BSA®
Business Software Alliance

IDC
Analyze the Future

MAY 2010

SEVENTH ANNUAL BSA/IDC GLOBAL SOFTWARE

09 PIRACY STUDY

Executive Summary

Despite the most significant global recession in over 20 years, 2009 proved to be a surprisingly good year in the fight against software piracy. Conventional wisdom led many to believe that the recession would drive personal computer (PC) users to deploy more unlicensed software simply to save money, but the results of the 2009 Business Software Alliance (BSA) and IDC Global PC Software Piracy Study show that momentum from years of anti-piracy programs held firm through the economic downturn.

In 2009, installations of unlicensed software on PCs dropped in 54 of the 111 individual economies studied, and rose in only 19. It is clear that anti-piracy education and enforcement campaigns spearheaded in recent years by the software industry, national and local governments, and law enforcement agencies continue to have a positive impact in driving legal purchases and use of PC software.

Nevertheless, software piracy remains an urgent issue: the global PC software piracy rate rose in 2009 to 43%, up two percentage points over the previous year. This means that for every $100 worth of legitimate software sold in 2009, an additional $75 worth of unlicensed software also made its way into the market.

The 2009 BSA/IDC Global PC Software Piracy Study identified a number of trends in the use and impact of unlicensed PC software:

- The overall piracy rate increased from 41% in 2008 to 43% in 2009 — largely a result of PC sales and software installations growing much faster in higher piracy, emerging economies than in more mature markets with lower piracy rates.
- In 2009, unlicensed PC software use dropped in 49% of the economies studied, stayed the same in 34% and rose in 17%.
- The value of unlicensed software hit $51.4 billion, a 3% decrease from 2008. However, in real terms and factoring in adjustments for exchange rates, the value of unlicensed software stayed the same in 2009 as 2008. Where losses did grow, it was almost entirely the result of growing software markets in higher piracy economies.
- Forces driving piracy down in many economies included vendor legalization programs, government education, enforcement actions and technology shifts, such as increased deployment of digital rights management (DRM).
- Forces driving piracy up included the rapid growth of the consumer PC market, activity in the base of older computers where unlicensed software is more prevalent, and increasing sophistication of online criminals leveraging the internet and other new means of distribution.
- Economies with the lowest software piracy rates remain the United States, with a piracy rate of 20%, and Japan and Luxembourg, both with a piracy rate of 21%. Economies with the highest piracy rates include Georgia, Bangladesh, Zimbabwe and Moldova, each with a rate above 90%.

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PIRACY IN 2009 — AND THE IMPACT OF THE RECESSION

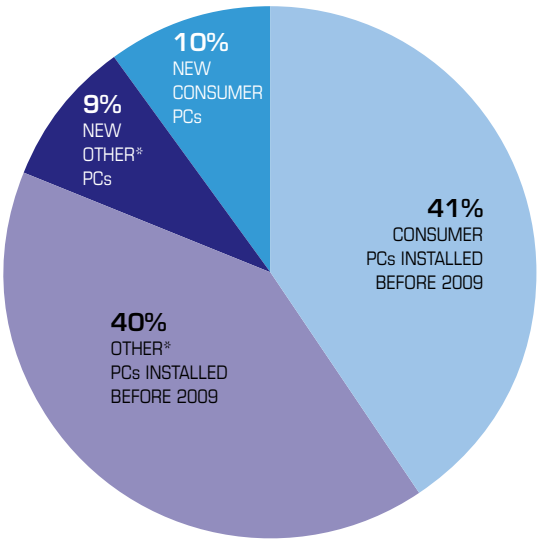
The recession slowed the overall deployment of software, with fewer units deployed worldwide in 2009 than 2008. However, consumers continued to spend on PCs and software despite the soft economy. PC shipments to consumers rose 17%, while shipments to businesses, governments and schools dropped by 15%. More than half of all new PCs shipped went to consumers, as shown in figure 1. Furthermore, consumers were much more active installing new software than businesses, governments or schools. More than three quarters of all software shipped in 2009 went to consumers.

This shift in the PC market has an impact on piracy, as software piracy rates are generally higher on consumer PCs than those of other segments of the market. What is striking is that the increase in consumer purchases and software deployments did not breach the long term trend in declining piracy rates in many economies.

Finally, because the recession slowed shipments of new PCs, it raised the deployment of software onto older PCs in comparison to new PCs. IDC finds that piracy is generally higher in software installed on older computers than on new PCs.

In short, while the recession drove all the market dynamics in the direction of higher piracy, PC software piracy rates declined or stayed the same in the vast majority of economies around the world.

FIGURE 1: PCs in 2009 Getting Software

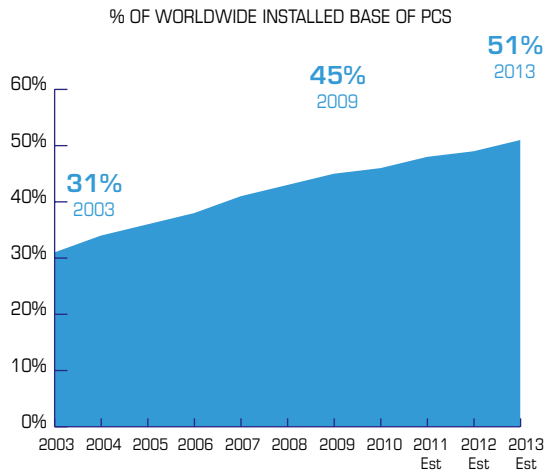


820 MILLION PCs

* SCHOOLS, BUSINESSES, AND GOVERNMENT

SOURCE: SEVENTH ANNUAL BSA/IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2010

FIGURE 2: Emerging* Market Growth



* ALL COUNTRIES EXCEPT AUS, NZ, JP, US, CAN, AND WESTERN EUROPE

SOURCE: SEVENTH ANNUAL BSA/IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2010

AN URGENT ISSUE — WHY THE GLOBAL PIRACY RATE IS UP

Despite the progress being made, the global PC software piracy rate increased by two percentage points in 2009 to 43%. This increase is the result of the rapidly growing PC markets in emerging geographies, specifically Brazil, India and China. In 2009, those three markets together accounted for 86% of the growth in PC shipments. Figure 3 shows the increasing percentage of the global PC installed base that is found in emerging markets.

This increased penetration of the market means that even if piracy were to go down in every high-piracy economy, the growing market share of PCs in Brazil, India and China would drive the global average rate up.

HAS THE PIRACY RATE PEAKED?

In last year's study, IDC posited that the global PC piracy rate had a year or two more to rise before it would peak and begin to show sustained decreases (as long as piracy continued to drop in individual markets). But the recession may have accelerated that crossover.

Using the same model that produced this year's piracy rate and substituting IDC forecasts for PC shipments and installed base next year, if piracy remains the same in all economies, the global PC software piracy rate would go up by one percentage point in 2010. However, if the PC software piracy rate were to drop by one percentage point in the emerging markets only, the global PC software piracy rate would remain the same as the 2009 level.

This is basically what happened this year: Piracy in emerging markets dropped by slightly more than one percent. If that pace is sustained next year, it is possible that global piracy will have peaked in 2009.

STUDY BACKGROUND

BSA has been studying global trends in PC software piracy for more than a decade. This is the seventh 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.

The study covers piracy of all packaged software that runs on personal computers (PCs), including desktops, laptops and ultra-portables, including netbooks. 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 software that runs on servers or mainframes.

For the 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 sixty 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.

PIRACY RATE DYNAMICS — 2009 WAS DIFFERENT

Software comes to market via many paths. 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 using volume 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
- Bought from street vendors

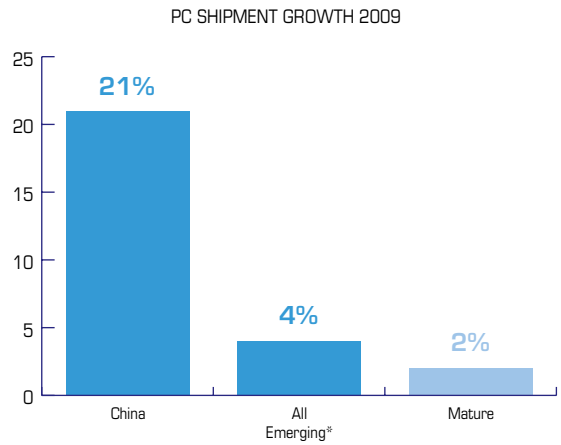
Along each path lies an opportunity for piracy: from counterfeit software working its way through the distribution channel to the end user, to illegal software sold on an auction site to a buyer who may have no idea it is not legitimate; from organized crime syndicates with CD duplicating plants, to corporate IT departments that make unintentional errors managing their software licenses.

What's more, each path ends at a different destination, from a corporate executive's new laptop to a young person's hand-me-down home computer; from a brand new desktop at a large enterprise, to a four-year-old computer in a middle-school classroom.

While the BSA/IDC study does not segment PC software piracy by distribution path or destination, it is possible to look at the input data and draw some conclusions about the factors impacting software piracy:

- In 2009, 4% more software was deployed by consumers than in 2008 as enterprise users slowed software deployment in response to the recession, and as the consumer share of the PC installed base jumped from 50% in 2008 to 53% in 2009.
- 5% more software was deployed onto older computers (the installed base) than in 2008, as new computer shipment growth fell from 8% in 2008 to 3% in 2009.
- Shifts in behavior, such as greater implementation of software asset management (SAM) programs, which help users keep track of software licenses and optimize the right software for their workloads, are helping lower software piracy. SAM allows enterprises to recoup the cost of legitimate software licenses in savings elsewhere in IT.
- Changing distribution and licensing models had an impact, as vendors offered more software for free and through large legalization programs in conjunction with special government programs. Such programs had a major impact in countries like Portugal, Argentina and Chile. In other cases, vendors permitted more legal copying of certain software programs or bundled software — and sometimes even the entire PC — as part of another service, such as broadband Internet access.

FIGURE 3: Emerging* vs. Developed Markets



* ALL COUNTRIES EXCEPT AUS, NZ, JP, US, CAN, AND WESTERN EUROPE

SOURCE: SEVENTH ANNUAL BSA/IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2010

There were also changes in hardware dynamics, which impact software piracy rates:

- Over the last few years the number of non-branded (or "white box") suppliers of PCs — small companies who build PCs — has decreased. Shipments of non-branded white box PCs dropped from 22% of shipments in 2008 to 18% in 2009. This has had a positive impact on the piracy rate as these white box suppliers have been identified in our previous studies as a frequent source of unlicensed software.
- At the same time, shipments of laptop and netbook computers — which generally have more bundled legitimate software on them — increased faster than desktop shipments. Laptop computers grew from 40% of the installed base in 2008 to 45% in 2009.
- Emerging markets accounted for most of the growth in PC shipments. The number of PCs shipped in 2009 grew by 8.4 million over 2008. Of that growth, 7.3 million were shipped into Brazil, India and China — with China leading the way.

What made 2009 truly different was the way these trends balanced each other. More consumers deploying software generally means higher piracy. Fewer white box PCs generally means lower piracy. More activity in the installed base generally results in higher piracy. More laptop shipments generally results in lower piracy.

THE (LIMITED) IMPACT OF CLOUD COMPUTING

The increased complexity of computing environments and increasing access to the Internet is creating a new delivery model for software — selling it as a service. For the last several years, software-as-a-service, or SaaS, was the forerunner of a new paradigm of computing called "cloud computing." In cloud computing, all sorts of IT functionality is available remotely, or "in the cloud," including storage, processing, and services.

At the moment, cloud computing is in an embryonic phase, accounting for less than 1% of total IT spending in 2009. But SaaS is not embryonic. In 2009, it was a healthy $13 billion market, or 5% of the software market, and it is growing five times faster than the software market as a whole.

Since IDC's methodology for counting legitimate software begins with a sizing of the PC software market, and since IDC includes SaaS revenues in the software market, the BSA/IDC study does account for SaaS. That said, to date SaaS has had very little impact on the PC software piracy rate. SaaS has a higher penetration in mainframe and server software than in PC software, and a higher penetration in enterprise than consumer markets. Even if it is assumed there was no piracy in SaaS offerings in 2009, the impact would be less than a percentage point on the global software piracy rate. Going forward, however, as SaaS and cloud computing increase in prominence, that impact will grow.

WHAT IDC SAID LAST YEAR ABOUT THE RECESSION

What follows is an excerpt from the 2008 BSA/IDC Global PC Software Piracy Study:

The economic crisis has done the same thing as rising prices by raising the cost of software compared to discretionary spending in the case of consumers, or IT budgets in the case of businesses and other enterprises.

The economic crisis, inasmuch as it affects software piracy, will have a bigger effect next year [than in 2008]. But then again, there are other market dynamics that will be driven by the crisis that could curtail piracy, from the growth of cheap netbooks and lower prices from vendors to spur demand, to the deployment of software asset management programs that can lower overall IT costs, even if it means spending more on legitimate software.

Finally, economists and academics have found that the cost of software is only one factor driving software piracy. These include culture, the strength of laws and the effectiveness of the institutions enforcing intellectual property rights. So 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.

REVIEW OF THE NUMBERS

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
- Economic conditions, taxes and exchange rates that affect software prices or the discretionary income of buyers

Because of these complex inputs, two economies 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 unlicensed software per dollar of legitimate software. 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.

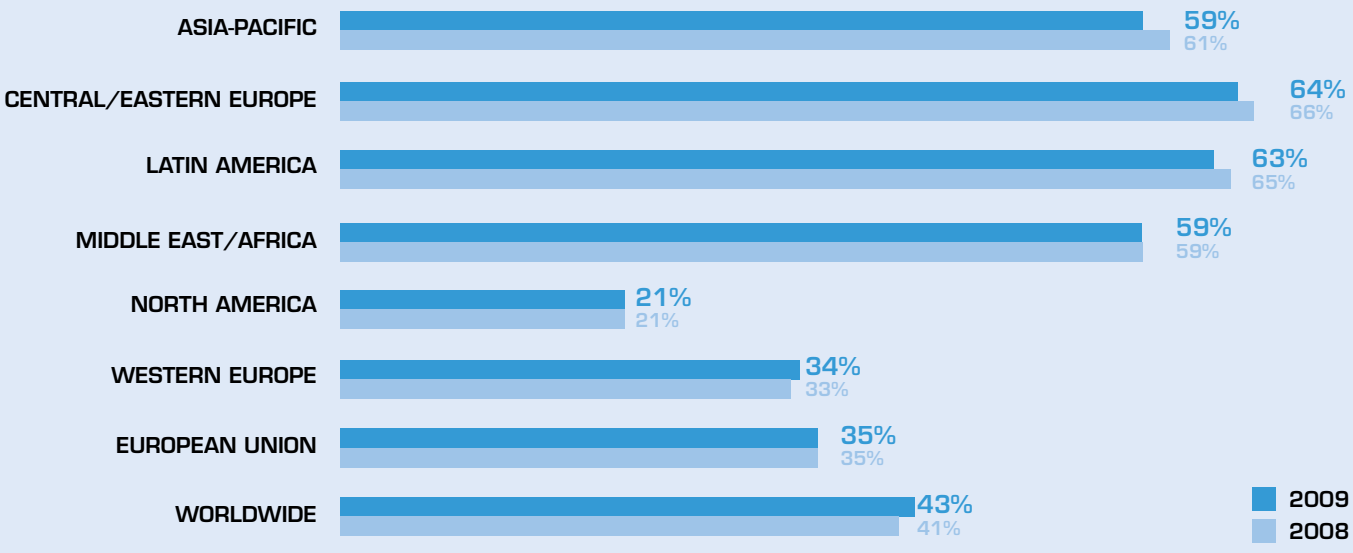
A fuller discussion of the study inputs and methodology is provided in the section *BSA/IDC Global PC Software Piracy Rate Study Methodology* and at www.BSA.org/globalstudy.

Figure 4 shows the relative ranking by piracy rate of seven regions, as categorized by IDC. Six of the seven shown are mutually exclusive; the seventh — the European Union — includes economies from Western Europe and Central and Eastern Europe.

PC software piracy dropped or was flat in North America, Asia Pacific, Central and Eastern Europe, Middle East and Africa, and Latin America. It went up worldwide because of the emerging market growth effect.

PC software piracy also went up in Western Europe because of the impact of growing consumer purchases. Consumer shipments in Western Europe grew 14% and shipments to schools, government, and businesses dropped 17%.

FIGURE 4: Software Piracy Rates by Region



SOURCE: SEVENTH ANNUAL BSA/IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2010

There are some other interesting insights to be found at the country level:

- The commercial value of illegally used software in China last year was $7.6 billion — a $900 million increase over 2008. Given the rapidly expanding technology market, software theft will continue to grow significantly unless the Chinese government acts on the commitments it has made to address the issue.
- In Brazil, overall PC shipments were flat and business PC shipments dropped 21%, yet piracy dropped. Technology has helped somewhat as laptops have increased from 27% of PC shipments in 2008 to 35% in 2009 and the white box share of shipments dropped one percent. But most of the drop was related to the fact that the impact of the recession was muted in Brazil and did not derail government efforts to combat piracy.
- While Russia's economy suffered in 2009 — IT spending dropped 27%, PC shipments dropped 23% — its PC software piracy rate nevertheless dropped another percentage point. To some extent the entire IT market froze, with much less software deployment than last year, but to a greater extent the anti-piracy structures put in place in prior years, when piracy dropped nearly 20 points, held firm.
- Serbia is one of a handful of economies, including Italy, Greece and Colombia, where tax audits also include software license compliance. This is one of the reasons piracy has dropped six points from 2005 to 2008. The piracy rate stayed the same in 2009, largely the result of a drop in economic output and exports and a 29% drop in non-home PC shipments.
- The piracy rate dynamic in Mexico was a complex one. The outbreak of the H1N1 virus resulted in a general shutdown of activities for several weeks, as the country directed its attention to dealing with this emergency. Further, PC shipments to consumers — which grew by 24% in 2009 and accounted for 80% of all software deployed — was a factor which proved to be a strong influence on the piracy rate. PC shipments for businesses fell by 16% in 2009.

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

LEVERAGE IN LICENSING

Although much of the press covering software piracy focuses on Internet piracy, the BSA/IDC PC Software Piracy Study looks at all methods of software acquisition — from buying it in a store or having it pre-installed on a PC to obtaining it through corporate volume licenses. Although a majority of PC software in the world is deployed to consumer computers, a good portion of the rest is deployed using various vendor licensing models. These include licenses for software bundles, licenses to replicate software across a specified number of PCs, volume licenses managed by third parties, and so on.

For users, keeping track of these licenses and maintaining compliance can be a complex endeavor. Without good software management practices in place, it is likely that licensees will use more copies of a software package than is permitted by the licenses, and that can be a civil and/or criminal violation.

Under-licensing represents a fertile area for lowering piracy, mainly because some — but not all — under-licensing is inadvertent. Licensing programs offered by vendors can account for as much as half the software deployed to enterprises. If software vendors can reduce PC software piracy by 10 percentage points through licensing programs, enterprise piracy could be reduced by five points and this could reduce the overall PC software piracy rate in a country by one to four points.

In view of this, most vendors have instituted some sort of product or service to help users keep track of software assets and manage software license compliance. This is often called software asset management, or SAM. SAM programs aid configuration and product selection, not only facilitating license compliance, but also optimizing an organization's software assets for the tasks at hand, yielding productivity improvements in the IT shop and on end user desks that can outweigh the cost of buying legitimate software.

TABLE 1: Top 30 Highest and Lowest Piracy Rates in 2009

HIGHEST PIRACY		LOWEST PIRACY	
Georgia	95%	United States	20%
Zimbabwe	92%	Japan	21%
Bangladesh	91%	Luxembourg	21%
Moldova	91%	New Zealand	22%
Armenia	90%	Australia	25%
Yemen	90%	Austria	25%
Sri Lanka	89%	Belgium	25%
Azerbaijan	88%	Finland	25%
Libya	88%	Sweden	25%
Belarus	87%	Switzerland	25%
Venezuela	87%	Denmark	26%
Indonesia	86%	United Kingdom	27%
Vietnam	85%	Germany	28%
Ukraine	85%	Netherlands	28%
Iraq	85%	Canada	29%
Pakistan	84%	Norway	29%
Algeria	84%	Israel	33%
Cameroon	83%	Ireland	35%
Nigeria	83%	Singapore	35%
Paraguay	82%	South Africa	35%
Zambia	82%	UAE	36%
Montenegro	81%	Czech Republic	37%
Bolivia	80%	Taiwan	38%
El Salvador	80%	France	40%
Guatemala	80%	Portugal	40%
Botswana	79%	Reunion	40%
China	79%	Hungary	41%
Ivory Coast	79%	South Korea	41%
Kenya	79%	Spain	42%
Nicaragua	79%	Slovakia	43%

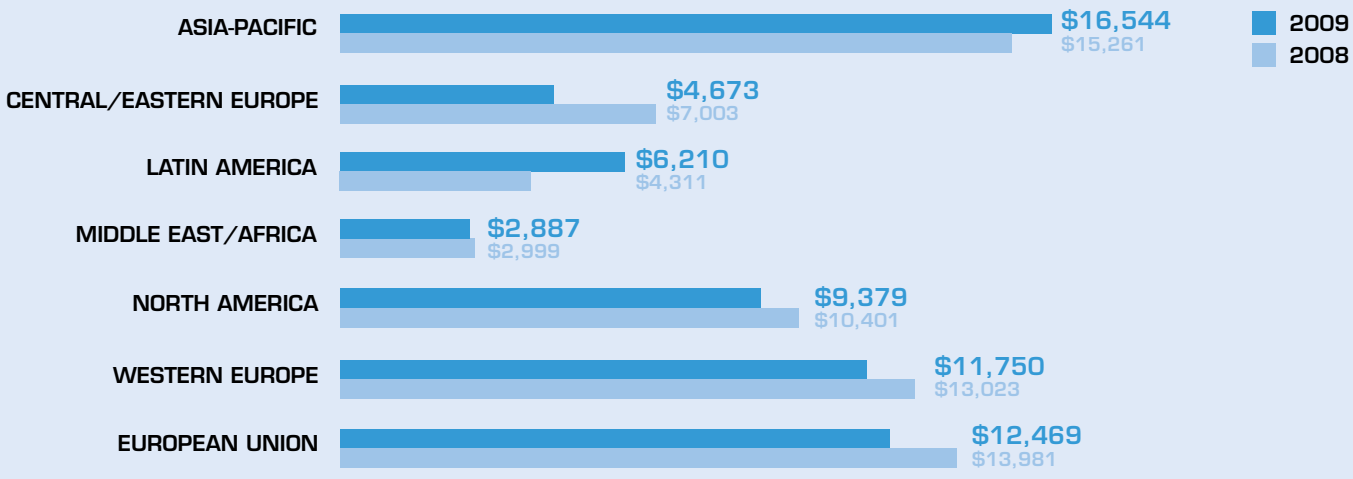
QUANTIFYING SOFTWARE PIRACY

In 2009, the worldwide value of unlicensed software hit $51.4 billion. This number is a 3% decrease from 2008; however, when factoring in the changes in exchange rates, the 2009 value of unlicensed software actually represents zero change from 2008.

Figure 5 shows the value of unlicensed software by region. A few facts:

- Asia Pacific remains the most significant region in terms of the value of unlicensed software — this year hitting over $16 billion.
- Even with relatively low piracy rates, the size of the technology markets in North America and Western Europe led to a combined $21 billion in unlicensed software in 2009.
- Where the value of unlicensed software went up from 2008 to 2009, the reason was tied to overall growth of the market. The pirated portion, even if it was a smaller percentage than the year before, was of a bigger pie. Where the values went down, it was a generally a combination of shrinking market and falling or stable piracy.

FIGURE 5: Commercial Value of Unlicensed Software by Region



NOTE: COMMERCIAL VALUE EXPRESSED IN MILLIONS OF US DOLLARS
SOURCE: SEVENTH ANNUAL BSA/IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2010

TABLE 2: Top 30 Economies with Highest Commercial Value of Pirated Software in 2009

COUNTRY	COMMERCIAL VALUE $M
United States	$8,390
China	$7,583
Russia	$2,613
France	$2,544
Brazil	$2,254
Germany	$2,023
India	$2,003
Japan	$1,838
Italy	$1,733
United Kingdom	$1,581
Mexico	$1,056
Spain	$1,014
Canada	$943
Indonesia	$886
Thailand	$694
Venezuela	$685
Argentina	$645
South Korea	$575
Australia	$550
Netherlands	$525
Poland	$506
Malaysia	$453
Turkey	$415
Vietnam	$353
Switzerland	$344
South Africa	$324
Chile	$315
Sweden	$304
Saudi Arabia	$304
Ukraine	$272

The $51.4 billion commercial value of unlicensed PC software is the value of pirated software if it had been sold in the market. It is calculated using the blended average price of software in an economy, as sold in retail stores, using volume licenses, and as bundled with hardware.

Calculating commercial value is intended to help quantify the value of unlicensed software in the market and allows for year over year comparisons of change in the software piracy landscape. It does not mean that eliminating unlicensed software would grow the market by $51.4 billion — not every unlicensed or stolen software product would be replaced by a paid-for version. But IDC has studied the relative performance of software markets in relation to piracy rates and has found that, in general, as piracy drops the ratio of software sold to hardware sold grows.

Table 2 shows economies ranked by the value of unlicensed software.

Note that it is possible for a market to see a drop in the PC software piracy rate and an increase in the commercial value of unlicensed software because of general PC software market growth.

For example, a country with a PC software market of $150 million in 2008 and a piracy rate of 45%, would show the commercial value of unlicensed software in 2008 to be $123 million. If the PC software market grew 10% in 2009, yet piracy dropped 2%, it would still have commercial value losses in 2009 of $124.5 million.

THE PERILS OF PIRACY

Despite the connotation, unlicensed PC software is not necessarily 'free.' It takes effort to obtain, and it usually requires more support than legitimate software since it does not come with a steady stream of updates and patches, and may, in fact, contain malware.

In a 2006 IDC study, ("The Dangers of Counterfeit Software," IDC White Paper, October 2006), research revealed that one in four websites that offered pirated software or counterfeit activation keys attempted to install infectious computer code, like Trojan horses and key loggers, on test computers. Even more striking, 59% of the counterfeit software or key generators downloaded from peer-to-peer (P2P) sites contained malicious or unwanted code.

This malicious code was designed to capture key strokes or send users to bogus websites where they would enter personal data that enables identity theft.

The study also found the cost of recovery from a security incident resulting from pirated software on a PC can cost more than $1,000, often exceeding the cost of legitimate software.

THE IMPACT OF OPEN SOURCE — REAL BUT STABLE

The BSA/IDC study includes all types of software in the piracy equation, from consumer games and industry-specific applications to operating systems and antivirus programs. It also takes account of freeware and open source software.

For the purposes of this study, the difference between freeware and open source software is semantic since they count the same in the calculation of the piracy rate. Open source software is software developed using open source protocols, meaning it can be modified and re-used, even for commercial use, though modifications must generally be offered back into the public domain.

Freeware is generally created by one entity and released to the market, either as an entry level enticement to upgrade to paid software, or as an altruistic offering to other users. Open source software is generally created by multiple developers working off the same software source code.

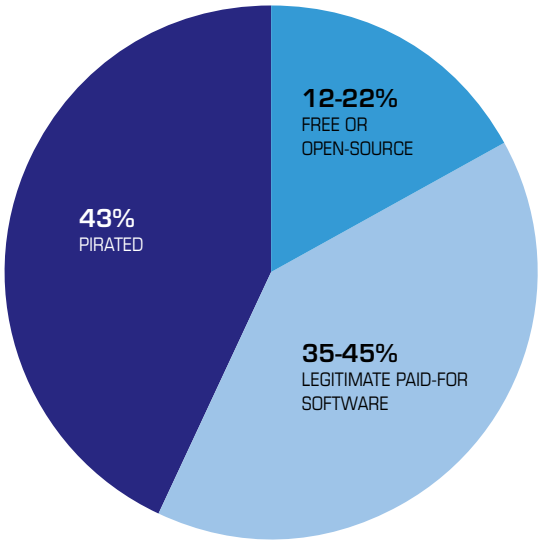
In the course of identifying the PC software piracy rate for a country, IDC must ascertain what percent of deployed PC software is free or open source (see figure 6).

This is accomplished through annual surveys that poll consumer and business users about their software deployment during the year, asking what types of software is deployed on their PCs. Depending on the country, as much as 25% of all software deployed might be free or open source. In practice, much more free software is used on PCs by consumers than businesses.

While the share of the market that is free is significant, it does not change much year to year. When it does, it is more often related to trends in the ratio of consumer software (which has a higher percentage of 'free' software) to business software (which has a lower percentage of 'free' software) than to changes in the penetration of free or open source software in the overall market.

Of course, not captured in the study is how much PC software has been fully replaced by free web-based services, often supported by advertisements. These include everything from package tracking (once a paid-for PC application) to retirement calculators. The best example is web-based email, wherein no software is installed on the local PC and no revenues track to the software market. Hence, these free applications do not appear in or impact the annual PC software piracy study.

FIGURE 6: The Impact of Freeware and Open Source Software in 2009



EXCLUDED: TRIALS AND BETA SOFTWARE, UTILITIES AND DRIVERS

SOURCE: SEVENTH ANNUAL BSA/IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2010

BENEFITS OF LOWERING PIRACY

Reducing PC software piracy can bring significant economic benefits to a market or economy. IDC estimates that for every dollar of software sold in a market, another $3–$4 of revenue is generated for local service and distribution firms.

Since 2002, IDC has conducted research with BSA on the economic benefits of lowering piracy — in terms of additional jobs, new local revenues and additional taxes generated. These studies have shown that the benefits to local governments are more significant than just replacing unlicensed software with licensed software.

For example, the results of lower PC software piracy have already been seen in Russia and China.

In 2003, the BSA/IDC Global Piracy Impact Study projected that Russia would gain more than 6,000 new jobs from lowering piracy by 10 points in four years. In fact, Russia added nearly 60,000 jobs by 2008, 9,000 of which IDC attributes to lower PC software piracy, the remainder to autonomous market growth.

In China, the 2003 prediction was that by lowering PC software piracy by ten percentage points in four years, more than 200,000 jobs would be created. By 2008, China had actually added more than 800,000 jobs to its IT industry, of which IDC attributes 220,000 to lower PC software piracy, the rest to autonomous market growth.

In both economies, lowering PC software piracy has been part of both government strategy and that of local and multinational vendors, with action taken over the years on education, enforcement, legalization, compliance and software asset management.

In addition to the economic benefits of reducing software piracy, other significant impacts of piracy include:

- Local software companies can be crippled by competition from unlicensed and stolen software in the market, not to mention piracy of their own products.
- While local service and distribution firms can make money working with unlicensed software instead of legitimate software, IDC research shows that they can make more money working with legitimate software. They can also cut internal support costs.
- Businesses and consumers waste time and money working with faulty and unsupported software.
- For users, using unlicensed software entails not just legal risks, but also security risks, outlined in "The Perils of Piracy" on Page 10.

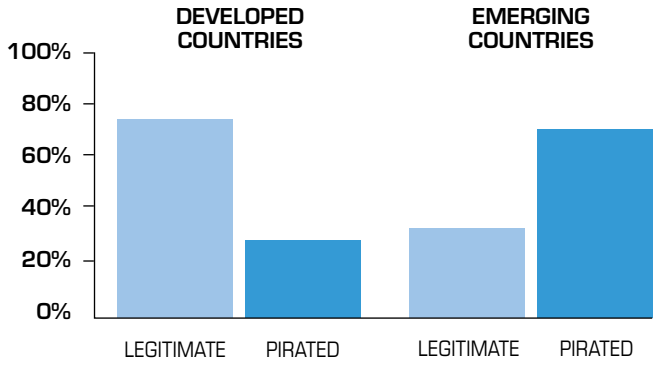
THE NEED FOR SUSTAINED ANTI-PIRACY EFFORTS

The trends seen in 2009 — in the midst of a global recession — validate the effectiveness of long term efforts to lower software piracy. It is also clear that most of the economic benefits are realized locally. Successful anti-piracy efforts can take a variety of forms, including:

- Legalization efforts by software manufacturers to provide governments with software at a low cost in bulk to replace unlicensed software. Vendors continued these programs in 2009, turning users of illegal software into customers, and allowing governments to set a good example for their citizens.
- Continuing agreements with original equipment manufacturers (OEMs) to preload software onto hardware systems before they ship. As the number of non branded white box vendors continues to fall, more of these agreements will take place.
- Employing technical advances, like digital rights management, that encourage customer self-audits, and offering exclusive, value added services not available to users of unlicensed software.
- Promulgating software asset management programs, with the prospect of delivering user savings even as they spend money to legalize previously unlicensed software.
- Encouraging government education and enforcement activity that supports respect for intellectual property laws, and reinforces the deterrent effect of anti-piracy enforcement actions.
- Continuing government and industry partnerships in anti-piracy programs, like those of the BSA, and increasing lobbying by local industry associations and vendors to ensure greater attention to intellectual property rights.

There will be challenges ahead — more consumers in emerging markets will have PCs, and more will have broadband internet access. The supply of stolen and unlicensed software available will not decrease. But through ongoing efforts, and government and private sector cooperation, anti-piracy efforts can continue to be successful.

FIGURE 7: The Legitimate Versus Pirated Market



SOURCE: SEVENTH ANNUAL BSA/IDC GLOBAL SOFTWARE PIRACY STUDY, MAY 2010

TABLE 3: PC Software Piracy Rates and Commercial Value of Unlicensed Software

	Piracy Rates					Commercial Value of Unlicensed Software ($M)				
	2009	2008	2007	2006	2005	2009	2008	2007	2006	2005
Asia Pacific										
Australia	25%	26%	28%	29%	31%	$550	$613	$492	$515	$361
Bangladesh	91%	92%	92%	92%	—	$127	$102	$92	$90	—
Brunei	67%	68%	67%	—	—	$14	$15	$13	—	—
China	79%	80%	82%	82%	86%	$7,583	$6,677	$6,664	$5,429	$3,884
Hong Kong	47%	48%	51%	53%	54%	$218	$225	$224	$180	$112
India	65%	68%	69%	71%	72%	$2,003	$2,768	$2,025	$1,275	$566
Indonesia	86%	85%	84%	85%	87%	$886	$544	$411	$350	$280
Japan	21%	21%	23%	25%	28%	$1,838	$1,495	$1,791	$1,781	$1,621
Malaysia	58%	59%	59%	60%	60%	$453	$368	$311	$289	$149
New Zealand	22%	22%	22%	22%	23%	$63	$75	$55	$49	$30
Pakistan	84%	86%	84%	86%	86%	$166	$159	$125	$143	$48
Philippines	69%	69%	69%	71%	71%	$217	$202	$147	$119	$76
Singapore	35%	36%	37%	39%	40%	$197	$163	$159	$125	$86
South Korea	41%	43%	43%	45%	46%	$575	$622	$549	$440	$400
Sri Lanka	89%	90%	90%	90%	—	$77	$97	$93	$86	—
Taiwan	38%	39%	40%	41%	43%	$227	$201	$215	$182	$111
Thailand	75%	76%	78%	80%	80%	$694	$609	$468	$421	$259
Vietnam	85%	85%	85%	88%	90%	$353	$257	$200	$96	$38
Other AP	90%	91%	91%	86%	82%	$303	$69	$56	$148	$29
TOTAL AP	**59%**	**61%**	**59%**	**55%**	**54%**	**$16,544**	**$15,261**	**$14,090**	**$11,718**	**$8,050**
Central and Eastern Europe										
Albania	75%	77%	78%	77%	76%	$8	$9	$11	$11	$9
Armenia	90%	92%	93%	95%	95%	$14	$7	$8	$8	$7
Azerbaijan	88%	90%	92%	94%	94%	$52	$55	$50	$51	$40
Belarus	87%	—	—	—	—	$55	—	—	—	—
Bosnia	66%	67%	68%	68%	69%	$14	$15	$13	$14	$13
Bulgaria	67%	68%	68%	69%	71%	$115	$139	$63	$50	$41
Croatia	54%	54%	54%	55%	57%	$71	$77	$68	$62	$51
Czech Republic	37%	38%	39%	39%	40%	$174	$168	$161	$147	$121
Estonia	50%	50%	51%	52%	54%	$19	$21	$20	$16	$18
FYROM	67%	68%	68%	69%	70%	$15	$14	$11	$10	$9
Georgia	95%	95%	—	—	—	$54	$59	—	—	—
Hungary	41%	42%	42%	42%	42%	$113	$146	$125	$111	$106
Kazakhstan	78%	78%	79%	81%	85%	$74	$125	$110	$85	$69
Latvia	56%	56%	56%	56%	57%	$24	$31	$29	$26	$20
Lithuania	54%	54%	56%	57%	57%	$31	$40	$37	$31	$25
Moldova	91%	90%	92%	94%	96%	$28	$40	$43	$56	$44
Montenegro	81%	83%	83%	82%	83%	$11	$8	$7	$6	$9
Poland	54%	56%	57%	57%	58%	$506	$648	$580	$484	$388
Romania	65%	66%	68%	69%	72%	$183	$249	$151	$114	$111
Russia	67%	68%	73%	80%	83%	$2,613	$4,215	$4,123	$2,197	$1,625
Serbia	74%	74%	76%	78%	80%	$67	$99	$72	$59	$95
Slovakia	43%	43%	45%	45%	47%	$65	$62	$54	$47	$44
Slovenia	46%	47%	48%	48%	50%	$39	$51	$39	$36	$33
Ukraine	85%	84%	83%	84%	85%	$272	$534	$403	$337	$239
Rest of CEE	88%	88%	88%	90%	92%	$56	$191	$173	$166	$145
TOTAL CEE	**64%**	**66%**	**68%**	**68%**	**69%**	**$4,673**	**$7,003**	**$6,351**	**$4,124**	**$3,262**
Latin America										
Argentina	71%	73%	74%	75%	77%	$645	$339	$370	$303	$182
Bolivia	80%	81%	82%	82%	83%	$40	$20	$19	$15	$10
Brazil	56%	58%	59%	60%	64%	$2,254	$1,645	$1,617	$1,148	$766
Chile	64%	67%	66%	68%	66%	$315	$202	$187	$163	$109
Colombia	55%	56%	58%	59%	57%	$244	$136	$127	$111	$90
Costa Rica	59%	60%	61%	64%	66%	$33	$24	$22	$27	$19
Dominican Republic	77%	79%	79%	79%	77%	$66	$43	$39	$19	$8
Ecuador	67%	66%	66%	67%	69%	$65	$37	$33	$30	$17
El Salvador	80%	80%	81%	82%	81%	$46	$28	$28	$18	$8
Guatemala	80%	81%	80%	81%	81%	$74	$49	$41	$26	$14
Honduras	74%	74%	74%	75%	75%	$17	$9	$8	$7	$4
Mexico	60%	59%	61%	63%	65%	$1,056	$823	$836	$748	$525
Nicaragua	79%	79%	80%	80%	80%	$5	$4	$4	$4	$2
Panama	73%	73%	74%	74%	71%	$42	$24	$22	$18	$8
Paraguay	82%	83%	82%	82%	83%	$29	$16	$13	$10	$10
Peru	70%	71%	71%	71%	73%	$124	$84	$75	$59	$40
Uruguay	68%	69%	69%	70%	70%	$40	$25	$23	$16	$9
Venezuela	87%	86%	87%	86%	82%	$685	$484	$464	$307	$173
Other LA	83%	84%	83%	83%	82%	$430	$319	$195	$96	$32
TOTAL LA	**63%**	**65%**	**65%**	**66%**	**68%**	**$6,210**	**$4,311**	**$4,123**	**$3,125**	**$2,026**

	Piracy Rates					Commercial Value of Unlicensed Software ($M)				
	2009	2008	2007	2006	2005	2009	2008	2007	2006	2005
Middle East and Africa										
Algeria	84%	84%	84%	84%	83%	$55	$96	$86	$62	$66
Bahrain	54%	55%	57%	60%	60%	$21	$27	$27	$23	$22
Botswana	79%	80%	82%	81%	82%	$11	$14	$14	$12	$12
Cameroon	83%	83%	84%	84%	84%	$7	$6	$5	$5	$5
Egypt	59%	59%	60%	63%	64%	$146	$158	$131	$88	$80
Iraq	85%	85%	85%	—	—	$129	$205	$124	—	—
Israel	33%	32%	32%	32%	32%	$148	$172	$121	$102	$84
Ivory Coast	79%	80%	81%	82%	82%	$14	$15	$15	$16	$23
Jordan	57%	58%	60%	61%	63%	$26	$22	$20	$19	$19
Kenya	79%	80%	81%	80%	81%	$66	$31	$28	$22	$20
Kuwait	60%	61%	62%	64%	66%	$62	$69	$61	$60	$65
Lebanon	72%	74%	73%	73%	73%	$46	$49	$44	$39	$34
Libya	88%	87%	88%	—	—	$25	$22	$22	—	—
Mauritius	56%	57%	57%	59%	60%	$4	$5	$4	$3	$3
Morocco	66%	66%	67%	66%	68%	$64	$70	$66	$53	$55
Nigeria	83%	83%	82%	82%	82%	$156	$132	$114	$100	$82
Oman	63%	62%	61%	62%	63%	$39	$26	$23	$25	$22
Qatar	51%	51%	54%	58%	60%	$50	$26	$25	$23	$21
Reunion	40%	40%	40%	40%	40%	$1	$1	$1	$0	$1
Saudi Arabia	51%	52%	51%	52%	52%	$304	$272	$170	$195	$178
Senegal	78%	79%	80%	81%	82%	$5	$7	$6	$6	$6
South Africa	35%	35%	34%	35%	36%	$324	$335	$284	$225	$212
Tunisia	72%	73%	76%	79%	81%	$44	$48	$54	$55	$54
Turkey	63%	64%	65%	64%	65%	$415	$468	$365	$314	$268
UAE	36%	36%	35%	35%	34%	$155	$170	$94	$62	$45
Yemen	90%	89%	89%	—	—	$10	$14	$13	—	—
Zambia	82%	82%	82%	82%	83%	$2	$2	$2	$2	$2
Zimbabwe	92%	92%	91%	91%	90%	$4	$4	$3	$2	$6
Other Africa	86%	86%	85%	85%	84%	$260	$95	$76	$49	$63
Other ME	88%	87%	87%	89%	91%	$294	$438	$448	$423	$154
TOTAL MEA	**59%**	**59%**	**60%**	**60%**	**57%**	**$2,887**	**$2,999**	**$2,446**	**$1,985**	**$1,602**
North America										
Canada	29%	32%	33%	34%	33%	$943	$1,222	$1,071	$784	$779
Puerto Rico	46%	44%	44%	45%	47%	$46	$36	$33	$31	$12
United States	20%	20%	20%	21%	21%	$8,390	$9,143	$8,040	$7,289	$6,895
TOTAL NA	**21%**	**21%**	**21%**	**22%**	**22%**	**$9,379**	**$10,401**	**$9,144**	**$8,104**	**$7,686**
Western Europe										
Austria	25%	24%	25%	26%	26%	$212	$184	$157	$147	$131
Belgium	25%	25%	25%	27%	28%	$239	$269	$223	$222	$257
Cyprus	48%	50%	50%	52%	52%	$16	$15	$14	$12	$13
Denmark	26%	25%	25%	25%	27%	$203	$215	$193	$183	$199
Finland	25%	26%	25%	27%	26%	$175	$194	$160	$149	$156
France	40%	41%	42%	45%	47%	$2,544	$2,760	$2,601	$2,676	$3,191
Germany	28%	27%	27%	28%	27%	$2,023	$2,152	$1,937	$1,642	$1,920
Greece	58%	57%	58%	61%	64%	$248	$238	$198	$165	$157
Iceland	49%	46%	48%	53%	57%	$11	$23	$33	$32	$18
Ireland	35%	34%	34%	36%	37%	$125	$118	$106	$92	$93
Italy	49%	48%	49%	51%	53%	$1,733	$1,895	$1,779	$1,403	$1,564
Luxembourg	21%	21%	21%	—	—	$30	$21	$16	—	—
Malta	45%	45%	46%	45%	45%	$7	$8	$7	$7	$5
Netherlands	28%	28%	28%	29%	30%	$525	$563	$502	$419	$596
Norway	29%	28%	29%	29%	30%	$195	$229	$195	$181	$169
Portugal	40%	42%	43%	43%	43%	$221	$212	$167	$140	$104
Spain	42%	42%	43%	46%	46%	$1,014	$1,029	$903	$865	$765
Sweden	25%	25%	25%	26%	27%	$304	$372	$324	$313	$340
Switzerland	25%	25%	25%	26%	27%	$344	$345	$303	$324	$376
United Kingdom	27%	27%	26%	27%	27%	$1,581	$2,181	$1,837	$1,670	$1,802
TOTAL WE	**34%**	**33%**	**33%**	**34%**	**35%**	**$11,750**	**$13,023**	**$11,655**	**$10,642**	**$11,856**
TOTAL WORLDWIDE	**43%**	**41%**	**38%**	**35%**	**35%**	**$51,443**	**$52,998**	**$47,809**	**$39,698**	**$34,482**
European Union	35%	35%	35%	36%	36%	$12,469	$13,981	$12,383	$11,003	$12,048
BRIC Countries*	71%	73%	75%	77%	81%	$14,453	$15,305	$14,429	$10,049	$6,841

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

BSA/IDC GLOBAL PC SOFTWARE PIRACY STUDY METHODOLOGY

The approach used to calculate the piracy rate is simple, but the underlying methodology is sophisticated and robust. Ultimately, determining the global PC software piracy rate includes collecting 182 discrete data inputs and evaluating PC and software trends and data in each of 116 economies.

What follows is a description of the methodology for the *BSA/IDC Global Software Piracy Study*. A detailed video presentation of the methodology is also available at www.bsa.org/globalstudy.

The basic method for coming up with rates and commercial value of unlicensed software in a country is as follows:

1. Determine how much PC software was deployed in 2009.
2. Determine how much PC software was paid for/legally acquired in 2009.
3. Subtract one from the other to get the amount of unlicensed software.

Once the amount of unlicensed software is known, the PC software piracy rate can be determined as the percentage of total software installed.

So the piracy equation looks like this:
To get the total number of software units installed — the denominator — IDC determines how many computers there are in a country and how many received software in 2009. IDC tracks this information quarterly in 105 countries, either in products called 'PC Trackers' or as part of custom assignments. The remaining few countries are researched annually for this study.

Once IDC has determined how many computers there are, it can determine how much software was installed on each computer in 2009.

To do this, IDC conducts a survey each year — this year a mix of 28 countries from all geographies, levels of IT sophistication and geographic and cultural diversity — totaling 6,000 consumer responses and 4,300 business user responses. In the survey, respondents are asked how many software packages (of what type) were installed on their PCs, what

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

percent were new or upgrades, whether they came with the computers or not and whether they were installed on a new computer or one acquired prior to 2009.

From this survey, IDC develops a picture of the number of software packages, including free or open source software, installed per PC. This allows IDC to calculate the total software units installed according to this equation:

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

For countries that are not surveyed, IDC uses a methodology that relies on a correlation between the number of software units per PC and an emerging market measure published by the International Telecommunications Union, called the Information Development Index (IDI). IDC also considers other correlations such as gross domestic product (GDP) per capita, PC penetration and various measures of institutional strength.

Using the known software loads from survey countries and their IDI scores, IDC is able to use the non-surveyed country IDI scores to estimate a software load.

To get the number of unlicensed software units — the numerator of the piracy equation — IDC comes up with a measure of the software market. IDC routinely publishes software market data from about 80 countries and studies an additional 20 or so on a custom basis. For the few remaining countries, IDC conducts annual research for the purposes of this study. This research provides the value of the legitimate "paid-for" market.

To convert the software market value to number of units, IDC determines an average system price for all of the PC software in the country. This is done by developing a country-specific matrix of software prices — retail, volume license, OEM, free/open source, etc. — across a matrix of products, including security, office automation, operating systems and more. IDC multiplies the two matrices together to get a final average, blended software price.

IDC's pricing information comes from its pricing trackers and from local analyst research. The weightings — OEM versus retail, consumer versus business — are taken from IDC surveys.

To arrive at the total number of legitimate software units, IDC applies this formula:

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

Once IDC has determined the number of total units of software installed, the number of legitimate and unlicensed units of software installed and the average system price for legitimate software it is able to calculate the value of unlicensed software as follows:

$ Commercial Value = #Unlicensed Software Units x Average System Price

The commercial value of unlicensed software, which BSA previously referred to as "losses," is the value of unlicensed software as if it had been sold in the market. This is calculated using the same blend of prices used to determine the average system price, including: retail, volume license, OEM, free/open source, etc. In practice, because of the many methods of deploying software, the average system price is lower than retail prices one would find in stores.

Calculating commercial value is intended to help quantify the value of unlicensed software in the market and allows for year over year comparisons of changes in the software piracy landscape.

WHAT SOFTWARE IS INCLUDED

The IDC methodology calculates piracy on all software that runs on personal computers — including desktops, portables and new netbooks. That includes operating systems, systems software, such as databases and security packages, and applications software; for example, office automation packages, finance and tax packages, PC computer games and industry-specific applications.

IDC also looks at legitimate free software and open source software, which is software that is licensed in a way that puts it into the public domain for common use. It is typically free but can also be used in commercial products. IDC does, however, exclude routine device drivers and free downloadable utilities, such as screen savers, that would not displace paid for software or normally be recognized by a user as a software program.

As mentioned previously, the study does include software as a service if it is paid for, but excludes web-based services that might supplant the need for a paid for package to be installed on a PC. Software sold as part of a legalization program — such as a bulk sale to a government to distribute to schools — is counted in the year the bulk purchase (or gift) occurs.

THE IMPACT OF EXCHANGE RATES

In the past, dollar figures in the value tables were in constant dollars from the year before, so the 2008 value of unlicensed software was stated in 2007 dollars.

This year, IDC has chosen to state the value in 2009 dollars. This two year jump in exchange rates means comparisons between 2008 and 2009 need to be put in perspective.

In 2008 and 2009 — the base year for the 2009 values — the US dollar dropped slightly against the euro and the yen, but gained against the ruble, the British pound and the Mexican peso.

When the value of the US dollar goes down against a currency, the value of unlicensed software will go up because the same amount of unlicensed software in the local currency will be worth more US dollars in the exchange. When the US dollar increases in value against a currency, the opposite effect occurs.

This year, adjusting the 2008 value figure to accommodate exchange rates would raise that value by 3%, making the real difference between 2009 and 2008 values zero.

BSA BLUEPRINT FOR REDUCING SOFTWARE PIRACY

Increase Public Education and Awareness

Reducing software piracy often requires a fundamental shift in the public's attitude toward it; 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 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.

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 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 actively managing their own software assets and sending a strong and clear message that they will not tolerate piracy. This can be achieved by implementing software asset management policies to set an example the private sector should follow.

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