



The
Software
Alliance

BSA

The Compliance Gap

BSA GLOBAL SOFTWARE SURVEY

JUNE 2014





CONTENTS

Executive Summary	1
Unlicensed Software Use in a Worsening Threat Environment	2
Parallels Between Company Policies and Worker Behavior	3
What Enterprises Can Do: Software Asset Management	4
The Impact of Cloud Computing on Licensed and Unlicensed Software Use	5
Global Trends in Unlicensed Software Use	7
Rates and Commercial Values of Unlicensed PC Software Installations	8
Regional Highlights	10
Methodology	11
BSA Blueprint for Encouraging Software License Compliance	15



Executive Summary

Around the world, less than half of enterprise IT managers say they are very confident that their organizations are using software that is properly licensed, even though most believe unlicensed software poses security risks. This and other findings from BSA's Global Software Survey underscore the benefits of implementing proven best practices for managing software assets — benefits that start in the enterprise and extend into the broader ecosystem of the IT marketplace.

The study finds that 43 percent of the software installed on personal computers around the world in 2013 was not properly licensed. That marked an uptick from 42 percent in BSA's previous global study two years prior. The commercial value of these unlicensed software installations slipped marginally to \$62.7 billion.

Behind this mixed picture is a cross-current of two large-scale market trends: The growing popularity of tablet computers is eating into new PC shipments, while emerging economies account for an increasing majority of the still-vast global market for desktops and laptops. These tectonic shifts will continue to reshape the global software landscape over time, but the importance of using genuine, properly licensed software will remain as important as ever — particularly as cybersecurity threats proliferate.

These conclusions are drawn from a global survey of nearly 22,000 consumers and enterprise PC users and a parallel survey of more than 2,000 IT managers.

Among the key findings:

- The global rate at which PC software was installed without proper licensing rose from 42 percent in 2011 to 43 percent in 2013. This equaled the previous high set in 2009, as emerging economies where unlicensed software use is most prevalent continued to account for a growing majority of all PCs in service.
- Surveys of IT managers indicate that only 35 percent of companies have written policies requiring them to use properly licensed software.
- There is a significant awareness gap between workers and IT managers when it comes to software policies in enterprises — workers are less likely than IT managers to say there is a formal policy in place.
- The chief reason computer users around the world cite for not using unlicensed software is avoiding security threats from malware.
- Among the security risks associated with unlicensed software, 64 percent of users cited unauthorized access by hackers as a top concern and 59 percent cited loss of data.

Unlicensed Software Use in a Worsening Threat Environment

Unlicensed software use continued to be a major problem in 2013. Indeed, 43 percent of the software installed on PCs around the world was not properly licensed, an uptick from 42 percent in 2011. The commercial value of the unlicensed installations was \$62.7 billion.

But a large majority of IT managers (62 percent) cited security threats from malware as the chief reason not to use unlicensed or mis-licensed applications. Topping their list of concerns was the risk of losing data, followed by unauthorized access to company information, the time and costs involved in disinfecting, and loss of intellectual property or proprietary information.

Those concerns are not unreasonable. The global cybersecurity threat environment has in fact been worsening — and that trend has been exacerbated in part by vulnerabilities associated with illegitimate software.¹

According to the Economist Intelligence Unit, more than 75 percent of organizations suffered a security incident in the past two years that caused

Top IT Manager Concerns About Malware



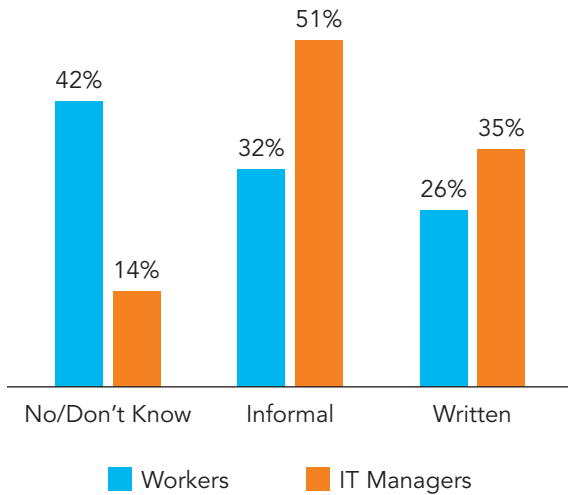
Share of IT Managers Ranking the Concern in Their Top 3

¹ IDC White Paper: "The Link between Pirated Software and Cybersecurity Breaches." March 2014



Awareness Gap

“Does your company/organization have a policy about the use of licensed software?”



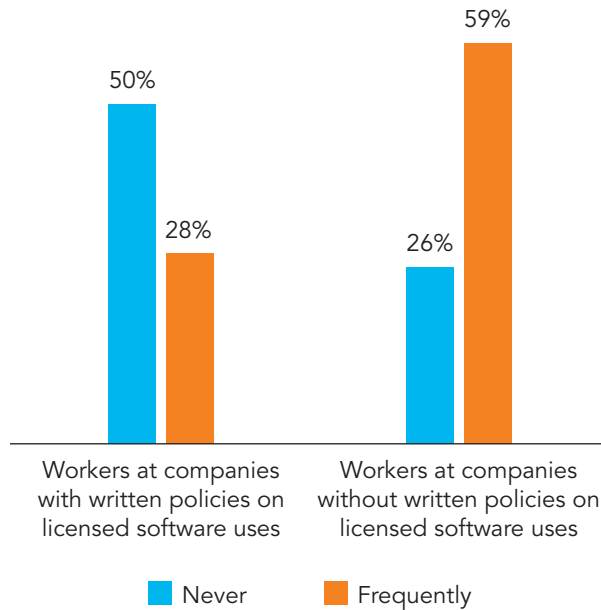
major system disruptions or resulted in loss or theft of sensitive data.² Symantec, a BSA member, dubbed 2013 the “Year of the Mega Breach” — there was a 62 percent increase in total number of data breaches from the previous year, and eight of the breaches that occurred exposed more than 10 million identities each.³

Yet while IT managers around the world express understandable concern that unlicensed software may cause harm, BSA’s Global Software Survey also found only 48 percent are very confident that their company’s software is properly licensed — an alarmingly low number.

Meanwhile, there is a significant gap between workers’ understanding of their companies’ software policies and IT managers’ understanding. A full 42 percent of workers say their companies either do not have a policy on licensed software use or they don’t know, while 86 percent of IT

Company Policies Matter

Worker responses to the question of how often they acquire unlicensed software



managers claim their companies have either a written policy or an informal one.

PARALLELS BETWEEN COMPANY POLICIES AND WORKER BEHAVIOR

Making sure enterprises are using only legal software is important for any number of reasons, from avoiding security risks to improving business productivity and creating healthy IT ecosystems. But this year’s survey revealed an especially intriguing correlation between enterprise software management practices and the frequency with which workers say they use unlicensed software.

All respondents were asked directly whether they use unlicensed software. They also were asked whether their companies have policies on using licensed software. Those who said they work at companies that have formal, written policies were least likely to say they ever use unlicensed software, while those who said their companies

² Economist Intelligence Unit Report: “Cyber Incident Response: Are Business Leaders Ready?” March 2014

³ Symantec: “Internet Security Threat Report,” Volume 19. April 2014

have no policy, or just an informal one, were most likely to say they use unlicensed software.

- At companies with formal, written policies, 50 percent of employees said they never use unlicensed software, while 28 percent said they use unlicensed software frequently.
- By contrast, at companies with no policies or just informal ones, the share of employees who said they never use unlicensed software fell to 26 percent, and the share who said they did so frequently rose to 59 percent.

WHAT ENTERPRISES CAN DO: SOFTWARE ASSET MANAGEMENT

All enterprises should take steps to ensure they are using properly licensed software. As a preliminary step, this might entail establishing a formal, written policy and carefully logging all software deployed in the organization. Conducting

employee workshops and regular software audits also are essential in helping businesses of all sizes ensure they are staying compliant. Beyond these basic measures, however, companies would be well advised to implement robust software asset

management (SAM) programs that are aligned to global standards set by the International Organization for Standardization (ISO).

Not surprisingly, IT managers who reported in this year's survey that their companies had SAM programs in place also were the most confident that their software was properly licensed.

One such program, Verafirm, offers industry-supported SAM certification and management tools for companies of all sizes. Developed by BSA, the program provides a self-guided registry tool for companies to log their entire software inventory and compare it to the licenses they hold from publishers, then monitor and manage all of it in one place. BSA also certifies larger organizations that have effectively implemented ISO-aligned SAM programs, providing them

Top 20 Economies in Commercial Value of Unlicensed PC Software, 2013

Country	Unlicensed Value (\$M)	Licensed Market (\$M)	Unlicensed Rate
United States	\$9,737	\$44,357	18%
China	\$8,767	\$3,080	74%
India	\$2,911	\$1,941	60%
Brazil	\$2,851	\$2,851	50%
France	\$2,685	\$4,773	36%
Russia	\$2,658	\$1,629	62%
Germany	\$2,158	\$6,834	24%
United Kingdom	\$2,019	\$6,394	24%
Italy	\$1,747	\$1,970	47%
Indonesia	\$1,463	\$279	84%
Japan	\$1,349	\$5,751	19%
Mexico	\$1,211	\$1,032	54%
Canada	\$1,089	\$3,267	25%
Spain	\$1,044	\$1,276	45%
Venezuela	\$1,030	\$140	88%
Argentina	\$950	\$427	69%
Thailand	\$869	\$355	71%
Australia	\$743	\$2,795	21%
South Korea	\$712	\$1,162	38%
Vietnam	\$620	\$145	81%

assurance that they are managing their software correctly and assuring the marketplace that they have a best-in-class governance program in place.

These programs deliver real value. Beyond the security and operational risks of using unlicensed software, inadequate controls also can lead to spending too much on unnecessary licenses for software that isn't being used. Effective SAM policies and procedures, such as those delivered by the Verafirm program, empower enterprises to properly manage their software assets by tracking licenses, metering usage, handling patch management, supporting software deployment, and administering access rights — all while protecting against malware and viruses.

These solutions recognize that for many enterprise software users around the world, IT compliance is becoming as important as labor, environmental,

(continued on page 7)

All enterprises should take steps to ensure they are using properly licensed software.



THE IMPACT OF CLOUD COMPUTING ON LICENSED AND UNLICENSED SOFTWARE USE

Cloud computing harnesses information technology in ways that deliver new benefits of scale, efficiency and power to consumers and enterprise users of all sizes. This is helping to spur innovation, drive economic growth, and create jobs. And since cloud computing now delivers nearly 10 percent of software functionality worldwide, it also changes the discussion about licensed and unlicensed software use. But how?

To begin to answer that question, BSA asked IDC to gather information from its cloud computing analysts around the world, exploring their own views and those of their clients. IDC then analyzed the results of this year's survey of workers and IT managers, and reviewed its own forecasts and predictions on cloud computing, software licensing, and related subjects, such as information security.

The conclusion? Cloud computing — specifically the delivery of software functionality via online access — will lower unlicensed software use, but perhaps not as much as one might think.

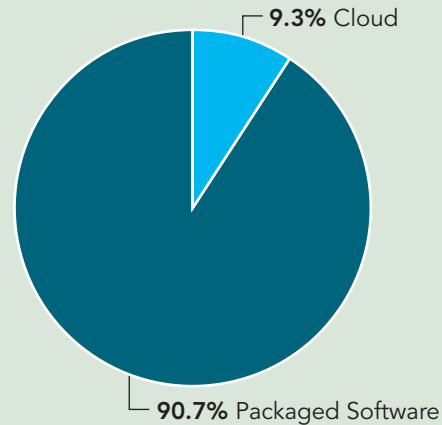
The market for cloud software services is still young, and as yet more of a developed-country phenomenon than an emerging-market one. At the moment, then, if cloud services are going to lower unlicensed software use, they will do so first in geographies that already have relatively low rates of it.

The first figure shows the cloud share of the worldwide software market. Note that it only includes cloud services that could actually replace the kinds of software that would otherwise be installed on computers locally. The second figure shows the current geographic shares of the US and Western Europe versus the rest of the world.

It seems clear that the growth of cloud services will lower unlicensed software use by giving vendors greater control of the distribution of software and continual views of usage, and by lowering the upfront costs for customers and providing continual services and enhancements. Vendors also are

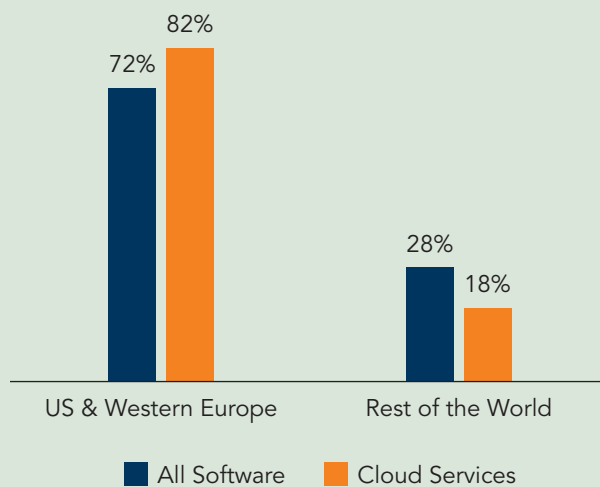
Young Market

Cloud represents a small, but growing share of the \$398 billion global software market



Cloud share = software-as-a-service (SaaS) plus platform-as-a-service (PaaS)

Developed Economies Dominate the Market



offering special incentives and prices to spur adoption. But cloud services also introduce a new form of potential license abuse: credential sharing.

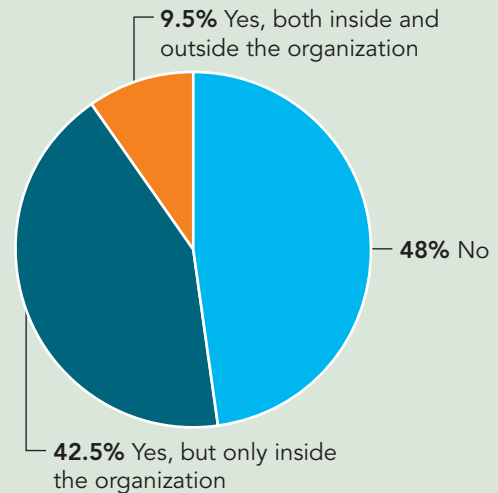
IDC estimates that more than 80 percent of cloud software services come with licensing provisions that require each user, even when under a multi-user license, to have separate log-in credentials — at least an account name and password. Technically, users are not supposed to share log-in credentials, and in some cases the sharing of passwords is specifically prohibited in the terms of service.

But, in fact, users *do* share credentials. For users of business cloud services that are paid for, BSA's Global Software Survey found that 52 percent of respondents said they shared credentials, up from 42 percent in 2011. Sixty-two percent of those who shared credentials did so more than rarely. Nearly one in five (18 percent) said they share credentials outside the company.

For users of business cloud services that are paid for, BSA's Global Software Survey found that 52 percent of respondents said they shared credentials, up from 42 percent in 2011.

Sharing Company Cloud Credentials

"Have you ever shared login credentials with other people?"



Based on feedback from IT managers, there was a moderate correlation between credential sharing and country-level rates of unlicensed software installation. For example, 75 percent of respondents in China, India, and Thailand said they shared log-in credentials, while Denmark, Finland, and the UK were all less than 40 percent.

As cloud services penetrate emerging markets, expect the incidence of credential sharing to go up.

But is credential sharing the same as unlicensed software use or piracy?

Certainly it is akin to under-licensing, where an enterprise pays for a certain number of software copies but uses more than were paid for. Here, a company pays for a certain number of cloud service users (or "seats") and, through credential sharing, more people have access. Because these are services designed to displace their on-premise counterparts, credential sharing would have the same effect as under-licensing.



and product safety — and that for companies in the 21st century, this is a key competitive differentiator.

GLOBAL TRENDS IN UNLICENSED SOFTWARE USE

In the two years since BSA's last study of unlicensed PC software use, key trends that were just becoming apparent have accelerated significantly.

First, there is a fundamental shift occurring in the landscape of personal and enterprise computing, with a slowdown in shipments of new PCs and rapid growth in mobile devices and cloud computing. In fact, 2011 appears to have been

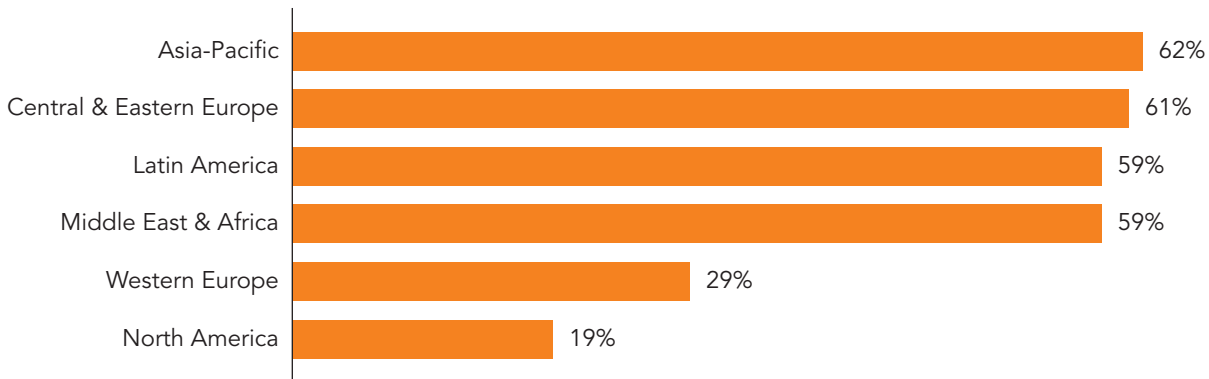
the high-water mark for the PC market, with 364 million units shipped. In 2013, that new-PC figure dropped to 315 million while shipments of tablet computers surged.

There are now nearly three-quarters as many tablets entering the market as PCs, up from a bit more than 20 percent in 2011. Meanwhile, software delivered as a service through cloud computing is on track to exceed 10 percent of all computer and mobile software in 2014. (See sidebar on the implications of cloud computing on page 5.)

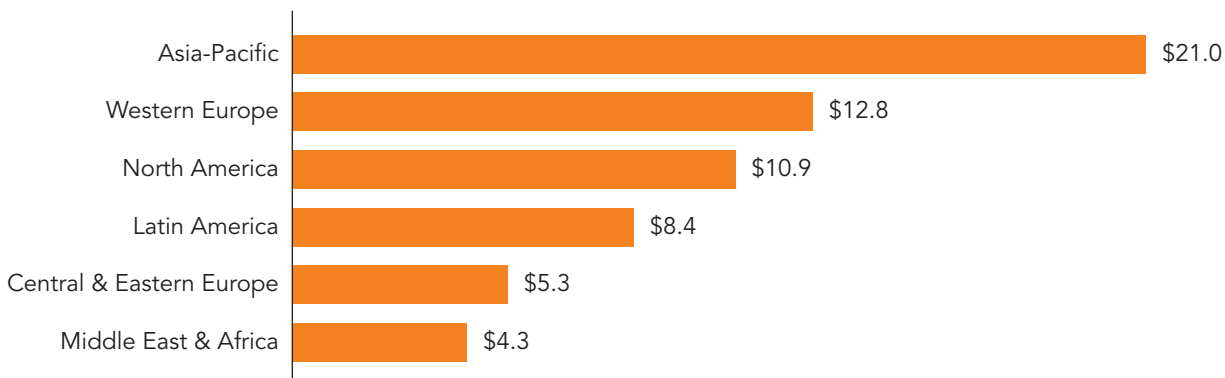
The global market for PCs and PC software is still huge, to be sure. At the end of 2013, there were nearly 1.7 billion PCs in service. Even if that

(continued on page 10)

Average Rate of Unlicensed Software Use



Commercial Value of Unlicensed Software Use (in Billions)



RATES AND COMMERCIAL VALUES OF UNLICENSED PC SOFTWARE INSTALLATIONS

	UNLICENSED SOFTWARE INSTALLATION RATES				COMMERCIAL VALUE OF UNLICENSED SOFTWARE (\$M)			
	2013	2011	2009	2007	2013	2011	2009	2007
ASIA PACIFIC								
Australia	21%	23%	25%	28%	\$743	\$763	\$550	\$492
Bangladesh	87%	90%	91%	92%	\$197	\$147	\$127	\$92
Brunei	66%	67%	67%	67%	\$13	\$25	\$14	\$13
China	74%	77%	79%	82%	\$8,767	\$8,902	\$7,583	\$6,664
Hong Kong	43%	43%	47%	51%	\$316	\$232	\$218	\$224
India	60%	63%	65%	69%	\$2,911	\$2,930	\$2,003	\$2,025
Indonesia	84%	86%	86%	84%	\$1,463	\$1,467	\$886	\$411
Japan	19%	21%	21%	23%	\$1,349	\$1,875	\$1,838	\$1,791
Malaysia	54%	55%	58%	59%	\$616	\$657	\$453	\$311
New Zealand	20%	22%	22%	22%	\$78	\$99	\$63	\$55
Pakistan	85%	86%	84%	84%	\$344	\$278	\$166	\$125
Philippines	69%	70%	69%	69%	\$444	\$338	\$217	\$147
Singapore	32%	33%	35%	37%	\$344	\$255	\$197	\$159
South Korea	38%	40%	41%	43%	\$712	\$815	\$575	\$549
Sri Lanka	83%	84%	89%	90%	\$187	\$86	\$77	\$93
Taiwan	38%	37%	38%	40%	\$305	\$293	\$227	\$215
Thailand	71%	72%	75%	78%	\$869	\$852	\$694	\$468
Vietnam	81%	81%	85%	85%	\$620	\$395	\$353	\$200
Other AP	91%	91%	90%	91%	\$763	\$589	\$303	\$56
TOTAL AP	62%	60%	59%	59%	\$21,041	\$20,998	\$16,544	\$14,090
CENTRAL AND EASTERN EUROPE								
Albania	75%	75%	75%	78%	\$10	\$6	\$8	\$11
Armenia	86%	88%	90%	93%	\$26	\$26	\$14	\$8
Azerbaijan	85%	87%	88%	92%	\$103	\$67	\$52	\$50
Belarus	86%	87%	87%	—	\$173	\$87	\$55	—
Bosnia	65%	66%	66%	68%	\$21	\$15	\$14	\$13
Bulgaria	63%	64%	67%	68%	\$101	\$102	\$115	\$63
Croatia	52%	53%	54%	54%	\$64	\$74	\$71	\$68
Czech Republic	34%	35%	37%	39%	\$182	\$214	\$174	\$161
Estonia	47%	48%	50%	51%	\$20	\$25	\$19	\$20
FYROM	65%	66%	67%	68%	\$19	\$22	\$15	\$11
Georgia	90%	91%	95%	—	\$40	\$52	\$54	—
Hungary	39%	41%	41%	42%	\$127	\$143	\$113	\$125
Kazakhstan	74%	76%	78%	79%	\$136	\$123	\$74	\$110
Latvia	53%	54%	56%	56%	\$29	\$32	\$24	\$29
Lithuania	53%	54%	54%	56%	\$47	\$44	\$31	\$37
Moldova	90%	90%	91%	92%	\$57	\$45	\$28	\$43
Montenegro	78%	79%	81%	83%	\$7	\$7	\$11	\$7
Poland	51%	53%	54%	57%	\$563	\$618	\$506	\$580
Romania	62%	63%	65%	68%	\$208	\$207	\$183	\$151
Russia	62%	63%	67%	73%	\$2,658	\$3,227	\$2,613	\$4,123
Serbia	69%	72%	74%	76%	\$70	\$104	\$67	\$72
Slovakia	37%	40%	43%	45%	\$67	\$68	\$65	\$54
Slovenia	45%	46%	46%	48%	\$41	\$51	\$39	\$39
Ukraine	83%	84%	85%	83%	\$444	\$647	\$272	\$403
Rest of CEE	89%	90%	88%	88%	\$105	\$127	\$56	\$173
TOTAL CEE	61%	62%	64%	68%	\$5,318	\$6,133	\$4,673	\$6,351
LATIN AMERICA								
Argentina	69%	69%	71%	74%	\$950	\$657	\$645	\$370
Bolivia	79%	79%	80%	82%	\$95	\$59	\$40	\$19
Brazil	50%	53%	56%	59%	\$2,851	\$2,848	\$2,254	\$1,617
Chile	59%	61%	64%	66%	\$378	\$382	\$315	\$187
Colombia	52%	53%	55%	58%	\$396	\$295	\$244	\$127
Costa Rica	59%	58%	59%	61%	\$98	\$62	\$33	\$22
Dominican Republic	75%	76%	77%	79%	\$73	\$93	\$66	\$39
Ecuador	68%	68%	67%	66%	\$130	\$92	\$65	\$33
El Salvador	80%	80%	80%	81%	\$72	\$58	\$46	\$28
Guatemala	79%	79%	80%	80%	\$167	\$116	\$74	\$41
Honduras	74%	73%	74%	74%	\$38	\$24	\$17	\$8
Mexico	54%	57%	60%	61%	\$1,211	\$1,249	\$1,056	\$836
Nicaragua	82%	79%	79%	80%	\$23	\$9	\$5	\$4
Panama	72%	72%	73%	74%	\$120	\$74	\$42	\$22
Paraguay	84%	83%	82%	82%	\$115	\$73	\$29	\$13
Peru	65%	67%	70%	71%	\$249	\$209	\$124	\$75
Uruguay	68%	68%	68%	69%	\$74	\$85	\$40	\$23
Venezuela	88%	88%	87%	87%	\$1,030	\$668	\$685	\$464
Other LA	84%	84%	83%	83%	\$352	\$406	\$430	\$195
TOTAL LA	59%	61%	63%	65%	\$8,422	\$7,459	\$6,210	\$4,123

THE COMPLIANCE GAP: BSA GLOBAL SOFTWARE SURVEY

	UNLICENSED SOFTWARE INSTALLATION RATES				COMMERCIAL VALUE OF UNLICENSED SOFTWARE (\$M)			
	2013	2011	2009	2007	2013	2011	2009	2007
MIDDLE EAST AND AFRICA								
Algeria	85%	84%	84%	84%	\$102	\$83	\$55	\$86
Bahrain	53%	54%	54%	57%	\$27	\$23	\$21	\$27
Botswana	79%	80%	79%	82%	\$20	\$16	\$11	\$14
Cameroon	82%	83%	83%	84%	\$9	\$9	\$7	\$5
Egypt	62%	61%	59%	60%	\$198	\$172	\$146	\$131
Iraq	86%	86%	85%	85%	\$116	\$172	\$129	\$124
Israel	30%	31%	33%	32%	\$177	\$192	\$148	\$121
Ivory Coast	80%	81%	79%	81%	\$24	\$16	\$14	\$15
Jordan	57%	58%	57%	60%	\$35	\$31	\$26	\$20
Kenya	78%	78%	79%	81%	\$128	\$85	\$66	\$28
Kuwait	58%	59%	60%	62%	\$97	\$72	\$62	\$61
Lebanon	71%	71%	72%	73%	\$65	\$52	\$46	\$44
Libya	89%	90%	88%	88%	\$50	\$60	\$25	\$22
Mauritius	55%	57%	56%	57%	\$7	\$7	\$4	\$4
Morocco	66%	66%	66%	67%	\$69	\$91	\$64	\$66
Nigeria	81%	82%	83%	82%	\$287	\$251	\$156	\$114
Oman	60%	61%	63%	61%	\$65	\$36	\$39	\$23
Qatar	49%	50%	51%	54%	\$77	\$62	\$50	\$25
Reunion	39%	40%	40%	40%	\$1	\$1	\$1	\$1
Saudi Arabia	50%	51%	51%	51%	\$421	\$449	\$304	\$170
Senegal	77%	78%	78%	80%	\$9	\$9	\$5	\$6
South Africa	34%	35%	35%	34%	\$385	\$564	\$324	\$284
Tunisia	75%	74%	72%	76%	\$66	\$51	\$44	\$54
Turkey	60%	62%	63%	65%	\$504	\$526	\$415	\$365
UAE	36%	37%	36%	35%	\$230	\$208	\$155	\$94
Yemen	87%	89%	90%	89%	\$9	\$15	\$10	\$13
Zambia	81%	82%	82%	82%	\$3	\$3	\$2	\$2
Zimbabwe	91%	92%	92%	91%	\$4	\$4	\$4	\$3
Other Africa	85%	86%	86%	85%	\$484	\$363	\$260	\$76
Other ME	85%	87%	88%	87%	\$640	\$536	\$294	\$448
TOTAL MEA	59%	58%	59%	60%	\$4,309	\$4,159	\$2,887	\$2,446
NORTH AMERICA								
Canada	25%	27%	29%	33%	\$1,089	\$1,141	\$943	\$1,071
Puerto Rico	42%	42%	46%	44%	\$27	\$44	\$46	\$33
United States	18%	19%	20%	20%	\$9,737	\$9,773	\$8,390	\$8,040
TOTAL NA	19%	19%	21%	21%	\$10,853	\$10,958	\$9,379	\$9,144
WESTERN EUROPE								
Austria	22%	23%	25%	25%	\$173	\$226	\$212	\$157
Belgium	24%	24%	25%	25%	\$237	\$252	\$239	\$223
Cyprus	47%	48%	48%	50%	\$19	\$19	\$16	\$14
Denmark	23%	24%	26%	25%	\$224	\$222	\$203	\$193
Finland	24%	25%	25%	25%	\$208	\$210	\$175	\$160
France	36%	37%	40%	42%	\$2,685	\$2,754	\$2,544	\$2,601
Germany	24%	26%	28%	27%	\$2,158	\$2,265	\$2,023	\$1,937
Greece	62%	61%	58%	58%	\$220	\$343	\$248	\$198
Iceland	48%	48%	49%	48%	\$12	\$17	\$11	\$33
Ireland	33%	34%	35%	34%	\$107	\$144	\$125	\$106
Italy	47%	48%	49%	49%	\$1,747	\$1,945	\$1,733	\$1,779
Luxembourg	20%	20%	21%	21%	\$30	\$33	\$30	\$16
Malta	44%	43%	45%	46%	\$5	\$7	\$7	\$7
Netherlands	25%	27%	28%	28%	\$584	\$644	\$525	\$502
Norway	25%	27%	29%	29%	\$248	\$289	\$195	\$195
Portugal	40%	40%	40%	43%	\$180	\$245	\$221	\$167
Spain	45%	44%	42%	43%	\$1,044	\$1,216	\$1,014	\$903
Sweden	23%	24%	25%	25%	\$397	\$461	\$304	\$324
Switzerland	24%	25%	25%	25%	\$469	\$514	\$344	\$303
United Kingdom	24%	26%	27%	26%	\$2,019	\$1,943	\$1,581	\$1,837
TOTAL WE	29%	32%	34%	33%	\$12,766	\$13,749	\$11,750	\$11,655
TOTAL WORLDWIDE	43%	42%	43%	38%	\$62,709	\$63,456	\$51,443	\$47,809
European Union	31%	33%	35%	35%	\$13,486	\$14,433	\$12,469	\$12,383
BRIC Countries*	67%	70%	71%	75%	\$17,187	\$17,907	\$14,453	\$14,429

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

market slowly begins to contract as IDC predicts will happen, it will continue to account for a significant share of the computing landscape for the foreseeable future. But the balance will continue to shift toward more populous and faster-growing emerging economies where the rates of unlicensed software use are highest. (See charts on page 7.)

REGIONAL HIGHLIGHTS

Emerging markets now account for a 56 percent majority of all PCs in use globally — and nearly three-quarters of all unlicensed software installations (73 percent). That trend is likely to continue, as this year's study found that 65 percent

of the PC software installed in emerging economies was not properly licensed, versus 23 percent in developed economies.

The region with the highest overall rate of unlicensed PC software installations was Asia-Pacific, at 62 percent. This represented a 2 percentage-point increase from 2011. Individually, most countries in the region made modest progress — including the biggest

market in the region, China, where 74 percent of PC software was installed without proper licensing in 2013, down 3 points from 77 percent in 2011. Yet the aggregate rate of unlicensed installations in the region rose. This was because the biggest and fastest-growing markets were those where the rates of unlicensed software use were significantly

above the regional mean; their size drove an increase in the average for the region as a whole.

Latin America saw the same phenomenon work in the opposite direction: the regional rate dropped from 61 percent in 2011 to 59 percent in 2013, even though only six of 18 countries improved their individual rates. This was because the two biggest markets in the region — Brazil and Mexico — both have individual rates that are significantly below the mean. Moreover, both notably improved between 2011 and 2013. Brazil's rate dropped three points from 53 percent to 50 percent, and Mexico's dropped three points from 57 percent to 54 percent. The commercial value of unlicensed software installations in the region rose from \$7.5 billion to \$8.4 billion, but if compared in constant dollars with 2011, the figure actually fell.

Other regional highlights:

- North America continues to have the lowest regional rate at 19 percent, although this constitutes a significant commercial value of nearly \$10.9 billion.
- In Western Europe, the overall rate dropped three points from 32 percent in 2011 to 29 percent in 2013. This reflected a precipitous 20 percent drop in new PC shipments in that period.
- In the Middle East and Africa, the regional rate rose to 59 percent in 2013 from 58 percent in 2011, with a dynamic at work similar to that in Asia-Pacific.

Emerging markets now account for a 56 percent majority of all PCs in use globally — and nearly three-quarters of all unlicensed software installations (73 percent).



Methodology

The BSA Global Software Survey quantifies the volume and value of unlicensed software installed on PCs in a given year — in this case, 2013. To compile the report, BSA worked closely with IDC, one of the world’s leading independent research firms, to measure, understand, and evaluate licensed and unlicensed software use globally.

The study involves collecting 182 discrete data inputs and assessing PC and software trends in 116 markets.

Measuring the scale and scope of illegal behavior like unlicensed software use clearly has its challenges. While this study is considered to be one of the most sophisticated appraisals of global copyright infringement, BSA and its partners continually look for new ways to improve the reliability of the data. In 2011 in partnership with two prominent IT economic researchers, BSA made several modifications designed to refine the inputs and ensure the most accurate estimation of unlicensed software use possible.

GLOBAL SURVEY OF SOFTWARE USERS

A key component of the BSA Global Software Survey is a global survey of nearly 22,000 home and enterprise PC users, conducted by IDC in early 2014. The survey was conducted online or by phone in 34 markets that make up a globally representative sample of geographies, levels of IT sophistication, and geographic and cultural diversity. In addition, a parallel survey was carried out among 2,020 IT managers in 20 countries.

The surveys are 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 2013. These questions are asked of both consumers and of business users.

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

Survey countries are selected using a rotational strategy to maximize worldwide coverage year over year. Eleven priority markets are surveyed in concurrence with each study cycle and 52 countries are surveyed at least once every two to three cycles. The remaining countries are selected

on an ad hoc basis. In any given study cycle, the total survey population accounts for over 85 percent of total software units deployed and around 90 percent of paid-for units, while ensuring that most markets are surveyed at least once every three study years.

CALCULATING RATES OF UNLICENSED SOFTWARE INSTALLATION

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

The basic method for coming up with the rate and commercial values in a country is as follows:

1. Determine how much PC software was deployed during the year by consumers and business users.
2. Determine how much was paid for or otherwise legally acquired during the year (such as through an open-source, free or complementary license), again segmented by business and consumer usage.
3. Subtract one from the other to get the amount of unlicensed software. Once this amount is known, the unlicensed rate is computed as a percentage of total software installed.

$$\begin{aligned} &\text{Unlicensed Rate} \\ &= \\ &\frac{\text{Unlicensed Software Units/}}{\text{Total Software Units Installed}} \\ & \\ &\frac{\# \text{ PCs Getting Software}}{\times} \\ &\frac{\text{Software Units per PC}}{=} \\ &\text{Total Software Units Installed} \end{aligned}$$

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 in quarterly

research products called “PC Trackers” that cover 86 countries, and it covers approximately 20 more countries through custom assignments. The remaining few countries are researched annually for this study.

Once IDC has determined how many computers there are, both consumer PCs and business PCs, and using the software load data collected in the survey, it can determine the total software units installed — licensed and unlicensed — in each country.

To estimate the software load in countries not surveyed, IDC uses a cluster analysis technique to find like characteristics with countries with varying software loads and using these characteristics to assign loads to countries not surveyed. IDC validates this by looking at 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 and dividing them into cohorts in order to compare them to unsurveyed countries.

To get the number of unlicensed software units — the numerator of the 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. The value is broken down by consumer and business users.

To convert the software market value to number of units, IDC computes an average price per software unit for all of the consumer and business 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:

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

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 user (consumer or business) 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 allows IDC to recalibrate software prices periodically, providing a more accurate estimate of legitimate software units from industry revenues.

$$\text{Total Software Units Installed} - \text{Legitimate Software Units} = \text{Unlicensed Software Units}$$

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

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

CALCULATING THE COMMERCIAL VALUE OF UNLICENSED SOFTWARE

$$\begin{aligned} &\# \text{ Unlicensed Software Units} \\ &\quad \times \\ &\text{Average Software Unit Price} \\ &\quad = \\ &\text{Commercial Value} \end{aligned}$$

The commercial value of unlicensed software provides another measure of the scale of unlicensed software use and allows for important year-over-year comparisons of changes in the software 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, consumer or business, 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.

WHAT SOFTWARE IS INCLUDED

The BSA Global Software Survey calculates unlicensed installations software that runs on PCs — including desktops, laptops, and ultra-portables, such as 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 does NOT include software loaded onto tablets or smart phones. It also 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.

The study includes cloud computing services such as software-as-a-service (SaaS) and platform-as-a-service (PaaS) that could replace software that would otherwise be installed on personal computers. Software sold as part of legalization programs — such as a bulk sale for a government to distribute to schools — also is included in the study.

THE IMPACT OF EXCHANGE RATES

Prior to 2009, dollar figures in the value tables were in current dollars from the year before. For example, the 2007 value of unlicensed software was published in 2006 dollars for easier year-on-year comparison. In 2009, BSA made a decision to publish value figures in the current dollars of the year being studied. Thus, 2009 values are in 2009 dollars, 2011 values in 2011 dollars, etc. We do not restate previous values in current 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.

For instance, 2011's commercial value of pirated software, if converted to USD at 2013 exchange rates rather than 2011 exchange rates would be 6 percent higher than published.



BSA Blueprint for Encouraging Software License Compliance

LEAD BY EXAMPLE AND ENCOURAGE BUSINESS USERS TO FOLLOW

Governments are among the largest users of software in the world. As with all enterprises, they benefit when they practice good IT governance and adopt appropriate software asset management (SAM) practices. Governments should:

- Demonstrate leadership by ensuring they are using only fully licensed software in their own operations;
- Implement SAM programs that align to the standard set by the International Organization for Standardization (ISO);
- Demonstrate compliance and encourage others to follow suit by becoming ISO-SAM certified through a program such as Verafirm;
- Promote the use of legal software in state-owned enterprises, and throughout the government supply chain, including all contractors and suppliers;
- Provide incentives for businesses to become compliant;
- Sensitize businesses, accountants, auditors, and others to the importance of SAM, and focus on software license compliance as part of an effective system of internal corporate controls; and

- Help businesses understand that using unlicensed software can expose critical business and government infrastructure to malware, viruses, hackers, data breaches, and other security risks.

INCREASE PUBLIC EDUCATION AND AWARENESS

Moving to a world in which enterprises of all types and sizes use properly licensed software requires an understanding of the real benefits that good software asset management delivers, and the real security and other risks that organizations face if they do not practice good governance with respect to software. Governments, accounting and auditing professionals, industry consultants, and non-profits, including trade associations and business organizations should educate organizations about software license compliance and the dangers of unlicensed software usage and installation.

MODERNIZE LAWS TO ACCOUNT FOR NEW INNOVATIONS

With the advent of cloud computing and the proliferation of networked mobile devices, software is being stored, delivered, and used in innovative new ways. Policymakers should ensure it is protected regardless of the format or means of delivery.

CREATE A CONDUCTIVE ENVIRONMENT FOR ENFORCEMENT

Governments should ensure that legal frameworks provide effective means for redress and promote collaboration among stakeholders to reduce infringement. They can do so by:

- Creating specialized IP enforcement units or courts, providing training that keeps pace with the changing nature of IP infringement, and targeting large-scale online distributors of infringing products;
- Providing a civil judicial system that is efficient, predictable and based on the rule of law; and
- Bringing together stakeholders to establish voluntary best practices to reduce the availability of infringing content on the Internet by making it harder to profit from trafficking in counterfeit and infringing material.

About BSA

BSA | The Software Alliance (www.bsa.org) is the leading advocate for the global software industry before governments and in the international marketplace. Its members are among the world's most innovative companies, creating software solutions that spark the economy and improve modern life.

With headquarters in Washington, DC, and operations in more than 60 countries around the world, BSA pioneers compliance programs that promote legal software use and advocates for public policies that foster technology innovation and drive growth in the digital economy.



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