

# SHADOW MARKET

2011 BSA GLOBAL SOFTWARE PIRACY STUDY

NINTH EDITION, MAY 2012



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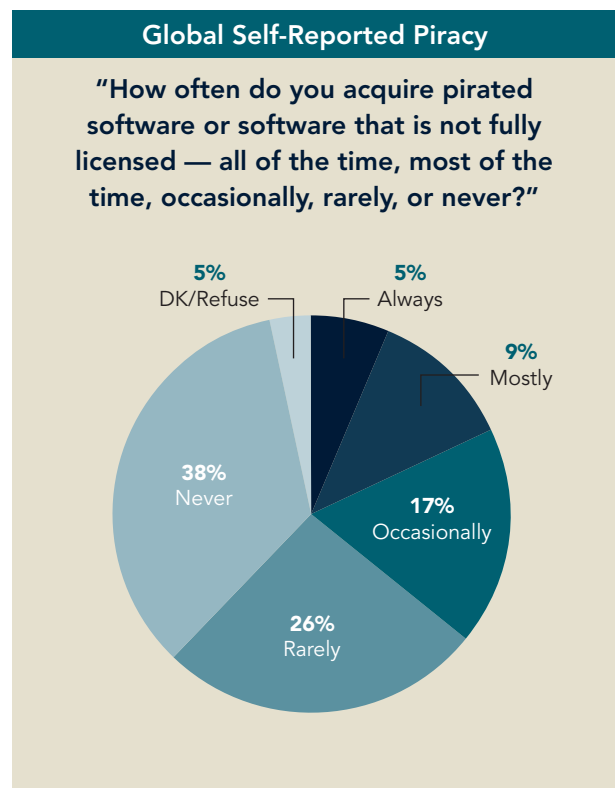
# EXECUTIVE SUMMARY

Well over half of the world's personal computer users — 57 percent — admit they pirate software. That includes 31 percent who say they do it “all of the time,” “most of the time,” or “occasionally,” plus another 26 percent who admit they pirate, but only “rarely.” Fewer than four users in 10 (38 percent) say they “never” acquire software that is not fully licensed.

These startling findings come from a survey of approximately 15,000 computer users in 33 countries that together make up 82 percent of the global PC market. Ipsos Public Affairs conducted the interviews in January and February of 2012 as part of the ninth annual BSA Global Software Piracy Study.

Among the other key findings in this year's report:

- The global piracy rate for PC software hovers at 42 percent.
- The commercial value of this shadow market of pirated software climbed from \$58.8 billion in 2010 to \$63.4 billion in 2011, a new record, propelled by PC shipments to emerging economies where piracy rates are highest.
- Country by country, the frequency with which people report acquiring unlicensed software closely aligns with the actual rates of piracy that IDC calculates annually for this report using hard market data.
- The users who say they pirate software most frequently are disproportionately young and male — and they install more software of all types on their computers than do infrequent pirates or non-pirates.
- Emerging economies, which in recent years have been the driving force behind PC software piracy, are now decisively outpacing mature markets in their rate of growth. They took in 56 percent of the world's new PC shipments in 2011, and they now account for more than half of all PCs in use.



# GLOBAL TRENDS



This year's BSA Global Software Piracy Study marks the first time a large sample of computer users around the world have been asked directly, "How often do you acquire pirated software or software that is not fully licensed?"

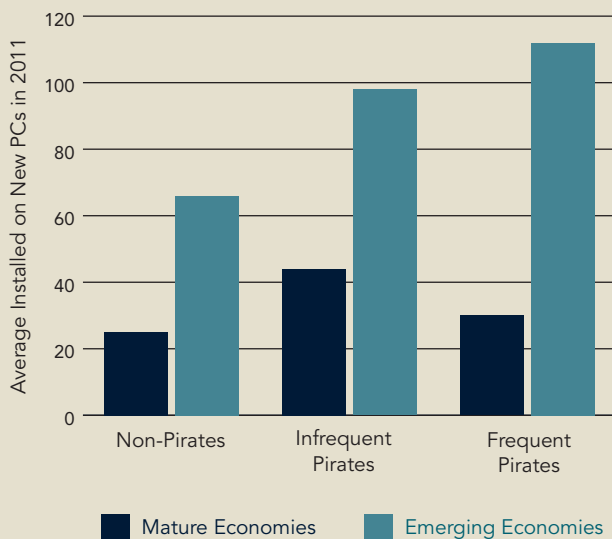
The answers people have given to that question — combined with other details they have provided, including the means by which they acquire software, their understanding of which ways of getting software are likely to be legal or illegal, and their attitudes toward intellectual property rights generally — reveal sharp divides between the habits and outlooks of computer users in emerging and developed markets. Those differences help explain why the global piracy rate hovered at 42 percent in 2011 while a steadily expanding marketplace in the developing world drove the commercial value of software theft to \$63.4 billion.

## HABITS OF SELF-REPORTED PIRATES

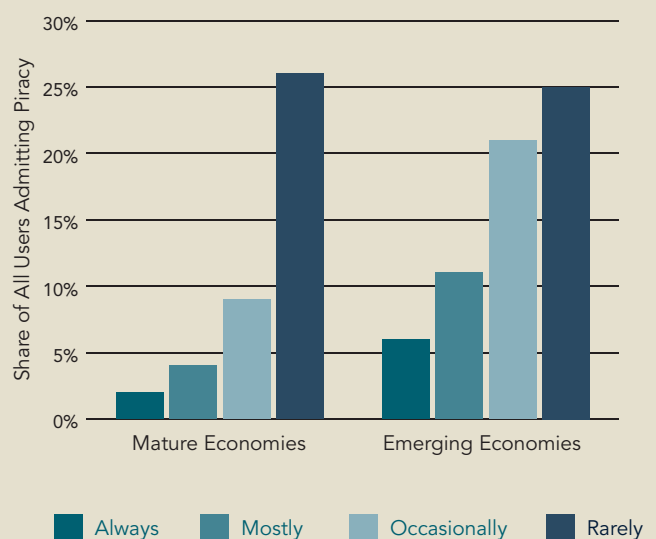
This year's survey finds that frequent pirates — people who admit they acquire unlicensed software all of the time, most of the time, or occasionally — also are the most voracious software users. They report installing 55 percent more programs of all types on their computers than do non-pirates. This gives them an outsized impact on the global piracy rate.

Even more striking is the difference in behavior between users in emerging economies and users in the developed world. Frequent pirates in emerging economies install nearly four times as many programs of all sorts per new PC as do frequent pirates in mature markets. Among infrequent pirates — those who say they rarely acquire unlicensed software — there is a greater than two-to-one gap in the total number of programs they install.

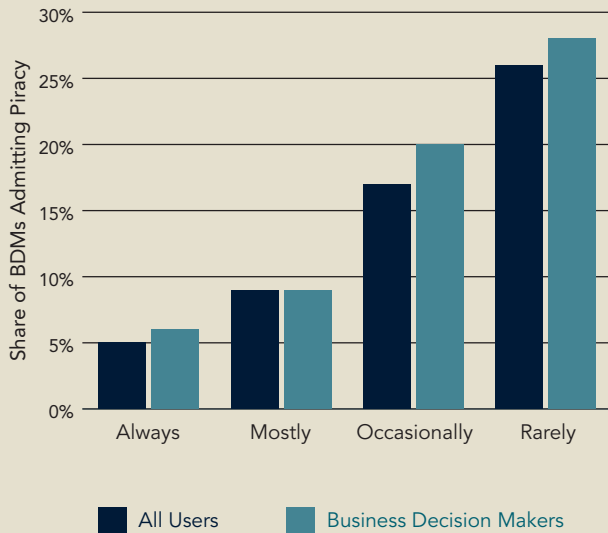
Programs Installed per Computer



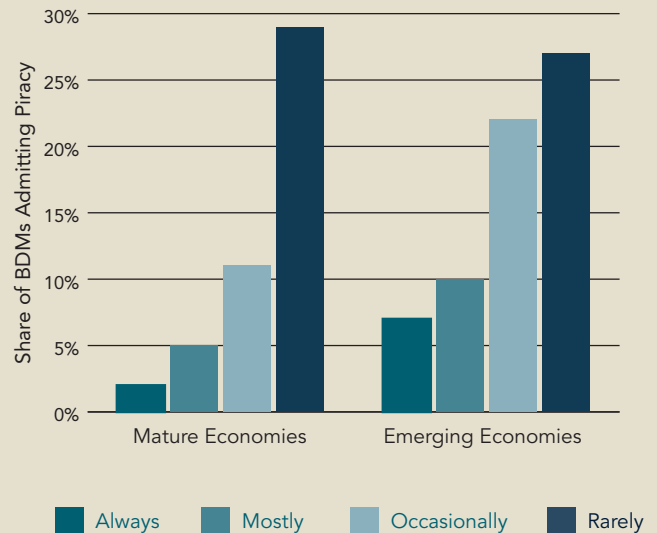
Self-Reported Piracy Habits by Market



**Business Decision Makers Admit Pirating More than Other Users...**



**...Especially in Emerging Markets**



Frequent software pirates are disproportionately young and male, and they are more than twice as likely to live in an emerging economy as they are to live in a mature one (38 percent to 15 percent). Not surprisingly, pirates are far more likely than non-pirates to acquire software through channels that tend to be illegal, such as by installing a single copy of a program on more computers than the license allows or downloading programs from peer-to-peer sites such as Kazaa or Morpheus.

In the developing world, some of this behavior can be attributed to a general state of confusion about which ways of acquiring software are legal and which are not. For example, a comparatively low two-thirds of computer users in emerging economies trust that the software available for sale in retail stores is likely to be legal. That skepticism is not unreasonable. Indeed, in many emerging markets, users would often be right to assume that stores are stocked with illegal copies of name-brand software.

Strikingly, this year's survey finds that business decision makers around the world admit to pirating software more frequently than do other computer users. In fact, business decision makers who admit they frequently pirate software are more than twice as likely as other computer users to say they buy software for one computer but then install it on additional machines in their offices. This form of license abuse accounts for the vast majority of enterprise software piracy globally — and the commercial value of it adds up quickly, because it is not uncommon for large companies to make hundreds or thousands of illegal copies.

This year's survey also reaffirms that business decision makers in emerging economies are more likely to pirate software than business decision makers in mature markets. This has broad ramifications, because software is an essential tool of production; companies that dodge the capital cost of it gain an unfair competitive advantage over companies that pay for software as they should.



## EMERGING ECONOMIES EXERT GREATER INFLUENCE

In addition to the differences in behavior and outlook between computer users in emerging and developed economies, broad market forces also are shifting the balance of influence toward the developing world. In 2010, emerging markets for the first time took in more new PC shipments than mature markets. In 2011, they extended their lead, buying 56 percent of all new PCs versus 44 percent in mature markets. With this trend came another milestone — emerging markets are now home to more than half of all computers currently in use worldwide.

Software piracy rates in emerging markets meanwhile towered over those in mature markets: 68 percent, on average, compared to 24 percent. Emerging economies thus continue to account for an overwhelming majority of the global increase in the commercial value of pirated software.

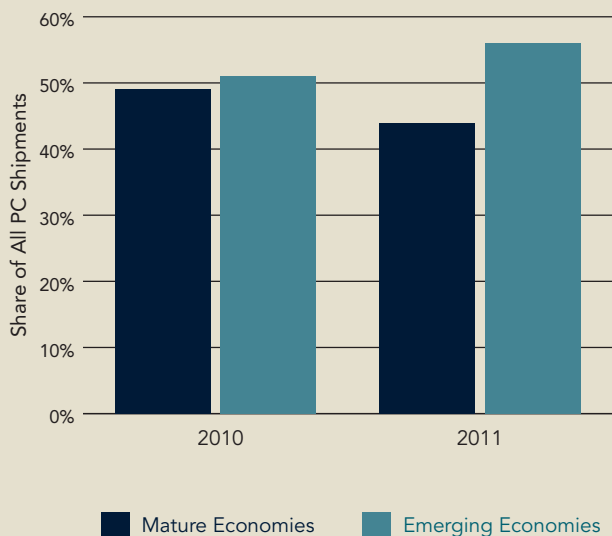
## KEY MARKET HIGHLIGHTS

Among the economies with the highest commercial values of software piracy, two stand apart from the rest in scale — and apart from each other in their market profiles. First, there is the United States, the world’s largest software market by far, with legal sales approaching \$42 billion. It has the world’s lowest piracy rate at 19 percent, but because it is such a large market, the commercial value of that piracy adds up to almost \$10 billion.

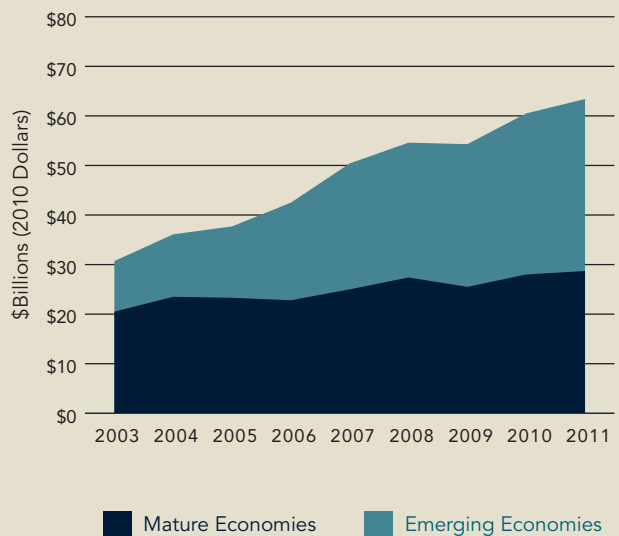
Next, there is China, which is on course to overtake the US in the commercial value of its piracy despite having a legal software market just one-fifteenth the size of America’s. China’s illegal software market was worth nearly \$9 billion in 2011 versus a legal market of less than \$3 billion, making its piracy rate 77 percent.

To fully understand the gap in legal software sales between China and the world’s other big markets, it helps to consider the picture on a per-PC basis: Businesses and consumers spend an average of \$542 for a new PC (excluding a monitor) in China but buy

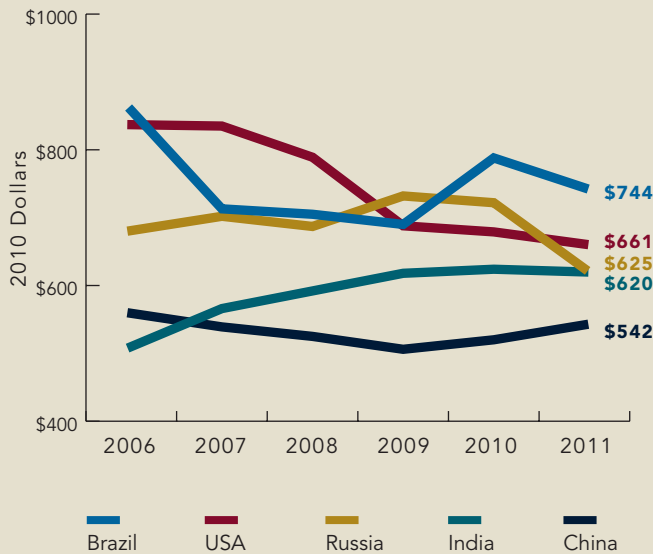
Destination of Global PC Shipments



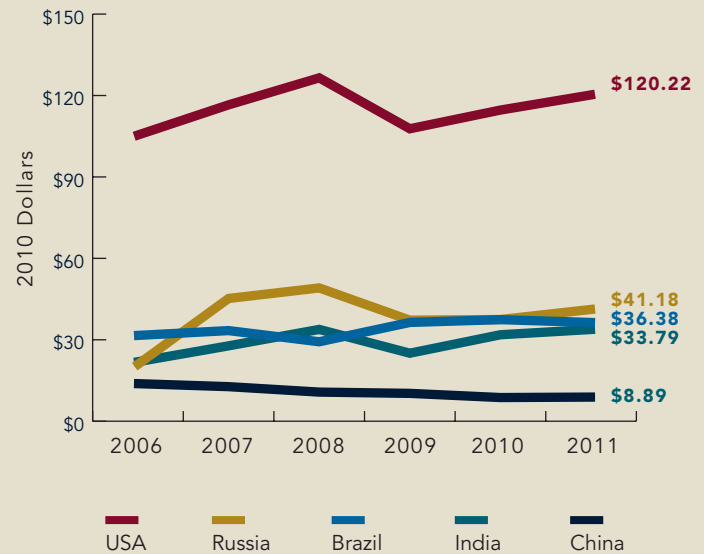
Commercial Value of Pirated Software



Average Price of a New PC



Legal Software Sales per PC



just \$8.89 in legal software to run it. This is less than a quarter of the amount spent per PC in other “BRIC” markets — Russia, India, and Brazil, which come next in the value of their piracy — and just 7 percent of the amount spent per PC in the US.

Among the other noteworthy developments in 2011:

- India saw its piracy rate fall by 1 point year-over-year to 63 percent in 2011, continuing a gradual 9-point decline since 2004. The commercial value of pirated software in India inched up only slightly in real terms for the year. These results coincide with an effort by national and state government agencies to promote best practices in software asset management (SAM).
- Mexico’s piracy rate edged down 1 point year-over-year to 57 percent in 2011, a 3-point improvement from 60 percent in 2009. This is largely thanks to progress made in curbing unlicensed software use by enterprises. The Mexican government, working in partnership with industry, has promoted software legalization through an ambitious program of public education and enforcement.

- Russia notched a 2-point improvement in its piracy rate — and saw a 10 percent increase in legal software sales per PC — while industry promoted SAM programs and conducted PR campaigns to publicize the risks of using counterfeit software, and Russian officials continued enforcement efforts against software piracy. Russia’s PC software piracy rate has now dropped a record 24 points in the past nine years.
- The EU regional average dropped 2 points to 33 percent in 2011. This was due to 1-point declines in a number of Western European countries, including Italy, Germany, the Netherlands, Sweden, and the UK, and a 2-point drop in France. This progress is significant as European policymakers are embarking on a review of the European IPR Civil Enforcement Directive.

The global software piracy rate was unchanged at 42 percent in 2011 — largely because it was a flat year for the PC market. There was less than a 2 percent increase in shipments for the year compared to a robust 14 percent increase in 2010 and a growth average of 10 percent in the previous three years. The marginal increase in PC shipments in 2011 was

## Top 20 Economies in Commercial Value of Pirated PC Software, 2011

	Pirated Value (\$M)	Legal Sales (\$M)	Piracy Rate
US	\$9,773	\$41,664	19%
China	\$8,902	\$2,659	77%
Russia	\$3,227	\$1,895	63%
India	\$2,930	\$1,721	63%
Brazil	\$2,848	\$2,526	53%
France	\$2,754	\$4,689	37%
Germany	\$2,265	\$6,447	26%
Italy	\$1,945	\$2,107	48%
UK	\$1,943	\$5,530	26%
Japan	\$1,875	\$7,054	21%
Indonesia	\$1,467	\$239	86%
Mexico	\$1,249	\$942	57%
Spain	\$1,216	\$1,548	44%
Canada	\$1,141	\$3,085	27%
Thailand	\$852	\$331	72%
South Korea	\$815	\$1,223	40%
Australia	\$763	\$2,554	23%
Venezuela	\$668	\$91	88%
Malaysia	\$657	\$538	55%
Argentina	\$657	\$295	69%

heavily concentrated among business customers rather than consumers. That had a dampening effect on piracy, because the rate of unlicensed software use tends to be lower among enterprises, especially in mature markets.

Adding to the tempering effect of enterprise PC shipments, laptops, which tend to be sold preloaded with legal software, accounted for an increased share of the market (57 percent, up from 56 percent in 2010). Meanwhile, stripped-down “white-box” machines, which often are vehicles for unlicensed

software, accounted for a decreased share of the market (16.8 percent, down from 17.3 percent in 2010). But offsetting all of those effects on piracy was the increasing market share of the world’s emerging economies. As a group, their piracy rate was 68 percent in 2011 compared to an average of 24 percent in developed economies.

## PCs CONTINUE TO OVERSHADOW TABLETS AND CLOUD COMPUTING, FOR NOW

The overall shape of the software market itself continued to evolve in 2011 — notably, with the explosive growth of media tablets and cloud computing. Yet both of these trends remain in their fledgling stages compared to the scale of desktop and laptop computing. For example:

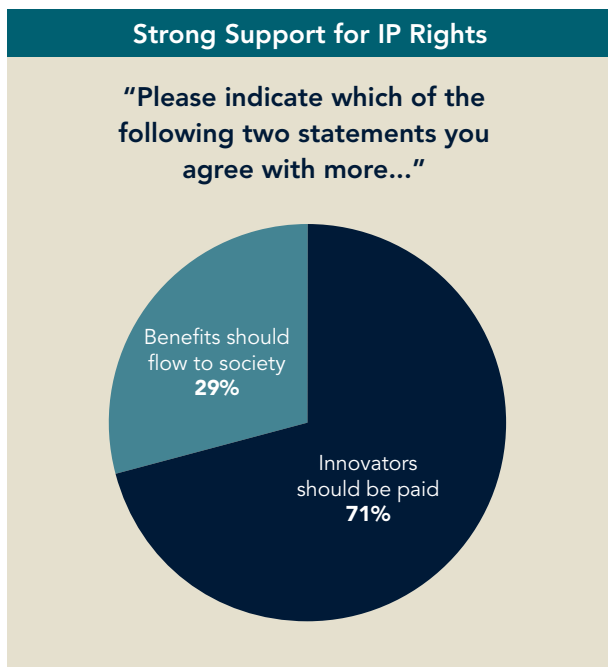
- The number of tablets in use around the world leapt 80 percent from about 45 million in 2010 to more than 80 million in 2011. The global installed base of PCs, by comparison, edged past 1.5 billion. Those computers were running more than 32 billion software programs with a combined commercial value of \$261 billion. All the tablets in use globally were running approximately 3.7 billion apps with a combined commercial value of \$7 billion.
- Similarly, PC software that is delivered as a service through cloud computing architectures represented just over 1 percent of the global PC software market — a \$1.3 billion slice of a \$101 billion pie. In the overall software market, which grew to \$264 billion in 2011, cloud computing represented an 8 percent share.

As the software market evolves to provide solutions for more devices and platforms, the nature of software piracy, too, is evolving. A forthcoming supplement to this year’s Global Software Piracy Study will begin to explore the dynamics at work in cloud computing.



### STRONG SUPPORT FOR IP RIGHTS

The 2010 Global Software Piracy Study was the first to probe computer users' attitudes toward intellectual property. It found strong support for the idea that innovators should be rewarded for their work, and this year's survey found no wavering in that sentiment. By a wide 71-percent to 29-percent margin, respondents aligned themselves with the idea that "it is important for people who create new products or technologies to be paid for them, because it provides an incentive to produce more innovations. That is good for society because it drives technological progress and economic growth."



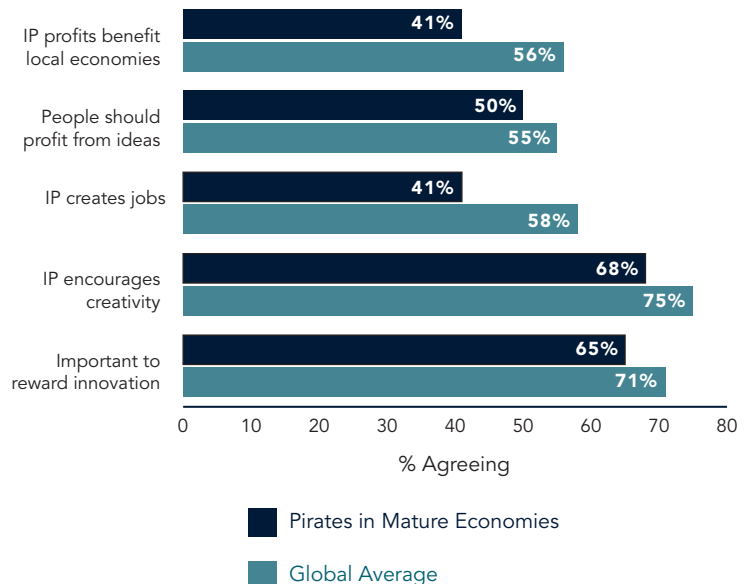
Computer users around the world rejected the alternative proposition: "No company or individual should be allowed to control a product or technology that could benefit the rest of society. Laws like that limit the free flow of ideas, stifle innovation, and give too much power to too few people."

Globally, the picture is similar among admitted pirates and non-pirates; but pirates in mature economies are outliers from the rest of the world's computer users: They show considerably less support for IP rights and protections than everyone else does and less faith in the economic benefits.

Frequent pirates in the developed world also are conspicuous in expressing disregard for the law. For example, compared to non-pirates in the developed world, they are 19 percent less likely to say that the illegality of pirating software is a good reason not to do it.

Compounding that problem, this year's survey finds a troubling lack of incentive among admitted pirates around the world to change their behavior. In mature markets, only 20 percent of those who admit they frequently pirate software say the risk of getting caught is a reason not to do it. In emerging markets, the figure is even lower — just 15 percent of pirates appear to be concerned about the risk of getting caught. This suggests there is a need for authorities to ramp up enforcement to send a stronger deterrent signal to the marketplace.

### Pirates in Mature Markets Disregard Intellectual Property



## PC SOFTWARE PIRACY RATES AND COMMERCIAL VALUE OF UNLICENSED SOFTWARE

	Piracy Rates					Commercial Value of Unlicensed Software (\$M)				
	2011	2010	2009	2008	2007	2011	2010	2009	2008	2007
<b>Asia Pacific</b>										
Australia	23%	24%	25%	26%	28%	\$763	\$658	\$550	\$613	\$492
Bangladesh	90%	90%	91%	92%	92%	\$147	\$137	\$127	\$102	\$92
Brunei	67%	66%	67%	68%	67%	\$25	\$19	\$14	\$15	\$13
China	77%	78%	79%	80%	82%	\$8,902	\$7,779	\$7,583	\$6,677	\$6,664
Hong Kong	43%	45%	47%	48%	51%	\$232	\$227	\$218	\$225	\$224
India	63%	64%	65%	68%	69%	\$2,930	\$2,739	\$2,003	\$2,768	\$2,025
Indonesia	86%	87%	86%	85%	84%	\$1,467	\$1,322	\$886	\$544	\$411
Japan	21%	20%	21%	21%	23%	\$1,875	\$1,624	\$1,838	\$1,495	\$1,791
Malaysia	55%	56%	58%	59%	59%	\$657	\$606	\$453	\$368	\$311
New Zealand	22%	22%	22%	22%	22%	\$99	\$85	\$63	\$75	\$55
Pakistan	86%	84%	84%	86%	84%	\$278	\$217	\$166	\$159	\$125
Philippines	70%	69%	69%	69%	69%	\$338	\$278	\$217	\$202	\$147
Singapore	33%	34%	35%	36%	37%	\$255	\$233	\$197	\$163	\$159
South Korea	40%	40%	41%	43%	43%	\$815	\$722	\$575	\$622	\$549
Sri Lanka	84%	86%	89%	90%	90%	\$86	\$83	\$77	\$97	\$93
Taiwan	37%	37%	38%	39%	40%	\$293	\$252	\$227	\$201	\$215
Thailand	72%	73%	75%	76%	78%	\$852	\$777	\$694	\$609	\$468
Vietnam	81%	83%	85%	85%	85%	\$395	\$412	\$353	\$257	\$200
Other AP	91%	91%	90%	91%	91%	\$589	\$576	\$303	\$69	\$56
<b>TOTAL AP</b>	<b>60%</b>	<b>60%</b>	<b>59%</b>	<b>61%</b>	<b>59%</b>	<b>\$20,998</b>	<b>\$18,746</b>	<b>\$16,544</b>	<b>\$15,261</b>	<b>\$14,090</b>
<b>Central and Eastern Europe</b>										
Albania	75%	75%	75%	77%	78%	\$6	\$6	\$8	\$9	\$11
Armenia	88%	89%	90%	92%	93%	\$26	\$23	\$14	\$7	\$8
Azerbaijan	87%	88%	88%	90%	92%	\$67	\$57	\$52	\$55	\$50
Belarus	87%	88%	87%	—	—	\$87	\$126	\$55	—	—
Bosnia	66%	66%	66%	67%	68%	\$15	\$13	\$14	\$15	\$13
Bulgaria	64%	65%	67%	68%	68%	\$102	\$113	\$115	\$139	\$63
Croatia	53%	54%	54%	54%	54%	\$74	\$70	\$71	\$77	\$68
Czech Republic	35%	36%	37%	38%	39%	\$214	\$195	\$174	\$168	\$161
Estonia	48%	50%	50%	50%	51%	\$25	\$23	\$19	\$21	\$20
FYROM	66%	66%	67%	68%	68%	\$22	\$19	\$15	\$14	\$11
Georgia	91%	93%	95%	95%	—	\$52	\$46	\$54	\$59	—
Hungary	41%	41%	41%	42%	42%	\$143	\$131	\$113	\$146	\$125
Kazakhstan	76%	76%	78%	78%	79%	\$123	\$89	\$74	\$125	\$110
Latvia	54%	56%	56%	56%	56%	\$32	\$30	\$24	\$31	\$29
Lithuania	54%	54%	54%	54%	56%	\$44	\$38	\$31	\$40	\$37
Moldova	90%	90%	91%	90%	92%	\$45	\$36	\$28	\$40	\$43
Montenegro	79%	79%	81%	83%	83%	\$7	\$7	\$11	\$8	\$7
Poland	53%	54%	54%	56%	57%	\$618	\$553	\$506	\$648	\$580
Romania	63%	64%	65%	66%	68%	\$207	\$195	\$183	\$249	\$151
Russia	63%	65%	67%	68%	73%	\$3,227	\$2,842	\$2,613	\$4,215	\$4,123
Serbia	72%	74%	74%	74%	76%	\$104	\$95	\$67	\$99	\$72
Slovakia	40%	42%	43%	43%	45%	\$68	\$63	\$65	\$62	\$54
Slovenia	46%	47%	46%	47%	48%	\$51	\$47	\$39	\$51	\$39
Ukraine	84%	86%	85%	84%	83%	\$647	\$571	\$272	\$534	\$403
Rest of CEE	90%	89%	88%	88%	88%	\$127	\$118	\$56	\$191	\$173
<b>TOTAL CEE</b>	<b>62%</b>	<b>64%</b>	<b>64%</b>	<b>66%</b>	<b>68%</b>	<b>\$6,133</b>	<b>\$5,506</b>	<b>\$4,673</b>	<b>\$7,003</b>	<b>\$6,351</b>
<b>Latin America</b>										
Argentina	69%	70%	71%	73%	74%	\$657	\$681	\$645	\$339	\$370
Bolivia	79%	80%	80%	81%	82%	\$59	\$54	\$40	\$20	\$19
Brazil	53%	54%	56%	58%	59%	\$2,848	\$2,619	\$2,254	\$1,645	\$1,617
Chile	61%	62%	64%	67%	66%	\$382	\$349	\$315	\$202	\$187
Colombia	53%	54%	55%	56%	58%	\$295	\$272	\$244	\$136	\$127
Costa Rica	58%	58%	59%	60%	61%	\$62	\$55	\$33	\$24	\$22
Dominican Republic	76%	76%	77%	79%	79%	\$93	\$87	\$66	\$43	\$39
Ecuador	68%	67%	67%	66%	66%	\$92	\$79	\$65	\$37	\$33
El Salvador	80%	80%	80%	80%	81%	\$58	\$55	\$46	\$28	\$28
Guatemala	79%	80%	80%	81%	80%	\$116	\$106	\$74	\$49	\$41
Honduras	73%	73%	74%	74%	74%	\$24	\$22	\$17	\$9	\$8
Mexico	57%	58%	60%	59%	61%	\$1,249	\$1,199	\$1,056	\$823	\$836
Nicaragua	79%	79%	79%	79%	80%	\$9	\$8	\$5	\$4	\$4
Panama	72%	72%	73%	73%	74%	\$74	\$68	\$42	\$24	\$22
Paraguay	83%	83%	82%	83%	82%	\$73	\$55	\$29	\$16	\$13
Peru	67%	68%	70%	71%	71%	\$209	\$176	\$124	\$84	\$75
Uruguay	68%	69%	68%	69%	69%	\$85	\$78	\$40	\$25	\$23
Venezuela	88%	88%	87%	86%	87%	\$668	\$662	\$685	\$484	\$464
Other LA	84%	84%	83%	84%	83%	\$406	\$405	\$430	\$319	\$195
<b>TOTAL LA</b>	<b>61%</b>	<b>64%</b>	<b>63%</b>	<b>65%</b>	<b>65%</b>	<b>\$7,459</b>	<b>\$7,030</b>	<b>\$6,210</b>	<b>\$4,311</b>	<b>\$4,123</b>

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## 2011 BSA GLOBAL SOFTWARE PIRACY STUDY

	Piracy Rates					Commercial Value of Unlicensed Software (\$M)				
	2011	2010	2009	2008	2007	2011	2010	2009	2008	2007
<b>Middle East and Africa</b>										
Algeria	84%	83%	84%	84%	84%	\$83	\$69	\$55	\$96	\$86
Bahrain	54%	54%	54%	55%	57%	\$23	\$22	\$21	\$27	\$27
Botswana	80%	79%	79%	80%	82%	\$16	\$15	\$11	\$14	\$14
Cameroon	83%	82%	83%	83%	84%	\$9	\$7	\$7	\$6	\$5
Egypt	61%	60%	59%	59%	60%	\$172	\$196	\$146	\$158	\$131
Iraq	86%	85%	85%	85%	85%	\$172	\$147	\$129	\$205	\$124
Israel	31%	31%	33%	32%	32%	\$192	\$170	\$148	\$172	\$121
Ivory Coast	81%	79%	79%	80%	81%	\$16	\$13	\$14	\$15	\$15
Jordan	58%	57%	57%	58%	60%	\$31	\$28	\$26	\$22	\$20
Kenya	78%	79%	79%	80%	81%	\$85	\$85	\$66	\$31	\$28
Kuwait	59%	60%	60%	61%	62%	\$72	\$68	\$62	\$69	\$61
Lebanon	71%	72%	72%	74%	73%	\$52	\$49	\$46	\$49	\$44
Libya	90%	88%	88%	87%	88%	\$60	\$74	\$25	\$22	\$22
Mauritius	57%	56%	56%	57%	57%	\$7	\$5	\$4	\$5	\$4
Morocco	66%	65%	66%	66%	67%	\$91	\$75	\$64	\$70	\$66
Nigeria	82%	82%	83%	83%	82%	\$251	\$225	\$156	\$132	\$114
Oman	61%	62%	63%	62%	61%	\$36	\$33	\$39	\$26	\$23
Qatar	50%	49%	51%	51%	54%	\$62	\$52	\$50	\$26	\$25
Reunion	40%	40%	40%	40%	40%	\$1	\$1	\$1	\$1	\$1
Saudi Arabia	51%	52%	51%	52%	51%	\$449	\$414	\$304	\$272	\$170
Senegal	78%	78%	78%	79%	80%	\$9	\$7	\$5	\$7	\$6
South Africa	35%	35%	35%	35%	34%	\$564	\$513	\$324	\$335	\$284
Tunisia	74%	72%	72%	73%	76%	\$51	\$52	\$44	\$48	\$54
Turkey	62%	62%	63%	64%	65%	\$526	\$516	\$415	\$468	\$365
UAE	37%	36%	36%	36%	35%	\$208	\$173	\$155	\$170	\$94
Yemen	89%	90%	90%	89%	89%	\$15	\$12	\$10	\$14	\$13
Zambia	82%	82%	82%	82%	82%	\$3	\$3	\$2	\$2	\$2
Zimbabwe	92%	91%	92%	92%	91%	\$4	\$6	\$4	\$4	\$3
Other Africa	86%	87%	86%	86%	85%	\$363	\$418	\$260	\$95	\$76
Other ME	87%	88%	88%	87%	87%	\$536	\$630	\$294	\$438	\$448
<b>TOTAL MEA</b>	<b>58%</b>	<b>58%</b>	<b>59%</b>	<b>59%</b>	<b>60%</b>	<b>\$4,159</b>	<b>\$4,078</b>	<b>\$2,887</b>	<b>\$2,999</b>	<b>\$2,446</b>
<b>North America</b>										
Canada	27%	28%	29%	32%	33%	\$1,141	\$1,066	\$943	\$1,222	\$1,071
Puerto Rico	42%	42%	46%	44%	44%	\$44	\$42	\$46	\$36	\$33
United States	19%	20%	20%	20%	20%	\$9,773	\$9,515	\$8,390	\$9,143	\$8,040
<b>TOTAL NA</b>	<b>19%</b>	<b>21%</b>	<b>21%</b>	<b>21%</b>	<b>21%</b>	<b>\$10,958</b>	<b>\$10,623</b>	<b>\$9,379</b>	<b>\$10,401</b>	<b>\$9,144</b>
<b>Western Europe</b>										
Austria	23%	24%	25%	24%	25%	\$226	\$209	\$212	\$184	\$157
Belgium	24%	25%	25%	25%	25%	\$252	\$233	\$239	\$269	\$223
Cyprus	48%	48%	48%	50%	50%	\$19	\$17	\$16	\$15	\$14
Denmark	24%	26%	26%	25%	25%	\$222	\$208	\$203	\$215	\$193
Finland	25%	25%	25%	26%	25%	\$210	\$193	\$175	\$194	\$160
France	37%	39%	40%	41%	42%	\$2,754	\$2,579	\$2,544	\$2,760	\$2,601
Germany	26%	27%	28%	27%	27%	\$2,265	\$2,096	\$2,023	\$2,152	\$1,937
Greece	61%	59%	58%	57%	58%	\$343	\$301	\$248	\$238	\$198
Iceland	48%	49%	49%	46%	48%	\$17	\$16	\$11	\$23	\$33
Ireland	34%	35%	35%	34%	34%	\$144	\$137	\$125	\$118	\$106
Italy	48%	49%	49%	48%	49%	\$1,945	\$1,879	\$1,733	\$1,895	\$1,779
Luxembourg	20%	20%	21%	21%	21%	\$33	\$31	\$30	\$21	\$16
Malta	43%	43%	45%	45%	46%	\$7	\$6	\$7	\$8	\$7
Netherlands	27%	28%	28%	28%	28%	\$644	\$591	\$525	\$563	\$502
Norway	27%	29%	29%	28%	29%	\$289	\$261	\$195	\$229	\$195
Portugal	40%	40%	40%	42%	43%	\$245	\$228	\$221	\$212	\$167
Spain	44%	43%	42%	42%	43%	\$1,216	\$1,105	\$1,014	\$1,029	\$903
Sweden	24%	25%	25%	25%	25%	\$461	\$411	\$304	\$372	\$324
Switzerland	25%	26%	25%	25%	25%	\$514	\$424	\$344	\$345	\$303
United Kingdom	26%	27%	27%	27%	26%	\$1,943	\$1,846	\$1,581	\$2,181	\$1,837
<b>TOTAL WE</b>	<b>32%</b>	<b>33%</b>	<b>34%</b>	<b>33%</b>	<b>33%</b>	<b>\$13,749</b>	<b>\$12,771</b>	<b>\$11,750</b>	<b>\$13,023</b>	<b>\$11,655</b>
<b>TOTAL WORLDWIDE</b>	<b>42%</b>	<b>42%</b>	<b>43%</b>	<b>41%</b>	<b>38%</b>	<b>\$63,456</b>	<b>\$58,754</b>	<b>\$51,443</b>	<b>\$52,998</b>	<b>\$47,809</b>
European Union	33%	35%	35%	35%	35%	\$14,433	\$13,458	\$12,469	\$13,981	\$12,383
BRIC Countries*	70%	71%	71%	73%	75%	\$17,907	\$15,979	\$14,453	\$15,305	\$14,429

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

# METHODOLOGY



The BSA Global Software Piracy Study quantifies the volume and value of unlicensed software installed on personal computers in a given year — in this case, 2011. To compile the report, BSA works closely with two of the world's leading independent research firms — IDC and Ipsos Public Affairs — to measure, understand, and evaluate global software piracy.

The study involves collecting 182 discrete data inputs and assessing PC and software trends in each of 116 markets. A detailed video presentation of the methodology can be found at [www.bsa.org/globalstudy](http://www.bsa.org/globalstudy).

Measuring the scale and scope of illegal behavior like software piracy clearly has its challenges. While this annual study is considered to be one of the most sophisticated appraisals of piracy produced each year, BSA and its partners continually look for new ways to improve the reliability of the data. This year, in partnership with two prominent IT economic researchers, BSA has made several modifications designed to refine the inputs and ensure the most accurate estimation of software piracy possible.

## “A RIGOROUS AND WELL-DESIGNED EFFORT”

In 2010, we were retained by BSA to provide an independent assessment of the methodology used in the BSA Global Software Piracy Study and offer recommendations for improvements.

At the outset, it is worth noting that studies of piracy examine illegal or unreported behavior, making it difficult to obtain perfect estimates. As such, accurate estimation of the software piracy rate requires good data inputs and a rigorous well-designed process to ensure that the results present as accurate a picture as possible of both the existing and the changing nature of software piracy over time. Based on our review, we believe the BSA Global Piracy Study has these elements in place.

In our review process, we examined documents provided by BSA that described the methodology used in the 2010 study. We also interviewed key people at IDC and Ipsos.

While we did not review the accuracy of the data provided by IDC or Ipsos, IDC's Worldwide PC Tracker, a key source of data, is widely recognized by the IT industry as the best available on the market. Likewise, Ipsos has a strong reputation for high-quality surveys. It should be noted that in 2010, the end-user survey substantially increased the number of respondents, which has improved the quality of the data.

In addition to data quality, the results of the study are determined by the appropriateness of the computational procedure. The methodology must account for different

software categories and the associated prices, the average value of software across different channels, installed software variability by country, and so on.

In this regard, the study utilizes standard approaches of estimating secondary data inputs in order to reduce the level of uncertainty a more subjective approach could introduce to year-on-year results.

It is well understood in the academic research community that any study methodology introduces a margin of error. The challenge for researchers is to design a study that keeps the error within an acceptable margin. As part of this undertaking with BSA, we provided several recommendations for improvement, which should enhance the accuracy of the results of this year's study. These recommendations are described in more detail in the methodology of the white paper.

However, in our assessment, the BSA Global Software Piracy Study methodology represents a rigorous and well-designed effort to take into account the key features of the software market and to measure the level of activity occurring in what is essentially a black market. We believe the study provides reliable estimates of piracy rates and the commercial value of pirated software, particularly in larger markets.

— Professors Vijay Gurbaxani & Vidyand Choudhary  
University of California, Irvine

Vijay Gurbaxani and Vidyand Choudhary are Taco Bell Professor of Information Systems and Associate Professor of Information Systems at the Paul Merage School of Business, University of California, Irvine. Their views and opinions expressed in this report are strictly theirs alone and do not necessarily reflect the views and opinions of the University of California.

## GLOBAL SURVEY OF SOFTWARE USERS

A key component of the BSA Global Software Piracy Study is a global survey of software users, led by the highly regarded research firm Ipsos Public Affairs. The survey was conducted among 14,700 business and consumer PC users, online or in-person, in 33 markets that make up a globally representative sample of geographies, levels of IT sophistication, and geographic and cultural diversity.

The survey is used, in part, to determine the “software load” for each country — that is, a picture of the number of software programs installed per PC, including commercial, open-source and mixed-source programs. Respondents are asked how many software packages, and of what type, were installed on their PC in the previous year; what percentage 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 2011.

In addition, the surveys are used to assess key social attitudes and behaviors related to intellectual property, software piracy, and other emerging technology issues. This insight provides fresh perspective each year on the dynamics underlying software piracy around the world.

Among the improvements to the study this year is the development of a rotational strategy for the survey to enhance country coverage year upon year. Going forward, 11 countries will be surveyed annually, and 42 countries will be surveyed at least once every two to three years. The remainder will be surveyed on an ad hoc basis, generally one a year. As has been the case, the total survey population in any given year will account for approximately 90 percent of the PC software market.

## CALCULATING SOFTWARE PIRACY RATES

Since 2003, BSA has worked with IDC, the leading provider of market statistics and forecasts to the IT industry, to determine software piracy rates and the commercial value of pirated software.

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

1. Determine how much PC software was deployed during the year.
2. Determine how much was paid for or otherwise legally acquired during the year.
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 is computed as a percentage of total software installed.

**Unlicensed Software Units**

**Total Software Units Installed**

=

**PIRACY RATE**

To calculate the total number of software units installed — the denominator — IDC determines how many computers there are in a country and how many of those received software during the year. 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, and using the software load data collected in the survey, it can determine the total software units installed — licensed and unlicensed — in each country.

$$\begin{array}{c}
 \text{\# PCs Getting Software} \\
 \times \\
 \text{Installed Software Units per PC} \\
 = \\
 \text{TOTAL SOFTWARE UNITS INSTALLED}
 \end{array}$$

To estimate the software load in countries not surveyed, IDC uses a series of correlations between the known software loads from surveyed countries and their scores on an emerging market measure published by the International Telecommunications Union, called the ICT Development Index. These correlations are used to group the countries into cohorts, wherein the average software load of surveyed countries in each cohort is applied as the estimated software load for non-surveyed countries in that cohort. In 2011, IDC expanded the number of cohorts from four to six in order to provide more precision in applying surveyed values to similar countries.

To get the number of unlicensed software units — the numerator of the piracy equation — IDC must determine the value of the legally acquired software market. IDC routinely publishes software market data from about 80 countries and studies roughly 20 more 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 legally acquired software market.

To convert the software market value to number of units, IDC computes an average price per software unit for all of the PC software in the country. This is done by developing a country specific matrix of software prices — such as retail, volume-license, OEM, free, and open-source — across a matrix of products, including security, office automation, operating systems, and more.

IDC’s pricing information comes from its pricing trackers and from local analysts’ research. The weightings — OEM versus retail, consumer versus business — are taken from IDC surveys. IDC multiplies the two matrices to get a final, blended-average software unit price.

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

$$\begin{array}{c}
 \text{Software Market Value} \\
 \hline
 \text{Average Software Units Price} \\
 = \\
 \text{LEGITIMATE SOFTWARE UNITS}
 \end{array}$$

In 2011, IDC implemented several measures to validate its calculations of average software unit price. Analyst teams in 25 countries have been asked to provide additional information on software price by category and estimates of acquisition type (e.g. retail, volume-license, free/open source) to serve as a cross-check against IDC’s computed values. Rotating the countries for which information is collected each year will allow IDC to recalibrate software prices periodically, providing a more accurate estimate of legitimate software units from industry revenues.

Finally, subtracting the number of legitimate software units from the total software units reveals the number of unlicensed software units installed during the year.

$$\begin{array}{c}
 \text{Total Software Units Installed} \\
 - \\
 \text{Legitimate Software Units} \\
 = \\
 \text{UNLICENSED SOFTWARE UNITS}
 \end{array}$$

This process provides the underlying data for the basic piracy rate equation.

## CALCULATING THE COMMERCIAL VALUE OF PIRATED SOFTWARE

The commercial value of pirated software is the value of unlicensed software installed in a given year, as if it had been sold in the market. It provides another measure of the scale of software piracy and allows for important year-over-year comparisons of changes in the software piracy landscape.

It is calculated using the same blend of prices by which IDC determines the average software unit price, including: retail, volume license, OEM, free, open-source, etc. The average software unit price is lower than retail prices one would find in stores.

Having calculated the total units of software installed, as well as the number of legitimate and unlicensed software units installed and the average price per software unit, IDC is able to calculate the commercial value of unlicensed software.

$$\begin{array}{c} \# \text{ Unlicensed Units Installed} \\ \times \\ \text{Average Software Unit Price} \\ = \\ \text{COMMERCIAL VALUE} \end{array}$$

## WHICH SOFTWARE IS INCLUDED

The BSA Global Software Piracy Study calculates piracy of all software that runs on PCs — including desktops, laptops, and ultra-portables, including netbooks.

It 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 also takes into account the availability of 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.

It includes software as a service if it is paid for, but excludes free, 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 included in the study.

The study excludes software that runs on servers or mainframes and routine device drivers, as well as 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. It also does not include software loaded onto tablets or smart phones.

## THE IMPACT OF EXCHANGE RATES

From 2003 through 2008, US dollar figures in the value tables were in current dollars from the year before. For example, the 2006 value of unlicensed software was stated in 2005 dollars; the value of 2007 unlicensed software was stated in 2006 dollars, and so on. In 2009, BSA decided to publish value figures in the current dollars of the year being studied — 2009 values are in 2009 dollars, 2010 values in 2010 dollars, and 2011 values in 2011 dollars.

This is important when evaluating changes in the values over time. Some of the changes will be based on real market dynamics, some on exchange rate fluctuations from year to year.

# BSA BLUEPRINT

## FOR REDUCING SOFTWARE PIRACY

### INCREASE PUBLIC EDUCATION AND AWARENESS

Reducing software piracy requires a fundamental shift in public attitudes toward software and IP. Public education is critical, therefore, to increase awareness of the importance of managing software assets and respecting creative works through compliance with software licensing. Experience has shown that public-private awareness campaigns about piracy and the value of IP can be extremely effective. In addition, support for industry-led initiatives to promote the business practice of managing and optimizing software purchases, utilization, and maintenance — a process known as software asset management (SAM) — can help governments, businesses, and other organizations derive greater value from software assets by optimizing their use of licensed applications and reducing piracy. For example, BSA offers a suite of certification programs in standards-based SAM for individual professionals, entire organizations, and auditors.

### MODERNIZE IP LAWS TO ACCOUNT FOR NEW INNOVATIONS

Around the world, copyright and other intellectual property laws have lagged behind the pace of technology innovation. With the advent of cloud computing and the proliferation of networked mobile devices, policymakers should modernize protections for software and other copyrighted materials. This effort should include vigorous enforcement actions — including against online piracy — and modernization of underlying copyright laws, for example through implementation of World Intellectual Property Organization (WIPO) copyright treaties.

### STEP UP ENFORCEMENT WITH DEDICATED RESOURCES

Too often, software theft is not considered a serious crime and penalties for convicted offenders are too low to provide effective deterrence. Countries can elevate their enforcement of intellectual property by:

- Creating specialized IP enforcement units at the national and local level and providing dedicated resources to investigate and prosecute IP theft;
- Increasing cross-border cooperation among police and other enforcement agencies to improve coordination for law enforcement in multiple countries;
- Supporting the training of law enforcement and judiciary officials (including establishing 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 IP theft; and
- Fulfilling obligations under the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) by adopting and implementing laws that meet international norms for civil and criminal IP rights protection. IP laws also should provide for clear protection and energetic enforcement against misappropriation and infringement of new software innovations, such as cloud computing technologies.

### LEAD BY EXAMPLE

Governments are the largest users of software in the world. They should demonstrate leadership by ensuring they are using only fully licensed software in their own operations. They should implement SAM programs and promote the use of legal software in state-owned enterprises, and among all contractors and suppliers.

# ABOUT BSA

The Business Software Alliance (BSA) is the leading advocate for the global software industry before governments and in the international marketplace. It is an association of world-class companies that invest billions of dollars annually to create software solutions that spark the economy and improve modern life.

BSA serves as the world's premier anti-piracy organization and as a respected leader in shaping public policies that promote technology innovation and drive economic growth.

Through government relations, intellectual property enforcement, and educational activities in markets around the world, BSA protects intellectual property and fosters innovation; works to open markets and ensure fair competition; and builds trust and confidence in information technology for consumers, businesses, and governments alike.

## PROTECTING INTELLECTUAL PROPERTY & FOSTERING INNOVATION

Intellectual property rights (IPR) — copyrights, patents, and trademarks — provide the legal framework for creative enterprise, the bedrock of growing economies. They are also essential to commercial software development, which is the world's largest copyright industry.

By working with policymakers, leading enforcement actions, and conducting public-education initiatives around the world, BSA ensures that respect for IPR pervades the global economy and society.

- **Championing Intellectual Property Rights:** BSA works with governments around the world to ensure intellectual property protections keep pace with new innovations in technology, such as cloud computing.
- **Curbing Software Theft:** BSA conducts vigorous enforcement programs in approximately 50 countries, helping its members guard against software theft by taking legal action against commercial, end-user license infringement, counterfeiting operations, and Internet piracy.
- **Leading Industry Research:** BSA publishes the most authoritative global studies on piracy and its economic impact, illuminating the scope of the problem and helping shape national and international policy responses.
- **Educating the Public:** BSA educates consumers about harms associated with software piracy and offers a groundbreaking training program to help organizations more effectively manage their software assets.

## OPENING MARKETS & ENSURING FAIR COMPETITION

Open markets are essential to economic growth and prosperity. BSA expands market opportunities for the software industry by working with governments to break down trade barriers and eliminate discriminatory procurement preferences that stifle innovation by skewing competition.

- **Breaking Down Barriers to Growth:** BSA provides policymakers with information, expert analysis and industry insights to promote an open-market agenda. These efforts include a special focus on the so-called 'BRIC' economies of Brazil, Russia, India and China, which are the world's fastest-growing technology markets but also home to rampant piracy.
- **Promoting Technology Neutrality:** BSA encourages fair competition among technologies by promoting internationally recognized standards and unbiased IT-procurement policies for governments.
- **Supporting New Innovations:** BSA works with policymakers around the world to create conditions for new technologies such as cloud computing to flourish. In addition to collaborating on technology standards, this work involves elevating intellectual property protections, harmonizing international legal principles, and addressing other challenges that are beyond the capability or jurisdiction of any one company or government.

## BUILDING TRUST & CONFIDENCE IN TECHNOLOGY

Security and privacy undergird trust and confidence in information technology for consumers, businesses and governments. BSA promotes responsible data stewardship and facilitates acceptance and adoption of each new wave of innovation that transforms the technology marketplace and creates value for society.

- **Driving Public-Private Collaboration:** Drawing on the expertise of its members and productive working relationships with public officials, BSA serves as a knowledge center and catalyst to encourage cooperation and forge consensus among industry and governments.
- **Protecting Consumers:** As new technologies emerge, such as cloud computing, BSA and its members develop appropriate privacy and security standards and share their insights with policymakers and regulators.
- **Mapping Policy Solutions:** BSA has developed a global cybersecurity framework to guide governments in crafting policies that effectively deter and punish cybercrime, mitigate threats, inform and protect consumers, and respond to cyber incidents.





**BUSINESS SOFTWARE ALLIANCE GLOBAL OFFICES**

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