

Charting New Paths to the Future

in the
California Community
Colleges



CALIFORNIA COMMUNITY COLLEGES
Doing What MATTERS™
FOR JOBS AND THE ECONOMY



INSTITUTE FOR THE FUTURE

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California Community Colleges Chancellor's Office

The California Community Colleges is the largest system of higher education in the nation composed of 72 districts and 113 colleges serving 2.1 million students per year. Community colleges supply workforce training, basic skills education in English and math, and prepare students for transfer to four-year institutions. The Chancellor's Office provides leadership, advocacy and support under the direction of the Board of Governors of the California Community Colleges. For more information about the community colleges, please visit <http://californiacommunitycolleges.cccco.edu/>, <https://www.facebook.com/CACommColleges>, or <https://twitter.com/CalCommColleges>.

Institute for the Future

Institute for the Future (IFFF) is an independent, nonprofit 501(c)(3) strategic research and educational organization celebrating nearly 50 years of forecasting experience. The core of our work is identifying emerging trends and discontinuities that will transform global society and the global marketplace. Our research generates the foresight needed to create insights that lead to action and spans a broad territory of deeply transformative futures, from health and health care to technology, the workplace, learning, and human identity. Institute for the Future is based in Palo Alto, California. (www.iff.org)

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California Community Colleges Chancellor's Office



Preparing students for the future has always been a tough job. But in a rapidly changing world, it's more difficult—and more important—than ever, particularly for an entity like the California Community Colleges. As the largest provider of workforce training and higher education in California and the United States, the system serves more than 2.1 million students across 113 colleges in 72 districts. It is a network of independently run colleges, with every district having its own elected board of trustees, but the colleges function under the larger umbrella of the California Community Colleges Chancellor's Office. How can such a large, established, and distributed system keep up and provide innovative solutions for its students in an era of rapid change?

The California Community Colleges' Workforce and Economic Development Division created the Doing What MATTERS for Jobs and the Economy (DWM) framework to chart new paths for dramatic systemic change. The framework aims to transform the colleges into essential catalysts that simultaneously cater to students and drive California's economy through the creation of next-generation careers. With one billion dollars slated to support implementation over the next five years, the framework's goal is to reorient and realign the system's vast network and resources to best serve the students of tomorrow. Furthermore, these assets and efforts support the California Community Colleges in advancing Chancellor Eloy Oakley's imperative of guided pathways for all students.

Over the past four years, innovative programming has increased alignment between student outcomes and employer needs. But are these simply early victories or are they truly setting up the California Community Colleges for success in the future? To try and understand this question, the system has asked the Institute for the Future (IFF), a California-based nonprofit with a 49-year history of researching long-term change, to provide an outside-in examination and map of these efforts against the current landscape of innovation.

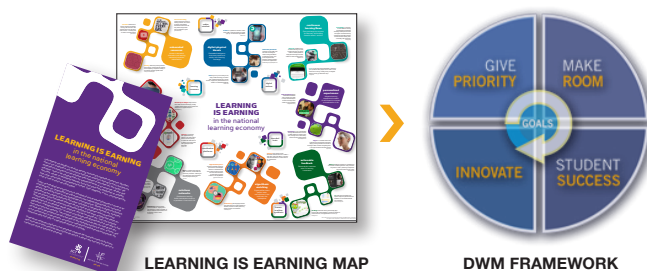
—Van Ton-Quinlivan
Vice Chancellor, Workforce & Economic Development



Charting Innovation in the California Community Colleges

In 2016, IFTF released *Learning is Earning in the National Learning Economy*—a research map that argues that the landscapes of working, learning, and living are increasingly blending together. The map focuses on “working learners”—people who are working to support themselves while also pursuing formal education—and explores the question, “What will the world look like for them in 10 years?” Based on extensive research on drivers of change and evidence-based innovations happening today, the map identifies eight “zones of innovation” that together represent what’s ahead on the second curve of working, learning, and living.

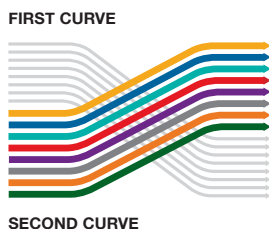
Since 2013, California Community Colleges have been using the Doing What MATTERS for Jobs and the Economy (DWM) framework to motivate and structure system-wide efforts to close the skills gap. The analysis in this report uses the Learning is Earning map as a way to understand the innovation investments undertaken as a part of the DWM framework and to determine the California Community Colleges’ trajectory as they prepare to better serve the students of the future. The report walks through the eight innovation zones—each described as a transition from today’s first curve to the new paradigm of the second curve—and describes projects and investments DWM is taking on today that will chart the way for the second curve.



The system has made advances in all eight innovation zones with some areas further along than others. The report starts first with the zones where the colleges have made the most apparent progress, followed by those where they have made comparatively fewer or smaller advances.

The Two-curve World

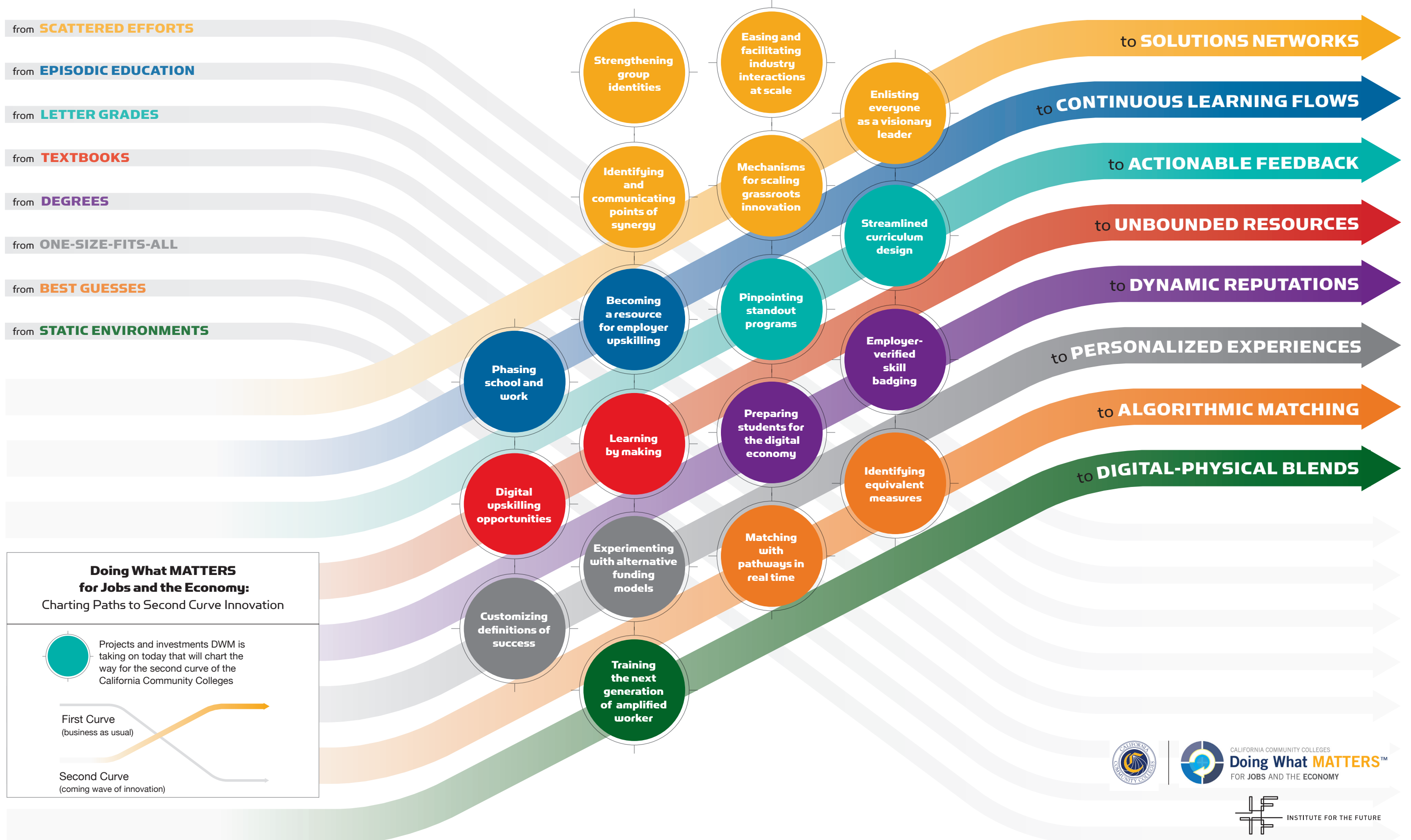
First formulated by former IFTF president Ian Morrison, the two-curve framework is a tool for thinking about the transformations that the economy and society at large are likely to undergo in the next decade and beyond. The “first curve” represents business as usual. It is comprised primarily of formal institutions—banks, large companies, centralized governments, and traditional educational providers—and their accompanying regulations, tools, and practices. People are generally familiar and comfortable with the well-worn path of the first curve. However, networked technologies have disrupted this way of doing things and are giving rise to the “second curve”—a new, highly distributed mode of value creation.



On the second curve, individuals and small groups can create change on the same scale as a large organization. A platform like Wikipedia, with fewer than 200 employees, can create a global resource to which millions of people contribute and even greater numbers use on a daily basis. On this new curve, thousands of protesters in Hong Kong can amass virtually overnight and demand changes in government policy without coordination by a formal central organization.

How are California Community Colleges faring in this two-curve world?

Charting New Paths to the Future in the California Community Colleges



Doing What MATTERS for Jobs and the Economy:
Charting Paths to Second Curve Innovation

Projects and investments DWM is taking on today that will chart the way for the second curve of the California Community Colleges

First Curve (business as usual)
Second Curve (coming wave of innovation)





FROM SCATTERED EFFORTS TO SOLUTIONS NETWORKS

The way we solve problems, whether they are complex scientific questions or just the challenges of everyday life, is shifting from individual work—or even teamwork—to work involving large networks of distributed people. Growing up in a world of constant connectivity, today’s young people will take for granted that they can turn to their networks for guidance, knowledge, and smart solutions to problems they would never tackle alone. And our workplaces will be forever changed, as we find new ways to crowdsource and streamline best practices. In this environment, individual performance and IQ will take second place to network performance and network IQ, and the most successful people will be those who learn how to learn and work together.

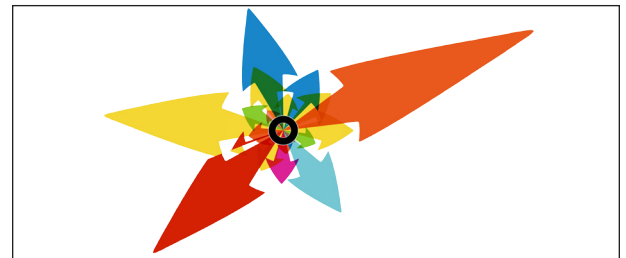
LEADING THE WAY

Solutions networks are at the heart of the Doing What MATTERS for Jobs and the Economy (DWM) framework. The framework’s goal is to both take advantage of the incredible scale of the 113 colleges while also giving institutions enough autonomy to allow for grassroots innovation. You can see this approach in several of the system’s current initiatives.



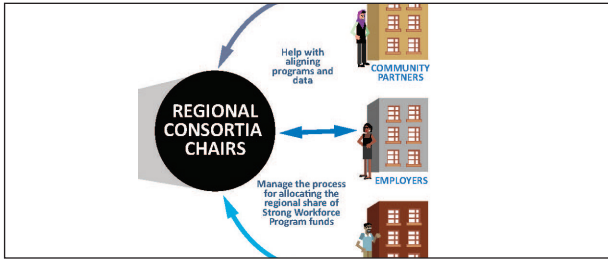
Strengthening group identities

The California Community Colleges system has been divided into geographical regions for quite some time, but leveraging these regional networks has proved challenging. The DWM framework reorganized, restructured, and empowered the regions to act in concert by establishing sector priorities and providing a unifying vision and structure for success, while revising incentives to eliminate barriers to collaboration, such as competition for resources.



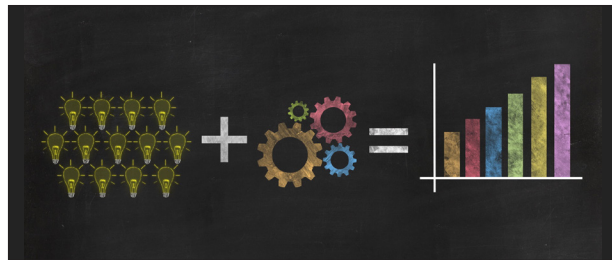
Easing and facilitating industry interactions at scale

Prior to the implementation of DWM, there wasn’t a clear way for industry players to interface with the colleges at large. Even large corporations had to negotiate with each college individually and many decided it wasn’t worth the effort. The structure established under DWM provides companies with a single point of contact who helps them tap into the 113 college network. It leverages the size of the system to sync efforts with employers, bring in more industry knowledge, and provide students with more work and learn opportunities.



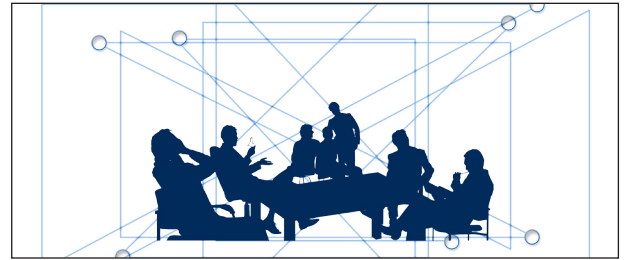
Identifying and communicating points of synergy

You can't amplify what you don't know exists. DWM puts sector navigators and consortia chairs in charge of maintaining an eagle eye view on industry and system-wide efforts to keep programming up to date, identifying points of synergy across colleges, employers, and communities, and ensuring alignment among regions and their programming and services.



Mechanisms for scaling grassroots innovation

Innovation often doesn't come from top-down efforts. DWM allows local innovations to scale system-wide through intentional infrastructure and removal of barriers. Once a network of "at least 10" colleges has incubated a program and proven success with data, it is shared out with the system, so other institutions can sign on. Many of the innovations referred to throughout this assessment are coming to scale in this way.



Enlisting everyone as a visionary leader

The DWM framework is the product of a six-month, bottom-up process that has continued to iterate over the years, with the latest consisting of 20 town halls across the state and extensive calls for input from within the colleges and among civic stewards who work with low income communities. By making its creation a collective process, DWM now has a more dynamic, resilient, and inclusive framework, where everyone from faculty to the community to companies are invested in making sure the vision is carried out, no matter what changes happen at the top.

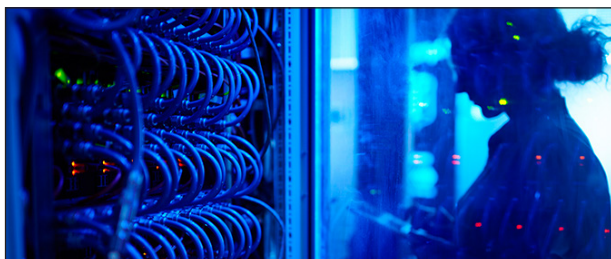


FROM EPISODIC EDUCATION TO CONTINUOUS LEARNING FLOWS

The traditional model of education is episodic: learning takes place in a particular setting and at a particular life stage. It is measured in degrees and seen as something to be accomplished and completed before you enter the “real world.” But that system of multi-year, full-time enrollment doesn’t take into account the incredible financial and personal burden of putting your entire life on pause. And on top of it all, the sequencing simply doesn’t prepare people for a global economy built on innovation—where the tools, skills, knowledge, and practices you need to perform are rapidly changing.

LEADING THE WAY

DWM shifts the colleges, from a place where people go for an associate’s degree and then move on, to a place where people can go throughout their lives as needed to advance in the working world.



Phasing school and work

Built around three short bursts of classes, Information Communications Technologies (ICT) pathways are designed to get students the skills and certifications needed to get into the workplace, and fast. In less than a year in the IT Technician Pathway, students are ready for work in computer retail. After gaining experience and money, students can come back to level-up to the help desk, and finally to IT technician. Rather than viewing work as an impediment, this path views work experiences as an essential part of the learning and survival process.



Becoming a resource for employer upskilling

The California Corporate College takes advantage of the colleges’ incredible knowledge base to provide custom solutions to businesses. The program allows companies to easily access consulting services and training for their employees while simultaneously allowing the community colleges to get double-use out of the resources they already have, build relationships with local employers, and develop a new revenue stream in an increasingly unstable funding landscape.



FROM LETTER GRADES TO ACTIONABLE FEEDBACK

In a world of big data, advanced analytics, and growing reputation markets, feedback is getting ever more nuanced. In learning, in work, and in life, we no longer have to depend on blunt instruments like once-a-year performance reviews. More and more, we get detailed, personalized feedback that we can act on right now. Many of the leading-edge performance tools borrow from the realm of gaming, where players can fail many times but are motivated to improve in order to achieve a higher level in the game. Similarly, real-life performance tools are replacing grades with compelling learning incentives and high-resolution metrics for the complex set of skills that today's work and life challenges present.

LEADING THE WAY

Under DWM, the colleges have new resources to design outcome-based learning to increase student performance, such as the ability to draw on networked experts and labor market data to inform course design and more autonomy to fast-track courses at the local level.



Pinpointing standout programs

LaunchBoard, a data navigation tool created under DWM, helps colleges use granular data, updated annually, on things such as the long-term earnings of graduates from their programs, percentage of graduates who are employed in their field of study, regional labor market information, and more. This data interface allows colleges to catch red flags or areas of particular strength in a timely manner and allocate resources accordingly, or find strong programs at other campuses who can help them up their game.



Flickr user grace_kat

Streamlined curriculum design

Curricula, due to the lengthy approval process, often lags sorely behind the latest technological advancements. To flip this paradigm, the system has now resequenced and streamlined the curriculum design and approval process—allowing curriculum approved at the local level to be used in any college across the system. Each program also needs to pass a fast-tracked labor analysis verifying it is aligned with market demand before investing in full curriculum development.



FROM TEXTBOOKS TO UNBOUNDED RESOURCES

The rapid growth of digital content, whether for fee or for free, is creating an abundance of learning resources in a variety of formats that offer both structured and informal learning opportunities. Ranging from massively open online courses (MOOCs) to augmented or virtual reality simulations to YouTube videos, these resources can jumpstart workplace advancement and earnings growth and support formal learning in new and vivid ways. But the abundance of options can also be overwhelming. In this environment, curation and roadmaps that connect the dots between learning assets and the career opportunities they open will gain paramount importance. And, learners in all contexts will need to build new skills for discovering, categorizing, and even creating learning resources.

LEADING THE WAY

DWM is taking learning beyond the classroom by providing access to online resources, as well as off-campus experiences where students can learn in context.



Digital upskilling opportunities

As part of the Professional Learning Network* established under the Institutional Effectiveness Partnership Initiative, the system now provides college staff with access to Lynda.com. The site is home to an expansive library of skills training videos and courses covering the latest technologies and disciplinary advancements. Employees can use Lynda.com to upskill, and even learn how to utilize the latest e-learning platforms and methodologies.



Learning by making

Lecture halls aren't necessarily the best place to discover new passions. The CCCMaker project hopes to facilitate alternative learning environments on campus by helping 28 interested colleges set up makerspaces. Each grant recipient goes through a design thinking process to arrive at the right model for themselves and their community—be it an on-campus fab lab or an off-campus facility where community members, faculty, and students mix.

*The Professional Learning Network is a project of the Institutional Effectiveness Partnership Initiative (IEPI).



FROM DEGREES TO DYNAMIC REPUTATIONS

As we begin to track learning that happens anywhere and as full-time jobs begin to make way to part-time and gig work, reputation, digital performance histories, and “personal brand” may supplant college degrees and one-page resumes. Indeed, digital freelancing platforms have found that past performance on similar tasks, not formal education, is what employers look at when hiring. Innovations in credentialing will allow us to better represent their personalities and capabilities with new kinds of reputation markers such as nano-degrees and digital badges as well as digital footprints that document perhaps the most essential skill in the new learning economy—our social intelligence.

LEADING THE WAY

Under DWM, colleges are helping students to build up their digital reputations and exploring ways to verify non-classroom experiences and skills.



Preparing students for the digital economy

As part of a 20-college network to implement Self-Employment Pathways in the Gig Economy, College of the Canyons is spearheading a pilot across a 10-college network with UpWork, the world’s largest microwork and digital freelancing platform, to integrate microwork tasks into class curricula. By helping students to build up their digital presence and reputation in a structured environment, they hope to provide students the skills they need to navigate this new working ecosystem—all while earning money.



Employer-verified skill badging

The New World of Work program offers digital badges for critical non-technical skills like adaptability and self-awareness. As many students are involved in apprenticeships, supervisors are sent a quick feedback form upon completion of the in-class work, “Have you noticed the student performing any of these actions?” Students receive the employer feedback, framed in terms of “areas for growth,” and only receive the badge if they demonstrate competency.



FROM ONE-SIZE-FITS-ALL TO PERSONALIZED EXPERIENCES

Every working learner has a unique profile, and a combination of analytics and new human attitudes will help us adapt learning and working to our ever-evolving individual needs and circumstances. Already, new platforms are beginning to offer tailored learning paths based not on a standard curriculum for a fixed job objective but on a dynamic analysis of where we, as individuals, easily succeed and where we may need extra help. Over the next decade, guides will help us turn challenges into personal growth opportunities based on our unique goals, strengths, weaknesses, approaches to learning, and timeframe. They will help us continually reinvent ourselves as the world around us becomes ever more unpredictable.

LEADING THE WAY

Colleges are exploring ways to personalize all aspects of students' learning experience, from how they receive guidance to recognizing more diverse educational goals.

STUDENT SUCCESS SCORECARD

Customizing definitions of success

Historical metrics labeled non-degree-seeking students as “unsuccessful,” even if they achieved their personal goal of gaining a skill or earning more at work. But in 2016 that started to change, when “Skills Builder Earnings Change” was added as an official metric of the Student Success Scorecard. Videos and discussion guides were also disseminated to socialize a more comprehensive definition of success and help colleges support students with diverging goals.



Experimenting with alternative funding models

Currently, funding for campuses is based primarily on the number of full-time equivalent students. As part of the newly established \$200 million Strong Workforce Program awarded by the state of California to support career education efforts, 17% of funds starting year two must be allocated based on alternative incentives—outcomes instead of enrollment. DWM has assembled a “17% Committee” of system leaders and outside experts to determine how to most effectively use those funds and pave the way for a more personalized system.

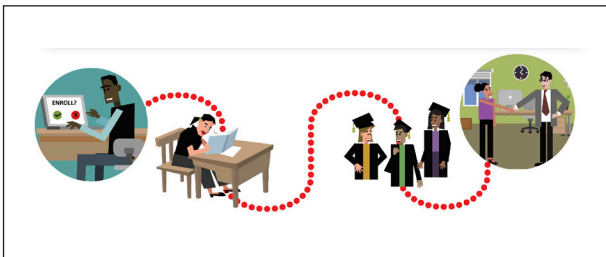


FROM BEST GUESSES TO ALGORITHMIC MATCHING

Today, algorithms frequently take on the role of matchmaker—they find us taxis, recommend movies and books based on our previous viewing patterns, and even connect us to potential love interests. They do this by sorting through our digital data trails to discover individuals, institutions, and opportunities that match our unique profiles. Over the next decade, these kinds of algorithms will change how we learn, work, perform our daily activities, and get what we want. Platforms will match us with institutions, courses, tutors, internships, and employers, all with a simple swipe of a finger. If used correctly, these algorithms could be key to finding connections across our traditional institutional silos.

LEADING THE WAY

The DWM framework includes a huge push toward data-driven decision-making and parallel data collection efforts across all colleges, preparing for a future of increasingly automated system-wide insights and matches.



Matching with pathways in real time

Every student is different, every college is different, and every leader is different. Currently under development, the Pathway Simulator will allow students to see how the classes they have taken are setting them up for the future and vice versa — what pathway to take to get a certain job. Once they determine their goal, the simulator will help match students with the right resources within the college and the wider community in real time. The analytics from student browsing will in turn inform college administrators which programs they should offer based on real-time and projected demand data.



Identifying equivalent measures

The Multiple Measures Assessment Project* places students in classes based on things like their high school grades and noncognitive variables, as opposed to just test scores. To date, efforts have helped to more accurately place over 100,000 minority students in credit-earning courses as opposed to remedial courses. The project is working to advance their approach with a data warehouse that is tasked with automating the identification of alternate measures of proficiency.

*This is a California Community Colleges initiative outside of the DWM framework.



FROM **STATIC ENVIRONMENTS** TO **DIGITAL-PHYSICAL BLENDS**

Mobile devices, sensors, and geo-location tools are rewriting the scripts for how we use physical spaces and objects to learn and work. From tech shops and co-working spaces to cars and construction sites, our workspaces are increasingly embedded with context-aware information that extends human capabilities, enabling us to do things in new ways and accomplish previously unimaginable tasks. Combined with the abundance of online content, these tools are starting to build learning exchanges into every space, creating sensory-rich experiences that can't compare with traditional classroom learning or traditional workplace environments. In this world of embedded intelligence, we all become sensors and sense-makers.

LEADING THE WAY

Many of the technologies described in this innovation zone are not mature enough to incorporate into the learning environment. However, colleges still need to train the next generation of students and innovators in these technologies.



Training the next generation of amplified worker

Many Career Education programs within the California Community Colleges focus on preparing students for the cutting-edge industries of tomorrow. For instance, in the Industrial Automation program at Bakersfield College, students learn everything from how to program humanoid robots to best practices for designing automated manufacturing facilities.

Orienting Toward the Future

Adopting a futures mindset helps an organization to build out its capacity to identify and work toward its preferred future, and engage proactively with a world undergoing profound transformation. That is exactly what the California Community Colleges has done as it faces massive changes in the way society organizes its workforce and prepares its individual workers for success—the second curve. The initiatives undertaken as part of the DWM framework—Doing What MATTERS for Jobs and the Economy—demonstrate leadership and a willingness to prepare for the future across eight major zones of innovation that will redefine the future of learning, working, and living:

- Building **solution networks** of regional consortia, industry players, program innovators and civic stewards, the DWM framework has connected the dots between innovators from the grassroots level to regional leadership.
- Fostering **continuous learning flows**, DWM has created pathways for phased learning and working as well as upskilling for employers and employees.
- Striving for **actionable feedback**, DWM has created tools for integrating data to pinpoint standout programs and fast-track the broad-based adoption of local innovations in curricula.
- Tapping into the wealth of **unbounded resources**, DWM has made skills-training resources accessible to its employees and embarked on a program to establish new makerspaces, both on and off campus.
- Recognizing the essential need for **dynamic reputations**, DWM has piloted skill-based badges and has plans to collaborate with the world's largest microwork platform to update and track student skills in near real time.
- Demonstrating a growing commitment to **personalized experiences**, DWM is expanding and customizing how it defines success and rethinking the ways student outcomes are incentivized.
- Anticipating the power of **algorithmic matching**, DWM has invested in a new personal planning platform and has started to automate the identification of alternative measures that can predict student success in courses.
- Preparing for a world of **digital-physical blends**, DWM supports programs that train the next generation of workers who will learn from—and build—a variety of digital-plus-physical environments.

Evaluated against this checklist of future zones of innovation, DMW has demonstrated a readiness to ride the emerging wave of system-level transformation. But these efforts are really just the beginning. On the second curve, navigating system change is a job for everyone. The initiatives described in this report point the way, but ultimately, they are more a call to action than a fait accompli. They are an invitation to students and teachers, workers and employers, college administrators and civic stewards of the California Community Colleges to lead the way to a world where learning is earning and earning is learning—and living is the best way to do both throughout a lifetime.



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