-Three CSU and Nine Undergraduate UC Campuses

BUILD A MAP OF THE ORIGINAL PROCESS/SYSTEM

Map #1 represents the system in its original state, which helps to identify where there are gaps. In the map below, we detailed the processes that school districts, higher education institutions, and students go through related to students' eligibility for admission to a CSU or UC campus.



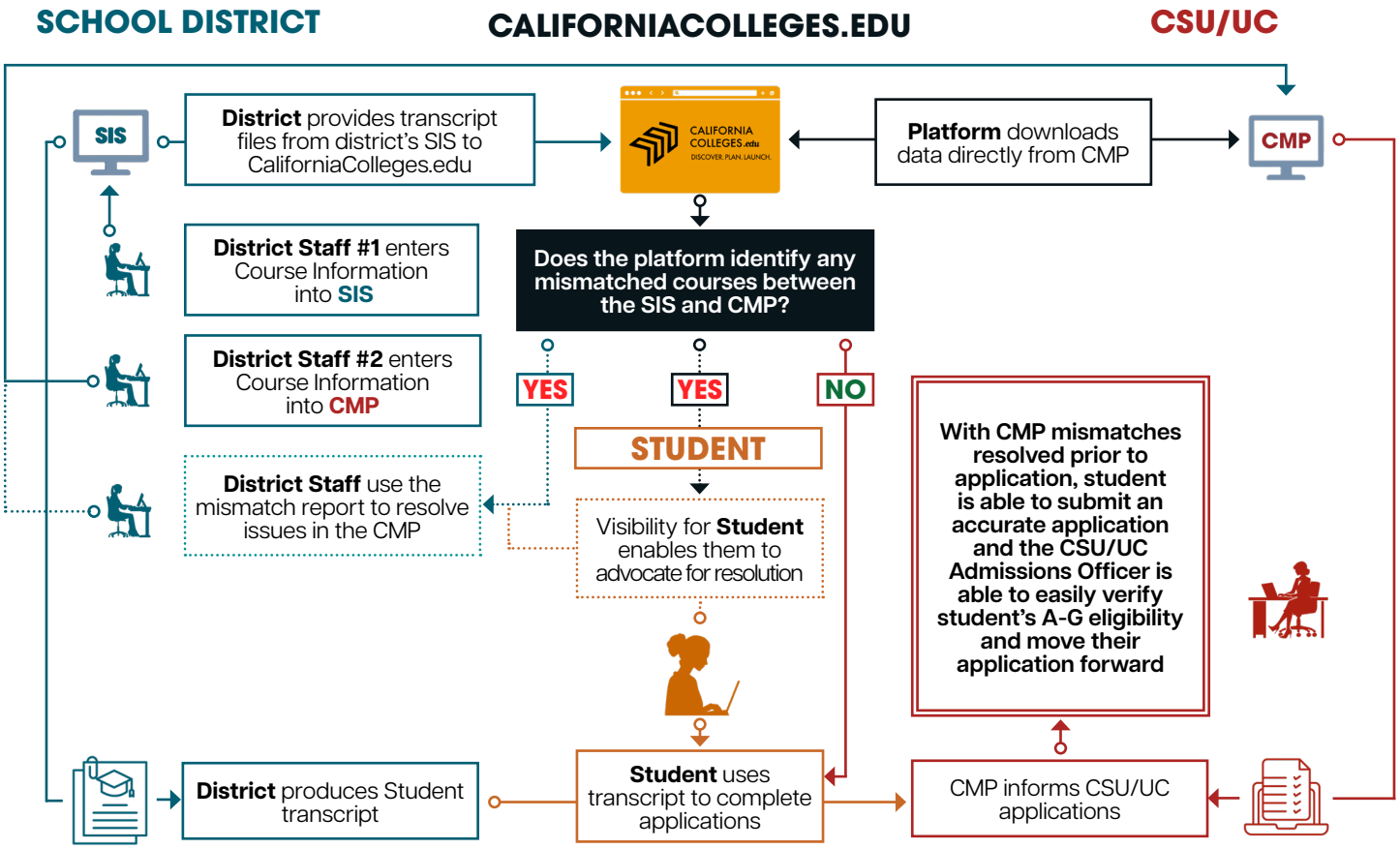
What we discovered in developing the original system map is that even one mismatched course makes it hard for both the student and the admissions officer to make sense of what they are looking at. Sometimes they figured it out, often they didn't. Everyone is hampered by this disconnect in the system. When the course(s) don't match:

- The student won't find their course(s) in the dropdown menu of the CSU and/or UC application.
- The student will often be declined admission, despite being eligible.

The way the process works, the source of the problem, is invisible to all the players.

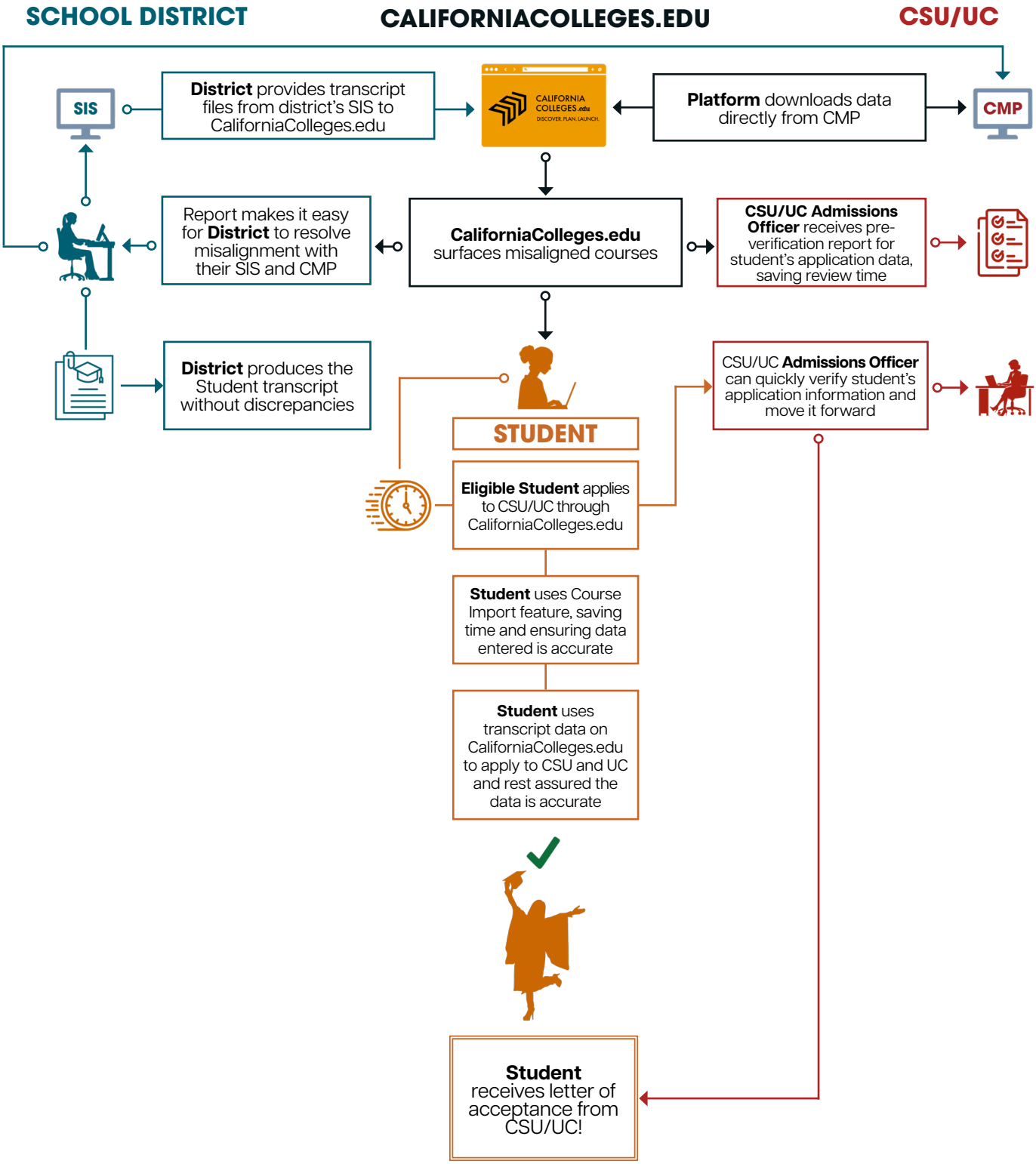
INTRODUCING A FEEDBACK LOOP

In **Map #2,** we introduce a powerful intervention in the system. This map details how the CaliforniaColleges.edu platform provides a feedback loop to school districts and students, enabling them to align the data that will otherwise cause problems for the student at the point of application.



CHANGING HOW THE SYSTEM BEHAVES

In **Map #3**, we see the other innovations our intervention makes possible, and how the system benefits students, as well as the educators supporting them.



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PROBLEM DEFINITION TOOL:
POWER MAPPING

The goal of network mapping is to understand the relationships between different people, entities, and/or structures within a group, community, or system. Add in the power dynamics of those relationships, how information flows, who has decision-making authority, and where the resources reside, and you've got yourself a power map. The goal of these activities is to identify who needs to be engaged in a problem solving process, where there might be connectivity and potential for collaboration, and who or what needs to be influenced in order to advance a solution.

WHAT IS A POWER MAP?

A **network** map visualizes how people, groups, or entities are connected to one another. A **power** map layers on who has decision-making power and what would encourage them to make a decision that aligns with your objectives.

USEFUL WHEN	You need to understand and/or share information about who needs to be "bought in" or "brought to the table" to inform and/or advance a particular solution.
CAN BE USED WITH	Individuals or groups, internal or external to the organization.

HOW TO APPROACH THE MAP

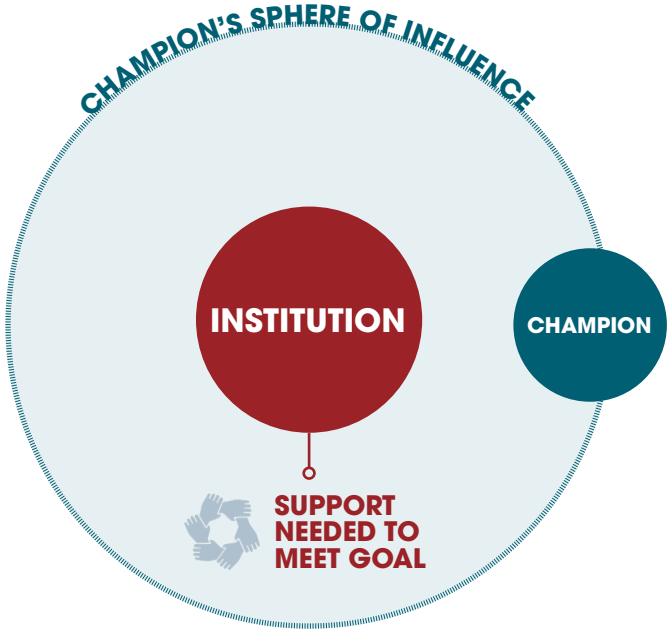
- Ask yourself, how are people or organizations connected?
- Use a white board or a mapping software to draw out the relationships between and among people/institutions.
- Do not limit the mapping to formal connections. If you understand the personal/community relationships between individuals, those are often equally powerful levers.

To turn this into a power map, you can do a couple of things:

1. **Add on layers to your network map that show:**
    - Whether each entity or individual is affected by or deeply affects an issue or situation;
    - What if any resources each individual or entity controls (expertise, decision-making authority, influence, and/or money); and/or
    - What, if any, part of an implementation process and/or infrastructure they control.

2. **Use another 2x2 like the Effort and Impact Matrix**, but this time the Y axis should be labeled **Level of Influence** and the X axis should be labeled **Level of Support**. Use the matrix to think about who can help advance different components of your work and what you need to do to engage them further (understand their specific perspective more clearly, educate, build relationships, make a specific request).

Once we had mapped the disconnect between the local district course listings and the courses as listed in the CMP, as well as surfaced all the good that could be done by introducing a feedback loop, we mapped who could bring what knowledge, control, and resources to bear on the project.



Fortunately, Nathan Evans was both highly supportive and highly influential, positioned to develop an institutional agreement with the CSU so that they would accept our data for the purposes of admission and then build an integration between their application and CaliforniaColleges.edu that would enable the seamless transfer of that data.

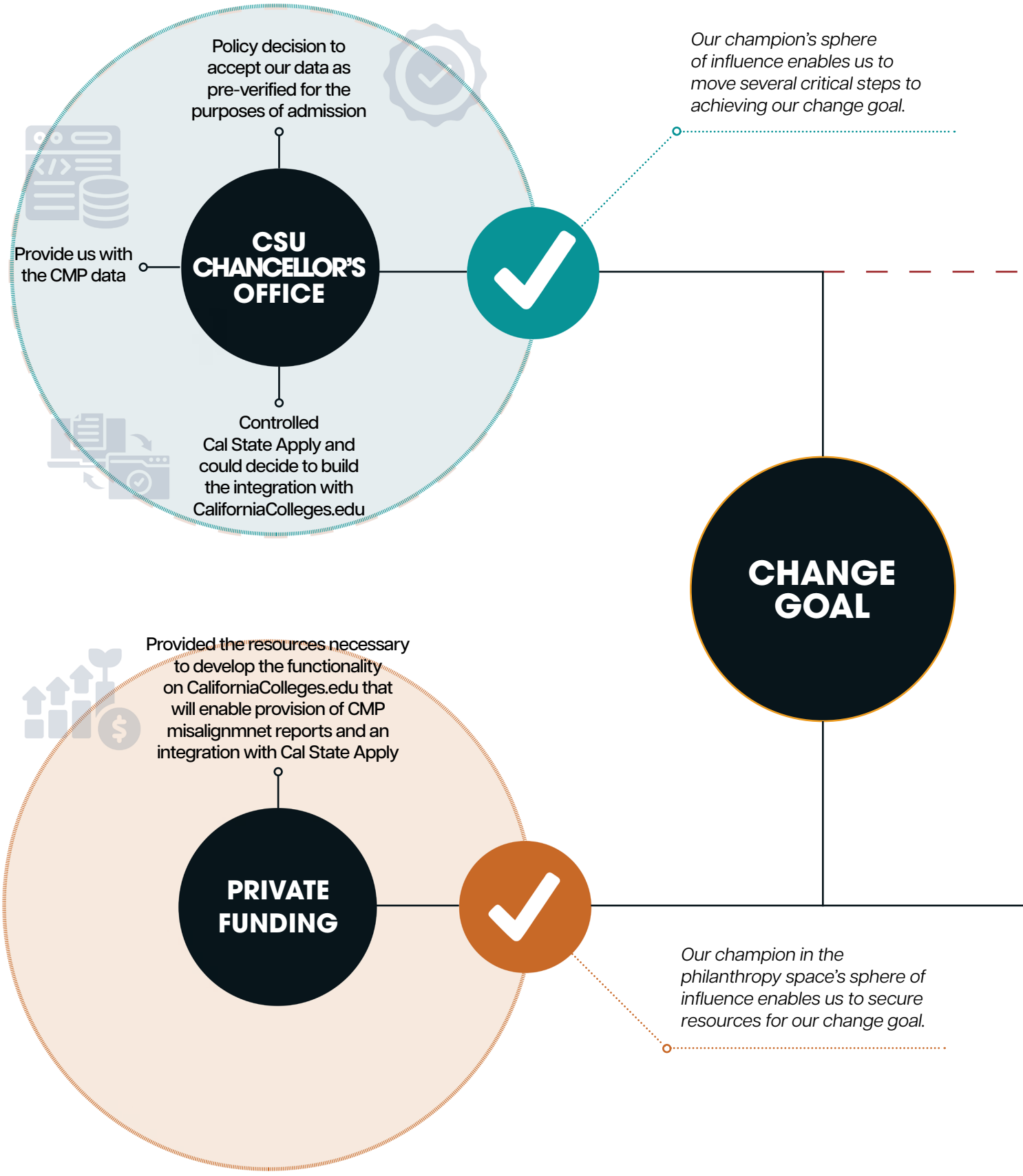
Our initial network map showed all the pieces that would need to be in place to demonstrate that such a shift could be possible. In addition to a partnership with the CSU, we needed:

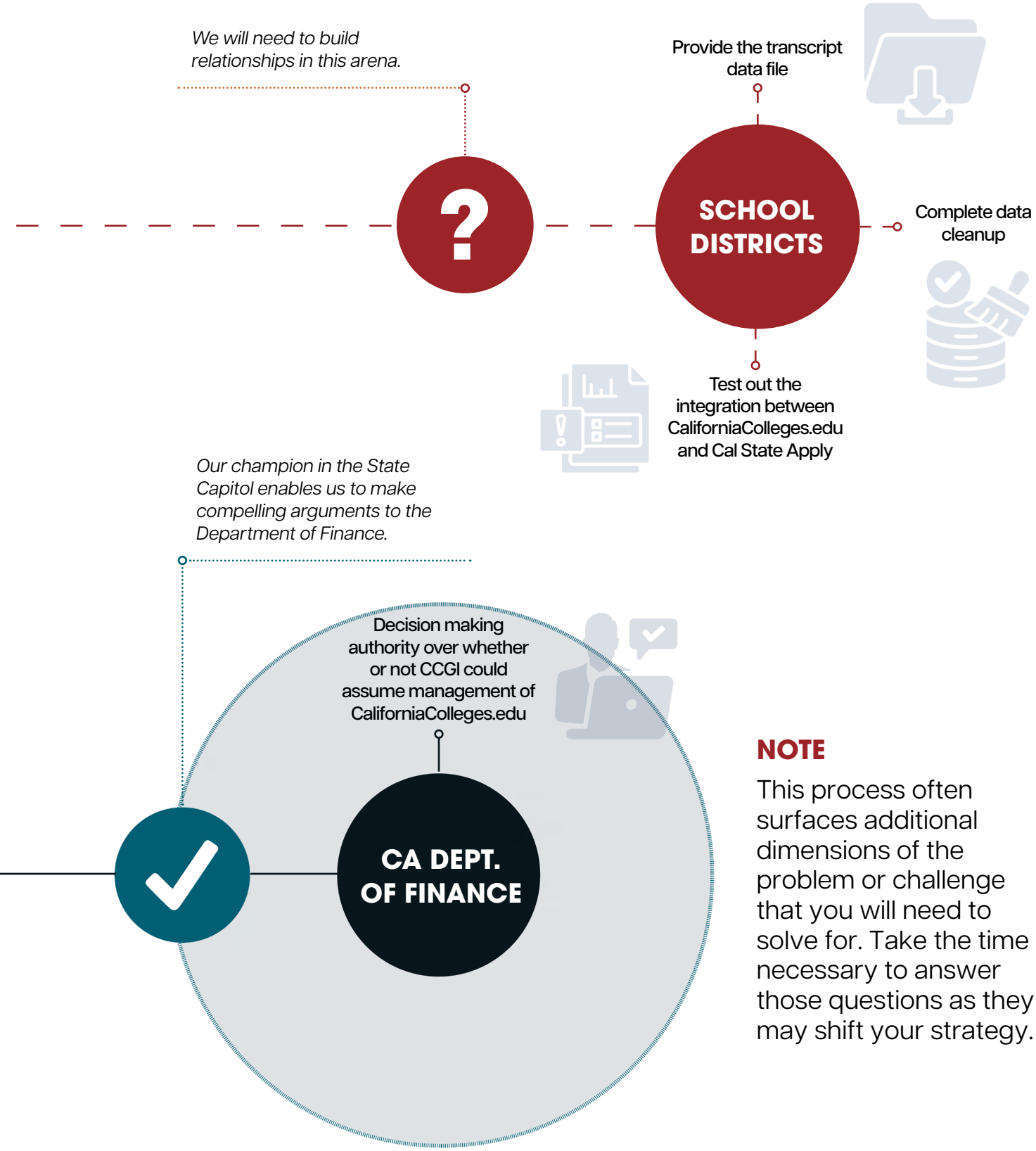
- School districts willing to participate in this experiment
- Authorization from the California Department of Finance to take over management of the CaliforniaColleges.edu platform
- Financial support from philanthropy
- Access to the back end CMP files

The power map example on the following pages attempts to both visualize the network needed to make our change goal possible and identify where we had gaps in our relational networks and influence. For each critical participant, we attempted to answer the following questions:

- Who can make the decision to do the thing we want them to do?
- Why would they do so/how do we position the ask so that they will say yes?
- How do we get to them to make the ask (who knows who, X degrees of separation)?

POWER MAP EXAMPLE





NOTE

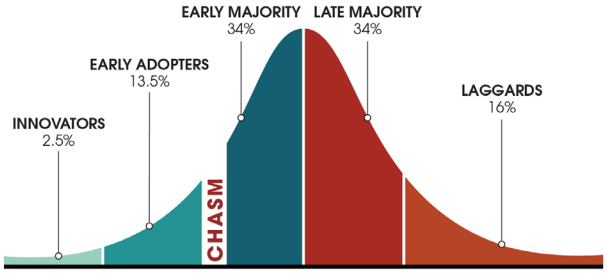
This process often surfaces additional dimensions of the problem or challenge that you will need to solve for. Take the time necessary to answer those questions as they may shift your strategy.

SCOPING SOLUTIONS

Once you have a deep understanding of the problem, you can begin to scope out potential solutions. Since my particular interest is systemic work at scale, the most relevant considerations to think about in this context are whether or not a solution is scalable and who needs to be engaged in order to advance systemic change.

DIFFUSION OF INNOVATION

If you know from the start that your goal is to provide a solution that is scalable, it's important to assess scalability and sustainability on the front end. While CCGI recognized the diffusion of innovation model as consistent with our experience, we didn't have the benefit of assessing the "innovation" for scalability upfront in a structured way. If I were doing it again, it would be useful to have this list of considerations to review, so I share it with you here:



- How do we define the system throughout which we are trying to spread the innovation?
- Will the innovation be perceived as better than previous ideas or technologies?
- How compatible is it with the values and experiences of the groups within the social system?
- How hard will it be to understand and use the innovation? Is it user-friendly? How many steps does it involve?
- What opportunities can we create for people to experiment with or practice the change/tool/technology before we try to move adoption?
- What are the results of the innovation, and how do we make those visible so that it's easy to understand the value?
- How will the innovation be introduced to the system? By whom, on what cadence, with what messaging and framing, and over what period of time?
- What is the estimated cycle of adoption?

SCOPING SOLUTIONS TOOL:
EFFORT AND IMPACT MATRIX

One example of how CCGI has used effort and impact assessments is in determining how best to prioritize new functionality on CaliforniaColleges.edu. We regularly assess for what is most impactful but still feasible, meaning there are sustainable data sets and clear policies to inform the tool, we have enough information about the problem our end users need the functionality to solve, and we have internal bandwidth (money, development capacity, skill sets, etc.) to deliver on the functionality.

We make similar determinations about all work we want to move forward in alignment with our organizational objectives, as this process helps to determine the sequence in which we tackle different pieces of the work.

WHAT IS AN EFFORT AND IMPACT MATRIX?

A visual tool for sorting options according to two criteria, in this case, effort and impact.

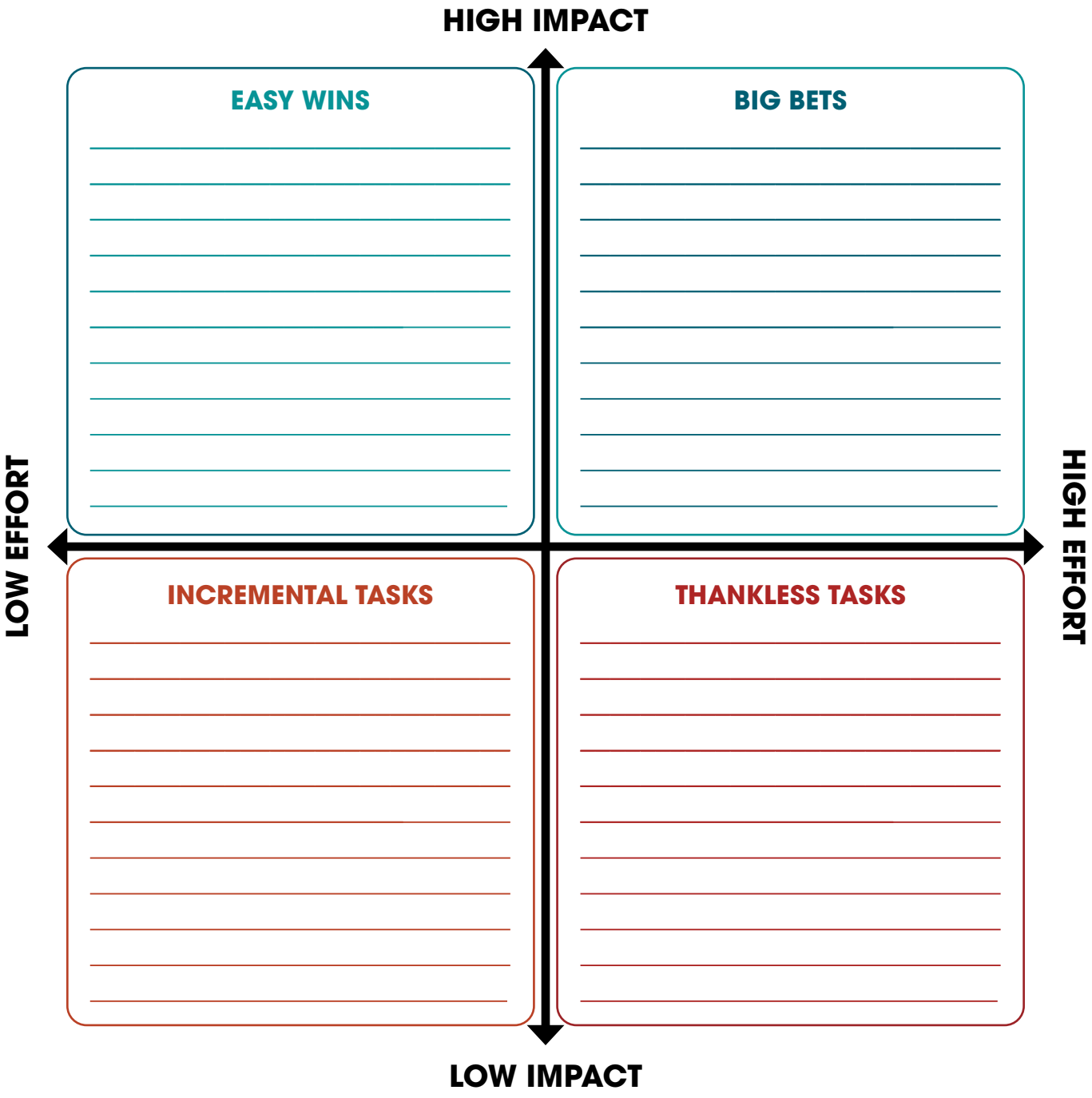
USEFUL WHEN	To prioritize work or options for how to approach a problem.
CAN BE USED WITH	Individuals or groups, internal and external to the organization.

HOW TO APPROACH THE MATRIX

1. Have the group generate a full list of options related to the topic at hand. Generally, this is a list of options for how to approach a problem or a list of work that needs to be done and prioritized. These options can be listed on individual sticky notes or written on a virtual or physical whiteboard.
2. Review the items one by one, and for each, discuss the level of effort involved and the likely level of impact if successful.
3. Once the items are sorted into the four quadrants, it's easier to determine what is and is not worth the investment of time, energy, and resources at a given juncture.

Generally speaking, you will throw out the low impact/high effort ideas, deprioritize low effort but low impact ideas, and focus on the high impact quadrants. If something is high impact and low effort, that's a no-brainer. High effort, high impact items usually require the most discussion.

EFFORT AND IMPACT MATRIX TEMPLATE



SCOPING SOLUTIONS TOOL:
GRADIENTS OF AGREEMENT

One example of where CCGI has used gradients of agreement is during discussions about approaches to managing student data and leveraging it to streamline the college application process. Beyond what is feasible, these discussions often raised considerations about data privacy and security and how much risk was tolerable in our efforts to streamline processes for students. Using the gradients of agreement, we were able to get clear about where each of us stood on the continuum of risk tolerance and surface all considerations about the value vs. risk of a particular decision, allowing people to visibly raise objections or concerns before making a final decision.

WHAT ARE THE GRADIENTS OF AGREEMENT?

Gradients of agreement is a tool that helps to visualize where individual members of a group fall on the scale of support or disagreement with a given proposal or decision. It helps to make visually clear and explicit consensus or lack thereof and to surface nuances, reservations, and the thinking behind them.

USEFUL WHEN	You want to assess for and document consensus or lack thereof.
CAN BE USED WITH	Groups, both internally and externally.

HOW TO APPROACH THE GRADIENTS

1. In a live or virtual setting, pause prior to confirming a decision to assess how much consensus exists (or doesn't) within the group.
2. When a proposal is made, have each participant note where they stand (literally or figuratively) on the number line.
3. For any score less than a two, it's helpful to have participants explain their score. This helps to surface reservations, clarify where there needs to be more discussion or clarifications provided, and specifically who is "bought in" or not to each decision.
4. The scale can be adjusted based on context. If, for example, no one member should be able to veto the proposal, remove #8 from the scale when it's introduced.

GRADIENTS OF AGREEMENT EXAMPLE

The example below spans across this page and the next.


MEAGER SUPPORT
STRONG OBJECTION
5
6
7
8
MORE DISCUSSION NEEDED
"I don't understand the issues well enough yet."
DON'T LIKE BUT WILL SUPPORT
"It's not great, but I don't want to hold up the group."
SERIOUS DISAGREEMENT
"I'm not on board with this – don't count on me."
VETO
"I block this proposal."

IMPLEMENTING CHANGE

Even when the structures are in place to incentivize change, most people find the process of making change challenging. CCGI has found a disciplined approach is essential and that it's important to be attentive to both the process in place and the underlying mental model and/or emotional factors in play.

Focusing on implementation enables us to look at how the steps we are currently taking lead to one outcome and how slight changes in those steps can lead to another outcome. It can lead us to focus on details that, though consequential, are easy to forget, and it can help us to understand what is getting in our way of making changes we are highly motivated to make.

Specific tools included in this section include **Plan/Do/Study/Act cycles** and **Immunity to Change**. But it's also worth considering the power of a good checklist.

CHECKLISTS

I'm a huge fan of Atul Gawande's book *The Checklist Manifesto*.[31] The book is about how simple checklists can prevent major mistakes in complex settings. Gawande is an endocrinologist and a surgeon, so he was looking for ways to reduce avoidable mistakes that lead to things like rampant infection rates in hospital settings. He drew from other high stakes environments like flight checklists used in airplane cockpits to engineering checklists for high-rise building construction. Places where failure could be disastrous.

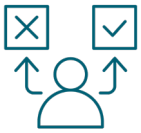
As an organization managing large quantities of sensitive data, CCGI has used checklists internally to ensure that security measures are clear and replicable. In school districts, which can often feel like a hospital emergency room, and other large systems, staff are always appreciative of a clearly articulated set of steps they need to take to accomplish whatever it is they are being asked to do. This isn't just about compliance. Checklists include who needs to be made aware of what at different steps in a process, which can help to close communication gaps.

[31] Atul Gawande, *The Checklist Manifesto* (Profile Books, 2011).

HOW TO MAKE A GOOD CHECKLIST

A good checklist lays out a specific sequence of actions or steps so that each item can be visually checked off upon completion. According to Gawande, four steps in developing a good checklist are to:

Set clear objectives



Define a "pause point" to initiate a checklist

Choose a "Do-Confirm" or "Read-Do" approach

Specify the person responsible for initiating the checklist

A do-confirm approach is used mostly after a set of tasks are completed so it requires the person/people completing the tasks to do it mostly from memory and then asks them to pause and check if everything on the list was done. It ensures that nothing was forgotten after the fact. A read-do approach is used to guide tasks as they are being completed. The person/people completing the tasks reads each one from the list, completes it, and marks it as done, one by one, in a specific order. This provides more prescriptive guidance, reducing the likelihood of errors or omissions and ensuring standardization in the approach.

So why would one choose a do-confirm approach? In lower stakes environments, a do-confirm list may be more than adequate and allow for a more natural rhythm or cadence to the task completion. It also provides people guardrails, while still allowing for some autonomy. It empowers teams to rely on their judgment and then verify at key points in a process, rather than following a step-by-step protocol.[32] As Gawande explains, "under conditions of true complexity—where the knowledge required exceeds that of any individual and unpredictability reigns—efforts to dictate every step from the center will fail. People need room to act and adapt. Yet, they cannot succeed as isolated individuals, either—that is anarchy. Instead, they require a seemingly contradictory mix of freedom

[32] While both approaches have their merits, the autonomy afforded by a do-confirm list is more aligned to the kinds of paradoxes described by Linda Hill. That room for autonomy provides the space where innovation can occur. But sometimes innovation is less of a priority than consistent and replicable processes.

and expectation—expectation to coordinate, for example, and also to measure progress toward a common goal."[33]

Some guidelines for developing your checklist:

1. Limit your checklist to between 5 and 9 items
2. Focus on what is vital, meaning things that, if overlooked, will cause major errors
3. Use simple words and language
4. Keep it to a single page
5. Make the design of the checklist simple
6. Include not just the things that people need to do but also what needs to be communicated to whom
7. For each step include the what, who, when, and how

But what do you do when you don't know the best approach to implementing a process? That's where cycles of improvement come to play.

[33] Gawande, *The Checklist Manifesto,* 79.

IMPLEMENTING CHANGE TOOL:
PLAN-DO-STUDY-ACT/IMPROVEMENT CYCLES

Improvement cycles are a systematic process for learning and continual improvement of a product, process, or service. One of the many ways that CCGI has used the Plan-Do-Study-Act (PDSA)/Improvement Cycles was in the process of distributing leadership across entire internal teams instead of keeping it centered with the team leader.

One team leader started with a hypothesis that intentionally creating opportunities for others to lead key pieces of work would make space for someone else on the team to step forward. At first, she stepped back from leadership of every project, leaving space for others to step forward. After testing that in a few low stakes instances, it became clear that people didn't know what to do in that context. There was just a vacuum of leadership.

She then tested out volunteering people to lead specific projects for which they had the right subject matter expertise, but the results were less than stellar. People lacked confidence about their knowledge and weren't really sure how to structure projects in ways that helped lead their team through to completion. As a result, rather than stepping back, the team lead was called upon even more than before, to both validate approaches and at times, revise failed strategies. This surfaced two different needs: first, the need to provide support for how to lead projects—not just the basics of project management, but how to support strategic thinking and a holistic review of all considerations; and second, opportunities for people to practice, with coaching and support.

She then developed materials to support that development among other members of her team and tested out those materials with coaching. That led to refinements in the materials and a deeper understanding of what kinds of support people needed to step into project leadership.

We now have significantly more distributed leadership of projects and a common framework across the organization for how we manage projects of different sizes and scopes, which gets iterated as we learn what is and is not working for the team.

WHAT IS ARE PDSA/IMPROVEMENT CYCLES?

PDSA/Improvement Cycles refer to a systematic process for learning and continual improvement of a product, process, or service.

USEFUL WHEN	You need to test out a possible improvement before implementing more widely.
CAN BE USED WITH	Individuals or groups, internally or externally.

HOW TO APPROACH THE CYCLES

This is an iterative process for testing a potential change before implementing at scale. It's a four-step cycle:

PLAN

What's the objective? How will we know if the test is successful? Who needs to be involved in the change? What will they do? When, where, and how? What is our hypothesis about what will result from the change?

- Keep the test small and completely within your control.
- Be as specific as possible.

DO

Test it out and collect data about what happened.

STUDY

Reflect on your findings. Adopt, adapt, or abandon. Does this seem promising? Or shall we abandon? If we plan to keep going, what needs to be adapted/adjusted/refined to make it work better.

ACT

Try again, or if the test was successful, figure out next steps to test out how to implement that change more broadly (spread to another person, replicate in another setting or at another point in a process).

Every improvement requires change, but not all changes lead to improvement. For a good example, click the link below or scan the QR code on the left to watch:

PDSA (Plan Do Study Act) cycles // Testing BEFORE Implementing

IMPLEMENTING CHANGE TOOL:
IMMUNITY TO CHANGE MODEL

This framework and the associated tools are relatively new to me. Developed by Harvard University psychology professors Lisa Lahey and Robert Kegan, the model provides two simple matrices that can be used to facilitate self-reflection and iterative progress on goals. It helps to get underneath why people don't make changes that they know they need to make and can even understand the value of making. I certainly can't improve upon an example provided by the authors themselves, which is that only 1 in 7 people who have heart disease take the steps necessary to improve their condition. Here you have a situation that is life or death, so the motivation should be strong. The steps they need to take are clear. And yet, no change is made.

I was recently supporting a colleague who was promoting into greater levels of leadership, and I asked them what their greatest fear was about this transition. Their response was, "I don't want to ask too many questions." Since questioning is a core skill set of leadership, this intrigued me, and I asked if we could test out the immunity to change model to get underneath this fear and figure out how to overcome it. The goal for change was for him to ask more questions.

This section will go over how he applied the model in this context.

WHAT IS THE IMMUNITY TO CHANGE MODEL?

The Immunity to Change model explores the idea that the mind, like the body, has an immune system, an invisible system to protect us and keep us out of trouble. That system's goal is to maintain the status quo, making it a barrier to change.

- The Immunity X-Ray helps to identify the underlying feelings and assumptions that are likely preventing change.
- The Assumption Testing Table helps to identify the steps an individual can test out to "disconfirm" those assumptions and thereby eliminate a barrier to change.

USEFUL WHEN	We've stated an individual goal to make a behavioral change but are not making it.
CAN BE USED WITH	Individuals, both internally and externally.

HOW TO APPROACH THE MODEL

Identify a change that you want to make and where the conditions for doing so are favorable (i.e., you understand what change needs to be made and the benefits that will result from making that change).

1. Use the Immunity X-Ray to **identify the key assumptions** that are holding you back.
2. Use the **Assumption Testing Table** to identify how you will test a key assumption and predict what you might learn.
3. **Test out your assumptions**—start by using the lowest stakes approach you can identify.
4. **Reflect on your findings** and determine if further testing is needed.

Across the next four pages, you will find an example of a completed Immunity X-Ray and Assumption Testing Table. You can also copy/paste the web addresses provided or scan the QR codes below to download empty templates to use for your own implementation planning.

DOWNLOAD MODEL TEMPLATES

Immunity X-Ray Template

Assumption Testing Table Template

IMMUNITY X-RAY EXAMPLE

The example below spans across this page and the next.

	CHANGE GOAL	WHAT AM I DOING/NOT DOING?
INSTRUCTIONS	• What do I want to get better at? How important is it to me? • Why is it important? 1 (not important) to 5 (very important)	What am I doing that is counter productive?
NOTES	The goal should be about a behavior, not the expected outcome of that behavior. You want a 4-5 or it's not worth pursuing.	
EXAMPLES	• I want to speak out even when I'm not feeling fully confident. • I want to trust my instincts. • Level of importance = 4	• Not speaking out • Not trusting my gut • Applying pressure to myself to come up with answers or solutions.

COMPETING PRIORITIES	ASSUMPTIONS
What are the fears/worries underlying what I'm actually doing or not doing?	What are the assumptions in my head, underlying the fears/worries in the prior column?
I want to feel adequate, needed, and accepted.	• I assume knowing is better than asking questions. • I assume I continuously have to prove myself.

ASSUMPTION TESTING TABLE EXAMPLE

The example below spans across this page and the next.

	ASSUMPTION I WANT TO TEST	WHAT I WILL DO
INSTRUCTIONS	Choose one of your big assumptions from your Immunity to Change X-Ray and enter it here.	Write down what you are going to do. Be safe, small, and specific!

NOTES	The big assumption needs to be:
	• One you are genuinely open to exploring
	• Testable:
	  ▪ It can be safely tested
	  ▪ It is a single assumption (does not have multiple parts to it)
		What could you find out that would let you know if/when your big assumption is not 100% accurate? What could you do to see if you can uncover or generate that information? Safe actions.
		• Read something that counters your big assumptions.
		• Interview someone whose behavior counters your big assumption.
		• Conduct a thought experiment on a time you did something that countered your big assumption and nothing terrible happened.

EXAMPLES	I assume that demonstrating what I know is more important than asking questions.	Interview current and former supervisors to learn about how they experienced me when I was asking questions. *During my next four supervisory meetings with X, I will be more conversational, and attempt to build rapport/relationship. Then in my fifth supervisory meeting, I will raise up an issue that I want them to be attentive to in their own performance and ask them what they think is contributing to their approach. I will listen and ask probing questions. I will empathize and help brainstorm with them on what might be an alternative approach.*

DATA I WILL COLLECT	WHAT MIGHT I LEARN
Write down what you will be paying attention to (during and possibly after your experiment) that will help you learn.	Write down what you think you might learn about your big assumption.
• Some of your data may be external (what happens in real time when you conduct your experiment) • Some of it will be internal (the feelings and thoughts that take place within you) • Is there anyone else who can share their response or observations?	You are looking to learn: • With whom or in what situations your big assumption is not accurate? • How you may have agency in generating disconfirming data? • Is it possible to experience an upside if it turns out your big assumption is inaccurate?
During those discussions I will be paying attention to their verbally stated opinions and body language.	I might find out that asking questions is valuable, and that I having the answer isn't always the most important thing in a leadership role.

FINAL NOTES

You may have a different set of tools you prefer to work with. I offer these because I often wish we were even more systematic about using them. The most important thing is to take a deliberate approach. Being attentive to how you work can help you do several things. It helps to ensure a disciplined and therefore more systematic approach to each phase of work and set of activities, be it problem definition, assessment of a solution, decision-making, or implementation. When used in groups, it helps ensure a more fully informed decision or design and advance shared understanding among the participants.

APPENDIX C:
RESEARCH LITERATURE

SYSTEMATIC DEVELOPMENT OF COLLEGE KNOWLEDGE AND POSTSECONDARY EDUCATIONAL PLANNING

IMPACTS OF A COLLEGE-GOING CULTURE ON POSTSECONDARY ENROLLMENT

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APPENDIX D:
THE A-G MISMATCH PROBLEM

You've already seen one impact of A-G course mismatch, depicted in the exercise **Where Students and their Helpers Get Stuck (pp. 24-26)**. Though few people need the level of understanding I will lay out in this appendix, I provide it as a window into the complexity of this work, and because it's illustrative of how much depth of understanding is required in order to identify potential leverage points. We certainly didn't know all of this when we began this work, but the Roosevelt High School students inspired us to dig in and really understand what could have possibly led to such an unjust outcome for them. That provided enough knowledge of the problem to formulate potential solutions and then we've iterated over the years as we've encountered more of the complexity through experimentation.

WHAT IS A-G?

The A-G subject area requirements are a set of courses that California public universities, the CSU and UC, require high school students to complete in order to meet baseline eligibility for admission.[34] It consists of fifteen year-long courses. Each letter corresponds to a subject area. Area A, for example, is history and social science. Area B is English. Area C is mathematics, and so on.

HOW IS A-G COURSEWORK DESIGNATED AND MANAGED?

POLICY AND EVALUATION

The requirements for A-G coursework are set by a faculty committee within the UC called the Board of Admissions and Relations with Schools. The approval of courses as sufficiently rigorous to meet the requirements of an A-G subject area is determined through faculty review of course syllabi submitted by the school districts that serve 9th-12th grade students. This is a curricular function. Once a course is approved, it is the district's responsibility to enter it into a database called the CMP, which is also managed by the UC Office of the President. This is a data management function.

DATA AND MANAGEMENT

Though the courses in the CMP should be updated every year to indicate which courses

[34] This is significantly different than high school graduation requirements, which are determined locally.

are being offered at which high schools, there is a lot of variability in how and how often districts enter the data. There is also tremendous variation in who does the actual work of entering these courses. It can happen centrally at the district office or high school by high school, or both. The work itself can be completed by pretty much anyone; a counselor, a registrar, a principal, or the person staffing the front desk. Sometimes more than one person is involved in the data entry itself. These people completing the data entry have a widely variable understanding of A-G. There is virtually no formal training for course entry from UCOP, so people charged with doing this work do so according to locally developed protocol or custom.

COMPLEXITY IN HIGH SCHOOL COURSEWORK

The landscape of high school coursework is far more complex than one might imagine. Courses can be regular (grades earned based on a four-point scale) or honors/ Advanced Placement and International Baccalaureate courses (grades earned based on a five-point scale). There are Gifted and Talented or accelerated courses that don't carry an honors designation. There are a variety of term types from the standard—semesters, trimesters, quarters—to the more unusual configurations like hex semesters. Hex semesters are accepted for K-12 reporting purposes, but not by the higher education systems. There are partial credits, a phenomenon that became more prevalent during and following COVID, in which, for example, a student might be issued three units of a five-unit course, because their school term was cut short either by personal circumstances (like foster youth being transferred to a new placement), or due to a broader phenomenon like a natural disaster or pandemic.

Student mobility, most prevalent in the case of foster, unhoused, and migrant youth, complicates matters further. Let's say, for example, that a student attends four high schools in four years. Each time that they transfer districts, the registrar has to determine how to record their coursework from previous districts. Depending upon the district's local policies about that, and what fields are available in their local SIS to store relevant data points, the practices vary dramatically. Sometimes a student's coursework is translated into an equivalent course offered within the receiving district as "eyeballed" by a registrar or counselor. Others have their coursework recorded as having been completed in a previous district. In short, student transcripts are anything but predictable and standard.

Ironically, the one person or division of a school district that usually doesn't manage the CMP course list is the Educational Data Management Division. These are the folks who manage the districts' SISs where the same courses are listed for use within the district for planning purposes and on students' transcripts. The reason that they are generally not involved is that data management is separate from curriculum. The content of A-G coursework and how that informs student guidance is typically handled on the curriculum/educational services side of the house. And, as is too often the case, individuals and teams doing different kinds of work, are prone to operate in silos.

HOW IS CMP DATA USED?

Once in the CMP, the courses listed are used for two purposes in the college admissions process. First, they are pulled into the dropdown menus on both the CSU and UC applications for an applicant's use in indicating which courses they have completed (see the graphic on pp. 25-26 for a reminder of how confusing this can be when the course is listed differently in the local SIS and therefore on the student's transcript from their school district than it is in the CMP). It is also used by admissions offices to verify the courses on a student's application for admission as well as their final high school transcript, so the same confusion students experience on the front end, admissions staff experience on the back end. This can lead to a course not being credited. Sometimes that one course that can't be found leads to declination, like it did for the students at Roosevelt High School.

There are additional implications as well. We often see courses that are listed locally as honors but do not show up as carrying the associated five-point scale for the calculation of grade point average (GPA) in the CMP, which leaves some students with a Cal State, UC, or Cal Grant GPA (yes, California has at least five different kinds of GPA calculations each with different rule sets), that is significantly lower than they have understood based upon the grades as they are calculated locally.

There are other admissions related policies, like the UC's Eligibility in the Local Context (ELC) or Local Guarantee. These are policies designed to level the playing field by looking at students' high school performance in the context of what was available to them. To qualify for the benefits of ELC, you have to be in the top 9% of your class based upon your GPA in "UC Approved" coursework completed in the 10th and 11th grades as benchmarked against historical GPA trends at your high school. All of this presumes an accurate accounting of which courses at the high school are registered as A-G and whether they carry a four- or-five-point designation for GPA calculation. As should be clear by now, the underlying data is not reliable.

THE POWER OF A SINGLE FEEDBACK LOOP (PLUS TECHNICAL ASSISTANCE)

Historically, no one in the district, not students, families or educators, had visibility into whether or not the courses were properly entered in the CMP and therefore verifiable by admission staff from the colleges. They were flying blind. But based upon the experience of students at Roosevelt High School, and everything we learned thereafter about why those students' 10th grade Spanish class wasn't credited, it became clear pretty quickly that a feedback loop from CMP to districts was a potential fix.

HOW DOES THE FEEDBACK LOOP WORK?

The first thing that happens after school districts sign a data-sharing agreement with CCGI is that they upload a data file. That file specifies which courses each student took and is taking, and which are logged by the district as having the A-G designation. That information is loaded into CaliforniaColleges.edu, which also gets a nightly download of the CMP files that indicate which courses at each high school in California are registered as A-G. Those two files are compared against one another, which surfaces discrepancies between them. Those discrepancies are provided back to districts with a clear indication of how many students each discrepancy is impacting, and then CCGI's Technical Assistance Team gets to work, helping the CMP list manager(s) in each individual district to resolve the identified discrepancies.

Sometimes, that's as simple as associating a course to a particular school year from which it had been accidentally omitted. Sometimes, it's about associating it with a high school that had been accidentally omitted. Sometimes, it's about entering a title for the course that aligns with what students see on their transcripts. Occasionally, it's about surfacing bigger oversights, like that a course was never actually registered in the first place.

Data alignment, like everything else CCGI does, is a combination of our three strategies: provide the infrastructure that enables a feedback loop to surface the discrepancies; provide support for the changes in practice that CMP course list managers need to make to ensure students get credit for the coursework they've completed; and, in case that objective wasn't sufficiently motivating to bump the work of reconciling discrepancies up the to do list, advocate for Education Code that requires districts to maintain a 90% threshold of A-G course alignment between their local SIS and the CMP.

I should note that this process of course reconciliation isn't terribly time consuming. It's mostly about getting people to understand the problem, recognize its impact, and then carve out the dedicated brain space to do the work. Once the data is aligned however, it makes the process easier for everyone, from the student, the adults helping them, to the colleges receiving accurate data to support their decision-making.

APPENDIX E:
PARTNERSHIPS AMONG NONPROFIT, PUBLIC SECTOR, AND PHILANTHROPIC ORGANIZATIONS

As I stated in the section on Prerequisites for Achieving Innovation at Scale, CCGI would never have achieved scale had it not been a "public-nonprofit partnership."[35] Government is the only way to accomplish universality. Yes, Amazon and Google feel ubiquitous, but they aren't universal, and universality is a precursor to equity. You can provide solutions on an opt-in basis, but when you do, the likelihood that the people who need them most will find them and make use of them is low. Our model has always been to work through compulsory K-12 education, precisely because it was the only way to reach nearly all students.[36]

If universality is your ultimate goal, you can't make the role of the public sector an afterthought. You have to build the value that government provides into the design of the work. One of the only examples of relatively universal infrastructure that was initially developed outside of government, but scaled and sustained through a partnership between the government and philanthropy is the library system. Libraries as we know them today seek to democratize access to knowledge, but they originated as private subscription-based services. In the mid-1800s the idea of tax-supported libraries began to gain traction. Then in the late 1800s steel magnate Andrew Carnegie's philanthropic foundation funded the construction of over 1,600 public library buildings across the United States. The communities where those libraries were situated had to provide the land and commit to the ongoing funding for staff and maintenance, but the one time costs of getting the libraries built was shouldered by the Carnegie Foundation.

This is a good example of how philanthropy and government can play to their strengths, and isn't terribly dissimilar from CCGI's trajectory. CaliforniaColleges.edu was initiated through an "intersegmental" budget proposal in 1998, in which the California Department of Education, CCC, CSU, UC, and the Association of Independent California Colleges and Universities jointly proposed the development of a technology platform that would provide a "common front door to higher education, and an electronic transcript platform." When we came along, the platform was under-resourced and had not fulfilled its original intent. But the need was agreed upon and the budget line item already in place to support core operation of the platform itself. Districts were asked to pay a fee that was subsidized by philanthropy which helped us to demonstrate that the districts themselves saw the value This is different than introducing something developed in the private sector and asking the public sector to sustain it. It's worth looking at if and where the need you have identified through your work is reflected in public sector agendas.

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[35] California Education Code, § 10861(d).

[36] Obviously, students attending private schools are by definition not reached through the public school system, so that creates a constraint on universality.

Is the issue you are trying to solve something that they have already identified? Has the solution you are proposing been considered or attempted previously? How can you build a partnership in which everyone brings their strengths to the table and helps fill one another's gaps?

In our context, philanthropy agreed to invest in the rebuilding of an existing public infrastructure (CaliforniaColleges.edu) when CCGI took over management of the platform in 2013. It additionally supported our ability to test out different portions of our strategy to integrate the platform into different components of the college-going process (college knowledge development, streamlining of applications, and sharing of data), until we could prove the added value of those pieces of our work. In more recent years, foundation partners have helped us to innovate quickly when the public sector budget process moves too slowly. These are the kinds of things that philanthropy can do when government cannot.

WHO BRINGS WHAT TO THE TABLE?

PUBLIC SECTOR

In addition to being uniquely positioned to help achieve universal scale, the public sector is also the locus of policy making control, which brings immediate legitimacy to any endeavor and can place requirements upon stakeholders when they are unwilling to come to the table. Also, when things are codified, they are more likely to be sustained, and that sustainability is more likely to occur through large public budgets than private philanthropy. The key question here is whether the function that is being fulfilled through the partnership is a public function. Some criteria for that would include whether or not it is fulfilling a public interest or creating public value; whether it's mandated or intended to be universal.

PHILANTHROPY

Where philanthropy can be most helpful is in the research and development phases of systemic work. They can invest in pilot projects or proof points. They can be more agile and flexible in their funding models. They have greater tolerance for risk. They can convene people across sectors and/or institutions.

NONPROFIT/CIVIL SOCIETY ORGANIZATIONS

Private/nonprofit organizations have more flexibility to innovate. Sometimes they bring technical and/or delivery capacity, and often they have deep knowledge about a particular problem and deep relationships and legitimacy within the communities that are impacted. They are well positioned to organize and engage people who are most directly impacted by the problem they are trying to solve.

WHAT CAN BE DONE WHEN ALL OF THESE PARTIES ARE COLLABORATING?

All of these entities and the individuals within them have influence that can be brought to bear on a shared project. Working together they can break down silos. They can also meet one another's needs. In CCGI's case, philanthropy was excited to invest in something that had public sector support from the start because they understood that increased the likelihood that some measure of scale could be achieved. Having philanthropy involved from the beginning helped the public sector to position our work as a pilot that was leveraging public infrastructure (CaliforniaColleges.edu) rather than a pilot of their making. This provided them some measure of cover in case the project had crashed and burned.

WHAT IS REQUIRED TO WORK TOGETHER?

In order to work productively together, partnering entities and individuals should be in agreement about the problem/s they are trying to solve. In CCGI's case, there was agreement on many elements, but not all. I name that because, contrary to popular belief, it is possible to move forward with only partial agreement so long as everyone is getting what they want/need out of the effort. In our context, different entities had different primary objectives. Some had less excitement about building college knowledge, likely because the challenges were less well understood, and/or people believed that "someone" was taking care of that. What they knew was a difficult problem that they hadn't had any success in solving was building an infrastructure that could share data across educational segments. For others, the data sharing seemed secondary. That we could do both was a bonus. When we worked with different partners, we emphasized or led with the piece of the work that was most interesting to them. Never omitting the pieces that weren't but leading with what was in it for them.

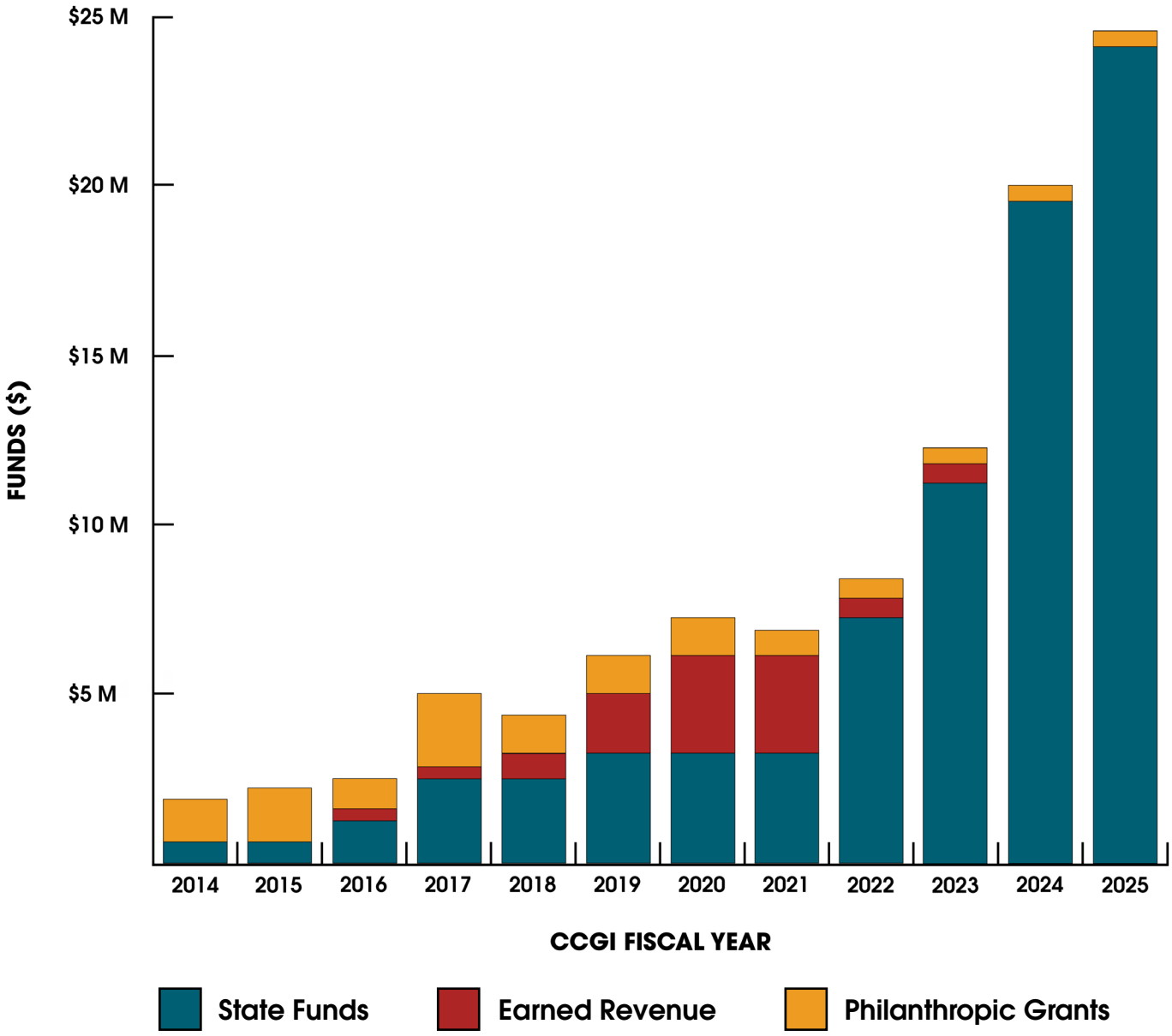
In addition to having a sense of largely shared purpose, and a clear vision for what things will look like when the problem is addressed, partners ideally understand that it won't be a straight path to get to the finish line. It's important to normalize that there will be twists and turns and rollercoasters. Accordingly, there has to be willingness to work through discomfort and to revisit and revise plans as necessary, with an eye toward a shared north star.

LEARNING STANCE

The public sector has many more structures and constraints within which to conduct their work. While a learning stance is helpful in all instances, I have found it particularly useful in trying to understand how government works. When I could understand the landscape and the constraints under which public entities were operating, it helped me to both gain empathy and think creatively about how we could help them to achieve joint goals, leveraging our relative flexibility. It's all about figuring out how best to meet the needs of everyone involved.

APPENDIX F:
REVENUE MIX OVER TIME

Though it is often the hope and intent of philanthropy to have innovations they've supported be institutionalized through public funds, that rarely happens. In CCGI's case it did, so it's useful to see how the revenue mix developed and evolved to sustain this work over time.



Earned revenue refers to contracts we had with school districts and the CSU Chancellor's Office that covered the costs of our support services, when the state was only paying for maintenance of the CaliforniaColleges.edu platform itself. When our purpose was codified in statute, we were able to increase state funding to a level that enabled us to eliminate costs entirely to school districts.

CCGI's core operations are now entirely state funded. Philanthropic grants were essential to our success for a long while and continue to be important for areas of our work that aren't generally built into government funding, like the work related to successorship planning or building our operating reserves; and in order to accelerate work when needs or opportunities arise that cannot wait through a year-long state budget process.

APPENDIX G:
VIDEO RESOURCES

To learn more about the work of CCGI, it's worth reviewing our **Discovering Your Choices for College and Career** video, which provides an illustrated overview of how CaliforniaColleges.edu can change the experience of college planning and application for both students and the adults supporting them.

To learn more about the A-G misalignment issue from the perspective of frontline educators, check out our **Credit Where Credit is Due** video.

To see how CCGI has made the college application process easier, check out our **Streamlining the College Application Process: Cal State Apply** video.

To hear from near peer advisors about the value of the streamlined application process, check out our **Streamlining the College Application Process** video.

To hear from students about their own experiences, check out our **Student Voices page** on the **CaliforniaColleges.edu Resource Hub**.

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Tessa Carmen De Roy, Ed.D.

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NOTES

Document your thoughts, ideas, or questions. This space is yours to explore and create.

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