

The Race is on for Blockchain Talent: How Higher Education Can Respond

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Introduction

New economies and ecosystems are moving at a rapid pace. Outside of a handful of science, technology, engineering and mathematics (STEM) degrees, one could argue that higher education isn't keeping up with the needs of a fast-moving economy. For some institutions, their response has been moving campus-based master's degrees online or developing new online professional master's degrees. For others, it has been investing into more just-in-time learning or the Massive Open Online Course (MOOC) initiative. The [application of blockchain technologies](#) into a variety of business processes, and its impact on the workforce of the future, offers great opportunity for higher education to partner with business and industry on the leading edge.

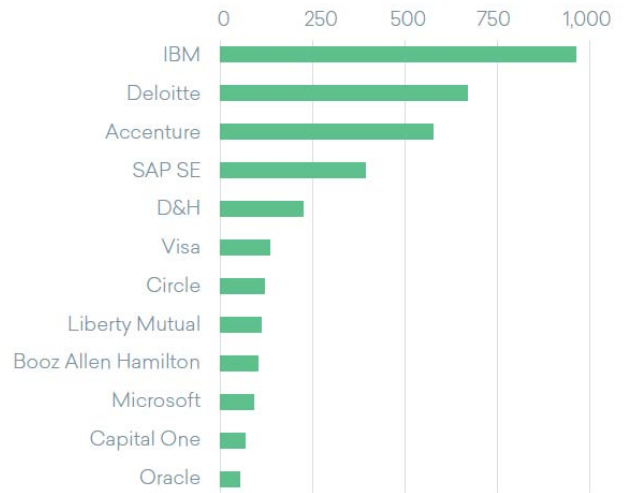
Most people understand blockchain as the underlying distributed ledger technology that cryptocurrencies are built upon. So why should higher education care about blockchain? Because there is a boom of other real world [blockchain applications](#) that is driving a race for blockchain talent. Employer demand is real and is growing at a meteoric pace. [Emsi](#) is a labor market analytics firm that continuously searches millions of job postings across the web. When Emsi searched for the word "blockchain" in those jobs, they found 2,304 jobs in 2016. That number increased to 7,131 jobs in 2017. In January 2018 alone, Emsi found 1,933 blockchain jobs posted. This exponential growth suggests that the market is screaming for new employees or new skills for existing employees.



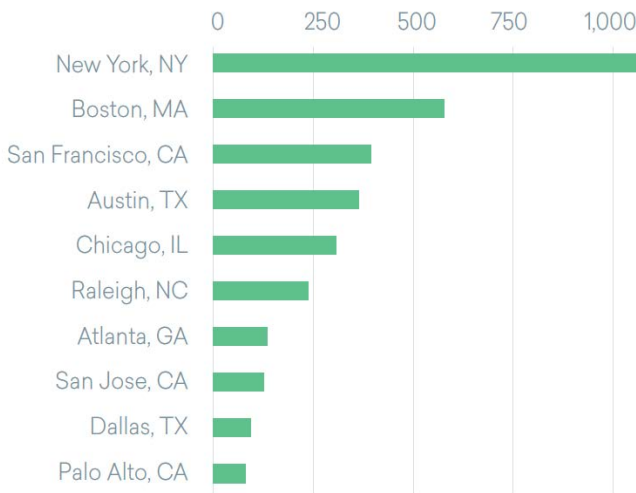
Source: 2018 Emsi Research

What might be driving the demand? First and foremost, one has to acknowledge the explosion of cryptocurrencies and their related jobs. Beyond cryptocurrencies, industry leaders such as [IBM are adopting blockchain and contributing to open source projects like Hyperledger](#). In 2017, Emsi saw IBM alone post nearly one thousand blockchain jobs. Other major firms hiring for blockchain jobs include Deloitte, Accenture, SAP and others

While many of these jobs are concentrated in major technology hubs, there is growth across most parts of the country. The top 10 cities for 2017 blockchain employment are shown below and align very closely with major employers and technology corridors.



Source: 2018 Emsi Research



Source: 2018 Emsi Research

Most blockchain jobs are some variants of software developers, engineers, or architects. While this alone offers up significant noncredit training and other nondegree-dependent credentialing opportunities, an emerging trend is appearing for what is being called a blockchain developer.

What is a blockchain developer? A blockchain developer is someone with the technical foundation of a developer with blockchain domain knowledge and technical expertise. The necessary domain knowledge

usually includes the blockchain basics (i.e. [the Bitcoin whitepaper](#)), smart contracts, distributed application frameworks, cryptocurrencies and cryptography.

The technical requirements often include experience with one of the blockchain platforms like Hyperledger, Ethereum, R3 Corda, Ripple, Bluemix, and Rubix.

What does this all mean for higher education? There is a huge opportunity for continuing and professional education units to offer blockchain-oriented programs. Blockchain as a technology is a can't miss technology and is at the tip of the iceberg. While there are still many problems associated with bitcoin and cryptocurrencies, blockchain technology will impact many industries ranging from finance and banking to healthcare and patient records to even the drug and pharmaceutical industry. Every industry that relies on a transaction with the potential to link it back to its source will benefit from blockchain. Also, give the changes in technology and application, the legal industry will be impacted as will government and global commerce. Higher education has not missed the boat. The industry is still learning to build the boat.

For higher education, there may be a myth that this isn't a core competency of theirs. However, many institutions have become leaders in offering cybersecurity, coding and data science programs.

Blockchain is likely to be the next big thing. Many professional, continuing and online units may already have programs that they can bundle to start building

out the blockchain curriculum and certification. The institution needs to address whether their portfolio offers many of the following programs and if so, how many graduates are in the workplace with skills such as JavaScript, Angular, Node, HTML5, CSS, JSON, Python, C++, or Java? Developers with these skills are going to be the core market for a blockchain developer program.

TARGET PERSONA SKILLS

- JavaScript
- Angular
- Node
- HTML5
- CSS
- JSON
- Python
- C++
- Java

Source: 2018 Emsi Research

Actions to Consider:

- Assess faculty strengths and ability to deliver content. If blockchain content expertise does not reside within the institution, explore whether it exists in the community.
- Analyze your marketplace to identify industries and companies that are certain to employ blockchain developers.
- Look for "occupational breadcrumbs," such as other leading industries that are growing that will require blockchain developers, such as finance and banking, health informatics, or data science to name a few.
- Use a job analytics tool (such as [Emsi Analyst](#)) or review job posting sites such as Indeed or CareerBuilder to identify early demand in your region.
- Study or survey graduates of your baccalaureate programs to identify their future needs or existing technology skill sets. Emsi also has a tool called [Alumni Insight](#) that can identify their work profile (employment, job titles, etc.) and find skill needs. UPCEA's Center for Research and Strategy has primary research tools and can assist with occupational skill needs surveys and other demographics.
- Conduct environmental or competitive scans to determine whether or not private industry or other institutions of higher education are meeting blockchain developer needs.
- Begin establishing advisory groups to not only guide you in the development process, but who can serve as a marketing channel once the program is ready to launch.

About the Authors

Jim Fong is Chief Research Officer and Director of UPCEA's Center for Research and Strategy, formerly the Center for Research and Consulting. Prior to UPCEA, he held leadership positions at Penn State Outreach and a number of consulting and analytics companies. Jim regularly teaches graduate and undergraduate courses online and on-campus at a number of colleges and universities. He holds an M.S. in statistics, an MBA with a concentration in marketing and business strategy and a B.S. in mathematics from the University of Vermont. Jim can be reached at jfong@upcea.edu.

Aaron Olanie is an economist and Major Account Executive at Emsi where he helps clients assess program market demand, align curriculum with emerging skillsets, and track and understand alumni outcomes. Aaron joined Emsi in 2013 and holds a PhD in economics from Washington State University. He can be reached at aolanie@economicmodeling.com.

About UPCEA

UPCEA is the leading association for professional, continuing, and online education. Founded in 1915, UPCEA now serves most of the leading public and private colleges and universities in North America. For more than 100 years, the association has served its members through its Center for Research and Strategy, National Council for Online Education, innovative conferences, and specialty seminars. The Center for Research and Strategy is the benchmarking, research and consulting arm of the association, formed to meet the research needs of its members.

About Emsi

Emsi is a labor market analytics firm. Serving higher education leaders since 2001, Emsi combines traditional labor market data, job postings, and alumni and professional profiles to offer a comprehensive perspective on the labor market. Across the US, hundreds of institutions trust Emsi to align programs to regional needs, strengthen enrollment, connect students to careers, and understand alumni outcomes.