SURVEY

Impact of Training on Network Administration: Certification Leads to Operational Productivity

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IDC OPINION

As companies increasingly rely on technology to manage their business and compete, demand for skilled IT professionals will continue. As technology becomes indispensable to businesses, effectively managing technology becomes essential. In addition:

- The percentage of relevant certifications a team holds is a reliable measure of an IT team's functional capability. Each new certification increases team performance.
- Turbulent economic times highlight how companies depend on their IT teams. In response, the IT industry must act to develop teams that can perform at the highest levels.
- IT managers and IT trainers must understand their corporation's goals and tailor their IT system and IT teams to respond to new objectives. This must include a consistent way of validating and leveraging IT talent.
- Certifications that represent rigorous and meaningful bodies of knowledge deliver tremendous value to near-term organizational success. And, while each new certification increases team performance, "average" functional proficiency occurs when a team has more than 50% of the team certified.
- High-performing teams spend less time deploying and fixing solutions and spend more time maintaining and improving the systems they operate.
IN THIS STUDY

This document summarizes a number of related research projects IDC has recently completed. This research consistently finds that corporate management expects IT departments to do more than support computing and communications infrastructure. Installation and maintenance of basic IT equipment and applications are baseline functions; IT teams must now make sure every new investment supports the company's overall business objectives.

To accomplish this, IT managers must train their team members to fully leverage new tools, technologies, and techniques. IDC research indicates IT teams with high concentrations of certified technicians perform with greater effectiveness than teams with fewer certifications.

Methodology

Over the past 36 months, IDC has surveyed more than 1,100 IT managers responsible for more than 3,000 teams. The survey uncovered the relationship between training, certification, and functional performance across more than 80 different IT performance metrics in 26 functional domains.

The functional domains covered the breadth of IT activities, including:

- Deployment
- Development
- Management
- Security
- Storage
- Support

IT managers were asked questions related to their team's performance on each of the performance metrics, and that information was plotted against the percentage of the team with relevant technology certifications.

SITUATION OVERVIEW

In difficult economic times, enterprises focus on cost control and managing expenses. Recent IDC research shows that nearly three-quarters of enterprises have a corporate strategy of managing costs through the downturn. This is an increase from early 2009, when only 50% had a cost control strategy. This suggests that cost control will remain a dominant priority for enterprises through the beginning of whatever recovery cycle occurs. Therefore, it is fair to say that most businesses rely on their IT infrastructure to help:
Drive new revenue streams

Accelerate growth

Reduce operational costs

Meeting these objectives requires an IT staff to understand the relationship between technology and business. IT managers who balance their team's technology and business acumen can build on their infrastructure foundations of business transformation and cost reduction to improve the services their internal and external clients demand.

Enterprises and their IT leaders who have recently used technology to respond to and transform their business can now focus IT on improving existing processes and the resulting services delivered. IT executives and managers can then assess their team's skills and make investments to improve them. This tactic also helps them respond to staffing pressures — to do more with fewer people — created by current economic conditions.

Managers who focus on their IT team's skills improve infrastructure maintenance and deployment. By leveraging the features built into the technologies, IT organizations can deliver services efficiently. Skills related to the function of the embedded technology enable teams to:

- Manage risk
- Use standards consistently
- Implement projects successfully and efficiently
- Execute new business models

Organizations focused on driving growth, managing risks, and cutting overhead expenses rely on IT departments to manage convergence, complex infrastructures, and the proliferation of sophisticated edge devices (e.g., notebooks and PDAs). IT talent must combine technical capabilities with the ability to manage projects and complex situations that bring alignment with business goals.

IDC research indicates that every increase in team skill improves organizational performance. Therefore, increasing the overall capability of key teams will improve both service delivery and corporate performance. Emphasizing IT service delivery excellence requires IT organizations to measure their teams' ability to perform functional tasks.

Training and certification are effective measures of how well team members can work with specific technologies, hardware, and software.

Used properly, certifications play key roles at the convergence of business and IT trends. IDC research shows a direct relationship between higher levels of certification and improved performance — when team skills improve, organizational performance increases proportionally (see Figure 1).
**Key Success Factors for Critical IT Functions**

Q. Which of the following factors contributed most to the success of technology function?

- Skill of the team (60.7%)
- Support of technology vendor (18.8%)
- Effort of the team (8.5%)
- Other (12.1%)

n = 224


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**Certification Matters: Functional Certification and Organizational Performance**

IT managers work in environments that force them to maximize their team's ability to improve service delivery and performance. In recent surveys, 80% of IT managers report their team requires a significant amount of task-specific skills to perform assigned duties. IDC examined the relationship between team performance and the percentage of each team that had certifications from vendors on a variety of technologies. Unequivocally, certification, as a measure of skill, showed a positive correlation to performance improvement.

The research examined both general service excellence and specific measures of task-level performance. In both cases, certification matters. The number of certified staff members remains the single biggest predictor of IT project success.

Managers striving for high performance must focus on individual functional skills to increase team performance.

**Certifications Enable Agility and Security**

Performance improvements initiatives within IT organizations typically focus on the following seven general goals:

- Agility — rapid alignment between requirements and capability
- Customer access to Internet-based apps to improve self-service
- Employee access to Internet-based apps to leverage corporate data and for self-service
IT efficiency — improving service levels at reduced costs

Response time for standard or routine tasks

System/information security

Risk mitigation

While general excellence in “agility” or “IT efficiency” is a manager’s primary objective, functional excellence in areas such as network administration, application development, or IT help desk operations creates the ability for an organization to meet its agility or efficiency goals. Functional elements combine to create more general expertise. The relationship between certifications and functional excellence has been demonstrated in several studies. IDC has found functional excellence increases when either an organization is well trained or a team increases its percentage of certified members.

The percentage of relevant certifications a team holds is a reliable measure of an IT team’s functional capability. Each new certification increases team performance. Even when incremental improvement is relatively small, overall performance increases (see Figure 2).

**Figure 2**

**Relationship Between Performance and Percentage of Team Certified Covering All IT Functions**

Also impressive about these findings is the fact that for each major function examined — development, deployment, management, support, storage, and security — the impact was the same. The impact as reflected in the curve changes somewhat, but overall, the value of each additional certification improves team performance. As an example, consider the impact of certification on network administration.
**Impact of Certification on Network Administration Functions**

While there are possibly dozens of operational metrics that could be used to evaluate the effective management of an enterprises network, IDC focused on five activities that appeared to be most common and targeted by certification sponsors. In each case, analysis shows that teams with a higher concentration of certified staff perform better than other teams. The five activities are:

- **Network security performance**: IDC asked respondents about the percentage of network components that were in compliance with the enterprises’ security policies. With the addition of new components and periodic changes to network security policies, it is common for the percentage of components that are out of compliance to grow as organizations focus on either emergencies or other time-sensitive activities. Teams with more certifications had about 10% more devices in full compliance with security policies on average.

- **Server and client applications deployment**: IDC asked respondents about the percentage of networked applications or capabilities that were deployed on time and on budget. Applications and network capabilities were deployed on time and on budget about 10% more frequently at organizations with greater concentrations of certified IT staff.

- **Unscheduled downtime (lack of network availability)**: IDC asked respondents about the percentage of time the network or networked applications were unavailable. While the overall percentage is fairly low (<6%), unscheduled downtime was about 20% lower at organizations with more certified IT staff.

- **Budget spent on external support for network management**: IDC asked respondents about the use of external staff to support network management activities. As IT staffs become leaner, and in some cases overworked, there can be an increased reliance on external staff to provide both emergency and routine maintenance activities. This appears to be because of the fact that the internal staff either does not have the time to perform the activity or because the internal staff is not sufficiently experienced or capable of performing the activity. Organizations with higher percentage of certified staff spent about 20% less on support costs for general network management.

- **Budget spent on external support for network security**: IDC asked respondents about the use of external staff to support network security and support activities. Even controlling for organizations whose strategy is to outsource support activities, organizations with higher concentrations of certified staff spent about 30% less on external support for network security activities.

Figure 3 shows the average overall performance of network administration teams by the percentage of the team certified.
General excellence comes from functional capabilities; without specific functional capabilities, teams can't deliver generalized results. Functional certification represents a meaningful way to measure a team's ability to contribute to improved business results.

In responses to IDC surveys, 66% of managers believe certifications improve the overall level of service and support offered to IT end users/customers. Similarly, 75% say certifications are important for team performance. From a quantitative standpoint, the research shows that with a sufficient percentage of team members certified, IT organizational performance can increase by an average of 11 percentage points.

**Overall: Certification Helps Achieve Business Goals**

Quantitative evidence indicates that the greater the percentage of certification, the better the team performs. Results show organizations with more than 50% of their team members certified performed above the average of all organizations. For network administration functions, "average" functional performance is achieved when 60% of the team members have a relevant certification. Managers can use that as a rough benchmark to measure the team's ability to achieve high performance.

Unequivocally, this research demonstrates that for each new team member certified, team performance increases. This research concludes that:

- Team skill is directly responsible for organizational performance.
- Concentration of certifications in a team is clearly linked to team capability and performance.
To achieve top-tier performance, organizations should strive for most of the team to be certified in relevant technologies and processes.

Skill Improves Productivity

Productive teams spend more time on important activities that directly support and enable an organization's primary mission and business objectives. IDC summarized several significant activities performed by five types of IT functional teams into three major activities: deploy, maintain, and improve or fix.

In earlier research, IDC found high-performing teams spend a greater portion of their workdays maintaining and improving technology and solutions and a smaller portion of time fixing broken tools or processes. Research also found high-performing teams spend less time deploying solutions than low-performing teams (see Figure 4).

**FIGURE 4**

Comparison of High- and Low-Performing Teams: Allocation of Time

<table>
<thead>
<tr>
<th></th>
<th>High performing</th>
<th>Low performing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fix (32.9%)</td>
<td>Deploy (25.8%)</td>
<td>Deploy (28.6%)</td>
</tr>
<tr>
<td>Maintain and improve (41.3%)</td>
<td></td>
<td>Maintain and improve (32.9%)</td>
</tr>
</tbody>
</table>

n = 73

n = 72

Note: Teams spend an average of 191 hours per month on these activities.

**Design and Sources of Certification**

Certification represents a formal testament to an IT professional's skills in a particular domain or technology. To design a reliable and informative certification, the certification sponsor, often the technology vendor, attempts to isolate particular skills and behaviors that improve (or hinder) performance with product or job role. Sponsors or vendors develop a test that reliably predicts the test taker's ability to carry out those skills and behaviors. Team members that demonstrate proficiency levels high enough to pass the test receive certification. That certification represents a skill level that is intended to contribute to improved team performance. IDC research confirms this conclusion.

Certifications that include practical, hands-on examinations as well as training wherever the skills are required ensure that skills are credible. Therefore, software vendors such as Microsoft and Red Hat as well as hardware manufacturers such as Cisco, HP, and EMC offer hands-on training and performance-based testing to increase the relevance and applicability of the acquired skills.

**FUTURE OUTLOOK**

Training will remain the key enabler to technology utilization and IT organization success. Certification, as the measure of competence, will remain an important element in assuring IT managers that their team has the skills necessary to appropriately develop, deploy, manage, secure, and support business-critical technology.

**Training and Certification Are Both Important**

This research suggests that about 25% of IT professionals hold some form of relevant certification in their area. However, less than 10% of training annually is focused on preparing IT professionals for certification exams.

Whether preparing for an exam or being trained to operate a new piece of technology, training will represent the best way to maximize the value of the technology deployed in an organization. Certifications on rigorous and meaningful bodies of knowledge or training focused on key activities of success delivers tremendous value to organizational success. Using both training and certification as a component of talent development affects an IT department's ability to improve:

- Risk management
- Use of standards
- IT employee productivity
ESSENTIAL GUIDANCE

IDC believes that certifications representing rigorous and meaningful bodies of knowledge are tremendously valuable to organizational success. The percentage of relevant certifications a team holds is a reliable measure of an IT team's functional capability. Each new certification increases team performance. Simultaneously, the use of certifications as a component of talent development processes will be critical to IT departments meeting the three essential priorities listed previously.

Organizations that include certifications as components of the IT staff development programs will see benefits, including risk mitigation and staff efficiencies, as a result of the achievement of the underlying skills the certifications measure.

IDC recommends that IT managers consider their overall performance goals and business objectives to determine if team performance would increase with additional skills. If team performance is important, IDC recommends that IT managers leverage training to certify team members and use that as an effective way to increase organizational performance.

Further, IDC recommends that IT technology vendors increasingly develop strong training programs to help clients maximize the benefits received from their technologies. Not only will this increase their clients' operational success but create loyal, skilled consumers of more technology.

LEARN MORE

Related Research

- Delivery Modality Choices for IT Education (IDC #218357, May 2009)
- Worldwide Corporate Learning 2009 Top 10 Predictions: Outlook Suggests Worried Optimism (IDC #216188, January 2009)
- Impact of Training: Functional Excellence Leads to Operational Productivity (IDC #215762, December 2008)
**Appendix: Functional Domains Covered**

IDC has surveyed more than 1,100 IT managers responsible for more than 3,000 teams. The survey’s focus was to uncover the relationship between training, certification, and functional performance on more than 80 different IT performance metrics in 26 functional domains (see Table 1).

### Table 1

**IT Functions Covered**

<table>
<thead>
<tr>
<th>Deployment</th>
<th>Management</th>
<th>Development</th>
<th>Support</th>
<th>Security</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business application rollout (ERP, messaging, etc.)</td>
<td>Automated asset management</td>
<td>Application development</td>
<td>End-user systems/software</td>
<td>Endpoint security</td>
<td>Archiving and retrieval</td>
</tr>
<tr>
<td>Install or change network and system management software</td>
<td>Business and disaster recovery planning</td>
<td>Database development</td>
<td>High availability servers/infrastructure</td>
<td>Network security</td>
<td>Backup and recovery</td>
</tr>
<tr>
<td>IT consolidation</td>
<td>Client management</td>
<td>Web applications</td>
<td>IT help desk</td>
<td></td>
<td>Storage management</td>
</tr>
<tr>
<td>Messaging and collaboration</td>
<td>Compliance management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating system migration</td>
<td>Information life-cycle management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating system upgrade</td>
<td>Network systems and software</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Print servers (shared print services)</td>
<td>Server/network system administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Server virtualization (Unix, Linux, Microsoft, and other)</td>
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</tbody>
</table>


### Synopsis

This IDC study presents survey results that describe the positive impact that an increased number or concentration of certifications has on IT team performance. Specifically, this research suggests that functional IT competence, as measured by certifications, positively impacts IT organizational performance in deployment, development, management, security, support, and storage functions.
"The percentage of relevant certifications a team holds is a reliable measure of an IT team's functional capability. Each new certification increases team performance. Teams with a higher percentage of certified members consistently outperform teams with fewer certified members," says Cushing Anderson, program vice president, IT Education and Certification Research.