

The Impact and Importance of Technical Certifications: The Management View



Throughout history, the success (or failure) of any technology has always been directly linked to the specific knowledge and skills of the people putting the technology to work. This is as true today for information technology as it was for the wheel some 6000 years ago.

Of course, the difference in complexity between today's information technology and the 4th millennium BCE potter's wheel demands far more specialized and refined knowledge and skills on the part of the practitioner.

Enter the technical certification.

For the individual practitioner, technical certifications accomplish the following:

- Validate a select benchmarked set of technical knowledge and skills
- Demonstrate a strong commitment to a select technical job role and related responsibilities
- Drive continual advancement through timely recertification, pursuit of multiple complementary certifications, or both

But what about the practitioner's organization? Or that organization's customers or partners? In this digital era where so much of business is driven by technology, the value of technical certifications extends well beyond the single certified individual and that person's working peer group. Technical certifications drive a multiplier effect on all the systems, processes, transactions, and interactions influenced by the certified practitioner holding just the right mix of knowledge and skills.

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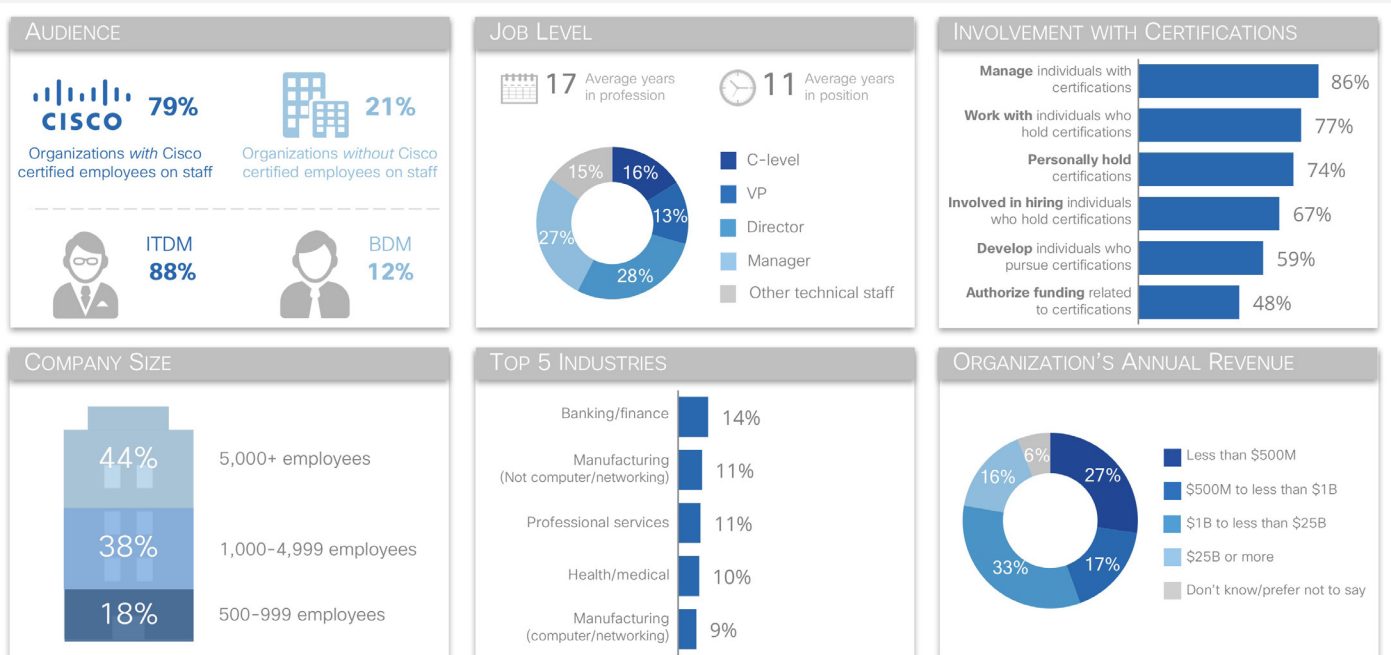
This report offers insight into this extended value of technical certifications. It relays the results of a survey of technology managers who direct the development and hiring of employees holding technical certifications. The following represent sample questions that will be answered along the way:

- Where does the certified technology worker have the greatest impact?
- Where can we see measurable gains? What are those specific gains?
- What role do certifications play in the hiring process?
- How are Cisco certifications valued by organizations and managers?
- Which areas of training and certification will be most important in the future?
- Where are training budgets focused today? How will they change going forward?

Survey Background

In the summer of 2016, Cisco and survey firm Illuminas partnered on the execution of interviews aimed at pinpointing the current and future value of technical certifications in the mind of the technology manager. Our target respondents were those who direct the development of existing technology-focused employees and the hiring of new technology-focused employees. The web-based survey gathered input from 300 U.S.-based senior technology managers working in larger organizations operating across a full spectrum of major industries. Most of the responding technology managers (88 percent) worked within dedicated IT organizations (they were IT decision makers—ITDMs). Some (12 percent) managed certified technology workers within specific business units such as marketing, operations, and customer service (business decision makers—BDMs). All had responsibility for directing existing workers and hiring new employees with technical certifications. (See Figure 1 for more details on the survey respondents.)

Figure 1
Survey Respondent Profile



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It should also be noted that respondents were not only required to be managing and hiring certified technology workers, they also were required to be familiar with multiple technical certification programs. This requirement assured that each technology manager held a well-rounded view of technical certifications, not a view formed from experience with a single vendor's certifications only. In fact, a strong majority of the respondents actually held their own set of technical certifications. This was not a requirement for participation in the survey, but it certainly points to the respondents having solid knowledge of technical certifications, both as technology managers and as individual technologists.

The Value of Technical Certifications

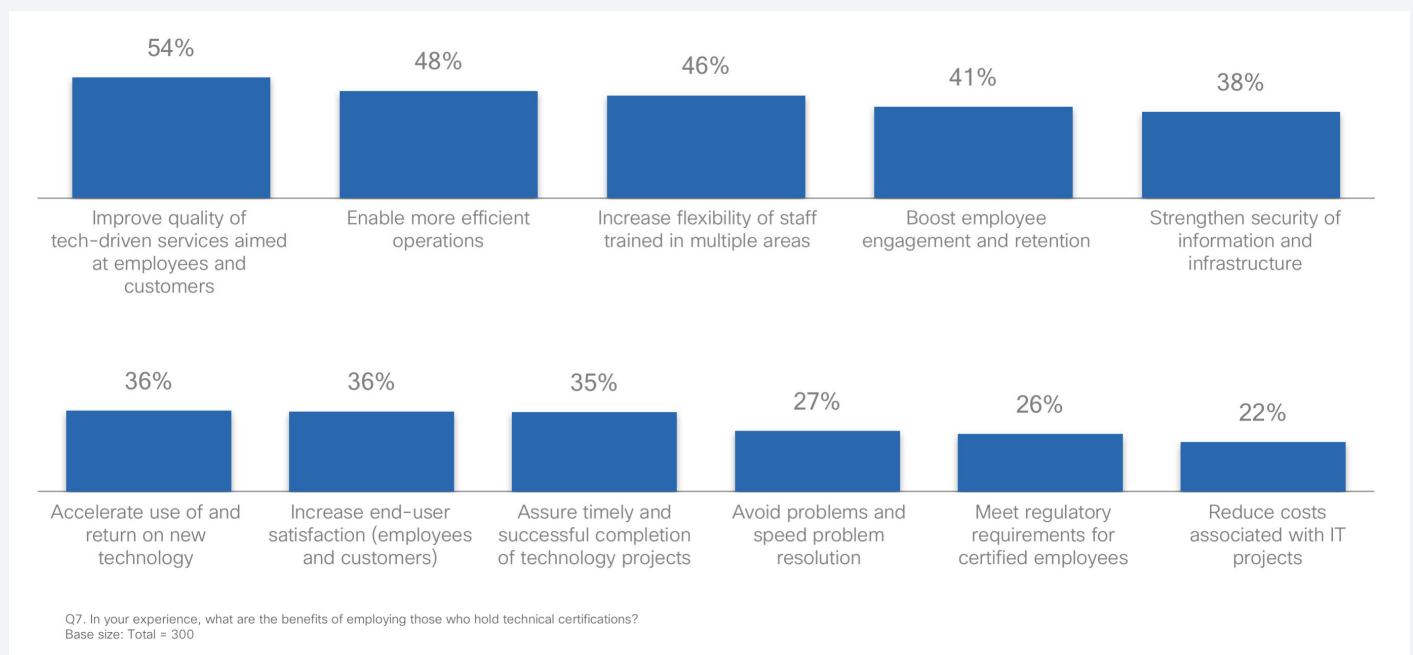
Let's start with the most basic need expressed by technology managers: the availability of certified technology workers. Of the 300 technology managers surveyed, 68 percent stated that the market for certified technology workers is very competitive, making it difficult to find and attract qualified workers.

Making matters worse, 65 percent believe there is a shortage of qualified workers. So competition is tough and supply is tight. That combination places a high value on the workers who possess the right qualifications. It also places tremendous pressure on the managers and organizations trying to boost the value delivered to their internal clients, external partners, and end customers. Without the right talent in place, delivered value is at risk.

According to the technology managers surveyed, employees with technical certifications drive value in many high-impact areas. (See Figure 2.) In examining the survey results, these areas of impact can be aligned along three major fronts—effectiveness, efficiency, and employee engagement.

Heightened effectiveness is seen in improved service quality (number 1 overall), security, customer satisfaction, project execution, and regulatory compliance. Efficiency is bolstered through operational excellence, technology return on investment (ROI), staff flexibility, and reduced IT costs.

Figure 2
The Impact of Technical Certifications



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Employee engagement (number 4 overall) is, strikingly, cited as a strong benefit of technical certifications. Many studies of the workforce point to learning and development as one of the primary drivers of worker satisfaction, attraction, and retention. For the millennial worker (the largest workforce age group as of 2015), learning and development is often cited as the strongest driver of engagement. In essence, workers are telling organizations, “If you fully invest in me, I’ll fully commit to you.”

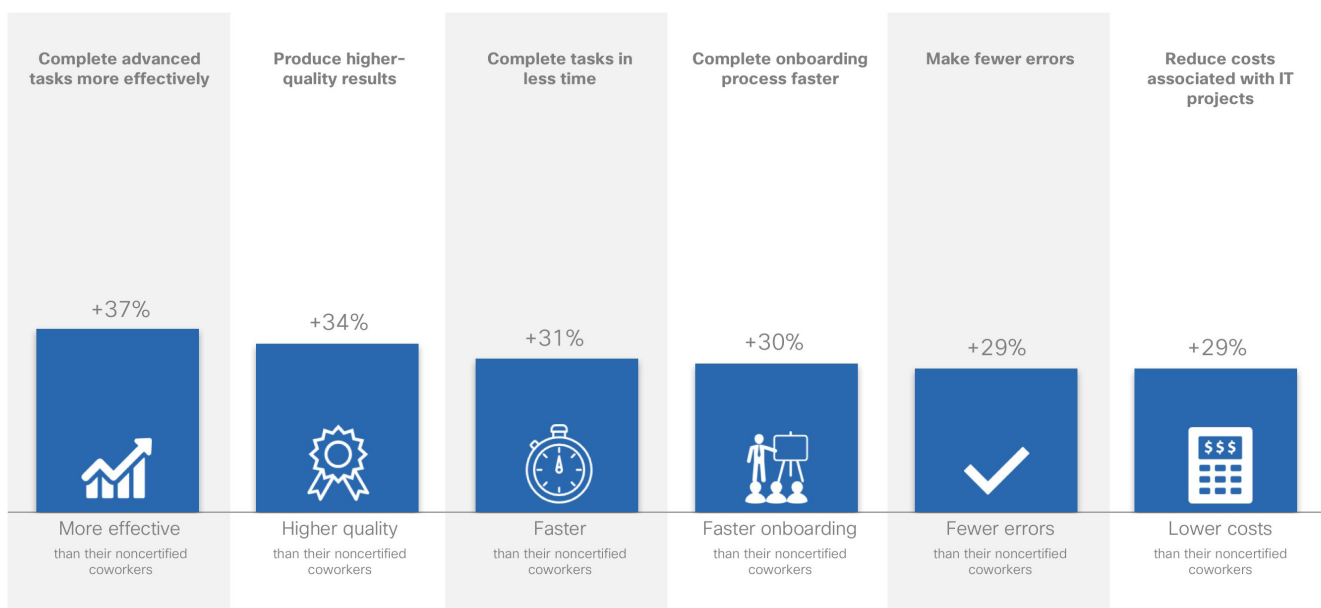
And, technical certifications spread across an entire workforce drive improvements in on-the-job training and informal learning as well. Here, the certified technology worker advances the knowledge of coworkers through such activities as expert mentoring, social collaboration, and project contributions. Certified workers teaming with other certified workers provide benefits both to one another and to the organization. Given the short supply

of certified technology workers and the stiff competition for them, technical training and resulting certifications are viewed by technology managers as strong medicine for many technology workforce ills.

The Measured Value of Technical Certifications

While Figure 2 points to many areas where technology managers assign value-add to technical certifications, the data does not quantify the positive impact of technical certifications. Where measurement was possible, technology managers were asked to quantify the value of technical certifications relative to key job tasks and requirements. In essence, the managers were asked to indicate how much a technical certification improves the execution of a specific task or the performance of a particular worker. (See Figure 3 for the perceived gain achieved by the certified technology worker.)

Figure 3
Measuring the Impact of the Certified Technology Worker



Q10a. Please provide an estimate for how well certified employees perform, relative to their noncertified coworkers, in each of the following areas.
(Mean % reported)
Base size: Those who stated that certified employees “actually” contribute to each area = 66-99

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Overall, technology managers see gains of between 29 percent and 37 percent when comparing the key results driven by certified and noncertified technology workers. At the high end of measured gains, successful completion of advanced tasks and production of higher-quality results points to the certified technology worker delivering strongly across the effectiveness front. On the efficiency front, reductions in time, errors, and costs stand out for the certified technology worker. Put simply, compared to noncertified staff, the certified technology worker, on average, completes tasks 31 percent faster, makes 29 percent fewer errors when performing job tasks, and reduces the cost of associated project tasks by 29 percent. For new hires, the ability to come up to speed 30 percent faster translates to more rapid return to the organization.

Calculate these gains in effectiveness and efficiency across multiple projects, and we can easily see how investment in a worker's technical training and certification can pay back an organization many times over in a short period of time. Now, multiply these gains by the increased productivity and retention associated with the more highly engaged certified technology worker, and we can see how these measurable gains could increase exponentially.

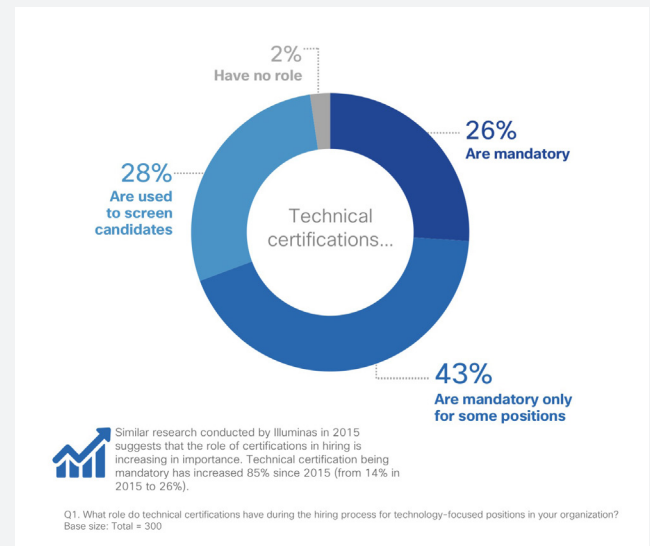
Survey Words of Advice

One director wrote, "Certificates are definitely a plus in hiring, but know that you'll probably be educating yourself constantly during your career."

One C-level executive wrote, "It is worth the extra effort and cost to distinguish yourself with a certification."

One director wrote, "You need to demonstrate your commitment to the field with technical certifications."

Figure 4
Role of Technical Certifications in Hiring

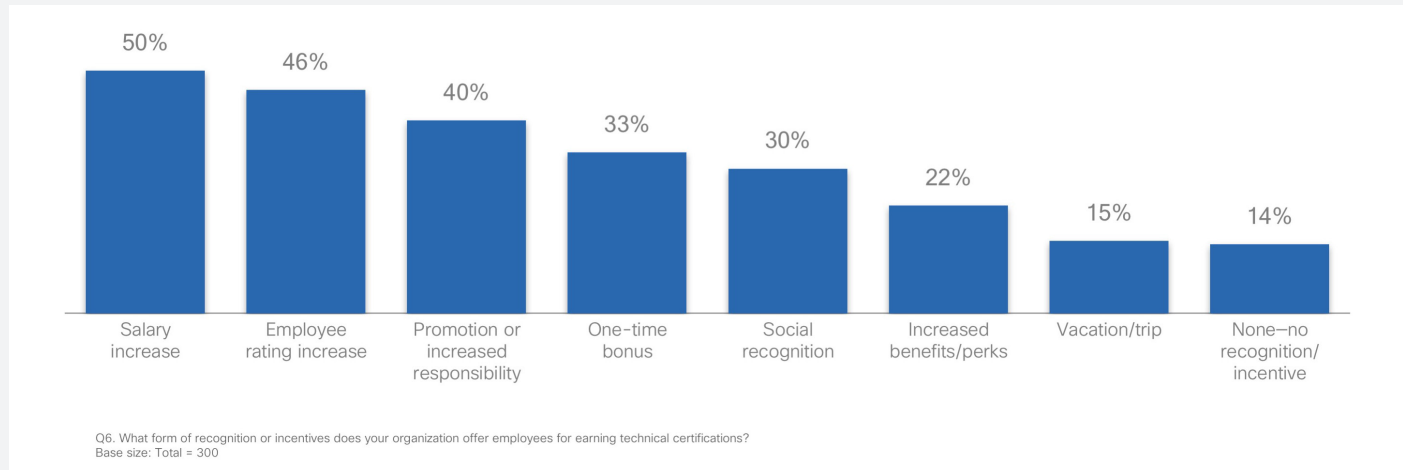


Given the perceived value and measurable gains associated with technical certifications, it makes perfect sense for technology managers to value technical certifications when evaluating new-hire candidates. (See Figure 4.) While not mandatory for all job roles, technical certifications serve to differentiate candidates under consideration for all but a rare few technology managers. Just as technical certifications validate knowledge, demonstrate commitment, and drive advancement for the technology worker, they do the same for hiring managers.

Of course, with competition for digital talent intensifying and so many employers looking to retain and hire certified technology workers, what incentives do organizations emphasize when they want to motivate existing workers to advance their skills, demonstrate organizational commitment to worker development, and attract high-impact certified new hires? The most popular incentive is an increase in salary. Half of the technology managers surveyed indicate that

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Figure 5
Incentives Offered to Certified Employees



their organization provides a salary boost for workers attaining a technical certification. (See Figure 5.)

Given that certifications stand to deliver high value to organizations and that the supply of certified talent is tightening, the vast majority of organizations provide some type of incentive for technical certifications. It is worth noting, by managers and staff, that only 14 percent of employers provide no reward or recognition for employees advancing their knowledge and skills through technical certification. The message to workers is simple: Get certified and be rewarded and recognized by your employer, or by that future employer that is bound to come knocking at your door.

Survey Words of Advice

One vice president wrote, “The more you know, the more you earn.”

The Value of Cisco Certifications

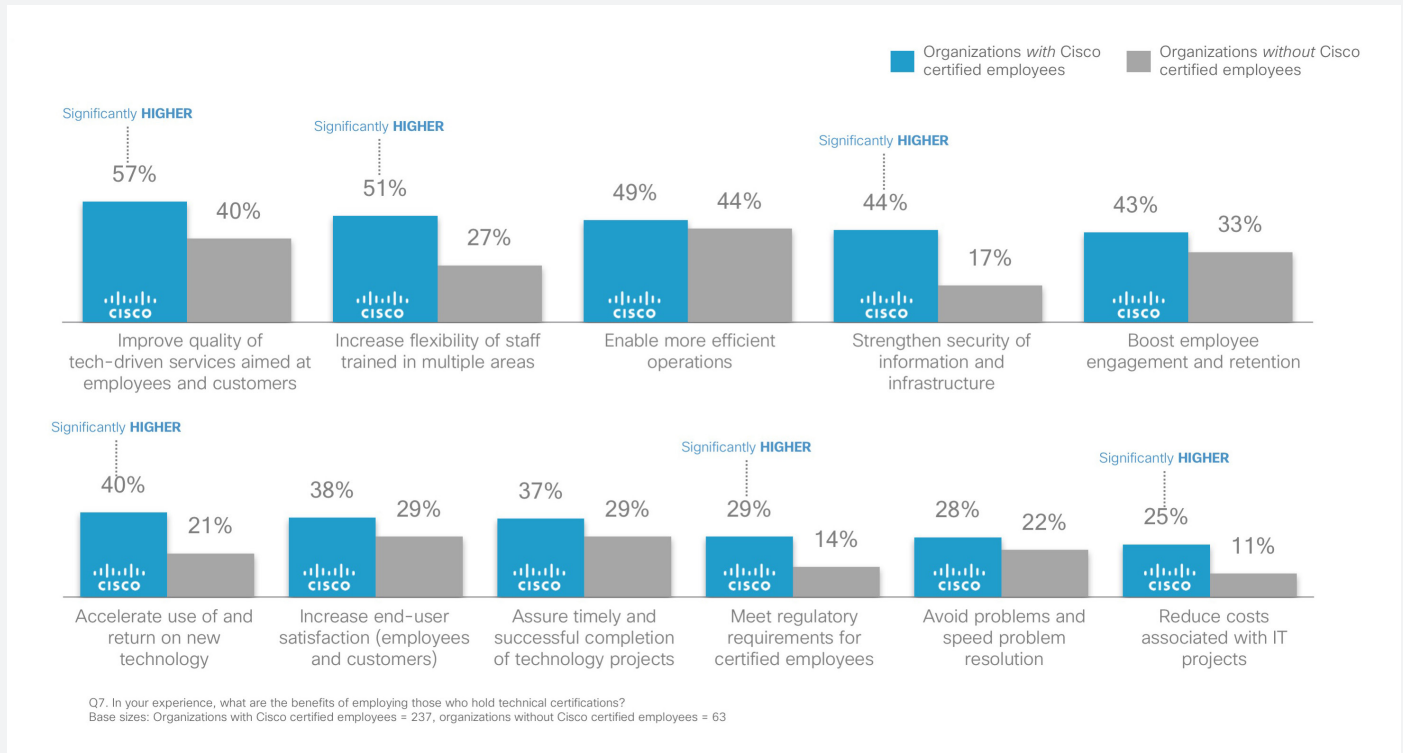
In the prior section, we examined the value of technical certifications in general and the impact of the technology worker holding one or more technical certifications. In this section, we will highlight technology manager responses as they apply to Cisco certifications and technology workers holding Cisco certifications specifically.

Given that this report and the survey itself were developed by Cisco, you may be tempted to dismiss this section as marketing material for Cisco training and certifications. You would be wrong to do so. This section presents survey results without spin, without special data breakdowns or processing, and without precise targeting of technology managers biased toward Cisco certifications.

First, let’s simply look at how value judgments on technical certifications compare between technology managers working in organizations that employ technology workers certified by Cisco and those that work in organizations where no workers have Cisco certification. There are differences—and some are dramatic! (See Figure 6.)

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Figure 6
The Impact of Cisco Certifications



What do these results say about Cisco certifications—and other technical certifications? Let's zoom in on one particular impact zone. In the prior section, Figure 2 pointed to improved service quality as the number one area where technical certifications add value to an organization. Of organizations with technology workers holding Cisco certifications, 57 percent see improved service quality as a value of technical certifications. Of organizations without Cisco certifications present, only 40 percent see this as a value of technical certifications. We could interpret this in two ways—and, likely, both apply here. First, technology workers with Cisco certifications heighten service quality directly, driving greater value on this front for their organizations. Second, Cisco certifications contribute to setting a high bar for technical certifications overall. The result is that technology managers emphasize developing and hiring workers holding technical certifications that are proven to improve service quality.

As you see in Figure 6, Cisco certifications deliver more value to more organizations, while also setting a higher bar for all technical certifications across many fronts. In a world where more and more technical certifications are being made available to workers and, quite frankly, are often made easier and easier to attain, organizations, managers, and certified workers are certainly working to identify and focus their development efforts on the technical certifications that deliver significant and real value. Two further survey results are of note here. Based on their industry knowledge and experience, technology managers were asked to rate the change in value of select technical certifications over the last five years. Sixty-three percent indicated that Cisco certifications have increased in value over that time. When technology managers were asked which technical certifications they were most interested in having their employees attain, two training and certification providers were far out in front—Microsoft (73 percent of respondents) and

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Cisco (66 percent). A distant second tier comprised Oracle (47 percent), IBM (44 percent), and VMware (44 percent). A third tier was led by HP (30 percent), Citrix (26 percent), and Red Hat (22 percent).

Figure 7
Executives and Managers Speak Out on Cisco Certified Workers



How Do Technology Managers View the Worker with Cisco Certification?

Let's zoom in on technology manager views relating to Cisco certification for technology workers. How does the worker holding a Cisco technical certification stand out from the crowd of all technology workers? How does that technology worker differ from workers holding other technical certifications? Again, these views come from technology managers familiar with multiple technical certifications (Cisco, Microsoft,

VMware, IBM, and others), having formed their opinions by both directing and hiring workers with Cisco and other provider certifications and, for many managers, attaining their own set of technical certifications over the course of their careers.

As the vast majority of technology managers signal by their agreement with these survey statements, the technology worker with Cisco certification does indeed stand out, with greater positive impact and recognized importance. (See Figure 7.) No wonder Cisco certifications are seeing increased value and interest in the eyes of the technology managers surveyed.

Survey Words of Advice

One manager wrote, "Invest the time to get the certifications relevant to your field. Keep abreast of the latest changes and assure you recertify."

The Outlook for Technical Certifications: Management Priorities for Technology and Business

So far, we've outlined the overall value of technical certifications and Cisco certifications, specifically, for organizations, managers, and workers. In this section, we'll highlight survey results that point to which specific technology areas and job responsibilities are being targeted for training and certification. As stated, there is a very lengthy list of technical certifications available to workers. Now, we could easily argue that the list is too long and the listed certifications vary widely in true value. What cannot be argued is that technology is highly complex and that technology workers benefit from both a breadth and depth of knowledge and skills.

Technology managers surveyed indicated their balance of investment across major technology areas of needed knowledge and skill. (See Figure 8.) It is interesting to note the number one area of investment—infrastructure. While not commanding the attention of the industry press and analyst communities, network,

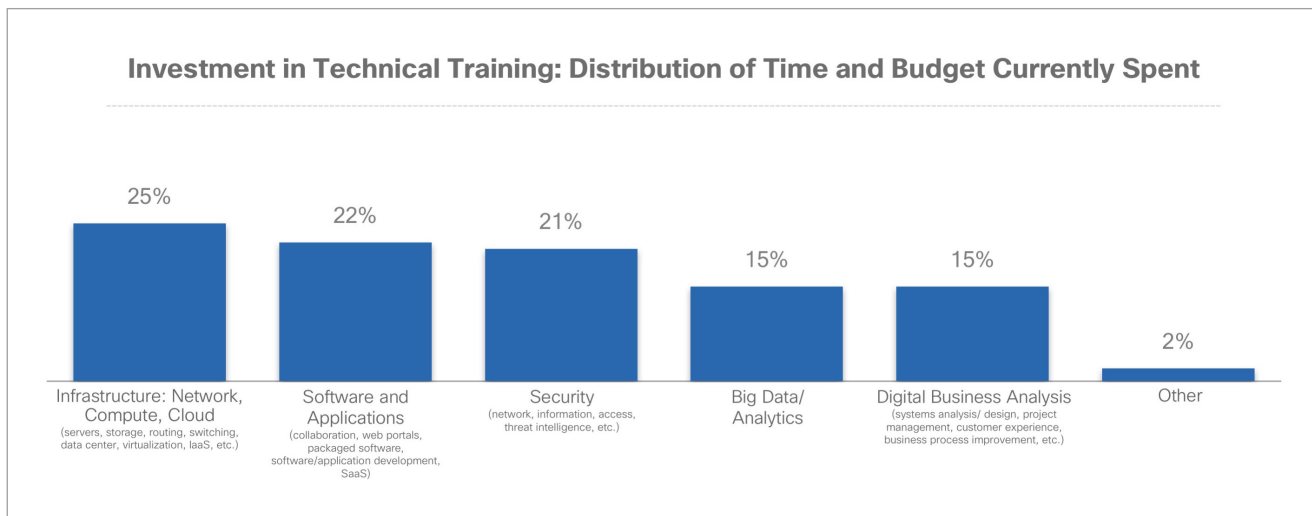
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compute, and cloud infrastructure commands the largest share of technical training investment. This is not to say that “hot” technology areas such as big data/analytics and digital business don’t garner their own solid share of the learning and development investment. They do. They just fall well short of the investment levels assigned to more fundamental areas such as infrastructure, software, and security.

Survey Words of Advice

One director wrote, “Gain technical certifications in a variety of disciplines to make your experience more valuable to a future employer.”

Figure 8
Technology Learning and Development: The Investment in Major Areas of Expertise



Q4. When you think about the time and budget your organization invests in technical training, how would you distribute that investment across the following technical areas? (Mean % reported)

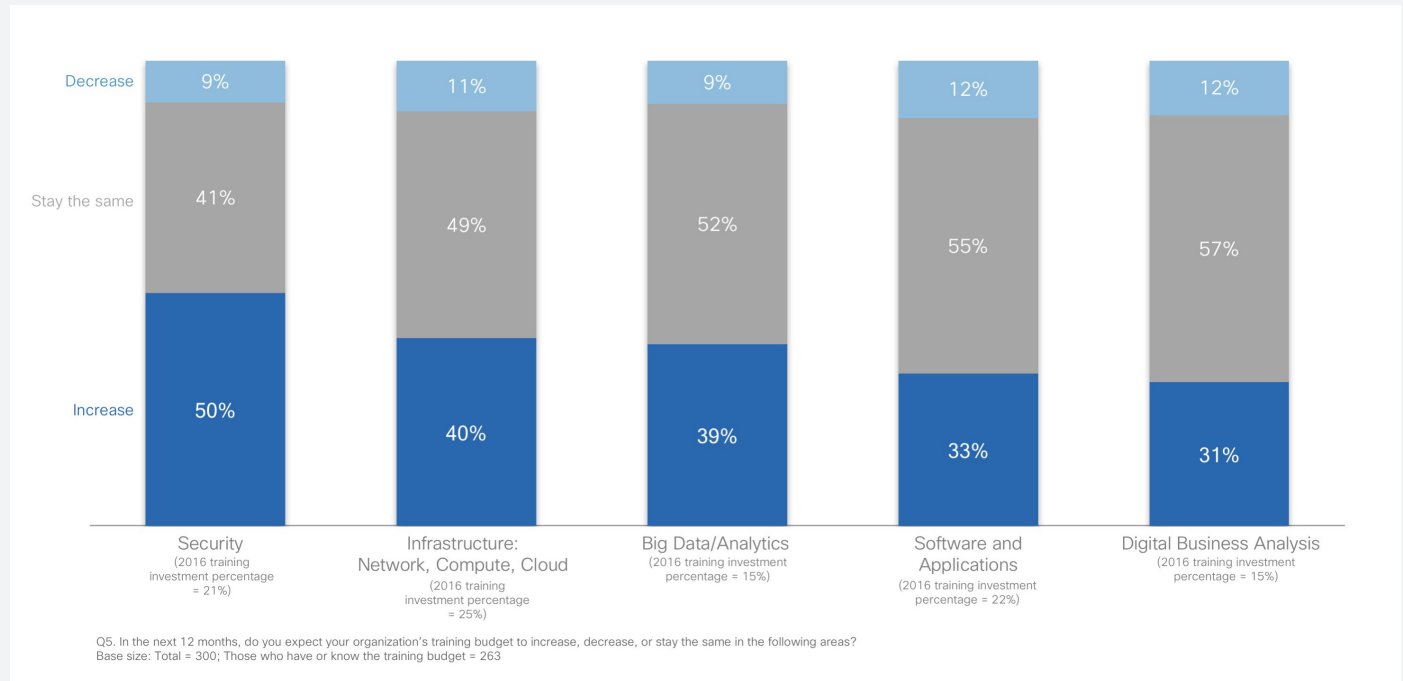
Base size: Total = 263, The following responses of the 300 survey respondents are not reported: No training budget 8%, Don't know 5%

But is this changing? Are the hot areas accelerating to pass core traditional areas? Well, yes and no. (See Figure 9.) As would be expected in this very risky digital environment, security is showing the strongest increase in training investment. However, infrastructure shows the second-highest increase—with big data/analytics coming on strong. It would appear that the “cloud first” mentality that is coming to dominate IT strategies still drives strong demand for staff knowledgeable and skilled in infrastructure technology. What will be interesting to watch going forward are the software and digital business areas. As indicated in Figure 8, software is

currently the number two area for training investment, but the planned flat or lower level of investment indicated in Figure 9 may reflect such “cost reducing” influencers as open source, microcredentials, and automation. In the digital business area, organizations are putting more and more pressure on their technology executives, managers, and workers to heighten and hasten digital transformation. While digital business training lags other major areas in terms of both current investment and planned increases, we would expect this rising pressure to increase the emphasis on building out the digital workforce.

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Figure 9
Technology Learning and Development Investment: The Shift for 2017



What Areas Are Technology Managers Prioritizing for Employee Learning and Development in 2017?

Let's break down these major categories of training and certification further. Again, technical certifications cut across many information technologies, digital business projects, job roles, and worker responsibilities. Even Cisco offers a wide array of training and certification options covering various levels of expertise (for example, CCNA, CCNP, CCIE), technology areas (for example, networking, cybersecurity, data center, collaboration), and job requirements (for example, architecture, design, deployment, troubleshooting, automation).

Here, the technology managers surveyed offered their views into areas of emphasis for developing and hiring certified technology workers. And it is important to note that, in this digital era, technology managers are focused not only on pure technical training and certifications for their workers, but also on business training and certifications that better serve their organizations' digital transformation efforts and outcomes. (See Figure 10.) For managers—how do these lists compare to your own organization's development and hiring priorities? For technology workers—how do your current and planned training and certification efforts match against these lists pointing to talent requirements across key technical and business areas?

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Figure 10

Top 10 Technical Training Priorities

1. Cloud Deployment and Integration
2. Cybersecurity
3. IT Project/Product Management
4. Big Data and Analytics
5. Data Center
6. Networking
7. Internet of Things
8. Virtualization
9. Mobility
10. Collaboration

Top 10 Business Training Priorities

1. Project/Product Management
2. Service Provider Management
3. Business Process Improvement
4. Risk Assessment and Management
5. Customer Experience Management
6. Regulatory Compliance
7. Digital Business Analysis and Transformation
8. Digital Marketing/Social Media Management
9. Financial Management
10. Vertical Industry Specialization

It should be noted that for organizations with employees holding Cisco certifications, one technical area stood out strongly, compared to other areas listed in Figure 10. Cybersecurity was identified as a top training priority for 53 percent of those organizations. For the other organizations, only 37 percent cited cybersecurity as a top training priority. Why the difference? It is likely that the greater presence of Cisco cybersecurity solutions, support services, and staff with Cisco certifications drives greater awareness of the value of more advanced cybersecurity knowledge and skills.

In looking at business training priorities in Figure 10, two areas of business training stood out as particularly strong for organizations with technology workers holding Cisco certifications. Customer experience management (prioritized by 35 percent of those organizations, compared with 14 percent for the others) and digital business analysis and transformation (28 percent with and 11 percent without). Why the difference? Well, Cisco's strong focus on customer service and digital transformation—inside and outside of Cisco—is likely driving more aggressive action across these two business practice areas within the Cisco customer base.

Survey Words of Advice

One manager wrote, “The more certifications you have, the better your chances are of landing a spot within our organization.”

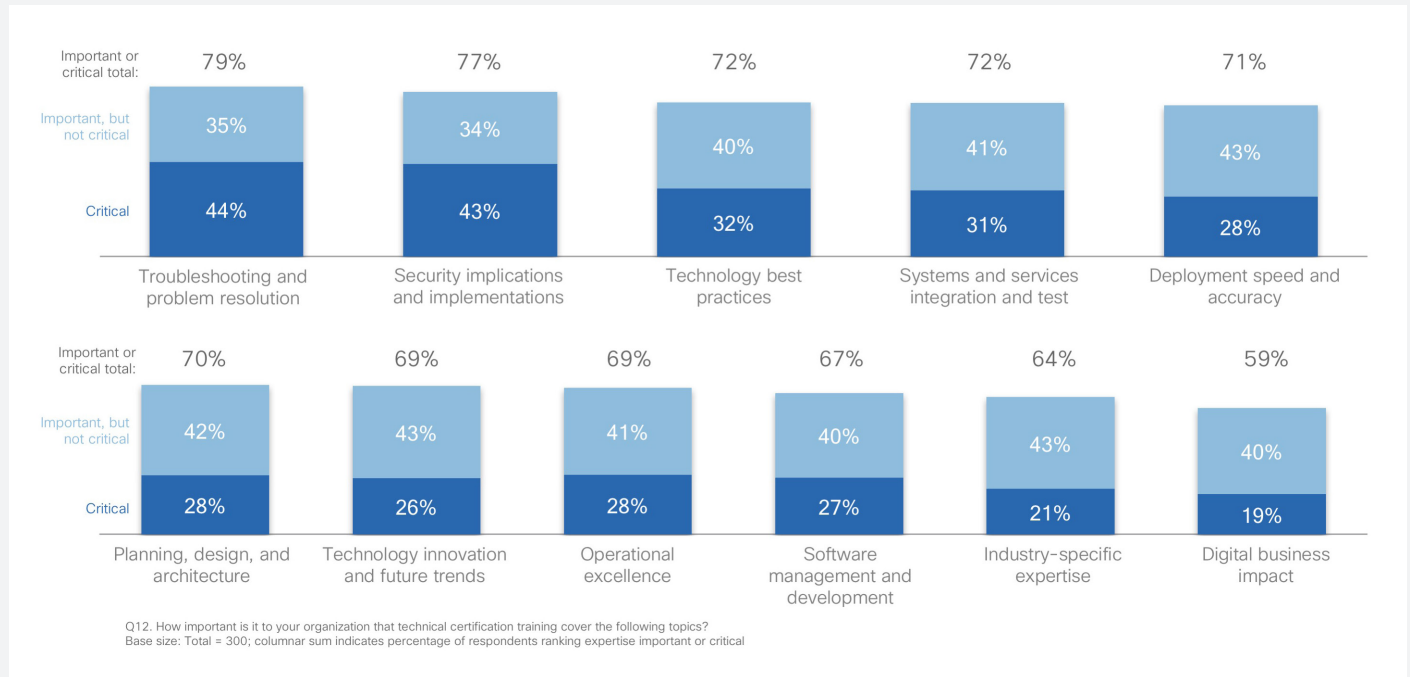
What Particular Technical Expertise Is Important to Technology Managers in This Digital Era?

In the prior section, specific technical training priorities were outlined. Now, let's go one step further by exposing the exact expertise that drives success—for the organization and the individual worker—with key technologies.

Every technology worker performs in a role encompassing multiple responsibilities. These responsibilities all require particular expertise. Which responsibilities and, therefore, types of expertise are most important to organizations? Where are technology workers most strongly expected to deliver

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Figure 11
Top Technical Expertise: A Management Ranking



to expectations? Technology managers surveyed indicated the areas of expertise they value most in their workers. (See Figure 11.)

In the survey results, we see a very strong orientation around expertise and skills aimed at driving greater agility and accuracy. In this digital era, projects and tasks—and, yes, fixes, at times—need to be executed quickly and correctly to drive the best possible outcomes.

Survey Words of Advice

One senior architect wrote, “Never put all your eggs in one basket. Always learn. Always expand into new areas.”

One C-level executive wrote, “Certification is everything.”

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Final Words

As digital transformation takes greater hold within an organization, technology and business become one. In this digital environment, technology managers are to be judged by the business outcomes resulting from the technology, talent, and teams under their direction. As every technology manager from C-level executive down to first-level manager will assert, the technology is the easy part. The talent—developing, motivating, engaging, finding, hiring, retaining, and organizing—is the hard part. Here, technical certifications can help provide much-needed relief to technology managers looking to get the best from their talent.

Technical certifications establish a base level of learned and validated knowledge and skills. Certifications assure that technology workers not only satisfy the requirements of their managers, peers, assigned projects, specific job roles, and associated technology solutions, but also deliver the greatest possible value to their organization and its customers and partners.

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