

Certification Readiness Guide For Academia

V1.0

Fall 2007



Table of Contents

Microsoft® Certifications	1
The Value of Microsoft Certification.....	1
Why Students Should Consider Microsoft Certification.....	2
Evidence Supporting Certification	2
What Others Are Saying About the Value of Microsoft Certification	3
The Future of Certification	3
Certification Evolution: Job-Role Certifications for Your Future	3
Job Outlook for Technical Professionals Looking Great	3
The Microsoft Certification Programs	4
Classic Microsoft Certifications	4
The New Generation of Microsoft Certifications	4
Structure of the New Generation Certification Exams.....	4
Benefits of the New Generation Certifications	5
New Generation Certifications: FAQ	5
Microsoft Business Worker Certifications	5
Microsoft Office Specialist Certification	5
Microsoft Business Certifications	6
Why Is Certification on 2007 Microsoft Office Products So Important to Students?	6
The Growing Need for a Business Certified Workforce	6
Microsoft Business Certification—Perfect for Your Curriculum.....	7
Structure of the Microsoft Business Certifications.....	7
Earn College Credit with MOS Certification	7
Integrating Microsoft Certification into Curricula	7
Getting Started: Testing Centers	9
Introduction	9
Benefits of Becoming a Testing Center	9
Setting up a Testing Center	9
Private or Public Testing Centers	10
Test Center Administration and Exam Proctoring	10
Prometric Testing Center Operations (APTC/AATC)	11
About MCP and MCTS Exams.....	11
APTC vs. AATC.....	11
Microsoft Exams Exclusively for Academia.....	11
Discounted MCP and MCTS Exam Vouchers for Academic Exams	11
Ordering MCP and MCTS Academic Exam Vouchers.....	12
Distributing Academic Exam Vouchers	12
Registering for an Academic Exam	12
On the Day of the Exam	12
Certipoint Center Operations.....	12
About the Exams	12

Registering for a Microsoft Office Specialist or Microsoft Business Certification Exam	13
Academic Discounts	13
Exam Vouchers	13
On the Day of the Exam	13
Microsoft Certification Exam Practice Tests.....	14
Introduction	14
MeasureUP.....	14
Self Test Software	14
Additional Resources	15
Frequently Asked Questions.....	16
Appendixes	18
Appendix A.....	18
Appendix B.....	22
Appendix C	24
References	25

Microsoft® Certifications

The Value of Microsoft Certification

In the 13 years since Microsoft launched the original Microsoft Certified Professional (MCP) program, millions of people have gained the knowledge and expertise to enhance their careers and add value to the services their organization provides. Nearly three million certifications have been issued, with close to 300,000 people certified in the past 12 months alone. Over the years, certification has been one of the best ways to build the awareness and prevalence of technical and professional computing skills in Microsoft technologies throughout the market. Increasing the number of certified professionals and upgrading current certified professionals to the latest technologies is essential to Microsoft because it enables us to provide many benefits, such as the following:

Students benefit because certification

- Validates computing skills on Microsoft technologies.
- Provides structure for building leading-edge skills.
- Provides validated proof of skills, based on globally recognized standards.
- Provides a competitive edge in the job market.
- Provides visible demonstration of commitment to the profession and the industry.
- Makes individuals members of a technical community for Microsoft technology and provides greater access to technical information.
- Provides tangible benefits (such as Welcome kit, secure Web site, logos, transcript, career tools, community access, and so on).
- Indicates that the candidate or employee is committed to career advancement and acquiring further computing skills.
- Sets individuals apart with the visual identity associated with certification.

Faculty benefit because certification

- Aligns technical programs with required computing skills.
- Readily identifies specific job roles and associated skill sets.
- Provides a reliable benchmark in addition to a certificate or degree.
- Provides a career development tool.
- Indicates that a student member is committed to acquiring skills and supporting the institution's advancement of technical programs.

Institutions benefit because certification

- Streamlines the recruiting, hiring, and promotion process of faculty.
- Provides a prescreening tool for incoming students.
- Gets students job-ready with the required computing skills.
- Reduces the risk associated with technology deployments.
- Improves staff and faculty retention.
- Provides a reliable benchmark for technical programs.
- Provides a career development tool for students.
- Provides a tangible measure of faculty and staff skill sets.
- Identifies specific job roles and associated skill sets.

Why Students Should Consider Microsoft Certification

The Information Technology (IT) market is rebounding, and tech salaries are going up. Becoming certified on Microsoft products provides actual expertise in technology areas as well as opportunity to begin and advance careers quickly.

- Stand out. A Microsoft credential gives proof of the specific, real-world technology skills employers are looking for today.
- Earn more. IT workers savvy in Microsoft technology earn larger salaries¹ than their IT counterparts, and each Microsoft certification earned takes one further along the path to professional recognition.
- Feel good. Certified individuals can feel more confident in their problem-solving skills and ability to help boost company productivity.²
- Be productive. Certified individuals help increase customer satisfaction, reduce network downtime, and push service to a higher level,² giving organizations a competitive advantage.

Evidence Supporting Certification

November 2006 IDC Study

The study produced by International Data Corporation (IDC), "Value of Certification: Team Certification and Organizational Performance," revealed the following strong facts:

- "Team skill is directly responsible for organizational performance in several key IT functional areas."
- Increasing the concentration of Microsoft-certified team members on a team has a direct impact on team performance.
- "The teams at the top tier of performance have been between 40 percent and 55 percent of their teams certified on relevant Microsoft technologies and processes."

The IDC study asserts that, "This research demonstrates that for each new team member certified, team performance increases. Every time."²

2006 MCP Customer Satisfaction Survey

The 2006 MCP Customer Satisfaction Study found that:

- 63 percent of hiring managers feel that certified individuals are somewhat or far more productive than their noncertified counterparts are.
- 55 percent of hiring managers consider employee certification as a criterion for hiring.
- 46 percent of hiring managers consider employee certification as a factor in consideration for promotion.

A sizeable proportion of survey respondents also felt strongly about whether their employers pay the whole cost or only a partial cost of the exams:

- 68 percent of respondents strongly agree that it is a great benefit when their employer pays the entire cost of the exams as opposed to 36 percent when the employer pays only part.
- 45 percent of respondents strongly agree that exams being wholly paid for by their employer is a strong incentive not to switch jobs versus 36 percent when the employer pays only part.

Burlington Consultants

A 2003 study showed that Microsoft Certified staff helped organizations:

- **Increase overall productivity.** Companies that adopted active learning policies showed a 28 percent increase in productivity.
- **Improve project delivery and deployment.** IT organizations with at least 25 percent Microsoft Certified staff experienced a 15 percent increase in projects deployed on time and within budget.

- **Decrease dependence on external support.** Organizations decreased spending on ad hoc external IT support by 17 percent.
- **Reduce unscheduled downtime.** Downtime frequency decreased 18 percent.

What Others Are Saying About the Value of Microsoft Certification

This Microsoft Learning Web site includes certification case studies. For the full stories, visit <http://www.microsoft.com/learning/customerevidence/default.mspx>.

The Future of Certification

Certification Evolution: Job-Role Certifications for Your Future

A look to the future shows an increased alignment of certification programs with other professional accreditation programs rather than simply with training certifications. Pressure on IT professionals will increase to bring direct value to organizations through their professional certifications. For the full story, visit http://www.certmag.com/articles/templates/CM_gen_Article_template.asp?articleid=2018&zoneid=1.

Job Outlook for Technical Professionals Looking Great

The job outlook for IT professionals from the U.S. Department of Labor's Bureau of Labor Statistics (BLS) is positive. This is an area clearly worth investing time and education in, and certification is a part of that program. The BLS indicates an increase that will be "faster than the average for all occupations through 2014" for Computer Support Specialists, Systems Engineers, Database Administrators, and Computer Software Engineers. For the full report, visit <http://www.bls.gov/oco/reprints/ocor006.pdf>.

Another study produced by IDC, in January 2007, titled "e-Skills — The Key to Employment and Inclusion in Europe," states the following findings about future information and communications technology (ICT) skills and competence needs. This study involved more than 600 employers in 10 European countries.

- It is clear that ICT skills are becoming an important entry ticket to the job market—and crucial for people who want to move into better jobs. This is relevant across both blue-collar and white-collar positions.
- Future demand for skills goes beyond basic skills to advanced and e-business skills and will continue to grow as a majority of staff is expected to possess them.
- Three-quarters of respondents believe that ICT skill levels are crucial for organizations' futures in terms of competitiveness, innovation, and growth.
- Traditional industries such as agriculture and transportation feel the need for and importance of ICT skills as a way to modernize processes and become more competitive.

The most significant message resulting from this study reveals that ICT skills are the entry ticket to the job market, regardless of the country, industry, or job function. Future expectations go beyond basic ICT skills and into more advanced skills, which include proficiencies with specialized applications supporting specific business functions such as accounting or manufacturing software.

The Microsoft Certification Programs

Classic Microsoft Certifications

The Microsoft Certified Professional Program began over 13 years ago with the goal of providing objective validation of the ability to perform critical IT functions successfully for worldwide IT professionals, developers, and information workers. Microsoft certifications represent a rich and varied spectrum of job roles and responsibilities. Further, earning a specific credential provides objective validation of the employee's ability to perform critical IT functions successfully. Embraced by industry professionals worldwide, Microsoft certification remains one of the most effective ways to reach long-term career goals, and it is a reliable way for companies to develop and retain valuable IT staff.

Some of the more popular classic Microsoft certifications include:

- Microsoft Certified Professional (MCP)
- Microsoft Certified Systems Administrator (MCSA)
- Microsoft Certified Systems Engineer (MCSE)
- Microsoft Certified Applications Developer (MCAD)
- Microsoft Certified Solutions Developer (MCS D)

These certification families are structured to encompass product knowledge as well as on-the-job skills that directly correlate to today's IT professions.

The New Generation of Microsoft Certifications

In the fall of 2006, Microsoft announced a new certification structure based on customer and industry feedback. Consisting of three series of exams and four credentials, the new generation of Microsoft certifications provides a simpler and more targeted framework for IT managers to validate core technical skills, professional skills, and architectural skills. It also provides professionals in the IT industry with a more relevant, flexible, and cost-effective way to display their skills.

Microsoft has created the new generation of Microsoft certifications to meet the needs of our customers better. In making the changes, we considered what our customers told us they wanted. Overall, what we heard was that the program needed to be:

- Targeted and flexible.
- Rigorous and credible.
- Relevant and simple.

Structure of the New Generation Certification Exams

There are three series of exams in the new structure:

Exam Series	Exam Credential	Skills Measured
Technology Series	Microsoft Certified Technology Specialist (MCTS)	Validates core knowledge of Microsoft products
Professional Series	Microsoft Certified IT Professional (MCITP)	Validates skills required to be successful on the job, using Microsoft products
	Microsoft Certified Professional Developer (MCPD)	
Architect Series	Microsoft Certified Architect (MCA)	Validates the ability to design and deliver a business solution using Microsoft products

Benefits of the New Generation Certifications

The structure of the new generation certifications provides many benefits to the individual as well as to hiring managers. Technical knowledge is validated in separate exam(s) to provide a baseline measurement of technical expertise. By passing the Technical Series of exam(s), individuals can then display their technical skills independent of a job role. As individuals proceed to the Professional Series of exam(s), job tasks, critical thinking skills, and the ability to implement technical skills on the job are validated. IT hiring managers can gauge the credentials that best meet the needs of their business.

Benefits include:

- Emphasizing a primary skill set and job role to focus on core technical or professional skills.
- Announcement of an upgrade path to the corresponding new generation credentials shortly after a new product or technology is released.
- Shorter paths to targeted certification so employees can acquire credentials more quickly.
- Better validation of the breadth and depth of the employee's knowledge of professional job skills, best practices, and the industry.
- Giving organizations a clear benchmark for deciding how best to use certifications and skill sets in their businesses.
- Easier selection by hiring managers of the best candidates for specific job roles.

New Generation Certifications: FAQ

Answers to some of the top questions that individuals considering certification might ask are located at <http://www.microsoft.com/learning/mcp/newgen/faq/>.

For additional information, visit <http://www.microsoft.com/learning/mcp/newgen/why/>.

Microsoft Business Worker Certifications

Microsoft Office Specialist Certification

Microsoft Office Specialist (MOS) certification, the premier Microsoft desktop computing productivity certification, is a globally recognized standard that validates desktop computer skills. The MOS program is meeting the demand for job-ready people in the global workplace. A recent study revealed that employers are experiencing many benefits by hiring certified employees. Certification offers a positive impact on both an employee's individual capability and his or her ability to work within a team. For example, a third of supervisors believe that MOS-certified employees are more competent and more productive than other employees are. Moreover, MOS-certified employees require less supervision and are able to accept additional responsibilities more often than noncertified employees.

Another research study shows the significant effects of MOS-certified employees on the job.³

Up to 87 percent of employers	Notice increased competency in certified employees.
Up to 83 percent of employers	Feel that their employees who are certified are more productive.
Up to 82 percent of employers	Believe certification directly benefits an organization.

The MOS certifications are available for the Office 2003, Office 2002 (or XP), and Office 2000 applications. The following exams are available:

Microsoft Office 2003

- Microsoft Word Core
- Microsoft Word Expert
- Microsoft Excel[®] Core
- Microsoft Excel Expert
- Microsoft Outlook[®]

Microsoft Access™
Microsoft PowerPoint®
Microsoft Office XP/2002
Microsoft Word Core
Microsoft Word Expert
Microsoft Excel Core
Microsoft Excel Expert
Microsoft Outlook
Microsoft Access
Microsoft PowerPoint
Microsoft Project 2002
Microsoft Office 2000
Microsoft Word Core
Microsoft Word Expert
Microsoft Excel Core
Microsoft Excel Expert
Microsoft Outlook
Microsoft Access
Microsoft PowerPoint
Microsoft Project 2000

For updated information, visit <http://www.microsoft.com/learning/mcp/officespecialist/default.msp>.

Microsoft Business Certifications

With the launch of the 2007 Microsoft Office System comes Microsoft Business Certification, a valuable credential that recognizes the computing skills needed to use the full features of the 2007 Microsoft Office System and Microsoft Windows® Vista. These new business professional credentials will meet information worker needs and the performance requirements that businesses across the globe depend on.

Why Is Certification on 2007 Microsoft Office Products So Important to Students?

As more businesses take advantage of technology, the workplace need for Microsoft Office skills is expected to increase dramatically. Will your students be job-ready when they graduate? Now is your opportunity to enhance your curriculum with Microsoft Business Certification credentials. Certified individuals tap all the features and functionality of 2007 Microsoft Office and Windows Vista and are able to:

- Create powerful, polished, and persuasive documents.
- Connect more effectively through group workspaces, automated alerts, integrated messaging, and Web-based meetings.
- Use innovative workflow tools and electronic forms to reduce manual and unnecessary tasks.
- Take advantage of powerful enterprise search, personalized portals, and easy-to-use business intelligence that make it easier and faster for individuals across organizations to find and use the information they need.

The Growing Need for a Business Certified Workforce

Certification enables employers to fill job vacancies quickly, minimize new-hire ramp-up time, retain the most productive employees, and maximize return on company resources and technology. Further, this new program verifies a wide variety of skills—not only in programs such as Word and Excel but also for specific job functions such as managing budgets and presentations. Employers know that when they hire a Business Certified candidate, they're getting a true 2007 Microsoft Office expert.

Microsoft Business Certification—Perfect for Your Curriculum

Use Microsoft Business Certification as a cost-effective, ready-made module for your courses and offer your students the real-world expertise that businesses want. The new Microsoft Business Certification features three levels of verification that provide a simple framework for skills assessment and validation. They include an entry-level pretest, an Application Specialist credential that identifies program-specific skills, and an Application Professional credential that validates skills in a certain job role or function.

Structure of the Microsoft Business Certifications

Gauge Readiness	Pretests Available/Planned	Exam Credential	Exams Available
Microsoft Official Pretest	Microsoft Word 2007	Microsoft Certified Application Specialist	Microsoft Word 2007
	Microsoft Excel 2007		Microsoft Excel 2007
	Microsoft Outlook 2007		Microsoft Outlook 2007
	Microsoft PowerPoint 2007		Microsoft PowerPoint 2007
	Microsoft Access 2007		Microsoft Access 2007
	Windows Vista		Windows Vista

Earn College Credit with MOS Certification

The American Council on Education (ACE) has recommended MOS certifications for Microsoft Office 2000 and Microsoft Office 2002 for one semester hour of college credit in lower-division computer applications or information technology. ACE recommends one semester credit hour for most certifications.

With the cost per college credit hour ranging from \$275–\$750, high school, vocational school, community college, and four-year college students can save time and money toward a college degree with Office Specialist certification.

ACE maintains a network of more than 1,500 cooperating colleges and universities. Cooperating colleges are accredited colleges that agree to consider students' ACE college credit recommendations. Ultimately, every college and university has the discretion to accept credit for ACE college credit recommendations. Students should contact their institution, or the institution they plan to attend, and inquire about the school's policy.

Interested students must pass an MOS certification exam for one or more Microsoft Office programs and have their certification listed on an ACE transcript. Ultimately, the college or university the student attends (or plans to attend) will decide independently whether to grant credit and waive associated tuition requirements.

For more information regarding ACE college credit for MOS certification on Office products, visit <http://www.microsoft.com/learning/mcp/officespecialist/credit.mspx>.

Integrating Microsoft Certification into Curricula

As mentioned before, IT hiring managers consider Microsoft certification a criterion for their hiring decisions as well as a benchmark for technical skills validation. Encouraging students to obtain a Microsoft certification in addition to their academic credentials can provide more opportunities when seeking employment or advancing their careers. Incorporating the technical skills that map to job roles into curricula can assist students in achieving their certification goals.

The Microsoft ICT Curriculum Roadmap is a tool that shows how Microsoft Learning products can be aligned into curricula to provide the technical skills of today's popular IT job roles. Beginning with

assessing digital literacy, the ICT Curriculum Roadmap chronologically organizes the learning resources available and certification exams that map to several job roles. There are several job roles available: Support Technical, Web/Windows Developer, Database Administrator, Systems Administrator, and Systems Engineer. For more information, visit <http://www.microsoft.com/learning/education/roadmap/default.aspx>.

To see a graphical representation of the ICT Curriculum Roadmap, see Appendix C.

Getting Started: Testing Centers

Introduction

A testing center is a facility where technology-based exams are administered and proctored to ensure quality. A testing center configuration is required to provide a distraction-free, secure testing environment with continuous surveillance of students as they take exams. Students register in advance and receive an appointed time and testing center location for their examination. Some testing centers allow on-site registration and, in some cases, same-day testing. Testing center administrators download exams daily from their Microsoft exam vendor through an Internet connection and administer exams according to the schedule. Exams are time limited and, upon completion, students receive a printout of their success. This section explains in more detail the benefits of becoming a testing center, the setup process, registering for exams, and the voucher program.

Benefits of Becoming a Testing Center

Access to discounted exams	Extends the cost savings on select exams for your students, faculty, and staff (discount amount depends on exam type and geographic location)
On-site testing facility convenient for students, faculty, and staff	Saves time and costs by eliminating the need to travel to another testing center off-site or in another city
Flexible testing center configurations	Creates a public testing center or uses an existing classroom lab for private testing on demand
No application, setup, or renewal fees	No unanticipated expenditures
Volume discounts available	Saves more on exam costs for your testing center (depends on the exam type)

Setting up a Testing Center

Two types of testing centers are available, depending on the type of exams your institution plans to offer. An Authorized Prometric Testing Center (APTC) offers MCP and MCTS exams to the commercial channel, and an Authorized Academic Testing Center (AATC) is an APTC operating at an academic institution. A Certiport Testing Center offers Microsoft Office Specialist and Microsoft Business Certification exams. The following vendors or suppliers can deliver Microsoft certification exams:

Testing Center Type	Exam Type	Exam Vendor or Supplier
APTC and AATC	MCP, MCTS	Prometric
Certiport Center	MOS, MSBC	Certiport, Inc.

In some regions, Prometric test centers at academic institutions are called Authorized Academic Testing Center (AATC).

Each exam vendor has similar requirements for the configuration of the testing room at the APTC/AATC or Certiport Center. Typically, each requires a configured room, a person to administer and proctor the exams, networked computers including a printer, and Internet access. The following are typical requirements for APTC/AATC and Certiport Center testing rooms:

- The testing room must be quiet and free from distractions such as printers, copiers, conversations, and general facility traffic.
- The testing room should be viewable and audible to the exam proctor through a window or video camera.

- The testing room should be pleasantly and ergonomically furnished. The room should be well lighted and must have proper ventilation.
- The testing room must contain no materials (reference texts, posters, and so on) that are related to the subject matter of the tests.
- The testing room and equipment will be dedicated to testing based on a predetermined schedule.
- Each test station will be separated from another by an acoustical partition and located such that no candidate can read the monitor of another candidate.
- The available desktop space at each test station should be at least 3 feet wide by 2 feet deep.
- The testing room must accommodate persons with accessibility needs.
- The testing room must have a secure storage area for test takers' personal items during the testing session.
- File server and printer for test administration software must be maintained by the proctor.

Each Microsoft exam vendor supplies proprietary test center software to APTCs and Certiport Centers that enable them to download and administer scheduled exams along with hardware requirements for the testing stations.

Private or Public Testing Centers

Each Microsoft exam vendor allows the choice to set up a public testing center or to prepare a testing center at will in a private manner. Each configuration has its benefits. A public configuration would be best for administering exams in volume from multiple exam vendors, that is, for instance, Cisco, IBM, Oracle, and so on. If the institution is planning to market its institution as a testing center to the public, the setup should be in a dedicated, stationary room. This configuration requires the room, equipment, and staff to be available and accessible to the public at predetermined hours of operation. Some institutions can enjoy a profit from delivering exams in volume.

A private testing center can use existing classroom lab and equipment to prepare a testing center at will. This configuration is advantageous for at least two reasons. First, an institution can choose a conveniently scheduled day to deliver exams to students. Second, an institution can deliver exams to different areas of the campus as long as the testing room is compliant as in a public room. This is very useful for institutions that prefer to offer their exams close to the end of their academic term.

Test Center Administration and Exam Proctoring

Testing centers will have at least one person who will function as the test center administrator and the primary point of contact with the exam vendor. The administrator is responsible for the day-to-day operations of the test center, including scheduling, downloading exams, reporting, and adhering to policies set forth in the agreement with the exam vendor. Another duty is to proctor the exams. Proctoring is the act of overseeing the exam process and ensuring that the test takers complete their exams with the utmost honesty and integrity. Test center proctors must complete training and agree to operate the testing process in a proper manner. At APTCs and AATCs, the proctor cannot be involved in any activities or actions that might suggest a conflict of interest regarding the content of the tests to be administered. Examples of this include holding an IT industry certification(s) (that is, MCSE), pursuing an IT industry certification while serving as a proctor, or participating in or training a preparatory course for any IT tests delivered on behalf of Prometric and its testing clients. This is to ensure quality and integrity across the program. At Certiport Centers, there are no restrictions on the proctor's certification status. An APTC, AATC, or Certiport Center can have several proctors on campus to provide the flexibility needed to administer all types of Microsoft certification exams.

For detailed information regarding test center requirements, contact a Microsoft exam vendor:

Prometric

Visit <http://www.prometric.com/aptcapp>.

Certiport

Visit http://download.microsoft.com/download/7/1/7/717c48e4-bcef-415b-8cf2-dadd22085a07/ITA_Certiport_testing_quick_start_EMEA.pdf.

Prometric Testing Center Operations (APTC/AATC)

About MCP and MCTS Exams

MCP and MCTS exams are carefully developed, computer-administered exams that measure the ability to perform a specific job function or set of tasks in the real world. Some of the latest exams use a simulation technology in addition to the traditional test items. This methodology is a more effective means of evaluating an individual's ability to perform on the job, thus enhancing the value of MCP credentials in the eyes of hiring and IT managers. It is important that the APTC/AATC meet all hardware requirements of a testing center to ensure that the exams are delivered properly.

APTC vs. AATC

The APTC and the AATC programs are identical; however, as mentioned earlier, the APTC operates in the commercial or retail channel, and the AATC operates in the academic channel. When an academic institution becomes a Prometric Testing Center, it will complete the APTC agreement and, in addition, an AATC addendum if required in its geographic region.

Microsoft Exams Exclusively for Academia

Microsoft designated a subset of certification exams for use in the academic community. These exams are defined as "career enabling" and are most often mapped to the learning objectives of curricula delivered in an academic institution. In some geographic markets, these exams are differentiated from the retail-priced exams by unique prefix numbers:

070 – Commercial exams

072 – Academic exams

The exam content is identical; the purpose of the prefix number is to identify to the test taker and the APTC/AATC whether the exam is an academic exam.

The exams included in this subset are the entry-level MCP exams and all of the new MCTS exams. MCTS exams are identified after the exam number as TS. For a list of 072 exams, see Appendix B. For the current list of MCTS exams, visit <http://www.microsoft.com/learning/mcp/mcts/default.mspx>.

Three MCITP exams are offered at an academic discount. These exams were added to provide a complete exam track to the Support Technician roles on Microsoft Vista. These exams are:

072-621 UPG: Upgrading Your MCDST Certification to MCITP Enterprise Support

072-622 Pro: Microsoft Desktop Support – Enterprise

072-623 Pro: Microsoft Desktop Support – Consumer

In some geographic markets, mostly developing countries, the commercial exams are at the same discounted rate as the academic exams. In these markets, there might not be an additional set of 072 exams.

Discounted MCP and MCTS Exam Vouchers for Academic Exams

AATCs can provide substantial cost savings to their students, faculty, and staff by purchasing exam discount vouchers from Prometric. The cost savings can be up to 50 percent off retail, depending on the geographical location of the AATC. See Appendix A for a price list per geographical area.

An exam voucher is a numerical code that the test taker supplies upon registration for an exam. Exam vouchers expire 12 months from the date of purchase and are non-reusable and non-refundable. Academic discounted vouchers are available for all MCTS exams and a subset of MCP exams.

Ordering MCP and MCTS Academic Exam Vouchers

Only AATCs are eligible to purchase discounted exam vouchers for MCP and MCTS academic exams from Prometric. The minimum required purchase is 10 vouchers per order. Payments for vouchers may be made with a credit card, check, money order, prepaid purchase order, or bank transfer. Payment with a credit card is recommended for fastest service. Usually, voucher orders are completed within one business day of receipt of payment.

The AATC can choose for Prometric to deliver the vouchers electronically by e-mail, or paper vouchers can be sent by mail.

Distributing Academic Exam Vouchers

It is the responsibility of the AATC to distribute the vouchers to qualified students, faculty, and staff members of the AATC's institution. It is expected that the AATC pass on the savings to test takers. Neither Microsoft nor Prometric is responsible for lost, stolen, or expired vouchers. Failure to comply with proper distribution of vouchers can result in the termination of the AATC membership.

Registering for an Academic Exam

To register for an MCP or MCTS academic exam, the test taker can register in one of two ways:

- By contacting the test center administrator at his or her AATC.
- By contacting the Prometric call center. The test taker may choose any APTC testing center location other than his or her AATC at which to schedule the exam.

When registering, the test taker will be required to prove his or her status as a student, faculty member, or staff member to the test center administrator or to the Prometric call center agent.

To pay for the exam, the test taker can supply the voucher number or use a credit card as the payment type. The test taker must supply a valid e-mail address to receive confirmation of his or her exam registration.

On the Day of the Exam

Upon arrival at the testing center, test takers must show two pieces of valid picture identification such as a driver's license, state-issued identification card, student ID, passport, and so on. If available, one of the IDs should be the ID card issued by his or her academic institution. In some geographic locations, students must show the student identification (ID) card issued by their institution before admission to take the exam. If the test taker does not have his or her student ID card, he or she might not be allowed to take the exam and will have to reschedule. If the test taker cannot prove to the testing center administration proof of student, faculty or staff status, forfeiture of the exam fee may result. The test taker is not allowed to bring any materials or personal items into the testing room.

The Test Center administrator or proctor escorts the test taker to the appropriate testing workstation and loads the exam. Upon completion of the exam, the scores will print at the administrator's console. If the test taker passes the exam, Microsoft will e-mail instructions on how to access his or her MCP benefits shortly thereafter.

Certiport Center Operations

About the Exams

Microsoft certification exams on Microsoft Office software products use live applications to provide the most authentic evaluation of the test taker's knowledge, skills, and abilities regarding Microsoft Office applications. This method of testing uses specialized examination software while simultaneously running the actual office applications. MOS certification is available for the following applications; expert-level certifications are available for Word and Excel. Exams are also offered for Microsoft Office 2000, Office XP, Office 2003, and Office 2007.

Registering for a Microsoft Office Specialist or Microsoft Business Certification Exam

Test takers can register in one of two ways: in person or over the phone by calling Certiport. If the test taker is a student of the institution, he or she can register on-site or in person with the Certiport Center test administrator. Alternately, the test taker can use the Certiport Center locator tool at <http://www.certiport.com/Portal/Pages/LocatorView.aspx> to select a Certiport Center.

After selecting a Certiport Center, he or she can call or visit the Certiport Center to schedule an appointment to take an exam.

Academic Discounts

All certification exams delivered through academic Certiport Centers receive a discounted price per exam. The Certiport Center is responsible for informing its students of the academic price and charging accordingly. The discount also applies to the institution's faculty and staff.

Exam Vouchers

Certiport Centers can request MOS or MSBC exams in the form of a voucher purchased directly from Certiport, and the Certiport Center can then distribute vouchers to qualifying students, faculty, and staff. It is up to the discretion of the Certiport Center to pass along academic discounts to the recipients of the voucher.

On the Day of the Exam

The test taker arrives for the exam appointment at the Certiport Center and proves his or her identity by showing photo identification plus proof of student status, which can be proven by showing the Certiport Center administrator or proctor a current student ID or supporting documentation such as a registration receipt. Upon completion of the exam, the test taker receives instant notification of pass or fail. If the test taker passes the exam, he or she will receive an e-mail notification of test scores and, shortly thereafter, a Welcome kit.

Microsoft Certification Exam Practice Tests

Introduction

Practice tests can help one prepare for certification exams. Because many companies sell practice tests, Microsoft has designated Microsoft Certified Practice Test Providers (PTPs) to help MCP and MCTS candidates select the highest-quality products and services. Microsoft performs quality reviews on all PTP practice tests, and only approved PTPs bear the Microsoft Certified Practice Test Provider logo.

In addition to practice tests, PTP services include the following benefits:

- Exam results that are reported by objective
- Feedback for each question with study suggestions
- Large question pools with a random presentation of question and answer choices

PTP practice tests help assess knowledge and readiness for MCP exams. PTP practice tests do not predict future exam scores, but the feedback they offer can help identify areas in which additional study, training, or hands-on work experience might be helpful.

MeasureUP

MeasureUp products provide a complete set of preparation tools using innovative technology that prepares you for exam day. In support of its practice tests, MeasureUp offers the following benefits:

- A Test Pass guarantee
- Online, CD-ROM, and download delivery modes
- Multiple test modes
- References to Official Microsoft Learning Products
- Detailed explanations for correct and incorrect answers
- A full test history

For more information, visit <http://www.measureup.com/site/microsoft.asp>.

Note: MeasureUp's 70-290 and 70-291 online practice tests feature a variety of performance-based simulations that reflect the actual performance-based simulations that are included in the Microsoft exams.

Self Test Software

Self Test Software products are based on Official Microsoft Learning Products. They simulate the complexity of the real exam and help assess exam preparedness. In support of MCP exams, Self Test Software offers:

- Learning and certification modes of study
- In-depth tutorials that explain correct and incorrect answers
- Test history to track progress over time
- Score reporting by objective to focus on weak areas
- Free, integrated flash cards to use as drills on key concepts
- Free, round-the-clock Internet chat access to a live mentor
- Customizable interface to facilitate study according to individual needs
- The latest simulation items with in-depth explanations that detail the available completion paths and explain why those paths are correct

For more information, visit <http://www.selftestsoftware.com/>.

Microsoft Certified PTPs offer free demo versions of their practice tests.

Additional Resources

Microsoft Learning

www.microsoft.com/learning

Microsoft Certification

www.microsoft.com/learning/MCP

Microsoft IT Academy

www.microsoftitacademy.com

Prometric

www.prometric.com

<http://www.prometric.com/APTCApp/default.htm>

For Microsoft AATC Information, call 1-800-617-3926 (United States only).

Certiport

www.certiport.com

MeasureUP

<http://www.measureup.com/site/microsoft.asp>

Self Test Software

<http://www.selftestsoftware.com/>

Frequently Asked Questions

1. How can my institution set up a testing center?

First, determine which type of Microsoft exams you will offer. Classic and New Generation Microsoft exams are offered worldwide exclusively through Prometric. MOS and MCAS exams are offered worldwide through Certiport. (For contact information, see the preceding “Additional Resources” section.) If you plan to offer all, you will need to set up an AATC and a Certiport Center. Then, determine your exam volume. If you will offer Microsoft exams only to your enrolled students, faculty, and staff, consider setting up a private testing center. In most cases, you can use existing classroom lab equipment and schedule your exams convenient to your institution’s schedule. For example, schedule the last two weeks of your semester or quarter for Microsoft exam testing. The test center administrator or proctor can register test takers on-site in advance and download the scheduled exams each morning. Make sure your proctor or administrator checks for any testing center software updates before you register students.

2. What is the difference between an APTC and AATC?

The APTC (Authorized Prometric Testing Center) and AATC (Authorized Academic Testing Center) operate in the same manner. Both offer Microsoft exams, use a test center administrator and proctor, and have the same test center configuration requirements. The only difference is that academic institutions that want to purchase discount exam vouchers need to complete the AATC addendum. This is an additional agreement describing the protocol for ordering and redeeming discount exam vouchers. In some geographic regions, the AATC addendum is not required. Contact Prometric for more information.

3. Who is eligible to receive discounted exams?

Full-time or part-time enrolled students and full-time or part-time staff and faculty are eligible to enjoy discounted pricing on Microsoft exams. In some geographical areas, the savings can be up to 50 percent off the retail price.

4. How do I pass the savings on to my students, faculty, and staff?

To offer discounted exams (where available), your institution must purchase exam discount vouchers from the Microsoft exam vendor (Prometric or Certiport). The institution must re-sell the voucher to the eligible participant. The AATCs follow pricing guidelines set by Microsoft (see Appendix A). Certiport Centers are responsible for setting the resale price to the test taker.

5. How does a test taker register using the voucher?

The test taker can register on-site with the testing center administrator or proctor of his or her AATC or Certiport Center, or he or she may register by phoning the appropriate call center. For the payment method, the test taker must provide the voucher number obtained by his or her AATC or Certiport Center.

6. What happens if the voucher is lost?

Microsoft, Prometric, nor Certiport is responsible for lost vouchers.

7. Can the test taker register for a Microsoft exam online?

Currently, the registration process for using vouchers is in person at the AATC or Certiport Center or by phoning the call center.

8. Can an AATC or Certiport Center sell a voucher to a student, staff, or faculty member who is not enrolled nor an employee at their institution?

Yes, and the AATC or Certiport Center is responsible for verifying the test taker’s student, faculty or staff status. When the test taker arrives on-site to take the exam, the AATC or Certiport Center must request proof of enrollment, such as a photo student ID, at an academic institution.

9. Can test takers take their exams at nonacademic test sites?

Yes. After obtaining the voucher from his or her AATC or Certiport Center, the test taker can call the exam vendor’s call center to register for an exam at any testing center.

10. Who is eligible to become a proctor?

Any employee of the institution can become a test proctor. Prometric and Certiport have a training and approval process for obtaining proctor status. Anyone who has a Microsoft certification is working toward a Microsoft certification, or who was involved in the education process of the test taker is not eligible to be an AATC proctor. This is to ensure quality and integrity across the program. For Certiport Centers, this requirement is waived.

11. How many proctors should I have?

That will depend on the number of testing centers you have at your institution. It is recommended to staff several proctors as backup.

12. If my institution decides to offer exams only to our employees and students and we have several campuses, can we set up a private testing center on each campus?

Yes, and you have a few options. If you need to have all campuses operating a private test center during the same date ranges, you will need to set up a test center for each campus. For example, if you have three campuses and you plan to offer Microsoft exams during the last two weeks of your semesters, you should apply for three test centers with Prometric, Certiport, or both. You'll need three compatible classroom labs, three proctors, and so on.

If you have separate date ranges for each campus, you can apply for one test center and schedule it accordingly, as long as the available dates are different, for example, if your institution has three campuses and one test center. You can publish separate dates for each campus and then prepare a compatible classroom at each campus, according to the schedule. In this example, you can have one proctor and a testing center for each of your campuses.

13. Why did Microsoft decide to transition to one MCP exam vendor, Prometric?

You can read a complete article about this at <http://www.prometric.com/Microsoft/faq/>.

14. Does my institution need to be a member of the Microsoft IT Academy program to offer Microsoft exams?

No, membership with the Microsoft IT Academy program is not a requirement to becoming an AATC or Certiport Center. However, membership brings a wealth of benefits related to your institution's technical curriculum and offerings, such as discounts on courseware, software licenses for classroom instruction, free Microsoft e-learning, and a variety of instructional resources. For more information, visit www.microsoftitacademy.com.

15. Where can I read more about Certiport Centers?

For additional frequently asked questions regarding Certiport Centers, visit <http://www.microsoft.com/learning/mcp/officespecialist/faq.msp>.

Appendixes

Appendix A

Following is the MCP and MCTS academic exam pricelist per country. Prices are subject to change at any time.

Country	Country code	Retail price
NORTH AMERICA		
UNITED STATES	USD	125 USD
CANADA	CAN	125 USD
LATIN AMERICA		
ARUBA	ABW	80 USD
ARGENTINA	ARG	80 USD
BAHAMAS	BHS	80 USD
BARBADOS	BRB	80 USD
BERMUDA	BMU	80 USD
BOLIVIA	BOL	80 USD
BRAZIL	BRA	80 USD
CAYMAN ISLANDS	CYM	80 USD
CHILE	CHL	80 USD
COLOMBIA	COL	80 USD
COSTA RICA	CRI	80 USD
DOMINICAN REPUBLIC	DOM	80 USD
ECUADOR	ECU	80 USD
EL SALVADOR	SLV	80 USD
GRENADA	GRD	80 USD
GUATEMALA	GTM	80 USD
GUYANA	GUY	80 USD
HAITI	HTI	80 USD
HONDURAS	HND	80 USD
JAMAICA	JAM	80 USD
MEXICO	MEX	80 USD
NETHERLANDS ANTILLES	ANT	80 USD
PANAMA	PAN	80 USD
PARAGUAY	PRY	80 USD
PERU	PER	80 USD
PUERTO RICO	PRI	80 USD
SAINT LUCIA	LCA	80 USD
SURINAME	SUR	80 USD
TRINIDAD & TOBAGO	TTO	80 USD
URUGUAY	URY	80 USD
VENEZUELA	VEN	80 USD

WESTERN EUROPE		
AUSTRIA	AUT	140 EUR
BELGIUM	BEL	140 EUR
DENMARK	DNK	125 USD
ENGLAND	GBR	88 GBP
FINLAND	FIN	140 EUR
FRANCE	FRA	140 EUR
GERMANY	DEU	140 EUR
ICELAND	ISL	88 GBP
IRELAND	IRL	140 EUR
ITALY	ITA	140 EUR
LUXEMBOURG	LUX	140 EUR
NETHERLANDS	NLD	140 EUR
NORWAY	NOR	88 GBP
PORTUGAL	PRT	140 EUR
SPAIN	ESP	140 EUR
SWEDEN	SWE	88 GBP
SWITZERLAND	CHE	215 CHF
EASTERN EUROPE		
ALBANIA	ALB	50 USD
AZERBAIJAN	AZE	50 USD
BELARUS	BLR	50 USD
BOSNIA HERZEGOVINA	BIH	50 USD
BULGARIA	BGR	50 USD
CROATIA	HRV	50 USD
CZECH REPUBLIC	CZE	80 USD
ESTONIA	EST	50 USD
GEORGIA	GEO	50 USD
HUNGARY	HUN	80 USD
KAZAKHSTAN	KAZ	50 USD
LATVIA	LVA	50 USD
LITHUANIA	LTU	50 USD
MACEDONIA	MKD	50 USD
MOLDOVA	MDA	50 USD
POLAND	POL	80 USD
ROMANIA	ROU	50 USD
RUSSIA	RUS	50 USD
SLOVAKIA	SVK	80 USD
SLOVENIA	SVN	80 USD
UKRAINE	UKR	50 USD
UZBEKISTAN	UZB	50 USD
YUGOSLAVIA	MKD	50 USD

AFRICA/MIDDLE EAST		
ANGOLA	AGO	80 USD
ALGERIA	DZA	56 EUR
BAHRAIN	BHR	35 GBP
BOTSWANA	BWA	56 GBP
CAMEROON	CMR	90 EUR
CAPE VERDE	CPV	56 GBP
COTE D'IVOIRE (IVORY COAST)	CIV	90 EUR
CYPRUS	CYP	35 GBP
EGYPT	EGY	35 GBP
ETHIOPIA	ETH	56 GBP
GABON	GAB	90 EUR
GHANA	GHA	56 GBP
GIBRALTER	GIB	56 GBP
GREECE	GRC	90 EUR
ISRAEL	ISR	35 GBP
JORDAN	JOR	35 GBP
KENYA	KEN	56 GBP
KUWAIT	KWT	56 GBP
LEBANON	LBN	35 GBP
LESOTHO	LSO	56 GBP
MADAGASCAR	MDG	56 GBP
MALAWI	MWI	56 GBP
MALTA	MLT	35 GBP
MAURITIUS	MUS	56 GBP
MOROCCO	MAR	90 EUR
MOZAMBIQUE	MOZ	56 GBP
NAMIBIA	NAM	56 GBP
NIGERIA	NGA	56 GBP
OMAN	OMN	56 GBP
QATAR	QAT	56 GBP
REUNION	REU	56 GBP
SAUDI ARABIA	SAU	56 GBP
SENEGAL	SEN	90 EUR
SEYCHELLES	SYC	56 GBP
SOUTH AFRICA	ZAF	669 ZAR
SYRIA	SYR	56 GBP
SWAZILAND	SWZ	669 ZAR
TANZANIA	TZA	56 GBP
TOGO	TGO	56 GBP
TUNISIA	TUN	90 EUR
TURKEY	TUR	35 GBP
UGANDA	UGA	56 GBP
UNITED ARAB EMIRATES	ARE	56 GBP
ZAMBIA	ZMB	80 USD
ZIMBABWE	ZWE	56 GBP

SOUTH PACIFIC RIM		
AUSTRALIA	AUS	180 AUD
FIJI	FJI	180 AUD
GUAM	GUM	125 USD
NEW CALEDONIA	NCL	180 AUD
NEW ZEALAND	NZL	205 NZD
PAPUA NEW GUINEA	PNG	180 AUD
VANUATU	VUT	180 AUD
SOUTH EAST ASIA		
BRUNEI DARUSSALAM	BRN	125 USD
INDONESIA	IDN	500,000 INR
MALAYSIA	MYS	300 INR
PHILIPPINES	PHL	80 USD
SINGAPORE	SGP	225 SGD
THAILAND	THA	2200 THB
VIETNAM	VNM	50 USD
FAR EAST ASIA		
CHINA	CHN	50 USD
HONG KONG	HKG	625 HKD
JAPAN	JPN	15000 JPY
MACAU	MAC	640 MOP
REPUBLIC OF KOREA	KOR	80 USD
TAIWAN	TWN	80 USD
INDIAN SUB CONTINENT		
BANGLADESH	BGD	50 USD
INDIA	IND	50 USD
NEPAL	NPL	50 USD
PAKISTAN	PAK	50 USD
SRI LANKA	LKA	50 USD
NOTES		
<ul style="list-style-type: none"> • Beta-exam pricing and availability are established on an exam-by-exam basis. • Local currency prices may be rounded to even denominations and are subject to change. 		

Appendix B

As of fall 2007, the following is a list of MCP and MCTS exams available for discounts. Please note that all Microsoft Technical Specialist (TS) exams are available for discounts. For a current list of MCTS exams, visit <http://www.microsoft.com/learning/mcp/mcts/default.mspx>.

In some countries, the 072 exams are not available.

Exam Number	Languages	Title
Microsoft Certified Application Developer (MCAD)		
072-229	ENU, JPN, DEU, FRA	Designing and Implementing Databases with Microsoft SQL Server 2000 Enterprise Edition
072-230	ENU, JPN, DEU, FRA	Designing and Implementing Solutions with Microsoft BizTalk Server 2000 Enterprise Edition
072-234	ENU, JPN, DEU, FRA	Designing and Implementing Solutions with Microsoft Commerce Server 2000
072-235	ENU, JPN, DEU, FRA	TS: Developing Business Process and Integration Solutions Using BizTalk Server 2006
072-305	ENU, JPN, DEU, FRA	Developing and Implementing Web Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET
072-306	ENU, JPN, DEU, FRA	Developing and Implementing Windows-based Applications with Microsoft Visual Basic .NET and Microsoft Visual Studio .NET
072-310	ENU, JPN, DEU, FRA	Developing XML Web Services and Server Components with Microsoft Visual Basic .NET and the Microsoft .NET Framework
072-315	ENU, JPN, DEU, FRA	Developing and Implementing Web Applications with Microsoft Visual C# .NET and Microsoft Visual Studio .NET
072-316	ENU, JPN, DEU, FRA	Developing and Implementing Windows-based Applications with Microsoft Visual C# .NET and Microsoft Visual Studio .NET
072-320	ENU, JPN, DEU, FRA	Developing XML Web Services and Server Components with Microsoft Visual C# and the Microsoft .NET Framework
072-330	ENU, DEU, FRA, JPN	Implementing Security for Applications with Microsoft Visual Basic .NET
072-340	ENU, DEU, FRA	Implementing Security for Applications with Microsoft Visual C# .NET
Microsoft Certified Desktop Support Technician (MCDST)		
072-271	ENU,RUS	Supporting Users and Troubleshooting a Microsoft Windows XP Operating System
072-272	ENU,RUS	Supporting Users and Troubleshooting Desktop Applications on a Microsoft Windows XP Operating System
072-620	ENU	
072-621	ENU, ESP, DEU, CHS	UPG: Upgrading your MCDST Certification to MCITP Enterprise Support
072-622	ENU, RUS, KOR, FRA, ITA, DEU, ESP, BPT, GCR, CHT	Pro: Microsoft Desktop Support – Enterprise
072-623	ENU,FRA,ESP,DEU, JPN	Pro: Microsoft Desktop Support – Consumer

Microsoft Certified Systems Administrator (MCSA)		
072-086	ENU, JPN	Implementing and Supporting Microsoft Systems Management Server 2.0
072-089	ENU	Designing, Implementing, and Managing a Microsoft Systems Management Server 2003 Infrastructure
072-210	ENU, JPN, DEU, FRA, ESP, BPT, KOR	Installing, Configuring, and Administering Microsoft Windows 2000 Professional
072-214	ENU, JPN, DEU, FRA	Implementing and Administering Security in a Microsoft Windows 2000 Network
072-215	ENU, JPN, DEU, FRA, ESP, BPT, KOR	Installing, Configuring, and Administering Microsoft Windows 2000 Server
072-216	ENU, JPN, DEU, FRA, ESP, BPT, KOR	Implementing and Administering a Microsoft Windows 2000 Network Infrastructure
072-218	ENU, JPN, DEU, FRA, ESP, BPT, KOR	Managing a Microsoft Windows 2000 Network Environment
072-224	ENU, JPN, DEU, FRA, ESP, BPT, KOR	Installing, Configuring, and Administering Microsoft Exchange 2000 Server
072-227	ENU, JPN, DEU, FRA	Installing, Configuring, and Administering Microsoft Internet Security and Acceleration (ISA) Server 2000, Enterprise Edition
072-228	ENU, JPN, DEU, FRA, ESP, BPT, KOR	Installing, Configuring, and Administering Microsoft SQL Server 2000 Enterprise Edition
072-270	ENU, JPN, DEU, FRA, ESP, BPT, KOR	Installing, Configuring, and Administering Microsoft Windows XP Professional
072-284	ENU, FRA, DEU, JPN, ESP	Implementing and Managing Microsoft Exchange Server 2003
072-290	ENU, JPN, DEU, FRA, ESP, BPT, KOR, GCR	Managing and Maintaining a Microsoft Windows Server 2003 Environment
072-291	ENU, JPN, DEU, FRA, ESP, BPT, KOR, GCR	Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure
072-292	ENU, JPN, DEU, FRA, ESP, BPT, KOR	Managing and Maintaining a Microsoft Windows Server 2003 Environment for an MCSA Certified on Windows 2000
072-299	ENU, FRA, DEU, JPN, ESP	Implementing and Administering Security in a Microsoft Windows Server 2003 Network
072-350	ENU	Implementing Microsoft Internet Security and Acceleration (ISA) Server 2004

Appendix C



ICT Curriculum Roadmap: Pathways to Success

<http://www.microsoft.com/learning/education/roadmap/>



© Copyright 2007 Microsoft Corporation. All rights reserved.

References

- ¹ “Redmond Salary Survey.” *Redmond Magazine*, September 2006.
<http://redmondmag.com/salariesurveys/>.
- ² “The Value of Certification: Team Certification and Organizational Performance.” IDC Document #204360, November 2006. http://download.microsoft.com/download/6/3/1/6315f09a-3c1f-4695-b423-db2b56005682/204360_Final_IDC.pdf.
- ³ Anderson, Cushing. “Preventing Bad Hires: The Value of Objective Pre-Assessment.” IDC white paper, January 2007.