COVER PAGE

COORDINATING INSTITUTION

University of California

CONTACT PERSON

Stephen J. Handel
Associate Vice President for Undergraduate Admission, UC Office of the President
Email: Stephen.Handel@ucop.edu
Phone: 510.587.6438
Mailing Address: 1111 Franklin Street, Oakland, California 94607

LIST OF PARTICIPANTS

All nine University of California (UC) undergraduate campuses; all 23 California State University (CSU) campuses; all 112 California Community College (CCC) campuses; system offices of each segment of public higher education.

APPLICATION ABSTRACT: ASSIST NEXT GENERATION

The University of California has built an integrated student advising system that will improve the efficiency by which students transfer and earn a bachelor's degree, allowing the state to educate more students at lower cost. ASSIST is the core of this system and operates on two levels:

- **ASSIST (www.assist.org) is a database and website** housed at UC Irvine that provides comprehensive advice on transfer between California community colleges (CCCs) and the state's four-year universities. It centralizes information so that students can more efficiently transfer and be prepared to graduate. UC manages and is the fiscal agent for ASSIST on behalf of all three segments of California public higher education. The University began a thorough redesign of ASSIST—called Next Generation— that will go live in 2016.

- **ASSIST data fuels academic planning tools** (e.g., CCC Ed Planners) to facilitate counselor intervention and student self-advisement. ASSIST entered a bold new phase in 2014 by enhancing its ability to send data to such tools. For example, UC Davis integrated ASSIST data into the UC Transfer Admission Planner (TAP), enabling students to create individual accounts to record coursework as they complete it and track their eligibility for UC.

The upgrades to ASSIST described in this application provide students in California's community colleges—a significant proportion of whom come from groups underrepresented in higher education—the tools they need to prepare for transfer. Always the backbone of the California transfer function, ASSIST is primed to be a technological change-agent for the state and its students.

ASSURANCE AND SIGNATURE

"I assure that I have read and support this application for an award. I understand that if this application is chosen for an award, my institution will be required to submit, for approval of the Committee on Awards for Innovation in Higher Education, a report indicating proposed uses of the award funds and, as the fiscal agent, will be responsible for distributing funds to any other participating entities. I also understand that, if this application is selected for an award, my institution will be required to submit reports to the Director of Finance by January 1, 2018, and by January 1, 2020, evaluating the effectiveness of the changes described in this application."

Janet Napolitano 1/9/15

Janet Napolitano, President Date

1. Context: Programmatic Goals

The University of California (UC) and the California Community Colleges (CCC) share a unique partnership, offering access to the baccalaureate degree for students who might not otherwise have access to higher education. Blossoming under California's Master Plan for Higher Education (1960), the transfer pathway from California's 112 community colleges is well positioned to advance the state's goal to increase the number of individuals with postsecondary degrees and credentials. Indeed, California is at a "tipping point" when advancements in technology can improve the efficiency of transfer, increasing significantly the number of community college students who graduate from four-year institutions. This application describes the history of ASSIST innovations designed to help students transfer and delineates a plan that will achieve the goal to provide prospective UC and CSU applicants—especially those from nontraditional groups—with "anytime and anywhere" access to the resources they need to achieve their educational goals.

The University of California manages ASSIST and is its fiscal agent on behalf of all three segments of public higher education in the state. A long-running, intersegmental partnership, ASSIST is an online resource that shows transfer students how the courses they complete at a community college transfer to California State University (CSU) or UC campuses. ASSIST's specialized information—called an articulation agreement— is the currency of transfer. The term "articulation" describes the practice of aligning curriculum across educational segments to support students' transition from one segment to another.

Articulation agreements detail exactly how CCC courses will be treated by each UC or CSU; for example, whether such courses will apply toward general education requirements or major-specific requirements, which can differ from campus to campus. ASSIST greatly simplifies transfer, which is inherently complicated in a state with 145 public colleges and universities. The volume of information in ASSIST—over 350,000 separate articulation agreements for CSU and UC—is evidence both of its success in cataloging critical data to help students prepare for transfer and the well spring needed to promote new transfer advising resources.

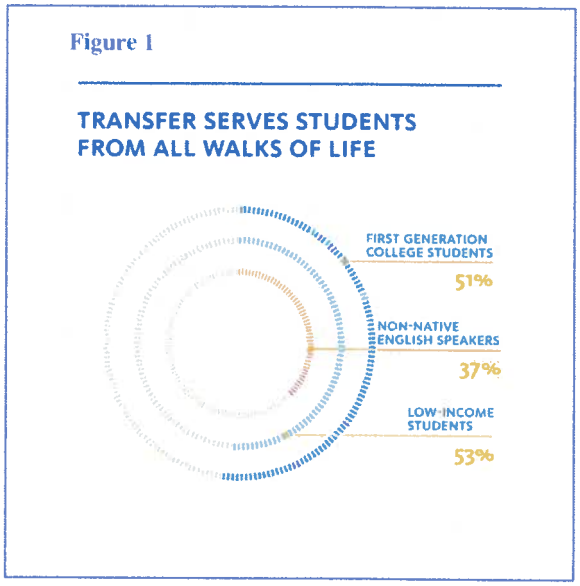
ASSIST Next Generation—currently in development—will simplify transfer further by making information more readily understandable to students in two ways. First, the current interface will be upgraded along with the ability to download data into familiar software like Word, Excel, and Adobe. Second, text in ASSIST will be converted to data so that it can be used by academic planning and campus degree-tracking software. The UC Transfer Admission Planner (TAP) is a prime example. UC already integrates ASSIST data into UC TAP to allow students to track the number of UC-transferrable courses that they have completed. In conjunction with the new ASSIST, UC TAP will help students create even more robust individualized academic plans by allowing them to track their community college courses electronically, determine how the articulation information stored in ASSIST relates to them, upload a transfer guarantee contract, assess their readiness by major and campus, and link to additional educational resources.

2. Context: Statistical Profile

Community colleges are the largest postsecondary segment in America, enrolling nearly half of all students currently in college. One in five of these students attend a California community college, making the CCCs the largest and most ethnically diverse postsecondary system in the United States. Nearly half (46%) of California's community college students come from groups that have been traditionally underrepresented in higher education, including African American, American Indian, and Chicano/Latino students (see Table 1). Moreover, the CCC's open admissions policy, low fees, and geographic convenience (112 colleges across the state) make them especially attractive to students who might not otherwise attend college.

Despite the number of students enrolled in community colleges, national data reveal that, among those students who wish to transfer, only a relatively small proportion are successful—perhaps as few as 1 in 4.[1] Although the transfer rate in California is an improvement on the national one, it is still true that over half of all of California's community college students who wish to earn a bachelor's degree do not fulfill this educational goal.[2]

UC has a stellar record among public research universities in enrolling transfer students. The majority of these students come from socioeconomically disadvantaged families for whom the opportunity to complete a bachelor's degree represents substantial opportunity for economic and social mobility. Over half of new transfer students are the first in their family to complete a college degree (51%) and are low-income (53%). Non-native English speakers are 37% of the UC transfer class. (See Figure 1 to the right.)



However, not all groups take advantage of the opportunity equally. The proportion of transfer students from underrepresented groups on UC's nine undergraduate campuses does not compare well with the proportion enrolled in CCC system. Table 1 shows that although Chicano/Latino students comprise almost 40% of CCC enrollments, the number of Chicano/Latino enrollees to UC is less than 22%. The same disparity can be found for African American students, who comprise 3.6% of enrolled transfers at UC even though they comprise 7% of the enrollments within the CCCs.

One reason so few students transfer is that few prepare appropriately for transfer. Table 1 shows that the proportion of students from underrepresented groups who are "transfer ready"—that is,

[1] Institute for Higher Education Policy. (2012). *Understanding the transfer process: A report by the Institute for Higher Education Policy for the Initiative on Transfer Policy and Practice*. New York, NY: The College Board.
[2] It is important to stress that not all students who enroll in a community college wish to transfer to a four-year institution. The transfer figures included here refer only to students who have signified transfer as their main goal.

students who have completed minimum requirements for transfer to a university—is far lower than the number attending a CCC (36.9% versus 46.0%). Even allowing that many CCC students do not possess transfer as a goal, the absolute number who are in any position to *consider* transfer is worryingly low.

TABLE 1: CA COMMUNITY COLLEGE AND UNIVERSITY OF CALIFORNIA PROPORTIONS & COUNTS OF UNDERREPRESENTED MINORITY STUDENTS, 2012-13

	African American		American Indian		Chicano/Latino		**URM Total**	
CCC Overall Enrollment	166,143	*7.2%*	10,872	*0.5%*	877,825	*38.3%*	**1,054,840**	***46.0%***
CCC Transfer-Ready Students	2,764	*3.7%*	273	*0.4%*	24,445	*32.8%*	**27,482**	***36.9%***
UC Transfer Applications from CCCs	1,312	*4.8%*	312	*1.2%*	6,304	*23.3%*	**7,928**	***29.3%***
UC Transfer Admits from CCCs	700	*3.8%*	202	*1.1%*	4,084	*22.1%*	**4,986**	***27.0%***
UC Transfer Enrollees from CCCs	497	*3.6%*	144	*1.0%*	2,980	*21.3%*	**3,621**	***25.9%***

Sources: UC Corporate Student System, California Community College Chancellor's Office Data Mart

Notes: (a) "Transfer-ready" students have taken 60 UC/CSU transferrable units, including math and English classes, with a minimum GPA of 2.0. Reaching this benchmark does not mean that a student has completed all requirements for UC transfer; (b) UC data are for California residents only. CCC data includes all students, regardless of residency.

Students who have prepared academically to make the transition also face hurdles moving from a community college to a four-year institution. Many of these challenges can be complex: Will students' credits transfer and/or be part of their associate degree? Which CCC courses are essential to ensure that students' are well-prepared for the academic competition they will face after transfer? Unlike students who begin college at a four-year institution, those attending a community college must navigate these challenges in order to earn a four-year degree. And because community college students are more likely to come from some of our most vulnerable populations they often lack precisely the experience and access to information they need to prepare and transfer successfully.[3]

Given these challenges, the initiatives described here are key to increasing the number of CCC students who transfer and earn a degree and the access and equity mission of the California Community Colleges and the University of California. California's investment in community colleges and its on-going support of the transfer function has been a pivotal force for social mobility and has extraordinary additional potential for further advancing the educational goals of the state and all of its citizens.

[3] Laanan, F. S., Starobin, S. S., & Eggleston, L. E. (2010). Adjustment of community college students at a four-year university: Role and relevance of transfer student capital for student retention. *Journal of College Student Retention. 12*(2), 175–209.

3. Innovations: Prior to January 10, 2014

UC investments in technology and the intersegmental partnerships described in this application will continue to bolster the Master Plan transfer pathway, providing qualified Californians with a robust and efficient avenue to their baccalaureate degree. ASSIST represents the culmination of years of effort—driven by a commitment to educational access, equity, and success—that will drive down the cost of a degree, increase higher education student diversity, and ensure California's sustained economic competitiveness.

Innovation 1: First Statewide Transfer Database in the Nation

In 1985, UC Irvine created the first statewide transfer database in the nation in ASSIST, providing thousands of community college students access to information essential to their academic advancement. While managed by UC, ASSIST has been a collaborative effort with the CSU and CCCs from the beginning and is funded by all three segments. It became the official repository of articulation information in the state, ensuring that students, counselors, and faculty from all public segments had reliable and ready access to curriculum information vital to the transfer pathway. Since that time, ASSIST has served as a national model in addressing the needs of community college students wishing to earn a baccalaureate degree. In a recent survey, transfer innovations originally developed by ASSIST have been adopted by at least 12 states.[4]

Innovation 2: First Systematized and User-Friendly Articulation System

An early and key achievement of ASSIST was systematizing the format of articulation agreements across California's complex higher education infrastructure. This has proven immensely helpful to students, especially those least prepared to navigate higher education. Prior to ASSIST, prospective transfers had to gather information from individual colleges and universities, cobbling together transfer plans often without focus or direction, losing time and resources in pursuit of their educational goals. By developing a single, statewide repository of articulation agreements, UC provided students with access to information essential to their transfer plans. Moreover, ASSIST facilitated California's success in developing common articulation agreements such as the Intersegmental General Education Transfer Curriculum (IGETC) and has helped address growing concern about students taking courses that they did not need. By informing students which courses do and do not transfer from a CCC, they can plan with confidence to transfer to a UC or CSU campus in as efficient a way as possible.

Innovation 3: First Internet-Based Transfer System

Under the University's leadership, ASSIST became the first transfer system nationwide to migrate to the Internet, effectively streaming articulation information to prospective students throughout California—and beyond. This transition also made this information widely available

[4] Transfer Action Team. (2014). *Selected state transfer and articulation websites* (TAT Briefing 5.1) Oakland, CA: University of California, Office of the President, Student Services.

to high school and community college counselors who could advise students with confidence based on the agreements posted on the ASSIST website. The reach of the ASSIST site has been tremendous. Last year the site received over 15 million hits from 2.3 million users.

Innovation 4: First Online Transfer Planning Resource in California: UC TAP

In 2012, the University used ASSIST data to build UC TAP, an electronic portal that allows students to catalogue their UC-transferable courses over multiple terms and, as a result, track their academic progress. Students who log into UC TAP are able to access course articulation data from ASSIST to track completion of UC eligibility requirements, such as unit requirements, grade point average, and essential coursework. To date, over 150,000 students have created accounts in UC TAP.

UC TAP's academic planning features are particularly important. Research confirms that students with a transfer plan are far more likely to achieve their educational goals. A recent California study revealed that about half of students who entered a definable program of study at a CCC were more likely to earn a certificate, degree, or transfer.[5] Even students with "strongly-directed" aspirations were more likely to complete educational goals, including transfer to a four-year institution.[6] Such plans are especially helpful to students who otherwise lack access to sustained advising at their high school or community college.

Innovation 5: Increased Student Access to Transfer Admission Guarantees

UC established Transfer Admission Guarantees (TAG) as a systemwide program in 2006. TAG's are "transfer contracts" with prospective students that delineate the courses and grades students need to earn to be admitted to a particular UC campus or program.[7] In 2011, the TAG process was migrated online, which provided greater opportunities for participation, using ASSIST data. In fall 2014 alone, over 13,500 students submitted an application for a TAG.

Innovation 6: A "Pre-Populated" UC Admission Application

Because it uses ASSIST data feeds, UC TAP also integrates with the UC undergraduate application. Prior to this innovation, UC TAP and the admissions application were separate systems and students faced having to re-enter data in both. Integrating the two greatly streamlines the process for students. In fall 2015, 12,878 of the total 35,711 transfer applicants to UC (36%) used their UC TAP account to pre-populate their UC application for admission with information that they had already recorded in their account.

---

[5] See Moore, C., & Shulock, N. (2011). *Sense of direction: The importance of helping community college students select and enter a program of study.* Sacramento, CA: California State University, Sacramento, Institute for Higher Education Leadership and Policy.

[6] See Horn, L. (2009). *On track to complete? A taxonomy of beginning community college students and their outcomes 3 years after enrolling: 2003-04 through 2006* (NCES Publication No. 2009-152). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, US Department of Education.

[7] TAGs are developed using articulation agreements in ASSIST, but are tailored to individual student applicants.

4. Innovations: After January 10, 2014

The University's advancements to ASSIST prior to 2014, described above, established the foundation for the development of an innovative, statewide student-centric advising portal: UC TAP. While housed at and managed by UC Davis, TAP is available to community college transfer applicants to any UC campus. The goal of this advising portal is to prepare more students for transfer to a UC campus, while reducing time-to-degree through the introduction of real-time articulation information, robust transfer planning tools, and sustained messaging about the value of a college degree. The University's ability to innovate with UC TAP—and, at the same time, the CSU and CCCs with their own online advising tools—relies entirely on a robust and enhanced ASSIST.

In 2014, UC undertook five major innovations with ASSIST and UC TAP, which are now closely integrated, to expand and enhance its online advising resources.

Innovation 7: Preparing and Guiding More Students towards Efficient Transfer and Graduation

UC TAP's authentic value is in creating a relationship with students once they are part of the UC online family. Even as UC, CSU, and the CCCs pursue simplification through the introduction of common course numbering (C-ID) and standardized curricula (Associate Degrees for Transfer, or ADTs), these innovations will not completely eliminate the complexity of transfer—and the need for sustained and powerful guidance. UC TAP has become the resource through which prospective students can map a strategy and receive regular and strategic messaging about the transfer process.

Understanding the essential role of academic preparation in the community college, innovations to UC TAP in the last 12 months—all of which rely on tight integration with ASSIST—have allowed the University's Student Academic Preparation and Educational Partnership (SAPEP) programs to identify and contact promising transfer students throughout California. Once students are identified, SAPEP staff offer prospective students transfer guidance, as well as opportunities to engage UC staff, faculty and students. In the spring 2014 term, for example, UC TAP was used to invite students to campus academic enrichment opportunities and summer bridge programs, both of which are shown to improve student success.

Indeed, the value derived from UC TAP has proved so effective that UC's SAPEP programs now require every program participant to establish a UC TAP account. This resource saves staff and students time: Staff can use students' self-reported information to inform their advising sessions, equipping them with resources and referrals. As a result, time spent with students can be devoted to answering questions and mapping strategy instead of evaluating transcripts.

Innovation 8: Securing Strategic and Targeted Outreach to Community College Students

In 2014, TAP functionality was expanded to allow UC and the CCCs to communicate with prospective students in targeted ways, a key strategy to increase the number of students who prepare for transfer. Interventions like regular text messages for encouragement and achievement, as well as the use of social media, have been shown to be effective in helping students prepare for a four-year university.[8]

Calibrated, strategic messaging is especially helpful to students navigating transfer in California given its complex set of options for postsecondary education. Furthermore, with fewer high school and community college counselors, students often find it difficult to get the information they need to determine transfer pathways that align with their skills and goals.[9]

As noted earlier, research reveals that students who have at least a tentative academic plan when they enter a community college are far more likely to transfer and earn a degree. At UC—a highly selective institution demanding extensive academic preparation—the need for planning is especially acute; early and sustained engagement with the University is key to students' success.

Innovation 9: Transforming ASSIST to be More Accessible and Interactive

In 2014, ASSIST designed a new architecture for its articulation agreements that will allow the entire database to be converted from free-form text into table-driven data. The newly completed design will standardize the language in ASSIST and, more importantly, ensure that data feeds from it can be interpreted by other student advising software systems like UC TAP. Between now and 2016 when the new system goes live, colleges and universities will convert their articulation agreements to the new format created this year.

While some sections of articulation data in ASSIST are already usable and in use by advising software, much of it is not. Complex curricular requirements must now be described in free-form text. However, the new format designed this year will allow ASSIST to create and display robust "and/or" logic and coded qualifiers associated with particular courses. This means that course prerequisites and co-requisites can be succinctly programmed into ASSIST and can be adapted for use in degree progress-tracking systems across the CCC, CSU, and UC.

As an example, some universities require that students take a lab course in conjunction with a lecture or require minimum grades in a particular course for it to count towards transfer. Today, such requirements are spelled out in words on the ASSIST website. No code underlies this text that is understandable by electronic academic planning tools. With the changes to the format finalized this year as part of the Next Generation development, however, a student or counselor

---

[8] Castleman, B. L., & Page, L. C. (2014). *Summer melt: Supporting low-income students through the transition to college*. Cambridge, MA: Harvard Educational Press.

[9] See Rosenbuam, J. E., Deil-Amen, R., & Person, A. E. (2006). *After admission: From college access to college success*. New York, NY: Russell Sage Foundation.

using the new ASSIST will see the text "Must earn a B or better" and a code associated with that concept will be available for data feeds into systems like UC TAP.

Innovation 10: Supporting New and Existing Student Advising Systems

As a result of Innovation 9 above, the foundation was laid for the enhanced support of new and existing student advising system once the system goes live. While UC TAP is the most developed transfer advising system to date, the Next Generation of ASSIST will, as a result of the phases completed this year, support "down-stream" software uses for the data. For example, discussions with the CCC Chancellor's Office have already begun around how augmented ASSIST data could be utilized by the California Community College Education Planner, a statewide portal to help two-year college students plan their academic programs. This will provide pivotal guidance to transfer students earlier in their academic careers.

Some data are already being used by other systems. As mentioned above, UC TAP currently allows students to see which courses are transferrable and which courses satisfy UC's 7-course pattern for transfer to UC. Figures 2 and 3 below use the connections between UC TAP and ASSIST to summarize what is and will be available for use by downstream systems.

Figure 2: Current Data Sharing between ASSIST and UC TAP

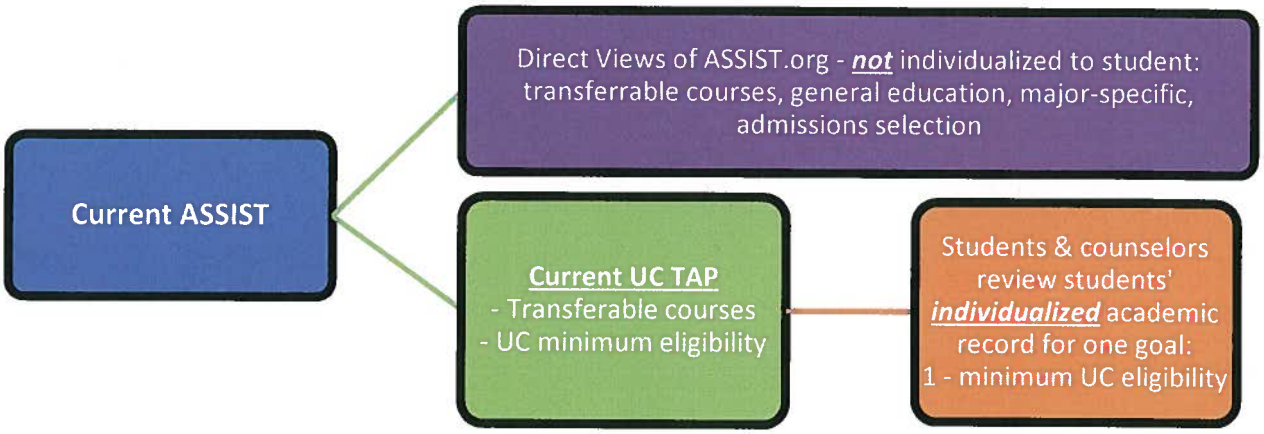
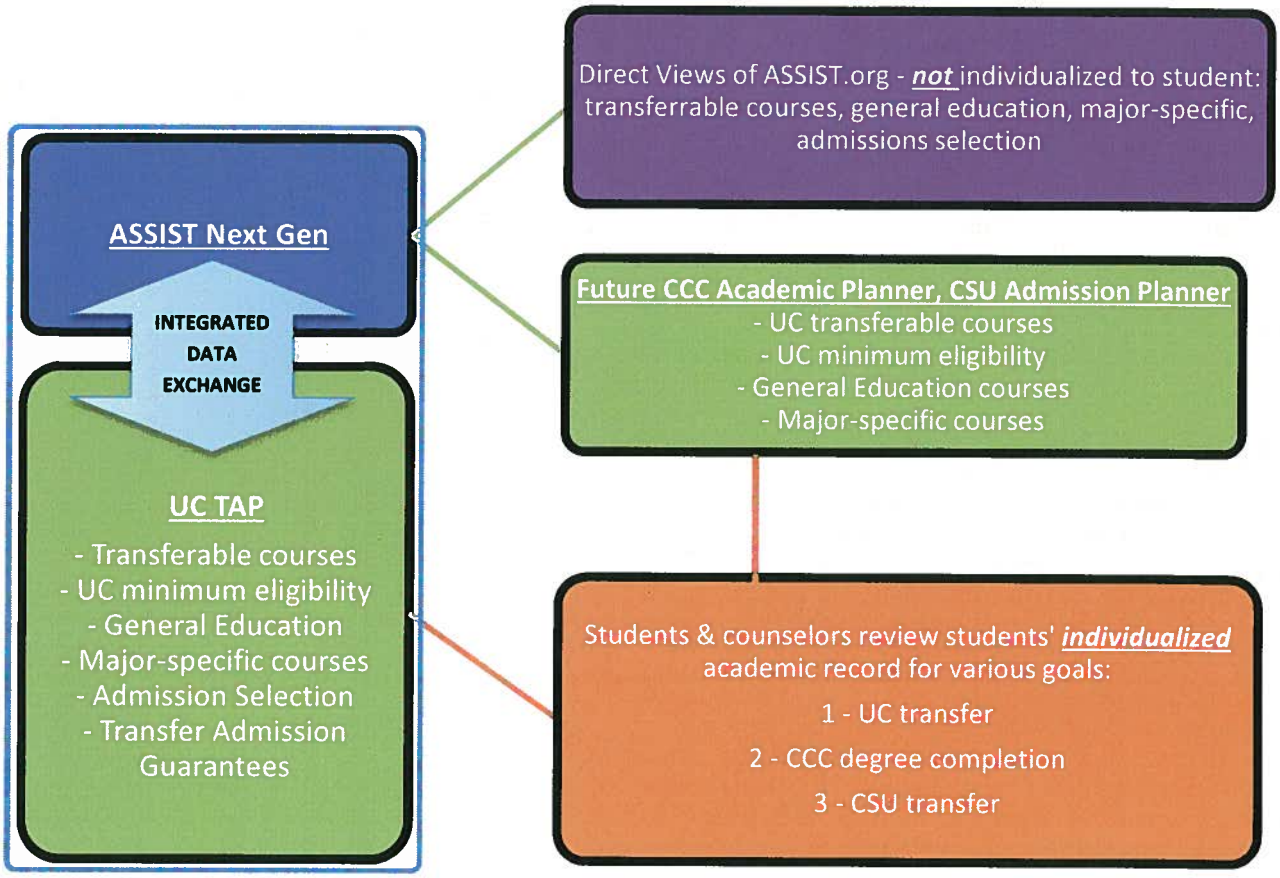


Figure 3: Enhanced Data Sharing between ASSIST and UC TAP Made Possible in 2014



Once all of the articulation items above are available in data-driven formats from ASSIST and incorporated into UC TAP, students will have the most complete online advising available at their fingertips. The architecture for this conversion was completed in 2014; the actual conversion will be completed by the CSU, UC, and CCC over the coming year-and-a-half. This vision represents the "holy grail" of online transfer advising. Not only will it be a pivotal resource for prospective students, it will address the needs of the counseling community that, more than ever, need timely and reliable data for increasingly large student caseloads.

Innovation 11: Expanding Analytical and Report Functionality

UC also completed work in 2014 to provide expanded reporting functionality within ASSIST Next Generation. The functionality was developed this year and will be available to users once the system goes live. This will facilitate better management of articulation by campus staff and segment offices. While some articulation decisions are made at the system level, most are determined by individual campus departments. More sophisticated reporting will allow institutions and segment lead offices to monitor articulation in a more detailed way. For example,

a campus articulation officer could easily run reports to see which community college courses are commonly accepted by their sister campuses, providing faculty and policymakers with the information they need to streamline admissions and curriculum requirements. Users on individual campuses will have access to pre-figured as well as ad hoc reporting.

5. Innovations: Plans for January 9, 2015 and Later

UC's next steps for ASSIST include four key additional innovations.

Innovation 12: Promoting Streamlined UC Transfer Admission Requirements

Enhancements to ASSIST and UC TAP will aid completion of two recommendations from UC's Transfer Action Team, whose report—*Preparing California for its Future*[10]—highlighted important ways to strengthen transfer in California. The Transfer Action Team's first recommendation was to improve UC's communication to prospective transfer students. The team stressed the need to provide CCC students with personally-tailored and strategically-timed messages that emphasized academic planning. To this end, UC TAP will facilitate ongoing and strategic messaging to potential transfer students, tailored to their interests, backgrounds, and academic choices. The Team also recommended streamlining academic preparation requirements for UC's most popular majors. Enhancements to ASSIST will facilitate the streamlining of the transfer articulation process through more sophisticated data analysis and clearer reporting to students and counselors.

Innovation 13: Advancing Statewide Transfer Initiatives

California's adoption of the Associate Degrees for Transfer (ADT) in 2012 demonstrates the state's commitment to creating a seamless transfer pathway. Improvements to ASSIST will provide students with the information they need to take advantage of these important new avenues to the associate's and bachelor's degrees.

In addition, to supporting the state's ADT initiative, ASSIST will also incorporate California's Course Identification Numbering System (C-ID), a "supra-numbering" effort that will bring curricular coherence to the state's lower-division course offerings. (Some of this work has already begun.) Moreover, integration will be deepened in ASSIST by creating more flexible reports to aid students and counselors in finding comparable and equivalent courses among CCC, CSU, and UC campuses.

Innovation 14: Applying Tech-Savvy Approaches to Support Transfer Students

ASSIST's migration from a text-based system to a data-driven format, along with the enhancement of UC TAP, provides the foundation for the creation of applications and other social media interventions that will connect prospective transfer students with anytime/anywhere educational resources on a variety of devices. In doing so, UC aims to support the academic planning and preparation of potential transfer applicants as well as support students in the transition to a four-year university. Also, the potential, to engage students who might not otherwise see postsecondary education as an avenue of interest or investment through the use of social media platforms is enormous. Just as important, colleges and universities reach greater

[10] http://ucop.edu/transfer-action-team/

numbers of students more efficiently with messages around educational achievement that are likely to be persuasive and, therefore, life-changing.

Innovation 15: Diversifying the UC Transfer Student Body Using Targeted Outreach

For decades, organizations such as the College Board and ACT have assembled large databases with contact information of high school students completing the SAT and the ACT exams. The student names in these databases are purchased by four-year institutions to recruit students. In the last decade, digital-age advancements have greatly enhanced these services, which now provide astonishingly precise demographic, geo-markings of prospective students living in specific neighborhoods. Such accuracy allows colleges and universities to pinpoint their recruitment efforts at less cost and greater productivity.

A similar type of recruitment database for *transfer* students has eluded designers, primarily since there is no national entrance exam (e.g., the SAT) for community college students. However, refinement of UC TAP will allow UC to reach out in strategic ways to students attending California's community colleges. Prospective transfers need only log into UC TAP to become part of a growing network of CCC students seeking a four-year degree. UC TAP's critical connection to articulation information in ASSIST and the linkage to a "pre-populated" UC application are the essential incentives that will encourage such students to participate. In turn, UC and CSU campuses will be able to reach out to these students in strategic ways, encouraging students to sustain their academic pursuit, meet important deadlines, and connect to advising resources. Given the challenges that such students face in transferring to a four-year institution, an outreach database of this kind will put prospective students "on the radar" for colleges and universities throughout the state.

6. Innovations: Impact on Cost of a Bachelor's Degree

The improvements to ASSIST described in this application facilitate academic advising and student planning, which in in turn, improves efficiency by encouraging students to make better decisions about which courses to take at community college, shortening their time enrolled at both the community college and UC. While it is difficult to project the exact impact on time-to-degree, any reduction would save students money and more efficiently use state funding to educate more students. This would create three sources of efficiency/savings. See Table 2 below.

1. The average time-to-degree for UC transfers is 2.4 years. If improvements in the transfer pathway resulted in a reduction by a quarter-term, the state would "save" $2,363 per student.[11] UC would "save" $870 in institutional support. With about 15,000 new community college students transferring to UC each year, this would result in a savings of approximately $48.5 million annually. It is important to note that these "savings" would not actually accrue to the state or to UC as they would be redirected to educate more students. In other words, they would be an "efficiency" rather than a "savings."

2. The state subsidy is approximately $5,000 per community college student, or $2,500 per semester. Using the same example of a single term reduction in enrollment, the state could realize $37.5 million in efficiencies.

3. Students and their families would also see their share of costs reduced. For a term at community college, this could be as much as $368 in tuition and $2,598 in estimated non-tuition educational costs. At UC, these figures are $4,064 and $5,944.[12] Furthermore, students would benefit from entering the workforce earlier and by taking on less student debt.

Table 2: Cost Savings to Students and Efficiencies in State Expenditures for a One-Term Reduction in Time-to-Degree

	Potential Efficiency for State Funding		Potential Savings to Students and Families (before financial aid)			
	At CCC	At UC	CCC Tuition Costs	CCC Non-Tuition Costs	UC Tuition Costs	UC Non-Tuition Costs
Cost	$5,000	$9,700	$1,104	$10,795	$12,192	$17,833
Cost per Term	$2,500	$3,233	$368	$3,598	$4,064	$5,944
# of Students	15,000	15,000	15,000	15,000	15,000	15,000
Savings/ Efficiency	$37,500,000	$48,500,000	$5,520,000	$539,750,000	$60,960,000	$89,165,000

[11] The average per-student expenditure from the state is $7,090 per year; average per student expenditure from the University on instruction is $2,610. UC students typically enroll in three quarter-terms per year.

[12] The average cost of attending UC and CCC are from official institutional financial aid budgets. It is important to note that these costs are offset by financial aid from a variety of sources for low-income students, not represented here. Given that the potential reduction in time-to-degree is above the four years allowed for Cal Grants, very little of this savings would accrue to the Cal Grant program.

7. Innovations: Risks and Trade-offs

The innovations discussed here offer cost-effective solutions to one of the most complex problems facing postsecondary education in California. Still, implementation poses two modest trade-offs:

- Changes to ASSIST will require a significant amount of time for faculty and staff to convert existing articulation agreements into the data-driven format described earlier. Transfer requirements are, by their nature, complex. The ASSIST Executive Management and Oversight Committee (EMOC) has set a target of converting 80% of text-driven agreements to data-driven articulation in the first year of Next Generation (2016-17). This goal recognizes the complexity of curricular requirements and the limitations of the vendor to accommodate all 145 institutional requirements in the first year. Therefore, subsequent years will include closing any gap between existing and ideal articulation.

- The second risk is that the increased numbers of students who prepare themselves for transfer as a result of the improvements described here find that there is no space for them at the University of California or the California State University. There is an implicit compact in investing in transfer initiatives such as ASSIST and UC TAP, which is the willingness of the state to continue to provide funds for enrollment growth for its colleges and universities. As discussed earlier, California faces an eminent transfer moment, partly the result of families turning to community colleges as a means to finance a college education for their sons and daughters. Moreover, given the growth in California of groups that have been traditionally underrepresented in higher education—groups that have historically relied on the low cost and geographic accessibility of community colleges—it is clear that the state is faced with a potential watershed moment in fulfilling its commitment to higher education access and equity. This hoped-for goal, however, cannot be achieved without concomitant investments in enrollment growth.

8. Sustainability: Encouraging Innovation

Innovation is at the heart of the transfer strategy described here, but sustained support is necessary to create lasting, positive change. ASSIST was developed by informal groups of professionals from all 145 public colleges and universities devoted to the success of students, especially students from groups that have been traditionally underrepresented in higher education. This grassroots effort translated into formal support from the leadership at CSU, UC, and the community colleges. Over the years, the governance model for ASSIST has changed and adapted, but support from all three segments has remained strong as evidenced by the fact that the Next Generation redesign survived budget cuts during the Great Recession. In fact, support for ASSIST is so strong at the University of California that it was one of 21 final recommendations in the UC Commission on the Future Report, which was charged to identify bold and innovative ideas that would take the University into the 21st century.

Upgrades to ASSIST and UC TAP described earlier highlight the innovative spirit within which both programs were initiated, but also the ongoing nurturing of them. The ASSIST office consists of seven full-time employees housed primarily at the UC Irvine campus. The ASSIST Governance Model consists of an Executive Management and Oversight Committee (EMOC) with a representative from each of the segmental offices. EMOC is advised by an intersegmental team which keeps it appraised of changes in technology. EMOC members also consult frequently with key stakeholders (see Section 9 below) on campuses across the state, which keeps the Committee informed of changes in institutional practice. Given that ASSIST is governed by and interacts with all three segments of California public higher education, it is sensitive to needs of community college students and changes in articulation and transfer policy across the state. This keeps ASSIST vital and evolving.

Importantly, however, ASSIST also acts independently to advance important policy innovations that may not reflect current practice, such as initiating table-driven data solutions in Next Generation. In other words, the governance model allows ASSIST to both respond to campus needs and push the technological innovations forward to meet a broader vision of how transfer can and should operate.

ASSIST is so integral to the infrastructure at UC—from the UC TAP to the application for admission— that transfer simply could no longer happen on the current scale without it.

9. Sustainability: Engaging Stakeholders

ASSIST is the central piece of a comprehensive UC Technology Plan for Transfer under development now. It is being constructed collaboratively with partners at the CSU and California community colleges and with the Transfer Action Team recommendations in mind.

ASSIST consults on an ongoing basis with its stakeholders through a series of formal and informal means. Each member of the governing board (EMOC) consults on a monthly basis with members of their own segment. In addition, EMOC consults with the following stakeholders:

- Current community college students
- CSU, UC Registrars
- CSU, UC Admission Directors and staff
- CCC, CSU, UC Articulation Officers
- CCC Transfer Center Directors
- CCC Counselors
- CCC, CSU, UC Faculty
- CCC, CSU, UC Chief Information Officers

The mechanisms for this input include regular conference calls and meetings with staff from all three segments. Also important are conference presentations and attendance at statewide meetings where issues concerning transfer and articulation are a primary focus. Students are also consulted, usually in the form of focus groups, and will provide user acceptance testing in the coming year.

The UC TAP team consults with the similar constituencies noted above in the following statewide contexts, which informs how ASSIST data are used in TAP.

- UC Counselor Conferences, held at five venues around the state, reach over 5,000 high school and community college advisors.
- Ensuring Transfer Success Counselor Institutes, sponsored jointly by UC and the California Community College Chancellor's Office, provide an intensive professional development opportunity for approximately 750 community college advisors and counselors annually.
- CCC Statewide Transfer Center Director Meetings involve representatives from all 112 community colleges.
- UC Transfer Academic Planner Summits involve representatives from all 112 California community college professionals.

10. Sustainability: Financial Sustainability

The annual operating budget for ASSIST staff and technology has changed over the 25 years of its existence, but was carefully protected by the University during the Great Recession. The program is funded by all three segments of public higher education, as is the Next Generation upgrade. The Next Generation project is funded through the next fiscal year (2015–16). Once completed and the redesigned ASSIST is deployed, the budget for the annual operating costs will shift to supporting the new product. A reduced ASSIST staff will be retained to manage the relationship with the new vendor and ensure transfer students are well-served by the product. The three segments expect to continue their joint contributions in the long-term.

11. Evaluation: Criteria

The transformative changes envisioned through enhancements to ASSIST will influence a number of constituencies. As a result, the effectiveness of this effort must be assessed in multiple ways. The first two measures described below will help inform the management team about the ease of use of the new system by students and counselors. The last three metrics will provide insight regarding the impact of the "data-driven" format for academic planners and other downstream software systems.

Additional metrics will be employed to assess the impact of UC's outreach efforts and, potentially, additional user-testing by student focus groups. The last three metrics will inform consultation and advising of participating institutions and, potentially, reallocation of resources with UC to leverage the tool.

System Metrics

- Number of website hits
- Number of downloads to Word, Excel, PDF, and other software extracts
- Percent of articulation agreements that fit new table-driven formats;
- Number of institutions that use ASSIST data in student-service-related activities
- Number of downstream academic planners and degree audit systems with "robust" integration (defined as downloads that utilize the new table-driven format)

Outreach Metrics

- Number of students who are contacted by UC using ASSIST outreach strategies
- Number of students who are contacted by CCCs using ASSIST strategies
- Number of UC TAP accounts established
- Proportion of UC transfer applicants who transferred data from UC TAP accounts to their application for undergraduate admission
- Number and type of new functions in UC TAP (see Figure 2, p. 10)

12. Evaluation: Outcomes

Outcomes will be evaluated using two sets of metrics. The first set focus specifically on ASSIST programmatic *usage* on the part of students, counselors, and other professionals. The second set of metrics focus on the broader impact of ASSIST and UC TAP on student academic *success*.

Programmatic Metrics

- Proportion of ASSIST Articulation Agreements Converted to New Format: 80% in the first year, 5% additional each year thereafter.

- Number of Academic Planning Tools Using Augmented ASSIST Data: Target one per system at first (UC TAP, CCC Education Planners, etc.) and at least one additional campus each year following.

- New UC TAP Accounts: 5% increase each year in the number of new accounts.

- UC TAP to Application: 5% increase each year in the number of transfer applicants using their UC TAP account to pre-populate their application for admission.

Student Success Metrics

- Increase in Proportion of CCC Students Deemed "Transfer-Ready": A 1% increase per annum in proportion ready to transfer.

- Reduction in UC Units Accumulated Post-Transfer: A 1% reduction in accumulated units upon graduation for transfer students each year thereafter.

- Improved Diversity of Entering UC Transfer Cohort: A 1% decrease in the difference between the proportion of CCC URM students and UC transfer class.