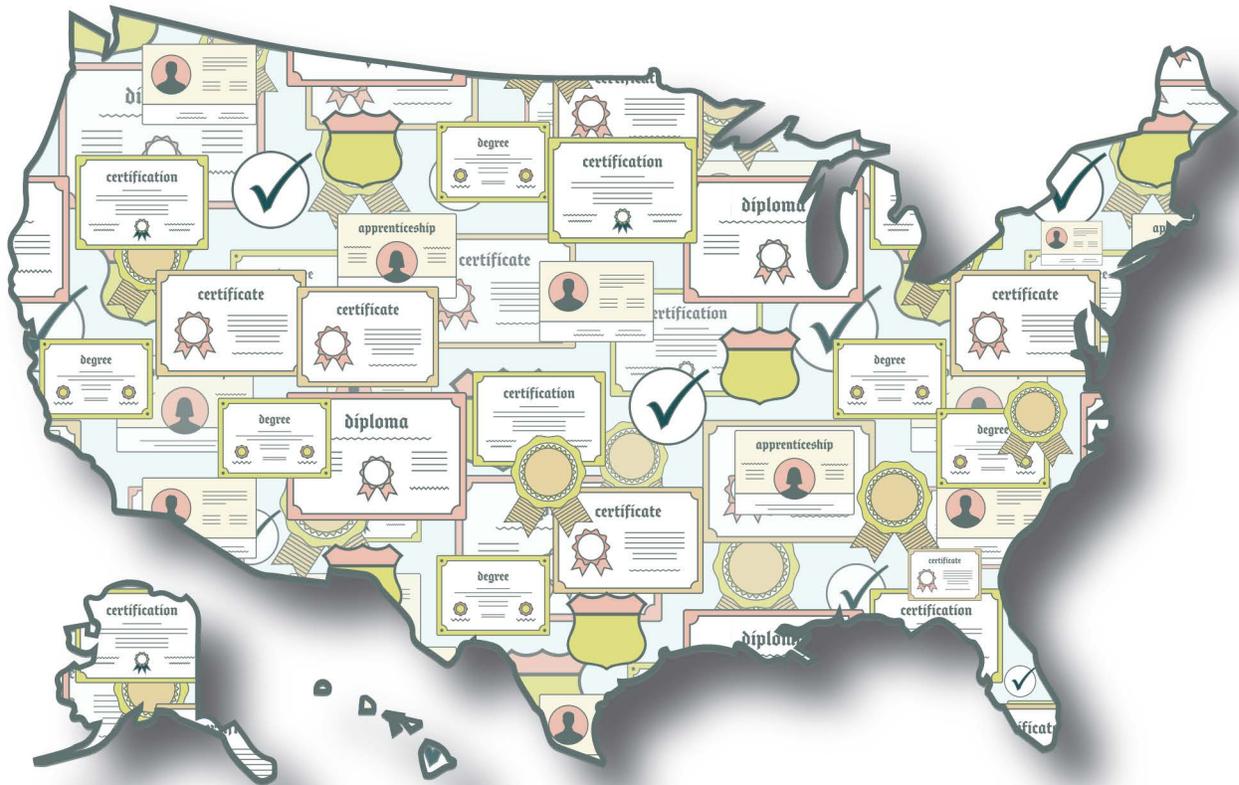# Counting U.S. Secondary and Postsecondary Credentials

A Credential Engine Report

April 2018

Credential Engine™

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About Credential Engine

Credential Engine is a non-profit whose mission is to bring transparency to all credentials, reveal the marketplace of credentials, increase credential literacy, and allow students, workers, employers, educators, and policy makers to make more informed decisions about credentials and their value.

As part of Credential Engine's work, we are producing a reliable and comprehensive count of every unique credential in the United States—and eventually the world—and improving the uniformity of how all credentials are described so they can be searched, discovered, compared, and valued.

Acknowledgements

Letter from Credential Engine

Students and workers in the United States have access to a vast number of credentials to obtain, enhance, and signal their knowledge, skills, and abilities. There are many types of credentials—from high school diplomas, to degrees from accredited postsecondary educational institutions, to a wide range of non-degree credentials. Some of these are widely recognized and accepted, such as licenses, certifications, and registered apprenticeships; and some are newer to the scene, such as badges, Nanodegrees and MicroMasters. Every day the options within this highly complex landscape of credentials changes as new credentials are created, some are removed, occupational requirements shift with employer needs, and the economy continues its perpetual evolution.

Millions of students, workers, educators, and employers who make decisions in the convoluted U.S. credentials marketplace are greatly hindered by the lack of information on the nature of their options and how they compare with one another. In particular, as the necessity of obtaining postsecondary credentials for employability and earnings has increased, the consequences of the lack of information on credentials has resulted in significant labor market dysfunctions. Students, workers, businesses, and schools are making decisions blind, with considerable consequences for making wrong choices.

There are two main questions about credentials:
- How many are available in the U.S.?
- How can individuals—students, workers, counselors, hiring managers, educators, program administrators, and policymakers—make better decisions about the relative value of different credentials for their particular needs?

This research is the start of a complex process of answering the first question.

Credential Engine engaged the Center for Regional Economic Competitiveness (CREC) and the George Washington University Institute of Public Policy (GWIPP) to estimate the number of credentials in the U.S. The team systematically identified and reviewed over 100 websites that aggregate credential-granting programs and determined the extent to which these aggregators offer a comprehensive list of credentials. The review covered several credential types, including high school diplomas; postsecondary degrees; apprenticeships; occupational licenses; certifications; noncredit certificates; and emerging credentials such as badges, Nanodegrees, and MicroMasters.

The results of this report are only preliminary, but they are telling. Conservative estimates by our researchers indicated there are well over 300,000 confirmed credentials currently available in the United States alone. For many of the credential types our researchers looked into, there are not yet sufficient or reliable data sources to capture an accurate count, indicating the true total number of credentials is likely significantly higher.

Our research into developing a confirmed credential count has only just begun. We continue to dig into the available data and uncover new data sources that will help us reveal a more accurate picture of the marketplace. As the information is updated, we plan to share our findings in additional reports.

Simply compiling an inventory of credentials available in the marketplace does not answer questions around value. Credential Engine's open source Credential Transparency Description Language (CTDL)

contains a range of description terms that are designed to help reveal the relative value of credentials. Combining the data in the Credential Registry with other data sources such as wages, employment, employer preferences, and labor market information further improves the ability to reveal value. Ultimately, there needs to be a wide range of products and services that help individuals make sense of these data, apply it to their own circumstances, and make informed decisions that are best for them. Credential Engine is working to support a new marketplace of applications that will put these data into the hands of people in valuable and productive ways. And we here at Credential Engine plan to pursue additional research to answer questions surrounding the value of each credential for different audiences and purposes.

Through this inventory and our future reports, we look forward to working with our partners to improve the transparency of the credential marketplace, provide reliable credential data, and raise credential literacy.

Scott Cheney

Scott Cheney
Executive Director
Credential Engine

April 2018

Executive Summary

The lead research teams from CREC and GWIPP investigated the current credential marketplace to create a preliminary confirmed count of U.S. credentials available in 2018.

The research review yielded three types of results:

1. Comprehensive count for credential type – The reviewers have a high degree of confidence that this report provides a comprehensive, if not complete count for:
   - Degrees by major/specialization from Title IV postsecondary institutions (those authorized to offer federal student loans),
   - For-credit certificates by major/specialization from Title IV postsecondary institutions,
   - Federally-registered apprenticeships, and
   - Online alternative degree programs.
2. Partial specific count for credential type – While the report provides a solid program count, this count represents a subset of a difficult-to-determine total:
   - High school diplomas,
   - Occupational licenses,
   - Certifications, and
   - Bootcamp certificates.
3. Absence of credential count – The first report is unable to provide a credible full or partial count for:
   - Non-credit certificates from Title IV postsecondary institutions,
   - Credentials from non-Title IV postsecondary institutions,
   - Non-registered apprenticeships, and
   - Badges.

The report's findings are summarized in Figure 1, followed by a discussion of the results, and implications for further research follow. Material in the report appendix includes: the definition of each credential type, the research methodology, and analysis for each type of credential.

Summary Count of Credentials

This research confirms the existence of at least 334,114 credentials in the U.S., as indicated in Figure 1. Of these, 280,910 (84.3 percent) are provided by Title IV postsecondary institutions—213,913 degree programs (64.2 percent)[1] and 66,997 certificate programs (20.1 percent). Following, in descending order, are high school diploma programs (at least 23,454), registered apprenticeships (at least 13,656), state-issued occupational licenses (at least 8,864), certifications (at least 5,465), bootcamp certificates (at least 1,718), MicroMasters (23), and Nanodegrees (24).

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[1] The IPEDS result reflects one year of survey data. The number of respondents to the IPEDS survey varies each year, which impacts the precise credential count from one year to the next. Numbers reported are considered to be the "least number" for each type; more are likely in every category but cannot be identified in data sources.

Title IV institution programs account for the largest percentage of credential programs because each major or specialization at each award level in each institution (e.g., a Bachelor of Science in chemistry at the University of North Carolina at Chapel Hill) is counted as a distinct credential.

As noted, the data in this report are not complete. For example, this report does not include counts for noncredit postsecondary certificates, awards by non-Title IV institutions, unregistered apprenticeships, and badges. Research suggests that a more complete count of high school credentials, licenses, certifications, and bootcamps would not have as significant an impact on the total. And the unregistered apprenticeship credential is poorly tracked.

Figure 1: 2018 Initial Count of Credential-granting Programs

Credential Type	Count Completeness	Program Count	Comments	Source
High School Diplomas	**Partial**	23,454	An unknown number issue more than one type of credential	National Center for Education Statistics (NCES) – Digest of Educational Statistics and Private Schools Survey
Public Secondary School Districts		13,584		
Private High Schools		9,870		
Postsecondary Degrees - Title IV Institutions	**Complete**	213,913	All Title IV schools must provide degree program data to IPEDS.	NCES – Integrated Postsecondary Educational Data System (IPEDS)[2]
Associate's		47,099		
Bachelor's		113,550		
Master's		39,832		
Doctoral degree - research/scholarship		11,568		
Doctoral degree - professional practice		1,660		
Doctoral degree - other		204		
Postsecondary For-credit Certificates - Title IV Institutions	**Complete**	66,997	All Title IV schools must provide for-credit certificate program data to IPEDS.	
Award of less than 1 academic year		27,125		
Award of at least 1 but less than 2 academic years		27,011		
Award of at least 2 but less than 4 academic years		1,992		
Post-baccalaureate certificate		7,294		
Post-master's certificate		3,575		
Postsecondary Non-credit Certificates - Title IV Institutions	**Excluded**	n/a	No reliable data source found. Institutions do not report these awards to IPEDS.	
Postsecondary Awards - non-Title IV Institutions	**Excluded**	n/a	No reliable data source found.	

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2   The IPEDS result reflects one year of survey data. The number of respondents to the IPEDS survey varies each year, which impacts the precise credential count from one year to the next.

Figure 1 - Continued

Credential Type	Count Completeness	Program Count	Comments	Source
Federally Registered Apprenticeships	**Complete**	13,656		Employment and Training Administration (ETA), U.S. Department of Labor (USDOL) - ApprenticeshipUSA
Unregistered Apprenticeships	**Excluded**	n/a	Concept not consistently defined. No reliable data source found.	
Certifications	**Partial**	5,465	Certification Finder does not capture all certification programs, no other comprehensive source available.	ETA, USDOL – Certification Finder
Occupational licenses (state-issued)	**Partial**	8,864	License Finder does not capture all license programs, no other comprehensive source available.	ETA, USDOL – License Finder
Online Alternative Degree Programs	**Complete**	47		
MicroMasters Total		23		edX
Nanodegrees		24		Udacity
Bootcamp Certificates	**Partial**	1,718	Covers only coding bootcamps no other fields.	Coursereport.com
Badges	**Excluded**	n/a	No reliable data source found.	
Grand Total	**Partial**	334,114		

Recommendations for Further Research

This report establishes baseline information needed to understand of the number of credentials in the U.S. The following recommendations are offered by the research team to strengthen this research and understanding of credentials in the future:

High school diploma programs

Issue:
- NCES does not distinguish secondary school diplomas by their requisite coursework requirements.

Recommendation:
- Approach the Education Commission of the States, the National Association of Secondary School Principals, and the Council for American Private Education to explore approaches to counting the number of credentials offered across all public and private secondary schools.
- Include a count of diploma equivalencies (e.g. GEDs).

Postsecondary non-credit certificate programs

Issue:
- Non-credit certificates offered by postsecondary institutions are not counted in IPEDS.

Recommendation:
- Approach the American Association for Adult and Continuing Education, the Association for Continuing Higher Education, and the University Professional and Continuing Education Association (UPCEA) to explore approaches to counting the number of non-credit certificates offered by postsecondary institutions.

Postsecondary awards from non-Title IV postsecondary institutions

Issue:
- IPEDS does not include non-Title IV institutions.

Recommendation:
- Approach the Accrediting Council for Independent Colleges and Schools to explore approaches to identifying non-Title IV institutions and counting their respective credential programs.

Unregistered Apprenticeships

Issue:
- A consistent definition of—and central registry for—apprenticeships that exist outside of the USDOL registry does not exist.

Recommendation:
- Monitor work at the USDOL and explore how to collect and publish unregistered apprenticeships to the Registry.

Certifications

Issue:
- Comparison of programs in the USDOL's Certification Finder with other, less comprehensive, lists indicates that Certification Finder is incomplete.

Recommendations:
- Approach the USDOL contractor maintaining Certification Finder to explore methods for identifying additional programs that meet USDOL criteria.
- Approach the National Network of Business and Industry Associations to explore methods for identifying certification programs that do not meet USDOL criteria.
- Approach other credential data aggregators such as the National Student Clearinghouse to explore method for collecting certifications.

Occupational Licenses

Issue:
- Comparison of licenses in the USDOL License Finder with other, less comprehensive, lists indicates that License Finder is incomplete.

Recommendation:
- Approach the USDOL contractor maintaining License Finder to explore methods for identifying additional programs that meet USDOL criteria.

Bootcamps

Issue:
- We are unable to locate a list of bootcamps outside of coding.

Recommendation:
- Explore the prevalence of bootcamps outside of coding and not included in other credential categories (e.g., certificates).

Badges

Issue:
- We are unable to locate a comprehensive registry of badges. Further, there is wide variation in the requirements for obtaining a badge, many of which have little or no apparent labor market value (e.g., a badge for electronic signature).

Recommendation:
- Regularly monitor the evolution of the badge movement, particularly the services identified by Open Badges.
- Approach IMS Global's OpenBadges workgroup to explore methods for collecting and differentiating badges.

Conclusion

Preliminary results confirm the existence of over 300,000 credentials in the United States. It further determines that a definitive answer to the number of credentials is incomplete or nonexistent, meaning that the actual number may be significantly higher. Additional research is needed from Credential Engine, in partnership with external organizations, to develop a more complete list.

Research and Methodology

Overview

This section will break down the definitions used by the research team to define each type of credential, explain the research methodology, and discuss findings. In following section detailing the findings, the credential count and a brief overview of how that number was estimated is provided, followed by a list of the data source(s) used to inform conclusions. As previously noted, these findings are not complete and should be further investigated with additional research.

Credential Definitions

Unless otherwise indicated, the research team used credential definitions from the Credential Transparency Description Language (http://credreg.net/ctdl/terms/ to inform the research effort. Those definitions are included here for reference.

Figure 2: Credential Definitions

Credential	Definition
Doctoral Degree	Highest credential award for students who have completed both a Bachelor's degree and a Master's degree or their equivalent as well as independent research and/or a significant project or paper.
• **Research/Scholarship**	Doctoral degree conferred for advanced work beyond the master level, including the preparation and defense of a thesis or dissertation based on original research, or the planning and execution of an original project demonstrating substantial artistic or scholarly achievement.
• **Professional Practice**	Doctoral degree conferred upon completion of a program providing the knowledge and skills for the recognition, credential, or license required for professional practice.
• **Other**[3]	Doctoral degree that does not meet the definition of a doctor's degree—research/scholarship or a doctor's degree—professional practice.
Master's Degree	Credential awarded for a graduate level course of study where course work and activities advance skills beyond those of the Bachelor's degree or its equivalent.
Bachelor's Degree	College/university award for students typically completing three-to-five years of education where course work and activities advance skills beyond those of the first one to two years of college/university study.
Associate Degree	College/university award for students typically completing the first one-to-two years of post-secondary school education.
Diploma	Credential awarded by educational institutions for successful completion of a course of study or its equivalent.

3 "2017-18 Survey Materials: Glossary." National Center for Education Statistics. November 14, 2017. Accessed February 20, 2018. https://surveys.nces.ed.gov/ipeds/Downloads/Forms/IPEDSGlossary.pdf.

Figure 2 - Continued

Credential	Definition
Secondary School Diploma	Diploma awarded by secondary education institutions for successful completion of a secondary school program of study.
Non-Title IV Degree Programs	Degree programs that do not receive Title-IV funding and therefore do not have the same reporting requirements as degrees found in IPEDS.
Post-Master's Certificate[4]	Award that requires completion of an organized program beyond the Master's degree, but does not meet the requirements of academic degrees at the doctor's level.
Post-baccalaureate Certificate[5]	Award that requires completion of an organized program of study beyond the bachelor's. It is designed for persons who have completed a baccalaureate degree but does not meet the requirements of a Master's degree.
Award of at least 2 but less than 4 academic years[6]	Award that requires completion of an organized program of study at the postsecondary level (below the baccalaureate degree) in at least two but less than four full-time equivalent academic years, or designed for completion in at least 60, but less than 120, semester or trimester credit hours, or in at least 90, but less than 180, quarter credit hours, or in at least 1,800, but less than 3,600, contact or clock hours.
Award of at least 1 but less than 2 academic years[7]	Award that requires completion of an organized program of study at the postsecondary level (below the baccalaureate degree) in at least one but less than two full-time equivalent academic years, or designed for completion in at least 30, but less than 60, semester or trimester credit hours, or in at least 45, but less than 90, quarter credit hours, or in at least 900, but less than 1,800, contact or clock hours.
Award of less than 1 academic year[8]	Award that requires completion of an organized program of study at the postsecondary level (below the baccalaureate degree) in less than one academic year (two semesters or three quarters), or designed for completion in less than 30 semester or trimester credit hours, or in less than 45 quarter credit hours, or in less than 900 contact or clock hours.
Apprenticeship (registered) (also: Apprenticeship Certificate)	Credential earned through work-based learning and earn-and-learn models that meet standards and are applicable to industry trades and professions.
Apprenticeship (unregistered)[9]	Arrangement that includes a paid-work component and an educational or instructional component, wherein an individual obtains workplace-relevant knowledge and skills; not officially registered with the USDOL.

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4   "2017-18 Survey Materials: Glossary." National Center for Education Statistics. November 14, 2017.
Accessed February 20, 2018. https://surveys.nces.ed.gov/ipeds/Downloads/Forms/IPEDSGlossary.pdf
5   *Ibid.*
6   *Ibid.*
7   *Ibid.*
8   *Ibid.*
9   "Frequently Asked Questions about the Apprenticeship Program." United States Department of Labor. 2018.
Accessed February 20, 2018. https://www.dol.gov/featured/apprenticeship/faqs.

Figure 2 - Continued

Credential	Definition
Certification	Time-limited, renewable credential awarded by an authoritative body to an individual or organization for demonstrating the designated knowledge, skills, and abilities to perform a specific occupation.
License (also: Occupational License)	Credential awarded by a government agency that constitutes legal authority to do a specific job and/or utilize a specific item, system or infrastructure and are typically earned through some combination of degree or certificate attainment, certifications, assessments, work experience, and/or fees, and are time-limited and must be renewed periodically.
Badge	Recognition designed to be displayed as a marker of accomplishment, activity, achievement, skill, interest, association, or identity.
Bootcamps[10]	Intense courses combine theory and practice in a condensed format that encourages a learning environment where knowledge is shared by all.
MicroMaster	A series of graduate online courses from various universities through the EdX platform to provide a deep learning in a specific career field with high recognition. MicroMasters students can apply to the university offering credit for the MicroMasters certificate and, if accepted, can pursue an accelerated and less expensive Master's degree.
Nanodegree[11]	An online certification through Udacity that typically takes less than 12 months to complete.

Detailed Methodology

The project entailed two research phases. Phase I included research on more traditional and well-documented credentials including registered apprenticeships, certifications, degrees, and occupational licenses, all of which are available within data tools from the U.S. Department of Labor's (USDOL) Employment and Training Administration (ETA) or the National Center for Education Statistics (NCES). Phase II included research on credentials that were more difficult to track, including unregistered apprenticeships, badges, online programs, MicroMasters, Nanodegrees, and high school diplomas.

Using the credential definitions in Figure 2 above, researchers identified websites that aggregated credentials for each type. They reviewed an extensive list of potential aggregators (see Appendix 2) to determine which were useful for the purposes of this research. Once the team determined the relevant websites, they reviewed each site to identify the most comprehensive aggregator in each credential category—i.e., the aggregator with the most distinct credentials included. In most cases,

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10   Pearson US. "Choose your own (academic) bootcamp." Pearson. May 19, 2016.
Accessed February 20, 2018. https://www.pearsoned.com/choose-academic-bootcamp/.
11   "Nanodegree." Udacity. 2018. Accessed February 20, 2018. https://www.udacity.com/.

one aggregator website emerged as most comprehensive for each credential type (shown in the "Source" column in Figure 1). To test the aggregators' comprehensiveness, the team selected at random a sample of 100 credentials (when at least 100 were available) per category and checked whether the credentials appeared in the comprehensive aggregator for that credential type. This provided a sense of how much confidence could be placed in the count identified through that aggregator for each credential category. Generally, this process allowed the team to identify a baseline count of credentials. As described throughout this section, there are other credentials that are neither captured by an aggregator nor easily extractable for a count in other sources.

Findings by Credential Type

High School Diplomas

The NCES Digest of Education Statistics Digest of Education Statistics website is the most comprehensive account of data on U.S. high school diplomas. It captures outcomes of high school completions, indicating whether a student received a regular diploma or not. The NCES Digest reports that the U.S. has 13,584 public secondary school districts, 98,277 public high schools, and 9,870 private high schools. Since private high schools do not fall easily into "districts" that all follow the same definitions and governance structures, the team was unable to develop a count of private high school districts. This makes it difficult to count types of high school diplomas awarded by private high schools.

Among public high schools, Achieve reports that there were 95 different kinds of high school diplomas awarded across the U.S. in 2015.[12] Upon further research, the researchers found that states provide the authority for their school districts to award between one (multiple states) and ten (New York) different types of diplomas. To provide a baseline estimate of public high school diplomas, researchers conservatively assumed that, on average, individual districts award one type of high school diplomas. Since some districts offer up to ten diplomas, this is believed to be a very conservative estimate of the total number of public high school diplomas. It is also assumed that each private high school is its own degree-granting program.

For private schools, perhaps the biggest overarching challenge with counting diplomas is determining whether to count based on individual high school or school district. For example, the Archdiocese of Washington, DC (metro Washington) is home to 18 Catholic high schools. Two of them are overseen by the Archdiocese of Washington; presumably, the others are governed by the religious orders (e.g., Society of Jesus, Sisters of the Holy Cross, etc.) that operate them. In addition to Catholic high schools, there are private high schools as varied as those offered by the Muhammed University of Islam, the Psychiatric Institute of Washington, the Lab School, the Village Academy, and the Kirov Institute of Ballet, all offering academic programs for students at least in grades 9-12. It is unclear whether each school has independent credential-granting authority. With these factors in mind, it is anticipated that the calculation of 23,454 high school diplomas is an undercount of this credential.

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12   "How the States Got Their Rates: 2015 Graduates." Achieve. November 3, 2016. Accessed February 20, 2018. https://www.achieve.org/how-the-states-got-their-rates-2015-graduates.

Data Source
NCES Digest of Education Statistics
(https://nces.ed.gov/fastfacts/display.asp?id=84)

Provides a compilation of statistical information covering the broad field of American education from prekindergarten through graduate school. While it captures counts of public high school districts and public and private high school institutions, it does not capture private high school "districts" (e.g., Catholic diocese).

Postsecondary Degrees and Certificates

A degree is a credential that spans various award levels, including Associate's, Bachelor's, Master's, and Doctoral degrees. To develop a count of degree-related credentials, researchers identified the NCES' Integrated Postsecondary Education Data System (IPEDS) as the most comprehensive aggregator of degrees. IPEDS covers the universe of 7,000 schools categorized as Title IV institutions (i.e., those that offer student financial aid. Since IPEDS captures the universe of these credentials, the team did not seek other Title IV degrees to test in IPEDS. The team did, however, develop a separate count of online degree programs, which is covered in the "Online Programs" section of this report.

IPEDS does not capture data on credentials from degree-granting institutions that are not categorized under Title IV. The Accrediting Council for Independent Colleges and Schools provides some insight into these institutions: according to its membership list, there are 414 credential-granting institutions that do not appear in IPEDS.[13] However, degrees from these specific institutions require further research to reach an accurate count of relevant credentials. So, although the researchers are highly confident in the number of degrees from Title IV institutions in IPEDS, the count would be higher if it counted reliably extracted data on specific degrees from the 414 institutions not in IPEDS.

Data Source
NCES IPEDS 2016 Institutional Characteristics Survey, HD2016 (Preliminary release)
Provides directory information for Title IV-funded institutions. The estimated total for IPEDS credentials is based on a provisional release of 2016-2017 IPEDS survey tables. There is no indication if the total number of programs and awards will decrease or increase following finalization.

NCES IPEDS 2016 Completions Survey, C2016_A (Preliminary release)
Provides awards/degrees conferred by program (6-digit CIP code), award level, race/ethnicity, and gender: July 1, 2015 to June 30, 2016.

Apprenticeships

Apprenticeships fall into two general categories—registered and unregistered. This is an important distinction, because registered apprenticeship programs are highly regulated and must meet Federal and State standards and parameters. There is no comparable set of standards or parameters governing the operation of unregistered apprenticeship programs. Unless an issuer officially registers its apprenticeship with the USDOL, the parameters around other apprenticeships are blurry.

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13   Accrediting Council for Independent Colleges and Schools. 2017. Accessed February 20, 2018.
http://www.acics.org/.

ETA's ApprenticeshipUSA Toolkit was the most comprehensive aggregator of registered apprenticeships with 13,656 apprenticeships in its database. Since the USDOL does not consider an apprenticeship "registered" unless its issuer reports the program to the Office of Apprenticeship, the researchers are confident that 13,656 fairly represents the count of registered apprenticeships. To be certain that the aggregator contained registered apprenticeships exclusively, a sample of unregistered apprenticeships were tested from Glassdoor. The team found that less than one percent of what Glassdoor labeled as "apprenticeship" appeared in ApprenticeshipUSA, confirming that ApprenticeshipUSA is a comprehensive aggregator of only registered apprenticeships.

Counting unregistered apprenticeships is difficult at best for several reasons that flow from the lack of consistent program standards. As one of the Trump administration's stated top workforce development priorities, apprenticeships have gained notable attention and potential for growth. There are various other organizations that use the apprenticeship label, including private companies, that have their own ideas about what constitutes apprenticeships.

There are additional challenges that come with trying to establish a count of unregistered apprenticeships. For example, issuers often identify an apprenticeship as a program, not a tangible credential. In other words, there are cases where an apprenticeship is the training that one completes, not the actual credential that is awarded upon completion.

Data Source
USDOL, ETA, Office of Apprenticeship - ApprenticeshipUSA Sponsor Database (Now Workforce GPSN)
The ApprenticeshipUSA Sponsors Database (https://oa.doleta.gov/bat.cfm) is an interactive tool to browse registered apprenticeships by sponsor, zip code, state, and occupation. Updated December 2017.

Through the ApprenticeshipUSA Sponsors Database, users can link to the ApprenticeshipUSA Community of Practice on ETA's Workforce GPS website (https://apprenticeshipusa.workforcegps.org/) for additional information on apprenticeships. The ApprenticeshipUSA Community of Practice is an online resource for stakeholders from throughout the Apprenticeship system and its partners to share information and learn from peers regarding the innovative strategies and partnerships being used to train U.S. workers.

Certifications
According to the USDOL, a certification demonstrates "specific skills or knowledge in an occupation, industry, or technology, and typically requires passing a test in order to earn the credential."[14] To find a count of certifications, researchers identified the Certification Finder tool on ETA's CareerOneStop website as the most comprehensive aggregator available. The tool is an online directory of third-party organizations that provides verification of skill or knowledge attainment based on generally accepted skill standards for an occupation.[15]

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14   "Certification Finder." Employment and Training Administration. 2018. Accessed January 3, 2018. https://www.careeronestop.org/Toolkit/Training/find-certifications.aspx.
15   According to the ETA definition, certifications included must require some level of education, training, work experience, or an examination and cannot be a state-required license. Source: Certification Finder FAQ. CareerOneStop. U.S. Employment and Training Administration.

To test for Certification Finder's comprehensiveness, researchers compared a sample of certifications from non-federal websites against the records included in Certification Finder. They found that 60.8 percent of the certifications tested appeared in Certification Finder.

It appeared that there was a pattern that newer certifications and certifications with wordy or highly specific names were unlikely to appear in Certification Finder. ETA also confirmed a series of criteria that they used to determine which certification programs they would accept through CareerOneStop. Organizations that submit a certification must be accredited, offer certifications that reasonably align with O*NET occupations, and show evidence that there is a standards committee that oversees certification development. Therefore, while the team has a high degree of confidence that the count of certifications from Certification Finder is accurate, the researchers suggest that there are many more certifications in the marketplace that fall outside of ETA's criteria and are not included in Certification Finder.

Data Source
USDOL, ETA - Certification Finder
Provides names, certifying organizations, related occupations, and other details for more than 5,000 national certifications. Updated July 2017.

Occupational Licenses

According to The State of Occupational Licensing, occupational licenses vary by state, are not always transferrable across state lines, and change frequently to accommodate new standards for occupations. State licensing is meant to promote worker and consumer safety and create a higher quality of services. As a result, the number of occupational licenses has increased dramatically in recent years; combined with the characteristics noted above, licenses are difficult to track and count.[16]

The researchers used ETA's License Finder—the largest available online aggregator of state-required occupational licenses—to test the availability of licenses from other sources. ETA stated that information on licenses in the database is submitted by each state's Labor Market Information office, which relies on licensing entities to provide updates on their offerings. To assess the comprehensiveness of License Finder, the team tested licenses primarily from the Center for the Study of Occupational Regulation (CSOR) in License Finder. Of the licenses tested, the team found almost 58 percent on License Finder. Since CSOR aggregates credential requirements for healthcare practitioners and technical occupations and healthcare support occupations, this methodology was also reversed and found that 35 percent of licenses from License Finder appeared in CSOR.

This process highlighted the challenge of naming conventions across sources. For example, the team tested Clinical Laboratory Technologist in Florida from License Finder in CSOR. CSOR did not list this specific license, but it did list Medical/Clinical Laboratory Technicians. Without an expertise in the field, it is difficult to tell if these are two different names for the same license, or if they are two completely different licenses. Furthermore, it is challenging to determine whether this is an issue of nomenclature or a general lack of clarity about occupations in certain fields. The same is true for occupations such as Licensed Clinical Social Worker vs. Licensed Professional Counselor. Without a greater awareness of the nuances in occupational titles, the team treated these occupations as distinct. It is also interesting to note that there is conflicting information across aggregators. For example, License Finder provides information

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16   "The State of Occupational Licensing." National Conference of State Legislatures. October 11, 2017. Accessed February 20, 2018. http://www.ncsl.org/research/labor-and-employment/report-the-state-of-occupational-licensing.aspx

on licensure for Medical Laboratory Technicians in North Carolina; however, CSOR states that North Carolina does not require this license.

While the count of licenses represents all credentials currently available in License Finder, some licensing entities may not regularly report their offerings to state Labor Market Information LMI offices, which would suggest an undercount. Greater clarity on naming conventions from one source to the next would also impact the final count, since some licenses from CSOR may actually be in LicenseFinder, just captured under a different name.

Data Source
USDOL, ETA - Occupational License Finder
Provides occupational licenses, related occupations, and contact information for state agencies that issue license in all 50 states. Updated September 2017.

Online Alternative Degree Programs

Online alternative degree programs are earned on the Web rather than in a classroom setting. They include MicroMasters and Nanodegrees. The most comprehensive aggregator for online alternative degree programs is Class Central. Since online alternative degree programs are one of the fastest growing credential categories, the count refreshes frequently—even daily in some instances.

MicroMasters are a series of graduate online courses from various universities that provide deep learning in a specific career field with high employer recognition. MicroMasters students can apply to the university offering credit for the MicroMasters certificate and, if accepted, can pursue an accelerated and less expensive Master's degree. A Nanodegree, on the other hand, is an online certification that typically takes less than 12 months to complete and is housed exclusively at Udacity.com.

Please note: This report does not include Massive Open Online Courses (MOOCs). Until further research suggests otherwise, we are not considering the completion of one course needed to earn a credential to be a credential, or subcredential, in and of itself. For instance, edX's mooc.org site indicates the highly popular MOOC "Analyzing and Visualizing Data with Excel" is "part of the Microsoft Professional Program Certificate in Big Data, and the Microsoft Professional Program Certificate in Data Science."

Data Source
edX
Online platform for micromasters.

Udacity
Exclusive provider of Nanodegrees.

Bootcamps

Most bootcamps are technical training programs that teach the programming skills that employers look for in potential technology employees. Bootcamps are predominantly focused on programming or coding, but they may also refer to training programs in industries such as manufacturing or financial services.

The research team created a matrix of bootcamp aggregators and selected samples from Course Report, Bootcamps.in, and Thinkful's Bootcamp Finder to gauge each source's level of inclusivity. Of these,

Course Report was the most comprehensive aggregator with 1,718 bootcamps, all related to information technology or data science. Although 100 percent of bootcamps listed on either Bootcamps or Bootcamp Finder appeared in Course Report, not all bootcamps on Course Report were listed on the other two. Course Report also listed nearly 500 organizations that offer bootcamps, compared to fewer than 100 organizations on both Bootcamps.in and Bootcamp Finder.

Note, however, Course Report, Bootcamps.in, and Thinkful's Bootcamp Finder do not aggregate individual bootcamp courses. Rather, these websites aggregate bootcamp course providers, or schools. To get a count of every bootcamp course available would require visiting each bootcamp website and finding the total number of courses offered. For instance, Course Report houses 477 unique coding bootcamp schools. Each of these bootcamp schools offers many different courses. In some cases, a provider may offer a dozen different courses; in other cases, the provider may offer hundreds of courses. For the purposes of the partial count in this report, the team considers each bootcamp to represent one credential. Future research will seek to identify the actual number of credentials offered by each bootcamp.

Another challenge is that the term "bootcamp" is used in different ways by different providers. Sometimes it refers to the school or organization that offers courses; other times, it refers to a specific course. More broadly, "bootcamp" often describes a short, intense training program, regardless of purpose or subject matter focus. Inconsistent definitions of "bootcamp" and the liberal use of the term create difficulty when trying to count bootcamps. Perhaps most importantly, the team didn't find an aggregator that covered industries like manufacturing or financial services that offer many bootcamps. Therefore, there is a high degree of confidence in the final count of bootcamps from Course Report, but there are likely hundreds of providers that each offer bootcamps not included in the report.

Data Source
Course Report (https://www.coursereport.com/)
Provides a directory of coding schools offering bootcamps, as well as other resources for potential students.

Badges
A digital badge is a validated indicator of accomplishment, skill, quality, or interest that can be earned in generally informal learning environments. Open digital badging makes it easy for anyone to issue, earn, and display badges across the Web—through an infrastructure that uses shared and open technical standards. The open badge movement began relatively recently in 2011 with the open-source software provider, Mozilla, so use of this credential is in a mostly nascent and rapidly-changing phase. In 2017, IMS Global took over management of the Open Badges specification and recently published Open Badges 2.0 which provides new features such as endorsements, versioning, and full adoption of JSON-LD.

The only badge aggregator website that the researchers identified is the Open Badge Passport. Open Badge Passport lists some badges, but only those that badge recipients decided to publicly share online. When an individual receives a badge only he or she can view the badge; badges are inherently private until shared with others. Individuals may share their earned badges through online services known as 'backpacks' which are essentially private platforms to display one's badges. If an employer receives a

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17   "Digital Badges." HASTAC. 2018. Accessed February 20, 2018. https://www.hastac.org/initiatives/digital-badges.
18   "Open Badges 2.0." IMS Global Learning Consortium. 2018. Accessed February 20, 2018. https://www.imsglobal.org/activity/digital-credentials-and-badges.

'backpack' from a prospective hire, the employer can click on each badge to learn what the individual has accomplished to earn that badge and who issued it.

Organizations, and even individuals, issue badges for just about any reason to document informal learning. For example, one badge listed on Open Badge Passport is the "Lifting Others Up" badge, which can be earned by "uplifting or encouraging your classmates." This badge is clearly intended for students who attend a particular school, and the badge can only be awarded by that school. Another example, the "Digital Citizenship, Welfare and E-Safety Webinar for Teachers" badge is awarded to all individuals who have attended a particular webinar.

Although it is difficult to find individual badges that have been created or awarded, there are websites such as wiki.mozilla.org/Badges/Issuers and openbadges.org that do offer an aggregated list of organizations and institutions that provide badges. Unfortunately, these lists have many inconsistencies. Many of the organizations listed display available badges, some do not display any badges, and some actually do not offer badges at all. Rather, these organizations are badge services (like backpacks or consultant agencies) that work to design badges for companies.

While Open Badge Passport is the most comprehensive badge aggregator, it in no way represents the total number of existing badges. For instance, IBM offers over 1,500 different badges while only two of those badges are listed in Open Badge Passport.

There are multiple issues that make it difficult to get a full accounting of badges in the U.S. Many badge issuers use an educational technology product, such as Acclaim, Credly, or Badgr to host their badging program, but these products do not publish aggregate data on badges. Moreover, an unknown number of badge issuers host their own badging programs using open-source tools or custom solutions, which would make any accounting across badging products incomplete. Badges are also issued for a variety of purposes, so a simple count would combine career-relevant credentials and non-occupational or educational badges. Badges are also used internationally and more research is needed to isolate badges available in the U.S. Due to these challenges, a count of badges was removed from this inventory and additional research is needed to estimate the number of badges available.

Data Source
Mozilla
Provides aggregated lists of organizations that provide badges.

Open Badge Passport
Provides aggregated information about digital badges.

Appendix - Initial Inventory of Credential Information Aggregators

In order to obtain an accurate count of credential data, reliable resources are of the utmost importance. However, as noted in the previous section, not every credential type has complete information. For this initial report, Credential Engine has compiled a list of known available credential data aggregating organizations. As additional research is conducted, we anticipate this list to grow.

Credential Information Aggregators by Type

Postsecondary
Integrated Postsecondary Education Data System (IPEDS)
National Student Clearinghouse Research Center
American Association of College Registrars and Admissions Officers (AACRAO)
EDUCAUSE Core Data Service
  Guides
  • Peterson's Guides
  • Fiske Guide to Colleges
  • BigFuture, College Board
  • Princeton Review
  State government organizations
  • State higher education commissions (members of State Higher Education Executive Officers [SHEEO])
  • State Contacts (per U.S. Department of Education) – by state, the department of education, the higher education agency, special education agency, and adult education agency

Accredited Postsecondary Programs
  U.S. Department of Education
  • Database of Accredited Institutions and Programs
  • Nationally Recognized Accrediting Agencies
  • Regional and National Institutional Accrediting Agencies
  • Accrediting Agencies Recognized for Distance Education and Correspondence Education
  • Accrediting Agencies Recognized for Title IV Purposes
  • Specialized Accrediting Agencies
  • Council for Higher Education Accreditation—23,000 accredited degree programs
  • Accrediting Council for Independent Colleges and Universities
  • Accrediting Bureau of Health Education Schools (ABHES)
  • Accrediting Commission of Career Schools and Colleges (ACCSC)
  • Accrediting Council for Continuing Education and Training (ACCET)
  • Distance Education Accrediting Commission (DEAC)
  • Council on Occupational Education (COE)

Industry-recognized Certifications
Certification Finder, ETA
Industry-recognized Credentials, National Network of Business and Industry Associations
Certification Data Exchange Project, ACTE

Lists of professional certifications and designations, Wikipedia
- [Areas of Professional Certification](#)
- [List of professional designations in the United States](#)
- [Professional titles and certifications](#)
- [Professional certification (business)](#)
- [Professional certification (computer technology)](#)

[American Certification Institute](#)
[National Coalition of Certification Centers](#)
[Skills USA – Career Essentials Suite](#)
[Manufacturing Institute – endorsed certifications](#)
[American Society of Association Executives](#)

Certification Testing Services and Networks – General
- [Prometric](#)
- [Certiport](#)
- [Pearson VUE](#)
- [Kryterion Global Testing Solutions](#)
- [PSI Services–Certification](#)
- [PAN](#)
- [National Center for Competency Testing](#)
- [Castle Worldwide](#)

Certification Organizations – Specialized
- [CompTIA](#)
- [Provusion (Pearson VUE)](#)
- [HR Certification Institute](#)
- [Project Management Institute](#)
- [Association of Energy Engineers](#)
- [EC Council](#)
- [Association of Boards of Certification (water and wastewater)](#)

Certification Course Providers and Test Sites
- [Southern Careers Institute, including Woz U](#)
- [Cengage](#)
- [Devore Technologies](#)
- [New Horizons](#)

[Credential Certification Bodies](#)
[ANSI Accreditation](#)
[Institute for Credentialing Excellence](#)
[National Commission for Certifying Agencies](#) (National Organization for Competency Assurance)
[International Certification Accreditation Council](#)
[International Accreditation Service](#)

[Licensing](#)
[License Finder,](#) ETA
[Center for the Study of Occupational Regulation](#)
[Council on Licensure, Enforcement and Regulation (CLEAR)](#)
[Institute for Justice – License to Work report](#)
[PSI Services–Licensing](#)

Apprenticeships

Employment and Training Administration
- Apprenticeship Finder, CareerOneStop
- ApprenticeshipUSA Toolkit
- ApprenticeshipUSA Sponsors
- Apprenticeship Statistics
- Available Occupations through Apprenticeships
- Careers with Registered Apprenticeships, My Next Move

Apprenticeship Services
- Elite Apprenticeships
- Apprenti
- Franklin Apprenticeships
- TranZed Apprenticeship Services
- TradesEDU
- Amazing Apprenticeships
- GetApprenticeship

State and local apprenticeship sites
- State Apprenticeship Office contact list
- Arizona
- Arkansas
- California
- Colorado – construction
- Connecticut
- Delaware
- District of Columbia
- Florida
- Hawaii
- Idaho
- Iowa
- Kansas
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Missouri
- Montana
- New Jersey
- New York
- North Carolina
- North Dakota
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Texas
- Vermont
- Virginia
- Washington
- Wisconsin

- Chicago
- Seattle
- Water District, Southern California

College Programs (as examples)
- Lakeshore Technical College, WI
- Midstate Technical College, WI
- Madison Area Technical College, WI

Badges

Background
- Inside Higher ED
- UPCEA/Pearson Survey: Demographic Shifts in Educational Demand and the Rise of Alternative Credentials
- Education Week

Badge Systems, Open Badges in Higher Education

Open Badges
- Who is issuing open badges?

IMS Global Learning Consortium

Badge Alliance

LRNG

10 Million Better Futures

Open Badges in Higher Education

Reconnect Learning

HASTAC (Humanities, Arts, Science, and Technology Alliance and Collaboratory)

Badge award services – general
- Open Badges – participating services
- Credly
- Accredible
- Acclaim
- Merit Pages
- Badgr
- BadgeChain
- Open Badge Factory
- BadgeOS

Badge award services – for educators
- PD Learning Network
- BloomBoard
- Digital Promise

Associations – overview article, with examples

Overview articles
- MeetingsNet
- WBT Systems
- TalentedLearning
- AICPA Digital Badges
- AEA Open Badges

Subjects
- Community STEM Badging System

Companies
- IBM Open Badges

Educational institutions
- [Colorado Community College System](#)
- [Foundation for California Community Colleges](#)
- [Mt. Vernon Institute for Innovation](#)

Local
- [BmoreSTEM](#)
- [Maryland Out of School Time](#)

Coding boot camps
- [Course Report](#)
- [Bootcamps.in](#)
- [Bootcamp Finder](#)

Online Programs
- [Coursemania](#)
- [Guide to Online Schools](#)
- [Online College Courses](#)
- [edX programs](#)–micromasters, professional
- [Coursera](#)
- [Udacity](#)
- [Udemy](#)
- [Pluralsight](#)
- [Lynda](#)
- [Grovo](#)
- [LearnDataSci](#)
- [Codecademy](#)
- [180 Skills](#)
- [General Assembly](#)
- [Cybrary](#)
- [Pluralsight](#)

Cross-credential
- [Data Downloads](#), ETA
- [Association of Test Publishers](#)
- [ACE College Credit Recommendation Service](#)
  (National Guide to College Credit for Workforce Training)
- [Army COOL (Credentialing Opportunities On-Line)](#)
- [Workforce Credentials Coalition](#), WDQC ([partners](#) in 14 states)
- [Association for Talent Development](#) (ATD)

For more information, please visit www.credentialengine.org

Notes:

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