

INTERNATIONAL INTELLECTUAL PROPERTY ALLIANCE

2007 SPECIAL 301 REPORT

APPENDIX B: METHODOLOGY

Estimated trade losses due to piracy are calculated by IIPA's member associations. Since it is impossible to gauge losses for every form of piracy, we believe that our reported estimates for 2006 actually underestimate the losses due to piracy experienced by the U.S. copyright-based industries.

Piracy levels are also estimated by IIPA member associations and represent the share of a country's market that consists of pirate materials. Piracy levels, together with losses, provide a clearer picture of the piracy problem in different countries. Low levels of piracy are a good indication of the effectiveness of a country's copyright law and enforcement practices. IIPA and its member associations focus their efforts on countries where piracy is rampant due to inadequate or nonexistent copyright laws and/or lack of enforcement.

BUSINESS SOFTWARE

The Business Software Alliance (BSA)'s calculation method compares two sets of data – the number of new software units installed (based on hardware shipments and software load), and the legal supply of new software units. The amount of pirated software is equal to the difference between paid-for or legitimate packaged software units and the total software base. The piracy rate is the percentage of the total packaged software base that is pirated.

The total amount of software, legitimate and pirated, installed during the year (the total software base) is obtained by multiplying the number of new hardware units and the number of existing hardware units getting new software by their respective software loads.

Hardware shipments are determined from tracking data on 60+ countries that IDC collects as a matter of routine. For the additional 30+ countries and markets, the data was either collected in-country or modeled regionally out of our rest-of-region estimates. The basic tracking data is generated from suppliers, including local suppliers. Similarly, the hardware-installed base is based on this tracking data.

The software load is the amount of software units installed and/or pre-installed (OEM) on the computers during the year. To obtain the number of software units for each type of hardware platform, including those running software on Windows and those running software on non-Windows operating systems, IDC surveyed consumers and business in 15 countries: China, Malaysia, Taiwan, Spain, Romania, Brazil, Bolivia, Chile, Colombia, Mexico, Costa Rica, Dominican Republic, Guatemala, Kuwait, and the United States. The results of these surveys were used to populate our input models for the other countries. Within software load, IDC accounted for:

- Software running on new computers
- New software running on existing computers
- Software obtained from retired computers

- Software obtained for free as shareware or open source
- Software that runs on Windows and non-Windows OS

Legitimate software shipments are determined by dividing the software revenues in a country by the average system value (ASV) for that country. Software revenues are captured annually in 60+ countries by IDC software analysts around the world. Revenues are gathered from interviews with suppliers in the country and cross-checked with global numbers and financial statements. For the countries not normally covered by IDC, the data were either collected in-country or modeled regionally out of our rest-of-region estimates. Software revenues are gathered by type – such as application, infrastructure, and development tools – and by software running on Windows and non-Windows operating systems. It was also allocated to software running on new systems bought during the year and on systems that were already in place.

ASVs are estimated country-by-country by country and regional analysts for five software categories (e.g., collaboration, office, security, OS, other) for each hardware type and Windows and non-Windows software. Prices were gathered from IDC's pricing trackers, local research, and interviews with the channel. They included adjusting for OEM and channel-loaded software, as well as software from local suppliers. ASVs were gathered in the appropriate currency depending on how the country analysts collected software revenues.

Dollar losses are calculated off the piracy rate and the market for legitimate software in a country. For instance, if the piracy rate is 60% and the market \$100 million, then the legitimate market is 40% of the total value of all software, which would be \$250 million ($\$100M/40\%$). Pirated software is that total minus the legitimate market ($\$250M-\$100M$). Thus the value of pirated software is \$150 million. The dollar losses to U.S. vendors are computed by multiplying the value of pirated software by the percentage market share of U.S. vendors in a particular country.

ENTERTAINMENT SOFTWARE

ESA bases its estimates on local surveys of market conditions in each country and other factors bearing on the presence of pirate products in the marketplace, including public and proprietary data on sales and market share. The reported dollar values reflect the value (at pirate prices) of the pirated product present in the marketplace as distinguished from definitive industry losses.

Based on the data collected, calculations are performed to arrive at an estimate of the overall quantity of pirate games present in a marketplace. Estimates of the overall number of games in use are based on what is known about the presence of game-playing hardware in each market and the number of games in use on each of these platforms. Simulation is used to capture, and make best use of, the range of estimates received from respondents. Separate estimates are generated for PC, handheld and console product insofar as they may differ in at least three key respects – price per game, ratio of games per platform, and data sources. These estimates of overall game usage are compared to what is known about the relative percentages of pirate sales to legitimate sales to arrive at an estimate of the amount of pirate product in circulation.

Conservative assumptions such as the following are employed throughout, producing results likely to underestimate the overall quantity of pirate product present in the marketplace and its value:

- The methodology accounts only for pirated PC games estimated to be present on home PCs, and thus presences pirated games that may be in use on business computers.
- The methodology accounts only for console games estimated to be used either in connection with consoles that do not require hardware modification, or those believed to have been modified to facilitate play of pirated games.
- The methodology values pirated games in circulation according to localized pirate prices as opposed to optimal or actual prices at which legitimate sales might occur.
- In some instances, downloads of pirated games, when likely to have displaced legitimate sales, have been assigned values comparable to pirated hard goods products.

Because the reported figures reflect only the value of pirate product present in the market, they do not measure, and thus vastly understate, the overall harm done to rights holders and the industry in countries engaged in mass factory overproduction for export. However, the dollar figures may nonetheless be taken to reflect a sense of the relative harm done to software developers, publishers, distributors and retailers through the loss of potential sales opportunities. This approach approximates the overall dollar investments made by purchasers of pirate product at pirate prices, and thus represents, at a minimum, the potential taxable revenue that could be made part of a country's legitimate economy if piracy were to be brought under control.

Because a number of the estimates needed in these calculations were of necessity approximate, considerable effort was expended to cross-reference multiple sources of information where possible

MOTION PICTURES

Many factors affect the nature and effect of piracy in particular markets, including the level of development of various media in a particular market and the windows between release of a product into various media (theatrical, video, pay television, and free television). Piracy in one form can spill over and affect revenues in other media forms. Judgment based on in-depth knowledge of particular markets plays an important role in estimating losses country by country.

In recent years, MPAA has revised and updated its methodological measures. We include here these measures, identified by year.

METHODOLOGY FOR 2005 DATA:

Prior loss calculations reported by MPA involved supply (see discussion below). In 2005, loss calculations were based on demand.

- Piracy loss figures are based on a direct measurement of consumer purchasing/pirating behavior, including hard goods and Internet piracy.
- Piracy levels are based on the percentage of potential market lost to piracy. Calculations involve revenue losses, legitimate market sizes, and potential legitimate markets without piracy.

METHODOLOGY FOR 2004 and PRIOR YEARS' DATA:

Video: This term encompasses movies provided in video cassette as well as in all optical disc formats. Losses were estimated using one of the following methods.

- **For developed markets:**
 - The number of stores that rent pirate video product and the number of shops and vendors that sell pirate video product are multiplied by the average number of pirate video product rented or sold per shop or vendor each year.
 - The resulting total number of pirate video product sold and rented each year in the country is then multiplied by the percent of pirate video product that would have been sold or rented legitimately and adjusted to reflect the U.S. producers' share of the market.
 - The figure resulting from the foregoing calculations is an estimate of the number of legitimate sales of U.S. motion pictures that are lost each year in the market due to video piracy. These estimates are adjusted to reflect the wholesale price of legitimate video product, to equal losses due to video piracy.

- **For partially developed markets:**
 - The number of legitimate video product sold or rented in the country each year is subtracted from the estimated total number of videos sold or rented in the country annually to estimate the number of pirate video product sold or rented annually in the country.
 - The resulting total number of pirate video product sold and rented each year in the country is then multiplied by the percent of those pirate video product that would have been sold or rented legitimately and adjusted to reflect the U.S. producers' share of the market.
 - The figure resulting from the foregoing calculations is an estimate of the number of legitimate sales of U.S. motion pictures that are lost each year in the market due to video piracy. These estimates are adjusted to reflect the wholesale price of legitimate video product, to equal losses due to video piracy.

- **For fully pirate markets:**
 - Either: (a) the number of blank video media sold in the country annually is multiplied by the percent of media used to duplicate U.S. motion pictures to equal the number of pirate copies of U.S. motion pictures estimated to be sold in the country each year; or (b) the number of VCRs/VCD/DVD players in the country is multiplied by an estimated number of U.S. motion pictures on video that would be rented and sold per VCR/VCD/DVD player per year.
 - The figure resulting from each of the foregoing calculations is an estimate of the number of legitimate sales of U.S. motion pictures lost each year in the market due to video piracy. These estimates are adjusted to reflect the wholesale price of legitimate video product, to equal losses due to video piracy.

Television and Cable: Losses were estimated using the following method.

- The number of broadcast television and cable systems that transmit U.S. motion pictures without authorization is multiplied by the average number of U.S. motion pictures transmitted without authorization by each system each year.
- The resulting total number of illegal transmissions is multiplied by the average number of viewers per transmission.
- The number of viewers of these illegal transmissions is allocated among those who would have gone to a theatrical exhibition, or who would have rented or purchased a legitimate video. The number of legitimate transmissions of the motion picture that would have been made is also estimated.

- These figures are multiplied by the producers' share of the theatrical exhibition price, the wholesale share of the video cost or the license fee per legitimate transmission, as appropriate, to estimate the lost revenue from the illegal transmissions.

Public Performance: Losses were estimated using the following method.

- The number of vehicles and hotels that exhibit videos without authorization is multiplied by the average number of viewers per illegal showing and the number of showings per year.
- The resulting total number of viewers of unauthorized public performances is allocated among those who would have gone to a theatrical exhibition or who would have rented or purchased a legitimate video. The number of legitimate broadcast television and cable transmissions that would have been made of the motion pictures is also estimated.
- These figures are multiplied by the producers' share of the theatrical exhibition price, the wholesale share of the video cost or the license fee per legitimate transmission, as appropriate, to estimate the lost revenue from the illegal performances.

RECORDS AND MUSIC

RIAA collects market data from the local industry or from executives with responsibility for the particular territory. The estimates are based on local surveys of the market conditions in each territory. Each submission is reviewed against a range of sources:

- Optical disc industry data provided by third-party consultants;
- Legitimate sales;
- Enforcement data and anti-piracy developments;
- Historical piracy estimates; and where possible,
- Economic indicators, professional surveys and academic studies of piracy or counterfeit goods.

The basis for estimating the value of U.S. repertoire is to take an estimate of the local pirate market that is classified international repertoire and to take, on average, 60% of this as U.S. repertoire. This is based on legitimate market repertoire data.

The numbers produced by the music industry generally reflect estimates of the level and value of pirate sales of U.S. repertoire. This does not take into account downstream (or value chain) losses from high piracy levels acting as a drag on the economic development of legitimate markets. In cases where circumstances permit, rather than merely reporting pirate sales, RIAA projects unit displacement (real losses). In such cases, "loss" data does not reflect the value of pirate sales but rather the value of estimated lost sales. In most cases, this would be significantly higher than the value of pirate sales.

Where RIAA has sufficient information relating to known manufacture of pirate recordings that emanate from a particular country, this loss data will be included in the loss number for the country of manufacture rather than the country of sale.

BOOKS

The book publishing industry relies on local representatives and consultants to determine losses. These representatives base their estimates on the availability of pirate versions and illegally photocopied books, especially those found within or near educational institutions, bookstores and outdoor bookstalls. Publishing industry representatives also take

into account the number of users in a jurisdiction, the estimated need for the product (based, in the case of educational materials, on university and school adoptions) and the number of legitimate sales. Given the diverse types of products offered by different publishing companies, these estimates cover only a portion of the market lost in each territory and are thus rather conservative in most cases.

OPTICAL DISC PLANTS AND PRODUCTION CAPACITY

IIPA collects information from authoritative sources on numbers of plants and production capacity of optical disc products in more than 80 countries/territories, which are represented in the “Estimated Number of Optical Disc Plants and Production Capacity in 80 Countries/Territories” chart in the IIPA submission. Figures presented reflect the number of plants as well as production lines (where that information is available), and estimated capacity (again, where line numbers are available) for 2005 and 2006. The production capacity reported represents our best estimates of combined finished disc and blank disc capacity, except where specifically noted otherwise.

Optical disc production in certain countries is almost entirely unauthorized (i.e., no licenses were believed to have been granted by right holders for legitimate production). In addition, in many of the same countries (and some others), there exists at the present time no adequate legal regime to control optical disc production. Furthermore, transparency, even in those countries having optical disc regimes in place, remains problematic. As a result, it is unavoidable that some plants continue to operate covertly. In part because of such covert activity, IIPA considers the numbers of plants and lines reported in this submission to be a conservative estimate.

IIPA estimates the production capacity in countries where line data is available, represented in the chart by multiplying the number of known production lines by 3.5 million, a figure itself derived through the application of very conservative assumptions. These include: that the average speed of a replication line to produce a DVD is approximately three seconds per disc, with a daily production of 9,800 units per line (20 discs per minute x 60 minutes x 8 hours), or a monthly production of 294,000 units (30 days x 9,800 units), or an annual production of 3,528,000. These estimates apply extremely conservative assumptions regarding plants’ hours of operation. For example, it is known that, through plant visits made by industry and government representatives in 2005, 40% of plants have indicated that they vary shift patterns according to orders they are asked to produce, with several indicating that 24 hour (continuous) shifts are not uncommon during busy seasonal periods, for example, Christmas. Furthermore, 33% of plants visited were operational 24 hours a day year-round (only shutting off occasionally for maintenance), while 12% reported running two 8-hour shifts, and only 15% reporting 8-hour daily shifts. There are also different expectations for number of hours a line is capable of remaining in operation based on its size, make, model, etc. It is also the case that the estimated number of discs per line per year – 3.5 million discs per line per year – assumes the production of DVDs on a double-head injection mould. Production time for regular music CDs or CD-ROMs, regardless of the replication equipment, tends to be faster.

Finally, we note that in some countries, where we have more precise data, those more exact capacity numbers are reported (and denoted with a footnote explanation in the chart).

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