



Seventh Annual BSA Global Software

# Piracy Study

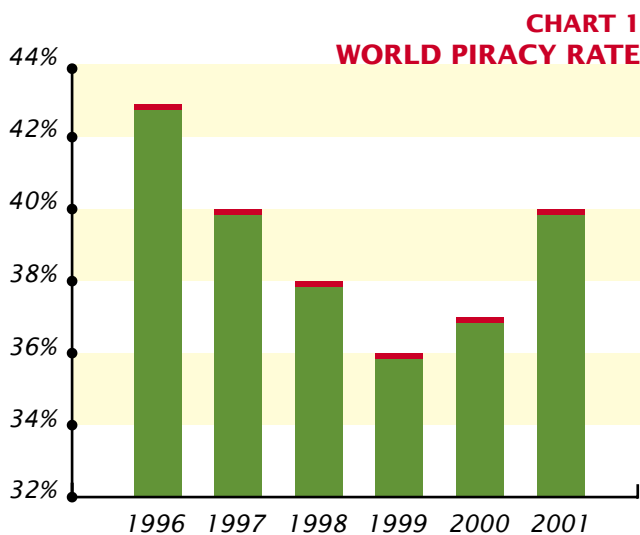
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June 2002

# Piracy Study

In early 2002, International Planning and Research Corporation (IPR) completed an analysis of software piracy for the year 2001 as part of an ongoing study for the Business Software Alliance (BSA) and its member companies. The purpose of the study is to review the available data and utilize a systematic methodology to determine the worldwide business software piracy rates and the associated dollar losses. Software piracy is measured in this study as the amount of business application software installed in 2001 without a license.

## A. OVERVIEW



The results from the annual BSA Global Piracy Study for 2001 indicate that software piracy continued to pose challenges for the software industry. For the first time in the study's history, the world piracy rate increased in two consecutive years, 2000 and 2001. The 2001 piracy rate of 40% is a marked increase from 37% in 2000. Both years were up from the low set in 1999 at 36%.

The dollar losses due to piracy declined 6.7% from 2000 to \$10.97 billion. This decline in dollar terms is not an indication of a decrease in the incidence of piracy. It is, in fact, the result of several other factors. The U.S. dollar was strong in 2001 relative to local currencies, and software prices as reported in U.S.

dollars continued to fall, advancing a trend of declining prices that has evolved over the last decade. The effect of this price decline is to partially mask the dollar impacts of piracy. In addition, the legal market for software decreased in 2001, as the effects of the recession were felt in technology spending.

The combination of market contraction and lower prices resulted in a slight reduction in the dollar losses due to piracy. But at \$10.97 billion, the software piracy problem is only 10% less than at its peak of \$12.16 billion in 1999.

Since the study began in 1994, we have seen a steady decrease in the rate of software piracy. Unfortunately, this downward trend in piracy rates has not been evident in the past two years. In 2000, we started to notice stability in the level of piracy for developed countries, rather than the downward trend we expected. We speculated that after the reduction of casual piracy, we were seeing a core level of piracy that would be more persistent. In 2001, we saw the effects of a worldwide economic slowdown that hit technology spending particularly hard. The results of this year's study indicate that software piracy rose in response to the pressure of the curtailed spending of the economic downturn.

This is the first period of a general global economic slowdown since the study began in 1994. The results presented here suggest that the progress against piracy that was made in the 1990s is conditional. Compliance with software licensing is at risk of being considered an economic luxury that can be abandoned in difficult times.

Another factor that kept the piracy rates from falling in 2001 is that the more economically buoyant regions were the ones with the highest piracy rates. The Asia/Pacific region, with its higher piracy rate, had some of the largest growth in 2001, led by China, which did not suffer from the recession.

In past studies, IPR cited several reasons for the long-term decline in software piracy. These include:

1. As PC technology and the demand for software spread from the U.S. to other countries during the 1990s, there was, at times, a lag between the

demand for software and the effective distribution of legal software. This led to cases of piracy as an expedient way to use PCs. The software industry has worked hard to have a legitimate sales presence in every country, making legal software sales and support easier to obtain.

**2.** Software companies have increased the availability of user support for their products outside of the U.S. This increased user support has promoted the purchase of legal software.

**3.** Prices for original software have declined over the past decade, making the benefits of original software more compelling against the risks of software piracy.

**4.** BSA and other organizations have promoted the need to purchase legal versions of software and the importance of intellectual property rights. This has included high-profile legal actions against companies using illegal software.

**5.** In an increasingly global marketplace, a company's risk of being caught using illegal software extends beyond the legal implications and includes their business practices and credibility.

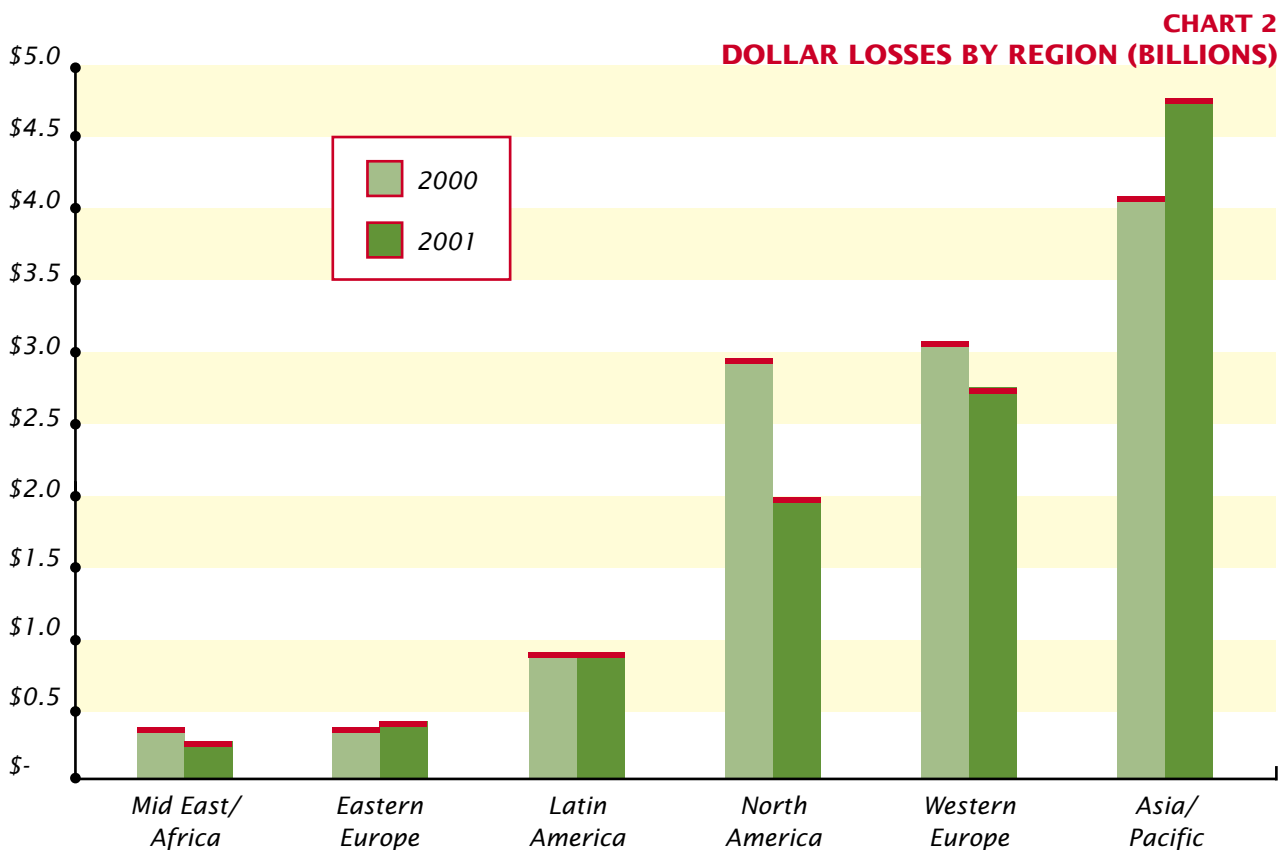
**6.** Efforts to increase government cooperation to provide legal protection for intellectual property

and to criminalize software piracy have also assisted in stemming the growth of piracy.

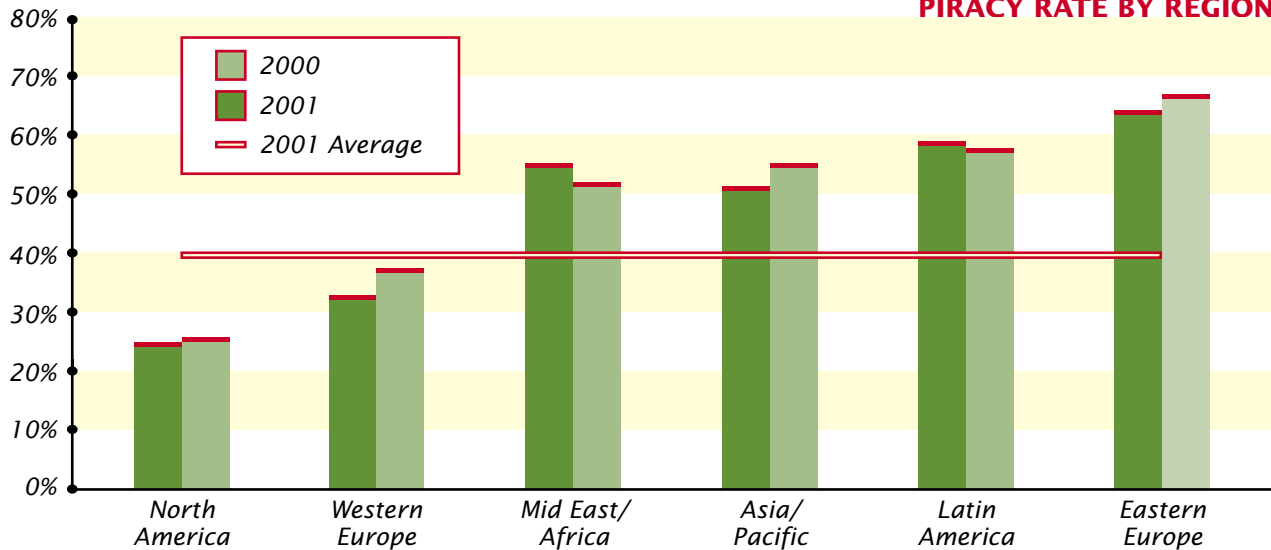
North America and Western Europe experienced smaller dollar losses in 2001 compared to 2000, as a combination of the lack of growth and lower prices for software reduced the dollar losses due to piracy. Dollar losses in Asia/Pacific and Eastern Europe increased, as each region was relatively less affected by the economic slowdown and software piracy continued its historically high levels. Dollar losses rose in the Asia/Pacific region to over \$4.7 billion for the first time. Asia/Pacific is now far and away the region with the highest dollar losses. Western Europe was second with \$2.7 billion in losses. North America was third with \$2 billion in losses.

There were no significant shifts in piracy in 2001. Eastern Europe, at 67%, was once again the region with the highest piracy rate. Eastern Europe has been the region with the highest piracy rate in every study since 1994. Latin America was again the region with the second highest piracy rate at 57%, ahead of the Middle East and Africa at 52% and Asia/Pacific at 54%.

The North American region continued to be the area with the lowest piracy rate at 26%, a slight increase



**CHART 3  
PIRACY RATE BY REGION**



over 2000. Western Europe continued as the region with the second lowest piracy rate at 37%. Only the Middle East had a reduction in the rate of piracy, declining from 57% in 2000 to 51% in 2001.

The Asia/Pacific region increased its rate of piracy to 54%, the highest level since 1996. This unfortunate trend, combined with the growing importance of the Asia/Pacific region, helped make it the region with the largest dollar losses due to piracy.

## **B. THE TOP OFFENDERS**

### 25 Countries with the Highest Software Piracy Rates

	<b>2000</b>	<b>2001</b>
Vietnam	97%	94%
China	94%	92%
Indonesia	89%	88%
Ukraine/Other CIS	89%	87%
Russia	88%	87%
Pakistan	83%	83%
Lebanon	83%	79%
Qatar	81%	78%
Nicaragua	78%	78%
Bolivia	81%	77%
Thailand	79%	77%
Bahrain	80%	77%
Oman	78%	77%
Kenya	67%	77%
Kuwait	80%	76%
Bulgaria	78%	75%
Romania	77%	75%
El Salvador	79%	73%
Guatemala	77%	73%
Paraguay	76%	72%
Nigeria	67%	71%
Malaysia	66%	70%
India	63%	70%
Zimbabwe	59%	68%
Honduras	68%	68%

### **WESTERN EUROPE**

Greece remained the country in Western Europe with the highest piracy rate at 64%. Denmark at 26% and the United Kingdom at 25% were the two countries with the lowest piracy rates.

Several countries in Western Europe had higher piracy rates in 2001 compared to 2000, including two of the largest markets, France and Germany.

### **EASTERN EUROPE**

Russia and the Ukraine/Other CIS countries continued to have the highest piracy rates in Eastern Europe with 87%.

Poland, the third largest country in the region, reduced its piracy rate slightly to 53%. The Czech Republic continued to have the lowest piracy rate with 43%.

### **NORTH AMERICA**

Both the United States and Canada experienced continued piracy, with the U.S. at 25%, up from 24% in 2000, but still the lowest of all countries worldwide. The piracy rate in Canada remained the same at 38%.

### **LATIN AMERICA**

Latin America experienced a small decline in the average piracy rate. The piracy rates in Brazil and Mexico, the two largest economies in the region, fell to 56% and 55%, respectively. The piracy rate in Argentina, the third largest economy in the region, grew to 62%.

Puerto Rico had the lowest piracy rate in Latin America, at 47%, followed by Chile at 51%. Nicaragua was the country with the highest piracy rate, at 78%.

### ASIA/PACIFIC

Several large countries in Asia experienced increases in their piracy rates. Malaysia and India experienced rate increases, now 70% for both countries. The Philippines' rate increased to 63%.

Most other countries showed small changes in their piracy rates. Indonesia had a 88% piracy rate, down from 89% in 2000. Japan held steady with a 37% piracy rate. Australia had a 27% piracy rate, down from 33% in 2000.

New Zealand, with a 26% piracy rate, continued as the country with the lowest piracy rate in the Asia/Pacific region. Vietnam, with a piracy rate at 94%, continued as the country with the highest piracy rate in the region. China, with 92%, followed as the country with the second highest piracy rate.

### MIDDLE EAST

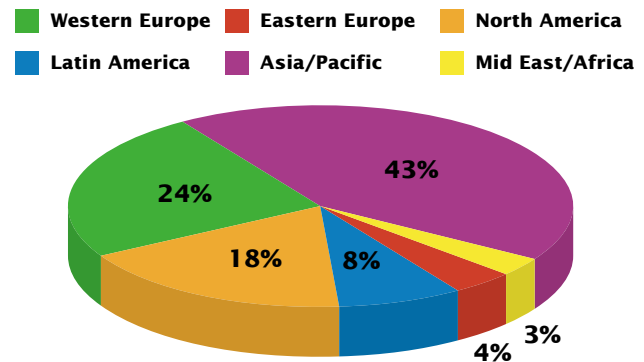
The three largest economies in the Middle East, Turkey, Israel, and Saudi Arabia, each saw a decrease in the piracy rate, with Turkey dropping the most, from 63% in 2000 to 58% in 2001. Israel, with a 40% piracy rate, was the country with the lowest piracy rate in the region. Lebanon, Qatar, and Bahrain had the three highest piracy rates in the region, at 79%, 78%, and 77% respectively.

### AFRICA

Africa saw a small increase in the piracy rate, from 52% in 2000 to 53% in 2001. South Africa, the largest economy in the region, had the lowest piracy rate, at 38%. Kenya with 77% and Nigeria with 71% were the two countries in the region with the highest piracy rate.

## C. ALLOCATION OF LOSSES

**CHART 4**  
**DOLLAR LOSSES BY REGION, 2001**



As Chart 4 shows, the regions with the highest dollar losses in 2001 were Asia/Pacific, Western Europe, and North America. These regions have the largest economies and correspondingly, the largest PC and software markets. In Western Europe and North America, the relatively low piracy rates still translate into large dollar losses. The Asia/Pacific region, where the piracy rate is substantially higher than North America or Western Europe, made up 43% of the world losses due to piracy.

In the U.S., the piracy rate declined to 25% in 2001, from 31% in 1994. This is the lowest rate of any country, but still represents a dollar loss of \$1.8 billion. Japan's 37% piracy rate resulted in the second largest dollar losses in 2001 at \$1.7 billion. China, which historically has had some of the highest piracy rates in the world and is still among the highest with 92%, has the third largest losses with just under \$1.7 billion.

In Western Europe, Germany and France had the highest dollar losses with \$681 million and \$527 million, respectively. Italy was third with \$468 million in dollar losses.

## D. 2001 BSA PIRACY STUDY RESULTS

	Piracy Rates						Retail Software Revenue Lost to Piracy (1000)					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
<b>WESTERN EUROPE</b>												
Austria	43%	40%	38%	36%	37%	33%	\$50,267	\$41,620	\$51,164	\$66,929	\$70,748	\$42,340
Belgium/Luxembourg	38%	36%	35%	36%	33%	33%	\$49,197	\$51,485	\$53,401	\$77,372	\$53,767	\$45,024
Denmark	35%	32%	31%	29%	26%	26%	\$37,531	\$45,787	\$42,069	\$59,184	\$40,076	\$30,183
Finland	41%	38%	32%	30%	29%	27%	\$36,335	\$37,754	\$36,126	\$50,594	\$39,135	\$24,206
France	45%	44%	43%	39%	40%	46%	\$411,966	\$407,900	\$425,205	\$548,408	\$480,604	\$527,472
Germany	36%	33%	28%	27%	28%	34%	\$497,950	\$508,884	\$479,367	\$652,379	\$635,264	\$681,607
Greece	78%	73%	74%	71%	66%	64%	\$45,802	\$44,546	\$55,385	\$67,708	\$61,542	\$61,412
Ireland	70%	65%	56%	51%	41%	42%	\$45,650	\$46,847	\$60,986	\$117,892	\$77,399	\$39,137
Italy	55%	43%	45%	44%	46%	45%	\$340,784	\$271,714	\$356,879	\$421,434	\$421,942	\$468,187
Netherlands	53%	48%	45%	44%	40%	39%	\$221,144	\$195,098	\$195,778	\$264,400	\$227,595	\$160,703
Norway	54%	46%	40%	37%	35%	34%	\$103,852	\$104,337	\$72,452	\$87,568	\$64,292	\$37,613
Portugal	53%	51%	43%	47%	42%	43%	\$36,183	\$40,991	\$36,109	\$49,920	\$23,609	\$25,416
Spain	65%	59%	57%	53%	51%	49%	\$148,823	\$167,288	\$235,100	\$247,650	\$168,514	\$107,490
Sweden	47%	43%	38%	35%	35%	31%	\$112,498	\$127,051	\$119,073	\$131,358	\$92,889	\$49,929
Switzerland	43%	39%	33%	33%	34%	33%	\$99,545	\$92,898	\$76,471	\$107,068	\$91,093	\$68,501
UK	34%	31%	29%	26%	26%	25%	\$337,344	\$334,527	\$464,771	\$679,506	\$530,787	\$290,666
<b>TOTAL W. EUROPE</b>	<b>43%</b>	<b>39%</b>	<b>36%</b>	<b>34%</b>	<b>34%</b>	<b>37%</b>	<b>\$2,574,871</b>	<b>\$2,518,726</b>	<b>\$2,760,337</b>	<b>\$3,629,371</b>	<b>\$3,079,256</b>	<b>\$2,659,886</b>
<b>EASTERN EUROPE</b>												
Bulgaria	98%	93%	90%	80%	78%	75%	\$9,594	\$13,171	\$17,746	\$11,245	\$10,019	\$10,282
Croatia	79%	69%	64%	60%	63%	67%	\$7,715	\$7,569	\$10,373	\$4,061	\$8,384	\$12,570
Czech Rep.	53%	52%	45%	42%	43%	43%	\$69,212	\$51,972	\$43,261	\$36,897	\$44,674	\$34,434
Estonia	n/a	n/a	n/a	n/a	n/a	53%	n/a	n/a	n/a	n/a	n/a	\$4,244
Hungary	69%	58%	57%	52%	51%	48%	\$42,987	\$25,488	\$38,465	\$37,262	\$41,252	\$26,631
Latvia	n/a	n/a	n/a	n/a	n/a	59%	n/a	n/a	n/a	n/a	n/a	\$5,869
Lithuania	n/a	n/a	n/a	n/a	n/a	56%	n/a	n/a	n/a	n/a	n/a	\$4,843
Poland	71%	61%	61%	60%	54%	53%	\$169,202	\$107,625	\$142,484	\$164,914	\$103,531	\$96,063
Romania	86%	84%	86%	81%	77%	75%	\$8,380	\$15,297	\$21,530	\$12,132	\$20,918	\$19,305
Russia	91%	89%	92%	89%	88%	87%	\$383,304	\$251,837	\$273,055	\$165,515	\$108,983	\$119,817
Slovakia	56%	58%	50%	46%	45%	46%	\$14,055	\$17,018	\$11,241	\$9,653	\$6,866	\$10,377
Slovenia	91%	76%	73%	70%	61%	60%	\$8,666	\$9,198	\$12,223	\$10,366	\$11,743	\$19,716
Ukraine/Other CIS	95%	92%	93%	90%	89%	87%	\$49,469	\$44,276	\$47,477	\$43,520	\$29,700	\$58,434
Other Eastern Europe	72%	61%	56%	52%	52%	63%	\$19,924	\$17,905	\$22,160	\$9,647	\$18,422	\$12,041
<b>TOTAL E. EUROPE</b>	<b>80%</b>	<b>77%</b>	<b>76%</b>	<b>70%</b>	<b>63%</b>	<b>67%</b>	<b>\$782,508</b>	<b>\$561,356</b>	<b>\$640,015</b>	<b>\$505,213</b>	<b>\$404,491</b>	<b>\$434,627</b>
<b>NORTH AMERICA</b>												
US	27%	27%	25%	25%	24%	25%	\$2,360,934	\$2,779,673	\$2,875,185	\$3,191,111	\$2,632,438	\$1,807,709
Canada	42%	39%	40%	41%	38%	38%	\$357,316	\$294,593	\$320,636	\$440,101	\$304,999	\$189,299
<b>TOTAL US/CANADA</b>	<b>28%</b>	<b>28%</b>	<b>26%</b>	<b>26%</b>	<b>25%</b>	<b>26%</b>	<b>\$2,718,251</b>	<b>\$3,074,266</b>	<b>\$3,195,821</b>	<b>\$3,631,212</b>	<b>\$2,937,437</b>	<b>\$1,997,008</b>
<b>LATIN AMERICA</b>												
Argentina	71%	65%	62%	62%	58%	62%	\$122,389	\$105,194	\$123,786	\$192,001	\$114,403	\$90,626
Bolivia	89%	88%	87%	85%	81%	77%	\$3,527	\$3,853	\$4,898	\$5,059	\$3,470	\$5,973
Brazil	68%	62%	61%	58%	58%	56%	\$356,370	\$394,994	\$366,688	\$392,031	\$325,617	\$346,961
Chile	62%	56%	53%	51%	49%	51%	\$39,960	\$33,147	\$39,451	\$58,479	\$40,726	\$59,445
Colombia	66%	62%	60%	58%	53%	52%	\$85,920	\$65,085	\$83,615	\$61,843	\$40,924	\$24,280
Costa Rica	82%	74%	72%	71%	68%	64%	\$6,735	\$7,064	\$8,392	\$11,545	\$18,344	\$8,662
Dominican Republic	80%	76%	73%	72%	68%	64%	\$5,473	\$7,647	\$9,019	\$15,267	\$8,206	\$5,083
Ecuador	80%	75%	73%	71%	65%	62%	\$12,852	\$13,236	\$15,619	\$25,142	\$10,125	\$8,481
El Salvador	92%	89%	87%	83%	79%	73%	\$11,489	\$10,419	\$12,949	\$16,697	\$11,944	\$9,337
Guatemala	89%	86%	85%	80%	77%	73%	\$8,675	\$7,867	\$9,357	\$15,580	\$15,115	\$17,429
Honduras	83%	78%	77%	75%	68%	68%	\$3,918	\$3,468	\$4,254	\$6,280	\$2,431	\$4,224
Mexico	67%	62%	59%	56%	56%	55%	\$105,909	\$133,102	\$147,138	\$133,964	\$180,164	\$181,678
Nicaragua	89%	83%	81%	80%	78%	78%	\$5,763	\$5,010	\$6,144	\$6,773	\$2,579	\$3,275
Panama	74%	72%	70%	66%	64%	61%	\$6,434	\$5,859	\$7,004	\$12,832	\$10,087	\$8,390
Paraguay	89%	87%	85%	83%	76%	72%	\$5,408	\$5,029	\$6,371	\$8,198	\$10,433	\$4,273
Peru	74%	66%	64%	63%	61%	60%	\$32,437	\$31,017	\$37,462	\$27,210	\$15,573	\$14,453
Puerto Rico	50%	49%	49%	48%	46%	47%	\$17,402	\$18,826	\$22,874	\$24,956	\$13,766	\$13,375
Uruguay	79%	74%	72%	70%	66%	63%	\$16,116	\$13,613	\$16,109	\$19,608	\$9,688	\$7,979
Venezuela	70%	64%	62%	60%	58%	55%	\$51,272	\$54,905	\$68,298	\$56,823	\$20,792	\$32,212
Other Latin America	75%	75%	72%	72%	67%	65%	\$82,518	\$58,658	\$56,081	\$37,351	\$15,390	\$18,563
<b>TOTAL LATIN AMERICA</b>	<b>69%</b>	<b>64%</b>	<b>62%</b>	<b>59%</b>	<b>58%</b>	<b>57%</b>	<b>\$980,568</b>	<b>\$977,994</b>	<b>\$1,045,506</b>	<b>\$1,127,639</b>	<b>\$869,777</b>	<b>\$864,700</b>

	Piracy Rates						Retail Software Revenue Lost to Piracy (1000)					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
<b>ASIA/PACIFIC</b>												
Australia	32%	32%	33%	32%	33%	27%	\$128,267	\$129,414	\$192,237	\$150,390	\$132,533	\$91,011
China	96%	96%	95%	91%	94%	92%	\$703,839	\$1,449,454	\$1,193,386	\$645,480	\$1,124,395	\$1,662,404
Hong Kong	64%	67%	59%	56%	57%	53%	\$129,109	\$122,169	\$88,627	\$110,190	\$86,195	\$164,040
India	79%	69%	65%	61%	63%	70%	\$255,344	\$184,664	\$197,333	\$214,557	\$239,629	\$365,318
Indonesia	97%	93%	92%	85%	89%	88%	\$197,313	\$193,275	\$58,756	\$42,106	\$69,991	\$79,463
Japan	41%	32%	31%	31%	37%	37%	\$1,190,323	\$752,598	\$596,910	\$975,396	\$1,666,331	\$1,721,050
Korea	70%	67%	64%	50%	56%	48%	\$515,547	\$582,320	\$197,516	\$197,269	\$302,938	\$186,574
Malaysia	80%	70%	73%	71%	66%	70%	\$121,488	\$82,552	\$79,268	\$84,154	\$95,567	\$94,544
New Zealand	35%	34%	32%	31%	28%	26%	\$29,271	\$20,284	\$21,758	\$19,656	\$12,373	\$11,445
Pakistan	92%	88%	86%	83%	83%	83%	\$23,144	\$20,395	\$22,667	\$18,913	\$31,379	\$11,429
Philippines	92%	83%	77%	70%	61%	63%	\$70,735	\$49,151	\$31,138	\$33,163	\$27,091	\$24,655
Singapore	59%	56%	52%	51%	50%	51%	\$56,553	\$56,599	\$58,262	\$61,758	\$44,299	\$41,802
Taiwan	66%	63%	59%	54%	53%	53%	\$116,980	\$136,850	\$141,274	\$122,946	\$154,754	\$136,735
Thailand	80%	84%	82%	81%	79%	77%	\$137,063	\$94,404	\$48,613	\$82,183	\$53,082	\$41,123
Vietnam	99%	98%	97%	98%	97%	94%	\$15,216	\$10,132	\$10,328	\$13,106	\$34,938	\$32,246
Other Asia/Pacific	86%	83%	74%	71%	75%	70%	\$49,113	\$31,974	\$16,739	\$20,262	\$7,566	\$62,616
<b>TOTAL ASIA/PACIFIC</b>	<b>55%</b>	<b>52%</b>	<b>49%</b>	<b>47%</b>	<b>51%</b>	<b>54%</b>	<b>\$3,739,304</b>	<b>\$3,916,236</b>	<b>\$2,954,812</b>	<b>\$2,791,531</b>	<b>\$4,083,061</b>	<b>\$4,726,454</b>
<b>MIDDLE EAST/AFRICA</b>												
Bahrain	90%	89%	89%	82%	80%	77%	\$4,495	\$3,576	\$3,012	\$6,021	\$4,745	\$1,179
Cyprus	70%	68%	68%	67%	63%	61%	\$2,540	\$1,809	\$1,518	\$3,345	\$2,382	\$1,301
Israel	69%	54%	48%	44%	41%	40%	\$77,261	\$57,060	\$63,239	\$72,487	\$66,256	\$45,429
Jordan	83%	80%	80%	75%	71%	67%	\$2,659	\$1,883	\$1,584	\$3,276	\$2,116	\$1,021
Kuwait	89%	88%	88%	81%	80%	76%	\$10,817	\$7,889	\$6,644	\$13,200	\$8,143	\$5,468
Lebanon	88%	93%	93%	88%	83%	79%	\$1,708	\$1,322	\$1,119	\$2,059	\$1,600	\$1,347
Malta	70%	64%	63%	58%	56%	53%	\$1,956	\$1,299	\$1,090	\$2,220	\$1,667	\$969
Mauritius	88%	77%	78%	70%	66%	65%	\$1,646	\$1,070	\$902	\$1,263	\$1,482	\$2,085
Oman	95%	93%	93%	88%	78%	77%	\$7,905	\$5,682	\$4,784	\$9,780	\$6,535	\$3,148
Qatar	89%	87%	87%	80%	81%	78%	\$3,206	\$2,760	\$2,325	\$4,451	\$3,736	\$2,705
Reunion	66%	59%	59%	54%	49%	46%	\$1,860	\$1,232	\$1,036	\$1,458	\$1,881	\$474
Saudi Arabia	79%	74%	73%	64%	59%	52%	\$65,192	\$46,156	\$38,768	\$39,900	\$21,671	\$20,013
Turkey	85%	84%	87%	74%	63%	58%	\$90,717	\$64,306	\$55,823	\$98,257	\$96,472	\$27,440
UAE	50%	50%	49%	47%	44%	41%	\$6,026	\$4,420	\$3,637	\$7,624	\$5,393	\$7,596
Other Middle East	73%	73%	73%	69%	63%	56%	\$7,534	\$5,538	\$4,661	\$19,103	\$16,372	\$17,287
<b>TOTAL MIDDLE EAST</b>	<b>79%</b>	<b>72%</b>	<b>69%</b>	<b>63%</b>	<b>57%</b>	<b>51%</b>	<b>\$285,522</b>	<b>\$206,003</b>	<b>\$190,139</b>	<b>\$284,445</b>	<b>\$240,451</b>	<b>\$137,463</b>
Egypt	88%	85%	85%	75%	56%	58%	\$18,128	\$12,890	\$10,858	\$33,197	\$12,232	\$17,663
Kenya	77%	72%	72%	67%	67%	77%	\$443	\$302	\$254	\$372	\$2,805	\$2,684
Morocco	77%	72%	72%	64%	60%	61%	\$6,675	\$4,559	\$3,829	\$5,267	\$6,045	\$5,531
Nigeria	77%	72%	72%	67%	67%	71%	\$3,673	\$2,509	\$2,107	\$2,951	\$3,247	\$4,952
South Africa	49%	48%	49%	47%	45%	38%	\$43,783	\$69,833	\$94,241	\$84,149	\$54,447	\$40,595
Zimbabwe	70%	66%	67%	63%	59%	68%	\$717	\$699	\$810	\$845	\$508	\$1,701
Other Africa	83%	71%	69%	66%	62%	69%	\$151,814	\$94,715	\$77,781	\$66,966	\$56,607	\$74,046
<b>TOTAL AFRICA</b>	<b>70%</b>	<b>60%</b>	<b>58%</b>	<b>56%</b>	<b>52%</b>	<b>53%</b>	<b>\$225,234</b>	<b>\$185,507</b>	<b>\$189,880</b>	<b>\$193,747</b>	<b>\$135,892</b>	<b>\$147,172</b>
<b>TOTAL MIDDLE EAST/ AFRICA</b>	<b>74%</b>	<b>65%</b>	<b>63%</b>	<b>60%</b>	<b>55%</b>	<b>52%</b>	<b>\$510,756</b>	<b>\$391,510</b>	<b>\$380,019</b>	<b>\$478,192</b>	<b>\$376,344</b>	<b>\$284,634</b>
<b>TOTAL WORLD</b>	<b>43%</b>	<b>40%</b>	<b>38%</b>	<b>36%</b>	<b>37%</b>	<b>40%</b>	<b>\$11,306,258</b>	<b>\$11,440,088</b>	<b>\$10,976,510</b>	<b>\$12,163,158</b>	<b>\$11,750,365</b>	<b>\$10,967,309</b>

## **E. BSA GLOBAL PIRACY STUDY METHODOLOGY**

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*Developed by International Planning and Research (IPR)*

The BSA Global Piracy Study involves the reconciliation of two sets of data, the demand for new software applications and the legal supply of new software applications. IPR developed the following method to estimate software piracy by country. This study is for the calendar year 2001.

### **DEMAND**

PC shipments for the major countries were estimated from proprietary and confidential data supplied by BSA member companies. The data was compared and combined to form a consensus estimate, which benefited from the detailed market research available to these member companies.

To analyze demand, PC shipments were studied in two dimensions: (1) home vs. non-home segments, and (2) replacement PCs vs. new units. Splitting the PC shipments between home and non-home purchasers represented the market segments of each country. The PC shipments were also compared to the change in the installed base of existing PCs. The part of PC shipments, which represents growth of the installed base, is called "new shipments" and is separated from the "replacement shipments." Replacement shipments represent new PCs that are replacing older PCs.

IPR also developed a measure of the installed base of PCs by country compared to the number of white-collar workers. PC penetration statistics are a general measure of the level of technological acceptance within a country. The level of penetration, for a variety of reasons, varies widely from country to country. This level was then ranked and each country was assigned to one of five maturity classes.

To estimate software demand, IPR developed ratios for the amount of software installed on each PC. This was developed from market research on the U.S. market. From the Technology User Profile market research of Metafacts Inc., IPR determined the number of software applications installed per PC shipment and developed these ratios for the four shipment groups:

1. Home - New Shipments
2. Non-Home - New Shipments
3. Home - Replacement Shipments
4. Non-Home - Replacement Shipments

For each shipment group, ratios were developed for each of five maturity classes. U.S. historical trends were used to estimate the effects of earlier technological development by maturity class.

Piracy rates can vary among applications. Grouping the software applications into three tiers and using specific ratios for each tier further refined the ratios. The tiers used were General Productivity Applications, Professional Applications, and Utilities. These were chosen because they represent different target markets and price levels, and it is believed, different piracy rates.

As part of this study, software applications installed per PC shipped have been researched and estimated using these dimensions:

1. Home vs. Non-Home
2. New PCs vs. Replacement PCs
3. Level of Technological Development
4. Software Application Tier

From this work, an estimate of total installed software applications was calculated by country for each software tier. This produced a figure for total worldwide software installed in 2001, both legal and illegal.

### **SUPPLY**

BSA member companies volunteer their proprietary shipment data to the study under non-disclosure agreements for the purpose of constructing an accurate estimate of the software industry's 2001 shipments. This data is the primary source of software shipment data.

The data was collected by country and by software application. For this study, only business software applications were used, hence, seven consumer software applications were excluded:

1. Recreation
2. Home Creativity
3. Home Education
4. Integrated
5. Personal Finance
6. Reference Software
7. Tax Programs

The 26 business software applications are:

### **TIER 1—General Productivity Applications**

1. Databases
2. Presentations Graphics
3. Project Management
4. Spreadsheets
5. Word Processors

### **TIER 2—Professional Applications**

6. Accounting
7. C Languages
8. Curricular
9. Desktop Publishing
10. Other Languages
11. Professional Drawing and Painting
12. Programming Tools

### **TIER 3—Utilities**

13. Application Utilities
14. Calendars & Scheduling
15. Clips
16. Communications
17. Education Administration & Productivity
18. Electronic Mail
19. Fonts
20. Forms
21. General Business
22. Internet Access and Tools
23. Personal and Business Productivity
24. PIM's
25. System Utilities
26. Training

The collected software shipment data represent the software shipments of most U.S. companies. To estimate the entire U.S. software shipments, IPR used an uplift factor reflecting an estimate of shipments by companies participating in the study as a percent of software shipped by all U.S. software publishers.

To estimate the entire worldwide software shipments, IPR applied a second uplift factor, based on an estimate of software shipped by U.S. companies as a percent of software shipped by all software publishers.

**FACTOR 1:**  
**Software shipped by the companies participating in the study as a percent of software shipped by all U.S. software publishers.**

**FACTOR 2:**  
**Software shipped by U.S. software publishers as a percent of software shipped by all software publishers.**

By applying these two factors, we are able to estimate the total legal market of software shipments for all companies.

IPR believes that certain software shipments in the data collected from participating companies are reported for one country, but the software is exported and used in another country. In order to account for this and to eliminate this effect from the piracy study as much as possible, net import estimates were developed on a country-by-country basis.

### **PIRACY ESTIMATES**

The difference between software applications installed (demand) and software applications legally shipped (supply) equals the estimate of software applications pirated. These were calculated by country for 2001. The piracy rate was defined as the volume of software pirated as a percent of total software installed in each country.

By using the average price information from the collected data, the legal and pirated software revenue was calculated. This is a wholesale price estimate weighted by the amount of shipments within each software application category.

### **REST OF REGION COUNTRIES**

The “rest of region” data was used to develop piracy estimates outside of the major markets. The methodology for the piracy study provides total world shipments with country information for the major countries and aggregated information for smaller countries. For these additional countries, a PC shipment estimate was acquired, either through a consensus of member company internal data or from published sources. This data was used to split apart the “rest of region” total for the countries within each region.

Wherever possible, separate software shipment data was used to split the software shipments within the “rest of region” countries. This resulted in piracy estimates that varied by country within the region.

### **REVIEW PROCESS**

To ensure a high level of confidence, BSA member companies reviewed the results of the study and their input was used to validate and refine the study assumptions.



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