

**Testimony of Robert Cresanti
Vice President, Public Policy
Business Software Alliance**

**before the
House Committee on Government Reform
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Good afternoon. My name is Robert Cresanti. I am Vice President, Public Policy of the Business Software Alliance.¹ The Business Software Alliance is an association of the world's leading software companies. BSA's members create approximately 90% of the office productivity software in use in the U.S. and around the world.

I thank the Committee for the opportunity to testify here today. The theft of intellectual property, commonly known as "piracy," is a matter of great concern to the business software industry. Piracy costs the industry billions of dollars in lost revenues each year. It reduces investment in creativity and innovation. And it harms national economies including our own.

In my testimony, I will give a brief overview of the contributions that the business software industry has made and continues to make to the global economy and to describe how piracy has undermined those contributions. I will next describe the evolving challenges the software industry faces with respect to piracy and explain the steps industry is taking to address these challenges. Finally, I will summarize the lessons that we have learned regarding how best to end piracy both here at home and abroad, including certain steps the government can take to more effectively stem the tide of piracy.

First, I want to thank the members of the Committee for holding this hearing. BSA and each of its member companies commend you for recognizing the software industry's important contributions to the global economy and the serious threat posed to the industry by software piracy.

Software Industry Contributions and the Impact of Piracy

Information technology has changed the world in which we live. It has made us more efficient, more productive and more creative. Software has been at the heart of this technology revolution. Software facilitates the dissemination of knowledge, drives

¹*The Business Software Alliance (www.bsa.org) is the foremost organization dedicated to promoting a safe and legal digital world. BSA is the voice of the world's commercial software industry and its hardware partners before governments and in the international marketplace. Its members represent one of the fastest growing industries in the world. BSA programs foster technology innovation through education and policy initiatives that promote copyright protection, cyber security, trade and e-commerce. BSA members include Adobe, Apple, Autodesk, Avid, Bentley Systems, Borland, Cisco Systems, CNC Software/Mastercam, Dell, Entrust, HP, IBM, Intel, Internet Security Systems, Intuit, Macromedia, McAfee, Microsoft, RSA Security, SolidWorks, Sybase, Symantec, UGS and VERITAS Software.*

global communication and promotes continued innovation. It helps us to solve problems and generate new ideas, gives us the power to create and to collaborate and fosters self-expression in a range of spheres.

The software industry has also proven to be a remarkable engine for global economic growth. A recent economic survey (Attachment A) by IDC, the leading firm doing economic research and analysis for the information technology industry, reports that worldwide the IT sector employs more than nine million people in high-wage, skilled jobs, raises more than \$700 billion in taxes annually and contributes nearly a trillion dollars each year to global economic prosperity. Between 1996 and 2002, the IT sector grew 26%, creating 2.6 million new jobs and adding a cumulative \$6 trillion to economies around the world. Each year, the packaged software sector alone contributes \$180 billion to the global economy.

This sector has yet to reach its full economic potential. This is due, in large part, to piracy. BSA has been releasing estimates of unauthorized use of software for over ten years. Because the market for software has changed over that time, this year BSA contracted with IDC to update and revise our study (Attachment B). After more than six months of research, IDC's results present what we believe to be an accurate landscape of software theft in the global marketplace. It is based on market data and in-the-field interviews with 5,600 industry professionals in 15 countries. With ongoing coverage of hardware and software markets in more than 65 countries, IDC had a broad and deep information base from which to develop piracy rates. They undertook a straightforward market measurement.

Last year, the world spent more than \$50 billion for commercial packaged software that runs on personal computers. Yet, IDC concluded that software worth almost \$80 billion was actually installed. For every two dollars' worth of software purchased legitimately, one dollar's worth was obtained illegally. As a result, IDC estimated a global piracy rate of 36 percent in 2003, with a U.S. rate of 22 percent.

Nearly one in every four copies of software in use in this country today, valued at nearly \$6.5 billion, is stolen. Globally, more than one out of every three copies of software in use – nearly \$29 billion worth – is stolen. There are few industries that could endure theft of its products at this level.

Of course, the impact of piracy extends beyond lost sales. Pirates steal jobs and tax revenues as well as intellectual property. The IDC economic impact survey cited above found, as a general rule, that there is an inverse relationship between software piracy rates and the size of the IT sector as a share of the gross domestic product. As piracy is reduced, the software sector grows. This creates a ripple effect that stimulates other parts of the IT sector and of the economy overall. The equation is a basic one: the lower the piracy rate, the larger the IT sector and the greater the benefits. Putting this into real numbers, the IDC survey concludes that a 10 point reduction in the global piracy rate between 2002 and 2006 could deliver 1.5 million new jobs, \$64 billion in taxes and \$400 billion in new economic growth. In North America alone, benefits would include 145,000 new jobs, \$150 billion in additional economic growth and more than \$24 billion in tax revenues.

Reducing piracy delivers indirect benefits as well. Society benefits from new technological innovations. Consumers benefit from more choices and greater competition. Internet users benefit from new ways of communication and expanded

creative content made available online. And national economies benefit from enhanced productivity leading to higher standards of living.

Piracy: Defining the Problem

In its simplest terms, "software piracy" generally refers to the reproduction or distribution of copyrighted software programs without the consent of the copyright holder. Piracy of software can take several forms:

- **Organizational end-user piracy**

The business software industry's worst piracy problem traditionally has involved its primary users – large and small corporate, government and other enterprises – that pirate our members' products by making additional copies of software for their own internal usage without authorization. We commonly refer to this activity as "organizational end-user piracy."

Organizational end-user piracy occurs in many different ways. In what is perhaps the most typical example, a corporate entity will purchase one licensed copy of software, but will install the program on multiple computers. Other forms of end-user piracy include copying disks for installation and distribution, in violation of license terms; taking advantage of upgrade offers without having a legal copy of the version to be upgraded; acquiring academic or other restricted or non-retail software without a license for commercial use; and swapping disks in or outside the workplace. Client-server overuse – when too many employees on a network have access to or are using a central copy of a program at the same time, whether over a local area network (LAN) or via the Internet – is another common form of end-user piracy.

Organizational end-user piracy goes on in enterprises large and small, public and private. While corporate end-user pirates do not generally make copies for resale or commercial distribution, they nonetheless receive an unfair commercial advantage because the money that they save on legitimate software licenses reduces their operating costs and increases the profitability of their enterprise. In many cases, the piracy is attributable to negligence and poor asset management practices. Enterprises can also be victimized by unscrupulous computer manufacturers and dealers who install copies of software onto the internal hard drive of the personal computers they sell without authorization from the copyright holder. In some cases, however, organizational end-user piracy is undertaken willfully, with management fully aware and supportive of the conduct.

- **Counterfeiting**

Counterfeit software continues to pose a serious problem for BSA's members. The most flagrant software counterfeiters produce CD-ROMs that look very similar to those of the software publisher. These counterfeit CD-ROMs often bear reproductions of the manufacturer's logo and other labeling, and are distributed with counterfeit packaging, manuals, security features and other documentation. Sophisticated counterfeiters often replicate these CD-ROMs at dedicated pirate facilities, using the same type of equipment and materials used by legitimate software manufacturers. A single CD-ROM replication facility can produce more than a million discs every day, at a per unit cost of less than two dollars. In other cases, counterfeit CD-ROMs have been

traced to "legitimate" replicating plants that have contracted directly with counterfeiters.

Over the past several years, BSA has seen a dramatic increase in the amount of high quality counterfeit software imported into the U.S. from overseas, especially from Asia. International counterfeiting rings have become even more sophisticated in their methods of producing "look alike" software and components. For example, raids in Hong Kong uncovered evidence of advanced research and development laboratories where counterfeiters reverse-engineered the security features of at least one member company's software media. These activities are often connected with serious criminal organizations, as investigations in Asia, Europe, and Latin America have revealed. Indeed, evidence suggests that proceeds of counterfeiting have been used to fund terrorist groups. Compared to other similarly lucrative crimes like narcotics trafficking or arms dealing, software piracy is easy to pursue and low-risk; chances of getting caught are slim and, if caught, penalties are often light.

Compilation CD-ROMs also pose a problem. These CDs typically contain a large selection of software programs published by different software companies. Compilation CDs are typically sold for very little money (relative to the value of the legitimate software) at swap meets, flea markets, mail order houses, and over Internet auction and software web sites. Compilation software can be replicated using a relatively inexpensive (less than \$1000) CD recorder which, when connected to a personal computer, employs a laser to "burn" installed software programs onto a blank disc. Although compilation CDs do not exactly replicate the packaging and logos of genuine software, unsophisticated consumers are often led to believe that compilation CDs are legitimate promotional products.

- **Internet piracy**

The Internet is the future of global communication and commerce. It creates tremendous opportunities for faster, more efficient and more cost-effective distribution of information, products and services across the globe. As technology innovators, BSA's members are at the forefront of these developments. Software is not only sold and delivered over the Internet, but also comprises a key component of the Internet infrastructure and provides the basic tools used to offer virtually any good or service online.

Unfortunately, in addition to creating significant social and economic opportunities, the borderless and anonymous character of the Internet makes it an ideal forum to engage in criminal conduct. As we have seen, the emergence of the Internet has added a new dimension to software piracy by permitting electronic sales and transmission of illegal software on a global scale. Instead of pirated copies being sold one at a time, millions of pirated copies can be downloaded every day. Geography no longer matters. A pirate based in Washington, D.C. can sell to someone in Australia or Norway with ease. Internet users can readily employ a search engine to find both legitimate and illegitimate sellers of software and the resulting transaction can take place in the privacy of their home or office. The ability of Internet pirates to hide their identities or operate from remote jurisdictions often makes it difficult for right holders to find them and to hold them accountable.

Over the past two years, BSA's Internet investigators have witnessed the global spread and growth in the online piracy of software. Today, computer users can and do download infringing copies of BSA members' products from hundreds of thousands of

locations on the Internet – from websites in China to shared folders on peer-to-peer systems in France. Pirated software is available on auction sites in Brazil and is offered through spam email solicitations that originate in Russia. To cite but one figure, during the month of February, BSA's Internet crawler system identified 173,992 infringing software programs being offered in 149 different countries.

There are three primary forms of Internet piracy: (i) the transmission and downloading of digitized copies of pirated software, through web sites, IRC channels, newsgroups and peer-to-peer systems; (ii) the advertising and marketing of pirated software on auction and mail order sites and through e-mail spam, involving delivery on physical media through the mails or other traditional means; and (iii) the offering and transmission of codes or other technologies used to circumvent copy-protection security features. There are, of course, many variations on these general themes. All of these activities cause significant harm to our industry, as they do to other creative sectors.

Among these variants of Internet piracy, peer-to-peer piracy (P2P) has been the subject of significant public debate over the past two years. BSA takes P2P piracy very seriously. We are engaged in concerted action to address this threat. While BSA and its members deplore this activity, however, we believe it is essential to distinguish the illegal uses of the technology from the technology itself. There is no doubt that P2P technologies have been abused to spread illegal content including pirated software, pornography and personal information. At the same time, however, P2P technologies have also created exciting new opportunities for legitimate users. One of the earliest examples of P2P technology is the SETI@Home project, which uses over 4 million computers worldwide to search radio signals captured from space for signs of intelligent life. Stanford is using P2P technology to help find cures for diseases such as Alzheimer's, cystic fibrosis and BSE (mad cow disease). Software companies are also looking to P2P technologies to undertake routine tasks such as distributing updates for installed software including anti-virus and firewall software; in this way, software can be constantly updated in response to new Internet threats.

- **Industry Efforts against Piracy**

The Business Software Alliance and its individual members devote significant financial and human resources to preventing piracy worldwide. Our efforts are multi-faceted.

First, we are engaged in extensive educational efforts, designed to increase public understanding of the value of intellectual property and to improve overall awareness of copyright laws, on a global basis. For example, earlier this year BSA launched "Netrespect," a free educational resource to encourage responsible Internet behavior among young people. This initiative first rolled out in Ireland, responds to a growing need to promote cyber-education, beginning with encouraging teenagers to value creativity, respect intellectual property and practice responsible computer behavior. In addition to our broad-reach educational campaigns, BSA offers many tools to facilitate compliance. Among other resources, we provide guides and technologies that assist end-users in ensuring that their installed software is adequately licensed. We likewise offer tips to consumers so that they can be confident that the software they acquire on-line is legitimate.

Second, we work closely with national and international bodies to encourage adoption of laws that strengthen copyright protection and promote an environment in which the software industry can continue to innovate. BSA has provided input into the most important international agreements protecting intellectual property, including the

World Intellectual Property Organization's Copyright Treaty and the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). We are active at the national level as well, both in the area of law reform and through the provision of training and other assistance to public authorities including police, prosecutors and judges. And we have worked directly with governments worldwide, including the U.S. Government, to adopt and implement software asset management programs in order to prevent software piracy in the public sector and to set an example for the private sector to follow.

Finally, where appropriate, BSA undertakes enforcement actions against those involved in the unlawful use, distribution or sale of its members' software. On the Internet, for example, BSA conducts a far-reaching "notice and takedown" program. Operating on the basis of referrals from members, complaints from consumers and infringing activity identified through our own proactive searches, BSA's team of Internet investigators identifies infringing sites and takes action to have these sites removed or disabled. Last year alone, BSA sent over 170,000 notices to Internet service providers. BSA's members have also filed suit against individuals offering pirated software for free download and over auction sites. BSA also engages in civil litigation against corporate end-users who are using our members' products without authorization. To this end, and consistent with the WTO TRIPs Agreement, we conduct civil "ex parte" (surprise) searches against corporate targets across the globe. We also work closely with local, national and international law enforcement bodies to protect the intellectual property rights of our members.

Technology plays a role in protecting intellectual property rights as well. Content owners must take responsibility to ensure that their works are not easily subject to theft, rather than rely wholly on others to protect their intellectual property. Accordingly, BSA's members have invested hundreds of millions of dollars and thousands of engineering hours in developing technologies to protect content and intellectual property. Our companies have worked diligently, voluntarily and cooperatively with content providers and consumer electronics companies to create systems that will foster the legitimate distribution of digital content. Experience clearly demonstrates, however, that there is no silver bullet technological solution that will solve the problem of piracy. Nor are government mandates the answer. Technology develops most effectively in response to market forces; government mandates would stifle innovation and retard progress.

The Role of Government

Of course, the government does have an essential role to play. Domestically, the investigation and prosecution of IPR-related offenses, using the legal tools provided by Congress, is a vital complement to our own enforcement efforts. We look to the government to continue to expand its IP law enforcement activities here at home. Internationally, the software industry looks to the U.S. government to persuade foreign governments to commit to protect and enforce intellectual property rights, and to ensure that these countries meet their commitments.

Domestic

Software piracy in the United States is a serious problem – make no mistake. Even though the piracy rate in the U.S. compares favorably with most other parts of the

world, it still represents a loss of nearly six and a half billion dollars annually for our industry.

Investigation and prosecution of copyright piracy is an essential part of the solution to this problem. BSA commends the Department of Justice for its increased emphasis on IPR and cybercrime enforcement. So far this year DOJ has carried out two major operations against Internet piracy: Operation Fastlink, which targeted warez sites in the 27 U.S. states and 10 foreign countries; and Operation Digital Gridlock, which targeted illegal P2P file sharing activities in Texas, New York and Wisconsin. Attorney General Ashcroft's announcement in March of a new Intellectual Property Task Force under the leadership of David Israelite, Deputy Chief of Staff and Counselor to the Attorney General, is another important affirmation of DOJ's commitment to fighting domestic and international piracy and counterfeiting.

As I have already mentioned, Internet piracy is one of the major areas of concern for BSA's members. Congress has wisely enacted legislation that criminalizes online distribution of pirated software and increases penalties for Internet piracy. To ensure that these laws have real impact, U.S. law enforcement agencies have elevated the priority given copyright offenses including Internet piracy, resulting in important prosecutions against criminal pirates and counterfeiters. Following on these measures, the number of Americans on the Internet has nearly doubled, from 70 million people to 137 million. The copyright industry has expanded at a rate of 10% each year. And last year, copyright industries contributed \$535 billion dollars to the U.S. economy – more than 5% of the gross domestic product.

But, just as the Internet has evolved rapidly, so has Internet piracy. New methods of Internet piracy are constantly testing the limits of the legal tools that Congress has provided to right holders and prosecutors. BSA is eager to work with the Congress and the Justice Department to ensure that legal tools such as the NET Act keep up with the challenges of the rapidly-changing Internet environment.

Legal tools are one part of the equation, but they must be complemented by adequate investigation. We believe that expanded investigatory assistance by the FBI will support and enhance the efforts being made by U.S. Attorneys around the nation in prosecuting intellectual property offenses.

International

Intellectual property products, including computer software, have become a vital part of international trade. In 2001 the copyright industries generated more than \$88 billion in foreign sales and exports. The nexus between IP and trade has also provided one of the principal levers for moving foreign governments into compliance with international norms for protection and enforcement of IP rights. The U.S. government has had great success in using a variety of tools at its disposal for achieving this goal – principally the negotiation of strong IP provisions in new trade agreements, enforcement of the TRIPs Agreement through WTO dispute settlement procedures, the Special 301 program, and administration of trade preference programs such as GSP.

These efforts have been led by a small but dedicated professional staff at USTR. USTR has been ably supported in this work by the State, Commerce and Justice Departments; and the USPTO and the Copyright Office have provided essential subject matter expertise. BSA commends the entire interagency team for their efforts to ensure foreign market access for goods and services with U.S. intellectual property and

compliance with international agreements protecting intellectual property rights. Their hard work is paying off – not only for the U.S., but for our foreign trading partners as well, since the ability of countries to reap high economic benefits from the software sector is highly dependent on their ability to promote protection and enforcement of intellectual property rights.

These efforts can and should be enhanced by providing USTR with additional resources for negotiating and enforcing strong norms and obligations for the protection of intellectual property rights. BSA would support the creation of a new and separate Intellectual Property Office within USTR, with increased staff, to enable USTR to continue to place a high priority on IPR negotiation and enforcement.

Similarly, BSA believes that an Intellectual Property Office should be created within the Department of State, under the Assistant Secretary for Economic and Business Affairs. This would assist the State Department in continuing to place a high priority on ensuring foreign market access for U.S. intellectual property products and services and compliance with international agreements protecting intellectual property rights.

Conclusion

Software contributes profoundly to the world in which we live. It allows us to share, to create and to innovate in ways previously unimaginable. Software-driven productivity strengthens national economies, including our own, and makes them more competitive and more prosperous. Unfortunately, piracy prevents the software industry from realizing its full potential. We urge the U.S. Government and other governments worldwide to help us solve this problem. We thank you for the efforts made to date.

Thank you again for the opportunity to testify here today. I look forward to your questions and to continued dialogue on this important topic in future.



EXPANDING GLOBAL ECONOMIES:

The Benefits of Reducing Software Piracy

April 2, 2003



EXECUTIVE SUMMARY

Major Thesis: Information technology, driven by the software sector, is a proven engine for economic growth and prosperity. Reducing the rate of software piracy can help jumpstart the world's stagnant and struggling economies by creating new jobs and business opportunities that generate spending and new tax revenues.

THE ECONOMIC IMPACT OF THE IT SECTOR

This report represents the findings from an IDC analysis assessing the impact that IT has in 57 countries around the world and the economic benefits that accrue to countries that tighten and enforce their intellectual property laws. It finds that:

- **IT Growth Delivers Key Economic Benefits.** The IT sector already employs more than nine million people, raises more than \$700 billion in taxes a year, and contributes nearly a trillion dollars a year to global economic prosperity. Between 1996 and 2002, the IT sector grew 26 percent, creating 2.6 million new jobs and contributing a cumulative \$6 trillion to economies around the world.
- **Software is A Key Driver of IT Sector Growth.** The software sector alone grew six times faster than the hardware sector between 1996 and 2002. Now, software and related IT services account for 60 percent of IT sector spending.
- **The Lower The Piracy Rate, the Greater The IT Contributions.** Globally, one in four copies of software is pirated, with piracy rates in individual countries ranging from 25 percent to 94 percent. Countries with the lowest piracy rates enjoy larger IT sectors accompanied by greater tax bases, more jobs and other economic benefits. The lower the piracy rate, the larger the IT sector grows and the greater the benefits it delivers.

MAJOR FINDINGS OF THE ECONOMIC IMPACT OF PIRACY REDUCTIONS

Analysis of data compiled by IDC *reveals six key findings* about the economic impact a 10-point reduction in software piracy would have worldwide over four years:

1. **IT Growth Accelerates With Software Piracy Reductions.** The IT sector, projected to grow 34 percent between 2001 and 2006, could grow 15 points faster, or 49 percent, with a 10-point piracy reduction. In fact, nearly two-thirds of the countries studied would see greater than 50 percent IT sector growth. For example, with a 10-point piracy reduction:
 - *China* could see its IT sector grow nearly five times over four years.
 - *Russia* could double its IT sector and create more jobs than the number of people currently employed in its hardware, software and IT services sectors combined.
 - *Brazil* could achieve as much economic benefits as all other countries in Latin America combined.

2. Faster IT Growth Delivers New Jobs, Taxes And Economic Expansion.

A 10-Point Drop In Worldwide Piracy From 40% To 30% Over 4 Years Could Add:

- ✓ 1.5 million jobs
- ✓ \$64 billion in tax revenues
- ✓ \$400 billion in additional economic growth

- 3. High Piracy Countries Could Achieve The Greatest Benefits From Piracy Reductions.** Eight of the countries with the Top 10 piracy rates would rank in the Top 10 by benefits achieved from a 10-point piracy reduction.
- 4. Nations With Lower Piracy Have Proven Benefits.** Countries that have worked hard to reduce piracy, like Japan, Egypt, and the UK, have already realized significant economic benefits or are poised for rapid acceleration of their IT economies.
- 5. Every Region Could Benefit From Piracy Reductions.** Regionally, Asia-Pacific, followed by Eastern and Western Europe, would see the greatest relative benefits from piracy reductions.
- 6. A 10-Point Piracy Reduction Is Achievable.** Nearly two-thirds of the 57 countries surveyed have already reduced software piracy at least 10 points since 1996.

MAJOR IMPLICATIONS OF PIRACY REDUCTIONS

Reducing Piracy Delivers Benefits for Many -- Consumers, Entrepreneurs, Workers, Governments, And Economies. For instance, the IT sector contributed more than \$700 billion in tax revenues in 2002 that helped fund public services like education and health care. Each single-point reduction in the piracy rate worldwide raises \$6 billion additional tax dollars. A 10-point reduction could generate \$64 billion in government revenues, which would be enough to provide:

- ✓ more than 30 million computers for schools
- ✓ health care for 32 million people
- ✓ college degrees for 6.9 million people
- ✓ Internet access for more than 20 million people for four years (including phone and ISP charges)
- ✓ primary education for roughly 4 million children

Governments Can Take Specific Steps To Unleash Greater IT-Driven Economic Benefits. Governments can take proactive steps through stronger legislation and public policies that combat piracy, help educate consumers, and, as a result, unleash broader economic benefits.

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EXPANDING GLOBAL ECONOMIES: The Benefits Of Reducing Software Piracy

INTRODUCTION

The information technology (IT) sector, driven by the software industry, is now one of the fastest-growing and most vibrant segments of the global economy. It is a proven engine for delivering economic growth and prosperity. The IT sector is transforming new innovations into economic opportunity – creating new jobs, new businesses, and additional tax revenues. Already, the IT sector employs millions of people, contributes billions of dollars in taxes, and adds trillions of dollars to global economic prosperity.

Now, new data from around the world combined with new economic models by IDC predict that the IT sector's rapid rate of growth will not only continue, but can accelerate. Strategic reductions in software piracy can be the tool that unleashes the IT sector's full economic potential. Faster IT sector growth can help jumpstart stalled economies, create new economic opportunities, and help economies become more productive.

This report represents the findings from an IDC analysis assessing the impact that IT has in 57 countries around the world and the economic benefits that accrue to countries that tighten and enforce their intellectual property laws. It finds that software piracy is a key differentiator between countries that are already enjoying vast IT sector benefits and those that have yet to unleash their full potential. Globally, one in four copies of software is pirated, with piracy rates in individual countries ranging from 25 percent to 94 percent. Reducing those rates 10 points could create 1.5 million new jobs, generate \$64 billion in additional tax revenues, and foster \$400 billion in additional economic growth.

This whitepaper is divided into three distinct sections. First, it analyzes the economic impact of the IT sector in 57 countries – its key benefits and drivers. Second, it analyzes data from a newly developed IDC Piracy Impact Model to explore the additional economic benefits that could come from future software piracy reductions. Third, it looks at the implications of these findings, and outlines what countries can do to fuel greater IT sector growth and benefits.

THE ECONOMIC IMPACT OF THE IT SECTOR

Three Key Findings On The IT Sector's Economic Impact:

- ✓ The IT sector is an engine for global economic growth
- ✓ The software sector is fueling broader IT sector growth
- ✓ The IT sector contributes more to economies when software piracy is lower

Analysis of the economic impact data compiled by IDC reveals the magnitude of effect that the IT sector is having on economies. The IT sector now employs more than nine million people, raises more than \$700 billion in taxes a year, and contributes nearly a trillion dollars a year to global economic prosperity. IT sector growth directly benefits workers, governments, and economies throughout the world.

The IT Sector Is An Engine For Global Economic Growth Delivering Key Benefits.

- The IT sector now directly employs nine million people in high-wage, skilled jobs in more than 4,000 companies around the world. It also supports 21 million more IT professionals in a range of industries from consulting to trucking. The number of IT industry jobs grew by 40 percent between 1996 and 2002, while software jobs grew by 76 percent.
- The IT sector returns more than \$700 billion a year in tax revenues to governments in every country. These tax revenues from IT-related activities, which grew 37 percent between 1996 and 2002, support vital public benefits and services – helping keep children in schools, the public secure, and transportation systems running. As IT sectors grow, governments benefit.
- The IT sector contributes nearly a trillion dollars a year to the global economy: including \$330 billion from the hardware sector; \$180 billion from the packaged software sector; and another \$420 billion from the IT services sector.

Because the IT sector is faster growing than more traditional economic sectors, it is able to deliver more and greater benefits. As the IT sector grows, it generates new jobs, taxes, and economic growth. The faster it grows, the more economic benefits it creates. One of the primary drivers of faster IT sector growth is software.

Analysis Covers 57 Countries in 6 Regions Around the World

ASIA-PACIFIC

Australia
China
Hong Kong
India
Indonesia
Japan
Korea
Malaysia
New Zealand
Philippines
Singapore
Taiwan
Thailand
Vietnam

EASTERN EUROPE

Bulgaria
Croatia
Czech Republic
Hungary
Poland
Romania
Russia
Slovakia
Slovenia
Ukraine

LATIN AMERICA

Argentina
Brazil
Chile
Colombia
Costa Rica
Mexico
Peru
Puerto Rico
Venezuela

MIDDLE EAST-

AFRICA

Israel
Egypt
Kuwait
Saudi Arabia
South Africa
Turkey

NORTH AMERICA

Canada
United States

WESTERN EUROPE

Austria
Belgium
Denmark
Finland
France
Germany
Greece
Rep. of Ireland
Italy
Netherlands
Norway
Portugal
Spain
Sweden
Switzerland
UK

The Software Sector Is Fueling Broader IT Growth

- The software and related IT services industries are the twin drivers behind IT sector growth – contributing more than hardware. In 2001, software and IT services accounted for more than 60 percent of IT sector spending (see figure 1). They are faster growing too. For example, spending on software grew six times faster than spending on hardware between 1996 and 2001 (see figure 2). The software industry's increasing growth rate, combined with its ability to add value to the services sector, have propelled it into a new position of prominence as a primary driver of IT growth and benefits.

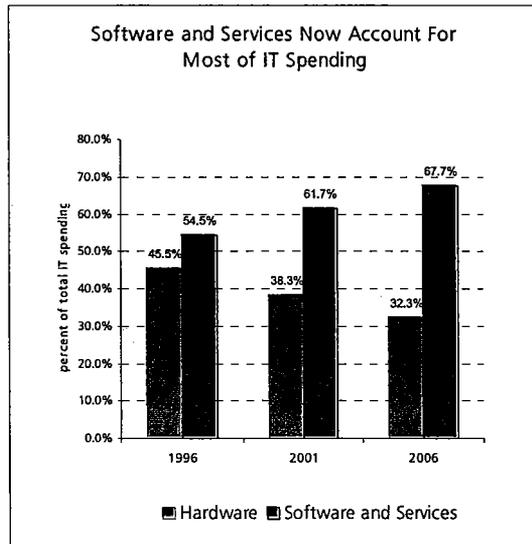


Figure 1 Source: IDC data

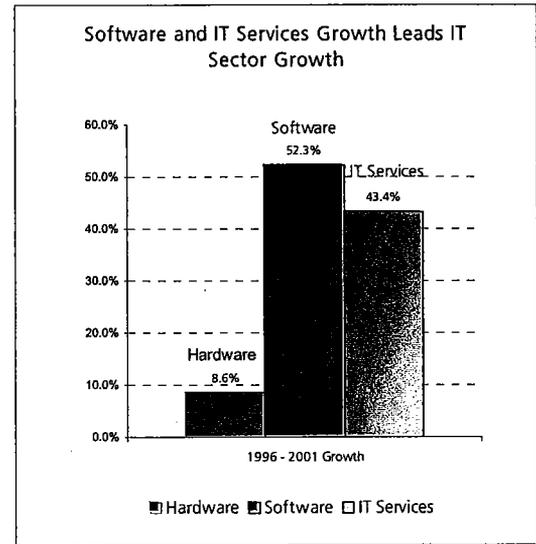


Figure 2 Source: IDC data

- When the software sector grows, it creates a ripple or multiplier effect that stimulates other parts of the IT sector and the economy. Software industry growth drives local outlet growth and local IT services expansion as companies grow to meet new demand for software customization. Similarly, software sector growth increases overall IT spending by all industries -- helping drive the economic effects into other parts of the economy. Not only does the software sector help create more good, high-wage, high-skill jobs, it also contributes more to government revenues and benefits virtually every other industrial sector by making them more productive.

The IT Sector Contributes More To Economies When Software Piracy Rates Are Lower

Not all countries' software and IT sectors are growing at the same rate. In assessing the differences between countries that are generating greater IT-related economic benefits and those that have yet to unleash its full economic potential, one key finding comes into focus: A country's software piracy rate is a key differentiator between countries that enjoy vast IT economic benefits and those that have yet to unleash them.

- Piracy and the Size of a Country's IT sector.** The IT sector plays a greater role in promoting economic growth in countries that have lower piracy rates. In general, there is an inverse relationship between software piracy rates and the size of the IT sector as a share of GDP. The lower the piracy rate, the larger the IT sector grows and the more benefits it delivers. For example, countries with piracy rates under 30 percent like the United Kingdom, Finland, and New Zealand enjoy larger IT sectors that comprise more than 3.5 percent of their respective GDPs. Whereas countries with higher than 85 percent piracy rates have IT sectors that comprise less than 1.5 percent of their economies. The lower the piracy rate, the larger it's IT sector, and the more benefits it delivers.

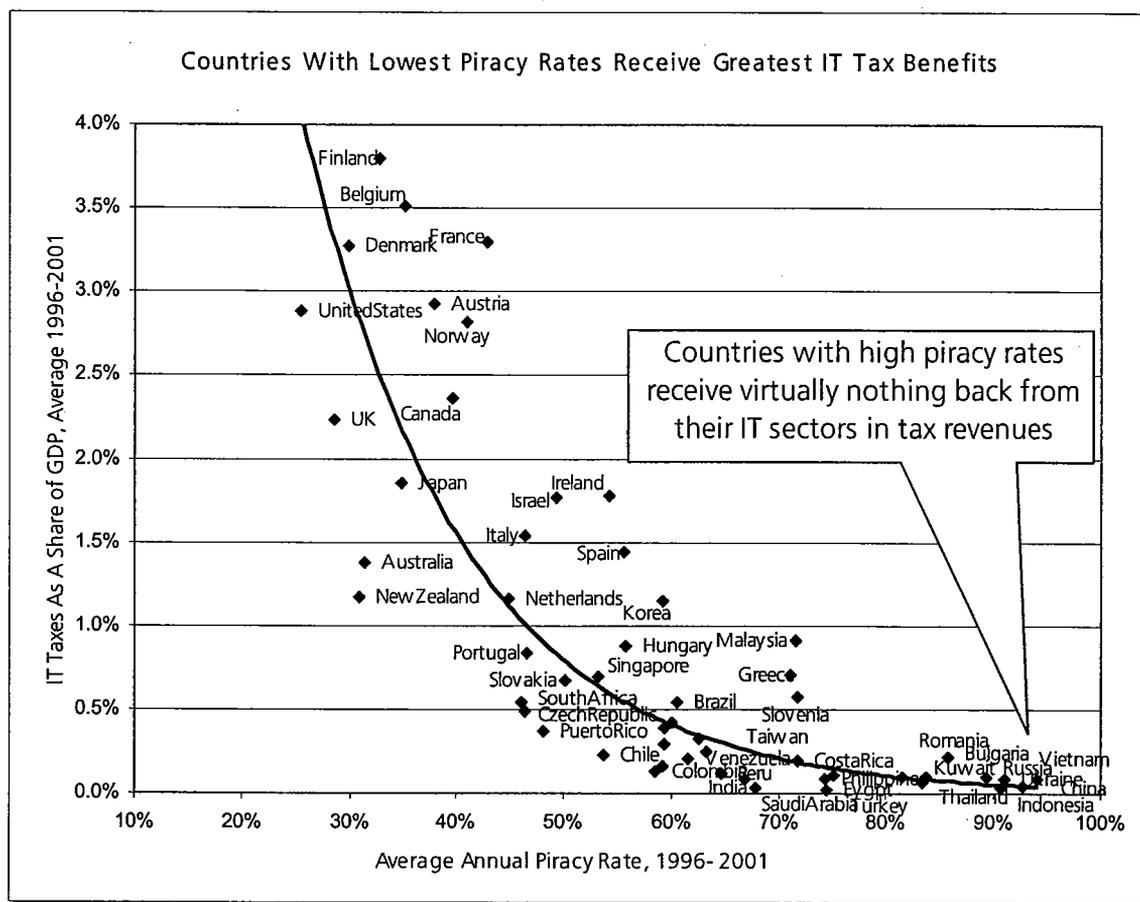


Figure 3 Source: IDC data

- **Piracy and The Size of A Country's IT-Related Economic Benefits.** The lower the piracy rate, the greater the IT-related benefits. Countries with low piracy rates generally enjoy more IT jobs, larger IT sectors and greater tax benefits. Countries with low piracy rates receive greater tax benefits as a share of their GDP than countries with high piracy rates (see figure 3). Of the countries studied, the 11 with the highest software piracy rates (75 percent or greater between 1996 and 2001) had IT tax benefits limited to .5 percent of their GDP or less. By comparison, the countries with the nine lowest piracy rates (35 percent or lower) received IT tax benefits that averaged 2.25 percent of their GDP. Countries with low piracy rates have larger IT sectors, which in turn generate a larger share of taxes for governments.

MAJOR FINDINGS ON THE ECONOMIC IMPACT OF PIRACY REDUCTIONS

IT sector growth, led by strong software demand and lower software piracy rates, is now having a profound and positive impact around the world -- on economies, entrepreneurs, workers, consumers, and governments alike. The finding begs an important new question: What can countries do to unleash further IT sector growth and maximize its benefits?

For the first time, data on the economic impact of technology in 57 countries has been combined into a newly developed IDC Piracy Impact Model to help answer this question. The results are profound. This new economic impact model not only predicts that the IT sector's rapid rate of growth will continue, but that it can accelerate. It provides new insights into the direct economic impact of lowering software piracy and the future benefits it can deliver. Most importantly, it provides countries with a positive pathway for harnessing the software and overall IT sectors' full potential for providing economic benefits to its citizens.

This new data reveals that the economic impact of even a slight reduction in the amount of pirated software can be significant -- helping to accelerate IT sector growth. It demonstrates how even a modest and achievable 10-point reduction in software piracy rates can be a powerful tool for delivering jobs, tax revenues and economic opportunity. In fact, countries with the highest piracy rates would enjoy the greatest relative benefits from piracy reductions.

SIX KEY FINDINGS

Analysis of the data compiled by IDC *reveals six key findings* about the economic impact of a 10-point drop in the worldwide software piracy rate from 40 percent to 30 percent, or 2.5 points a year from 2002 through 2006:

Six Key Findings On The Economic Impact Of A 10-Point Reduction In Software Piracy

1. IT sector growth accelerates with piracy reductions.
2. Faster IT growth could deliver 1.5 million new jobs, \$64 billion in taxes, and \$400 billion in new economic growth.
3. Countries with higher piracy rates obtain larger benefits from piracy reductions.
4. It's a proven approach: nations that have already reduced piracy are showing results.
5. Every region, every country could benefit from further piracy reductions.
6. A 10-point reduction is achievable – nearly two-thirds of countries have already done it once.

1. IT Growth Accelerates With Software Piracy Reductions

The IT sector's rapid rate of growth will not only continue, but can accelerate. Between 2001 and 2006, the IT sector is projected to grow five points faster than it did between 1996 and 2001 –from 29 percent to 34 percent. However, the sector could grow a full 15 percentage points faster, or 49 percent, with the help of a 10 percentage point reduction in piracy (see Figure 4). The greater the piracy reduction, the greater the IT sector growth achieved.

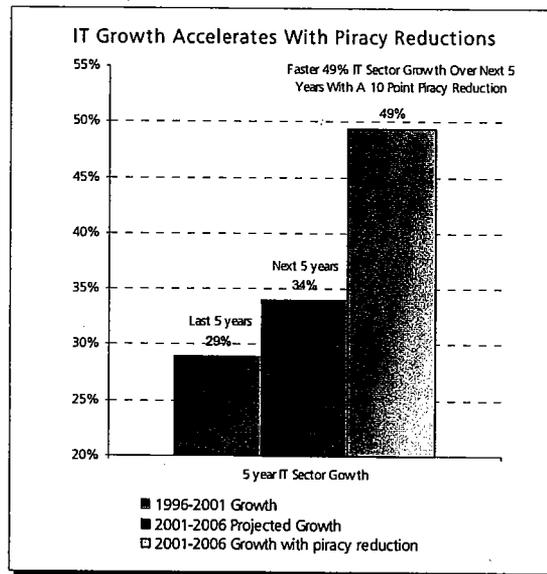


Figure 4

Nearly Two-Thirds of Countries Would See Greater Than 50 Percent Combined IT Sector Growth. These benefits would not be limited to any country, region, or hemisphere. Every country would grow its IT sector faster. IDC data indicates that countries could generate an average 20 points of additional growth between 2002 and 2006 with a 10-point reduction in piracy. Individually, those rates could range from four points for Puerto Rico to 259 points for China. Russia, already projected to grow by 69 percent, could grow roughly 50 points faster, to 118 percent between 2002 and 2006. The number of countries that could achieve greater than 50 percent combined IT sector growth between 2002 and 2006 would jump from 25 (less than half), to 37 (nearly two-thirds) with a 10-point reduction in software

piracy. High piracy countries like Vietnam, Indonesia, and Russia could see their IT sectors rank among the Top 10 for fastest growth with the help of a 10-point piracy reduction (see Table 1).

Top 15 Fastest Growing IT Sectors With 10-Point Piracy Reductions 2002-2006 Growth Rate			
	Growth With Piracy Reduction	Growth Without Reduction	Growth Differential
China	376%	117%	259%
Argentina	282%	250%	33%
Turkey	165%	146%	19%
India	163%	148%	15%
Vietnam	146%	76%	69%
Indonesia	145%	69%	75%
Russia	118%	69%	49%
Philippines	118%	106%	12%
Malaysia	92%	70%	22%
Korea	91%	81%	10%
Thailand	87%	69%	19%
Ukraine	85%	46%	39%
Bulgaria	84%	55%	29%
Singapore	80%	68%	12%
Romania	76%	51%	25%

Table 1

2. Faster IT Growth Delivers New Jobs, Taxes and Economic Growth

Faster IT growth means larger IT benefits. According to the IDC analysis, a 10-point drop in the worldwide piracy rate from 40 percent to 30 percent (2.5 point decrease a year from 2002 – 2006) would create an additional 1.5 million jobs, generate an additional \$64 billion in tax revenues, and contribute another \$400 billion to economic growth. Even larger reductions would generate still greater growth and cumulative benefits (see Table 2). For instance, a more aggressive 20 percentage point reduction would yield more than a trillion dollars in additional economic growth and 2.25 million new jobs around the world. A more modest 5 percentage point reduction could still create substantial benefits for an economy – adding nearly \$350 billion in revenues and creating almost a million more jobs. Every one point drop in the piracy rate generates roughly \$40 billion in economic benefits.

A 10-Point Drop In Piracy From 40% To 30% Over 4 Years Would Add:

- ✓ 1.5 million jobs
- ✓ \$64 billion in tax revenues
- ✓ \$400 billion in additional economic growth

Larger Piracy Reductions Bring Greater Benefits									
Region	5-Point Reduction			10-Point Reduction			20-Point Reduction		
	Contribution to GDP (\$M)	New Jobs	Additional Taxes (\$M)	Contribution to GDP (\$M)	New Jobs	Additional Taxes (\$M)	Contribution to GDP (\$M)	New Jobs	Additional Taxes (\$M)
Asia-Pacific	\$ 138,920	733,155	\$ 12,354	\$ 169,088	1,100,430	\$ 15,130	\$ 313,791	1,487,264	\$ 29,363
North America	\$ 118,580	77,909	\$ 18,942	\$ 150,922	146,792	\$ 24,444	\$ 400,768	263,102	\$ 64,012
Western Europe	\$ 71,947	108,094	\$ 17,729	\$ 91,289	202,709	\$ 22,472	\$ 239,945	360,505	\$ 59,132
Eastern Europe	\$ 9,169	29,191	\$ 647	\$ 11,192	49,279	\$ 799	\$ 24,169	75,806	\$ 1,831
Latin America	\$ 5,104	13,719	\$ 490	\$ 6,414	25,392	\$ 614	\$ 16,456	44,196	\$ 1,580
Middle East-Africa	\$ 3,695	6,042	\$ 326	\$ 4,714	11,192	\$ 412	\$ 11,914	19,528	\$ 1,073
Worldwide	\$ 347,435	968,111	\$ 50,488	\$ 433,619	1,555,793	\$ 69,872	\$ 1,007,045	2,258,402	\$ 156,992

Table 2 Cumulative benefits from piracy reductions, 2002 to 2006. GDP contribution does not include imports or exports.

3. Economies With Higher Piracy Rates Would Obtain Larger Benefits

Nations with the highest piracy rates today stand to *gain the most* from reducing software piracy. Country benefits can be compared by their relative benefits – derived by comparing the total additional GDP contribution from a 10-point piracy reduction to the projected sector size in 2006 without piracy reductions. Countries with the highest piracy rates like Indonesia, Vietnam, China, and Russia would gain some of the greatest relative benefits from piracy reductions (see Figure 5). The further their rates were reduced, the more those nations would benefit.

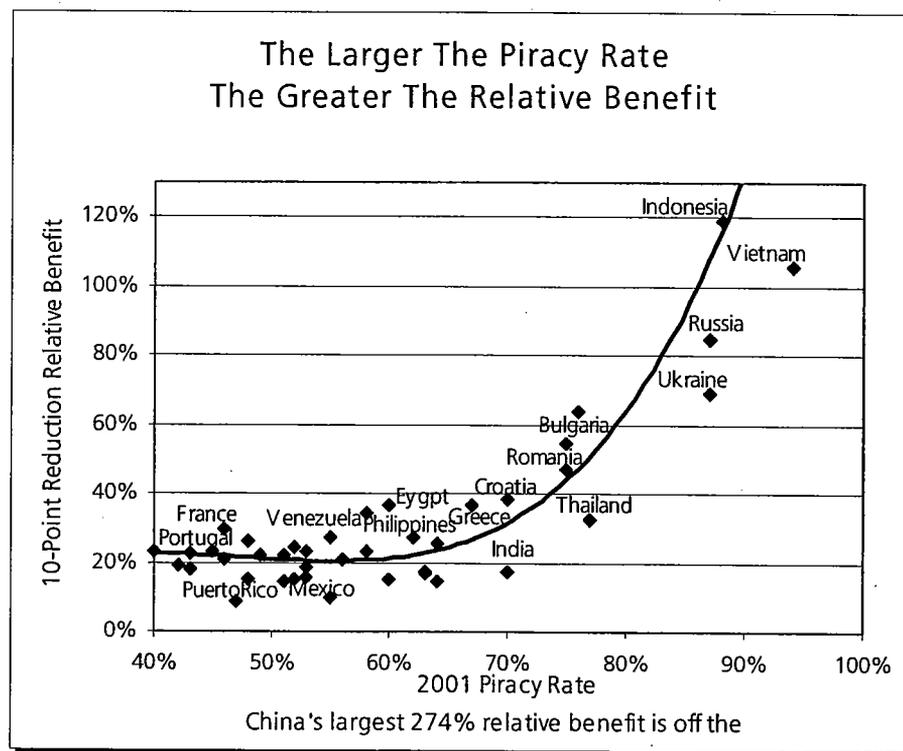


Figure 5 Source: IDC data. Data for countries with piracy rates above 40% shown

Eight of the 10 countries that would gain the most from a 10-point piracy reduction are also ranked among the Top 10 countries with the highest piracy rates (see Table 3). These high piracy countries would gain the most jobs, tax benefits, and economic growth from software piracy reductions.

Top 10 Beneficiaries		
	Piracy Rank	Piracy Rate
China	2	92%
Indonesia	3	88%
Vietnam	1	94%
Russia	4	87%
Ukraine	5	87%
Kuwait	7	76%
Bulgaria	8	75%
Romania	9	75%
Malaysia	11	70%
Croatia	12	67%
Thailand	6	77%

Table 3 Ranked in order of country with largest relative global benefit, compared to global piracy ranking, and 2001 piracy rate

Individual Countries Could Achieve Dramatic Benefits From A 10-Point Reduction in Piracy

- **China** could see its IT sector grow nearly five times in four years. China could also create nearly a million new high-tech, high-wage jobs – double the number of people currently employed by its entire IT sector. China, which has the most to gain, could see benefits twice that of every other country in the Asia-Pacific region combined.
- **Russia** could double its IT sector and create nearly 30,000 new high-wage, high-tech jobs – more than the number of people currently employed by its hardware, software and IT services sectors combined.
- **Brazil** could add another \$3.2 billion to its economy, as much as every other Latin American country combined.

4. Nations That Have Already Reduced Piracy Are Showing Results

Nations that have already worked hard to substantially reduce software piracy have either realized significant economic benefits or are poised for rapid acceleration in the growth of their IT sectors. A few countries stand out:

- **Egypt** reduced its piracy rate 30 points between 1996 and 2002. That helped its software sector grow 160 percent, which gave it the fastest software and IT sector growth in the Middle East. In fact, Egypt's accelerated software growth rate helped its IT sector double in size. A further 10-point piracy reduction could help Egypt grow its IT sector more than 50 percent in just four years.

- *Kuwait* lowered its piracy rate 13 points since 1996, which helped it triple its software sector and double its IT sector.
- *Japan*, with the third lowest piracy rate in the Asia-Pacific region (37 percent), has already grown its IT sector into a \$100 billion industry. It could grow to \$150 billion with further piracy reductions.
- *The United Kingdom*, with Western Europe's lowest software piracy rate (25 percent), also has Europe's fastest growing software industry. Software grew 55 percent between 1996 and 2002, helping the IT sector add a half million jobs in six years.
- *Hungary* reduced its piracy rate an impressive 21 points (to 48 percent) since 1996, which helped the country's software sector become the largest as a percentage of its IT sector in the region. In turn, local IT revenues grew by 27 percent a year on average, adding \$729 million in revenues to the economy, and creating 9,000 new jobs between 1995 and 2001.

Largest Relative Value of Benefit	
Asia-Pacific	44.4%
Eastern Europe	13.9%
Western Europe	8.1%
Middle East-Africa	6.9%
North America	5.2%
Latin America	4.8%

Table 4 Regional ranking of relative benefits from 10-point piracy reduction

5. Every Region Would Benefit From Piracy Reductions

Almost every country and every region is feeling the impact of the global economic downturn. In some cases these macro economic factors have combined to help stall broader IT sector growth in recent years. It has also dampened benefits from past piracy reductions and might do so again in the future. Nonetheless, every region of the world would gain substantial new economic benefits from reducing software piracy. In many cases, piracy reductions could help jumpstart stagnant and struggling economies.

The IDC data reveals that regions with higher piracy rates tend to enjoy greater relative benefits from piracy reduction. For example, the Asia-Pacific region, followed by Eastern and Western Europe, would derive the greatest relative benefits from piracy reduction (see Table 4). At the same time, in terms of direct dollar contribution to their GDPs, regions with larger IT sectors tend to gain the larger absolute economic benefit from software piracy reductions (see figure 6).

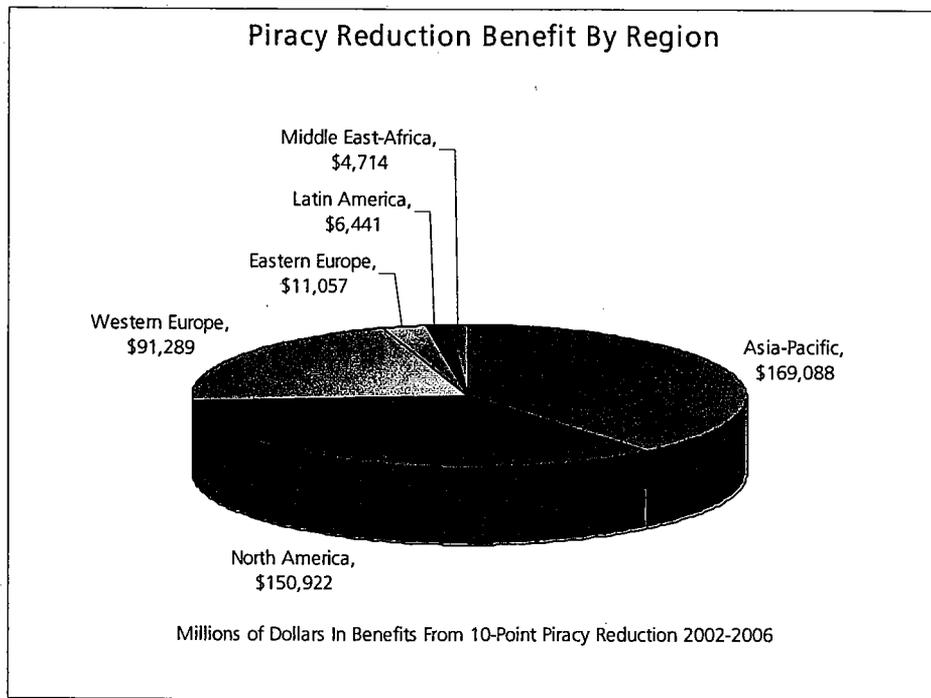


Figure 6 Source: IDC data

Asia-Pacific. The Asia-Pacific countries would benefit more than any other region in absolute terms from a 10-point piracy reduction. A 10-point drop would help it double its IT sector in size. It would also directly contribute an additional \$170 billion to its economies, create 1.1 million new jobs, increase local industry revenues by nearly \$120 billion, and generate another \$15 billion in taxes to pay for needed government benefits and services. The Asia-Pacific IT sector helped create more than a million jobs over the last six years. Its IT sector could create another 2.8 million IT jobs in just four years with the help of a 10-point software piracy reduction.

Eastern Europe. Eastern Europe would gain the second largest relative benefits of all regions from software piracy reductions. Eastern Europe's IT sector now contributes more than \$14 billion a year to its economies, employs 350,000 workers, and delivers more than \$3 billion a year in tax revenues. By lowering its piracy rate from 67 percent to 57 percent by 2006, Eastern Europe could add another \$11.2 billion to its economy, create nearly 50,000 good new high-wage, high-tech jobs, increase local industry revenues by almost \$7 billion, and add another \$800 million in government tax revenues. Six of the 11 countries that would be the biggest winners under the IDC piracy reduction impact model are in Eastern Europe.

Western Europe. Western Europe has both the world's second lowest software piracy rate and the second largest IT sector. Since 1996, with the help of a six-point piracy reduction, the region's IT sector has cumulatively added more than a trillion dollars to

Western Europe's economies and half a million jobs. With the software sector projected to lead overall growth in the IT sector, a further 10-point reduction in software piracy could help Western Europe double the number of people employed in IT jobs since 1995 – reaching 3.5 million IT jobs by 2006.

Middle East-Africa. The Middle East and Africa region's emerging \$11.8 billion IT sector already employs more than 160,000 people and generates \$3.8 billion a year in tax revenues. Reducing its software piracy rate by 10 points would help transform the region's IT industry into a \$20 billion sector in just four years. Between 1996 and 2001, the region reduced software piracy 28 points – the largest reduction of any region in the global survey. This region is projected to see the second fastest IT sector growth of 55 percent between 2001 and 2006. It could grow 12 percentage points faster – or 67 percent – if the region reduced its software piracy rate by 10 points.

North America. North America's \$430 billion IT sector – the largest in the world – already employs 2.8 million people and generates \$360 billion a year in taxes. North America now has the lowest software piracy rate, the largest software sector and the largest IT sector in the world. With a 10-point piracy reduction, North America's IT sector could grow 11 points faster, or 39 percent, between 2002 and 2006. Faster IT growth could help transform the North American IT industry into a \$600 billion sector that employs more than 3.5 million workers. With an already low piracy rate, the large size of its IT sector helps provide North America with the second largest absolute benefit from piracy reductions – a \$150 billion contribution to GDP.

Latin America. Latin America reduced its regional piracy rate 12 points between 1996 and 2001, helping its software industry grow 80 percent during the same period. The fast software growth helped Latin America's IT sector expand into a \$24 billion sector that employs more than half a million people. With further software piracy reductions, Latin America could accelerate its projected 48 percent IT growth to nearly 57 percent. That would translate into an additional \$6.4 billion for its economy, 25,000 new jobs for its workers, \$5 billion in additional local revenues, and another \$600 million in new tax revenues to help its governments fund public services and benefits.

6. A 10 Percentage Point Reduction Is Achievable

Most countries have already shown that a 10-point software piracy reduction is possible. Thirty-seven of the 57 countries surveyed, or nearly two-thirds, have reduced their piracy rates 10 points or more since 1996. Eleven countries cut piracy by 20 points or more, including Egypt, Slovenia, Turkey, The Philippines, Saudi Arabia, Ireland, and Israel, which cut their piracy rates 25 points or more.

For some countries, reducing software piracy 20 points is just as feasible as a 10-point reduction is for others. In Eastern Europe alone, a 20-point piracy reduction would add nearly \$25 billion to economies, create 76,000 new jobs, and generate \$1.8 billion in additional tax revenues.

MAJOR IMPLICATIONS OF PIRACY REDUCTIONS

Who Wins -- How And Why

Reducing Piracy Delivers Benefits In Many Ways

Reducing piracy helps unleash the creative potential of a workforce, the innovative potential of entrepreneurs, value potential for consumers, and growth potential for an economy. Greater intellectual property protections help deliver these benefits in a variety of ways:

✓ **Entrepreneurs Benefit From New Opportunities For New Innovations**

Lower piracy creates more opportunities for legitimate entrepreneurs to compete and offer greater benefits to consumers. Local entrepreneurs and software engineers will not invest time or talent in businesses that cannot produce a profit. By protecting intellectual property, innovators can be assured that their hard work can be rewarded in software and service sales. As a result, innovative software entrepreneurs can create pioneering new enterprises -- employing more people and generating more tax revenue. Between 1996 and 2001, the IT sector created more than 250,000 local IT companies around the world. Further piracy reductions would create even more new local companies that in turn would hire new workers, order new services, and deliver more economic benefits.

In fact, local industries benefit more than foreign software producers from piracy reductions. While foreign software makers do produce much of the software consumed in many countries, they can spread their piracy risk across multiple markets. Even though local software firms benefit directly from piracy reductions, substantial benefits also go directly to local service and channel firms from increased demand and sales. For example, IDC estimates that every dollar of packaged software sales generates an additional \$1 in local service revenues and \$1 to \$2 in local channel revenues. Taken together, a 10-point reduction in the worldwide piracy rate would generate an additional \$350 billion in local revenues over 4 years.

✓ **Workers Benefit From More Jobs That Pay Higher Wages**

Piracy reductions create jobs. As a software industry grows, it helps grow the IT sector and create even more jobs. High-tech jobs are also better-paying, on average, than other private sector jobs. A 10-point reduction in piracy would help create another 1.5 million high-paying jobs around the world. By 2006, the IT sector could grow to employ more than 14 million people around the globe.

✓ **Consumers Benefit From More Choices And More Competition**

With pirated software, consumers risk using defective, counterfeit products that lack important benefits like customer support and upgrade capabilities that can be vital to security. Reducing software piracy spurs greater competition among suppliers and results in even better and faster improvements in products.

✓ **Governments Benefit From New Revenues For Needed Services**

Every single-point reduction in the piracy rate worldwide raises \$6 billion in additional tax dollars. Tax revenues from a healthy IT industry are a vital part of the resources available to nations to spend on their public needs. For example, the IT sector returned

more than \$4.5 trillion in cumulative tax revenues to governments in every country between 1996 and 2002. These tax revenues from IT-related activities, which grew 37 percent between 1996 and 2002, support important public benefits and services.

A 10-point piracy reduction would create \$64 billion over four years in additional tax benefits for governments which, based on Organization for Economic Cooperation and Development (OECD) cost estimates, would be enough to provide:

- more than 30 million computers for schools
 - health care for 32 million people
 - college degrees for 6.9 million people
 - Internet access for more than 20 million people for four years (including phone and ISP charges)
 - primary education for roughly 4 million children
- ✓ **Economies Benefit From Greater Productivity Leading To Higher Standards Of Living**
Information technology improves economies in general. Businesses, governments, and workers invest in IT because it makes them more productive. IT and software now permeate almost every aspect of every sector in every economy. It has changed the way we work, the way we live, and the way we learn – making us more productive at every turn. By enabling businesses and governments to be more efficient and agile, and by allowing people around the world to communicate seamlessly across a range of devices, information technology is helping us all realize our true potential. The more pervasive IT has become in business, the more efficient business has become, improving productivity and profits. Productivity increases lead to even greater economic growth and development – raising standards of living along the way.

What Governments Can Do To Take Advantage Of These Benefits

Fundamentally, the intellectual power of a workforce and the innovative ideas it produces drive IT sector growth. Without protecting those ideas, IT sectors cannot achieve their full economic potential and produce their full economic benefits. Thus, in order to unlock the vast new jobs, taxes and economic benefits that faster growing IT sectors can create, governments need to take comprehensive and concrete steps to protect intellectual property and reduce software piracy rates. Experience shows that legal protection of software combined with strong enforcement and increased public awareness are the cornerstones for reducing software piracy. While emerging technological advances will play a role, the key to software piracy reductions stems from proactive government-led efforts.

Specific Steps For Reducing Piracy

Leading By Example. Combating software piracy often requires a fundamental culture shift in the way people view pirated software. Since governments are among the largest purchasers of software around the world, many governments have taken concrete steps to send the message that the government itself won't tolerate piracy. These countries have launched new efforts to manage their software resources, conduct internal audits and ensure that they are using only authorized software. Countries like

China, Spain, Taiwan, Ireland, Colombia, Jordan, Thailand, the Czech Republic, and Paraguay, among other nations, have issued software management policies. By sending a strong and clear message that the government itself won't tolerate piracy, these policies serve as a catalyst for greater software protection in both the public and private sectors. Leading by example is a crucial element for making the fundamental culture shift that can lead to declines in software piracy.

Education and Awareness. For the public at large, education is crucial for promoting respect for intellectual property. To reduce piracy, governments can increase public awareness of copyright laws, encourage legal use of legitimate software and explain the consequences of software piracy. They can appeal to business owners to adopt proper corporate internal guidelines for using legal software and remind them of the legal liabilities and potentially high cost of illegal software use. Many countries already have successful public education campaigns underway. Taiwan's premier, as an example, declared 2002 as "Action Year for IPR Protection" and sent letters to all businesses suggesting a course of action for protecting against illegal use of software and reminding them of the consequences for inaction. Governments and industry should work together to launch comprehensive educational campaigns to reduce piracy.

Combating Digital and Internet Piracy. The Internet has made it possible to distribute unlimited, flawless, illegal copies of creative works around the world in a matter of seconds. This online theft, like more traditional forms of digital piracy, undermines a creator's incentive to innovate. To reduce piracy, governments face a two-tiered challenge. First, governments need to adopt stronger laws specifically tailored to address digital and online piracy. Second, those laws must have workable mechanisms that can be vigorously enforced. The World Intellectual Property Organization (WIPO) has adopted digital copyright treaties to create international legal standards that governments can use to reduce digital and online piracy. The World Trade Organization's (WTO) agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) puts the teeth behind these WIPO treaties. In order to reduce piracy, governments around the world need to meet their enforcement obligations under the TRIPS agreement. In addition, countries need to adopt new legal measures that make it possible to battle digital piracy, shutdown websites that offer pirated software, and specifically prohibit the production of or trafficking in tools that circumvent technological protection measures for copyrighted works.

Reducing Optical Piracy. Pirate CDs and DVDs represent a major area where governments can take actions to reduce piracy by putting comprehensive optical disc regulatory controls into place. Traditional enforcement mechanisms have not been sufficient to prevent optical disc piracy from spinning out of control and flooding national, regional, and global markets with millions of high-quality pirated products. As part of each country's WTO TRIPS obligation to provide deterrent enforcement against piracy on a commercial scale, every country whose optical disc production facilities are producing significant pirate product must consider creating and enforcing a specialized regulatory framework for tracking the growth of optical disc production capacity, including the cross-border traffic in production equipment and raw materials. This regulatory regime should include strict licensing controls on the operation of optical disc mastering and replication facilities, such as a requirement to use identification tools that

flag the plant in which production occurred and that help lead the authorities to the infringer. So far such regimes have been established in China, Bulgaria, Hong Kong, Malaysia, Taiwan and Macau, and are under consideration in Thailand, Indonesia and the Philippines.

Fighting Piracy By Organized Crime. Because of the immense profits that can be garnered by producing pirated optical discs, this illegal business has been taken over in many countries by organized crime syndicates, making it even more difficult for local authorities to combat the problem. Countries are stepping up with specific actions to combat these rings. Some countries that have recently raided software piracy rings include Australia, Hong Kong, Taiwan, and Mexico. Governments can fight organized piracy crimes by 1) increasing the priority of criminal intellectual property investigations and prosecutions, 2) making it easier for industry to provide referrals, 3) providing specialized training for investigators and prosecutors for high-tech crimes, and 4) providing further assistance to foreign law enforcement officials in order to get at the borderless nature of these crimes.

Conclusion

The software and IT sectors are dynamic engines for economic growth around the world. IDC's new Piracy Impact Model predicts that the IT sector's rapid rate of growth will not only continue, but can accelerate, by reducing software piracy rates. It provides new insights into the direct economic benefits of intellectual property protections. It shows that a country's software piracy rate is a key differentiator between countries that enjoy vast IT economic benefits and those that have yet to unleash them. And it outlines key benchmarks for what countries can achieve with specific piracy reduction goals.

Even a modest and achievable 10-point reduction in software piracy can help accelerate IT sector growth and deliver more than 1.5 million new jobs, another \$64 billion in tax revenues, and an additional \$400 billion to economies around the world. Software piracy reduction can be a powerful tool for jumpstarting economic growth – creating new jobs, taxes and business opportunities. In fact, countries with the highest piracy rates today can unleash the greatest economic benefits tomorrow.

Harnessing these benefits requires critical decisions today. If a country is to achieve the full economic potential of its IT sector and the vast benefits that accompany it, then software piracy reductions can be a strategic tool for achieving that goal. When piracy is reduced consumers, local entrepreneurs, workers, governments, and economies win.

APPENDECIES

- ✓ Methodology
- ✓ IDC Economic Data

IDC PROJECT SUMMARY AND METHODOLOGY

Background

In early 2002 IDC completed "The National Economies Study," which assessed the impact information technology (IT) has had on 28 countries since 1995. This impact was felt in job creation, company formation, increased IT spending, and tax revenues. In the course of this project we developed an Economic Impact Model (EIM), which ties local IT spending to the impact metrics. The model output – jobs, tax revenues, etc. – was validated with local government sources, and through this process the model was calibrated.

In mid-2002 IDC began a second study, which measured the impact of software piracy. Based on *The National Economies Study* and on the piracy rates published by the Business Software Alliance (BSA), IDC examined the impact that software piracy has had on individual countries.

During the fall of 2002 we extended our Economic Impact Model to encompass 57 countries and validated the remaining 30 countries with local officials. We also developed a Piracy Impact Model (PIM) that calculates the impact of piracy on IT-related employment, contribution to GDP, local vendor revenues, and tax revenues.

The primary output of the Piracy Impact Model is the impact on a local economy – employment, tax revenues, etc. – of having a lower BSA piracy rate. The objective is to create a credible measure of the *benefits* that accrue to a country that tightens and enforces its intellectual property laws and educates its citizens on the benefits of doing so.

Economic Impact Methodology

a. IT Spending – Spending by consumers, businesses, governments, or educational institutions on information technology, including hardware, software, services, and data networking, as measured in the IDC Worldwide IT Spending Trends reports (The "Black Book"). This spending *excludes* all telecommunications revenues, and some smaller emerging technology areas such as PDAs and videogames (although PC gaming software *is* included).

b. Tax Revenues – Potential VAT or sales tax revenues from the sale of IT hardware, software, or services and business and personal income and social taxes.

The basic approach was to first take total income, profit, and social taxes within a country and determine what proportion was attributable to IT activities. The country totals for taxes and employment were gathered from the OECD or other published statistics. The total IT employment or sales were taken from the IDC Economic Impact Model. Adjustments were made then based on assumptions that IT employees have a higher income than the average employee in a country. IT-related VAT taxes were calculated by analyzing the total IT spending in a country and determining what portion would be subject to rebate, since VAT taxes are collected only on final outputs. Since most IT spending is by business, not much VAT is paid on IT. The non-rebated portion was derived from our data on IT spending by vertical.

IDC then went through a review of the data using a number of sanity-checking tools. These included independent estimates of local IT salaries, with input from local analysts as well as IDC's and IDG's (our parent company) HR and tax departments. (IDG operates in over 65 countries). These gave us additional sources on salary levels, income tax rates, and corporate income tax rates for various countries. We looked then at the average percent of salary paid in taxes, relative tax percentages (country to country), salary per capita compared to GDP per capita, etc. In this way the tax revenue model was calibrated for the final input to the EIM and the PIM.

c. IT Employment – The number of people employed (full-time-equivalent) in hardware, software, services, or channel firms and those managing IT resources in an IT-using organization (e.g., programmers, help desk, IT managers). The definition *excludes* employment in occupations in IT-related industries, such as web graphics design, venture capital, trade magazine publishing, etc., and *excludes* individuals in business or government whose roles might be called "eBusiness management," such as marketing VP of online banking, manager of interactive media, etc.

Headcounts by category were first modeled based on estimated IT revenue per employee for hardware, software, or services companies based on standard ratios, and by levels of spending per employee by technology type for channels employees and IT professionals.

IDC had excellent inputs for modeled employment figures, including published IT headcount figures in Europe, a model created in Asia-Pacific, and IDC published data in the US from the late 1990s. In some cases the information was created from the ground up – by local analysts counting companies and researching the number of employees in those companies.

The data was cross checked with published information or census data available from government sources and sent to knowledgeable local government officials for validation. As a result of this process, the EIM was re-calibrated to yield the best final estimate of employment. This re-calibration included extensive cross-country comparisons – so the most trusted data could be used to hone the model for companies where in-country information was scarce.

d. Contribution to GDP – End-user spending or business investment in hardware, software, or services – essentially IT spending from all sources, as measured in the Black Book. Although GDP is a measure of government and consumer spending plus business investment plus exports minus imports, for the purposes of this project we did not account for exports or imports. Thus, the term "contribution" does not mean a direct dollar input to GDP.

e. Local Vendor Revenues – Revenues to vendors that are indigenous or headquartered in the country.

In creation of the EIM, IDC developed an estimate of the percent of IT spending accruing to local vendors. This was based on our understanding of the local market from in-country-research and published reports. It was also checked with government statistics on imports and exports of hardware and software, and with the IDC local analysts during calibration and sanity-checking of the EIM. In most countries, hardware systems were imported (although local

suppliers might provide components), software was imported, but a high percentage of services and channels were local.

Piracy Impact Methodology

a. Piracy – The unauthorized copying, reproduction, usage, or manufacturing of packaged software. In the BSA study, it is referred to as "software installed without a license."

This unauthorized use can run the gamut from unauthorized copying or downloading of software or purchasing software copied illegally, to corporate overuse (more clients than paid for) of licensed software.

b. Piracy Rate – The percentage of software installed in a country without a license, as measured by the BSA in its "Seventh Annual BSA Global Software Piracy Study" (available at www.bsa.org).

c. Percent Lower BSA rate – A theoretical future piracy rate by taking the current BSA rate and lowering it by X percentage points (not by X percent). Thus if a BSA rate is 50 percent, lowering it by 10 percentage points to 40 percent, *not* by 5 percent (10 percent of 50 percent).

d. Piracy Losses – The theoretical losses from piracy in terms of revenue to software vendors, software-related revenues to services firms, and software-related revenues of channel players. Employment losses are calculated from revenue losses, and only apply to employment in the IT industry, not IT professionals in end-user organizations (although we believe there is some impact there.) Tax revenue losses are calculated from revenue losses (VAT and corporate income tax) and employment losses (income and social taxes). The software losses are based on the BSA piracy rate and equal the value of software installed and not paid for, adjusted by IDC's software analysts to account for software in a country not measured in the BSA study. These "losses" compare the current metric to what it would be if there were zero piracy.

e. Piracy Benefit – The difference in "losses" from different piracy rates, with the lesser loss subtracted from the larger loss.

f. Piracy Effects – The method by which the study calculates the impact of piracy on an industry. The study calculated different effects from piracy on software, services, channel spending, employment, and tax revenues. In the case of software, we used a linear relationship between a lowering piracy rate and growing software spending. (E.g., if a country has a 50 percent piracy rate and \$100 million software spending, lowering the rate to 0 percent would create a theoretical \$200 million in software spending.)

While not every piece of formerly pirated software will be purchased if piracy rates go down – some will be substituted, some not used – at the same time lower piracy rates yield more economic activity that stimulates more software production and purchase. The two countervailing forces seem to cancel each other out. *This is the conventional assumption for most previously published piracy studies.*

IDC confirmed this, however, by analyzing the ratio of software spending to hardware spending for each of the countries in the study, and found that, in general, countries with higher piracy

rates had a lower software-to-hardware ratio. Often, adding calculated software "losses" to the current software spending *still* led to a software-to-hardware ratio lower than countries with low piracy rates.

(In countries where extremely high piracy rates occur, this linear relationship didn't always work as the substitute piracy rate approaches zero – i.e., there is some upper bound to how much software spending can increase in a country with a very small industry. We did not have to calculate this upper bound, however, because we use these "losses" at zero piracy only to calculate the differences from one piracy rate to another.)

For software-related *services* losses, we assumed that services firms could still obtain some service revenues on pirated software, and thus applied the loss calculation only to a portion of software-related services revenues. The vulnerable portion of software-related revenue ranged from 15 percent in countries with high piracy rates, to 67 percent in countries with very low piracy rates.

For software-related *channels* losses, we applied the same logic but with an even smaller percentage of software-related revenue at risk from piracy – generally about half the services percentage.

FAQs

Q. What is the strength of our methodology?

A. First, it is based on what IDC knows well – IT spending and IT markets. Second, it is the same for each country, none of which define the industry the same way in their own statistics. The ability to compare countries enhances our confidence in accuracy. Third, we have been meticulous in our definitions and descriptions of methodology, i.e. it is transparent

Q. What don't we cover?

A. We don't look at the productivity impacts from the use of IT or software, although using internal resources to support pirated software clearly has some impact on a using organization. Nor did we quantify the economic benefits of technology-driven economic growth, even though other studies indicate that a 10 percent rise in IT spending growth can lead to a 13 percent rise in GDP growth.

Q. What makes our project different from other studies?

A. There are a number of methodology differences, but mostly our use of IDC Worldwide Black Book numbers as a basis for our Economic Impact Model gives us an extremely solid basis for developing economic and piracy impact calculations. Also, we don't include what economists call "indirect" economic impacts – such as benefits to travel or logistics companies serving IT firms.

Q. Isn't there an economic benefit from pirated software?

A. Yes. There is always an economic benefit from something that is "free." However there are also often hidden costs. It might be nice if gasoline was free, but not if you had to drive to the tanker yourself, store a year's supply in your garage, and do all the repair and maintenance that you might have gotten done at a local gas station. The intent of this study is to point out what the benefits are from lowering piracy rates. We believe these benefits – plus the others not quantified in productivity and the value of a strong local software industry – outweigh any economic benefits from piracy.

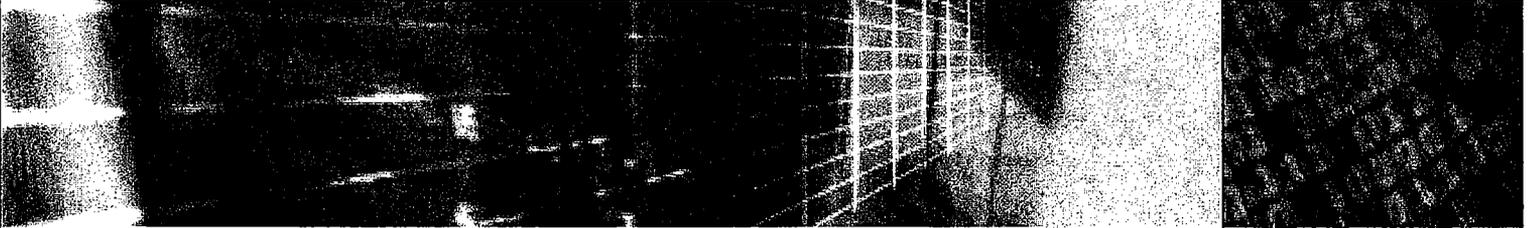
Q. If piracy rates are lowered, won't users simply stop using the software that was once "free?"

A. Yes, *some* will not use the previously pirated software, and some will substitute other software. But some will pay for it. However, a lower piracy rate will stimulate more economic activity (which can pay for more software) as well as more software production, more marketing, more R&D, and better products, which will spur more demand. We believe that these effects counter one another, making a linear relationship between lower software piracy and higher software-related spending, employment, and tax revenue justifiable. We have confirmed this by looking at the ratio of software spending to hardware spending in the countries in the study. Countries with higher piracy rates tend to have lower software-to-hardware ratios. In many cases, lowering the piracy rate by 10 percent or 20 percent to that of another country *still* yields a new level of software spending that is below that of the country with the lower current piracy rate.

Q. What does "local validation" mean. Do our numbers agree with government published statistics?

A. Validation means that someone in the government or a quasi-governmental agency in a position to understand the IT industry in the country has seen our data and understood it. Our numbers often won't agree with other published statistics because of different definitions. Our goal, if our numbers are different from published statistics, is to understand why.

FIRST ANNUAL BSA AND IDC GLOBAL SOFTWARE



PIRACY STUDY



JULY 04

2004 PIRACY STUDY

Last year, the world spent more than \$50 billion (US dollars) for commercial packaged software that runs on personal computers (PCs). Yet, software worth almost \$80 billion was actually installed. For every two dollars' worth of software purchased legitimately, one dollar's worth was obtained illegally. The piracy rate — the number of pirated software units divided by the total number of units put into use — was 36 percent in 2003.

These are the results of this year's Business Software Alliance (BSA) study of global trends in software piracy. Although this is the 10th year in which BSA has studied software piracy around the globe, it is the first year in which the study has been conducted by IDC, the information technology (IT) industry's leading global market research and forecasting firm.

In the previous studies, the core input was software shipment data from BSA members and BSA member input on hardware shipments, the number of software applications running on PCs and local market conditions.

In this year's study, IDC used its proprietary statistics for software and hardware shipments, conducted more than 5,600 interviews in 15 countries to gain a better understanding of the amount of software running on computers and used IDC analysts to review local market

conditions. With ongoing coverage of hardware and software markets in more than 65 countries, and with 60 percent of its analyst force outside the United States, IDC provided a deep and broad information base from which to develop the 2003 piracy rates.



By using market data as the basis for the study, IDC was also able to extend BSA's view of piracy beyond PC software to categories not covered in previous studies, such as operating systems, consumer-oriented software and local-language software. These additional categories expanded the universe of software covered by a factor of two.

The results confirm that software piracy continues to be a major challenge. Because of the change in study methodology and coverage, one cannot accurately compare last year's piracy rates to this year's rates. However, anecdotal information from IDC analysts in the field around the world would indicate that, in 2003, software piracy increased.

THE GLOBAL PICTURE

Figure 1 below shows the relative ranking by piracy rate of six global regions, which consist of 86 countries and six sub-regions as categorized by IDC.

The Asia Pacific region ranks lower in piracy than the other emerging regions, despite the fact that three of the top four pirating countries (Vietnam, China and Indonesia) are in the region. The reason for this is that two countries with relatively low piracy rates — Japan and Australia — bring down the average.

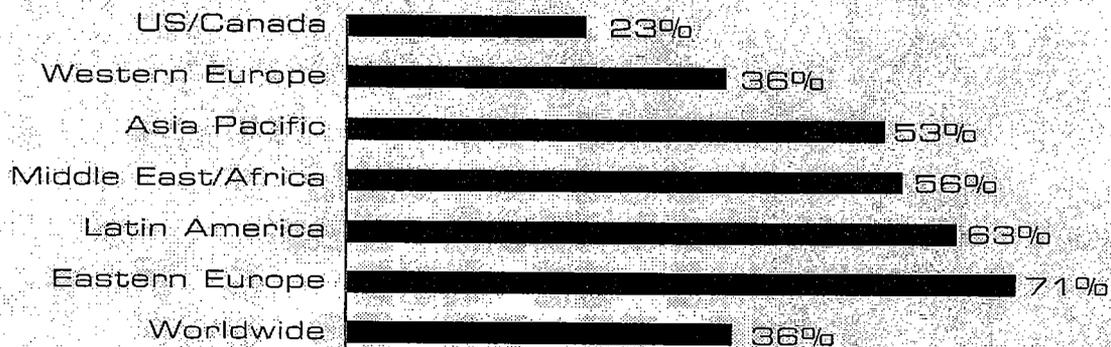
There are a number of factors that can contribute to regional differences in piracy — from software prices relative to income and the strength of intellectual property protection to the availability of pirated software and cultural differences. In addition, piracy is not uniform within a country; it varies from city to city, industry to industry and demographic to demographic.

Unfortunately, the high-piracy regions are also the high market-growth regions. The IT market in the developed world is growing by less than 4 percent today; it is growing closer to 20 percent in high-piracy countries like China, India and Russia. The emerging markets in Asia Pacific, Latin America, Eastern Europe, the Middle East and Africa account for more than 30 percent of PC shipments today, but less than 10 percent of PC software shipments. If piracy in the high-piracy countries does not begin to drop, IDC predicts that the worldwide average will increase.

In fact, as the PC software market grows from \$50 billion to more than \$70 billion over the next five years, at current piracy rates, IDC predicts that the retail value of pirated software will grow to more than \$40 billion.

Table 1 shows the 20 countries with the highest piracy rates and the 20 countries with the lowest piracy rates.

Piracy Rate by Region figure 1



Software Piracy Rankings Table 1

Top 20 Pirating Countries

China	82%
Vietnam	82%
Ukraine	81%
Indonesia	86%
Russia	87%
Zimbabwe	87%
Algeria	84%
Nigeria	84%
Pakistan	83%
Paraguay	83%
Tunisia	82%
Kenya	80%
Thailand	80%
El Salvador	78%
Nicaragua	78%
Bolivia	78%
Guatemala	77%
Dominican Republic	76%
Lebanon	74%
India	73%

Bottom 20 Pirating Countries

United States	23%
New Zealand	23%
Denmark	26%
Austria	27%
Sweden	27%
Belgium	29%
Japan	29%
United Kingdom	29%
Germany	30%
Australia	31%
Finland	31%
Switzerland	31%
Norway	32%
Netherlands	33%
UAE	34%
Canada	35%
Israel	35%
South Africa	36%
Poland	39%
Czech Republic	40%

Many of the countries in the top and bottom rankings will not be surprising. However, some are worth noting:

- India's software piracy rate of 73 percent may seem high, given its big business exporting custom-developed software¹. While the government has enacted tough copyright laws and added amendments to help enforcement, pirated software is still widely available.
- France and Italy are *not* among the list of 20 countries with the lowest piracy rates, despite being major developed IT markets. On the other hand, both have significantly large numbers of small business and consumer PC users, which typically are segments with higher piracy.
- The United Arab Emirates (UAE) is the only Middle Eastern country with a relatively low

piracy rate, 33 percent. This is attributable to deliberate attempts to adopt stronger intellectual property protections in the 1990s, when a new generation of policymakers came into power and began luring foreign investments.

Some other countries are notable for their absence on the lists. Once considered high-piracy locales, Taiwan, Ireland, Portugal and Puerto Rico, have rates below the median.

On the other hand, there are a number of countries with higher-than-the-median piracy rates. Of the 86 countries that IDC examined, one in five had a PC software piracy rate above 75 percent, and one in three had a piracy rate of 70 percent or more. More than half the countries had a piracy rate above 60 percent.

¹ India's IT exports are more than three times the size of its domestic IT market.

For every two dollars worth of software purchased legitimately, one dollar's worth was obtained illegally.

THE IMPACT OF PIRACY

Software piracy has many negative economic consequences: local software industries crippled from competition with high-quality pirated software from abroad, lost tax revenues and jobs from lack of a legitimate market and costs of ineffectual enforcement. These costs reverberate up and down the supply and distribution chains.

In an April 2003 economic impact study conducted for BSA², IDC concluded that lowering piracy by 10 percentage points over four years would add more than 1 million new jobs and \$400 billion in economic growth worldwide.

In this study, IDC took a very narrow view of the economic impact of software piracy and tabulated only the retail value of pirated software,

labeled losses in Figure 2 and Table 2. These losses were calculated using the known size of the legitimate software market in a country or region and using the piracy rate to derive the retail value of the software that was not paid for³.

Figure 2 shows the value of pirated software by region.

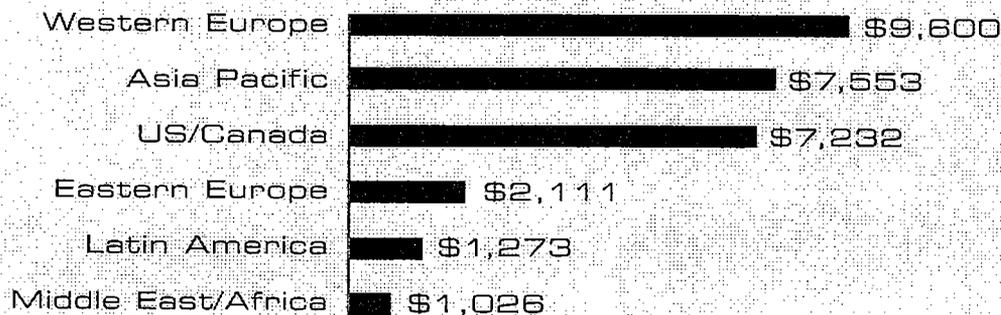
Western Europe, the United States and Canada experienced significant dollar losses with low piracy rates. This can be attributed to the size of the market. In big markets, small piracy rates can still add up to large losses.

One way to understand the relationship of piracy losses to the piracy rate is to look at the two

² Available at <http://www.bsa.org/idcstudy>

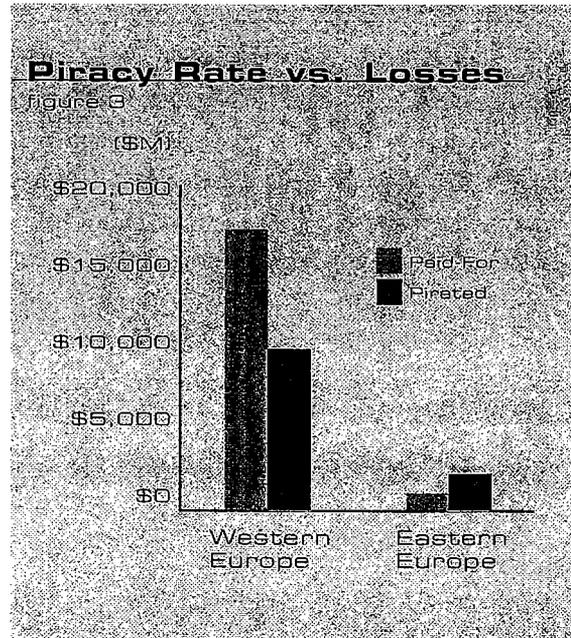
³ The "retail" value of software that came bundled with a personal computer was considered to be the share of the retail price of the system attributable to software. Software that was legitimately free (such as shareware or some open source software) was not considered pirated.

Dollar Losses by Region (\$M) figure 2



Europe, Western and Eastern. Figure 3 shows the legitimate software market compared to the pirated software market. The legitimate software market in Western Europe is almost 20 times the size of the legitimate software market in Eastern Europe, yet the losses from software piracy are only four times as much.

The message is that no country is immune from the impact of software piracy. Table 2 shows the countries with the greatest dollar-value of pirated software.



Ranking by Software Piracy Losses table 2

Piracy of \$100 Million or More

	\$M		\$M
United States	\$6,496	Switzerland	\$ 293
China	\$3,823	Sweden	\$ 241
France	\$2,311	Belgium	\$ 240
Germany	\$1,899	Denmark	\$ 165
Japan	\$1,633	Indonesia	\$ 157
United Kingdom	\$1,601	Norway	\$ 155
Italy	\$1,127	Finland	\$ 148
Russia	\$1,104	South Africa	\$ 147
Canada	\$ 736	Thailand	\$ 141
Netherlands	\$ 577	Taiwan	\$ 139
Brazil	\$ 519	Malaysia	\$ 129
Spain	\$ 512	Turkey	\$ 127
Korea	\$ 462	Saudi Arabia	\$ 120
Mexico	\$ 369	Other CIS	\$ 112
India	\$ 367	Austria	\$ 109
Australia	\$ 341	Czech Republic	\$ 106
Poland	\$ 301	Hong Kong	\$ 102

PIRACY TRENDS

Because this year's study covered more categories of software and used a different methodology to compute piracy rates and losses, the results from last year and this year are not comparable.

But is piracy getting better or worse?

Efforts continue by BSA and others to stem the growth of piracy, including implementation of education programs and policy initiatives to fight for stronger copyright laws and enforcement of those laws. These are effective inhibitors to piracy.

Unfortunately, there are also forces acting to increase piracy. These include the economic slowdown in some geographies, the influx of new users in emerging markets — mostly consumers and small businesses — and the increased availability of pirated software, particularly over the Internet and from peer-to-peer (P2P) networks.

Without strong online copyright laws and enforcement of those laws, online piracy — via spam, auction sites and P2P systems — will continue to grow alongside increases in Internet usage. By the end of last year, there were 700 million Internet users. By the end of 2007, there

will be more than a billion. Many of these new users will come from emerging markets; China alone will add almost 90 million new Internet users over the next three years.

Online piracy is facilitated by increases in transmission speeds, since faster connections enable users to send and download larger files (such as software programs) more quickly. Today, there are 70 million broadband households. By the end of 2007, there will be an additional 100 million.

While IDC field research has provided helpful data on the piracy problem, it is not sufficient enough to quantify the exact amount by which piracy might have gone up in 2003. However, based on continued feedback and anecdotal information from IDC analysts in the field, IDC believes piracy worldwide went up one to two percentage points from 2002 to 2003.

A compilation of piracy rates and losses for 2003 follows in Table 3.

Online piracy is facilitated by increases in transmission speeds, since faster connections enable users to send and download larger files more quickly.

2003 Global Software Piracy Table 3

Region	Country	Piracy Rates	Piracy Losses (\$M)
Asia Pacific	China	92%	\$3,823
	Vietnam	92%	\$41
	Indonesia	88%	\$157
	Pakistan	83%	\$16
	Thailand	80%	\$141
	Other AP	76%	\$37
	India	73%	\$367
	Philippines	72%	\$55
	Malaysia	63%	\$129
	Hong Kong	52%	\$102
	Korea	48%	\$462
	Singapore	43%	\$90
	Taiwan	43%	\$139
	Australia	31%	\$341
	Japan	29%	\$1,633
New Zealand	23%	\$21	
	Regional Average/Total	53%	\$7,553
Eastern Europe	Other CIS	91%	\$112
	Ukraine	91%	\$92
	Russia	87%	\$1,104
	Romania	73%	\$49
	Other EE	72%	\$61
	Bulgaria	71%	\$26
	Croatia	59%	\$44
	Lithuania	58%	\$17
	Poland	58%	\$301
	Latvia	57%	\$16
	Estonia	54%	\$14
	Slovenia	52%	\$32
	Slovakia	50%	\$40
	Hungary	42%	\$96
Czech Republic	40%	\$106	
	Regional Average/Total	71%	\$2,111
Latin America	Paraguay	83%	\$9
	Other LA	81%	\$7
	El Salvador	79%	\$4
	Nicaragua	79%	\$1
	Bolivia	78%	\$11
	Guatemala	77%	\$9
	Dominican R	76%	\$5
	Honduras	73%	\$3
	Venezuela	72%	\$55
	Argentina	71%	\$69
	Panama	69%	\$4
	Costa Rica	68%	\$17
	Ecuador	68%	\$11
	Peru	68%	\$31
	Uruguay	67%	\$10
	Chile	63%	\$68
	Mexico	63%	\$369
	Brazil	61%	\$519
Colombia	53%	\$61	
Puerto Rico	46%	\$11	
	Regional Average/Total	63%	\$1,273

Continued on page B

2003 Global Software Piracy table 3

Continued from page 7

Region	Country	Piracy Rates	Piracy Losses (\$M)
Middle East/Africa	Other ME	82%	\$51
	Zimbabwe	87%	\$6
	Algeria	84%	\$59
	Nigeria	84%	\$47
	Tunisia	82%	\$29
	Other Africa	81%	\$89
	Kenya	80%	\$12
	Lebanon	74%	\$22
	Morocco	73%	\$57
	Egypt	69%	\$56
	Kuwait	68%	\$40
	Turkey	66%	\$127
	Jordan	65%	\$15
	Oman	65%	\$11
	Bahrain	64%	\$18
	Qatar	63%	\$13
	Mauritius	61%	\$4
	Cyprus	55%	\$8
	Saudi Arabia	54%	\$120
	Malta	46%	\$2
Reunion	39%	\$1	
South Africa	36%	\$147	
Israel	35%	\$69	
UAE	34%	\$29	
	Regional Average/Total	56%	\$1,026
US/Canada	Canada	35%	\$736
	United States	22%	\$6,496
	Regional Average/Total	23%	\$7,232
Western Europe	Greece	63%	\$87
	Italy	49%	\$1,127
	France	45%	\$2,311
	Spain	44%	\$512
	Ireland	41%	\$71
	Portugal	41%	\$66
	Netherlands	39%	\$577
	Norway	32%	\$155
	Finland	31%	\$148
	Switzerland	31%	\$293
	Germany	30%	\$1,899
	Belgium	29%	\$240
	United Kingdom	29%	\$1,601
	Austria	27%	\$109
	Sweden	27%	\$241
	Denmark	26%	\$165
	Regional Average/Total	36%	\$9,600
World Total	All Regions	36%	\$28,794

STUDY METHODOLOGY

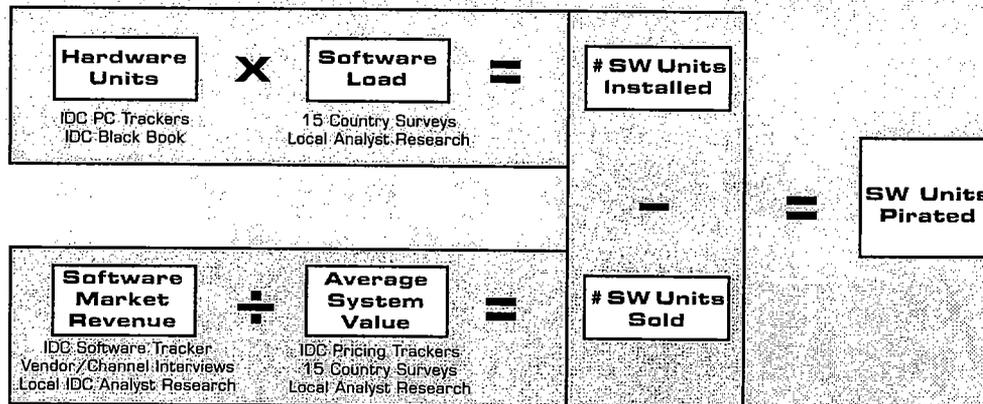
IDC and previous studies conducted for BSA used the following basic research architecture to measure piracy rates and dollar losses.

1. Determine how much packaged software was put into use in 2003.
2. Determine how much packaged software has been paid for during the year.
3. Subtract one from the other to get the amount of pirated software.

Once the amount of pirated software is known, the piracy rate can be determined as the percentage of total software installed that was pirated.

Figure 4 shows the general method IDC used to determine how much software was added in 2003 and how much was paid for. The text under each box refers to the sources of the data inputs.

Methodology At-A-Glance figure 4



Note: All inputs and output reflect CY 2003 software (SW) activity.

Expanded Software Categories Examined

One of the major differences between this year's study and those in previous years is in the software categories measured.

In previous studies, only business applications software (such as general productivity or office software, professional applications and utilities) were examined.

In this year's study, IDC also examined operating systems and consumer applications such as PC gaming, personal finance and reference. As a result, this year's study looks at a market that is significantly larger than the market studied in previous years.

For instance, in 2002, the published value for pirated PC software of \$13.1 billion and piracy rate of 39 percent would imply a \$20.5 billion market for non-pirated software. This year, the market for non-pirated PC software in the IDC study was more than \$50 billion.

This examination of a larger universe in this year's study had some minimal impact on piracy rates, but it has a significant impact on the calculation of the value of software losses. If the market studied is twice as big, losses will be twice as big given the same piracy rate.

The Step-by-Step Process

The following information provides a more detailed description of IDC's methodology process and its definition of terms.

PC shipments

These are needed to determine the total amount of software put into use in 2003. Quarterly, IDC collects detailed PC shipment tracking data on 60+ countries. For the additional 30+ countries and markets, the data was either collected in-country or modeled regionally based on IDC's rest-of-region estimates. The basic tracking data is generated from suppliers, including local suppliers. IDC's definition of a PC includes desktops, laptops and tablets, but excludes handhelds and PCs used as servers, either singly or in clusters.

PC installed base

The installed base is captured as part of IDC tracking exercises.

Software revenues

These are captured annually in 60+ countries by IDC software analysts around the world. Revenues are gathered from interviews with in-country suppliers and cross-checked with global numbers and financial statements. For the countries not normally covered by IDC, the data were either collected in-country or modeled regionally based on IDC's rest-of-region estimates.

This year's study looks at a market that is significantly larger than the market studied in previous years.

Software shipments (legitimate)

These were derived using average system values estimated country-by-country and regional analysis for five software categories (e.g., collaboration, office, security, operating systems, other). Prices were gathered from IDC's pricing trackers, local research and interviews with the channel. They included adjustments for OEM and channel-loaded software as well as software from local suppliers. Software unit shipments were derived from taking revenues and dividing by the average system value. These shipments represent the legitimate software installed during the year.

Software load

This is the amount of software units installed and/or pre-installed (OEM) on PCs during the year. To obtain the number of software units for each type of hardware platform, we surveyed consumers and businesses in 15 countries: China, Malaysia, Taiwan, Spain, Romania, Brazil, Bolivia, Chile, Colombia, Mexico, Costa Rica, Dominican Republic, Guatemala, Kuwait and the United States. The results of these surveys were used to populate IDC's input models for the other countries. Within the software load, IDC accounted for:

- Software running on new computers
- New software running on existing computers
- Software obtained from retired computers
- Software obtained for free as shareware or open source
- Software running on Windows and non-Windows OS

Total software base

This is the total amount of software, legitimate and pirated, installed during the year. It is obtained by multiplying the number of PCs getting new software during the year by the average number of software packages per PC that were installed in 2003.

Pirated software

This is the difference between paid-for or legitimate packaged software units and the total software base.

Piracy rate

This is the percentage of the total packaged software base that is pirated.

Regional piracy rate

This is the piracy rate for the region based on the amount of pirated software in the region divided by the total amount of software installed in the region during 2003.

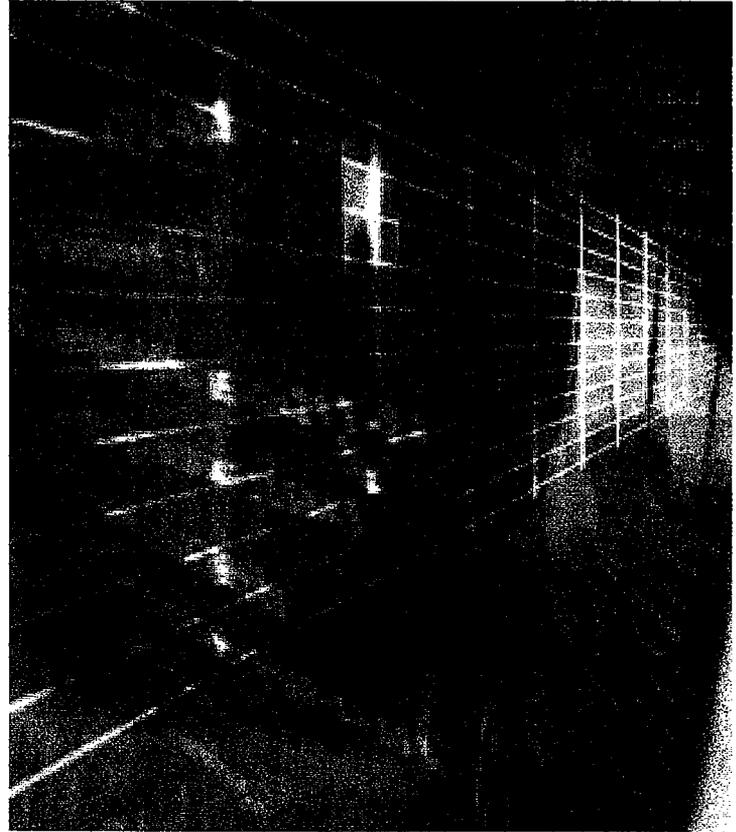
Value of pirated software

This is the retail value of pirated software. It is calculated using the size of the legitimate software market and the piracy rate⁴.

⁴ The actual formula is this: Value of Pirated Software = (Legitimate Market) / (1 - Piracy Rate) - Legitimate Market

By using this calculation, IDC derived what should be considered the end-user spending value of pirated software. For shrink-wrapped software sold in stores, it is the retail price, and for factory- or channel-loaded software, it is the share of retail system value attributed to that software.

IDC's value of pirated software represents the "losses" to the total industry, including the channel, retailers and local in-country software vendors.



Business Software Alliance
1150 18th Street, NW
Suite 700
Washington, DC 20036
T. 202.872.5500
F. 202.872.5501

BSA, Asia
300 Beach Road
#25-08 The Concourse
Singapore 199555
T. +65.6292.2072
F. +65.6292.6369

BSA, Europe
79 Knightsbridge
London, SW1X 7RB
United Kingdom
T. +44-(0)20.7245.0304
F. +44-(0)20.7245.0310

www.bsa.org