FIFTH ANNUAL BSA AND IDC GLOBAL SOFTWARE

> PIRACY STUDY

2007 PIRACY STUDY

The BSA and IDC Global Software Piracy Study covers piracy of all packaged software that runs on personal computers (PC), including desktops, laptops, and ultra-portables. This includes operating systems, systems software such as databases and security packages, business applications, and consumer applications such as games, personal finance, and reference software. The study does not include other types of software such as that which runs on servers or mainframes or software sold as a service.

There was notable progress in the battle against PC software piracy in 2007. Of the 108 individual countries studied in this report, the piracy rate dropped in sixty-seven countries from 2006 to 2007 and increased in only eight countries.

However, the weighted impact of high market growth in emerging markets was again felt worldwide. Because the worldwide PC market grew much faster in higher-piracy countries and regions, the worldwide PC software piracy rate increased three percentage points to 38% from 2006 to 2007. PC shipments in Brazil, Russia, India, and China—commonly referred to as the BRIC countries—grew 26% last year, compared to 13% in North America, Western Europe, and Japan. The combined BRIC countries are now as large a PC market as the United States.

At the same time, because the size of the market grew significantly in 2007 and the value of the US dollar dropped nearly 7% against other currencies, *losses* from piracy rose by $8 billion to nearly $48 billion worldwide. In fact, *real* losses did not grow as fast as the overall PC software market, which grew faster than 15% last year.

While the worldwide weighted average piracy rate is 38%, the median piracy rate in 2007 is 61%, down one percentage point from last year despite the addition of six new countries to this report. This means that half of the countries studied have a piracy rate of 61% or higher. In more than one-quarter of the countries studied, the piracy rate is 80% or higher.

Among the larger emerging economies, Russia's piracy rate dropped a remarkable seven percentage points to 73% from 2006 to 2007. The reduction in the piracy rate is the result of legalization programs by vendors, enforcement and education by the government and anti-piracy groups, agreements between vendors and local distributors to bundle legal software with hardware, and, of course, an oil economy that helped drive a 22% increase in personal disposable income in 2007 and lower consumers' propensity to use pirated software.

China's piracy rate stayed at 82% for a second consecutive year after dropping by ten points over the previous three years. Despite appearances, this does not signify that the declining trend has halted. In late 2007, IDC found that PCs sold by local assemblers (also known as "white box" vendors) were higher than previously counted, which raised the overall estimate of the PC market by more than 25% and, hence, the 2007 piracy rate. Without this new information, IDC believes the 2007 rate would have been closer to 80%. Thus, China is demonstrating progress in fighting PC software piracy. Indeed, PC software piracy in the government and large enterprises in China is decreasing and piracy in the consumer and small-business markets, which accounted for two-thirds of the country's PC market last year, is also beginning to drop. The results have been aided by a legal requirement for PC manufacturers to ship legal operating systems with new PCs. Nonetheless, it is important to keep in mind that there is still much more work to do in addressing the use of pirated and unlicensed PC software applications by state-owned and other enterprises in China. It is also important for the government to ensure that it remains in compliance going forward with its own legalization and legally licensed operating system pre-install directives.

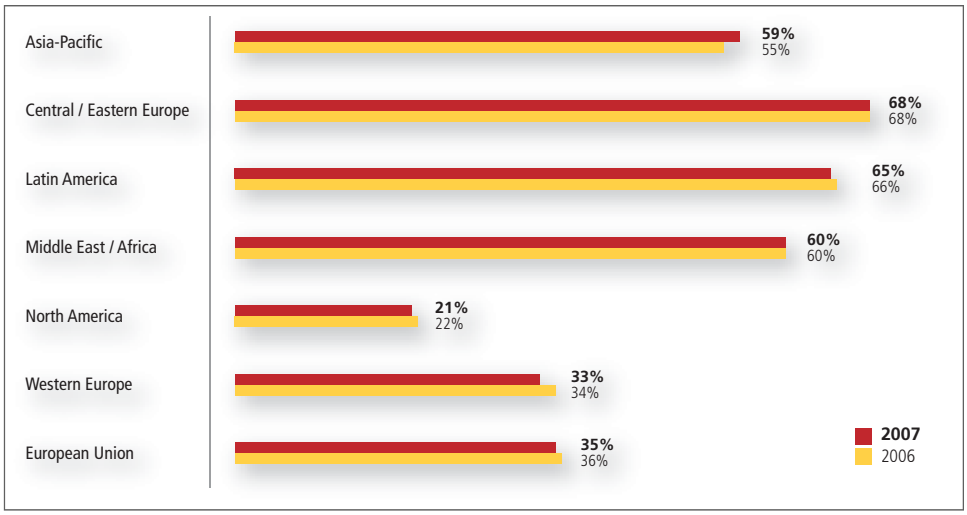
India's piracy rate dropped two percentage points to 69% as a result of government and industry education and enforcement efforts, software vendor activation controls, and an increase in PC market share by multinational vendors.

Dealing with software piracy in emerging markets is still a challenge. Rapid growth in first-time users from the high piracy consumer and small-business sectors affects country averages even when piracy drops in other areas. The increase in Internet access, especially broadband access, increases the *supply* of pirated software. Sprawling geographies and weak institutional infrastructure make education and enforcement all the more difficult. In some cases, even culture is involved, where societies see intellectual creation as a common good and not the property of its creator.

So, piracy remains an issue for the software industry. In 2007, for every two dollars spent on legitimate software purchases, one dollar's worth of software was obtained illegally. In the highest-piracy countries—those with 75% piracy or higher—for every one dollar spent on PC hardware, less than seven cents was spent on legitimate software. In developed markets, that ratio is eight times higher.

By the end of 2007, there were more than one billion PCs installed around the world; nearly half have pirated software on them. With more PCs being shipped into emerging markets, lowering that percentage will be a long-term challenge.

Figure 1. Piracy Rate by Region



STUDY BACKGROUND

The Business Software Alliance (BSA) has been studying global trends in PC software piracy for more than a decade. This is the fifth annual study conducted by IDC, the IT industry's leading global market research and forecasting firm.

For this study, IDC used proprietary statistics for software and hardware shipments gathered through surveys of vendors, users, and the channel, and enlisted IDC analysts in more than sixty countries to review local market conditions. With ongoing coverage of hardware and software markets in more than eighty countries, and with 60% of its analyst force outside of the United States, IDC provides a deep and broad information base from which to assess the market and estimate the rate of PC software piracy around the world.

THE GLOBAL PICTURE

Figure 1 shows the relative ranking by piracy rate of seven regions, as categorized by IDC. Six of the seven regions shown are mutually exclusive; the seventh—the European Union—includes countries from Western Europe and Central and Eastern Europe.

The PC software piracy rate dropped in North America, Latin America, and Western Europe in 2007. The decrease in Western Europe also drove down the European Union piracy rate by one percentage point to 35%. Regional piracy rates remained stable with the previous year in Central and Eastern Europe and the Middle East and Africa. The worldwide piracy rate increased three percentage points to 38%.

The PC software piracy rate increased in Asia-Pacific, on the other hand, as a result of China's and India's growing share of the overall PC market in the region, which brings up the regional average.

The increase in the total worldwide rate—in an environment where so many individual countries saw their piracy rates decrease—mirrors the situation in Asia-Pacific, with the PC market shifting rapidly to emerging economies. This is a trend that kept the worldwide rate flat from 2004 to 2006 while piracy rates were dropping dramatically in places like China and Russia.

It is understandable that piracy rates might differ from mature markets to emerging markets, but there are also differences *between* emerging regions. Some of the market-related factors for these differences include:

- The strength of intellectual property protection, both in terms of the existence and enforcement of copyright legislation.
- The mix of countries in the region. Asia-Pacific includes Japan, Australia, and New Zealand, all low-piracy countries. Excluding them from the region, the piracy rate would be higher than 70%.

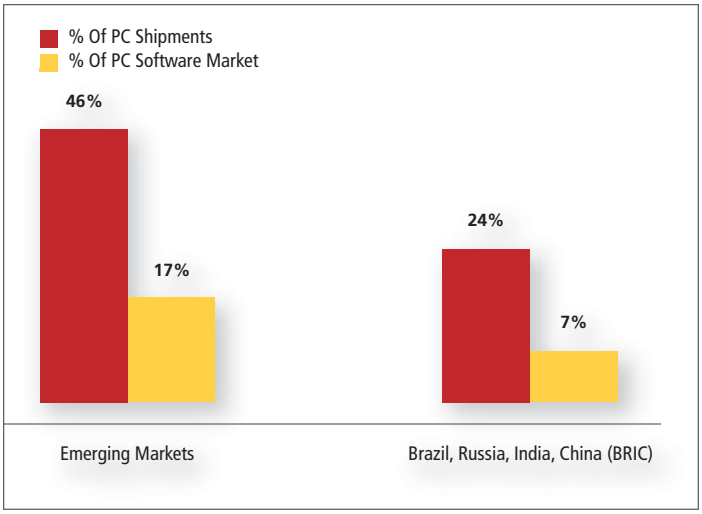
- The mix of PC market segments. A higher percent of consumers and small businesses in the customer base tends to drive piracy up. In 2007, consumers accounted for 55% of the PC market in Chile, and 65% in Thailand, but only 33% of the market in Egypt, and 24% in South Africa.

- Vendor mix. Piracy tends to be higher among PCs purchased from non-brand name vendors than with brand name PCs. Non-branded PCs account for 62% of the market in Argentina, 24% in Colombia, 73% in Vietnam, and 18% in Malaysia.

- General IT sophistication. This is measured as the IT services percent of total IT spending, and it can vary from 13% in China and 11% in Venezuela to 40% in Australia and 37% in Brazil.

To illustrate the challenge faced by vendors and anti-piracy organizations as the market shifts to emerging geographies, Figure 2 shows the contrast between the PC and software markets in emerging markets—Asia-Pacific without Japan, the Middle East and Africa, Central and Eastern Europe, and Latin America—and the rest of the world. It also shows how the BRIC countries compare to the worldwide PC and software market.

Figure 2. Expanding Markets in Emerging Economies, 2007



While emerging markets account for almost half the PC market, they account for less than one-fifth of the global PC software market. The ratios are even more uneven when you compare the BRIC countries to the rest of the world.

But, it can be deceptive to look at emerging markets in this manner. While the methodology does not break down the piracy rate by segment, IDC believes that rates are much lower within large businesses, multinational companies, and the central government in these emerging economies than in small businesses and the consumer sector.

Piracy rates also vary by product segment – lower and falling for operating systems and higher for consumer software such as PC games. The piracy rate for software shipped with new PCs is lower than the piracy rate for software shipped to older computers.

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

Table 1. 2007 PC Software Piracy Rankings

Highest Piracy		Lowest Piracy	
Country	**2007**	**Country**	**2007**
Armenia	93%	United States	20%
Bangladesh	92%	Luxembourg	21%
Azerbaijan	92%	New Zealand	22%
Moldova	92%	Japan	23%
Zimbabwe	91%	Austria	25%
Sri Lanka	90%	Belgium	25%
Yemen	89%	Denmark	25%
Libya	88%	Finland	25%
Venezuela	87%	Sweden	25%
Vietnam	85%	Switzerland	25%
Iraq	85%	United Kingdom	26%
Indonesia	84%	Germany	27%
Pakistan	84%	Australia	28%
Algeria	84%	Netherlands	28%
Cameroon	84%	Norway	29%
Montenegro	83%	Israel	32%
Ukraine	83%	Canada	33%
China	82%	South Africa	34%
Bolivia	82%	Ireland	34%
Paraguay	82%	UAE	35%
Botswana	82%	Singapore	37%
Nigeria	82%	Czech Republic	39%
Zambia	82%	Taiwan	40%
El Salvador	81%	Reunion	40%
Ivory Coast	81%	Hungary	42%
Kenya	81%	France	42%

This year, five new countries added to the study—Bangladesh, Iraq, Libya, Sri Lanka, and Yemen—were placed among the top fifteen of high-piracy countries. One new country, Luxembourg, appears on the list of lowest-piracy countries.

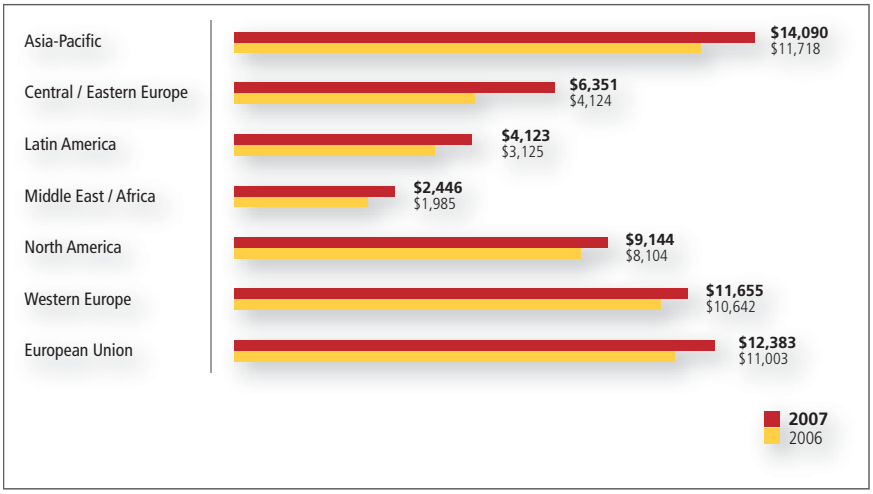
Globally, businesses and consumers will spend nearly $400 billion on PC software over the next four years, according to IDC estimates. Assuming piracy rates do not change during this period, more than $225 billion worth of software will be pirated. From the results of

the 2007 study, piracy rates are dropping, and that is good news for the software vendors, the IT sector more broadly, and for local economies.

THE IMPACT OF PIRACY

IDC finds that worldwide losses from piracy increased 20%, or more than $8 billion from 2006 to 2007. Losses to the industry from piracy 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 software that was not paid for. 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. Figure 3 shows the 2007 losses by region compared to 2006.

Figure 3. 2007 Dollar Losses by Region ($M)



More than half of the increase came from the drop in value of the US dollar in 2007 against major currencies; the rest came from overall growth in the PC software market. Again, *real* losses did not grow as fast as the overall PC software market, which grew faster than 15% last year.

As seen in Table 2, lower piracy regions and markets like Japan, North America, and Western Europe have among the highest dollar losses. These markets are so large that piracy at relatively low levels can generate significant losses. In fact, the developed regions account for almost half of the losses—of course they also account for 85% of the PC software market. Note that EU losses increased because two new countries, Bulgaria and Romania, joined in 2007.

Table 2. Rankings by 2007 PC Software Piracy Losses

Countries with $250 Million or More in Losses

Country	2007 ($M)	Country	2007 ($M)
United States	$8,040	Poland	$580
China	$6,664	South Korea	$549
Russia	$4,123	Netherlands	$502
France	$2,601	Australia	$492
India	$2,025	Thailand	$468
Germany	$1,937	Venezuela	$464
United Kingdom	$1,837	Indonesia	$411
Japan	$1,791	Ukraine	$403
Italy	$1,779	Argentina	$370
Brazil	$1,617	Turkey	$365
Canada	$1,071	Sweden	$324
Spain	$903	Malaysia	$311
Mexico	$836	Switzerland	$303
		South Africa	$284

It is important to note that studies conducted by IDC for BSA have shown that software piracy has an impact beyond the loss of revenues to software vendors.

Local software industries can be crippled by competition from pirated software from abroad, and local services firms and channel players lose revenue while businesses waste time and money working with faulty and unsupported software. Coupled with lost tax revenues and slower job growth than a larger legitimate market would provide, software piracy has clear negative consequences for local economies.

In IDC's latest study for the BSA on the economic impact of lowering PC software piracy in forty-two countries [*The Economic Benefits of Lowering PC Software Piracy*, released January 2008, www.bsa.org/idcstudy], IDC found that dropping PC piracy by ten percentage points between 2008 and 2012 could result in an increase of 500,000 additional new jobs and more than $100 billion in new revenues for local IT sectors. Importantly, IDC finds that most of the benefits that result from lowering software piracy accrue to locally based resellers, software services, and channel firms—meaning the greatest proportion of economic benefits from lowering software piracy remain within a country.

Thus, the broader economic impact of software piracy is significantly greater than the retail value of pirated software, or losses.

REGIONAL OBSERVATIONS

The methodical tracking of software piracy rates and losses may offer a historical benchmark of anti-piracy results, but it can obscure the dynamic nature of worldwide anti-piracy efforts.

Around the world, vendor legalization efforts have picked up steam, use of technical protection measures such as digital rights management has continued to grow, and vendors have continued to expand original equipment manufacturer (OEM) bundling agreements, preloading software onto hardware systems before they are shipped. Piracy in the government sector has dropped, and piracy in large enterprises has fallen in response to the pressures of globalization and evolving industry efforts. Companies throughout the software ecosystem are increasingly partnering on best practices for dealing with piracy. Government partnerships in BSA programs have also contributed significantly to the progress made in driving down software piracy, while local associations and anti-piracy organizations have continued to expand lobbying and education efforts.

A snapshot of developments at the regional level:

Asia-Pacific

- In China, accounting for the new information on the PC market, the real piracy rate dropped two points, as new vendor agreements with OEMs took effect in 2007 and as more China-based companies became multinational organizations, which added incentive to comply with international standards on intellectual property rights. At the same time, the number of PCs shipped to homes and small businesses grew faster than the market as a whole, especially in second- and third-tier cities, but not enough to offset progress among the larger customer segments.

- In Hong Kong, BSA has been working with the Customs & Excise Department and the Intellectual Property Department on a campaign to promote software audits in the corporate sector. Legalization efforts helped lower Hong Kong's piracy rate by two points.

- In India, a push to bundle broadband connections with PCs, particularly laptops, has been attractive to people who use their PCs as media players on the run. This, alongside education and enforcement efforts, is driving legitimate software into the market. Ironically, while India is an exporter of world class software expertise, its domestic market still resembles that of an emerging economy.

- In Japan, with the support of the Ministry of Education, Culture, Sports and Science & Technology, a BSA university outreach program has helped to create awareness among university administrators about software asset management, driving legalization and creating further awareness through campaign publicity.

- In Malaysia, the government has stepped up raids on business users of illegal software and has also launched an education campaign with BSA called "Sikap Tulen" intended to change the consumer mindset regarding legitimate software.

- In Vietnam, legalization efforts by the government and business end-user education efforts drove piracy down in those segments significantly, resulting in a three percentage point drop to 85% —a decrease that would have been lower (to approximately 81%) if not for an adjustment which increased the overall PC market in Vietnam in 2007 and, hence, the 2007 piracy rate. Also affecting the overall piracy landscape, however, was a 75% growth in PC shipments to consumers in 2007.

Central and Eastern Europe

- Russia had a phenomenal year, with the piracy rate dropping seven points in 2007. Ongoing legalization programs on the part of vendors and the government had an impact and also lowered piracy in the installed base. In addition, Russian police authorities increased the criminal enforcement against resellers and commercial users of illegal software while some of the distribution networks that sold pirated software have switched to legitimate software distribution. Rapid economic growth and the rise in disposable income are prompting consumers to re-evaluate the trade off between the risk of using pirated software and the cost of legitimate software. Were it not for an increase in software deployments to the installed base of older PCs compared to last year, the Russia rate might have been even lower. The legitimate PC software market grew more than 100% in 2007.

- This downward trend in piracy has also begun migrating outward to Kazakhstan, Ukraine, and other former Soviet Union countries.

- In European Union countries like Hungary and Poland, government, vendors, and trade associations have been especially active. In Poland, there are anti-piracy contests and awards for effective intellectual property rights enforcement. In Hungary, support from the tax fraud police has begun to bear fruit in tackling software piracy.

Latin America

- In Argentina, a fall in piracy was abetted by slower growth in the consumer PC market than in the business market, better law enforcement and border controls, and falling piracy in operating systems shipped with new computers.

- Brazil's one point piracy rate reduction came as a result of lower piracy in key segments, like operating systems and government and large business, as well as from impressive enforcement actions in 2007. Anti-piracy groups such as BSA worked closely with government authorities on a range of activities from policing cyber cafes and raiding labs, warehouses, and street operations, to training local law enforcement. There are two structural conditions of the market that make lowering piracy in Brazil a challenge: (1) a relatively high percentage of PCs—more than 40%—are sold by non-brand name vendors, and (2) a home and small-business sector that is 76% of the PC market and growing. Thus, a large portion of the market does not necessarily respond to anti-piracy efforts the same way larger corporations and multinationals do.

- Chile made progress in 2007 with a two percentage point drop in its software piracy rate. BSA is actively lobbying for stronger enforcement penalties as part of Chile's IPR laws; efforts which, coupled with increased BSA enforcement and education activity, contributed to positive movement in the piracy rate.

- In Costa Rica, the passage of IP legislation developed as part of the Central America Free Trade Agreement (CAFTA) generated significant public exposure around piracy issues, which contributed to a three-point drop in piracy to 61%.

- Awareness campaigns conducted by BSA with the Secretary of Economy, the American Chamber of Commerce, and the Mexico Consortium for Software contributed to Mexico's two percentage point drop in piracy in 2007. In addition, laptop computer sales have helped to increase the sales of branded vendors. In Mexico, laptop computers grew from 25% of the market to 33% in 2007.

- Throughout the region, however, 75% of Latin American PCs ship to small businesses or consumers and nearly 40% come from non-brand name vendors, translating into an uphill challenge for anti-piracy efforts throughout the region.

Middle East and Africa

- The United Arab Emirates (UAE), Israel, and South Africa are the only countries in the region among the lowest piracy countries (Table 1), yet only South Africa saw its piracy rate drop in 2007. The UAE saw a dramatic drop in piracy in the1990s that accompanied its deliberate strategy to become an international financial and business hub, but it has stayed flat since. Vendor associations and the government are active, but pirated software remains readily available on the streets.

- Egypt's government has been approving deals with vendors since the early 2000s to provide software for government and educational use, and the country has been shipping DVDs with bundles of legitimate software to schools and government offices. Although these sectors are less than 15% of the PC market, the programs have had an impact with the piracy rate dropping three points to 60%.

- The results of anti-piracy efforts are mixed in Gulf States like Bahrain, Kuwait, Oman, and Qatar. Anti-piracy efforts by industry and government in the region are paying off, yet, in Saudi Arabia, piracy has only dropped three percentage points to 51% since 2003 despite widely publicized enforcement efforts by the government. Pirated software is still readily available from street merchants.

- Tunisia saw a three-point drop in its piracy rate to 76% following strengthening of its IP enforcement activity and stronger penalties. While piracy remains high, this stronger stance by government combined with industry legalization activities are driving the piracy rate in the right direction.

- In African countries like Botswana, Zambia, and Zimbabwe, government organizations and copyright laws are in place, but education and enforcement are in their infancy. In many African countries, more pirated software than legitimate software is available, not to mention other types of counterfeit goods.

Western Europe

- In Western Europe, vendors are succeeding at getting more revenues out of the mature hardware base. This is particularly true for countries like Greece, Italy, France, and Spain, all of which saw piracy rates fall two to three percentage points in 2007. In Greece, the government requires software audits to be conducted as part of tax audits, which, along with active campaigns by anti-piracy organizations, helped drop piracy by three points. Similarly, close collaboration between BSA and

Italy's Guardia di Finanza (tax police) contributed to a two-point decline in that country.

- In Germany and Austria, broad BSA risk awareness campaigns, including mass media advertising, have helped turn the tide on stagnant and rising piracy rates and contributed to a modest decrease in 2007.

- Iceland also showed strong progress with a five-point drop in its piracy rate to 48%. A relatively small, concentrated, and institutionalized country like Iceland is capable of making significant strides where there exists a clear will.

- Luxembourg, new to the study in 2007, had the second lowest PC software piracy rate at 21%, just behind the US. A large compliancy-focused finance sector combined with a strong presence of government and the EU clearly serve as a powerful example for the rest of the country.

PIRACY TRENDS

With five years of history behind the IDC Global Software Piracy Study, several trends are clearly evident.

First, there is the rise of the emerging markets and the steady shift of the PC installed base to these countries where culture, economics, distribution dynamics, and often only a brief, if any, tradition of copyright protection conspire to make lowering piracy a challenge.

As well in these regions, where 80% of the world's population and 70% of small businesses reside, there are still vast numbers of first-time PC users to be found. Many of them will put pirated software on their first computers.

These two basic dynamics have meant that, while piracy has dropped in nearly two-thirds of the countries covered by the study, the worldwide piracy rate has risen.

In fact, there is now enough history and an understanding of these basic trends to project how the market may change in coming years:

- Dynamics in the PC installed base will put upward pressure on piracy rates. The installed base of PCs worldwide grew 13% last year—22% in the emerging geographies. In most countries, the fastest growth is in the consumer and small-business sectors, the hardest sectors in which to lower piracy. More mature segments of the market, where vendor legalization efforts have been more concentrated will become a smaller portion of the base over time.

- Internet access, particularly broadband Internet access, will put upward pressure on piracy rates. In 2007, 150 million people came onto the Internet for the first time. From 2008 through 2012, another 700 million will enter cyberspace, 76% of which will be located in emerging markets. Of the 200 million households expected to get broadband access between now and the end of 2012, more than half will be in emerging geographies. Access to pirated software will continue to shift from the streets to the Internet.

- Globalization will put downward pressure on piracy rates. As multinational companies invest in emerging markets, and as local players in China, India, Russia, and other fast-growing economies increasingly become multinational, the inefficiencies and risks of using pirated software will encourage the use of legitimate software. Trade with other nations and desire to enter communities such as the World Trade Organization or the European Union will also promote compliance with global intellectual property standards.

- The growth of local software markets will put downward pressure on piracy rates. As the use of IT in emerging countries becomes more sophisticated, local ecosystems for creating and servicing home-grown software applications and products will spur indigenous lobbying groups to educate governments and press for further action.

- Vendor and trade association efforts will put downward pressure on piracy rates. This year, legalization efforts begun years ago in countries like Russia, Egypt, Vietnam, and Greece have begun to bear fruit. There is an emerging blueprint for lowering piracy, and high-growth emerging markets must be the focus now that market growth in mature geographies is slowing.

- Technology will put downward pressure on piracy rates. In the 1990s, peer-to-peer communication and Internet-born "cracking" of copy protection schemes led to increases in the use of unlicensed software. Now, the pendulum has swung back, with software vendors building technical protection measures like digital rights management directly into their products to prevent illegal use.

- New software funding models will put downward pressure on piracy rates. Advertising supported software delivery and software-as-a-service will move the cost of a software license elsewhere in the value chain, eliminating the economic advantage of using pirated software.

Whether piracy continues to rise or fall will be the result of a complex equation of these countervailing trends. Culture, institutional effectiveness, political conditions, geography, and technology will also factor in.

It is likely that piracy rates will continue to drop in many countries, but the global rate will stay flat or increase as the market shifts to higher-piracy countries.

FIVE STEPS FOR REDUCING SOFTWARE PIRACY

1. Increase Public Education and Awareness
   Reducing software piracy often requires a fundamental shift in the public's attitude toward piracy, and public education is a critical component of any successful effort. Governments can increase public awareness of the importance of respecting creative works by informing businesses and the public at large about the risks associated with using pirated software and encouraging and rewarding the use of legitimate products. Some of the most successful efforts stem from comprehensive public education campaigns launched jointly by government and industry to promote the value of software, and the legal and commercial benefits of managing software as an asset.

2. Implement the WIPO Copyright Treaty
   In 1996, in direct response to the growing threat of Internet piracy, the World Intellectual Property Organization (WIPO) adopted new copyright treaties to enable better and more effective enforcement against digital and online piracy. More than 1.2 billion people around the globe now have Internet access—increasing the power and potential of software but also opening new doors for pirates to distribute their wares. In order to ensure protection of copyrighted works in the digital age, countries need to update national copyright laws to implement their WIPO obligations. Among other things, these measures ensure that protected works are not made available online without the author's permission, and that copy protection tools are not hacked or circumvented.

3. Create Strong and Workable Enforcement Mechanisms as Required by TRIPS
   Strong copyright laws are essential, but meaningless without effective enforcement. Governments must fulfill their obligations under the World Trade Organization's (WTO) Trade-Related Aspects of Intellectual Property Rights Agreement (TRIPS) by adopting and implementing laws that meet international norms for IP rights protection and enforcement against all types of PC software piracy, including the use of illegal and unlicensed software in the workplace.

4. Step Up Enforcement with Dedicated Resources
   Too often, software thieves are not treated as seriously as other criminals, and the punishment is too insignificant to be an effective deterrent. Countries can elevate their enforcement of intellectual property by:

- Creating specialized intellectual property enforcement units at the national and local levels, and providing dedicated resources to investigate and prosecute intellectual property theft;

- Increasing cross-border cooperation among police and other enforcement agencies to improve coordination for law enforcement in multiple countries; and

- Supporting the training of law enforcement and judiciary officials, and providing better technical assistance to ensure that the people on the front lines of piracy enforcement are equipped with the tools they need to deal with the changing nature of intellectual property theft.

5. Lead by Example
   Because governments are the largest users of software in the world, one of the most effective mechanisms for public persuasion stems from governments themselves sending a strong and clear message that they will not tolerate piracy, and from actively managing their own software assets. This can be achieved by implementing software management policies to set an example the private sector should follow.

Table 3. 2007 Global PC Software Piracy Study

	PIRACY RATES						LOSSES				
Asia-Pacific	2007	2006	2005	2004	2003		2007 ($M)	2006 ($M)	2005 ($M)	2004 ($M)	2003 ($M)
Australia	28%	29%	31%	32%	31%		$492	$515	$361	$409	$341
Bangladesh	92%	92%					$92	$90			
China	82%	82%	86%	90%	92%		$6,664	$5,429	$3,884	$3,565	$3,823
Hong Kong	51%	53%	54%	52%	52%		$224	$180	$112	$116	$102
India	69%	71%	72%	74%	73%		$2,025	$1,275	$566	$519	$367
Indonesia	84%	85%	87%	87%	88%		$411	$350	$280	$183	$158
Japan	23%	25%	28%	28%	29%		$1,791	$1,781	$1,621	$1,787	$1,633
Malaysia	59%	60%	60%	61%	63%		$311	$289	$149	$134	$129
New Zealand	22%	22%	23%	23%	23%		$55	$49	$30	$25	$21
Pakistan	84%	86%	86%	82%	83%		$125	$143	$48	$26	$16
Philippines	69%	71%	71%	71%	72%		$147	$119	$76	$69	$55
Singapore	37%	39%	40%	42%	43%		$159	$125	$86	$96	$90
South Korea	43%	45%	46%	46%	48%		$549	$440	$400	$506	$462
Sri Lanka	90%	90%					$93	$86			
Taiwan	40%	41%	43%	43%	43%		$215	$182	$111	$161	$139
Thailand	78%	80%	80%	79%	80%		$468	$421	$259	$183	$141
Vietnam	85%	88%	90%	92%	92%		$200	$96	$38	$55	$41
Other AP	91%	86%	82%	76%	76%		$69	$148	$29	$63	$37
TOTAL AP	**59%**	**55%**	**54%**	**53%**	**53%**		**$14,090**	**$11,718**	**$8,050**	**$7,897**	**$7,555**
Central & Eastern Europe	2007	2006	2005	2004	2003		2007 ($M)	2006 ($M)	2005 ($M)	2004 ($M)	2003 ($M)
Albania	78%	77%	76%	77%			$11	$11	$9	$7	
Armenia	93%	95%	95%				$8	$8	$7		
Azerbaijan	92%	94%	94%				$50	$51	$40		
Bosnia	68%	68%	69%	70%			$13	$14	$13	$12	
Bulgaria	68%	69%	71%	71%	71%		$63	$50	$41	$33	$26
Croatia	54%	55%	57%	58%	59%		$68	$62	$51	$50	$45
Czech Republic	39%	39%	40%	41%	40%		$161	$147	$121	$132	$106
Estonia	51%	52%	54%	55%	54%		$20	$16	$18	$17	$14
Hungary	42%	42%	42%	44%	42%		$125	$111	$106	$126	$96
Kazakhstan	79%	81%	85%	85%	85%		$110	$85	$69	$57	
Latvia	56%	56%	57%	58%	57%		$29	$26	$20	$19	$16
Lithuania	56%	57%	57%	58%			$37	$31	$25	$21	$17
Macedonia	68%	69%	70%	72%			$11	$10	$9	$8	
Moldova	92%	94%	96%				$43	$56	$44		
Montenegro	83%	82%	83%	83%			$7	$6	$9	$8	
Poland	57%	57%	58%	59%	58%		$580	$484	$388	$379	$301
Romania	68%	69%	72%	74%	73%		$151	$114	$111	$62	$49
Russia	73%	80%	83%	87%	87%		$4,123	$2,197	$1,625	$1,362	$1,104
Serbia	76%	78%	80%	80%			$72	$59	$95	$85	
Slovakia	45%	45%	47%	48%	50%		$54	$47	$44	$48	$40
Slovenia	48%	48%	50%	51%	52%		$39	$36	$33	$37	$32
Ukraine	83%	84%	85%	91%	91%		$403	$337	$239	$107	$92
Rest of CEE	88%	90%	92%	88%	83%		$173	$166	$145	$112	$173
TOTAL CEE	**68%**	**68%**	**69%**	**71%**	**71%**		**$6,351**	**$4,124**	**$3,262**	**$2,682**	**$2,111**
Latin America	2007	2006	2005	2004	2003		2007 ($M)	2006 ($M)	2005 ($M)	2004 ($M)	2003 ($M)
Argentina	74%	75%	77%	75%	71%		$370	$303	$182	$108	$69
Bolivia	82%	82%	83%	80%	78%		$19	$15	$10	$9	$11
Brazil	59%	60%	64%	64%	61%		$1,617	$1,148	$766	$659	$519
Chile	66%	68%	66%	64%	63%		$187	$163	$109	$87	$68
Colombia	58%	59%	57%	55%	53%		$127	$111	$90	$81	$61
Costa Rica	61%	64%	66%	67%	68%		$22	$27	$19	$16	$17
Dominican Republic	79%	79%	77%	77%	76%		$39	$19	$8	$4	$5
Ecuador	66%	67%	69%	70%	68%		$33	$30	$17	$13	$11
El Salvador	81%	82%	81%	80%	79%		$28	$18	$8	$5	$4
Guatemala	80%	81%	81%	78%	77%		$41	$26	$14	$10	$9
Honduras	74%	75%	75%	75%	73%		$8	$7	$4	$3	$3
Mexico	61%	63%	65%	65%	63%		$836	$748	$525	$407	$369
Nicaragua	80%	80%	80%	80%	79%		$4	$4	$2	$1	$1
Panama	74%	74%	71%	70%	69%		$22	$18	$8	$4	$4
Paraguay	82%	82%	83%	83%	83%		$13	$10	$10	$11	$9
Peru	71%	71%	73%	73%	68%		$75	$59	$40	$39	$31
Uruguay	69%	70%	70%	71%	67%		$23	$16	$9	$12	$10
Venezuela	87%	86%	82%	79%	72%		$464	$307	$173	$71	$55
Other LA	83%	83%	82%	79%	81%		$195	$96	$32	$6	$7
TOTAL LA	**65%**	**66%**	**68%**	**66%**	**63%**		**$4,123**	**$3,125**	**$2,026**	**$1,546**	**$1,263**

	PIRACY RATES						LOSSES				
Middle East & Africa	**2007**	**2006**	**2005**	**2004**	**2003**		**2007 ($M)**	**2006 ($M)**	**2005 ($M)**	**2004 ($M)**	**2003 ($M)**
Algeria	84%	84%	83%	83%	84%		$86	$62	$66	$67	$59
Bahrain	57%	60%	60%	62%	64%		$27	$23	$22	$19	$18
Botswana	82%	81%	82%	84%	81%		$14	$12	$12		
Cameroon	84%	84%	84%	84%	81%		$5	$5	$5		
Egypt	60%	63%	64%	65%	69%		$131	$88	$80	$50	$56
Iraq	85%						$124				
Israel	32%	32%	32%	33%	35%		$121	$102	$84	$66	$69
Ivory Coast	81%	82%	82%	84%	81%		$15	$16	$23		
Jordan	60%	61%	63%	64%	65%		$20	$19	$19	$16	$15
Kenya	81%	80%	81%	83%	80%		$28	$22	$20	$16	$12
Kuwait	62%	64%	66%	68%	68%		$61	$60	$65	$48	$41
Lebanon	73%	73%	73%	75%	74%		$44	$39	$34	$26	$22
Libya	88%						$22				
Mauritius	57%	59%	60%	60%	61%		$4	$3	$3	$4	$4
Morocco	67%	66%	68%	72%	73%		$66	$53	$55	$65	$57
Nigeria	82%	82%	82%	84%	84%		$114	$100	$82	$54	$47
Oman	61%	62%	63%	64%	65%		$23	$25	$22	$13	$11
Qatar	54%	58%	60%	62%	63%		$25	$23	$21	$16	$13
Reunion	40%	40%	40%	40%	39%		$1	$0	$1	$1	$1
Saudi Arabia	51%	52%	52%	52%	54%		$170	$195	$178	$125	$120
Senegal	80%	81%	82%	84%	81%		$6	$6	$6		
South Africa	34%	35%	36%	37%	36%		$284	$225	$212	$196	$147
Tunisia	76%	79%	81%	84%	82%		$54	$55	$54	$38	$29
Turkey	65%	64%	65%	66%	66%		$365	$314	$268	$182	$127
UAE	35%	35%	34%	34%	34%		$94	$62	$45	$34	$29
Yemen	89%						$13				
Zambia	82%	82%	83%	84%	81%		$2	$2	$2		
Zimbabwe	91%	91%	90%	90%	87%		$3	$2	$6	$9	$6
Other Africa	85%	85%	84%	84%	81%		$76	$49	$63	$124	$84
Other ME	87%	89%	91%	93%	92%		$448	$423	$154	$70	$51
TOTAL MEA	**60%**	**60%**	**57%**	**58%**	**56%**		**$2,446**	**$1,985**	**$1,602**	**$1,239**	**$1,018**
North America	**2007**	**2006**	**2005**	**2004**	**2003**		**2007 ($M)**	**2006 ($M)**	**2005 ($M)**	**2004 ($M)**	**2003 ($M)**
Canada	33%	34%	33%	36%	35%		$1,071	$784	$779	$889	$736
Puerto Rico	44%	45%	47%	46%	46%		$33	$31	$12	$15	$11
United States	20%	21%	21%	21%	22%		$8,040	$7,289	$6,895	$6,645	$6,496
TOTAL NA	**21%**	**22%**	**22%**	**22%**	**23%**		**$9,144**	**$8,104**	**$7,686**	**$7,549**	**$7,243**
Western Europe	**2007**	**2006**	**2005**	**2004**	**2003**		**2007 ($M)**	**2006 ($M)**	**2005 ($M)**	**2004 ($M)**	**2003 ($M)**
Austria	25%	26%	26%	25%	27%		$157	$147	$131	$128	$109
Belgium	25%	27%	28%	29%	29%		$223	$222	$257	$309	$240
Cyprus	50%	52%	52%	53%	55%		$14	$12	$13	$9	$8
Denmark	25%	25%	27%	27%	26%		$193	$183	$199	$226	$165
Finland	25%	27%	26%	29%	31%		$160	$149	$156	$177	$148
France	42%	45%	47%	45%	45%		$2,601	$2,676	$3,191	$2,928	$2,311
Germany	27%	28%	27%	29%	30%		$1,937	$1,642	$1,920	$2,286	$1,899
Greece	58%	61%	64%	62%	63%		$198	$165	$157	$106	$87
Iceland	48%	53%	57%				$33	$32	$18		
Ireland	34%	36%	37%	38%	41%		$106	$92	$93	$89	$71
Italy	49%	51%	53%	50%	49%		$1,779	$1,403	$1,564	$1,500	$1,127
Luxembourg	21%						$16				
Malta	46%	45%	45%	47%	46%		$7	$7	$5	$3	$2
Netherlands	28%	29%	30%	30%	33%		$502	$419	$596	$628	$577
Norway	29%	29%	30%	31%	32%		$195	$181	$169	$184	$155
Portugal	43%	43%	43%	40%	41%		$167	$140	$104	$82	$66
Spain	43%	46%	46%	43%	44%		$903	$865	$765	$634	$512
Sweden	25%	26%	27%	26%	27%		$324	$313	$340	$304	$241
Switzerland	25%	26%	27%	28%	31%		$303	$324	$376	$309	$293
United Kingdom	26%	27%	27%	27%	29%		$1,837	$1,670	$1,802	$1,963	$1,601
TOTAL WE	**33%**	**34%**	**35%**	**34%**	**36%**		**$11,655**	**$10,642**	**$11,856**	**$11,865**	**$9,612**
Total Worldwide	**38%**	**35%**	**35%**	**35%**	**36%**		**$47,809**	**$39,698**	**$34,482**	**$32,778**	**$28,803**
BRIC Countries	**75%**	**77%**	**81%**	**85%**	**87%**		**$14,429**	**$10,049**	**$6,841**	**$6,105**	**$5,813**
European Union	**35%**	**36%**	**36%**	**35%**	**37%**		**$12,383**	**$11,003**	**$12,048**	**$12,151**	**$9,786**

BRIC Countries include: Brazil, Russia, India, China

STUDY METHODOLOGY

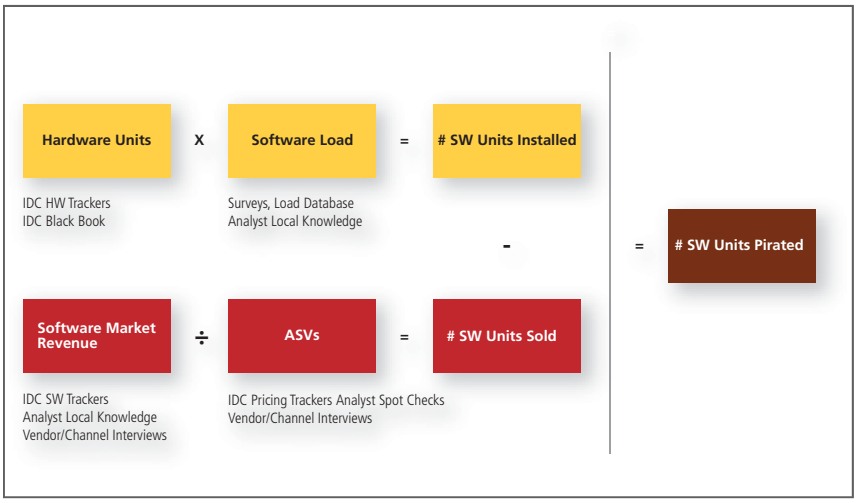
IDC uses the following basic research architecture to measure software piracy rates and losses:

1. Determine how much PC packaged software was deployed in 2007.
2. Determine how much PC packaged software was paid for/legally acquired in 2007.
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 not legally acquired.

Figure 4 shows the general method IDC used to determine how much software was added in 2007 and how much was paid for. The text under each box refers to the sources of the data inputs.

Figure 4. Methodology at a Glance



SOFTWARE CATEGORIES EXAMINED

IDC calculates piracy on all software that runs on personal computers, including desktops, laptops, and ultra-portables. The categories include operating systems, systems software such as databases and security packages, and applications software such as office automation packages, finance and tax packages, PC computer games and industry-specific applications. IDC excludes routine device drivers and free downloadable utilities, such as screen savers.

In its calculations of the total software deployed during the year, open source software, freeware, and shareware were considered legitimate software and were not considered pirated. In calculating piracy losses, IDC counted this as paid-for software with a price of $0. Any open source software that is paid for would automatically show up as legitimate software based on IDC's methodology of taking market-spending figures to compute units of legitimate software put into use in the year.

THE IMPACT OF LEGALIZATION PROGRAMS

Anti-piracy legalization programs by vendors and governments are excellent ways to lower software piracy. The programs typically entail bulk purchases of licenses for software that may already be deployed in pirated versions. These programs, importantly, create a base of legitimate software on which the market can build.

In the IDC calculation of piracy rates for this study, only software that was deployed in 2007 was counted as *pirated* in the installed base. Thus, there is a gray area when counting legitimate licenses that affect the legal status of software pirated in years prior to 2007.

To be consistent with the historical methodology and results of the global study, IDC treated software made legal through legalization programs as follows:

- New software programs that were *actually installed on a PC* during 2007 as part of a legalization program—e.g., government distribution of software for schools in Egypt and Vietnam—were counted as legitimate software shipments.
- Software licenses sold for software pirated in 2007, but which did not entail a re-install or upgrade, were nevertheless counted as legitimate shipments.
- Software licenses sold for software pirated in years prior to 2007 that did not entail a re-install or upgrade were *not* counted as a 2007 license shipment.

This treatment of pirated software legalized through these types of programs has the effect of accurately portraying the relationship between pirated and non-pirated software in 2007, but it does not account for software pirated in years prior to 2007 that is suddenly made legal. Accounting for it would mean restating prior years every year, an exercise beyond the scope of this annual study.

THE IMPACT OF NEW INFORMATION ON THE PC MARKETS IN CHINA AND VIETNAM

In late 2007, IDC took a closer look at the PC markets in China and Vietnam in response to new inputs on component shipments and additional information received from second- and third-tier cities in these countries. As a result, IDC found a significant number of PCs had been shipped in 2007 by small local assemblers and non-brand name vendors—firms too small to track vendor by vendor—sometimes called "white box" vendors. These firms generally sell to consumers and small businesses, often in smaller cities geographically distant from major urban centers. This new information raised the PC count in the two countries beyond the shipments by brand name vendors, and the new PC market sizes were factored into the model in determining the 2007 piracy rates.

For reference, pro forma rates for 2007 for China and Vietnam, had the additions to the PC markets not been factored in, would be as follows:

Country	Reported 2006 piracy rate	Pro forma 2007 piracy rate	Reported 2007 piracy rate
China	82%	80%	82%
Vietnam	88%	81%	85%

These updates are part of a constant process to ensure the most current and accurate information is available across all countries. Similar assessments may be conducted with IDC's PC market data in Brazil and India this year, and this new information will be incorporated into the 2008 study.

YEAR-ON-YEAR COMPARISONS AND EXCHANGE RATES

All dollar figures for a year are in constant dollars from the year before, so exchange rates can impact direct comparisons of dollar losses year by year. In 2007, the US dollar dropped significantly against the euro, pound, yen, real, ruble, and many other currencies. Recalculating the 2006 piracy losses in 2007 dollars would add more than five billion dollars to the amount, meaning that more than half of the difference between 2006 and 2007 losses is solely the result of exchange rates.

The impact of exchange rates can be seen more starkly in individual countries or regions. Losses that appear to have gone up in many places actually went down in constant dollars.

Country	2007 Losses	2006 Losses	Difference	2006 Losses in 2007 Dollars	New Difference
India	$2,025	$1,275	$750	$1,386	$639
Japan	$1,791	$1,781	$10	$1,881	($90)
Russia	$4,123	$2,197	$1,926	$2,320	$1,803
Brazil	$1,617	$1,148	$469	$1,282	$335
Canada	$1,071	$784	$287	$828	$243
Austria	$157	$147	$10	$160	($3)
France	$2,601	$2,676	($75)	$2,917	($316)
Germany	$1,937	$1,642	$295	$1,790	$147
Spain	$903	$865	$38	$943	($40)
Western Europe	$11,655	$10,642	$1,013	$11,600	$55

EQUATING THE VALUE OF PIRATED SOFTWARE TO LOSSES

For many years, BSA has equated the value of pirated software to industry "losses." This has led to questions as to whether these losses are real.

While not every piece of pirated software would be purchased if piracy rates were to go down—some will be substituted, some not used—lower piracy rates yield more economic activity that stimulates more software production and purchases.

IDC has confirmed this by analyzing the ratio of software spending to hardware spending for the countries in the study and finds that, as expected, there is a high correlation between piracy rates and that ratio. The higher the piracy rate, the lower the ratio of software spending to hardware spending. Given the definition of piracy, that would seem obvious.

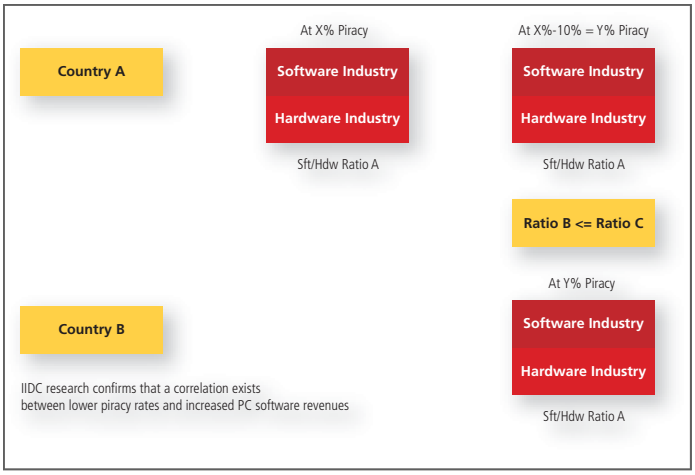
However, IDC also found that calculated software gains from lowering piracy ten points almost always

led to a software-to-hardware ratio that was still lower than countries with a piracy rate at the new target.

When done by cohort, or collections of countries with similar piracy rates, if each cohort were to lower its piracy rate by ten points and grow the software industry by the amount of the software that had previously been pirated, in all cases that cohort would have a smaller software industry than the cohort with the next lowest piracy rate.

Figure 5 illustrates the process of comparing countries used in the economic impact study of lowering piracy.

Figure 5. Confirmation That Losses Are Real



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

Quarterly, IDC collects detailed PC shipment tracking data on more than seventy-five countries. For the additional thirty-plus countries and markets, the data were 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. The installed base for 2007 consisted of PCs installed at the end of 2007 minus 2007 PC shipments.

Software revenues

Software revenues are captured annually in more than seventy 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 are either collected in-country or modeled regionally based on IDC's rest-of-region estimates.

Software shipments (legitimate)

Software shipments are 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 are gathered from IDC's pricing trackers, local research, and interviews with the channel. They include adjustments for OEM and channel-loaded software as well as software from local suppliers.

Software unit shipments are derived by taking revenues and dividing by the average system value, and then cross-checked with data provided by vendors and channel members. These shipments represent the legitimate software installed during the year.

Software load

Software load is the number of software units installed and/or pre-installed (OEM) on PCs during the year, both newly shipped PCs and PCs already in the installed base. The number is derived from a model that uses results from surveys in the field, analyst estimates and spot inventories, and other local research. Inputs to the model included surveys in fifteen countries in 2003, local surveys and research in 2004 and 2005, another survey fielded in twenty-one countries in 2006, and one in twenty-two countries in 2007. The surveys are not direct inputs to the piracy model, but are used to develop software load profiles for each country based on a variety of local statistics, including demographics, computer sophistication, and comparisons to like 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; and
- Software running on Windows and non-Windows OS.

Total software base

The total software base is the amount of software, legitimate and pirated, installed during the year. It is obtained by multiplying the number of PCs receiving new software during the year by the average number of software packages per PC that were installed in 2007.

Pirated software

The amount of pirated software is the difference between paid-for or legitimate packaged software units and the total software base.

Piracy rate

The piracy rate is the total number of units of pirated software deployed in 2007 divided by the total units of software installed.

Losses

The retail value of pirated software is calculated using the size of the legitimate software market and the piracy rate. The actual formula is: 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 industry, including revenues to both international and local in-country software vendors and mark-up to local distributors and retailers.

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