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OUTCOMES

ECONOMIC IMPACT OF RESEARCH SCHOLARSHIP AND ENGAGEMENT

SPECIAL
LEGISLATIVE
ISSUE

Higher Education, Business at a Crossroads

Funding, Technology, and Demographics Challenge CSU 2025 *p.24*
College to Career: Universities, Industry, Searching for Alignment *p.30*

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EDU.Outlook | National News & Trends in Higher Ed
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Colorado State University

COLLEGE OF BUSINESS

Department of Finance and Real Estate



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iStock by Getty Images
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Colorado State University Outcomes
 is published twice yearly.

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Welcome to a new publication from Colorado State University. We're calling it "*Outcomes*," and we hope you agree it is not your typical university publication – whether you are holding it in your hands, or viewing it on a screen! *Outcomes* is our attempt to flip the way that we communicate with you, our alumni, friends, supporters and others. We've pulled together an interesting mix of voices for this publication – not just from campus, but from many people outside the CSU community – and we're not just sharing our accomplishments, but also providing an honest assessment about the struggles we face. We do this not because we are daunted by these

challenges, but rather in recognition that truly understanding obstacles is the only way to overcome them. We designed *Outcomes* to engage you all in that process.

In this edition, you'll hear from national leaders in higher education, you'll hear from fans of colleges and the people hiring our graduates, you'll hear about faculty breakthroughs and economic development advances – but you'll also hear from our critics and learn about the challenges ahead for CSU. We'll share stories about the ways we are making a difference, but throughout this publication, you'll also hear a candid assessment about the metaphoric landmines we face in an increasingly complex higher education landscape. As an institution, we are absolutely committed to accountability and transparency, and by sharing this publication with this focus, we hope you will see that we have never been more focused on producing outcomes that matter than we are today.

This focus has been at play in all the stories we've selected and shared with you here, and we hope you enjoy this fresh approach. *Outcomes* should look different, feel different and be a good way for you to truly see and understand our work and mission at Colorado State University.

To make sure we could succeed in this new approach, we've brought in Bart Taylor – a proud CSU alum who has spent his career in business journalism, and made a name for himself as a no-nonsense storyteller of what is really happening in the business communities he's covered. Our idea is to have a "publisher in residence" from the private sector that drives the publication. Bart's challenge was to connect the stories of challenges and opportunities that happen at CSU from a different perspective. We think he did that quite well in this first edition of *Outcomes*. We are especially proud of the profiles of our amazing alumni featured here – in many ways the contributions of the people whose lives we have touched are our greatest accomplishments.

We sincerely hope *Outcomes* engages you in an honest, interesting discussion of the value and importance of Colorado State University, and the real challenges we face. In this publication, we strive to build your support by sharing our passion about what we do, demonstrating how committed our alumni, students, faculty and staff are to serving Colorado and the world, and to share our thoughts on how to overcome the obstacles we face in playing that role. We'd love to hear from you. What do you think of this, and how do you think we can make it better? What stories did we miss? What voices should we add? I'd love to get your thoughts, suggestions, criticisms and/or praise for this new publication we're adding to our communications mix. Email me at: tom.milligan@colostate.edu , or call me at 970-491-3896. 



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Peter McPherson

*President, Association of
Public and Land-grant
Universities*

Closing the Innovation Deficit

Americans are rightfully concerned about the state of the federal deficit and its impact on the long-term fiscal health of our nation. As a former Deputy Secretary of the U.S. Department of Treasury, I too have been worried for some time. But even in these tough

times we need to make some strategic investments in research to avoid another type of deficit – the “innovation deficit.”

America’s economy has been built on innovation and new ideas that create jobs and healthy communities. After World War II, the federal government helped the U.S. grow the world’s strongest economy with strategic investments in science and technology that made our country the world’s innovation leader. Research funding to universities by the National Science Foundation, the National Institutes of Health, NASA, and the Departments of Defense, Energy, Agriculture, and Commerce has led to life-saving vaccines, lasers, improved prosthetics, touchscreens, GPS, and even the Internet.

In fact, more than half our country’s economic growth in recent decades has been due to innovation, much of which resulted from federally funded scientific research. Innovation has made the United States the leading economic power in the world. It’s why many new industries have their roots here in the U.S. and why the smartest people from all over the world want to study at our universities. It’s the reason why our men and women in uniform are equipped with the world’s most advanced technologies.

So what is the “innovation deficit?” It’s the widening gap between the actual level of federal government funding for research and higher education and what’s needed if the United States is to remain the world’s innovation leader.

Reduced federal investments in research and education in recent years, compounded by budget sequestration, have put the U.S. at a distinct disadvantage moving forward that may eventually cost us our role as global innovation leader. The recent federal budget deal has started to move us in the right direction with a partial repeal of sequestration for this year and next, but funding levels largely remain at or below where they need to be.

Having seen the enormous benefits such investments have had for the U.S. economy, other countries have dramatically increased their investments in research and higher education. Over the last decade, U.S. R&D expenditures as a share of economic output have remained nearly constant, but have increased by nearly 50 percent in South Korea and nearly 90 percent in China.

We may not know what our nation’s next big medical discoveries, energy breakthroughs, or computer-based advancements will be, but we do know that they’re likely to be rooted in research conducted in labs like the ones at Colorado State and other universities across the country.

Federal investments in research yield enormous economic benefits across the country. Colorado State University conducts \$300 million in federal research each year. Discoveries from that research are often transmitted to businesses which develop new technologies that create jobs and grow the economy. Initiatives like CSU Ventures address critical global challenges in the areas of infectious disease, cancer, and clean energy by pairing cutting-edge research with a commercial arm.

It’s through federal investments in research at CSU that companies like Prieto Battery, which produces revolutionary rechargeable lithium ion battery technology, and Numerica, which provides algorithm-driven software solutions that enhance our national security, are able to be born and thrive. Continuing and expanding such investments will ensure that new technological breakthroughs happen here in U.S. university labs with U.S. company partners rather than overseas.

Stemming the innovation deficit is a national economic imperative and it is vital to dealing with long-term budget deficits and debt reduction. Unless we address our nation’s declining competitive advantage by prioritizing more investments in science agencies that fund programs like Colorado State University’s Superclusters, we will always have a federal budget deficit hampering our nation’s economy and burdening future generations.

If the United States is to remain the world’s innovation leader we must close the funding gap – the innovation deficit – by growing and sustaining federal investments in scientific research and education. Doing so will grow our economy, and allow our nation’s longstanding promise of a better tomorrow to endure. 🌍



Students around the world have access to CSU research – for free: with MOOCs

Colorado State University has given new meaning to its mission of education and outreach through recently launched online courses, popularly known as MOOCs (massive open online courses). MOOCs are noncredit and social-based courses that provide educational access to the public at no cost.

Students engage using discussion forums and social media platforms, such as Facebook, to build an interactive community in a worldwide classroom.

"It's not just an online course, it's an event," says Dave Cormier, educational activist. "It's a way to connect and collaborate ... a way of engaging in the learning process. Maybe most importantly, it's an event around which people who care about a topic can get together and work and talk about it in a structured way."

MOOCs have allowed Colorado State to expand its educational access and global reach far beyond where it's been before. For example, the University's first MOOCs saw students enroll from nearly all 50

states and 41 countries around the world.

CSU's newest MOOC, "Water, Civilization, and Nature: Addressing Water Challenges of the 21st Century," is a chance for the University to share its internationally renowned reputation in the water industry.

"During the course, students have an opportunity to explore a wide variety of pressing challenges related to water, learn about innovative approaches to addressing these challenges, and see how the issues affect both the larger groups of people and individuals like themselves," says Glenn Patterson, MOOC facilitator and CSU faculty with expertise in watershed restoration and management and hydrology.

Patterson and nine other Colorado State faculty with expertise in water resources tackle a wide range of water-related issues like climate change, public health, diplomacy, natural disasters, and more in the free online course now in session.

"This MOOC is a new way for our faculty to share the breadth and depth of their water research," explains Reagan Waskom, director of the Colorado Water Institute and Colorado State University Water Center. "We hope this course inspires students to think more deeply about water, and offers a fun and different way to learn more about water issues."

Critics of MOOC argue they can't

replace the personal touch of a traditional college course. Yet proponents argue the evolution of MOOC will follow the path of other industries upended by the Internet: Changes will be uneven, but the end result will be largely digital.

~ By Amy Jo Miller

College of Business studies social and economic impact of the beverage industries on Colorado

~ By Jim Francis

Director, Beverage Business Institute

Unless you are among the thousands of individuals in Colorado who are employed in a business that has some type of beverage as one of its products, you probably haven't given much thought to the economic, social, or cultural impact of the beverage-related industries. Those employed, either directly or indirectly, in one of these industries recognize how important beverages have become from an economic standpoint and how their products and services have literally changed some of our traditional busi-





ness models and consumption patterns.

Anyone older than 35 probably viewed the idea of bottling water in individual servings as a business model more similar to the “pet rock” than to that of a sound, revenue-generating commercial endeavor. The ubiquitous water bottle tucked into purses and backpacks or swinging from belts of health-conscious and well-hydrated consumers has also led to the creation of a whole new industry of reusable bottles.

Likewise, coffee shops have spread across the retail business landscape, growing from humble beginnings to massive corporate structures that have created an overwhelming economic presence. Many of the independently owned shops have evolved into coffee and wine bars and have slowly added more and more food items to accompany the beverages served -- essentially flipping a traditional perspective of beverages being served as complements to food.

The American Beverage Association, which tracks the production and sales of non-alcoholic beverages, estimates that the economic impact of these products in Colorado was in excess of \$6.1 billion in 2012. This includes juices, soft drinks, coffee, energy drinks, flavored water, and all other beverages that do not contain any alcohol.

As for alcoholic beverages Colorado is first in the U.S. in the production of beer, so it is not surprising that the economic impact of the brewing industry is a staggering \$14.8 billion. Add to this the \$2.8 billion estimated by the Wine and Spirits Wholesalers of America and the total economic impact of alcoholic beverages in the state is approximately \$17.6 billion. When considering all beverage-related businesses there is a total economic impact of nearly \$24 billion.

This level of economic influence underscores the importance of these businesses to Colorado and is a substantive reflection of the lifestyles of the population of the state. The Beverage Business Institute is proud to be an important part of this healthy economic sector.

Biosensor chip research getting a Charge out of crowdfunding

Inside a Colorado State University biomedical engineering laboratory sits a tiny silicon chip. It is the latest prototype of a biosensor device that could one day be implanted in the human body to detect the chemical changes that cause cells to malfunction or become cancerous.

CSU researchers have spent the past four years designing the 2-centimeter-by-2-centimeter chip, which is packed with 8,192 electrodes each one-fiftieth the size of a human hair.

Initial results are promising. The chip has successfully detected low levels of norepinephrine and nitric oxide – two key chemicals produced by cells in the body.

To enter the next phase of testing, the team is searching for funds, as the National Science Foundation grant that supported the development of the first two prototypes is ending.

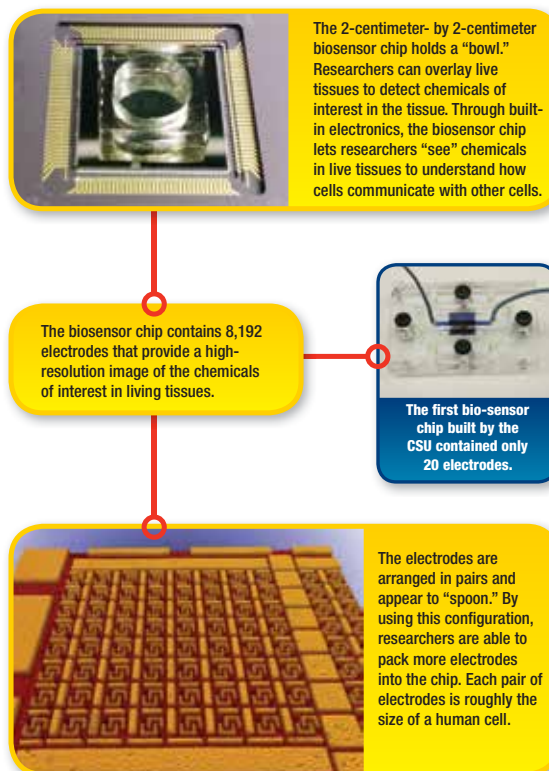
“We need more data to obtain funding from a private company or another federal agency,” said Stuart Tobet, director of CSU’s School of Biomedical Engineering and a researcher on the project. “We are trying to find a bridge to jump a gap in funding.”

The School of Biomedical Engineering has launched a campaign through Charge, the University’s crowdfunding platform, to raise \$50,000 to pay for equipment and graduate students to continue the project.

Cells in the human body communicate with one another by sending and receiving a barrage of chemical signals. Cells interpret these messages and “decide” to grow, split, move or even die. These chemical signals play a key role in the development and spread of disease.

CSU researchers believe the biosensor chip can help decipher those chemical signals and understand how cells respond. Tobet equates the sensor to using infrared goggles. But instead of heat, it identifies chemicals. When live tissue is overlaid on the sensor and then placed under certain microscopes, researchers can “see” the chemical signals and at the same time watch how cells respond.

“If we can identify what is normal physiology and what is abnormal, we



can detect diseases and other health problems much, much earlier,” said Tom Chen, an electrical and computer engineering professor and member of CSU’s School of Biomedical Engineering.

Other CSU team members include Melissa Reynolds, assistant professor of chemistry and biomedical engineering, and Chuck Henry, chemistry and biomedical engineering professor. Avago Technologies, an industrial partner, provided the manufactured chips.

~ By Kortny Rolston



Former Gov. Bill Ritter provides President Obama wide-ranging plan for clean energy

A week before this year's State of the Union address, former Colorado Gov. Bill Ritter, director of the Center for the New Energy Economy at Colorado State University, released a report offering scores of ideas on how the Obama administration can move the nation closer to a clean energy economy and reduce America's carbon emissions over the next three years. The recommendations in "Powering Forward" are all actions that can be taken by President Obama and executive agencies now, without waiting for Congressional action.

The report was developed over eight months with the help of more than 100 CEOs, energy experts, academicians and thought leaders who participated in a series of roundtables last year. Ritter emphasized that not all of the participants agreed with all of the ideas, but the report reflects the recommendations that received the strongest support.

"The President has led the nation on clean energy and climate change since he took office, including the initiatives in the climate action plan he announced last June," Ritter said. "In the face of congressional inaction, the new recommendations are intended to help

the administration continue to lead."

Among its 200 recommendations, "Powering Forward" urges the President and his administration to:

- ▶ *Carefully compare the full life-cycle benefits and costs of each energy resource as national energy policy is implemented.*
- ▶ *Direct the Environmental Protection Agency to issue clear preliminary guidance to states as early as possible in the regulatory process to encourage early adoption of new energy efficiency and renewable energy measures, and to explain how they will be credited in state implementation plans to reduce greenhouse gas emissions from existing fossil-fuel power plants.*
- ▶ *Direct federal agencies to work with the nation's electric utilities and utility regulators to update regulations that are getting in the way of clean energy technologies.*
- ▶ *Request that the IRS use its existing authorities where possible to issue rulings and interpretations of the tax code that increase incentives for private investors to capitalize clean energy technologies.*
- ▶ *Issue even more aggressive goals for the government's use of third-party financing for energy efficiency and renewable energy improvements in federal operations.*
- ▶ *More clearly define the criteria for "responsible" natural gas production and require that oil and gas companies use best available production practices on federal lands.*

The CNEE initiative was inspired by President Obama when he met last March with 14 corporate and private sector leaders at the White House, including Ritter, to hear their advice on energy policy.

The complete set of recommendations is available at the CNEE website, cnee.colostate.edu.

~ By Kate Hawthorne Jeracki

SAT changes are coming in 2016

The College Board, the organization that owns the SAT test for college admissions, plans to introduce a new, overhauled version of the test sometime in 2016. The College Board had hoped to introduce the new version of the test in 2015, but those plans were recently pushed back a year. The last time the SAT was significantly changed was in 2005, with the College Board introduced, among other things, the essay section. The College Board also in 2005 deleted the much-maligned SAT analogies section.

The SAT remains a critical element of the college admissions process. According to the latest statistics, fully 1.66 million students took the SAT during the 2013 school year, putting the SAT just behind the ACT (1.8 million nationwide) in terms of college test market share. Average SAT test scores in 2013 remained relatively stable compared with the previous year: Average scores in critical reading (496), math (514) and writing (488) were all unchanged.

David Coleman, president of the College Board, says he wants to make the SAT test more "beautiful." He also says the new version of the SAT will address concerns over the essay portion of the test; critics have argued that the current essay section of the test doesn't adequately test students' ability to create logical, thoughtful arguments.

However, the exact details of the SAT overhaul remain under wraps. Moreover, judging from the College Board's recent move to delay the introduction of the test by another year, it's quite possible that the current concept of the new test could change significantly by 2016.

~ Mike Dano



College Boosts Lifelong Earnings & Promotes Healthy Lifestyles

Education Pays 2013:

The Benefits of Higher Education for Individuals and Society, the annual influential study prepared by the College Board, makes a strong case for students to complete a college education. And the payoff is not merely financial – higher education is also correlated with good health. Highlights in the 2013 study include such benefits as:

\$56K



\$35K

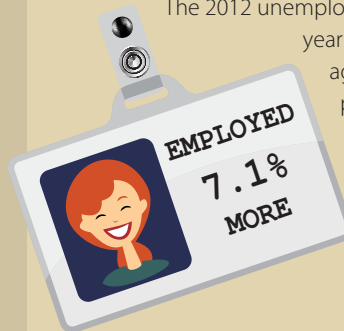


Earnings

Median earnings of bachelor's degree recipients with no advanced degree working full time in 2011 were \$56,000, versus \$35,000 for those with high school diplomas.

Employment

The 2012 unemployment rate for four-year college graduates ages 25 to 34 was 7.1 percentage points below that of high school graduates.



42%



29%



17%



Volunteerism

In 2012, 42 percent of four-year college graduates, 29 percent of adults with some college or an associate degree, and 17 percent of high school graduates volunteered for organizations.

17%

Health

The gap between the smoking rates of four-year college graduates and high school graduates increased from 2 percent in 1962 to 13 percent in 1982 to 17 percent in 2012.

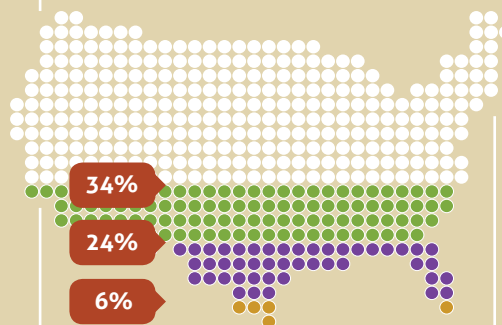


Fitness

Additionally, college-educated adults and their kids are less likely to be obese.

Degrees Up

The percentage of adults in the U.S. between the ages of 25 and 34 with a four-year college degree grew from 6 percent in 1950 to 24 percent in 1980 and 1990. In 2012, 34 percent of adults in this age group had earned a bachelor's degree or higher.



THE COLLEGE BOARD, based in New York City and known most prominently for operating the SAT exams, is a nonprofit organization with membership of more than 6,000 of the world's leading educational institutions, with a mission to promote academic excellence and expand access to higher education. The organization also operates the national AP, or Advanced Placement, examinations for high school students, as well as a variety of college planning and college search programs, and professional development for educators.



Potato Research Grows Into Unique Partnership Between CSU Scientists, Farmers

In the San Luis Valley in southwestern Colorado, a group of Colorado State University researchers is working with local farmers to create new breakthroughs in a surprising area of study: potatoes.

CSU's Colorado Potato Breeding and Selection Program is working to create new strains of potatoes that are heartier, tastier and more nutritious than any other potato that has ever been grown. And so far, CSU's program has produced some dramatic results: A handful of different types of potatoes that have grown out of the program – Canela Russet, Mountain Rose, and Purple Majesty, to name a few – are some of the most popular in the nation. Potatoes with roots in CSU research accounted for 58 percent of the 55,100 acres planted to fall potatoes in Colorado in 2012. As

revenues generated by the program total around \$313,000 per year, it's a shining example of the kinds of working relationships universities can form with the private sector.

But perhaps the most important metric to come from the program is its effect on participating farmers: One potato grower estimated that potatoes from CSU's breeding program increased his per-acre yield by more than \$1,300 annually thanks to disease-resistant strains. And if that's not enough, scientists across the country are now probing some of the unique attributes of the potatoes that

have sprouted from CSU's Colorado Potato Breeding and Selection Program. New research has found promising links between CSU's potato strains and decreases in blood pressure, declines in macular degeneration, and even potentially improvements in weight loss.

All of these benefits stem from careful crossbreeding. "When you make a cross, you can get all kinds of variations," explains David Holm, a professor at CSU whose full official title includes the phrase "potato breeding and physiology."

Holm was raised on a family potato farm in southeastern Idaho, and he helped get CSU's Potato Breeding and Selection Program off the ground in 1979. During his more than 30 years at CSU, he has worked to expand the program to focus not just on hearty, long-lasting, and disease-resistant potatoes, but also spuds that are better for you, and taste good to boot.

"We're always trying to improve the potato in some way or another," says Holm, explaining that CSU's potato-breeding program has produced varieties with more iron, zinc and vitamin C. "It has evolved over time where we're looking at things from a consumer perspective," he says. "Appearance is another big thing we have to consider."

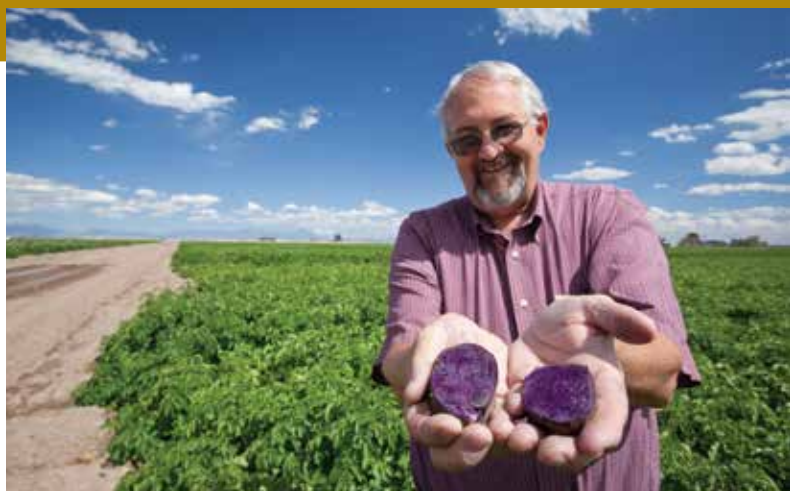


Holm says research into CSU's popular Purple Majesty potato variant has shown that it can in some cases improve an eater's blood pressure. Another study on the Red Flesh potato showed that it can slow down macular degeneration. And Kemin Industries, a life sciences company in Iowa, is working to extract a compound from a CSU-produced potato that it believes could help people lose weight by speeding the sense of satiation – essentially making people feel full faster.

Potato breeding in the San Luis Valley stretches back more than 125 years, and the original San Luis Valley Research Center was established in 1888. Modern potato research kicked off in 1940 when the San Luis Valley Potato Improvement Association and the San Luis Valley Potato Board of Control leased 160 acres at the present site of CSU's research center. Initial studies focused on selecting potato varieties adaptable to the region. In 1979, the current San

identifying breeds of potatoes that are superior to what is currently available to commercial potato farmers. "It's definitely a collaborative process," Holm notes.

Once the program uncovers potato strains that could represent a commercial opportunity, CSU's unique, exclusive agreement with the Colorado Certified Potato Growers Association kicks in. The CCPGA is a 60-year-old association of certified seed potato growers that essentially takes ownership of the new cultivars that are produced from the CSU Potato Breeding and Selection Program. "You put all this information together and



The relationship between CSU's potato-breeding researchers and the CCPGA and its farmer members represents the kinds of win-win partnership that universities are increasingly looking to strike with the private sector.

Luis Valley Research Center and the CSU Colorado Potato Breeding and Selection Program began in earnest.

The goal of the program is to cross-breed different varieties of potatoes to uncover unique potato strains, dubbed "cultivars." While this may sound simple, it's actually a multiyear process that requires CSU researchers to carefully catalogue tens of thousands of unique types of potatoes and carefully track their growth and development over several growing seasons. Specifically, around a dozen San Luis potato farmers plant and grow potato variants and report their experiences to the CSU research team, with the goal of

then you put it out to the growers," says Robert Davidson, Holm's potato-breeding colleague who focuses on preventing potato disease.

"The potato breeding program is the lifeline of the industry," explains Preston Stanley, manager of the CCPGA. Stanley says that, prior to potato-cultivating programs like CSU's, most potato farmers focused on growing the standard Russet potato. Now, however, "There's a big market for the specialty [potatoes], which is growing by leaps and bounds," says Stanley. "That's what I see as the future of the potato market, the specialty market."

Farmers can obtain CSU-bred potatoes

through the CCPGA by paying a \$500 participation fee, and then, depending on the cultivar, royalties that range from 50 cents to \$2 per 100 pounds of potatoes sold. That money goes back into the CSU program to ensure a steady supply of new, unique, and marketable potatoes.

The relationship between CSU's potato-breeding researchers and the CCPGA and its farmer members represents the kinds of win-win partnership that universities are increasingly looking to strike with the private sector. CSU's work with Colorado potato farmers helps the university generate royalty revenues and bolster its research credibility, while participating farmers get access to the latest and greatest potato strains.

But the program isn't resting on its laurels. The quest for the Holy Grail of taters is ongoing. "One of these days we'll have the perfect cultivar," says Stanley, "and that's what we're all hoping for." 🌱

~ By Mike Dano



Photos © Dan Bihn

A Strategic Business Partnership That Runs Deep

The business relationship between CSU and the First National Bank of Fort Collins flourishes through the bank's president, a double CSU alum, former football star, onetime AD, and a Ram fan forever.



Corporations and universities throughout the country form strategic partnerships that benefit both the businesses and the schools, but there are few such partnerships with roots as deep as the one between Colorado State University and the First National Bank of Fort Collins.

The two entities have forged a banking relationship that brings exclusive banking services and royalties to the university, and which provides on-campus banking access to CSU's 28,000 undergraduates and 5,000 staff and faculty members. And, yes, this Strategic Business Partnership involves marketing agreements and sponsorship dollars from the bank to a wide variety of CSU academic, extracurricular programs and athletics.

In these regards, the CSU/First National Strategic Business Partnership

is quite like those the university maintains with Coca-Cola, Hewlett-Packard, Office Depot, and other companies.

For CSU and First National Bank, however, the Strategic Business Partnership takes on a more innovative, and personal, touch because of Mark Driscoll. The Colorado Market President of First National Bank has spent most of his life in a strategic partnership with Colorado State University. The native of La Junta, Colorado, has been all about CSU since he first came to campus as a freshman in the fall of 1971.

Or, rather, when he came in the summer of 1971 to camp as a freshman football player for the CSU Rams. While earning his degree in Business Administration, Driscoll played three seasons of varsity football, and the quarterback remains to this day in the CSU record

books for most touchdown passes in a single game (six, against Nevada on Oct. 19, 1974).

Not bad for a guy who modestly says he played quarterback because he was "too small to do anything else."

Since graduating from CSU, Driscoll has long maintained his BMOC status with the university, both as a banker and in athletics. For four years after his studies ended in 1975, Driscoll was an assistant football coach in the Ram program before joining First National Bank. He started in the marketing department, then went into business development ("really a sales job," he says), then into commercial lending – finding time along the way, in 1987, to complete his Masters of Science in Management, at CSU of course. In 1994, Driscoll became president of First National's Colorado operations.

In 2003, Driscoll left the bank to take the reins as Athletic Director of CSU, then he went back to First National in 2006 as president, and has since forged ahead with the Strategic Business Partnership between the two entities.

The First National Bank of Fort Collins is a subsidiary of the First National Bank of Omaha, Nebraska, a multi-billion-dollar bank holding company. The Colorado operations, founded in 1881, maintain 24 retail branches in the state, concentrated in Larimer, Boulder, Weld, and Adams counties.

In regards to the history of the strategic business relationship with the university, Driscoll explains that bank lore says that back in the early years, the two big targets for business were the then-new Colorado State Prison in Cañon City and the land-grant college, founded in

reach is remarkable.”

“If we want to be leaders, to be the university’s bank is a terrific benefit to us,” he adds. “It has helped us build our bank into the leading bank in Larimer County.”

Under the Strategic Business Partnership with the university, First National Bank is the Official Bank of CSU, and the bank provides the university with banking services and treasury management. The bank is also the exclusive bank on campus with branch outlets and ATMs.

In 2008, First National created the RamCard Plus program, branded by partner Visa, for CSU students, faculty, and staff. RamCards act as both university IDs and debit cards, utilizing two magnetic strips, one for the university and one for banking transactions. The

“The question then was who gets the prison and who gets the college, and back then the economic plum was the prison,” he says.

1870 as Colorado Agricultural College in Fort Collins.

“The question then was who gets the prison and who gets the college, and back then the economic plum was the prison,” he says.

Turns out, more than a century later, the college that became CSU had the long-term economic advantage.

“The economic impact of the college on Northern Colorado is spectacular,” Driscoll says. “CSU is the largest employer in Northern Colorado and we wouldn’t have all the high-tech companies and other large businesses and employers in Northern Colorado without CSU. CSU is known worldwide – its

bank pays the university a royalty on transactions.

“At the time of launching, it was the first card of its type approved by Visa,” says Driscoll of the RamCard, adding that it has been emulated at several other universities around the country. “We are proud of it and it has been a great partnership.”

In return for providing the banking services and paying the royalties, the bank gets full marketing access to the 28,000 CSU students and 5,000 staff members. The bank also provides “significant” donations to university programs and participates in a full range of athletic marketing.



Mark Driscoll
Colorado Market President
First National Bank

One of the university programs Driscoll is most proud of is the bank’s position as the primary sponsor for the CSU women’s initiative called The Ripple Effect, which provides seminars, speakers, and other programs for the women on campus.

All things considered, it’s easy to see why Driscoll can’t quite separate himself from the banking business. “I have a wonderful job and work with great people,” he says. Community banking “is a great business – we help people realize their dreams.”

But it’s also easy to see why Driscoll can’t quite separate himself from CSU either, and why the Strategic Business Partnership between the university and the bank is much more than simply a corporate opportunity.

“Far and away, CSU is the school of choice for Colorado high-school students,” he says. And using the royal “we” referring to his alma mater, he adds, “We are educating the future of Colorado at CSU.”

Now that’s a strategic partnership that runs deep. 🍷

~ By Jeff Rundles

Shelly Swanback

North American Technology Lead
Accenture, Denver

'91 *Computer Information Systems/Mathematics*

Swanback, an Arvada native, says she was "a straight-A student so I could have gone [to college] anywhere."

"I went to CSU because it felt comfortable," she says. "It felt like home."

At CSU, she was an honor student, worked three jobs, and played club sports. "I really enjoyed my experience at CSU," says Swanback. "It provided me a well-rounded opportunity to do more than just school."

She says a huge turning point for her was an introductory computer-science class she took her sophomore year. "I really liked it and did well in it," she says. Faculty members Susan Athey and John Plotnicki "encouraged me to think about a career in CIS [computer information systems]."

She switched her double major from Finance/Math to CIS/Math, excelled at it, and immediately started working for Accenture after graduating in 1991. Within nine months she was heading up a team of 16 people.

She attributes her fast start at Accenture to her CSU education. "I whizzed through all of the training. I started with the skills I needed and the confidence I needed."

Twenty-two years later, she is still at Accenture, but now she heads up a \$9 billion North American tech practice that's 22,000 employees strong. She's handled "lots of different responsibilities and roles over the years" and watched technology shift from COBOL and Visual Basic to Ruby on Rails and HTML5.

"The day I started, I just assumed I'd be a partner someday," says Swanback. "That was always part of my mindset."

Swanback helped establish a CSU-Accenture recruitment pipeline in the 1990s. "They

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'77 Business Administration

Born in Fort Collins and raised in Denver, Anderson says CSU was a match made in the classroom – and on the tennis court.

"It was a good choice for me," says Anderson.

"Wherever I was going, I was paying for it and CSU was pretty economical." He calls working his way through school "very helpful" to his future career.

While playing on CSU's tennis team and winning his fair share of tournaments, he washed cars in the motor pool, worked for the city and an economics professor, and coached tennis to make ends meet.

"For a while, I was eating one meal a day," Anderson remembers. "Those days are long gone."

Anderson was able to save money he made during the summers by teaching tennis, and that led to him managing a private tennis club in Fort Collins that had space for a retail store. He convinced a local sporting-goods store to stake him with inventory and opened a small shop.

"I would run a little business out of there," he says. "I caught the retail bug, applying my accounting skills and my finance skills. I realized I really liked retail, so when I graduated, I looked at banking, the oil industry, and retail."

He took the best offer: a position with the Dayton-Hudson Corporation, the company that later became Target, in Minneapolis, then moved to its Kansas City office in 1977. He joined Macy's in Kansas City in 1983, then worked out of Atlanta until Macy's consolidated operations to New York and San Francisco, and moved to the latter.

In the early 1990s, Macy's went through a leveraged buyout and bankruptcy. "There was a group of us who were sent to a special school to learn change-management techniques," says Anderson. The crisis made for an opportunity, as he worked with



Kent Anderson

President
Macys.com, San Francisco

Continued on Page 20

Jon Kinning

Chief Operating Officer/Owner
RK Mechanical, Inc. Denver

'94 *Finance and Real Estate*

Jon Kinning says he started working for Denver-based RK Mechanical, focused on plumbing, HVAC, and other services, "when I was born" but took a leave of absence when he went to CSU circa 1990.

"I was the head paper shredder," jokes Kinning, reeling off a list of duties that spanned from janitorial to accounting. "My dad wanted to make sure I was exposed to a business environment."

Kinning returned to the family business, founded by his father Ron in 1963, after a stint in commercial real estate from 1994 to 1996.

"I had lunch with my dad, and he's pretty persuasive," says Kinning. "He gave me the 'blood is thicker than water' speech. Long story short, he said, 'How about starting a services business?'"

That question caught Kinning's ear and he started one from scratch in 1998 and built it to a \$13 million business with 70 employees.

Today RK Mechanical has about 900 employees in all and has won accolades as a top family business and workplace.

"It's about people and being able to take risks," says Kinning of the company's longevity and success. "And our diversity – we now have five distinct business units, including contracting, service, steel, energy and water conditioning."

The company was ISO-certified in 2010. "The certifying agency found zero nonconformances – and they tried like hell," says Kinning. "Our employees are mad if they don't get audited."

Safety is a key at RK, and Kinning says the company is under 60 companies in the country to have OSHA VPP Star Mobile Workforce

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'91 Fisher – Civil Engineering

'97 Friel – Technical Journalism
with a PR emphasis

A former pro cyclist, Friel's father is Joe Friel, a nationally known endurance coach and author of *The Triathlete's Training Bible* and other books that are popular among endurance athletes.

"I entered the family business – which was obviously coaching," says Friel. In the

early 1990s, "The tools of the trade were email and the fax machine. The actual data was on pieces of paper and an Excel spreadsheet. I knew it could be streamlined."

But he wasn't sure exactly how to accomplish the task. ("To this day I know nothing about software," laughs Friel.) So in early 2000 he called Fisher, with whom he'd worked at a health club in Fort Collins and skied and pedaled with during his years attending CSU, and "pitched him on the idea."

Fisher, who was building websites and living in Eagle County at the time, liked what he heard and started working with Friel to take Joe's books and make them a web-based training application for endurance coaches and athletes.

"What if we made this a subscription-based service and offered it to everybody so they could follow Joe Friel's *Training Bible* book series online," says

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Dirk Friel and Gear Fisher (r)

CEO and Chief Evangelist
Peakware, Boulder

Jason Wheeler

Vice President of Finance
Google, Mountain View, California

'96 *Business Administration*

"Institutions matter."

With that, CSU graduate and Google vice president Jason Wheeler neatly sums up his outlook on college and career. It's also a fitting explanation for why, on the day we're speaking, Wheeler is being recognized at the university Alumni Association's Distinguished Alumni Awards. He's the College of Business Honor Alumnus for 2013.

When Wheeler arrived at CSU in 1992 as a "first-generation" college student from Black Hawk, Colorado, and a Boettcher scholar, he immediately took to his new environs – and the Delta Tau Delta fraternity.

Today he remembers Delta Tau Delta as a "laboratory for leadership." High praise from a fraternity brother, but in retrospect Wheeler admits he may have gotten more out of frat life than most. His sights were set high. "I enjoyed leading teams, and was beginning to understand what we could accomplish."

Initially undecided, Wheeler settled on finance, a "practical" application of his talent and energy. But for an honors student with a more technical proclivity, philosophy emerged as an area of interest. "[Late CSU professor Willard Eddy] was a mentor," says Wheeler. "His 'Introduction to Honors Philosophy' was a profound influence on my life. It taught me to think about how I think, and provided intellectual guideposts and guidance."

After CSU, Silicon Valley beckoned, and Hewlett-Packard provided Wheeler an opportunity to cut his teeth managing large financial projects while exposing him to talented peers from schools like Dartmouth and Cal-Poly. "I felt I was relatively far along, that the college of business had prepared me well," he says. "It was a great foundation."

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Birko Corp. is a family-owned food-safety manufacturer in Henderson, Colorado that supplies 60 percent of the country's top 100 protein producers.

When third-generation owner Kelly Green wanted to take Birko to "the next level," she enrolled in CSU's Executive MBA program in 2001.

"When you're running a company, you can only look in the mirror for so long," she explains. "You need that outside counsel and outside perspective."

She met fellow MBA student, and third-generation Ram, Mark Swanson, who would become Birko's CEO in 2008 after a stint at CSU spinoff Optibrand. They were project teammates on several occasions and established a good working relationship well before Swanson joined Birko. She says such projects helped her "peel the onion" at Birko by applying lessons from classes to her workday.

Birko has essentially doubled from 50 to 100 employees in the years since Swanson's arrival and moved into craft beer and produce to supplement the company's protein-centric bread and butter.

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Kelly Green and Mark Swanson

Owner and CEO
Birko Corporation, Henderson, Colorado





'91

Shelly Swanback

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constantly were sending me students who they thought would be a good fit," she says. The Denver office has numerous CSU alums among its 700 employees.

Swanback says her experience with team projects at CSU gave her a solid managerial foundation.

"Those were some of the hardest parts of the classes," she says.

"They gave me an opportunity to step up as a leader, but also to have everybody pull their own weight. Now I'm on a team where everybody is as motivated as I am."

Married with two kids, Swanback says family is her top priority. "As much as I am dedicated to work, I'm more dedicated to them. They're a big part of my work – they know so much about what I do."

She says summer family trips to Pitkin Country allow her to really and truly decompress. "Our favorite thing to do is take a technology-free vacation. We go to a place where there's no cell-phone coverage, no Internet, and no TV. We've been doing it so long I know exactly where my cell coverage cuts out. I take my cell phone and put it in my glovebox – instant relaxation."

Adds Swanback of the trips: "We have three rules: no schedule, bacon for breakfast every morning, and happy hour whenever we want."

Today Swanback says she's "a big advocate" for CSU and visits every summer.

Looking back, she has no regrets. "We hire all sorts of people from Wharton, Stanford, you name it," she says. "Arguably I've done as well as any of those people. A lot of it is work ethic."

"Did I ever think I'd be in charge of 22,000 people and a multi-billion-dollar business? On one hand, I'd say, 'No,' but on the other hand, I'd say, 'Why not?'"



'77

Kent Anderson

Continued from page 15

enterprise-level IT systems, marketing, and the company's first forays into the digital world before assuming the title of CFO.

But he didn't get too cozy. He helped launch Macy's first Christmas website in 1996. Sales totaled \$30,000.

In 1997, the company's second Christmas website brought in \$300,000. The 1,000 percent growth "got people's attention," Anderson says. "There might be something here."

When it came time in 1998 to launch a year-round Macys.com, the company looked internally. "I raised my hand and said I'd give it a shot," says Anderson. As employee #1, he got a handpicked team of five staffers and funding.

Year one sales were \$5 million. Macys.com has enjoyed a 40 percent compound annual growth rate in the 15 years since, and today has annual sales of "several billion," says Anderson.

Looking back to the career impact of his CSU days, Anderson highlights a business writing class taught by the late Gladys Eddy. "The course was all about saying what you needed to say in the lowest possible number of words," he says. He also credits his skill in public speaking and logic to seeds planted in Fort Collins.

Most importantly, he adds, was a focus on statistics. "I took every statistics class they allowed me to take," says Anderson. "CSU was ahead of its time in understanding the importance of statistics. It's always stuck with me."

And today, in the era of Big Data, it's invaluable. "Statistics is one of the skills I use every day. To understand these algorithm-builders who are working under me has been very helpful."

"The ability to turn data into insights and insights into actionable business decisions is something that's increasingly important," notes Anderson. "It works. It's not just theory."

After graduating, he helped establish a pipeline of CSU graduates to Macy's and is a longtime donor to the university. A resident of Mill Valley, California, Anderson still plays tennis, but he's also gotten into 100-mile bike rides with his wife Patti.

"I try to stay as close to CSU as I can in San Francisco," says Anderson. "It was a great experience. I'm happy to grow with it and I'm happy to give back."



'94 Jon Kinning

Continued from page 16

accreditation. "It's the highest safety accreditation in the country and the highest level partnership with OSHA."

Kinning also touts RK's workplace health program. "We're pretty voracious about that," says Kinning. "We have a full-

time wellness coach onsite. Happy employee, healthy employee, usually more productive employee."

The company is big into philanthropy as well, with the RK Foundation, a 501(c)3 that focuses on helping disadvantaged kids, veterans, and victims of natural disasters. "We're well into six digits of giving in the past two years alone," says Kinning.

Kinning says the company's apprenticeship program is another point of pride. The 150 participants "are almost assured their journeyman's license," he touts.

RK Mechanical remains tied to CSU in numerous ways. "We're huge recruiters from CSU," Kinning says of the CSU-RK connection. "We have a good name up there." He says as many as 80 percent of the company's construction managers are CSU graduates.

Kinning says critical thinking was perhaps his most important takeaway from his CSU education. "Critical-thinking skills are huge," he says. "It's about learning to learn."

He says he also learned finance skills he still uses every day, and got a lot out of the Greek system – he was an Alpha Tau Omega – including leadership skills and humility.

"Thinking about core values – mission and vision – started at CSU for me," he adds. "The bigger the business gets, the more important they become."

Kinning currently serves on the board for ACE Scholarships and the Metropolitan State University of Denver Foundation. "Education is a huge deal for me," he adds. "I don't think I respected my education in my early twenties. I took it for granted. I've gotten more passionate about education as I've gotten older."

And there's a reason for that, he explains. "As I've gone through life, I've seen the shortcomings of people who haven't completed their education."

With a solid education, not only do you learn critical thinking skills, Kinning adds, "You learn what you don't know."



'91 Dirk Friel

Continued from page 17

Fisher. The idea evolved into Peaksware's signature product, Training Peaks. Fisher calls the decision to make it a cloud-based subscription service "a pivotal moment."

Fisher moved back to the Front Range and quit his day job a year later, and commutes from Fort Collins to Peaksware's Boulder office to this day. Friel retired from pro cycling in 2002 with "no regrets" and started selling the endurance community on the software's benefits.

In 2005, Peaksware had six employees, then it hit "the hockey stick" in 2009, says Fisher. The company today employs nearly 50 people and is one of the top



'97 Gear Fisher

names in the training software industry.

"As science plays a greater role in sports, we are an improved mechanism between athletes and their coaches," he adds. "We're getting more usage by the very highest level of endurance athletes."

Fisher says his CSU education equipped him to deal with a wide array of issues. "I was never a trained computer scientist – I studied civil engineering," he says. "What really equipped me to excel are the problem-solving skills I learned in college. I was really taught to be a problem solver with math and science. I was basically taught to figure things out."

Friel calls Fisher "the wizard behind the drape," calling his role "chief practitioner" at Peaksware. "I was the one on the front line trying to sell it and spread it," says Friel. "It was my ideal PR job."

He says he learned communication skills at CSU from classes covering broadcast journalism and business writing. "You only have one take. I'm still doing that today."

Friel lives in Boulder and says his 10-year old daughter is "very excited about CSU," he says "She has CSU Rams in her room – it's not CU Buffs."

And there's another CSU connection that will help Peaksware continue to hone Training Peaks. Jeff McAbee, a graduate teaching assistant at CSU, is interviewing athletes about their use of technology like Training Peaks for a thesis project.

"Why do they use tools such as ours?" Friel says. "A lot of it's really cool research we can learn from."



'96 **Jason Wheeler**

Continued from page 18

It also inspired him to do more. "It was a great experience, but at the same time I felt I wasn't learning enough at HP," he explains. "After two years the time was right for a change. I decided to go back to business

school and managed to 'sneak' into Harvard."

When he arrived, Wheeler was the only CSU graduate at Harvard Business School. He eventually earned an MBA and, importantly, gained valuable exposure to HBS's learning framework – the case method, a program that replicates real-world corporate decision-making. "It was so valuable in preparing me for the cross-section of problems experienced in business – finance, marketing, operations – along with the relevant leadership scenarios. I left HBS with a much-increased business vocabulary."

Wheeler took his burgeoning talents to Booz Allen Hamilton in 2000 and stayed until 2002, where again, the project work he was assigned left him unfulfilled. "We'd provide analysis, develop a plan and make recommendations only to see it sit on a desk. I really wanted to go to work at an operating company, where there was an opportunity to get passionate about a product."

In 2002, Wheeler sent a resume to Google, and, at 29, joined the upstart technology company. "When I was hired, there were 500 people or so working for the company, and we were doing less than \$100 million in revenue a quarter," he remembers. "Today we generate over \$100 million every day."

But the organization, more than its metrics, appealed to Wheeler. "Google's mission and values at the time excited me; it was an intellectual fit," he says. "I applied everything I learned in business school in an environment where I had passion for the product. Plus, there are just crazy smart people at Google."

He doesn't say it, but it is clear that Google is also the type of "laboratory for leadership" that suits Wheeler. It's now an institution in its own right, in part shaped by a finance graduate from Colorado State who values organizational dynamics – leadership and teamwork, culture, and professional fulfillment – as much as the numbers.

For this Boettcher Scholar whose technical acumen is a natural fit with the company that owns the world's most famous algorithm, it's enough to make a philosophy professor weep with joy.



'04 **Kelly Green**

Continued from page 19

Both Green and Swanson credit the MBA program for their ability to catalyze Birko's growth in a weak economy. "Even in the downturn, we've continued to hire," says Swanson.

Both Swanson and Green highlight Hunt Lambert's Business Strategy class. Lambert has since moved on to Harvard, but his former students say they continue to mine the experience at Birko today. "It's really interesting how much of that analysis we've used on a daily basis," says Swanson.

Green characterizes CSU's Executive MBA program as forward-thinking and constantly changing with the times. "It's not stagnant – which is good," she says.



'86 '04 **Mark Swanson**

"They recognize the need to look to the future of technology and training."

"One of the things that really struck both of us is that it touched on so many different areas," adds Swanson. "We've actually had a pretty good application of that – we had double-digit growth for three years, we had two acquisitions, and we were named the top manufacturing company in Colorado."

He says Birko regularly hires CSU graduates, and he's been involved in everything from the Institute for Entrepreneurship to the Alumni Association in the past 25 years.

He says that CSU and Birko's cultures overlap nicely. "That similarity in culture has helped both [Birko and CSU] thrive in some very difficult times."

"We have the feel of a pretty close-knit family around here, but we're perceived as a fairly sophisticated business," echoes Green. "It's very similar at CSU. You can lean on those folks like they are family."

And they do: Birko regularly taps the intellect and expertise of CSU's faculty. "The professors at CSU are really open and easy to work with," says Swanson. "That's really helped. We couldn't supply that level of intellect through our regular hiring practices." Birko also regularly sends employees to CSU for training.

And with all of that perspective, Swanson likes what he sees in 2014. "I really love what Tony [Frank] has done in the past few years," he says.

Green says she still keeps in touch with quite a few of her professors and peers from her Executive MBA days. "When you spend two years with folks," she says, "you become really close to those people."

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**FUNDING, TECHNOLOGY,
DEMOGRAPHICS AMONG
CHALLENGES AHEAD FOR
CSU 2025**



The economy, demographics and rapidly advancing technology are propelling radical changes in higher education, in everything from funding to the way students learn.

While the words “college” and “university” evoke images of fresh-faced, young students studying and living on perfectly manicured campuses, that picture describes just a fraction of the nation’s 18 million undergraduates. Today’s students are more likely to be older – one-third are over the age of 25 – and attend school part-time while holding jobs. Just 45 percent of all undergraduates are enrolled full-time in four-year schools, according to the National Center for Education Statistics.

The common perception of education as a means to a well-paying job is in stark contrast to the long-held academic goal of producing well-rounded graduates. Do that and the jobs will follow, or so the argument goes.

“As a country, we’ve lost our focus on higher education as a public good,” says Patrick Burns, vice president of information technology and dean of libraries and at Colorado State University. “But we need a well-informed citizenry because we have a democracy and we want people informed on the issues.”

Reversing Funding Trends

In the shadow of the recession, the change in student demographics coincides with rising tuition costs and dwindling support from the state. Many students simply don't have the money for a traditional, campus-centric education, so they're looking for alternatives. Some attend community colleges and others seek online courses – both of which are changing the higher-education landscape.

The average cost of a public four-year institution in the United States rose 2.9 percent for the 2013-14 school year – the smallest increase in more than three decades, according to *Trends in College Pricing*, a report published by The College Board. This comes after increases of 4.5 percent for the 2012-13 school year and 8.5 percent the previous school year.

Yet even as the cost for higher education rises, state fiscal support is declining nationwide. States reduced funding by 0.4 percent between fiscal 2011-12 and fiscal 2012-13, according to the annual Grapevine survey conducted by the Center for the Study of Education Policy at Illinois State University and the State Higher Education Executive Officers. While the overall decline is small, it comes on the heels of a 7.5 percent decrease from 2010-11 to 2011-12.

While funding has increased in the last few years in Colorado, it's still nowhere near the level it was 20 years ago, and the amount of state funding for higher education remains among the lowest in the nation. Since 1994, the amount of funding has declined from \$841 million a year, or \$7,477 per student, to \$659 million, or \$4,267 per student, according to the 2014-15 staff budget briefing from the Colorado Department of Higher Education, which receives 8.1 percent of the general fund.

"The public is questioning the value and quality of higher education and the cost of higher education," Burns said. "If you look at the state's emphasis on higher education, it's never had a focus on increasing the quality. It focuses on the quantity – the

number of students we can serve."

The only way funding for higher education will improve is if the public understands its value, argues Sen. Rollie Heath (D-Boulder). The universities have some ability to increase tuition, but the more it costs, the more unattainable higher education is to the average person. To this end, Gov. John Hickenlooper has requested an overall General Fund increase of 15.5 percent for the Department of Higher Education. The request includes \$60 million for support to institutions and \$40 million for financial aid increases. In exchange, institutions have agreed to increase tuition no more than 6 percent.

"Unless people get a renewed dedication to higher ed, it's in jeopardy," Heath says. "We clearly have not made the case of the value of education, and that is a disaster from an economic development standpoint. Higher education drives jobs and research. I would hope we would wake up to the fact that this is an investment we have got to make."

The state's goal is to increase the number of Coloradans ages 25-34 who hold high-quality, postsecondary credentials to 66 percent by 2025, according to a master plan completed last year by the Colorado Commission on Higher Education. Colorado ranks third in the nation in the percentage of residents between the ages of 25 and 64 who hold a college degree. Currently, that percentage is 46 percent, a number that's projected to increase to 51 percent by 2025. The 15-point gap between 51 percent and 66 percent is a notably wide statistical chasm for the state to bridge in the coming decade, especially in light of current budget constraints.

What's stopping the bucks

The Colorado legislature's ability to fund higher education is limited by the combination of three constitutional measures: the Taxpayer Bill of Rights, or TABOR; Amendment 23; and the Gallagher Amendment.



Says Heath, “We clearly have not made the case of the value of education, and that is a disaster from an economic development standpoint...”

After TABOR’s adoption in 1992, higher-education funding per student dropped by 31 percent (from \$5,765 to \$3,961), according to the Center on Budget and Policy Priorities. Funding for K-12 education also deteriorated, and Colorado voters responded in 2000 by passing Amendment 23, which guarantees minimum levels of funding for education, thus shrinking the amount of money the General Fund has available for higher education.

Under the Gallagher Amendment, the portion of residential property that is taxed (assessed value) drops when residential property values statewide grow faster than nonresidential properties, causing the residential assessment rate to drop from 21 percent to 7.96 percent since the amendment’s adoption in 1982.

“The inner workings of those three amendments restricted spending on a variety of things and spending amounts,” says former Colorado Gov. Bill Ritter, who now is director of CSU’s Center for the New Energy Economy. “The broad solution is to go back and rethink the constitutional amendments or look at new revenue that would flow into higher ed.”

While some tout the benefits of public-private partnerships to help fund higher education, Ritter cautions against that solution, saying it could give rise to conflicts of interest.

“It’s absolutely critical that academia and research institutions maintain their integrity,” he says. “They have to be very careful about private funding unless it comes from foundations. Academia has to be unbiased.”

A recent study by the Colorado Futures Center at CSU found that general fund expenditures will exceed revenue in fiscal 2014-15, with a gap of \$1.5 billion by 2024. By fiscal 2029-30, that gap will climb to \$2.9 billion. In its 2011 study, the center projected that Colorado will only have enough money to support

Medicaid, K-12 education and corrections by fiscal 2024-25.

“The state has a massive revenue problem,” says Richard Schweigert, CSU System Chief Financial Officer. “Expenses are more than any projection of any revenue stream can match.”

Because it’s unlikely that the state will significantly boost funding for higher education, CSU has taken measures of its own. Employees have gone without pay raises about four times in the last decade, saving the university about \$15 million annually.

“Over the course of the years, instead of griping about budget cuts, systems got on it and started controlling expenses and looking at every nickel and dime,” Schweigert says.

In addition to limiting raises, CSU also is working on a plan to have students pay for all credit hours. Cur-

rently, students who pay for 12 credit hours can receive up to six additional credit hours free of charge.

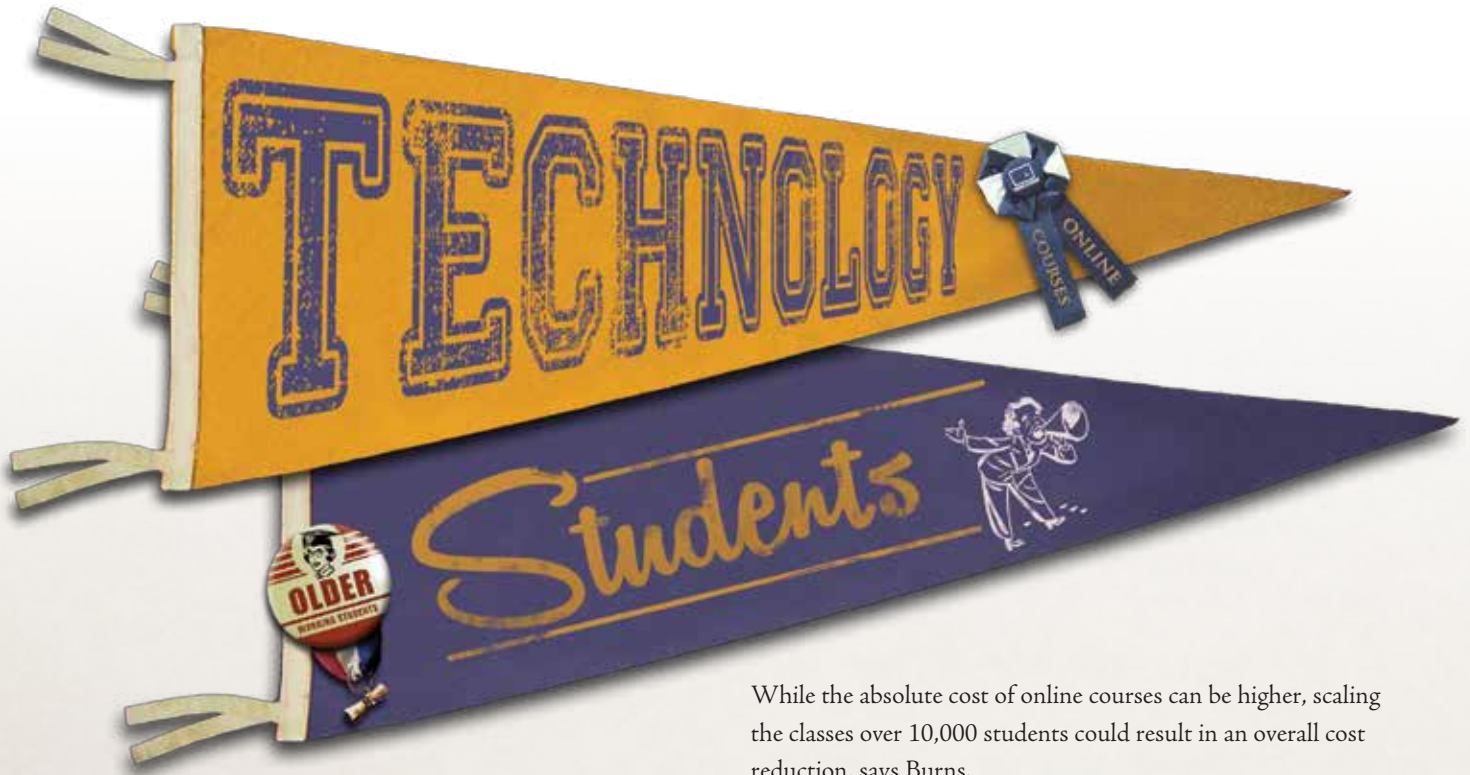
“The original concept was to create an incentive to take more credit hours and finish school sooner,” Schweigert explains. “It’s debatable whether or not that has worked over the years.”

The hitch in the plan? The increasing cost of higher education has resulted in many students enrolling in community colleges for their first two years, which translates into decreasing revenue for universities.

Nationwide, more than 40 percent of all undergraduates in the 2011-12 school year were enrolled in community colleges and other two-year institutions, according to the National Center for Education Statistics. In Colorado, about 24 percent of the 190,000 full-time equivalent students attend two-year and certificate institutions. The coursework at many community colleges is online or a combination of online and face-to-face interaction in the classroom.

“The state has a massive revenue problem,” says Richard Schweigert, CSU System Chief Financial Officer. “Expenses are more than any projection of any revenue stream can match.”





“There is a movement toward less expensive education,” Burns notes. “One way that could evolve is CSU could stop teaching lower-division courses entirely. We will always have graduate programs, but community colleges could do all lower-division year-one and year-two classes. We would have tenured professors teach upper division classes.”

CSU regulates how many credits it allows students to transfer, and they must be from a community college that has an articulation agreement with the university. “We’re under more pressure from the legislature to accept more credits from more places because they can’t fund what they expect us to produce,” Burns says.

In an effort to increase opportunities for all students, State Sen. Nancy Todd (D-Aurora) plans to return to the legislative session this year with a bill to allow two-year institutions to grant a limited number of four-year degrees.

Technology and Education: Skepticism and Promise

Another evolution in higher education is the movement toward an online curriculum and massive open online courses (better known as MOOCs), which gives rural students and those in developing countries easier access to education. It also represents a way to keep costs down for both students and universities.

While the absolute cost of online courses can be higher, scaling the classes over 10,000 students could result in an overall cost reduction, says Burns.

While some embrace the concept, others are skeptical that distance learning is a valid educational tool.

“My sense is that people tend to react to technology in negative ways or they go at it like true believers and say, ‘This is going to change everything,’” says Mike Palmquist, executive director of OnlinePlus, a CSU online learning program that awards degrees. “But you should never allow technology to drive your teaching goals. You want to look at technology and think, ‘How can I use it to pursue traditional goals, but also how does it change what those goals might be?’”

CSU established itself as a leader in online education, creating a fully online university with OnlinePlus, providing access and affordability to serve nontraditional students worldwide. OnlinePlus supports CSU’s land-grant mission of expanding access to education. It provides students who can’t come to campus with opportunities to connect with the university’s faculty, research and academic curricula. More than 10,000 students take advantage of the program each year, balancing obtaining an education with professional and personal commitments. Transcripts, records and diplomas for OnlinePlus students are identical to those of on-campus students.

Online platforms like Online Plus’ are changing the way students learn, argues Lou Swanson, vice president for engagement in CSU’s Office of Engagement. Under the traditional model, students in their first two years of college attend classes in large lecture halls where a professor stands in front of them telling them what they need to learn. They have textbooks and take exams.

"If you made a mistake, it lasted throughout the semester," Swanson says. "It didn't matter what you knew at the end. The way we learned was in a didactic, pedagogical model."

Increasingly, the didactic – or lecture and textbook instruction – has shifted to online platforms that are accessible 24 hours a day, seven days a week. Students are able to get varying opinions from other sources to balance what the professor is teaching. When students go to the physical classroom, the professor and teaching assistants have organized discussions and provide feedback on assignments.

"The notion of a flipped classroom has gained a lot of traction," Swanson says of this hybrid model. "If you do this right, it can be as good – if not better – than what students get in class on a campus. It comes down to the person delivering the class."

Though online courses had been offered for several years, the movement toward online higher education took off in 2012 when Harvard University and the Massachusetts Institute of Technology teamed up to release their first seven courses as part of a nonprofit venture called edX. Students who complete the courses receive certificates of mastery, though no degrees are awarded.

While it's possible to cobble together online courses and complete a degree, that's not what most students are interested in, says Palmquist. "Our approach hasn't been to replace our regular classes. People want to be part of a larger learning community. When you come to a university, the residential experience really means something."

Still, online learning is growing in popularity. If universities begin to allow students to enroll in MOOCs and other online classes for credit, they could lose the revenue source of the physical classroom and further undercut an already tenuous balance sheet.

Striking a Balance

With many students viewing education as a means to get a job, the classroom has become more of a training ground than a place where students learn to think. Industry increasingly de-

mands graduates who are better trained and less well-educated. And it's no wonder: By 2020, 65 percent of all jobs will require postsecondary education and training, according to the Georgetown Public Policy Institute's report, *Recovery: Projections of Jobs and Education Requirements Through 2020*.

"Our approach until now has been we need the whole person – mind, body, and spirit," said Ajay Menon, dean of CSU's business school. "Now we're changing to a very vocational education."

As a result, colleges and universities have lost the focus they've traditionally had on liberal arts – those subjects or skills that in classical antiquity were considered essential for a free person to know in order to take an active part in civic life.

"Our job should be teaching students to think, rather than training them," says CSU VP of IT Burns. "We are failing in terms of improving their ability to think and analyze. We are moving too far in the direction of training."

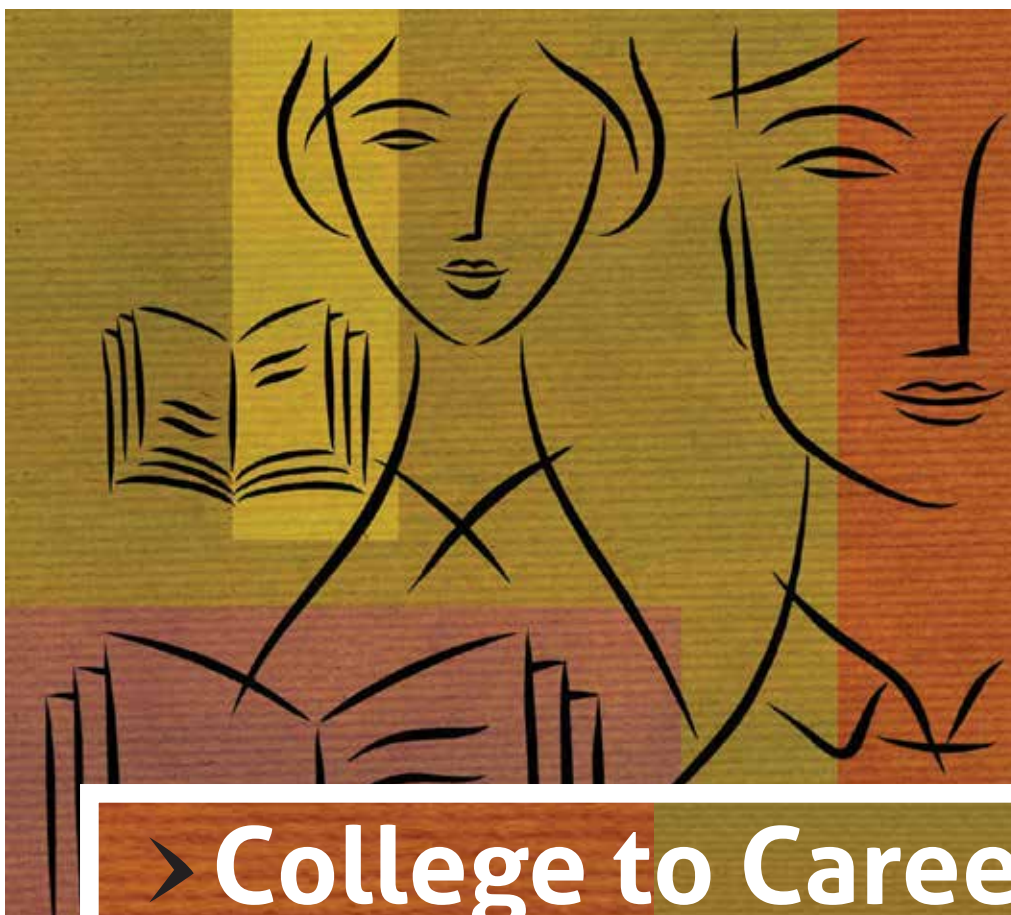
Balancing the classic liberal-arts education and 21st-century industry priorities is no simple task, and striking the right balance has become even trickier in the face of the economic realities of diminished state funding and students looking for more bang for their educational buck.

As numerous institutions in Colorado and elsewhere face an uphill climb to fiscal solvency, higher education's road ahead will have many forks and unforeseen roadblocks, and there is no true finish line. The long-term student outcomes will be viewed and reviewed for validation – or invalidation – of their education.

But are these outcomes hitting the mark for students, society, and industry? It's a critical question, and the cost of a miss is steep.

~ By Margaret Jackson





➤ College to Career:

Model or Mismatch?

Stakeholders Seek Better Educational Pathway to Workforce

Nearly a century ago in *The Great Gatsby*, F. Scott Fitzgerald wrote the purpose of higher education was to become “that most limited of all specialists, the ‘well rounded man.’”

That all began to change after World War II, and especially in the 1960s, when college opened up its gates to America’s vast middle class, making higher education the gateway to the upward mobility that is so integral to the American Dream. Over the years, higher education has become more and more specialized, with students concentrating on narrower and narrower fields of studies.

There’s a reason for the shift. Today’s commercial world is more technical, sophisticated, and – above all – globally competitive. Many in business and politics are looking to the nation’s universities to train the workforce of the 21st century to keep the United States the innovative leader of the world.

It’s a tall order, and there has been some grumbling that per-

haps U.S. colleges and universities are not up to the task. But change is afoot.

With the cost of post-secondary education rising all the time, and the level of student debt being amassed to pay for college or post-high school technical training at all-time highs, it's no wonder that higher education is changing. Students are demanding more from a higher education to deliver on their expectation for a well-paying job upon completion of studies, and employers are demanding work-ready job applicants coming out of educational programs.

The entities on college campuses growing and changing the fastest these days might just be the career centers pushing students to begin career planning at the same time they are just beginning their freshman-year studies. Where once they were little more than job-posting locations with an annual career fair, today's career counselors teach résumé-writing and job-interview skills, arrange real-world internships, and encourage involvement in extracurricular activities.

Why? Because employers are increasingly demanding such "soft skills" in their highly competitive recruiting and hiring processes. Companies review hordes of applicants with the requisite academic credentials, but they are hiring the graduates for their demonstrable abilities beyond the classroom.

"All the universities we recruit from do a good job in the technical aspects [of education]," says Robert Hottman, CPA, chief executive officer of Denver-based EKS&H, one of the most respected accounting and consulting firms in the Rocky Mountain region. "But do they [the graduates] have the desire to learn? Do they have the life skills? Having accounting skills is a plus, but the life skills and the people skills are very important. That comes into play in our business."

Katie Flint, senior associate director of employer relations at The Career Center at Colorado State University, paints a similar picture, noting, "It's not just about your major and it's not just about your GPA."

Flint works with over 500 employers each year who come to career fairs, conduct on-campus interviews, or participate on professional panels and networking opportunities.

"There are certain skill sets they are looking for," says Flint. "We hear all the time that they want graduates who have participated in extracurricular activities, who have held leadership positions in student organizations, who have acted as student ambassadors in recruiting high school students to come to CSU. Also, teamwork – that's huge. [Employers] want to see students who worked on collaborative class projects, who did internships, who have worked in professional environments, and students with both verbal and written communications skills."

Not to put too keen a point on it, but that sounds awfully like the well-rounded person that was embedded into higher education in the first place and gradually waned over the last 65-plus years.

The Education Gap

Business leaders often worry whether students coming out of college are prepared to be productive employees. There are tales of engineering or architecture students who can't read blueprints, or business majors who don't understand even the most basic spreadsheets. And then there are the graduates themselves who are often heard in press reports complaining that their degrees are not leading to meaningful employment. A recent

Only 42 percent of employers felt as though the graduates are adequately prepared for even entry-level positions in their companies.



authoritative study by the respected research firm McKinsey and Company shed some light on these reports.

Prepared by the McKinsey Center for Government and released in August 2012, the report, *Education to Employment: Designing a System that Works*, involved interviews in nine countries in Europe, South America, Africa, and North America with more than 8,000 educators, youth, and employers.

The results are startling, but what perhaps is most eye-opening is the gap McKinsey found in the perception of education as a career-preparatory platform. Case in point: Only 42 percent of employers felt as though the graduates are adequately prepared for even entry-level positions in their companies. Similarly, only 45 percent of the graduates themselves felt that their education had prepared them for the work world. However, a whopping 72 percent of educators – the very people running the academic and training programs – believed their graduates were ready to work.

As the McKinsey authors noted in their work: “Employers, education providers, and youth live in parallel universes.”

Getting on the Same Page

One of the key industries where there are jobs not being filled because of the lack of qualified candidates is manufacturing. These jobs, while requiring high skill levels and paying relatively well, do not generally draw applicants from the higher education system of colleges and universities, but rather from trade and technical schools. And, bred over the last 60 years is a bad reputation for “factory jobs,” a stigma that many observers say is keeping away highly qualified students.

Another issue concerns the content of the curriculum. It is almost axiomatic that anything high-tech being discussed today

workforce that will fit the needs of each and every employer. This is especially true for smaller business without the necessary resources to constantly be in touch with educational institutions and offer internships.

Perhaps most importantly, many studies indicate that today’s students may average as many as eight different jobs, if not careers, in their lifetimes. This begs the question of whether it is more important to have studied something in particular or whether just going to college is the important thing.

The Business Response

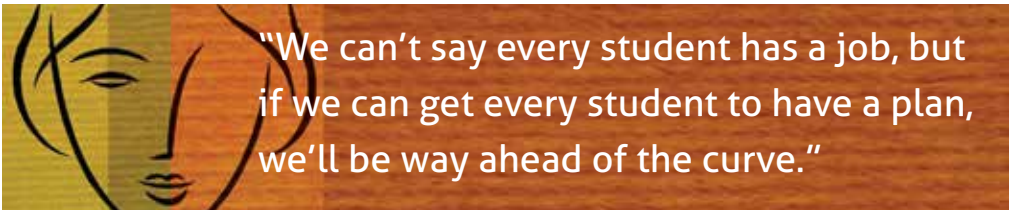
As it turns out, perhaps the McKinsey statistics as they relate to business have less to do with academics than they type of student they are pursuing. If employers’ mindsets align with Bob Hottman of EKS&H, they are looking for a more well-rounded employee.

EKS&H has about 500 people on the payroll, mostly professionals with such certifications as CPA in Denver and satellite offices in Boulder and Fort Collins. They recruit as many as 60 accounting graduates each year, with a concentration four-, five-, and even six-year graduates with a concentration on CSU (where Hottman graduated in 1977), the University of Colorado, the University of Northern Colorado, Colorado Mesa University, and a smattering of schools in surrounding states.

When asked if he thought the graduates coming to his firm were adequately prepared, Hottman says, “It’s not always obvious on day one. We’re looking for people with the right cultural skills.”

Hottman cites specifically students who have worked during college, and those who have been involved in campus clubs and other extracurricular activities as the best candidates.

The best candidates “have been juggling multiple things,” says Hottman. “Are they having interactions with people because they have to do that here? Motivation is a great word to use when looking at the people we recruit. The more they take ownership in their career before they come out of college is important to us.”



“We can’t say every student has a job, but if we can get every student to have a plan, we’ll be way ahead of the curve.”

is obsolete tomorrow, but obsolescence in information, topic, and technique is now cropping up in virtually every discipline, including accounting, engineering, banking, and medicine. Academics have rightly resisted the temptation to get too specific in curriculum lest they train for yesterday’s standards, favoring instead to prepare students to constantly learn for and adapt to a lifetime of change.

The world is now so complex and diversified that it is simply impossible for a third-party educator to train a well-qualified



"The students coming out now face a highly competitive marketplace," he adds. "You have to compete; you have to make sure you stand out from the crowd. I think it helps them to be motivated."

Hottman was also particularly complimentary about the young generation at his alma mater, CSU. "They have worked [while in college] and have developed life skills and balance," he says. A big plus is that CSU students tend to be from Colorado and have a desire to stay here, he notes, so hiring them gives EKS&H a better shot at a long-term employee.

John Davis, an engineer and president of Richard Weingardt Consultants of Denver, has a more jaded view about this young generation coming out of college.

"They have been immersed in book learning," he says, "but it doesn't necessarily provide for a revenue-producing employee."

Davis says "the education of common sense" is often lacking in freshly graduated job-seekers. "In school you learn all the formulas and rely on technology to get the answers. But relatively few of [the technology-savvy young engineers] have the sense to sit back and ask 'Does that make sense?' I don't think common sense is well instructed, certainly not in our disciplines."

Davis, a graduate of Metropolitan State College in Denver, has been a certified engineer for 33 years, and he serves on the Industry Advisory Board at what is now MSU Denver, so he has good firsthand knowledge that one size does not fit all.

"You're never going to satisfy the needs of an employer coming out of college," he says, "but the people we have the best luck with are people more considerate of common sense, or show the ability to learn the job."

There's another characteristic that's difficult to teach that's much different than how to think critically: how to work hard.

Michael Doyle, CEO of Brand Iron, a Denver-based branding consulting agency, says that while he doesn't interact directly with as many college graduates as he does with people coming out of technical, trade, and art schools, his general impression is that colleges drop the career ball.

"The one thing the universities don't teach them is work ethic," says Doyle. "They have book knowledge, but we do personality profiling to determine work ethic. People come in here all the time and we tell them 'Throw away your degree. Do you know how to work?' I don't think the universities teach you how it is."

Tim Heaton, President of the Colorado Advanced Manufac-

turing Alliance, is a bit more focused on changing the dynamic. His alliance of numerous companies in the high-tech world – many of them facing a significant shortage of skilled workers – has been concentrating its efforts to date on trade and technical schools, and on students in high school and even younger.

For the last few years, Heaton has been working with the manufacturers to provide paid internships and on-the-job training for high school juniors and seniors, and they ask that these cover all of the bases, from the C-suite to the supply chain to the shop floor. The next step, he says, is to institute a similar program between the manufacturers and upperclassmen in the state's colleges and universities, a program he hopes to initiate in 2014.

"Practical experience is still the best teacher," he says. "We're challenging the manufacturers to step up with internships. If there's been a mistake in this country it is the lack of career and technical training."

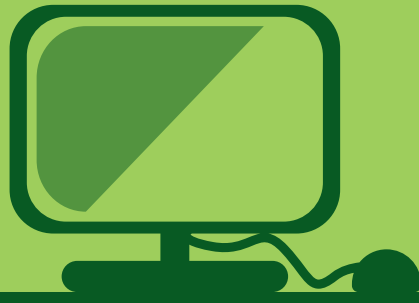
While work experience and technical training are highly important to employers, Heaton points out that there are problems translating that back into the colleges. "How do you carry an industry certificate into the college curriculum?" he says. "How do you get college credit for work experience? Those are the million-dollar questions."

Heaton says he wants to open a dialogue with conversations the state's four-year colleges universities, noting that "the devil's in the details. It's inevitable that we will get manufacturers to talk with academia, and we'll start on the internship side. All the universities are open to us. How do we make it happen?"

CSU Strikes Back

Colorado's colleges and universities are listening to these and many other voices from the state's business community. CSU offers a prototype for a mutually beneficial relationship between employers and academia, and the role that students themselves play in that dynamic. And it's interesting to note that these relatively nascent efforts are both business-driven and aimed directly at business concerns about finding the well-rounded "whole student."

Jeremy Podany is the director of The Career Center at CSU, overseeing a staff of 34 people on the campus with liaisons at each of the eight colleges that make up the university. He came



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to CSU in 2012 from Indiana University, where he spent 11 years in career services, and brought a vision to Fort Collins “to create more career education.”

The Career Center works with a broad spectrum of employers as part of its mission – 950 companies hired from CSU in 2013, he says, and 737 of them were based in Colorado – and these efforts have paid dividends. Podany says that 70 percent of CSU graduates last year had secured their immediate future destination by graduation day, with the majority taking jobs and

Among the myriad programs Schell is conducting for students in the business school is a highly innovative initiative aimed directly at career preparation, developed at CSU and getting buzz from other schools around the country.

The college raised money to create a software program in career development called Self-directed Career Preparation. Set to roll out January 2014, students will select an avatar that represents them, pick a pathway, and move along meeting milestones over their college career.


They will be required to meet 13 “foundational” milestones, Schell says, things like résumé writing and mock interviews. There’s even an option for corporate employers to set up a page to present their own set of milestones for students to meet, which can give the students insight to the kinds of things their “dream job” employer specifically is looking for.

“Students need to up their game,” says Schell.

“Both the corporations and the graduates are getting more picky.”

But Schell is bullish on the futures of students she encounters in the college these days, in large part due to their work ethics. “Our college students don’t pay for four years of college to get a menial job,” she says. “They’re not silver-spoon kids here. Seventy percent of the students in the College of Business work to pay for school, at least part-time, so we have the advantage of students who understand the workplace. We feel privileged to tell our employers that our students have a work ethic.”

So in the end, oddly enough, the real push in higher education today is not necessarily in honing academics to meet the needs of the 21st-century workforce. Rather it is coming from a parallel career pathway, one that currently brings no academic credit yet promises to pay enormous dividends, and it’s driven by a new generation of students and employers with very high expectations.

Just maybe the well-rounded prospective employee coming out of college these days isn’t Fitzgerald’s “most limited of all specialists.” In the best cases, they are instead part of a new breed of “whole students” who recognize the distinction between the classroom and the workplace, and manage to leverage their education to get the best of both of these very different worlds. 

~ By Jeff Rundles



“We feel privileged to tell our employers that our students have a work ethic.”

the remainder branching out into such endeavors at the Peace Corps, AmeriCorps, the military, or graduate school.

That number is good – the national average for such placement was 63 percent among 917 leading U.S. colleges surveyed – but Podany is not satisfied. To further these efforts, he says, every dean on campus has a leadership council made up of business CEOs, presidents, and business owners.

But the big push is with the students themselves. Of the 28,000 CSU undergraduates on campus, 11,000 took part in The Career Center’s program for one-on-one coaching last year, says Podany.

“I have a dream that one day every student would formulate a career plan while they are here on campus,” says Podany. “We can’t say every student has a job, but if we can get every student to have a plan, we’ll be way ahead of the curve. We’re making great strides.”

One of the few on-campus career counselors at CSU not directly under the aegis of The Career Center is Susan Schell, director of the Career Management Center at the CSU College of Business. Schell has held this position for two years, following seven years in university teaching, and a previous business career in the energy business.

“I’m not an academic by training,” she says. “I know the jargon of business. Career is becoming a bigger focus for universities like us.”



Tony Frank
CSU President

On The Right Track

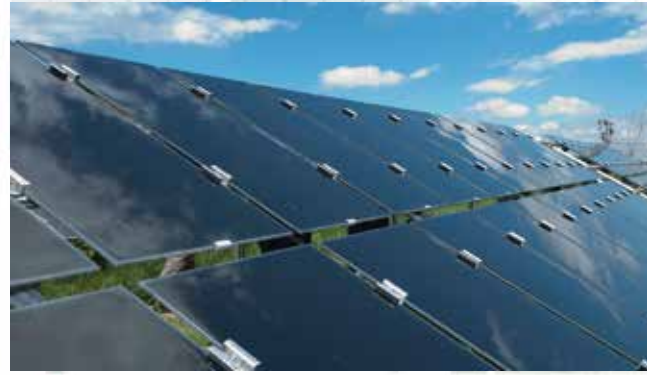
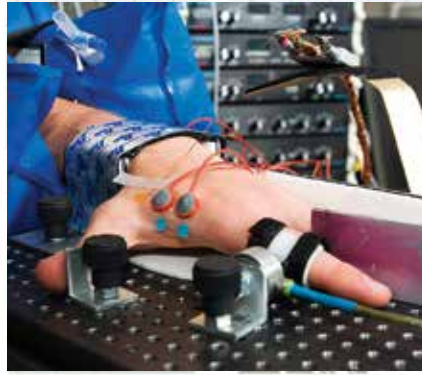
This new version of the Colorado State University magazine focuses on outcomes, and any discussion of “outcomes” in higher education has to take into account how well we do in upholding the heart of our academic mission: educating students.

This has been an important focus at CSU over the last decade, when we first launched a series of initiatives with the goal of improving the quality of our undergraduate experience. We believed this would lead to an improvement in our retention and graduation rates, and we’re beginning to see real results. This desire to offer an exceptional – and affordable -- learning experience for all students has also been at the heart of our ongoing efforts to improve the diversity and internationalism of our campus and to control costs.

The data indicate we’re on the right track:

- ▶ Colorado State University continues to be the first choice for Colorado high-school students, enrolling more Colorado high-school students than any other college or university in the state.
- ▶ Freshman retention at CSU was at 86.6 percent in Fall 2013 – the highest rate ever at CSU and the largest one-year gain ever, thanks to the University’s ongoing focus on retention and student success.
- ▶ CSU’s six-year graduation rate increased to 65 percent in 2013 – indicating that a higher proportion of students are graduating – and graduating faster.
- ▶ 76 percent of CSU undergraduates who complete their program of study do so in 4.5 years.
- ▶ International student enrollment at CSU has risen 69 percent in the last five years.
- ▶ 70 percent of Colorado State students secured their first destination plans (a job or graduate school) at graduation – 5 percent higher than the national average.
- ▶ 91 percent of CSU graduates say they would choose CSU again – and 92 percent rated their overall CSU experience as good to excellent.
- ▶ The cost to educate a CSU student today – in inflation-adjusted dollars – is the same as it was 20 years ago. While students are paying a greater share of their educational costs because of cuts in state funding, we’ve managed to hold costs steady to keep the total bill from going up.
- ▶ This fall, CSU passed another important accountability measure, successfully wrapping up our 10-year re-accreditation by the Higher Learning Commission, which confirmed our full compliance with federal requirements and with the established criteria for delivering on our promises as a research university.

These are the types of indicators we focus on at CSU to try to ensure we’re meeting our obligations to students, families, and taxpayers. We’re also trying to do a better job communicating with students and their parents about things like costs. An example of this is the short video on tuition that we developed last fall for students and parents, which has since been used by the Association of Public and Land-Grant Universities and a number of national news sources to help translate some of the complexities around higher-ed funding and tuition. (<http://president.colostate.edu/tuition-video.aspx>)



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- Researchers are leaders of innovation in animal cancer, infectious disease, clean energy, and more
- Achieved the highest score among 129 universities participating in a national survey of higher education institutions dedicated to sustainability measures - the Sustainability Tracking, Assessment and Reporting System known as STARS
- The Colorado International Invitational Poster Exhibition is hosted by the Department of Art in the School of the Arts and features works of top poster artists and designers worldwide
- During 2013, technology transfer activities have resulted in 114 inventions, 148 patent applications, 37 licenses, 8 start-up companies and \$1.2 million in revenue
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