

TLIC PAPER

IBM Center for Cloud Training Helps Close the Cloud Talent Gap

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ABSTRACT

With technology becoming increasingly critical to business success, the value of training is becoming more apparent. As a result, learning and development (L&D) is playing a larger role in the success of professionals and the corporations that employ them. For the IBM Center for Cloud Training (ICCT), the challenge was clear: to close the gap between the numbers of people needed to manage the growing field of Cloud technology and the numbers of people qualified for those jobs. The opportunity and path to success also were clear: ICCT provides its clients with innovative learning programs and award-winning support. ICCT's efforts have played a significant role in building a worldwide body of qualified professionals trained in the role-based and technical skills necessary to enable one of the fastest growing aspects of computer technology.

KEYWORDS

IBM, Cloud, training, certification, IBM Center for Cloud Training, ICCT, learning, development, learning and development, L&D, learners, managers, management, C-level, mid-level, line-level

1 CERTIFICATION SUCCESS GREW FROM A NEED

In the rapidly changing world of technology, the quest for business and professional success never ends. Increasingly, meeting the needs of learners depends on providing supportive training and certification to the workforce.

A 2023 study of certification candidates found that 75% were seeking increased skills, knowledge, or competence; 62% wanted to enhance their professional profile and resume; and 59% were looking to advance or be promoted in their jobs [1].

Regardless of the motivation, the study also found that certification works. Eighty percent of individuals who used professional certification as a path to corporate success reported, in the study's words, "direct and intrinsic benefits" from their training [1]. Meanwhile, 59% of their employers were increasing investments in

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IT skills training, perhaps spurred by an estimated return on investment (ROI) per credentialed employee as high as \$30,000 [1].

In addition to learners and their employers, a third factor also is critical to success: the training and certification organization. In response to the growing need and motivation for certification, these organizations have introduced significant innovations in corporate learning.

The IBM Cloud certification began after the launch of the company's suite of Cloud technologies, when the introduction of new products revealed a worldwide shortfall in the numbers of trained personnel needed to manage Cloud solutions. IBM also was aware that along with ongoing digital transformation, employment environments have been changing. Traditional jobs are being replaced with new roles and specialties unimaginable only a few years ago.

As a leader in the technology industry, however, IBM Cloud did more than recognize these market shifts and business needs. IBM created a new program with certification as its foundation. Upskilling candidates and ensuring through certification that they possess the Cloud skills the industry needs was critical.

Initial sponsorship for what was to become IBM Center for Cloud Training (ICCT) came from the Senior Vice President of IBM Talent, Obed Louissaint, who saw and understood the need for high-quality training on IBM Cloud. He presented the idea for a program that would offer training and professional certifications in Cloud technologies to IBM's CEO, Arvind Krishna, who agreed to fund this new initiative in late 2019. Realizing that Cloud would continue to transform the way companies work, and transform it at an ever-increasing pace, IBM leadership decided to invest in this initiative.

The IBM Center for Cloud Training (ICCT) soon launched as a role-based, multi-level certification program based on the knowledge and skills Cloud professionals need. The concept and processes are disruptive and innovative both within IBM and the industry. ICCT has a hybrid learning strategy: primarily online learning, but bolstered with supplemental, virtual online instructor-led sessions. Instruction is open to anyone. ICCT learning is available free of charge to all who want to learn, including external clients, business partners, global systems integrators, individual learners, and IBM employees.

IBM's business strategy is to deliver a secure, modern, industry-regulated Cloud experience for clients around the world. ICCT enables the successful execution of this strategy by delivering engaging, modular, high-quality curricula based on the most sought-after Cloud jobs and through certification and badges that verify the level of learning a candidate has attained.

2 THE IBM PORTFOLIO ADDRESS A VARIETY OF SKILL LEVELS

2.1 Preparing to launch the program

With a business strategy that seeks to make the company an essential provider of Cloud-based solutions, ICCT offers a portfolio of professional certifications in Cloud functions grouped into four levels: Associate, Professional, Advanced, and Specialty. Candidates can also earn badges as they complete designated stages of training curricula.

IBM conducts significant research, continuously evaluating needed roles and how to train learners to fill roles. During the launch of ICCT, the organization commissioned an extensive Human Resources study to anticipate learning needs by identifying the most sought-after Cloud jobs worldwide. From this data, ICCT

determined its mission would be to focus on specific job roles as the basis of the program. To meet the challenges of training in a rapidly evolving technology environment, ICCT employs a team of learning and talent specialists, subject matter experts, instructional designers, and course builders. To date, ICCT has developed and now offers 14 certifications. These range from foundational programs for those new to Cloud to role-based programs for those in specific job functions, to specialty certifications for those with industry-specific or technology-specific needs.

2.2 Creating a process for staying current

In evolving and updating its program offerings, ICCT follows a formal “ADDIE” model of analysis, design, development, implementation, and evaluation. An internal IBM team defines a desired outcome, then establishes deliverables that will be most effective in helping achieve those outcomes.

IBM Cloud Security Engineering Specialty is an outstanding example of how evaluating a need led to new curricula. Research [2] shows that organizations that integrate their Cloud and security strategies more intentionally outperform peers both in terms of revenue growth and profitability. This suggests more job opportunities in Cloud security and therefore individuals who need more training. Those who certify are qualified to handle the critical responsibility of managing Cloud security for the organization. This approach to understanding the technology needs of both organizations and individual professionals forms the basis for structuring ICCT’s comprehensive training portfolio.

In designing and implementing specific training offerings, IBM then follows an innovative deployment model predicated on the premise of “build once; deploy twice.” This is designed to ensure that clients, partners, individual learners, and IBM employees all receive the same industry-standard education. It ensures a more efficient roll-out of new courses and certifications. It also creates familiarity for learners, who can follow a logical progression of curricula from entry-level through advanced and specialized certifications.

Four additional design points play noteworthy roles in helping ICCT achieve its business objectives:

- *Enable rapid course development.* Rapid development techniques employed to meet initial delivery goals were helpful when the team was asked to add new learning paths and certifications that were not in the initial business plan.
- *Synchronize learning paths and certification exams.* The ICCT design process is a rigorous, innovative approach that is markedly different from the way most organizations create their certification and training programs. Instead of building a curriculum and then writing tests to determine whether or not participants have learned the information taught in class, ICCT begins with what is traditionally the end of the learning cycle—acquired professional skills.
- *Leverage IBM subject matter experts effectively and efficiently.* Technical experts who are willing to assist with training are a valuable, indispensable, and finite resource. It is important that experts share their expertise while shaping the next generation of Cloud leaders.
- *Build in diversity.* ICCT creates expert teams that have globally diverse backgrounds to ensure diversity in perspectives. This practice reduces bias in certification exam development and extends to building learning paths that appeal to wider audiences.

3 A BROAD REACH SUPPORTS THE MOST LEARNERS POSSIBLE

3.1 Recognizing a global need

ICCT is built on the understanding that Cloud computing has enormous potential for growth, with market demand that IBM research has projected to hit \$1 trillion USD by 2026 [3]. As opportunities increase for individual professionals, they also increase for IBM the company, both in terms of market share and in the overall growth of Cloud adoption. This growth will be led by trained people who can understand, use, share, and advise businesses regarding Cloud technologies.

IBM's commitment to meeting this need is demonstrated by the company's global plan to provide 30 million people of all ages with new skills needed for the jobs of tomorrow by 2030 [4]. To achieve this goal, IBM has established partnerships with more than 170 academic and industry organizations. A significant part of ICCT's mission is to ensure its training is made easily available to people who may be marginalized. IBM ranks among the top companies in providing education and job opportunities to people who have been historically underrepresented, including women, people of color, and a global audience that in the past was geographically and/or technologically removed from the opportunity to engage in learning.

3.2 Evolving training to meet these needs

To take full advantage of market changes, employees must learn new Cloud skills and competencies. With this in mind, ICCT offers its training programs in ways that can reach the largest possible number of internal and external learners.

Historically, learning was accomplished by providing in-classroom and, later, digital learning. Educators tracked metrics such as the number of enrollments and the number of course completions. However, businesses soon found that the desired ROI of training was not materializing [5]. As a result, training was often seen as an unnecessary expense. Education budgets were often slashed in economically difficult times. More critically, businesses began asking about the effectiveness of learning [6].

In ICCT's view, the reason that led to de-emphasizing learning also may have been that learners were not absorbing the necessary content, regardless of the quality or accuracy of the course itself. To counter this possibility, a current movement in training focuses less on traditional learning metrics. Instead, training concentrates on expertise in the information, as demonstrated by successful completion of high quality, third-party proctored exams. The resulting certification is becoming the "currency" that many clients, business partners, and employees are demanding.

Such expertise becomes particularly important in the ever changing, fast-paced world of Cloud technology, where organizations often outsource the design, development, deployment, and management of technology to a business partner. These organizations require full confidence that the partner has not just taken a course, but instead has the skills and expertise that the course is intended to teach.

4 RESULTS QUICKLY BECAME REAL FOR IBM

ICCT's program of training and certification is ambitious, but upon its launch, results were immediate, including within IBM itself:

- In 2020, one senior manager noted that her group of 200 had earned more than 100 IBM Cloud certifications during the year. Because many earned multiple certifications, 38% of this customer-facing team was certified.
- By 2021, within ICCT at large, instructional enrollments were up 421% over 2020, with one analysis showing an average growth of 12% week-to-week in the 10 weeks prior to April 9, 2021.
- By 2022, when ICCT's goal was to increase credentialing of learners by 40% year over year, one IBM vice president not only required all 300+ of his team to earn at least one certification, but he also led by example and passed the appropriate certification himself. IBM ultimately exceeded its target number of new credentials.

5 PEERS RECOGNIZE IBM'S TRAINING LEADERSHIP

Since its inception, ICCT has been recognized as a leader in technology training and certification, and the organization has been consistently honored by professional organizations for its achievements (see Table 1).

Table 1. Awards

Year	Award	Recognition Specifics
2023	Brandon Hall Group HCM (Human Capital Management) Excellence Awards, Gold Award 2023: Hybrid Learning	<ul style="list-style-type: none"> • Innovative business value and impact • Excellence in programming • Outstanding hybrid learning
2023	International E-Learning Association Gold Award, Performance Support Experience	<ul style="list-style-type: none"> • Leadership in innovative Cloud training and certification • Excellence in study and motivational support • Effectiveness of user experience • Extensive initiatives for learner support
2022	LearningElite Chief Learning Officer Award: Learning and Development	<p>ICCT was the only provider of scalable Cloud infrastructure to receive this award, which was based on peer review and a comprehensive analysis of data. This award honored ICCT for:</p> <ul style="list-style-type: none"> • Elite use of technology • An approach to technical skills training that put ICCT "ahead of the curve"
2022	Brandon Hall HCM Excellence Awards, Gold Award: Best Certification Program	<ul style="list-style-type: none"> • Superior delivery of expertise in skills • Achievement of breakthrough results • Positive impact for learners • Real-world approaches to developing competitiveness • Validation of best practices
2022	15th Annual Women World Awards: Globee Gold Award	<p>The award was made to Jani Byrne Saliga, PhD, Chief Learning Officer at ICCT, honoring her for:</p> <ul style="list-style-type: none"> • Innovation in training and education • Re-engineering the development of exams and curricula • Creating innovative learner tools and initiatives
2021	Brandon Hall HCM Excellence Awards; Gold Award, Excellence in Future of Work	<ul style="list-style-type: none"> • Industry leadership in HCM practice • Excellence in talent skills development • A visionary approach to anticipating what employees need • An agile and adaptive approach to learning, centered around personalization at scale • Leadership in accelerating learning

6 EDUCATION IS CENTRAL TO BUSINESS SUCCESS

Studies show that professionals agree that certification makes them more successful. With training, more employees will opt to remain, their productivity will increase, and the company will sell more of its product.

One recent study [7] documented learners' satisfaction, noting that 75% of those surveyed said certification was a key factor in receiving a pay increase, and 78% experienced increased demand for their skills. IBM's own experience shows that technical sales professionals who earn badges are more likely to achieve sales quotas and that employees of all types who earn badges feel that credentials improve their employability.

However, L&D organizations often are structured, or at least are viewed, as a part of the business that does not make a profit. A still greater challenge occurs when L&D is a small unit in a large, profit-centered organization. In any or all of these scenarios, challenges to funding and staffing can be omnipresent.

Like most L&Ds, ICCT therefore needed to reliably secure the resources that are necessary for it not only to survive but to thrive. These resources included financial backing and participation by mid-level leaders of other divisions in the company. ICCT needed ways not only to meet its educational mission, but also to attract and maintain the attention and support of three distinct audiences: the C-suite, mid-level management, and learners. ICCT garnered the attention of its stakeholder, management, executive, client, and learner audiences by designing programs that answered this common L&D dilemma.

ICCT consistently broadcast its efforts and the value of its programs with a steady stream of grass-roots marketing efforts, including blogs, speaking engagements, streaming videos, entries into competitions run by professional training organizations, and advertising on social media sites for The Weather Channel, which is owned by IBM and therefore incurs no cost. Each of these efforts is designed for maximum exposure within the ICCT budget.

One particularly successful example that ICCT produced quickly and easily is an e-newsletter titled "Inside Edition" that ICCT's Chief Learning Officer sends to C-level and mid-level executives at IBM, highlighting recent accomplishments and new projects. A particular focus is news that benefits internal and external business audiences, such as the recent addition of two new IBM Cloud certifications for business-focused technologies: VMware and SAP.

7 PROFESSIONALS BENEFIT FROM INNOVATIVE WAYS TO LEARN

To support outstanding results in training, ICCT continuously monitors and recognizes market opportunities and trends while listening closely to clients' challenges. It pivots and adapts its training and credentials to meet changing requirements. Another key has been to act like a startup. With an "adapt fast" culture, ICCT experienced early breakthroughs, resulting in a fresh, modern, learner-centric program that eclipsed traditional learning approaches. The result: ICCT has demonstrated real results in record time.

In a single word, ICCT seeks to innovate as it moves forward. ICCT employs a rich mix of innovative delivery and instructional methods so that each program participant can benefit from the style that suits the learner best.

It is ICCT's philosophy that learners should be in control of their own learning. As a result, ICCT's technology-based delivery methods for training and certification

programs, additional initiatives designed to support learners, and the mechanisms to ensure support from other internal divisions of IBM are as important as the course content itself.

ICCT's experience shows that some learners prefer an in-depth, solo learning experience, taking one course at a time. Others thrive on social interaction and prefer intense, short-term study sessions with like-minded learners. Others look for a hybrid training solution—a mix of instructor-led training and digital self-study. Using technology, ICCT delivers multiple learning styles to suit all of these individual learners. Empowering learners to learn at their own pace, ICCT's program includes performance support experiences that are available anytime, online, to accommodate learners' schedules and workloads.

7.1 Supporting engagement with a helpful avatar

One of the most innovative and unique features of ICCT's program is Ingrid, an online engagement tool and visual guide or, as she describes herself, a "helper." Ingrid's "job" is to lead learners through the various stages of obtaining their certifications. She is designed to act as a friend and to ease participants' fears as they navigate IBM Cloud Certification.

Ingrid is a creative expression of ICCT who serves learners by motivating them, informing them, and clarifying various aspects of the ICCT learning experience. This experiment with augmented reality helps to better engage learners.

7.2 Learning together over an intensive three days

ICCT's learning audiences are busy professionals who were isolated during the COVID-19 pandemic and whose work environments and requirements still vary widely. Some need short, instructor-led sessions at dedicated times. They also benefit from the camaraderie of others going through the same experience. In response, ICCT introduced intensive, three-day programs called "Study Jams." The result was an increase in certifications.

Study Jams are an innovative approach to learning and, eventually, to certification. They are built on robust and engaging study sessions that bring together IBM thought leaders, certified professionals, and learners from all over the world. These in-depth, online events incorporate seminars, question and answer sessions with IBM experts, interactive polls, and ongoing access to an enthusiastic public Cloud community that is ready to assist learners through collaboration and answering questions.

The Study Jam experience also proved valuable as it led to other innovations and validated the importance of using a variety of strategies to reach the audience. This information also helped validate the demand for IBM Cloud training and confirm ICCT curriculum and client advocacy strategies.

7.3 Offering a full portfolio of help for learners

To ensure it is meeting the complete range of participants' learning styles and needs, the range of ICCT programs include:

Study Support

In addition to Study Jams (Section 7.2), ICCT also provides:

- *IBM Cloud Prep*: A progressive web application (PWA) and all-in-one study-on-the-go resource, featuring flashcards, detailed study guides, and practice quizzes. This online web app allows learners to study when and where they want—with small easy-to-digest modules for quick learning.
- *Cloud Compass*: An interactive role-based and specialty training evaluation to help learners find the certification that's right for their career path. This short and easy survey leads learners to the certification matched to their Cloud skill level and interest.

Motivation

- *Badges*: Introduced in 2022, displayable badges may be earned as learners work through Cloud training curricula. These digital badges are popular in social media, resume, and email signatures to let peers and managers know of the learner's expanding Cloud knowledge.
- *Ingrid*: An augmented reality helper, Ingrid "lives" in the ICCT online experience—a cheerful, fun way to help learners navigate their training. One roadblock to learning is the candidate's hesitation to dive deeply into technical material if they are new to the information. Ingrid helps make the learning experience less stressful.
- *Second Chance promotion*: An opportunity for learners to retake ICCT Cloud certification exams for free. This promotion addresses many learners' anxiety about studying and then not passing the certification by allowing a retake upon an unsuccessful exam. It has resulted in a much improved pass rate upon second exam attempts.

Information and knowledge sharing

- *ICCT Cloud Training News*: A regularly published newsletter that informs learners of the latest opportunities in ICCT certifications. This monthly newsletter to a subscriber base lets learners know about new or updated certifications, promotions, vouchers, and other offers.
- *ICCT on IBM TechXchange Webinars*: A monthly broadcast, featuring the latest technical talks and up-to-date information from IBM experts. Featured topics have included updated certifications, newly added role-based and specialty training and certification, and the thought-leader IBM Cloud CTO discussing The Future of Cloud.
- *IBM Cloud Certification FAQs*: Answers to learner questions, with a certification exam checklist. This FAQ guides learners to faster training and certification by answering the basic questions about the program.

Community

- *IBM Cloud Community*: Collaborative experts share new training certifications, Cloud discussions, training webinars, and blogs. This community has grown by hundreds each month as more Cloud-certified or interested learners join the community.
- *IBM Cloud blog*: The latest information, research, and case studies focusing on IBM Cloud. This webpage features blogs from IBM Subject Matter Experts and thought leaders and reaches an audience of more than 200,000.
- *Amplify*: A site that complements the IBM Cloud blog with success stories and training best practice tips. This easy-to-navigate webpage is a quick source for past blogs, videos, success stories, and news.

Additionally, as it recognized the value of community in learner success, ICCT piloted a unique initiative in 2022 for its Associate Site Reliability Engineer (ASRE) program. Designed to recruit learners to earn certifications, the initiative achieved

more than 400% anticipated project enrollment. Those professionals who joined were engaged in an email nurture campaign, encouraging them to participate in the program.

Participants received weekly email check-ins marking progress along the ASRE learning path. Additional encouragement via the IBM Cloud Prep App included study guide, flashcards, and a dedicated Slack channel

8 UPPER-LEVEL LEADERSHIP SUPPORTS THE CLOUD INITIATIVE

C-level leaders who see shrinking budgets are challenged to maximize their investments, which they may attempt to achieve by increasing efficiency or reducing costs. One way to approach upper-level and C-level leadership is to demonstrate the “scalability” of L&D programming: that is, how minimal administrative effort can still support the education of increasing numbers of learners.

Besides efficiency, C-level leadership often also responds to opportunities to increase revenue with education initiatives that expand and enhance the skills of their employees and the quality of service to customers. L&Ds, in response, can communicate to C-level leaders that investing in L&D programming offers the organization a proven way to increase revenue, retain customers and employees, and upskill their workforce to compete in their respective industries.

9 MID-LEVEL MANAGEMENT FORMED KEY PARTNERSHIPS

Mid- and line-level management have more at stake than others when it comes to supporting, or sometimes competing with, L&D programs. There may be competition, for example, for limited resources. Businesses, however, are designed to succeed through collaboration with a reliance on smooth interactions.

One way to overcome competition is to prove the value of the L&D organization’s programming, especially as it pertains to other divisions. L&Ds can offer proof that when teams are certified, they perform better, they are more cost-efficient, and they raise employee confidence. Each of these translates into the ability to take on challenging tasks. In fact, despite historical perceptions that ROI does not keep pace with training, a recent study of one company’s training programs found that clients who used its offerings realized an average three-year return on investment of 365% [8].

The enhanced ability to retain key employees is another incentive for mid-level and line-level managers who want to retain the best personnel. To that end, L&Ds can show that when employees are offered the opportunity to expand their skills and knowledge, they tend to repay the organization with longer length of tenure. In IBM’s own experience, certified staff differentiate themselves from other employees in terms of both skills and organizational value. For managers, this means having greater confidence that their certified team members can handle more challenging and complex tasks.

10 VALUE ATTRACTS AND ENGAGES LEARNERS

Candidates for certification often have varying degrees of education, skills, and knowledge. They likely have job-related responsibilities that leave them little time to dedicate to continuing education. They also may be spread out globally, or dispersed in alternative work environments, including at home, far from the centralized office space. Each of these characteristics presents a challenge for meeting learning needs.

L&D programs typically address an organization's employees, independent professionals, employees of other companies, and students for whom certifications can help boost their skills, knowledge, and careers. While upper- and mid-level leaders seek business advantages via a certified workforce, the benefit for learners is different. Continuing education can be fulfilling in a variety of ways, from increased professional opportunities and greater responsibilities to the simple joy of learning new skills.

To meet learners' needs, ICCT has created an ecosystem that keeps learners engaged as they upskill in Cloud technologies. This ecosystem leverages a number of insights based on program experience that have established ICCT as a leader in the L&D space. Over its four-year existence, ICCT has discovered that learners:

- Do not have a lot of time for time-intensive credentialing programs
- May be globally dispersed, leading to cultural and language challenges
- Come to training and certification with varying knowledge and skills
- Cannot always afford to pay for training and certification programs

ICCT addresses these issues through a number of tactics. Each can be easily replicated by any L&D program:

- Let time-constrained learners lead their own learning
- Provide an array of support to assist a globally dispersed audience
- Ensure that learners begin at the right level for certification
- Support learner training financially or offer meaningful incentives

11 CONCLUSION: SUCCESSFUL BUSINESSES BUILD ON CERTIFICATION

ICCT has succeeded using multiple techniques. It provides and maintains multiple forms of communication, to learners as well as upper and mid-level leadership. It is committed to introducing new programs and upgrading current certifications. It maintains an alertness to the needs of the industry and its learners.

The result is to embrace and extend new modalities and methods of imparting knowledge, whether by enhancing nonconsecutive learning, providing new delivery methods, or reimagining the art of the possible to ensure that learners learn.

Finding the formula for L&D success depends on the organization, its mission, and its people. For many companies, it may be possible to find their own success by combining the most useful or pertinent ingredients developed by a successful organization like ICCT. In L&D, the quest for success never ends. But the effort to upskill and educate people is worthwhile—and profitable.

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