MAY 2009 | SIXTH ANNUAL BSA-IDC GLOBAL SOFTWARE

08 PIRACY STUDY

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Analyze the Future

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EXECUTIVE SUMMARY

Governments, software companies, and BSA are making progress in stopping the illegal use of software products. But piracy remains a serious problem in all countries. These are the key findings of the sixth annual BSA-IDC study of personal computer (PC) software piracy around the world:

- In 2008, the rate of PC software piracy dropped in about half (52 percent) of the 110 countries studied and remained the same in about a third (35 percent).
- However, the worldwide piracy rate went up from 38 percent in 2007 to 41 percent in 2008. The global rate rose for the second year in a row because PC shipments grew fastest in high-piracy rate countries.
- The monetary value of unlicensed software ("losses" to software vendors) grew by more than $5.1 billion (11 percent) to $53.0 billion from 2007 to 2008, although half of that growth was the result of changing exchange rates. Excluding the effect of exchange rates, losses grew by 5 percent to $50.2 billion. The legitimate software market grew by 14 percent.
- The forces that reduced piracy in many countries included vendor-driven legalization programs, education and enforcement actions by governments and BSA, and technology shifts, such as the increased deployment of digital rights management.
- The forces that increased piracy, or prevented significant declines in piracy rates, included the rapid growth of the consumer PC market, activity in the base of older computers where unauthorized software may replace previously pirated software, expanding access to the Internet, and the increasing sophistication of software pirates.
- The impact of the current economic crisis appeared to be muted in its effect on piracy in 2008, in part because significant spending cutbacks did not start until late in the year, and also because the cost of software (and the ability of users to pay for it) is only one factor in the complex equation that results in software piracy.
- While emerging economies account for 45 percent of the global PC hardware market, they account for less than 20 percent of the PC software market. If the emerging economies' PC software share were the same as it is for PC hardware, the software market would grow by $40 billion a year.
- The lowest-piracy countries are the United States, Japan, New Zealand, and Luxembourg, all near 20 percent. The highest-piracy countries are Armenia, Bangladesh, Georgia, and Zimbabwe, all over 90 percent.
- The highest-piracy regions are Central and Eastern Europe, with a regional average of 67 percent, and Latin America (65 percent). The lowest regions are North America (21 percent) and the European Union (35 percent).

INTRODUCTION

2008 was another year of mixed progress in the fight against PC software piracy. The good news is that the rate of PC software piracy dropped in 57 (52 percent) of the 110 countries studied and remained stable in another 39 countries (35 percent).

The bad news is that despite the drop in piracy in many countries, the *global* PC software piracy rate went up. This was the mathematical outcome of rapid growth of PC markets in high-piracy countries. Emerging markets saw PC shipments grow 33 percent faster than mature markets.[i] Even if piracy were to go down in every high-piracy country, their growing market share for PCs will continue to drive the global average up until piracy is cut more deeply.

Similar mathematics apply when looking at dollar losses from piracy. If there were no change to the piracy rate and the total market grew, so would losses, since piracy would take the same slice of a bigger pie. In fact, losses grew 11 percent, and the legitimate software market grew 14 percent.

Losses did, however, reach $53 billion worldwide in 2008. For every $100 of legitimate software sold, another $69 was pirated.

Note that it is possible for a country to have a drop in its piracy rate and an increase in losses because of general PC software market growth. For example, a country with a PC software market of $150 million in 2007 and a piracy rate of 45 percent would show losses in 2007 of $123 million. If the PC software market grew 10 percent in 2008, yet piracy dropped by 2 percentage points, it would still have losses in 2008 of $124.5 million.

FACTORS AFFECTING SOFTWARE PIRACY

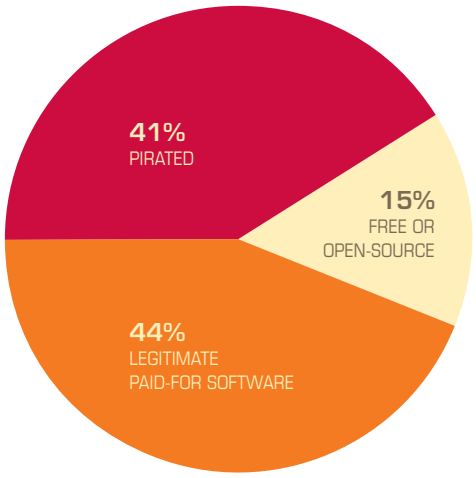
Years of studying the dynamics of PC software piracy reveal a number of factors that reduce PC software piracy and drive economic benefits to local and global economies. This year, the factors that helped drive piracy down in 57 countries — and kept it from getting worse in 39 other countries — were:

- Vendor-driven legalization programs as well as education and support of, and negotiations with, hardware suppliers and resellers.
- Government-driven education programs, enforcement actions, and enterprise software legalization initiatives.
- Technology shifts, from the increased deployment of digital rights management and the steady replacement of desktop computers by laptops, which are more likely to come with legitimate software pre-installed, to the increased adoption of software asset management (SAM) programs that help users keep track of software licenses and optimize the right software for their workload.
- Changing distribution models, from delivery of open source software in PCs and offering free trial software as encouragement to buy full-function software, to bundling software — and sometimes even the entire PC — as part of another service, such as broadband Internet access.

This last point speaks of another long-term trend that will affect software piracy: the selling of software-as-a-service, also known as SaaS or "cloud computing." In this business model, software functionality resides on a vendor's server, rather than on a local PC, and is accessed via the Internet. According to IDC research, SaaS accounts for 6 percent of all application software sales (including mainframe, server, and PC software), and it is growing fast. A good example on the PC front is Microsoft's Office Live, which allows users to manage files and contacts, as well as store and share documents, over the Web. Another example is Adobe's online service for converting documents from other formats to its PDF format.

Figure 1 shows the breakdown of software covered in the piracy study. Note that open source and legitimate free software are not considered pirated. Also note what categories we *do not cover:* trial or beta version software, like Microsoft's current version of Windows 7; drivers, such as those for printers and scanners; and utilities such as disk defragmenters that come as system software. Nor do we cover software that is sold by subscription that does not entail deploying code on the PC; nor functionality that was once customarily deployed as a software package and which is now primarily available as a Web service, such as package tracking.

FIGURE 1: PC Software Units by Category



EXCLUDED: TRIALS AND BETA SOFTWARE, UTILITIES AND DRIVERS, WEB SERVICES, SOFTWARE-AS-A-SERVICE, CLOUD COMPUTING SERVICES
SOURCE: SIXTH ANNUAL BSA-IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2009

THE SOFTWARE JOURNEY

Software gets to market in myriad ways. It can be:

- Bundled with new PCs;
- Sold in retail stores;
- Distributed by resellers;
- Bundled as part of larger projects;
- Ordered online;
- Copied and installed on multiple machines using volume licenses;
- Copied and installed on multiple machines without licenses;
- Made available through vendor legalization programs;
- Given as a gift;
- Moved from older PCs;
- Pirated from peer-to-peer and other Web sites;
- Borrowed from friends; or
- Acquired from street vendors.

Each path to market presents opportunities for piracy. For example, counterfeit software may work its way through the distribution channel to end users. Illegal software may be sold over Internet auction sites such as eBay to buyers who do not realize it is not legitimate. Organized crime syndicates may manufacture counterfeit packaged software in concealed factories. Corporate IT departments may install more copies of software than their licenses allow, sometimes intentionally, sometimes not.

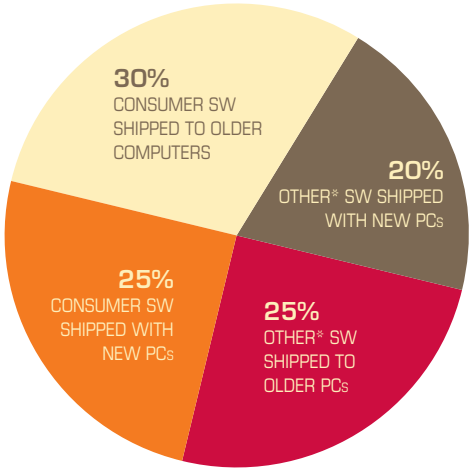
What's more, each path can lead to different destinations. For example, a given software package may end up on a corporate executive's new laptop, a teen's hand-me-down home computer, a new desktop at a large company, or an older desktop in a school classroom.

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

Figure 2 shows the approximate destination of *both* pirated and legitimate PC software worldwide in 2008.

FIGURE 2: Where Software is Deployed

PCs IN 2008 GETTING SOFTWARE (APPROXIMATE)



* SCHOOLS, BUSINESSES, AND GOVERNMENT
SOURCE: SIXTH ANNUAL BSA-IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2009

PIRACY RATE DYNAMICS BY ECONOMIC SECTOR

IDC believes that piracy dynamics vary by the segments shown in Figure 2. For example:

- Consumers are more active than businesses in replacing software on older computers, often replacing pirated software with new pirated software. In general, the piracy rate is higher for software shipped to older computers.
- Consumers generally install more software on their computers, both new and old, than businesses. Hence, while consumers account for 45 percent of PCs shipped, they account for 55 percent of PC software deployed.
- Businesses, schools, and government entities tend to use more pirated software on new computers than ordinary consumers do. This is because consumers buy a high percentage of PCs with legitimate bundled software from national retail chains. Businesses, governments, and schools use more diverse distribution channels with less pre-bundled software, and these channels are more likely to include sources of pirated software.
- Within the business sector, IDC believes that piracy is generally higher among small businesses than large ones, in part because small businesses are more often buying computers from non-brand-name vendors, or so-called "white box" suppliers, who are more likely to bundle pirated software on their PCs than brand-name vendors.

Thus, the PC software piracy rate for a given country reflects a complex set of inputs to the simple equation that produces the rate. These include:

- PC shipment growth;
- Activity in the installed base of older machines;
- Consumer versus business ownership;
- Distribution channels, especially growth or decline of non-branded vendors;
- Legalization and special pricing programs of vendors;
- Availability of legitimate software;
- Availability of pirated software;
- Broadband access;
- Desktop-to-laptop mix; and
- Economic conditions, taxes, and exchange rates that affect software prices or the discretionary income of buyers.

Because of these complex inputs, two countries with seemingly similar PC software markets may have quite different piracy rates. One country may have more sophisticated PC users with more software on their PCs than another country, which means that it might have more pirated software per dollar of legitimate software than another country. One country might see a higher percentage of its older computers receiving software in a year than another country, which, again, could mean it would have a higher piracy rate.

A fuller discussion of the study inputs and methodology is provided in the section *How IDC Calculates Software Piracy.*

IMPACT OF THE ECONOMIC CRISIS

In 2008, the global economic downturn added two additional inputs to the piracy rate dynamics discussed above: (1) changing exchange rates, and (2) decreased consumer and business spending power.

For the year as a whole, the US dollar fell against most major currencies; but toward the end of the year that trend reversed, raising the effective local currency price of much of the world's software, more than half of which is sold by US-based suppliers. IDC analysts and BSA members reported that by the end of the year, they began seeing some change in buying patterns of consumers and businesses in countries due to the economic crisis, i.e., spending power fell, and the effective price of software went up. However, these changes came too late in the year to have a significant impact on 2008 piracy rates.

The economic crisis is likely to have a bigger effect on software piracy in 2009. Since consumers are more likely to hold on to their PCs longer, this may result in increased software piracy because older computers are more likely to have unlicensed software. However, there are other crisis-driven dynamics that could curtail piracy, such as higher sales of inexpensive netbooks with pre-installed software; reduced prices from vendors to spur demand; and increased deployment of software asset management (SAM) programs that can lower overall IT costs.

Finally, economists and academics have found that the cost of software is only one factor driving software piracy. A few more include local cultural norms, the strength of intellectual property laws, and the effectiveness of the institutions enforcing intellectual property rights.[ii] Thus, the economic crisis will have an impact on piracy — part of it negative, part of it positive — but it will be only one of many factors.

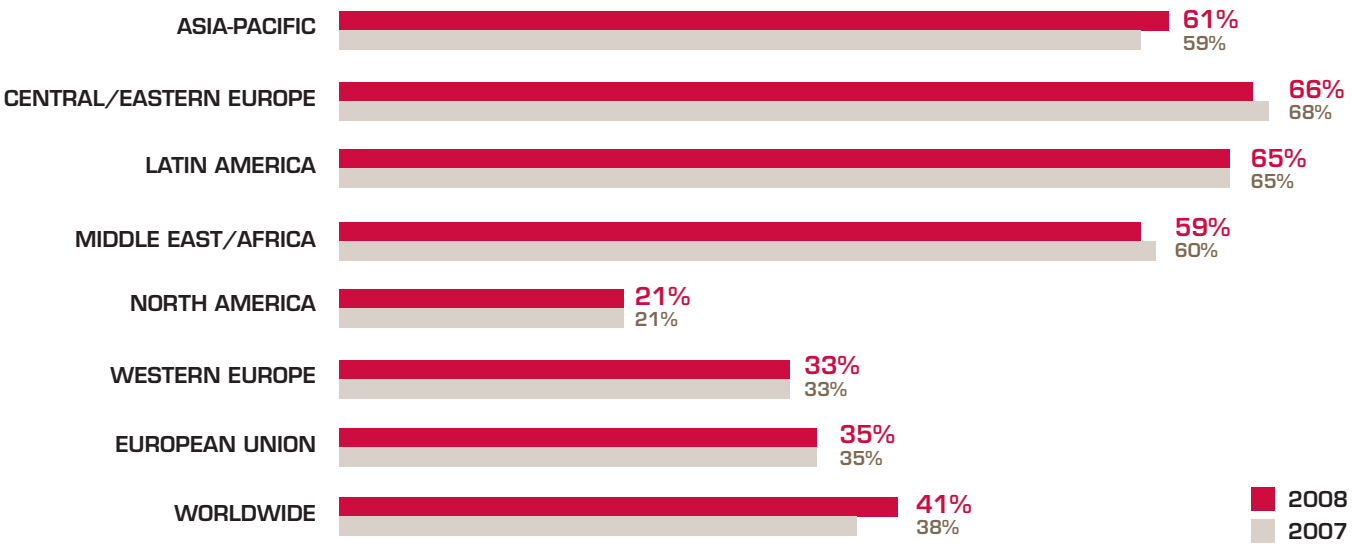
Study Background

BSA has been studying global trends in PC software piracy for more than a decade. This is the sixth annual study conducted by IDC, the IT industry's leading global market research and forecasting firm, using the same methodology and standard, reliable data sets.

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 60+ countries to review local market conditions. With ongoing coverage of hardware and software markets in 100+ countries, and with 60 percent of its analyst force outside the United States, IDC has a deep and broad information base from which to assess the market and estimate the rate of PC software piracy around the world.

A CLOSER LOOK AT REGIONAL VARIATIONS

FIGURE 3: Piracy Rate by Region



SOURCE: SIXTH ANNUAL BSA-IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2009

Figure 3 shows the relative ranking of seven regions by piracy rate. Six of the seven regions shown are mutually exclusive, while the seventh — the European Union — includes countries from both Western Europe and Central and Eastern Europe.

Piracy dropped or was flat in Central and Eastern Europe, Middle East and Africa, North America, Latin America, and Western Europe. It went up in Asia-Pacific and worldwide because of the emerging market growth effect described above. In Asia, for instance, shipments of PCs to China and India outpaced shipments to Japan and Australia by 29 million units, and the installed base grew 25 percent, compared to 6 percent for Japan and Australia. For this reason, both China and India could see lower piracy yet ultimately bring the regional average up.

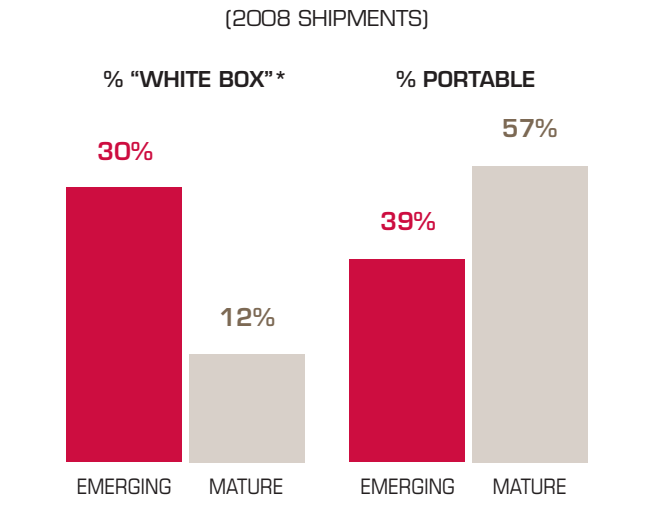
Within the largest emerging economies, the piracy trends are moving in the right direction.

- China's piracy rate has dropped 10 points since 2004, a result of more vigorous enforcement and education as well as vendor legalization programs and agreements with original equipment manufacturers (OEMs) and resellers. The government, for instance, has mandated that PC OEMs only ship PCs with legitimate operating systems.
- Brazil's rate has dropped six points in the last four years. Increasing cooperation between the government and industry has helped, as has the decline of "white box" suppliers.
- India's rate has also dropped six points since 2004, despite its sprawling PC market, of which consumers and small businesses account for 65 percent. While consumer PC shipments grew more than 10 percent last year, shipments to other categories dropped 7 percent.
- Russia followed up its drop of 10 points in the two years prior by dropping another five points. In 2008 the drop in piracy was smaller than in 2007 because the growth of the installed base of older PCs and active deployment of software in it.
- Overall, 45 of the 57 countries that saw a drop in piracy were emerging markets. Three times as many emerging market countries saw piracy drop as saw piracy rise.

For suppliers, the challenge of dealing with piracy in emerging markets is quite different from dealing with it in mature markets. These challenges range from having enough outlets for legitimate software and having support from local governments and law enforcement, to overcoming cultural views in some countries that see intellectual property as a common good.

Figure 4 shows two differences between emerging and mature markets: the percent of "white box," or non-branded vendor machines shipped in 2008, and the difference in portables as a percentage of shipments. The "white box" user base is considered fertile ground for piracy; while laptops tend to come with more pre-configured software, which is more likely to be legitimate than software acquired separately.

FIGURE 4: Emerging Versus Developed PC Markets



* SOLD BY LOCAL, NON-BRANDED VENDORS
SOURCE: SIXTH ANNUAL BSA-IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2009

While piracy rates are high in emerging markets, and the challenges of combating piracy are real, these markets nevertheless represent a major opportunity for software vendors. While emerging economies account for 45 percent of the global PC hardware market, they account for less than 20 percent of the PC software market. If the PC software share were the same as it is for PC hardware, the software market would grow by $40 billion a year.

For suppliers, small gains in high-piracy countries offer substantial growth opportunities. For example, a five-point reduction in software piracy in the Republic of Georgia would double the legitimate software market there. In tough economic times, lowering software piracy can be a relatively low-cost way of growing sales.

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

TABLE 1: Top 25 High and Low Piracy Rates

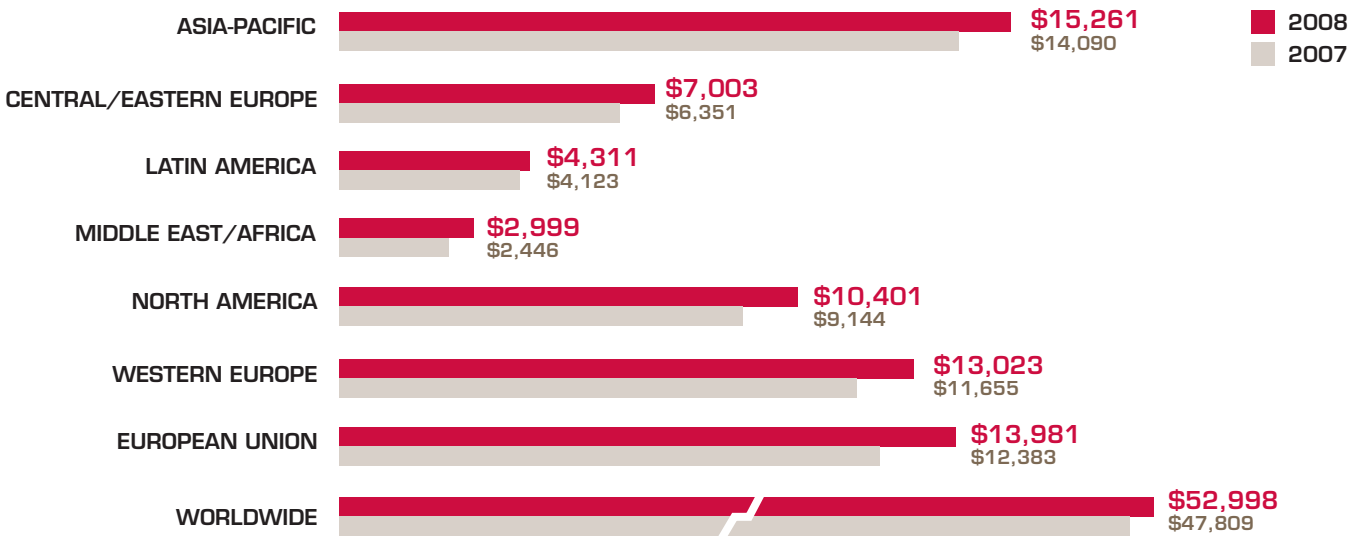
HIGHEST PIRACY		LOWEST PIRACY	
Georgia	95%	United States	20%
Bangladesh	92%	Japan	21%
Armenia	92%	Luxembourg	21%
Zimbabwe	92%	New Zealand	22%
Sri Lanka	90%	Austria	24%
Azerbaijan	90%	Belgium	25%
Moldova	90%	Denmark	25%
Yemen	89%	Sweden	25%
Libya	87%	Switzerland	25%
Pakistan	86%	Australia	26%
Venezuela	86%	Finland	26%
Indonesia	85%	Germany	27%
Vietnam	85%	United Kingdom	27%
Iraq	85%	Netherlands	28%
Ukraine	84%	Norway	28%
Algeria	84%	Israel	32%
Montenegro	83%	Canada	32%
Paraguay	83%	Ireland	34%
Cameroon	83%	South Africa	35%
Nigeria	83%	Singapore	36%
Zambia	82%	UAE	36%
Bolivia	81%	Czech Republic	38%
Guatemala	81%	Taiwan	39%
China	80%	Reunion	40%
El Salvador	80%	France	41%

According to IDC, over the next four years, consumers and businesses will spend nearly $450 billion on PC software. If piracy rates do not change, they will pirate another $300 billion. In 2008, every point of piracy cost the industry $1.3 billion. Based on the IDC forecast, over the next four years, just lowering global piracy by one point a year would add $20 billion in industry revenues.

THE COSTS OF PIRACY

In 2008, the worldwide monetary value of unlicensed software — "losses" to software vendors — was $53.0 billion. This was up $5.1 billion from 2007, or 11 percent, in non-constant dollars. (See *The Impact of Exchange Rates* near the end of this document.)

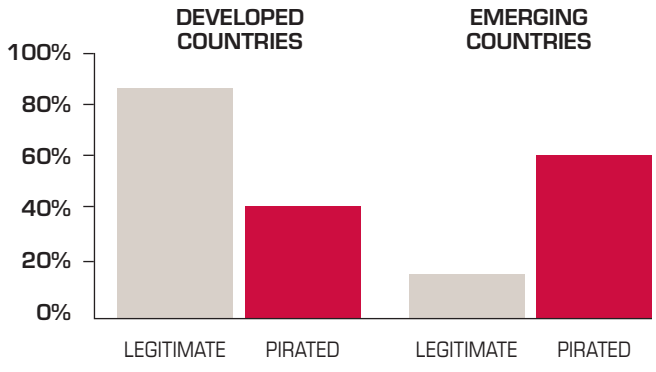
FIGURE 5: 2008 Dollar Losses by Region



NOTE: LOSSES EXPRESSED IN MILLIONS OF US DOLLARS
SOURCE: SIXTH ANNUAL BSA-IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2009

FIGURE 6: The Legitimate Versus Pirated Market

(% OF PC SOFTWARE MARKET BY DOLLAR)



SOURCE: SIXTH ANNUAL BSA-IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2009

While it seems counterintuitive that the two regions with the lowest piracy rates (North America and Western Europe) could have such large losses, this is a function of overall market size.

Figure 6 shows that while developed countries account for more than 80 percent of the legitimate PC software market, they account for less than half the losses from piracy.

TABLE 2: Top 25 Country Losses

COUNTRY	2008 LOSSES $M
United States	$9,143
China	$6,677
Russia	$4,215
India	$2,768
France	$2,760
United Kingdom	$2,181
Germany	$2,152
Italy	$1,895
Brazil	$1,645
Japan	$1,495
Canada	$1,222
Spain	$1,029
Mexico	$823
Poland	$648
South Korea	$622
Australia	$613
Thailand	$609
Netherlands	$563
Indonesia	$544
Ukraine	$534
Venezuela	$484
Turkey	$468
Sweden	$372
Malaysia	$368
Switzerland	$345

NOTE: LOSSES EXPRESSED IN MILLIONS OF US DOLLARS

REDUCING PIRACY HELPS MORE THAN THE SOFTWARE INDUSTRY

Lowering PC software piracy does not harm only multinational software vendors. Local software companies in each country are also crippled by competition from pirated software from abroad and by piracy of their own products.

The impacts of piracy also affect the broader IT industry. IDC estimates that for every dollar of software sold in a country, another $3 to $4 of revenue is generated for local service and distribution firms. While local service and distribution firms *can* make money working with pirated software instead of legitimate software, IDC research shows that they can make *more* money working with legitimate software. Businesses also can cut internal IT support costs; IDC research shows that it costs less to support legal software than unauthorized software.

For users, obtaining pirated software entails security risks as well as legal risks. For example, the global spread of the Conficker virus in 2008 and 2009 has been attributed in part to the lack of automatic security updates for unlicensed software. In a 2006 study, IDC found that 29 percent of Web sites and 61 percent of peer-to-peer sites that offered pirated software tried to infect test computers with Trojan horses, spyware, keyloggers, and other tools of identity theft.

Since 2002, IDC has conducted three studies with the BSA on the economic benefits of lowering piracy — in terms of jobs, local IT industry revenues, and tax revenues — and we have found that the benefits to various countries go far beyond recouping losses to the global software industry. The latest study, T*he Economic Benefits of Lowering PC Software Piracy*, released in 2008, predicted that lowering PC software piracy by 10 points over four years would create 600,000 additional new jobs and $24 billion in additional tax revenue worldwide (see http://www.bsa.org/idcstudy).

As of 2008, we now have several countries that have, in fact, lowered piracy 10 points or more since 2003. Have they achieved the benefits predicted?

Yes. This can be seen in the cases of Russia and China. Even before 2008, Russia had lowered piracy by 14 points since 2003, and China achieved a 10-point drop. The model used to create the 2008 study of economic benefit — when shifted to the 2003 time frame — predicted that Russia would gain more than 6,000 new jobs from lowering piracy by 10 points. In fact, Russia added nearly 60,000 jobs, 9,000 of which IDC attributes to lower PC software piracy.

In China, the retrofitted model predicted an addition of more than 200,000 jobs from lower PC software piracy. Since 2003 China has actually added more than 800,000 jobs to its IT industry, of which IDC attributes 220,000 to lower PC software piracy.

In both countries, lowering software piracy has been part of the governments' strategies to expand their IT sectors, and each government has taken action in the areas of education, enforcement, legalization, compliance, and software asset management.

ARE PIRACY LOSSES REAL?

IDC estimates the losses to the software industry based on the *value of the legitimate software it replaces*. The legitimate value is a blend of the retail price of the legitimate software, OEM pricing for bundled software, volume license prices for enterprises, prices per unit in legalization deals, and the zero cost of free software.

Does this "value of pirated software" represent a real loss to the industry? Some observers challenge the IDC estimate by

saying that users of pirated software will simply do without if the sources dry up.

Over the years IDC has tested the assumption that each pirated copy of software represents a lost sale of legitimate software by looking at countries with higher piracy rates and comparing the strength of their software industries to countries with lower piracy rates.[iii]

For example, we have studied what would happen if a country with a high piracy rate lowered its piracy rate by 10 points and the software industry grew by the exact amount of the value of pirated software.

Take a country like Turkey, whose piracy rate is 64 percent and whose spending on PC software is about $260 million, or about 12 percent of spending on PC hardware. If piracy were lowered to 54 percent, software spending would rise to $332 million. But that would still be only 15 percent of spending on PC hardware. Countries like Croatia, Lithuania, Poland, and Greece, with piracy rates of 54 percent or higher, all have more software spending per dollar of hardware spending than Turkey.

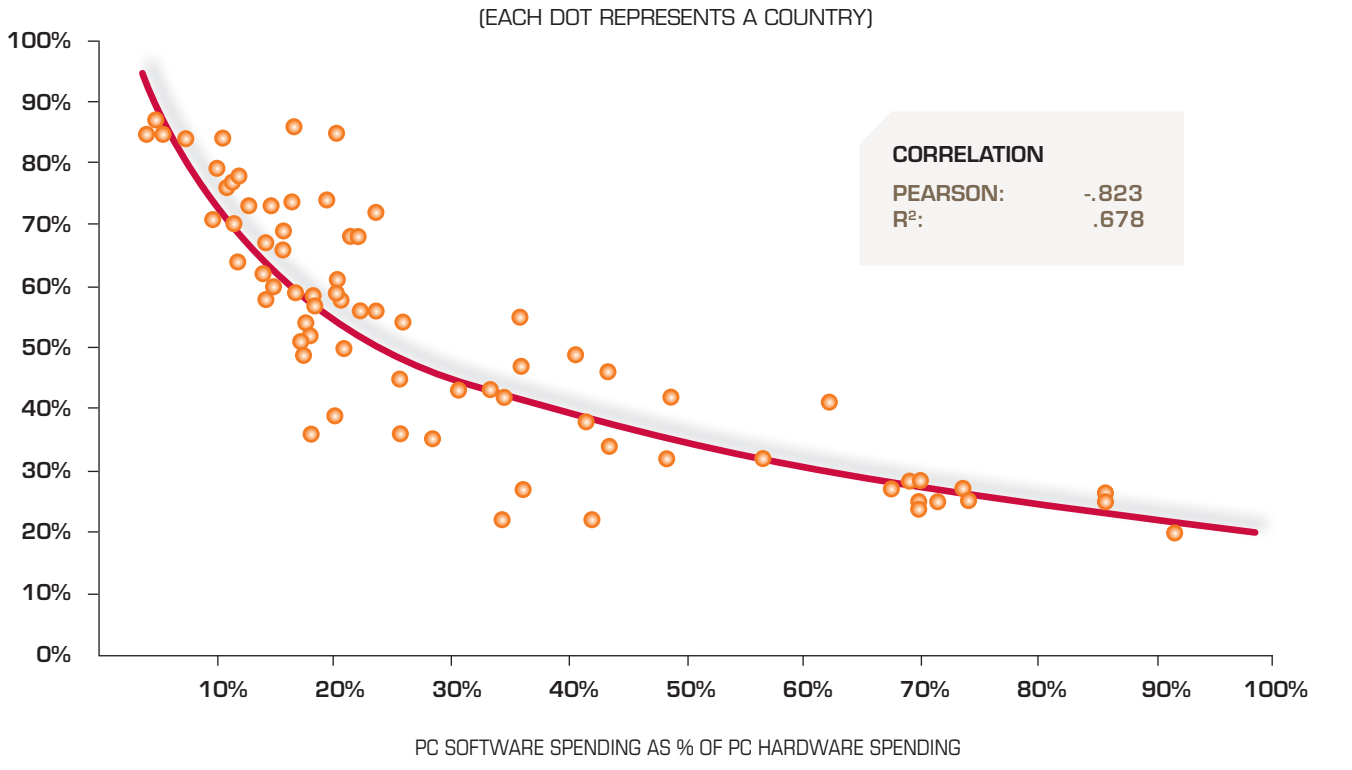
Why is this so? IDC believes that a falling piracy rate creates a positive feedback loop. Lower piracy motivates vendors to invest more, which leads to better, more abundant, and often cheaper software. This, in turn, grows the legitimate market.

This analysis opens up the possibility that not only does the value of pirated software represent true losses to the industry, but that it might even underrepresent them.

Another way to check whether software losses are real is to look at the correlation between software industry strength and the piracy rate.

Figure 7 shows that there is a strong correlation between the piracy rate and the strength of a country's software industry. The dots represent countries, while the curved line is the general trajectory of falling piracy and a growing software industry.

FIGURE 7: Software Industry Strength Vs. Piracy Rate



NOTE: "PEARSON" IS A CORRELATION MEASUREMENT THAT SHOWS THE STRENGTH OF A RELATIONSHIP; THE CLOSER THE COEFFICIENT IS TO EITHER –1 OR +1, THE STRONGER THE CORRELATION BETWEEN THE VARIABLES. "R SQUARED" SHOWS THE PROPORTION OF THE RESPONSE VARIATION THAT IS EXPLAINED BY THE REGRESSION. IN THIS CASE, 70% OF THE VARIATION IN THE SOFTWARE MARKET SIZE IS EXPLAINED BY THE PIRACY RATE — A STRONG STATISTICAL CONNECTION.

THE FUTURE OF PIRACY AND ANTI-PIRACY

By looking back at historical piracy trends and looking forward at demographics and technology trends, we can gain insights into where software piracy is heading.

FACTORS HELPING TO LOWER PIRACY:

- **Vendor legalization efforts:** These are generally deals with major customers to supply software at volume discounts in exchange for replacing pirated software. Such programs have been paying off, and in tough economic times, we can expect such efforts to increase as suppliers work to convert as many users of pirated software to customers as possible.
- **Vendor agreements with original equipment manufacturer (OEM):** Agreements to preload software onto hardware systems before they are shipped are also paying off. As the number of non-branded ("white box") vendors continues to fall, more of these agreements will take place.
- **Technical advances:** Digital rights management, embodied in programs like Microsoft's Windows Genuine Advantage, will lower piracy by encouraging customer self-audits and by offering services not available to users of non-legal software.
- **Software asset management (SAM):** These programs, which help end users manage and deploy software as well as manage their software licenses, can save money in the organization even if money has to be spent to legalize previously unlicensed software.
- **Government-led education and enforcement:** Governments can have an impact by educating consumers on the local benefits of using legal software (and the risks of using pirated software); enforcing intellectual property laws; increasing use of legitimate software in government agencies; and promoting enterprise software legalization programs for private businesses.
- **New distribution agreements:** New forms of software distribution such as bundling PCs with broadband access services and delivering software-as-a-service ("cloud computing") will make the use of legitimate software more common.
- **Public-private partnerships:** Increased government and industry partnerships in compliance programs such as those of the BSA, and increased lobbying by local industry associations and vendors will ensure increased government attention to intellectual property rights. The growth of local software industries will create a "virtuous circle," in which local vendors have a vested interest in working to lower piracy.
- **Globalization:** 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.

FACTORS DRIVING UP PIRACY:

- **Broadband:** Increased Internet access, particularly high-speed "broadband" access, will increase the supply of pirated software. In 2008, according to IDC, the number of Internet users worldwide grew by 135 million, with almost 100 million of them in emerging markets. Over the next five years, another 460 million people in emerging countries will come online. Of the 150 million new broadband households expected to come online, more than half will be in emerging markets.
- **Faster growth in high piracy segments:** Growth in the number of ordinary consumers and small businesses will bring more high-piracy users into the fold.
- **Emerging market growth:** Faster market growth in emerging regions than in developed regions will continue to drive overall piracy up even while piracy rates fall country by country.
- **Economic slowdown:** The economic crisis will stall some anti-piracy investments, divert government attention, and lower consumer willingness to spend on legitimate software.

Overall, IDC expects software piracy rates to continue to drop on a per country basis but to increase globally as the market shifts to emerging regions. In 2006, emerging countries accounted for 30 percent of the base of PCs getting new software, but by 2008 it was up to 39 percent.

Comparing this growth of share in the global base of PCs with falling average piracy rates in emerging countries leads us to project that the global piracy rate will continue to rise for a few more years until a crossover point is reached. At that point, the legitimate software market will begin to crowd out pirated software, and the global rate will begin to fall.

TABLE 3: PC Software Piracy Rates and Losses

	PIRACY RATES					PIRACY LOSSES				
	2008	2007	2006	2005	2004	2008 $M	2007 $M	2006 $M	2005 $M	2004 $M
Asia Pacific										
Australia	26%	28%	29%	31%	32%	$613	$492	$515	$361	$409
Bangladesh	92%	92%	92%	—	—	$102	$92	$90	—	—
Brunei	68%	67%	—	—	—	$15	$13	—	—	—
China	80%	82%	82%	86%	90%	$6,677	$6,664	$5,429	$3,884	$3,565
Hong Kong	48%	51%	53%	54%	52%	$225	$224	$180	$112	$116
India	68%	69%	71%	72%	74%	$2,768	$2,025	$1,275	$566	$519
Indonesia	85%	84%	85%	87%	87%	$544	$411	$350	$280	$183
Japan	21%	23%	25%	28%	28%	$1,495	$1,791	$1,781	$1,621	$1,787
Malaysia	59%	59%	60%	60%	61%	$368	$311	$289	$149	$134
New Zealand	22%	22%	22%	23%	23%	$75	$55	$49	$30	$25
Pakistan	86%	84%	86%	86%	82%	$159	$125	$143	$48	$26
Philippines	69%	69%	71%	71%	71%	$202	$147	$119	$76	$69
Singapore	36%	37%	39%	40%	42%	$163	$159	$125	$86	$96
South Korea	43%	43%	45%	46%	46%	$622	$549	$440	$400	$506
Sri Lanka	90%	90%	90%	—	—	$97	$93	$86	—	—
Taiwan	39%	40%	41%	43%	43%	$201	$215	$182	$111	$161
Thailand	76%	78%	80%	80%	79%	$609	$468	$421	$259	$183
Vietnam	85%	85%	88%	90%	92%	$257	$200	$96	$38	$55
Other AP	91%	91%	86%	82%	76%	$69	$56	$148	$29	$63
TOTAL AP	**61%**	**59%**	**55%**	**54%**	**53%**	**$15,261**	**$14,090**	**$11,718**	**$8,050**	**$7,897**
Central and Eastern Europe										
Albania	77%	78%	77%	76%	77%	$9	$11	$11	$9	$7
Armenia	92%	93%	95%	95%	—	$7	$8	$8	$7	—
Azerbaijan	90%	92%	94%	94%	—	$55	$50	$51	$40	—
Bosnia	67%	68%	68%	69%	70%	$15	$13	$14	$13	$12
Bulgaria	68%	68%	69%	71%	71%	$139	$63	$50	$41	$33
Croatia	54%	54%	55%	57%	58%	$77	$68	$62	$51	$50
Czech Republic	38%	39%	39%	40%	41%	$168	$161	$147	$121	$132
Estonia	50%	51%	52%	54%	55%	$21	$20	$16	$18	$17
FYROM	68%	68%	69%	70%	72%	$14	$11	$10	$9	$8
Georgia	95%	—	—	—	—	$59	—	—	—	—
Hungary	42%	42%	42%	42%	44%	$146	$125	$111	$106	$126
Kazakhstan	78%	79%	81%	85%	85%	$125	$110	$85	$69	$57
Latvia	56%	56%	56%	57%	58%	$31	$29	$26	$20	$19
Lithuania	54%	56%	57%	57%	58%	$40	$37	$31	$25	$21
Moldova	90%	92%	94%	96%	—	$40	$43	$56	$44	—
Montenegro	83%	83%	82%	83%	83%	$8	$7	$6	$9	$8
Poland	56%	57%	57%	58%	59%	$648	$580	$484	$388	$379
Romania	66%	68%	69%	72%	74%	$249	$151	$114	$111	$62
Russia	68%	73%	80%	83%	87%	$4,215	$4,123	$2,197	$1,625	$1,362
Serbia	74%	76%	78%	80%	80%	$99	$72	$59	$95	$85
Slovakia	43%	45%	45%	47%	48%	$62	$54	$47	$44	$48
Slovenia	47%	48%	48%	50%	51%	$51	$39	$36	$33	$37
Ukraine	84%	83%	84%	85%	91%	$534	$403	$337	$239	$107
Rest of CEE	88%	88%	90%	92%	88%	$191	$173	$166	$145	$112
TOTAL CEE	**66%**	**68%**	**68%**	**69%**	**71%**	**$7,003**	**$6,351**	**$4,124**	**$3,262**	**$2,682**
Latin America										
Argentina	73%	74%	75%	77%	75%	$339	$370	$303	$182	$108
Bolivia	81%	82%	82%	83%	80%	$20	$19	$15	$10	$9
Brazil	58%	59%	60%	64%	64%	$1,645	$1,617	$1,148	$766	$659
Chile	67%	66%	68%	66%	64%	$202	$187	$163	$109	$87
Colombia	56%	58%	59%	57%	55%	$136	$127	$111	$90	$81
Costa Rica	60%	61%	64%	66%	67%	$24	$22	$27	$19	$16
Dominican Republic	79%	79%	79%	77%	77%	$43	$39	$19	$8	$4
Ecuador	66%	66%	67%	69%	70%	$37	$33	$30	$17	$13
El Salvador	80%	81%	82%	81%	80%	$28	$28	$18	$8	$5
Guatemala	81%	80%	81%	81%	78%	$49	$41	$26	$14	$10
Honduras	74%	74%	75%	75%	75%	$9	$8	$7	$4	$3
Mexico	59%	61%	63%	65%	65%	$823	$836	$748	$525	$407
Nicaragua	79%	80%	80%	80%	80%	$4	$4	$4	$2	$1
Panama	73%	74%	74%	71%	70%	$24	$22	$18	$8	$4
Paraguay	83%	82%	82%	83%	83%	$16	$13	$10	$10	$11
Peru	71%	71%	71%	73%	73%	$84	$75	$59	$40	$39
Uruguay	69%	69%	70%	70%	71%	$25	$23	$16	$9	$12
Venezuela	86%	87%	86%	82%	79%	$484	$464	$307	$173	$71
Other LA	84%	83%	83%	82%	79%	$319	$195	$96	$32	$6
TOTAL LA	**65%**	**65%**	**66%**	**68%**	**66%**	**$4,311**	**$4,123**	**$3,125**	**$2,026**	**$1,546**

	PIRACY RATES					PIRACY LOSSES				
	2008	2007	2006	2005	2004	2008 $M	2007 $M	2006 $M	2005 $M	2004 $M
Middle East and Africa										
Algeria	84%	84%	84%	83%	83%	$96	$86	$62	$66	$67
Bahrain	55%	57%	60%	60%	62%	$27	$27	$23	$22	$19
Botswana	80%	82%	81%	82%	84%	$14	$14	$12	$12	—
Cameroon	83%	84%	84%	84%	84%	$6	$5	$5	$5	—
Egypt	59%	60%	63%	64%	65%	$158	$131	$88	$80	$50
Iraq	85%	85%	—	—	—	$205	$124	—	—	—
Israel	32%	32%	32%	32%	33%	$172	$121	$102	$84	$66
Ivory Coast	80%	81%	82%	82%	84%	$15	$15	$16	$23	—
Jordan	58%	60%	61%	63%	64%	$22	$20	$19	$19	$16
Kenya	80%	81%	80%	81%	83%	$31	$28	$22	$20	$16
Kuwait	61%	62%	64%	66%	68%	$69	$61	$60	$65	$48
Lebanon	74%	73%	73%	73%	75%	$49	$44	$39	$34	$26
Libya	87%	88%	—	—	—	$22	$22	—	—	—
Mauritius	57%	57%	59%	60%	60%	$5	$4	$3	$3	$4
Morocco	66%	67%	66%	68%	72%	$70	$66	$53	$55	$65
Nigeria	83%	82%	82%	82%	84%	$132	$114	$100	$82	$54
Oman	62%	61%	62%	63%	64%	$26	$23	$25	$22	$13
Qatar	51%	54%	58%	60%	62%	$26	$25	$23	$21	$16
Reunion	40%	40%	40%	40%	40%	$1	$1	$0	$1	$1
Saudi Arabia	52%	51%	52%	52%	52%	$272	$170	$195	$178	$125
Senegal	79%	80%	81%	82%	84%	$7	$6	$6	$6	—
South Africa	35%	34%	35%	36%	37%	$335	$284	$225	$212	$196
Tunisia	73%	76%	79%	81%	84%	$48	$54	$55	$54	$38
Turkey	64%	65%	64%	65%	66%	$468	$365	$314	$268	$182
UAE	36%	35%	35%	34%	34%	$170	$94	$62	$45	$34
Yemen	89%	89%	—	—	—	$14	$13	—	—	—
Zambia	82%	82%	82%	83%	84%	$2	$2	$2	$2	—
Zimbabwe	92%	91%	91%	90%	90%	$4	$3	$2	$6	$9
Other Africa	86%	85%	85%	84%	84%	$95	$76	$49	$63	$124
Other ME	87%	87%	89%	91%	93%	$438	$448	$423	$154	$70
TOTAL MEA	**59%**	**60%**	**60%**	**57%**	**58%**	**$2,999**	**$2,446**	**$1,985**	**$1,602**	**$1,239**
North America										
Canada	32%	33%	34%	33%	36%	$1,222	$1,071	$784	$779	$889
Puerto Rico	44%	44%	45%	47%	46%	$36	$33	$31	$12	$15
United States	20%	20%	21%	21%	21%	$9,143	$8,040	$7,289	$6,895	$6,645
TOTAL NA	**21%**	**21%**	**22%**	**22%**	**22%**	**$10,401**	**$9,144**	**$8,104**	**$7,686**	**$7,549**
Western Europe										
Austria	24%	25%	26%	26%	25%	$184	$157	$147	$131	$128
Belgium	25%	25%	27%	28%	29%	$269	$223	$222	$257	$309
Cyprus	50%	50%	52%	52%	53%	$15	$14	$12	$13	$9
Denmark	25%	25%	25%	27%	27%	$215	$193	$183	$199	$226
Finland	26%	25%	27%	26%	29%	$194	$160	$149	$156	$177
France	41%	42%	45%	47%	45%	$2,760	$2,601	$2,676	$3,191	$2,928
Germany	27%	27%	28%	27%	29%	$2,152	$1,937	$1,642	$1,920	$2,286
Greece	57%	58%	61%	64%	62%	$238	$198	$165	$157	$106
Iceland	46%	48%	53%	57%	—	$23	$33	$32	$18	—
Ireland	34%	34%	36%	37%	38%	$118	$106	$92	$93	$89
Italy	48%	49%	51%	53%	50%	$1,895	$1,779	$1,403	$1,564	$1,500
Luxembourg	21%	21%	—	—	—	$21	$16	—	—	—
Malta	45%	46%	45%	45%	47%	$8	$7	$7	$5	$3
Netherlands	28%	28%	29%	30%	30%	$563	$502	$419	$596	$628
Norway	28%	29%	29%	30%	31%	$229	$195	$181	$169	$184
Portugal	42%	43%	43%	43%	40%	$212	$167	$140	$104	$82
Spain	42%	43%	46%	46%	43%	$1,029	$903	$865	$765	$634
Sweden	25%	25%	26%	27%	26%	$372	$324	$313	$340	$304
Switzerland	25%	25%	26%	27%	28%	$345	$303	$324	$376	$309
United Kingdom	27%	26%	27%	27%	27%	$2,181	$1,837	$1,670	$1,802	$1,963
TOTAL WE	**33%**	**33%**	**34%**	**35%**	**34%**	**$13,023**	**$11,655**	**$10,642**	**$11,856**	**$11,865**
TOTAL WORLDWIDE	**41%**	**38%**	**35%**	**35%**	**35%**	**$52,998**	**$47,809**	**$39,698**	**$34,482**	**$32,778**
European Union	35%	35%	36%	36%	35%	$13,981	$12,383	$11,003	$12,048	$12,151
BRIC Countries	73%	75%	77%	81%	85%	$15,305	$14,429	$10,049	$6,841	$6,105

BRIC Countries are Brazil, Russia, India, and China.

REGIONAL ANTI-PIRACY SNAPSHOTS

As background research for the project, IDC and BSA gather information about specific anti-piracy activities in each country. For example:

ASIA-PACIFIC

- In China, the break up of a massive counterfeiting ring in late 2007 and the subsequent trials in 2008 set a stern anti-piracy tone for the year. Also during 2008, BSA sent out 53,000 "notice and takedown" letters to Chinese Internet Service Providers (ISPs) in an effort to counter Internet piracy. The government conducted enterprise end-user raids in numerous regions, including Jinlin, Hainan, Shanxi, Shanghai, Beijing, Xian, Wuhan, Shenyang, and Qingdao. The Chinese government also continued its efforts to ensure legal use of software in government agencies and state-owned enterprises.
- In Hong Kong, 2008 saw the government amend copyright laws to make it easier for criminal enforcement against end-user piracy and conduct more highly publicized raids on infringing hard-disk loaders. The extension of the government's Genuine Business Software Campaign (GBSC) reached 50,000 companies and increased software vendor revenues from legalization programs.
- While enforcement of intellectual property rights (IPR) is a challenge in India, BSA was able to obtain 25 "Anton Piller" orders (search and seizure orders) to investigate software piracy. Also in 2008, BSA and the State of Karnataka launched a campaign to encourage small and medium companies to adopt SAM practices and to support use of original software.

CENTRAL AND EASTERN EUROPE

- In December 2007, the Czech Republic adopted an amendment to the criminal code to increase the punishment for violating intellectual property laws. Although the new laws did not go into effect until 2009, they signaled serious commitment on the part of the Czech Republic government to combat piracy. During the year, BSA contacted roughly 17,000 small and medium businesses to educate top management on the legal and security risks of using pirated software and ways to control piracy within the organization.
- In Hungary, cooperation that began in 2007 between BSA and the Hungarian tax authorities continued to bear fruit in 2008. The Hungarian Standards Institution codified an international SAM standard that provides for certification for companies managing software licenses. During 2008, the country also created an agency to combat the black market economy and software piracy. These actions helped counter a 40 percent growth in consumer PC shipments and a large growth in the installed base that would otherwise have driven the piracy rate higher.
- In Russia, multinational and local vendor legalization and compliance efforts were stepped up, while the government brought nearly 7,000 IPR criminal cases and cracked down on street piracy.

- In Poland, the patent office organized anti-piracy conferences, as did the Polish Senate, and law enforcement cracked down on some university-based downloading networks. BSA and the local Polish anti-piracy coalition continued the second stage of a "be original" anti-piracy campaign targeted at high school pupils.

MIDDLE EAST AND AFRICA

- The government of Bahrain implemented strict policies against trading in pirated software and conducted a number of raids in key areas. During the year it also supported BSA and local groups with educational road shows and other market outreach. Given that Bahrain hopes to become a regional hub for the IT industry, these actions will likely increase in future years.
- In Israel, a new copyright law went into effect in 2008 that toughened the stance on making copyrighted material available on the Internet and that increased the statutory damages for those whose intellectual property rights have been violated. On the other hand, Internet piracy remains high; a local survey of Internet users found that 40 percent use P2P sites or other Internet sites to download copyrighted material.
- In Turkey, the government moved forward on numerous fronts, from working with the telecom industry and with the BSA on anti-piracy campaigns, to establishing specialized criminal and civil courts to handle intellectual property cases.
- The Nigerian government, which launched its anti-piracy initiatives in 2007, saw mixed results in 2008. Police shut down the popular "Computer Village" in Ikeja in late 2008, but for violating tax laws, not software piracy, which was rampant. Vendors have reported finding extremely sophisticated counterfeit software — including special seals and holograms on the packaging — which indicate that organized crime syndicates, perhaps from outside Nigeria, are at work.

LATIN AMERICA

- In Argentina, piracy fell again in spite of fast growth of PCs in the home and small business segments, widespread availability of pirated goods in street markets, rapid growth in broadband access, and an increase in optical disk "burning" of pirated materials. While there is often little follow-up to enforcement actions and raids, BSA and local enforcement agencies have found that preliminary injunctions and searches have been effective incentives to get customers to legalize their software.

- In Brazil, the government is very active in anti-piracy activity, working with BSA in education and enforcement, training thousands of law enforcement officials, and developing a long term anti-piracy strategy. Brazil's progress is impressive, especially given a market where shipments of "white box" PCs account for 75 percent of the market, and consumers and small businesses account for 80 percent.

- Mexico is another country fighting piracy in tough conditions. Although "white box" PC shipments in 2008 were less than 40 percent of the total, they did not go down from 2007. Consumers and small businesses account for 75 percent of the market. The government continued its strong cooperation with vendors and BSA on education and enforcement efforts. Another important element that likely helped the piracy rate is that laptop shipments grew by more than 50 percent in 2008, compared to flat growth in desktop shipments.

- Throughout Latin America, of the 75 percent of PCs shipped to small businesses or consumers, more than 55 percent come from non-brand name vendors, translating into an uphill challenge for anti-piracy teams.

DEVELOPED MARKETS

- Suppliers in Australia were aggressive in 2008 with legalization campaigns, targeting both businesses and consumers. At the same time, BSA launched an educational campaign called "A Can of Worms," stressing the security risks of obtaining and using pirated software. Audit and warning letters were also effective in driving IPR compliance.

- In Japan, much of the BSA effort was aimed at increasing university membership in a self-audit program to track software license compliance and at educating businesses on the benefits of SAM programs. The ongoing cease-and-desist letter program has also been successful in encouraging compliance purchases.

- Sweden has a low piracy rate but remains an area of concern because it is considered a safe haven for P2P Internet piracy sites. Internet piracy is initiated at so-called "top sites," where expert crackers release high quality pirated versions of software, music, and movies to a distribution network of Internet relay chat channels. It is estimated that more than 20 percent of these top sites are hosted in Sweden. One of them, the BitTorrent hub called "PirateBay," is one of the most trafficked Web sites in the world. Raided by Swedish authorities in 2006, it moved briefly to the Netherlands but now is back in Sweden. Its founders were convicted in April 2009 on charges of enabling copyright infringement and were sentenced to serve a year in prison and pay 30 million SEK ($3,620,000). If the convictions and sentences are upheld on appeal, this case could have a positive impact on this form of piracy in 2009.

- Elsewhere, most developed countries have moved up the learning curve in combating piracy. IDC local analysts find that little pirated software is available in street marketplaces, and a large portion of non-compliant software is deployed by mistake, either by consumers buying cheap software that they do not realize is counterfeit, or by IT departments making mistakes in managing volume licenses. Anti-piracy efforts are migrating toward promoting SAM programs and pointing out the security risks of using non-compliant software.

HOW IDC CALCULATES SOFTWARE PIRACY

THE BASIC METHOD FOR COMING UP WITH RATES AND LOSSES IN A COUNTRY IS TO:

1. Determine how much PC packaged software was deployed in 2008;
2. Determine how much PC packaged software was paid for/legally acquired in 2008; and
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.

So the piracy equation looks like this:

$$\text{Piracy \%} = \frac{\text{Pirated Software Units}}{\text{Total Software Units Installed}}$$

Coming up with these numbers is a major undertaking. To get the total number of software units installed — the denominator — IDC first must determine how many computers there are in the country and how many of them installed software in 2008. IDC tracks this information quarterly in 105 countries, either in products we call "PC Trackers" or as part of custom assignments. The remaining countries are researched annually for this study.

Once we know how many computers there are, then we need to determine how much software each one obtained in 2008. To do this, we conduct an annual survey, which this year covered a mix of 24 countries from all geographies, levels of IT sophistication, and geographic and cultural influences. More than 3,600 consumer responses and 2,600 worker responses were received. In the survey, we asked respondents how many software packages (of what type) were installed on their PCs, what percent were new or upgrades, whether they came with the computers, and whether they were installed on a new computer or one acquired prior to 2008.

From this we develop a picture of the number of software packages, including free or open source software, installed per PC. This allows us to develop the picture of total software units installed according to this equation:

Total Software Units Installed = # PCs getting SW x Units per PC

For countries that were not surveyed, we use a mix of other countries and data from previous surveys to develop a figure for the number of units per PC. We choose proxy countries that match the target country in IT sophistication, region, and PC market dynamics.

Next, to obtain the number of pirated software units — the numerator of the piracy equation — we first come up with a measure of the software market. IDC routinely publishes software market estimates for about 80 countries and studies an additional 20 or more on a custom basis. For the remaining countries, we conduct research annually for this study. This research gives us the value of the legitimate "paid for" market.

To convert the software market value to number of units, we develop an average system price for all the PC software in the country. This we do by developing a country-specific matrix of software prices — retail, volume license, OEM, free/open source, etc. — across a matrix of products — security, office automation, operating systems, etc. We multiply the two matrices together to get a final average, blended software price. Our pricing information comes from our pricing trackers and from local analyst research. Our weightings — OEM versus retail, consumer versus business, etc. — come from our survey.

To get the total number of legitimate software units, we apply this formula:

$$\text{Legitimate Software Units} = \frac{\text{Software Market \$ Value}}{\text{Average System Price}}$$

Once we know the number of total units of software installed, the number of legitimate and pirated units of software installed, and the average system price for legitimate software, we calculate losses as follows:

$ Losses = # Pirated Software Units x Average System Price

WHAT SOFTWARE DOES IDC LOOK AT?

The IDC methodology calculates piracy on all software that runs on personal computers, including desktops, portables, and the new netbooks. That software includes 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.

The software we look at also includes legitimate free software and open source software, which is software that is licensed in a way that makes it available for use without payment of a license fee. Open source software providers typically earn their revenue through upgrades and additional services. We do, however, exclude routine device drivers and free downloadable utilities, such as screen savers, that would not displace paid for software or even be recognized by a user as a software program.

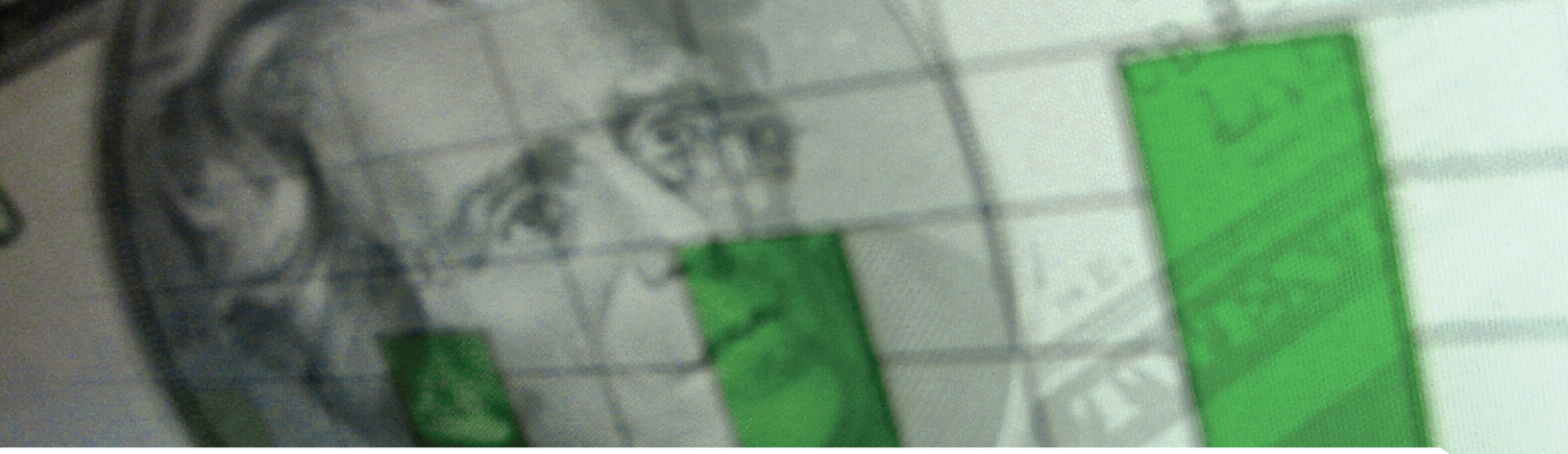
Also, because we are looking at PC software packages, the methodology excludes software that is sold as a service and that is *not* installed on the PC, as well as Web services that have come to replace software that once ran on local machines.

This also means, since we come up with software units starting with market value, that software sold as part of a legalization program — say, a bulk sale to a government to distribute to schools — is counted in the year the bulk purchase (or gift) occurs.

THE IMPACT OF NEW INFORMATION ON THE PC MARKET

From time to time, IDC discovers that it has incorrectly sized the PC market in a given country, generally by undercounting PCs made by local assemblers in second- and third-tier cities. This happened in 2007 in China and Vietnam, which was discussed in last year's study. Late last year, IDC resized the historical PC markets in Brazil and India. The piracy rate for 2008 in both cases was developed based on their new, larger PC markets and installed bases. The 2007 piracy rates were based on the earlier, non-revised market sizes.

For Brazil and India, as for China and Vietnam last year, this means that this year's drop of one point is more impressive than it looks. In Brazil, if the 2007 rate was adjusted to accommodate the revised 2007 market, that country's drop would be three points to four points. In India, were the 2007 rate adjusted, this year's drop of one point would be three points to four points as well.



THE IMPACT OF EXCHANGE RATES

All figures in the loss tables are in US constant dollars from the year before, so exchange rates can impact direct comparisons of losses year-on-year. In 2007 — the base year for the 2008 losses — the US dollar dropped significantly against the euro, pound, yen, real, ruble, and many other currencies. Recalculating the 2007 piracy losses to match the exchange rate used for the 2008 losses would add $3 billion to 2007 losses and lower the growth of 2008 losses from 11 percent to 5 percent.

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.

TABLE 4: The Impact of Exchange Rates

	2008 Losses	2007 Losses	Difference	2007 Losses in 2008 Exch Rate	New Difference
Australia	$613	$492	$121	$547	$66
China	$6,677	$6,664	$13	$6,983	-$306
India	$2,768	$2,025	$743	$2,219	$549
Japan	$1,495	$1,791	-$296	$1,768	-$273
Russia	$4,215	$4,123	$92	$4,382	-$167
Brazil	$1,645	$1,617	$28	$1,806	-$161
Mexico	$823	$836	-$13	$834	-$11
Canada	$1,222	$1,071	$151	$1,131	$91
France	$2,760	$2,601	$159	$2,837	-$77
Germany	$2,152	$1,937	$215	$2,113	$39
United Kingdom	$2,181	$1,837	$344	$1,997	$184

NOTE: NUMBERS EXPRESSED IN MILLIONS OF US DOLLARS.

THE BLUEPRINT FOR REDUCING SOFTWARE PIRACY

EXPERIENCE HAS SHOWN THAT SUCCESSFUL ANTI-PIRACY EFFORTS HAVE FIVE KEY ELEMENTS:

- **Increase Public Education and Awareness**
  Reducing software piracy often requires a fundamental shift in the public's attitude toward it, and public education is critical. 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.

- **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 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.

- **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 WTO's Trade-Related Aspects of Intellectual Property Rights Agreement (TRIPS) by adopting and implementing laws that meet international norms for IP rights protection.

- **Step-up Enforcement with Dedicated Resources**
  Too often, software pirates 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 level 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 (including establishment of specialized IP courts where appropriate) 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.

- **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 asset management policies to set an example the private sector should follow.

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i For the purpose of this document, "emerging" markets include all countries studied except Canada, Australia, Japan, New Zealand, the United States, and Western Europe. The latter we refer to as "developed."

ii John Gantz and Jack B. Rochester, *Pirates of the Digital Millennium*, FT Prentice Hall, 2005, p. 156.

iii "Strength" of a software industry is measured as the ratio of spending on PC software compared to spending on PC hardware. Stronger industries have high ratios.

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