Case Study: Impediments to achieving systemic changes to support diversity, equity, and inclusion in the engineering professoriate

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Case Study: Impediments to achieving systemic changes to support diversity, equity, and inclusion in the engineering professoriate

Abstract

Current diversity, equity, and inclusion initiatives in engineering colleges largely focus on systemic changes to improve the recruitment of women of Black, Hispanic, and Native American ethnic backgrounds and the retention of all women. Numerous funding agencies offer grants to fund research and initiatives to improve the representation of historically underrepresented backgrounds in the engineering professoriate. Previous research has identified the importance of having faculty recruitment and retention data available to make data-informed decisions regarding DEI initiatives. Thus, four campuses within a large public university system applied for and were awarded an NSF ADVANCE Partnership grant, including developing a system-wide secured dashboard pairing faculty demographic data (primarily gender, ethnicity, and country of undergraduate education) with hiring, retention, and promotion data to identify any areas of concern and better inform future DEI initiatives. The grant further proposed to use the dashboards to inform the implementation of the Aspire IChange program, an NSF INCLUDES funded program that uses a data-driven self-assessment to identify inequities in faculty recruitment, retention, and advancement, and to realize systemic change within engineering colleges in the university system. This paper discusses the challenges faced in implementing this multi-campus grant as a case study to illustrate the systemic obstacles to achieving systemic change that exist in higher education institutions. Some of these challenges include a lack of strategic clarity on diversifying faculty, frequent changing of administrators, unclear definitions of system-level administration, campus administration, and other grant personnel responsibilities, lack of direct data sharing practices and procedures between universities within the system, inconsistent practices in the handling of faculty data among campuses, and administration of subawards between campuses. Recommendations for implementing future multi-campus initiatives within a university system are presented.

Positionality statement

The authors use the term DEI to represent broad philosophical principles of diversity, equity and inclusion, while the specific interpretation and practice may differ across academic institutions. The authors of this paper are primarily women engineering faculty, including both US-born and foreign-born/foreign-trained (FB/FT) individuals, but also include a former California State University Provost and an APLU executive with institutional change expertise. All authors were involved in the grant, serving as the basis of this case study, and are committed to advancing systemic change to improve the representation and advancement of women faculty in academia, particularly within the CSU system. We believe equitable practices must be embedded into institutional structures, with clear accountability, sustained leadership, and system-wide collaboration. It requires bold, equity-driven leadership and policies that center and support

women engineering faculty. To create lasting change, coordinated, well-resourced efforts should be established to remove structural barriers and foster inclusive pathways for all women in engineering.

Introduction

Underrepresented minorities (URMs), especially women, remain significantly underrepresented among tenured and tenure-track faculty in engineering departments, despite earning more PhDs in these fields. Women often lack role models due to small faculty representation, and URM faculty percentages remain far below their presence in the general population, with female URM faculty nearly absent in some engineering departments [1]. Women engineering faculty face isolation and lack networking opportunities [2]. Therefore, efforts to promote DEI in the engineering professoriate have gained increased attention, with higher education institutions recognizing the need to cultivate a more representative and inclusive academic workforce. Over the last five years, support for DEI in engineering has shifted from focusing on individuals' needs to prioritizing systemic and cultural changes [3]. Despite numerous initiatives and funding opportunities, systemic change remains elusive, often hindered by entrenched barriers within institutional structures and cultures, and may face challenges in the execution and implementation of planned interventions.

To better understand the obstacles to systemic change, this case study examines the implementation of a multi-campus systemic change initiative undertaken by four California State University campuses (Fresno State, Cal Poly SLO, San Jose State University (SJSU), and Cal State LA) titled 'Kindling Inter-university Networks for Diverse Engineering Faculty Advancement (KIND) [4]. The goal of the initiative was to create systemic changes in policies and practices on CSU campuses that were anticipated to facilitate long-term increases in the representation of women, particularly URM women, and to support equity for diverse groups in the CSU engineering professoriate. The initiative involved three components: i) create a secure system-wide dashboard that links engineering faculty demographic data (primarily gender, ethnicity, and country of undergraduate education) with faculty hiring, retention, and promotion data, ii) use the dashboard to review current policies and practices to identify barriers in the recruitment and retention of women, especially URM women, and in the integration of FB/FT women faculty, and to develop new policies and practices that are effective using the Aspire Alliance's Institutional Change (IChange) model [5], and iii) form multi-campus engineering Research Alliances and Networking and Mentoring groups to widen access to these resources for women faculty. This paper highlights the systemic obstacles encountered in achieving these objectives and provides recommendations for successfully implementing similar multi-campus DEI initiatives within university systems.

Background

Theory of Change: The initiative studied in this case study had its components selected based on the following assumptions: i) Engineering colleges within the CSU lacked access to hiring pools and faculty retention and tenure success data disaggregated by demographics, iv) Individual campus data is often too small to be able to draw statistically significant observations, iii) Engineering colleges in the CSU lacked the institutional knowledge to know how to overcome obstacles that were present in faculty hiring and retention, and iv) support in the form of networking and mentoring assistance was warranted to support URM faculty [6] while policies and practices that result in retention inequities were being identified and addressed. The grant personnel proposed that by creating faculty hiring and retention data dashboards aggregating multiple campuses, statistical problems caused by small samples would be reduced allowing for meaningful observations, and individual colleges would be able to benchmark their data against the aggregated data to identify areas for improvement. The grant personnel further proposed that by completing the IChange process as a cohort of CSU campuses, campuses would benefit from information sharing between similar institutions and gain institutional knowledge on systemic change and promising practices for equitable hiring, onboarding, and retention. The IChange process used in this cohort [7], shown in Figure 1, was a modification of the existing theories of change used in prior IChange Cohorts [5] and as proposed in ASEE's EDGE program [8]. This modified theory of change created a means for institutional administrators and stakeholders to address the challenges identified by their self-assessment.

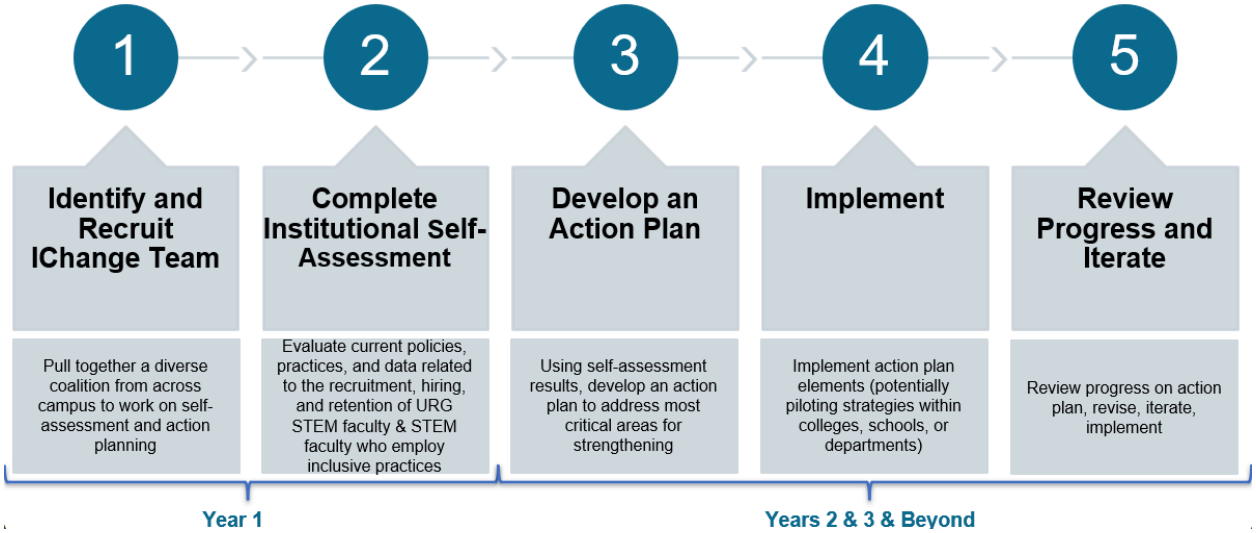

Figure 1. Conceptual model of Theory of Change for KIND [7]

Project management: The NSF ADVANCE Partnership grant mentioned in the previous section was split among four institutions with Fresno State as the lead institution. Due to the large scale of the project and desire to achieve systematic change, the Interim President from the lead institution, Fresno State, served as PI with the provosts from each of the other three institutions serving as co-PIs on the grant. In addition, six engineering women faculty from the four

campuses made up the Co-PI team, with two additional engineering women faculty serving as senior personnel. Faculty Co-PIs from the lead institution led each of the major grant components. The Provost of the lead institution was the chair of an Advisory Board, whose co-chairs were the engineering Deans. Additional members of the Advisory Board included administrators in key positions, such as the Associate Vice President of Faculty Affairs, who is responsible for policies affecting all faculty. See Figure 2 for the grant's structure and initial personnel breakdown [4]. Positive outcomes of the grant were discussed in [9].

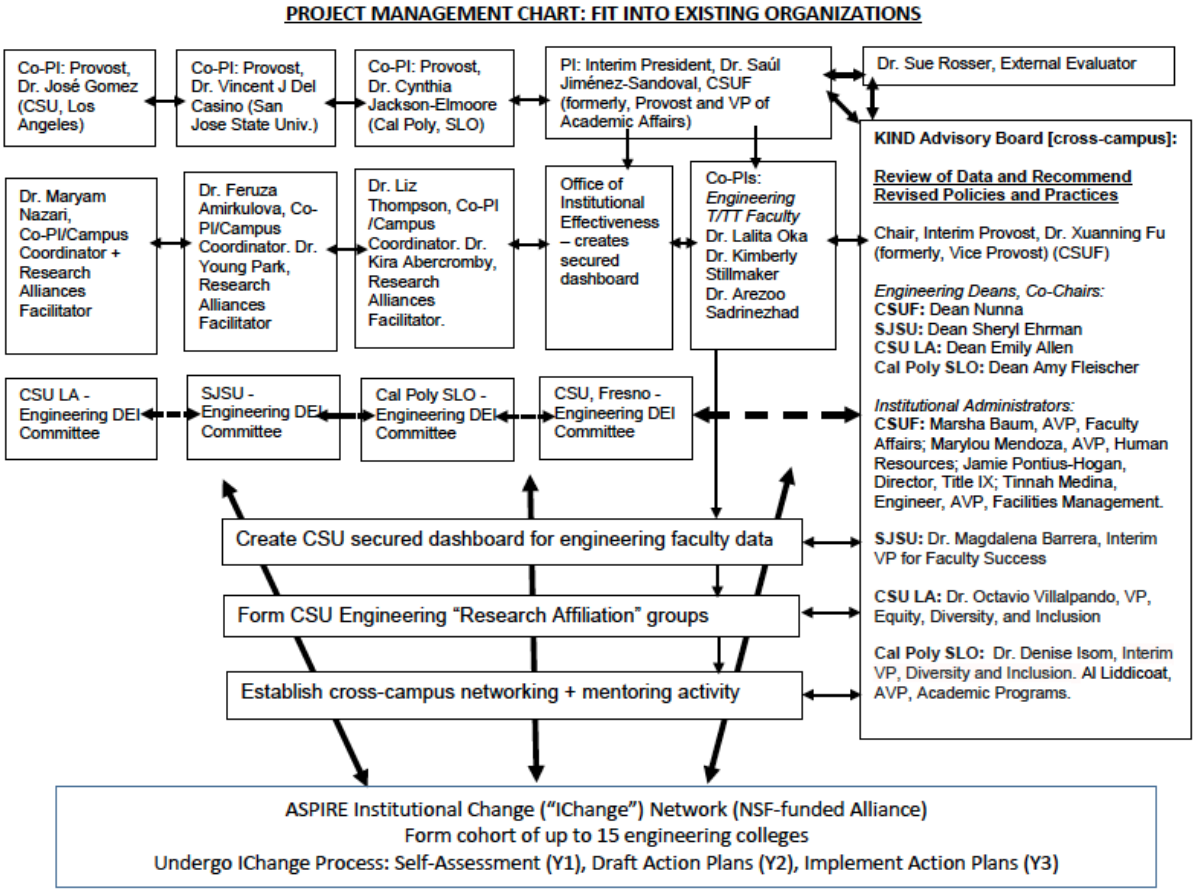

Figure 2: Project Management Chart for the "KIND" NSF ADVANCE Partnership grant [4]

Current CSU organizational structure including information access: The California State University (CSU) was established by the Donahoe Higher Education Act of 1960, and is the nation's largest four-year public university, educating more than 450,000 students each year across 23 campuses throughout the state. It has one of the most diverse student bodies in the United States with its student demographics mirroring the state of California demographics [10]. In line with "A Master Plan for Higher Education in California, 1960-1975", the Act that assigns different functions to the University of California, the CSU, and the California Community Colleges, the CSU primary provides undergraduate and master's degree instruction, but its

function was broadened to include doctoral degrees if offered jointly with the University of California [11]. In Fall 2023, the CSU enrolled 52,355 post-baccalaureate/graduate students including approximately 2,500 doctoral students. That academic year, 20,405 master's degrees were awarded. [10].

Although the System mission and policies are adopted by the Board of Trustees and administered and overseen by the CSU Chancellor's Office (CO), the extreme variation in the size of enrollment, range of degrees offered, and geographic location of the 23 campuses means that implementation of policies may be tailored by the campus president and administration to suit the particular campus needs and situation. This, coupled with other factors such as budget constraints and specialized foci of some campuses, sometimes results in challenges in communication and differing interpretations and practices among campuses and between the CO and campuses. Not surprisingly, in a grant such as the NSF ADVANCE Partnership grant in which four different CSU campuses proposed, "Kindling Inter-university Networks for Diverse (KIND) Engineering Faculty Advancement in the California State University System", some of these challenges were encountered.

Systemic obstacles impeding systemic change

Lack of Strategic Clarity: A critical challenge identified in this NSF grant is the lack of strategic clarity on diversifying faculty and ensuring equity. This shows up in the following ways:
1) Many universities emphasize aspects of diversity, equity, and inclusion (DEI) in their mission statements or core values, but these values are often absent from actionable priorities in the job descriptions or departmental goals or are isolated to job descriptions of employees focused solely on DEI, which compartmentalizes them from broader university operations.
2) Given the significant role faculty play in developing academic policy, faculty hiring, and tenure and promotion processes, some university administrators underestimate the role administrators can play in leading systemic change towards more equitable and inclusive policies and practices, particularly related to hiring, tenure, and promotion processes.
3) Faculty and staff frequently face difficulties implementing DEI initiatives due to limited time, vague plans, and a lack of clear accountability, compounded by budget constraints and the tension between faculty autonomy and administrative leadership.

SJSU's success in efficiently fulfilling their responsibilities of the NSF ADVANCE grant is attributed to its strong and strategic approach to integrating DEI into the university [12]. A key component of this strategy is the establishment of a culture of inclusive excellence throughout the institution. The Faculty Services at SJSU supports the Office of University Personnel (UP) goals by providing exceptional service to the campus for faculty lifecycle management, from recruitment to retirement. The team is dedicated to ensuring faculty success and advancement from recruitment, additional employment, and faculty leaves, to retention, tenure, and promotion. The Human Resources Information Systems (HRIS) team supports all employees in the use of HR technology systems such as PageUp and PeopleSoft (SJSU@Work). The HRIS team troubleshoots system problems, provides training and documentation, and ensures the systems

are working as expected. They analyze data and provide reports for internal UP units as well as departments across campus as needed. Additionally, separate from the Office of University Personnel, SJSU's provost created a Vice Provost for Faculty Success who oversees their Center for Faculty Excellence and Teaching Innovation and a Faculty Success Analyst. All of these offices work effectively and efficiently together towards achieving goals because of the shared culture of inclusive excellence.

Recommendation: This challenge can be addressed by implementing a cohesive, long-term strategy that embeds DEI principles across departments and roles. This involves integrating DEI-focused responsibilities into job descriptions, appointing dedicated leadership positions such as University Diversity Officer or Vice Provost of Faculty Success, and fostering bold leadership that translates DEI goals into actionable frameworks. By establishing a structured path with clear roles, responsibilities, and allocated resources, universities can drive sustained efforts to diversify faculty while ensuring that institutional practices are aligned with their stated DEI values.

Change of Administrators: During the preparation of the NSF ADVANCE Partnership grant proposal, the PI was appointed as Interim President of the lead institution. An interim Provost was appointed to whom the PI delegated his PI responsibilities for the administration of this grant. This initial transition caused some difficulty as the rapport between the faculty Co-PIs at the lead institution and the initial Provost was not immediately transferable to the new Provost. Rather, the working relationship had to be built up over time. There was also a significant lack of knowledge transfer about the activities of the grant. For instance, the new Provost indicated that Fresno State would not participate in the IChange program, which was one of the key components of the grant. Once the faculty Co-PIs from the lead institution met with the Provost to explain the IChange program and the significant role Fresno State would play in leading this program, he agreed to proceed with Fresno State's participation. The AVPs of the Office of Institutional Effectiveness and Faculty Affairs also transitioned during this period.

Cal State LA experienced the most difficulty with administrator transitions. Over the 3.5-year duration of the grant, Cal State LA has experienced transitions in the following positions: Provost (who served as a Co-PI), Dean of the College of Engineering (who served on the grant's Advisory Board), VP of Equity, Diversity, and Inclusion (who served on the grant's Advisory Board), and the AVP of faculty affairs (who did not have an official role on the grant but is integral to the completion of the Dashboard component of the grant). The only individual from this university who remains from the original grant team is the faculty Co-PI, who, for the first three years of the grant, was at the Assistant Professor rank. The interim Provost, who served for over 18 months of the grant, never officially assumed the Co-PI role with NSF and did not use their authority as Provost to educate and bring on board the new AVP of Faculty Affairs regarding the Dashboard component of this grant. As a result, the faculty Co-PI was tasked with

educating the AVP of Faculty Affairs about the grant's activities and requesting data from their office. Unfortunately, this approach was not well received, because the request was made by an Assistant Professor rather than a senior administrator. With increased communication between the lead institution and Cal State LA, including adjustments to the Dashboard to address Cal State LA's concerns regarding data privacy, their interim Provost agreed to proceed with participation in the Dashboards being developed, pending a signed Data Sharing Agreement. However, the interim Provost was replaced before the agreement could be signed.

Cal Poly San Luis Obispo (SLO) also experienced administration transitions, but has less difficulty. Initial involvement at Cal Poly SLO was from academic personnel, the provost, and the dean of the College of Engineering. The main person involved from academic personnel changed positions multiple times in the beginning part of the KIND grant. This made it difficult to keep them up to date on the process of the Dashboards. Others were often in and out of the conversation on Dashboards, making it difficult to get consensus. Finally, in the final year of the grant, both the provost and the college of engineering have left the university. Although both were very supportive of the grant, grant personnel at Cal Poly SLO are lacking their support when the implementation is happening. All of this has made it difficult to sustain the work.

By contrast, at SJSU, none of the administrators listed in Figure 2 nor the AVP of Faculty Services, which is filled by Dr. James Lee, have transitioned out of their roles during the term of the grant. The retention of these key administrators has led to the grant having support from SJSU UP's Faculty Services and HRIS teams, not only from the Administrators leading these teams but also from their staff personnel such as the Faculty Recruitment and Special Appointments Analyst, Remie Bontrager, the senior business analyst, Julia Chan, who together have successfully delivered all the data requested for the Hiring Dashboard.

Recommendations: i) It has become apparent that a change of university administrators is something that should be anticipated when working towards making systemic changes, particularly when multiple institutions are involved. Thus, goals and actions to achieve these goals should be clearly stated and shared broadly. Actions should be assigned to job positions (e.g., AVP of Faculty Affairs) rather than to individuals, ensuring that responsibilities are clearly associated with the role and persist regardless of personnel changes. ii) Expectations should be set regarding how transitions of administrators will be handled. An effective approach, as demonstrated in this grant, involves a structured handoff between outgoing and incoming personnel. This handoff should include discussions about the grant's activities and goals, the significance of the work, and the specific roles involved. Additionally, the outgoing person should introduce their successor to key collaborators. iii) A contingency plan should be made for who will conduct onboarding in place of a handoff if a departing person leaves abruptly. Given the hierarchical nature of academia, it is recommended that in a contingency plan, the onboarding be performed by someone at or above the rank of the new person, even if they are

not the primary point of interaction for the new person. Similar onboarding should also be conducted with new staff or administrators who are critical to the completion of the grant activities but are not specified as grant personnel.

Unclear definitions of system-level administration, campus administration, and grant personnel responsibilities: In this NSF ADVANCE grant, difficulties were encountered regarding a mismatch between grant personnel's interest and time availability to perform grant activities and the limitations of their role within the academic system. This was a faculty-driven initiative born out of witnessing first hand the inequities and struggles women faculty in engineering face. The four Provosts saw the value of the proposal and agreed to serve as Co-PIs on the grant. The inclusion of Provosts as Co-PIs was deemed necessary both to demonstrate sufficient university support to grant reviewers and, more practically, to have the high-level administrative support necessary to ensure academic departments, such as offices of faculty affairs and offices of institutional effectiveness, would collaborate in carrying out the grant's work. Despite their inclusion, the grant was written with faculty Co-PIs responsible for carrying out much of the work. In some aspects of the grant, such as the mentoring program and the research networks, this proved effective. However, in the development of the Dashboard and the implementation of the IChange program, the required actions were beyond the ability of the faculty. For example, the Dashboards were to be created at the Lead Institution in the Tableau software and maintained by their Office of Institutional Effectiveness. Data for these dashboards was housed in the PageUP software, which is controlled by Faculty Affairs. As a faculty member, the Co-PI responsible for the Dashboard activities did not have access to either of these software programs. Instead, she worked closely with a staff member from Faculty Affairs, who was helpful but highly busy and did not have any time or compensation allocated to serving this grant. Initially, coordinating with the Office of Institutional Services was more difficult because not only did their office not have staff with time available to allocate to the project, but also, as a result of an Administrator's departure, they did not have an AVP leading the office. At the end of the first year of the grant, the lead institution hired an additional analyst to work in the OIE, whose job description focused on faculty data. This marked the beginning of substantial progress towards the development of the dashboards. During this year, as mentioned previously, SJSU successfully provided data, and a dashboard was developed that aggregated Fresno State's and San Jose's data. However, other campuses expressed more concern about data sharing and the need for a data-sharing agreement. Obtaining a data-sharing agreement became a significant obstacle. Data is housed at each campus as opposed to being housed centrally. The CSU system is set up for campuses to share select data with the Chancellor's Office through annual reports. Any aggregation of data across campuses happens at the Chancellor's office level. Currently, the Chancellor's Office does not aggregate and make available to the campuses system-wide data related to faculty hiring, retention, and advancement that can be used for demographic-based equity analysis within particular disciplines, nor do they express an openness to create such tools as were being requested by engineering colleges. Thus, in attempting to perform data-sharing

activities that are designed to be the role of the Chancellor's Office, the campuses involved in this grant found that there are no guidelines in place for how data should be shared between campuses. The faculty Co-PI first attempted to draft a data-sharing agreement based on a template from a project between the Lead Institution and K-12 institutions, but given that this assignment was really beyond her position, she had many uncertainties about how the document should be written. She attempted to elevate the document to a university administrator, but again, it did not fit within anyone's role because it is not a typical task. Finally, after the vacancy in the AVP of the Office of Institutional Effectiveness was filled, the newly hired administrator took ownership of the document, addressed the uncertainties, and forwarded it to the university's lawyer for review.

Recommendations: i) The Chancellor's Office (or equivalent) for a university system should be responsive to the data needs expressed by the individual campuses. If they are unable to fully do so, then they should have procedures and templates created and available to campuses to facilitate campus initiatives to share data to meet their own needs; ii) In the proposal writing stage of a grant that intends to share data across campuses, the university administrators responsible for approving the sharing of data (likely the Provost) should sign a written data sharing agreement or an agreement stating that such an agreement is unnecessary and explicitly permitting the necessary campus employees to share the data specified in the grant. In the absence of such an agreement at the proposal writing stage, signing such an agreement should be a condition of receiving subaward funds; iii) Administrators and faculty should speak candidly at the beginning of a project or grant proposal about the roles each intend to play in the implementation of systemic change activities, with specific consideration to whether these roles are within the direct control of the individual. If staff time is required to complete proposed activities, the feasibility of fitting this work into existing employee workloads or funding for additional staff time should be determined and finally, iv) If high-level administrators on systemic change initiatives are not personally responsible for implementing the grant, they should initiate frequent meetings with the individuals implementing the work (at least twice per semester). Given the limited availability of administrators and the power differential between faculty and administrators, faculty may be hesitant to request such meetings, as was the case in the NSF ADVANCE grant discussed herein. Yet, it is evident that these meetings were important, as some of the lead institution's biggest advancements in this grant followed as the result of meetings with their Provost (the grant's PI).

<u>Inconsistent practices in handling faculty data among campuses:</u> A data handling obstacle that was immediately revealed in the process of developing a systemwide dashboard is that each campus aggregates faculty data by its departments and colleges. However, the disciplinary composition of departments and colleges is not consistent among universities. For example, at two of the campuses partnering on the NSF ADVANCE Partnership grant, Computer Science is housed within the engineering college, but at the other two, it is housed in a science college

instead. To overcome this difficulty, the decision was made to aggregate data in the Dashboard using Classification of Instructional Program (CIP) codes. Each degree program is already associated with a CIP code, which is used for reporting student data to the federal government. Thus, each applicant and employed faculty was chosen to be identified with the CIP code pertaining to the degree program with which they are most closely associated [6].

In the CSU system, each campus individually handles the hiring activities and tracking of employee data. While their practices are all guided by the same system-wide policies, Collective Bargaining Agreements, and state law, there remains significant variety in how these activities are carried out at each campus. As the NSF ADVANCE Grant Partnership personnel began working towards the development of a dashboard to capture trends in the faculty hiring process, they became aware of the fact that the CSU was in the midst of a transition to a common hiring management software using PageUp, which would bring significant uniformity of each campus' hiring data. Before this transition, different software programs were used at campuses throughout the system, which meant the type and format of data tracked in the hiring process varied across campuses. A committee was formed and populated by staff from each campus to discuss ongoing issues related to the implementation and use of PageUp. The grant personnel approached this group to discuss the benefit of using CIP codes to classify faculty, which resulted in the group deciding to implement a data field in PageUp that should be used to classify searches.

Given the system-wide transition to PageUp, the grant personnel made the decision to build the Hiring Dashboard based on the reporting capabilities of the PageUp software and only include data from each campus for years during which that campus used this software. While this limited the dashboard's ability to display historic trends, it allowed for the development of a report that could be run at each campus, producing consistent data for entry into the dashboard. The HRIS team at SJSU was able to run this report successfully. Some manual data entry was still required including the classification of the applicants' educational institution as U.S. or foreign-based, which is information the committee steering the PageUp implementation elected not to include in faculty applications, and the Classification of Instructional Program (CIP) Code for each applicant, which although recently added to PageUp was not previously collected.

Recommendations: Institutions within an educational system or other institutions that desire to be able to aggregate faculty data will reduce the required workload for aggregating data if they: i) implement the same hiring management and human resource management software across all campuses, ii) establish uniform practices for using the software either through top-down directives or through the agreement of a committee of users from each campus, and iii) assign CIP codes to each individual in the human resources system.

<u>Administration of subawards between campuses:</u> Although the lead institution in this project had achieved the R2 Carnegie classification, all four partner institutions (including the lead

institution) were all PUIs concerning STEM disciplines. One of the challenges for PUIs is managing subawards. Despite being part of the same system, the partner institutions had their own policies and practices. In addition, the understaffing and continuous changes at the offices managing grants posed challenges, especially post-COVID-19. This caused enormous delays in processing subaward contracts and allocating finances to the partner institutions. The inexperience of support staff in the grants and awards office in handling grants such as ADVANCE also led to the Co-PIs spending a disproportionate amount of time in developing accounting, streamlining, and tracking expenditures.

Recommendations: i) Initiate the subaward process as early as possible. ii) Clear expectations on handling 'professional development' funds for faculty (non-Co-PIs) participants need to be established. iii) Know the operations and roles of the Pre-award and Post-award divisions of research and grants offices. iv) Maintain records/spreadsheets of all transactions v) Review progress of accounts and spending often, and last but not least, vi) Hire necessary personnel to manage accounts, especially if you have multiple roles (execution, teaching, and other research).

Discussion of high-level challenges

The latitude for implementation of policies provided by the CSU may be necessary, given the variations in institutional history, size, specialized foci, and location of the 23 campuses, which allows the president and administration of each campus to tailor practices to suit its campus needs. However, the lack of clarity from the System on policies surrounding the diversification of faculty, data sharing practices, handling faculty data, and uniform procedures for administering subawards created some inevitable discrepancies and difficulties when the four partner campuses attempted to cooperate in building dashboards and distributing grant resources. These discrepancies among campuses and problems in resolving them were exacerbated because the grant coincided with an especially difficult time within the CSU. The initiation of the grant during COVID, the resignation of the CSU Chancellor in 2022, followed by the appointment of a new Chancellor in late 2023, and an accompanying high rate of turnover in presidents at several CSU campuses commanded the attention of the Chancellor's Office throughout the grant. This was exacerbated by a large enrollment drop throughout the System, accompanied by budget cuts. All of these factors resulted in particularly poor communication, access to information, and attention to consistent implementation of policies between the CO and campuses, and even within many individual campuses, that made carrying out some of the major goals of the grant such as development of a system-wide faculty dashboard and administration of the grant itself quite challenging.

Additional important factors that contributed to the challenges are: a) considering the CSU system is predominantly a teaching institution, faculty Co-PIs tend to have much higher teaching loads. The grant budget underestimated the time required by the faculty. b) The power differential between the faculty Co-PIs and administrators could hinder the progress. This is

especially true when there are several tenure-track or tenured faculty without any administrative experience serving as Co-PIs. The faculty can certainly research and point out the changes that need to happen, but cannot initiate changes without administrative support. On the other hand, top-down approaches are also found to be ineffective since the unit-level (departments) usually have a lot of autonomy, and hiring and retention decisions are generally most impacted by the prevailing practices in the departments.

Conclusion

Achieving systemic change to enhance diversity, equity, and inclusion (DEI) in higher education is challenging, even in institutions that prioritize these y values. Inter-institutional grants aimed at systemic change are particularly valuable due to their potential impact across multiple campuses and the facilitation of knowledge transfer between institutions. However, administering these grants successfully presents additional challenges. To achieve systemic change across multiple institutions, solutions are needed to address the lack of strategic clarity on diversifying faculty, frequent administrative changes, unclear definitions of system-level administration, campus administration, and other grant personnel responsibilities, lack of data-sharing practices and procedures directly between universities within the system, inconsistent practices in faculty data handling among campuses, and complex subaward administration.

Insights gained during the administration of an NSF ADVANCE grant related to each of these issues have led to several key recommendations to overcome these challenges: i) Bold administrative leadership should advocate for embedding DEI throughout the university and provide an actionable framework for systemic change, including necessary resources; ii) Administrator transitions should be anticipated and plans should be made for onboarding new administrators critical to systemic change efforts or related grants; ii) University systems should provide data-sharing agreement templates and guidance to facilitate inter-institutional data exchange; iv) Faculty data should be categorized according to CIP codes to allow aggregation across campuses; v) Co-PIs should be prepared to navigate the complexities of managing subawards between campuses.

The authors acknowledge that the rising anti-DEI sentiment and recent executive orders and legislation bring additional obstacles not addressed in this study.

Acknowledgement

This material is based upon work supported by the National Science Foundation under Grant No. 2121950. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

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