Introduction - The Trends that Will Affect the IT Certification Industry by 2020:

Leaders of the IT certification industry share their view of trends and changes that are likely to impact the certification industry in the next four years. Together, through their work with the Information Technology Certification Council (ITCC), a council of IT industry leaders focused on promoting IT certifications, are working together to improve the value of certifications and explore new ways to serve the IT industry through the development, assessment, and credentialing of IT professionals. By strategically evaluating potential future states, they share their research, expertise and insights in order to learn together and innovate for tomorrow.

As we approach the year 2020, the ITCC is monitoring the following trends, which they believe may have an impact on the IT certification industry:

• The next generation of candidates will value a certification model that differentiates them
• Certifications will become more role-focused and solutions-oriented
• Certifications will be earned through performance-based testing models and less of a focus on multiple choice
• Test security will need to become more sophisticated to minimize cheating and ensure the value of the certification
• Balancing security and convenience—testing outside of a test center
• Badging will become broadly adopted as a means of communicating credentials and accomplishments
• Certifications will increase in value, demand, and international adoption

The ITCC recommends that all IT certification providers be aware of these trends as they develop their strategic plans to serve the community of candidates in the years to come.

The Next Generation of Candidates Will Value a Certification Model that Differentiates Them:

The certification industry must adapt to the next generation of IT professionals. With the adoption of technology in our everyday life, the technology competencies of the new generations are more advanced than ever before. Historically, IT certifications were targeted at professionals who were continuing to develop their careers or those who were retooling their skills to reenter the workforce. Academic institutions today are preparing students in both higher education and secondary schools to earn certifications. Students leaving high school may hold a number of foundational certifications to prepare them for entering the workforce or entering degreed programs. As a result, certifications may not be understood in the same way by these students. These young professionals do not promote certifications as accomplishments that reveal validated knowledge and skills, but see them as a completion of a course. Their focus shifts from sharing credentials to showing employers what they have created using technology.

Courseware and certification providers must adopt new delivery models for this audience. The learning styles of younger professionals are more experiential. It is not about preparing for a test, but demonstrating their knowledge and skills. Certification providers will need to shift from test-based models to performance-based models.
Certifications Will Become More Role-Focused and Solution-Oriented:

The hiring landscape has shifted—it is no longer an employers’ market. ManpowerGroup recently found that 36% of employers globally reported talent shortages in 2014—the highest percentage in seven years. In the United States, more than half (54%) of employers currently have open positions for which they can’t find qualified candidates. Unemployment rates for highly skilled workers continue to fall, job openings are on the rise and companies are finding an increased need to focus their attention on finding staff with job-specific skills needed to meet rapidly changing technologies.

Further, as technology continues to evolve and become an increasingly vital part of business, companies are finding it valuable to hire IT professionals that are able to perform across multiple functional areas (Application, Middleware, Asset Management Software, Collaboration and Telecommunications, Business Transformation and IT Infrastructure). In a recent survey, 66% of respondents reported working in one to three areas, and 34% divide their work across all four functional areas.²

In order to meet employer demand, IT professionals are seeking job-specific certifications that will give them an edge within the marketplace. Also, the creation of specialized certifications saves professionals time and money. As the IT workplace and the requirements of staff evolves, certification owners will need to shift to adding role-based certifications rather than product-based to their programs.

Certifications Will be Earned Through Performance-Based Testing Models with Less of a Focus on Multiple Choice:

As mentioned earlier, the younger professionals are expecting recognition for what they can do and not simply how they answer questions. This requires a shift in the testing models to a performance-based method to better evaluate behavior beyond simply understanding. Another driver to performance-based testing is a result of test theft and cheating. When comparing multiple choice exams to performance-based exams, one of the biggest flaws of multiple choice testing is how easy and quickly the test’s content can be stolen, reproduced and utilized by dishonest test takers. As the growth in certifications expands globally to differentiate skill sets in the workforce and candidate pool, the opportunity to make money by offering test preparation services increases. While some providers of these services will be legitimate, others will not be. The certification industry is already battling test theft and sites that are selling this stolen intellectual property as test prep products. As certification providers shift to performance-based testing, the value of memorizing questions and answers is diminished as a candidate must apply their knowledge and skills to perform tasks.

Test Security Will Need to Become More Sophisticated to Minimize Cheating and Ensure the Value of the Certification:

For as long as IT certification programs have been in existence, there have been large numbers of candidates who choose to take short cuts to achieve a passing score for a multitude of certifications. All IT programs (and the IT industry as a whole), through groups like the ITCC and ATP, have instituted aggressive techniques for protecting their intellectual property (the tests). These programs help identify those individuals that have “cheated”; more recently called non-independent test taking (hereafter referred to as “NITT”).

As we look half a decade into the future, it becomes apparent that these efforts must continue and
accelerate in order to protect the value of the IT certification. The efforts will aid in maintaining the value to not only the honest candidate, but to the business partners (that achieve the certifications to demonstrate their leadership skills in providing a customer solution), and the hiring managers (who use the certifications as one measure of the skills held by a potential candidate they are hiring).

Several Evolving Technologies Will Add to the Current Level of Demand for Testing Security:

**Online Proctoring:** As IT companies look to adopt the approach of online proctoring (a form of testing where a testing representative is not present in the room of the candidate during the time of the test), candidates will attempt to fool the system. Understanding that secure testing is one of the critical requirements for widespread adoption of online proctoring, it is clear that the vendors providing this service will be driven to stay ahead of the curve by combating these new challenges.

**Social Media:** As social media channels continue to grow, so will a test taker’s access to individuals sharing and distributing the questions and answers for tests. Companies, such as Caveon, offer to comb the internet in search of these sites, blogs, and/or discussion groups where dishonest candidates share test content. The timely identification and shutting down of these social media sites will become key to not allowing this growing media to erode the validity of the awarded certifications.

**Badging:** Beginning to evolve as a new technology for recognizing and representing achievement of résumé-worthy skills, badging introduces new security challenges. In its simplest form, a badge is a graphic that states what has been achieved. Left as just a graphic (which it should never be), anyone could clone the graphic, post it, and hope others believe it. Proper badging platforms have added metadata that fully describes what it took to achieve the badge, as well as validation methods, which allow the badge to be tracked back to the issuer to verify it was awarded by them and not simply created as the graphic. From a security standpoint, where the badge represents an IT certification, protecting the integrity of the badge will be critical to its acceptance as a representation of the IT certification it was awarded for.

**Balancing Security and Convenience - Testing Outside the Testing Center:**

Several New and Increased Ways to Enhance Test Security Will be Required to Address the New Challenges:

**Program Policies:** Many IT programs have worked hard to improve the clear statement of their testing policies, and the consequences of violating them. In the future, every IT company must define explicit program policies, and make the candidate fully aware of them and their consequences. In short, nothing can be done to take action against policy violations if they are not written, presented and agreed to prior to the candidate taking the test. In addition, these policies must be rewritten and evolved continuously to keep in pace with new technologies (like social media) that will increase the risks.

**Data Forensics:** Again, some IT companies utilize data forensics to identify occurrences of NITT today. In order to take effective actions against violations, IT programs will need to significantly increase the use of automated, programmatic means of identifying the violations quickly. In doing so, quick and decisive actions can be taken in response, thus retaining the certification’s integrity and value in the eyes of employers and honest test takers.

Data forensics can be simple, like identifying accelerated rising of test scores by simply plotting the
scores over time. They can also be very sophisticated, such as analysis of similar scores and answer patterns amongst unrelated test takers, possibly indicating proxy test taking. If the program does not have dedicated resources in-house to do such analysis, then hiring a test security expert firm would be strongly recommended. The other value of data forensics is the ability to present solid statistical methodologies to your legal department—usually a prerequisite to receiving their support in the actions you take against violators. The ultimate future of data forensics will be to move toward real-time recognition of NITT. This would allow real-time action against the testing session, or at least identify a violation before the certification has been awarded.

**New Test Items or Testing Methods:** To better protect against NITT, programs will need to increase (or begin) the use of advanced test items and methods. Examples can be as simple as drag-and-drop answers, which progress toward the use of performance-based questions. The benefit is the opportunity to more accurately measure the candidate’s ability to perform the role that is being certified. The test security benefit is in the increased difficulty for a candidate to memorize the test questions. It also decreases the usefulness of illegitimate “study guides” posted on braindump sites that present questions and answers for simple memorization, which keep the candidate from truly learning the subject.

**Messaging:** To date, one of the most powerful and underutilized methods of combating NITT is in raising awareness amongst candidates. A good first step is taking action against policy violators as quickly as possible once a violation is identified. When additional well-written messaging is published and promoted by programs and industry organizations, (such as the ITCC) the certification industry will be able to reach thousands of candidates with a clear and unionized message that cheating doesn’t pay. Certification providers can help the candidates understand what not to attempt, what is out of policy, and what specific actions will be taken when they are caught. Through the use of social media, certification providers can reach an even broader group of candidates than ever before.

In the end, the purpose of test security is not just to identify and take action against NITT. The real purpose of test security has always been to protect the value of the IT certification. No matter what efforts go into promoting the real value of getting certified, if any of the audiences (candidates, business partners, hiring managers) perceive there is excessive cheating going on in testing, then their perception of the value of achieving or recognizing that certification will decline at a corresponding rate. Therefore, increased test security will help to protect the recognized value of this method of skills validation.

**Badging Will Become Broadly Adopted as a Means of Communicating Credentials and Accomplishments:**

Badging, according to the Mozilla spec, is best summarized as a “digital representation of a certificate that can be displayed in different online settings and carries a set of data that enables validating the credentials are held.” Successful candidates are able to communicate their achievement through badges across many online forums, such as LinkedIn.

It is likely that as millennials start to search for ways to differentiate their skills and grow their careers, they will want ways to validate their skills in more experiential ways—based on project work or on-the-job experiences. There have been instances where certifications are granted to developers who submit code or applications for review. In a sense, these experiences are performance-based testing of skills. Badges could be issued for these activities by institutions outside of the traditional credentialing organizations. To put into perspective, this could be likened to how the Boy Scouts use badges (i.e. create a series of knots in a rope and you receive a knot badge). Similarly, if an IT
professional demonstrates the installation of a router, they could receive a badge.

Badges issued in this fashion could be more role-based and more contextual to job tasks. A typical IT worker may only use a small subset of these technologies in a particular test, or one may use subsets across several technologies. Badging can help differentiate skills at a lower level of detail and credentials could represent an aggregation of badges. Returning to the Boy Scout comparison, while a Boy Scout may earn numerous badges, it is the Eagle Scout badge that is résumé-worthy and seen as a credential.

A key enabling aspect of badging will be the metadata underlying the badge. It will be imperative for the underlying metadata to carry standardized data related to the achievement as well as data that may be very different across a set of badges. This data will be critical for hiring managers or buyers of services to evaluate the skills of its holder. This proliferation of micro credentials would seem to be difficult to manage and would tend to increase confusion when evaluating the competency of a job candidate. Computer models and applications will need to be developed to evaluate the skills represented by the aggregated badges in a candidate’s online portfolio. Badge types will help to reduce this confusion. A certification badge type will become recognized as a professional achievement worth highlighting on a professional’s résumé compared to numerous micro credentials.

Imagine a point in time where we have digital badges for achievements across a broad spectrum of topics, difficulties and experiences available in one accessible, searchable location. A central repository that is connected to every badge issuer (schools, work, volunteer work, sports, community organizations, etc.) could aggregate, categorize and apply logic to each accumulated achievement. It would be possible to identify which candidates might be more (or less) likely to perform successfully in a specific job scenario, in a specific industry, region or company based on the summation of their badges.

The groundwork is being laid for this now, but there are several critical issues that will need to be resolved. Reliability and accuracy will be enhanced as a critical mass of employers, training providers and other experiences and achievements are represented by digital badges that are captured in an accessible and searchable location.

Badges will need to contain (or be associated) with a consistent set of core data, including things such as dates, any expirations, type of achievement (experiential, training, exam etc.), and an explanation of the skills being validated.

In addition to these factors, there will be other barriers to overcome:

• Conflict of interest in an employer’s willingness to grant project badges that may enable an employee to be searchable and later recruited by other companies.
• Security and privacy issues for different geographies
• Trust in the results of the analytics
• Resistant from industries that are being disrupted

Many of the trends the ITCC is seeing in social media, education and industry today lead to more automated identification and development of skills. This will be further enabled by a consistent, widely adopted badging standard. Performance-based testing might not happen in a traditional testing scenario, however, it would be badged after real-world, on the job performance.

The question is not if badges will become broadly adopted, but instead, when they are adopted, how
long will it take for the industry, as a whole, to adhere to a standard that can be searched, indexed and discovered? It will take years. Though, once the standard is adopted, it will forever change the hiring process in the IT sector.

**Certifications Will Increase in Value, Demand, and International Adoption:**

Continued advances in technology are resulting in greater diversity of skill requirements. IT professionals entering the workforce after receiving degrees from academic institutions may have a foundation to launch their careers, but are lacking the specific skills to meet the growing needs of hiring organizations. Individuals and organizations must augment their academic learning with professional development throughout their careers. Hiring organizations are leveraging certifications as a means to qualify candidates for open positions. United States veterans leaving active service are being retrained through certification programs to prepare them for employment in the private sector. Furthermore, with the growing need for IT professionals, organizations are investing in the development of their employees to both expand their value to the organization and to retain valuable talent.

As the years pass, the inevitable growth in technology adoption will not be limited to North America. The demand for a skilled workforce is (and will continue to become) a global need. The growth of the outsourcing industry is increasing the need for IT talent in global markets. IT professionals are using certifications to differentiate themselves to these employers. Outsourcers are leveraging certified professionals to differentiate their services to their customers. As this growth in certification demand continues globally, course providers and certification exam providers must localize their offerings to satisfy this need.

**Summary:**

As a new generation of IT professionals enter the workforce, their presence will ultimately force the IT certification industry to reshape itself to better meet the needs and preferences of the millennial generation, including, but not limited to, the creation of a traceable, sustainable industry-wide badging standard and an eventual shift from multiple choice to performance-based testing models. Furthermore, as a global demand continues to rise, it will become imperative that certification providers strengthen and develop new ways for remote test takers to securely and honestly acquire certifications.

The advancement of technology will continue to provide hurdles for the IT certification industry, but if these hurdles are overcome swiftly and with great consideration, the advancement of technology will also guarantee great success for the industry for decades to come.

While certification providers continue to improve their offerings, much of the focus is on creating new and/or updating existing certifications. Because of the speed of change in most environments, certification providers have to balance their time between tactical operations and strategic planning, with tactical absorbing most of the available time. The IT Certification Council members have allocated their time to explore the trends in the certification industry that can have significant impact on their programs. Through their shared experiences and collaborative efforts, these trends have been documented so that other certification providers can benefit from their work. While these trends are written with foresight, they are meant to challenge the norm and invite innovative thinking.

What if the world continues to change—are you ready?
References:

1: Companies Losing Money to the Skills Gap, According to CareerBuilder Study, CareerBuilder, March 6, 2014
2: 2014 IT Skills Salary Report (Global Knowledge & Windows IT Pro)