



George Anders Contributor

I write about innovation, careers and unforgettable personalities.

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FORBES 7/29/2015 @ 9:45AM | 809,214 views

That 'Useless' Liberal Arts Degree Has Become Tech's Hottest Ticket



Slack CEO Stewart Butterfield (Photo credit: Carlo Ricci for Forbes)

In less than two years [Slack Technologies](#) has become one of the most glistening of tech's ten-digit "unicorn" startups, boasting 1.1 million users and a private market valuation of \$2.8 billion. If you've used Slack's team-based messaging software, you know that one of its catchiest innovations is [Slackbot](#), a helpful little avatar that pops up periodically to provide tips so jaunty that it seems human.

Such creativity can't be programmed. Instead, much of it is minted by one of Slack's 180 employees, [Anna Pickard](#), the 38-year-old editorial director. She earned a theater degree from Britain's Manchester Metropolitan University before discovering that she hated the constant snubs of auditions that didn't work out. After dabbling in blogging, videogame writing and cat impersonations, she found her way into tech, where she cooks up zany replies to users who type in "I love you, Slackbot." It's her mission, Pickard explains, "to provide users with extra bits of surprise and delight." The pay is good; the stock options, even better.

What kind of boss hires a thwarted actress for a business-to-business software startup? Stewart Butterfield, Slack's 42-year-old cofounder and CEO, whose estimated double-digit stake in the company could be worth \$300 million or more. He's the proud holder of an undergraduate degree

in philosophy from Canada's University of Victoria and a master's degree from Cambridge in philosophy and the history of science.

"Studying philosophy taught me two things," says Butterfield, sitting in his office in San Francisco's South of Market district, a neighborhood almost entirely dedicated to the cult of coding. "I learned how to write really clearly. I learned how to follow an argument all the way down, which is invaluable in running meetings. And when I studied the history of science, I learned about the ways that everyone believes something is true—like the old notion of some kind of ether in the air propagating gravitational forces—until they realized that it wasn't true."

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Slack's core business benefits from the philosopher's touch. Hard-core engineers have been trying to build knowledge-management software for at least 15 years. Most of their approaches are so cumbersome that corporate users can't wait to quit. Slack makes everything simple. It bridges everything from Dropbox to Twitter, helping users organize documents, photos and data files into streamlined channels for easy browsing. Considering that Butterfield spent his early 20s trying to make sense of Wittgenstein's writings, sorting out corporate knowledge might seem simple.

And he's far from alone. Throughout the major U.S. tech hubs, whether Silicon Valley or Seattle, Boston or Austin, Tex., Engineers may still command the biggest salaries, but at disruptive juggernauts such as Facebook and Uber, the war for talent has moved to nontechnical jobs, particularly sales and marketing. The more that audacious coders dream of changing the world, the more they need to fill their companies with social alchemists who can connect with customers—and make progress seem pleasant.

Think of the ways the automobile revolution of the 1920s created enormous numbers of jobs for people who helped fit cars into everyday life: marketers, salesmen, driving instructors, road crews and so on. Something similar is afoot today. MIT professors Erik Brynjolfsson and Andrew McAfee argue in a recent book, [The Second](#)

[Machine Age](#), that today's tech wave will inspire a new style of work in which tech takes care of routine tasks so that people can concentrate on what mortals do best: generating creative ideas and actions in a data-rich world.

The Bureau of Labor Statistics predicts that by 2022 some 1 million more Americans will enter the workforce as educators. Another 1.1 million newcomers will earn a living in sales. Such opportunities won't be confined to remedial teaching or department store cashiers. Each wave of tech will create fresh demand for high-paid trainers, coaches, workshop leaders and salespeople. By contrast, software engineers' ranks will grow by 279,500, or barely 3% of overall job growth. Narrowly defined tech jobs, by themselves, aren't going to be the answer for long-term employment growth, says Michael Chui, a partner at McKinsey Global Institute.

Such nuances elude policymakers, who can't shake the notion that tech-centered instruction is the only sure ticket to success. President Barack Obama has repeatedly called for more spending on tech-focused high schools. In a February interview with the Re/code website, he hailed computer-programming classes as "a huge priority," adding: "It can't just be a handful of kids. It's got to be everybody."

In fact, . Some fascinating insights can be found on LinkedIn, which tracks graduates of specific universities as they move into the workforce. Say hello to the 62,887 LinkedIn members who attended Northwestern University in the past decade. Now zoom in on the 3,426 who have moved to the San Francisco Bay Area, one of the most popular destinations outside the Midwest, as they chase the Silicon Valley dream. Smart call: The Wildcats' top corporate employers include Google, Apple, Facebook, Genentech and LinkedIn.

Surprisingly, only 30% of these migrants ended up in engineering, research or information technology. As LinkedIn data show, most of the migrants have created nontechnical career paths in Silicon Valley. The list starts with sales and marketing (14%) and goes on to include education (6%), consulting (5%), business development (5%) and a host of other specialties ranging from product management to real estate. Add up the jobs held by people who majored in psychology, history, gender studies and the like, and they quickly surpass the totals for engineering and

computer science.

Run the numbers on recent graduates of Boston University, the University of Texas at Austin or any of the University of California campuses, and the hiring pattern in Silicon Valley is seen to be broadly similar. A case in point is Rachel Lee, who graduated from UC, Berkeley with a communications degree in 2011; now she's an account manager at Slack. She's been at the company for barely a month but she's already helped a construction company assimilate Slack's software to keep track of things as varied as plaster shipments and building regulations via employee smartphones. Lee says she's in awe of her technical colleagues who write Slack's code. They, in turn, respect her because of her untechnical ability to "connect with end users and figure out what they want."

In Austin Suzy Elizondo can see tech's new power structure every time she looks around the room during customer meetings. She has been working for five years at Phunware, which develops mobile applications for a wide variety of customers, including AT&T, the Houston airport and celebrity astrologers. When she joined the company as a design specialist after earning an advertising degree from UT Austin, she was the odd one out. Most meetings were packed with software engineers.



Suzy Elizondo (Photo credit Darren Carroll For Forbes)

Now nontechnical people from clients and from her own company often occupy at least half the seats. The reason: Software development keeps getting more automated. The rise of content libraries and plug-in modules means that mobile apps can be built much faster, with fewer people. But the nontechnical side—getting everyone to agree on what an app should look like—is more labor-intensive than ever. That means endless meetings and revisions for Elizondo, who's now a creative director overseeing a seven-person

department.

Mobile technology doesn't only make life more convenient, observes Robert Tabb, a Phunware salesman who visits medical centers all year. Putting easy-to-use information on everyone's smartphone also redefines a lot of people's jobs. And that means lots of intense conversations about how big organizations should reconfigure themselves to handle these dislocations. Tabb sees this upheaval in action every time he approaches hospitals about installing mobile apps that guide patients toward their appointments, even if it's not obvious which corridors lead from the lobby to Room C-713.

"It takes about ten meetings for us to get one of these deals put together," Tabb says. "And only two of those meetings are about the technology." The rest of the time Tabb earns his keep by practicing shuttle diplomacy. Early on, the patient-relations specialists love his idea, but the building engineers are dubious. Once the physical mapping issues are resolved, new tensions flare up regarding the prominence—or absence—of the medical center's brand on the mobile app. Eventually everyone is happy, and the deal gets done.

Being able to read the room is such a crucial skill, adds Phunware sales executive Mike Snavely, that he's willing to hire people who don't know much about technology if they have a gift for relating to other people. It doesn't bother him at all that Tabb started out selling running shoes or that Elizondo sells handmade jewelry at weekend crafts fairs as a hobby. Eccentricity, at least relative to the geeks coding all night in the back, sharpens people skills, he finds.

To be sure, the financial payoff of an engineering degree remains strong. A [2014 report](#) by the Association of American Colleges & Universities found that engineering majors earned an average of about \$92,000 a year in their late 30s, compared with about \$61,000 for graduates with degrees in the humanities or social sciences. But strong social skills turn out to be just as important as brainpower in determining future earnings potential. Catherine Weinberger, an economist at UC, Santa Barbara, has been analyzing government data on thousands of high school students and the incomes they earn many years later. Among her [findings](#): People with balanced strengths in social and math skills earn about 10% more than their counterparts who are strong in

only one area. In fact, socially inept math whizzes fare no better than go-getters who struggle with numbers.

Big tech employers are widening their hiring horizons beyond the STEM fields: science, technology, engineering and math. Larry Quinlan, Deloitte's chief information officer, argues in favor of "STEAM," in which the A stands for the arts. "It's not enough to be technologically brilliant," Quinlan says. "We need senior people who understand business processes, too."

This summer's fierce race to beef up sales teams is being played out every day in tech companies' hiring notices. Employee-software specialist Workday has 60 open positions in sales, exceeding the 51 in technology development. Ride-sharing king Uber needs 427 more brand ambassadors, partner-support reps and other operations wranglers, compared with just 168 more engineers. Even Facebook—run by die-hard engineer Mark Zuckerberg—has 225 openings right now for sales and business development specialists, compared with just 146 for software developers.

Bess Yount epitomizes the nontechie side of Facebook. She earned a Stanford bachelor's degree in communication and a master's in sociology. Outside the classroom she rounded herself out as captain of the lacrosse team. "I've always had a greater love for words than numbers," Yount says. That hasn't been a problem. When she joined Facebook in 2010, the social media company was evolving rapidly beyond its engineer-centric beginnings. Instead of envisioning a day when ads could be booked online without ever talking to a human being, Facebook's leaders began tapping into the benefits of a personal touch.

As a marketing manager focused on small businesses, Yount is on the road throughout the year, striking a rapport with shopkeepers who were raised on the Yellow Pages. She introduces them to a new era of advertising in which it's possible to target customers by age, gender, time of day, neighborhood and personal affinities. These bewildering new powers ("Should we target Rihanna fans? Taylor Swift fans? Both?") seem easier and more inviting in workshops that Yount runs all over the U.S. On a winter trip to the Berkshires, for example, she showed plumbers how to steer lots of ads into homeowners' news feeds right after a cold snap, so that people with

frozen pipes would be likely to call.

Such hand-holding isn't cheap. Facebook spent \$620 million on sales and marketing in the first quarter of 2015, nearly double from a year earlier. But the payoff for restoring human contact has been vast. Facebook's ad business, which was tiny in the days when everything was automated, now tops \$12 billion a year and is growing more than \$1 billion a quarter.

Even tiny businesses can gain a lot from customized Facebook ads, Yount says, if she can just help them crack the code. At a recent Philadelphia conference she highlighted the ways that diner owners can photograph a freshly baked pie and then use geo-targeting to show that photo to anyone walking within a mile of the shop. "One woman who did that managed to sell every piece of pie within three hours," Yount says.

In the restaurant industry, Shawna Ramona is the human face of the data revolution. She graduated from San Francisco State in 2002 with a degree in English literature. Now she is an iPad-toting "restaurant relations manager" for OpenTable, the online dinner-booking service. She calls on scores of restaurateurs a year, sharing insights that emerge from her company's data team. There's nothing technical in her background, but she knows how to connect with the old guard.



Umberto Gibin and Shawna Ramona (Photo credit Eric Millette For Forbes)

On a recent Tuesday she visited Umberto Gibin, the proprietor of two of San Francisco's most popular restaurants, Perbacco and Barbacco. He started in the restaurant trade 45 years ago as a teenage waiter in Italy, learning to carve ducks at patrons' tables. Panache defines him; when he bellows "Arrivederci!" to a departing guest, the whole restaurant can hear. His world is being rocked, though, by Moneyball-style insights culled from customers' smartphones, checks and

online reservation data. Predictive algorithms can tell Gibin how long each guest is likely to linger and which bookings are the likeliest no-shows. "I'm trying to change with the times," Gibin says. "But I'm a dinosaur when it comes to technology."

Ramona makes the strain go away. She worked in restaurants for much of her 20s, helping manage everything from steak houses to sushi bars. She knows when to make small talk about radicchio and when it's time to circle a disappointing metric on her iPad before gently saying: "There's an opportunity here for you."

OpenTable is a case in point of how the tech sector has widened its horizons. In the late 1990s California chip engineer Chuck Templeton created OpenTable as a pure tech play: enabling anyone to book a meal reservation online, instantly. The general public loved his concept. Most eateries, however, lacked the scheduling software to make it work. So in 2000 OpenTable began putting muscle into building better information technology for restaurants.

Suddenly OpenTable needed salespeople. Years of selling helped OpenTable slip its software into more than 10,000 restaurants by 2008. That was a fragile triumph, however. Open-Table's engineers kept upgrading the company's seating systems and data analytics, only to discover that restaurateurs weren't paying attention. That created a greater risk of customer churn. If OpenTable wanted strong, lasting connections with restaurant managers and owners, it needed a second team of frontline relationship-builders.

So OpenTable executives began hunting for people who had waited on tables, tended bar or managed restaurants earlier in their careers. The company was moving beyond its beginnings as an automation tool. The new priority, as sales chief Mike Dodson explains, was to find or train evangelists who could "show how tech can enrich the dining experience." The influx of some 137 people like Ramona has expanded OpenTable into 32,000 restaurants, with only 14 data scientists needed to run its insight-crunching machinery.

At 4:30 p.m. on a recent Monday Ramona popped into Marlowe, a bistro in the same trendy San Francisco neighborhood where Slack is based. She greeted owner Anna Weinberg, who also owns Park Tavern and another property, with a big hug. The postwork rush hadn't started yet; Marlowe was empty. Moments later the two women were

peering at Ramona's iPad, where a giant "opportunity" was on display. In the past year, it turned out, thousands of Open-Table users had been told seats weren't available at Park Tavern. Often people were trying to book tables far in advance. But Weinberg's restaurant offered only a 30-day look-ahead.

"Some people look two months out," Ramona explained.

"Fine!" Weinberg declared. "Let's do 60 days then. We'll do it for all three of our restaurants."

The next day Ramona worked her Uber account to exhaustion, dashing into a wide variety of San Francisco cafes, bars and restaurants. At a hipster cocktail establishment, Bar Agricole, Ramona let owner Thad Vogler know that he was getting 37% of his online bookings from mobile users, compared with 32% for his peers. Vogler grinned as if he'd just hit the lottery. His restaurant had been doing a big social media push, he explained, and now he knew it was working. "This kind of input is endlessly valuable," he declared.

In theory OpenTable could send data analysts on the road to share the same information. But Grant Parsamyan, OpenTable's head of business intelligence, shudders at the thought. He's a stocky man who favors plaid shirts at work. While he enjoys fine dining, he admits to being starstruck by the ways top restaurateurs project their authority. "I wouldn't be effective at all, trying to do what Shawna does," Parsamyan concedes.

When restaurateurs scoff at OpenTable's analysis, Ramona earns her keep. On a recent visit to Town Hall, a San Francisco restaurant that specializes in country ham and other southern-inspired cuisine, Ramona and a colleague, Denise Capobianco, suggested that restaurant manager Bjorn Kock wasn't doing enough to attract large groups.

Kock bristled. "Our design does not lend itself to a lot of large parties," he declared. Big groups take too long to finish, he explained. Their rush of orders at the same time strains the kitchen. Besides, his restaurant's long, angular layout would make big tables as unwelcome as a boulder in the midst of a stream. "Those tens!" he declared with a dismissive sweep of his hand. "I don't want them in our dining room."

Ramona didn't give up. "I see your point," she

said. “But what about trying an experiment on Sundays, when traffic is lighter. You could offer one ten-seat booking at 5 p.m. That wouldn’t strain the kitchen. It might be extra business that you wouldn’t get otherwise.”

Kock nodded his head. “That could work,” he declared. “I’m totally willing to play around with that possibility.” And thus the digital revolution spreads a tiny bit further, thanks to whiz-bang code underpinning OpenTable—and the interpersonal skills of an English major.

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