

SoundScan and the consolidation of control in the popular music industry

Tom McCourt

DEPARTMENT OF RADIO, TELEVISION AND FILM, UNIVERSITY OF TEXAS, USA

Eric Rothenbuhler

DEPARTMENT OF COMMUNICATION STUDIES, UNIVERSITY OF IOWA, USA

This article examines the development of SoundScan, a point-of-purchase information technology intended to streamline marketing processes and reduce the uncertainty faced by cultural producers.¹ SoundScan and its radio cousin, Broadcast Data Systems, are designed to reduce subjective decision making through direct tabulation of recording sales and airplay. While appearing to accurately measure consumer interest, they are centralized technologies of industrial control that will alter relationships and processes at the very heart of the popular music system. These technologies may finally render the popular music industry as predictable and controllable as other manufacturing industries (see Hirsch, 1972). On the other hand, the detailed information they provide may further confound the industry's uncertainty about its audience (see Ang, 1991). SoundScan and BDS may discourage innovation in popular music; conversely, they may increase the exposure of what heretofore have been considered marginal artists and genres. Given the centrality and implications of these technologies in the popular music industrial system, they are due for attention and assessment.

Industry structure, uncertainty and mechanisms of control

The popular music industry is fundamentally uncertain of sources for its raw materials and the demand for its products. As a result, the industry is characterized by a range of strategies for managing uncertainty (see

Media, Culture & Society © 1997 SAGE Publications (London, Thousand Oaks and New Delhi), Vol. 19: 201–218 [0163-4437(199704)19:2;1-R]

DiMaggio and Hirsch, 1976; Hirsch, 1969, 1972, 1975; Peterson and Berger, 1971). But since this uncertainty is so intrinsic to the nature of the industry — i.e. the ability to identify and package talent to satisfy a demand that may not exist — attempts to control uncertainty have inhibited the industry's ability to adapt to new cultural currents. This has led to analyses of the popular music industry in terms of the ways in which corporate conflict and control (i.e. relations between major companies and independents and strategies of co-optation and influence) affect musical diversity and innovation (see Peterson and Berger, 1975; Rothenbuhler 1985; Rothenbuhler and Dimmick, 1982; Rothenbuhler and McCourt, 1992). Within this framework, consolidation of control leads to repetition and homogeneity in popular music. SoundScan, in this view, would lead to greater efficiency for the major record companies and raise market barriers for independents, as well as providing more marketing emphasis on proven talent and existing music. However, SoundScan may decentralize decision making, which in turn may create more diverse markets and music. As a near-oligopoly of financial control emerged in the popular music industry during the last decade, local decision makers paradoxically appeared to enjoy a greater degree of autonomy (see Burnett, 1992; Lopes, 1992).²

Popular music has undergone intense fragmentation over the last two decades for several reasons. First, the number of delivery channels has exploded.³ Second, relatively low-cost recording technology has allowed more artists to produce sophisticated recordings. Most importantly, the sheer size of the industry and its audience, along with the major record companies' determination to rationalize their activities, has led to increased differentiation of musical genres and markets. Major record companies consolidated in the 1970s and 1980s as they were absorbed by multinational media conglomerates. Although the majors were able to enhance their audience reach and marketing capabilities through the vertical and horizontal integration of their parent companies, the sheer size of these record companies hampered their abilities to quickly respond to changing musical tastes.

The major record companies attempted to cope with this diffusion by targeting increasingly defined sections of the market via format radio and utilizing new media such as MTV (which, ironically, enjoyed little record company support when it went on the air). They also acquired independent labels that catered to specialized audiences and threw their marketing weight behind national chains, as opposed to independent retailers, in order to coordinate promotional activities. Finally, record companies phased out vinyl records in favor of compact discs. CDs offer significantly higher profits than records at a similar manufacturing cost per unit and allow record companies to recycle their catalogues in new marketing contexts. This trend toward fragmentation and niche marketing is also evinced in the

number of musical popularity charts published by *Billboard* magazine, which has nearly doubled in 20 years.

Bar code scanning devices at the point of purchase have become a nearly ubiquitous means of increasing efficiency across a variety of retail industries. These devices are used to automate the checkout process, increasing the speed of customer turnover and ostensibly eliminating human error.⁴ Scanners generate data that can be used for inventory control, warehousing, delivery scheduling and market analysis. As it accesses and coordinates diverse types of data for myriad analytical purposes, scanner technology provides a vast overview of organizational activities. The end result, according to Anita Schiller and Herb Schiller, is that 'a much wider range of information has become profitable because it can be flexibly processed, selectively rearranged, and quickly transmitted by a virtuoso new technology' (Schiller and Schiller, 1982: 1). Given the benefits of efficiency provided by point-of-purchase sales technology, it was inevitable that such technology would be appropriated by the popular music industry.

SoundScan represents the first significant innovation in tabulating record sales in more than 30 years, and has been hailed for presenting hard data in an industry riddled with hype. The SoundScan system employs computerized point-of-purchase technology that has proved successful for tracking sales in the clothing and grocery industries. Whenever a customer makes a purchase at a store equipped with SoundScan, the sales clerk scans the bar code on the album, CD or cassette. Information about the purchase is entered automatically into a database accessible to SoundScan headquarters. SoundScan tabulates the information at the end of each week, and charts are compiled based on the actual sales at those stores. The *New York Times* states:

SoundScan's computerized system is so precise that it can give record companies market-by-market, store-by-store breakdowns of record sales. For the first time, labels can precisely measure the sales impact of local airplay and videos, a tour or advertising. (Holden, 1991: 11)⁵

Since SoundScan and Broadcast Data Systems (BDS) ostensibly provide direct feedback from consumers to producers, rather than operating through a nexus of mediating factors, they offer the opportunity to directly gauge the acceptance of popular music. We are concerned with how these technologies will be integrated into the industrial practices and affect the vitality of popular music.

The history of recording industry market research

On 20 July 1940, *Billboard* became the first publication to publish an independent popularity chart for sound recordings.⁶ These charts have

become crucial to the popular music industry. According to Nancy Lanthier, 'record companies, radio stations, retailers, artists and songwriters use the charts when making decisions on everything from record marketing strategy to tour planning. Reputations are made — and sometimes marred — by how high individual records are ranked' (Lanthier, 1990: 15). Although it has faced competition from publications like *Cashbox* and *Record World*, *Billboard* enjoys substantially higher circulation and wider credibility in the radio and recording industries. As Hesbacher et al. state, 'The importance of singles charts is well known to the tradeweeklies publishers. Indeed, one of their responsibilities is to protect the integrity of these charts . . . economic livelihood is dependent upon chart credibility' (Hesbacher et al., 1975: 76).

In a 1975 analysis of *Billboard* charts, Hesbacher et al. found that the magazine surveyed airplay and sales in the 22 most populated markets to determine record exposure. The sample population of stores was drawn from 110 outlets, including 22 retailers and 25 one-stops (middlemen between record producers and consumer outlets). The remainder of the sample population was drawn from the highest-rated popular music radio stations in each of the 22 areas. The magazine distributed a current sales form to each one-stop and retailer, which completed the forms and returned them to *Billboard*. According to Hesbacher et al.:

The [1975] sales form [was] designed to obtain relative sales strength of approximately 200 listed 'potential action' singles. Each respondent is instructed to (a) select the 15 top sellers and rank order them from the total list, and (b) rank all recordings from the list on a scale of 'very good', 'good', and 'fair'. The respondent is requested to return the form before a designated date, usually eight days after receipt. (1975: 78)

A similar form for airplay was sent to participating radio stations. Hesbacher et al. found that:

The exposure form is actually the radio station's own regularly published 'playlist'. This list, used by the station primarily for marketing purposes, consists of 25 to 40 rank-ordered recordings currently presumed to be popular and one to eight 'pick hits' chosen from among recent new releases. (1975: 79)

Record popularity was determined by weighting sales outlets (including one-stops and retailers) twice as heavily as radio stations. Rack jobbers (middlemen servicing department stores and other general-merchandise outlets that featured a limited stock of recordings) were not included in the survey. However, they accounted for the largest volume of sales in small markets, which seriously undermined the validity of *Billboard*'s sample. *Billboard* also used several supplementary procedures to determine record popularity. These included accounting for new entries, which added songs that gained popularity prior to airplay, as well as early deletion, where

records had their point totals reduced if they foundered on the bottom half of the charts for 10 weeks.

Hesbacher et al. concluded that overall sales data were reliable, yet added the following caveat:

Three factors among current chart compilation procedures — the invalid measure of exposure, the contamination of sales data with information from outlets that do not sell to the public, and the supplementary procedures which reduce the correlation between grand total points and chart position — impair the chart data as measures of public consumption. . . . At present, the variable and partly subjective basis on which sound exposure is measured reduces the tradeweekly popularity chart to a tool that merely reflects (without objectively determining) sound recording popularity. (1975: 82–3)

As these authors indicate, sales reporting often was inaccurate. Reports were merely rank-ordered, making it impossible to tell whether an album was one or 100,000 in sales ahead of another album. Record companies often counted shipped units as sales, and unsold units might not be returned for several months. Clerks often failed to report music that wasn't perceived as 'pop', so sales of particular music genres frequently were underrepresented.⁷ The charts also were distorted by the fact that a sampled one-stop outlet could sell records to a retailer who also participated in the weekly surveys, thereby counting individual records twice.

In order to create industry impressions that certain artists were 'hot' and gain tour bookings, TV appearances and radio play, record labels frequently attempted to influence which acts were reported to *Billboard*. Most commonly, record store employees were bribed with amenities and favors. An industry observer for *Rolling Stone* wrote:

As everyone in the record business knows — and most will admit, at least off the record — it had always been possible to manipulate the *Billboard* album chart. If a company had the right kind of relationship with a record store manager, it could ask the manager to tell *Billboard* a particular album was a hot seller — even if it wasn't. Over the years, the labels were able to get plenty of stores 'wired'. In particular, this practice helped new and developing acts by creating the impression that their records were selling more than they actually were. (Goldberg, 1991: 19)

The *Billboard* system was highly subjective, inherently biased and subject to serious distortion. It was, in a word, antiquarian.

SoundScan was conceived by Mike Shallet and Mike Fine, who formed Sound Data in 1987. Shallet and Fine began discussing the possibilities for a computerized data collection system with record manufacturers and retailers in 1989 and presented a plan for an exclusive computerized management system in October 1990 (Phillips, 1991: 68). Sound Data

initially placed a \$7 million industry-wide price tag on its proposed system, a figure nearly four times the amount that record companies used to spend for *Billboard*'s previous information service (Holden, 1991: 16). Sound Data reduced its price to \$5 million in the face of widespread industry resistance, and SoundScan's potential for reducing marketing uncertainty quickly proved irresistible to major labels. By June 1992, clients included Sony Music Entertainment, Bertelsmann Music Group, PolyGram Records, Warner-Elektra-Atlantic and MCA Music, with EMI Music initially the lone holdout among the majors. According to a Bertelsmann spokesperson, '[SoundScan] affords us the opportunity to zero in on breakout situations, to recognize them early on, to exploit them, maximize them, and spend more intelligently' (Miller, 1991: 82). Although SoundScan is promoted as a means of reducing industry meddling and reflecting public taste, the promise of increased marketing efficiency provides the actual impetus for its use.

Billboard initially planned its own computerized point of sale system (BPI), but SoundScan immediately drew more support from retailers because Sound Data offered to pay participating stores for sales information. Under its former system, *Billboard* never paid retailers for sales information (although it was selling this information to companies for a total of \$2 million per year). Instead of competing head to head, BPI purchased an equity interest in SoundScan, and BPI now pays SoundScan for the use of point-of-sale data. *Billboard* also tracks radio station activities through its own computerized service, Broadcast Data Systems (BDS). This system scraps *Billboard*'s traditional method of determining overall airplay by placing weekly calls to selected stations. Instead, records and commercials are played into the system's computer, which creates a digital 'fingerprint' of each selection. These are downloaded to BDS electronic monitors in each market, which log the 'fingerprint' when the recording or commercial is aired on a monitored station. The logs then are combined with Arbitron estimates of the station's listenership at the time of day a recording or commercial is played, which allows BDS to estimate the number of weekly listeners who hear a given title or spot in each market. BDS currently monitors 800 radio and 515 television stations in 85 markets across the country, as well as 50 radio and music television stations in Great Britain.⁸

Initial reactions to SoundScan

Billboard began using SoundScan to compile its 'Top Pop albums' chart beginning 25 May 1991. On 30 November of that year, the publication

used SoundScan to help tabulate its prestigious Hot 100 chart. The system compiled point-of-sale unit pieces from more than 7800 retail stores wired with SoundScan. In addition, *Billboard* relied on BDS computerized monitoring of 125 large- and medium-market radio stations. To enhance representation, radio playlists were solicited from 100 small market radio playlists throughout the country.

The immediate difference between the old and new systems was startling. The *Village Voice* compared the *Billboard* Hot 100 Singles chart immediately before and after SoundScan and discovered that the old system elevated more than a quarter of all chart singles by ten or more positions (Tannenbaum, 1991b: 80). SoundScan also was a boon for independent labels specializing in pop-related genres such as rap and dance music. NWA's 'Efil4zaggin', a rap release on Ruthless/Priority Records, debuted on the chart at Number 2 and went to Number 1, a first for an independent release (McCormick, 1992: 1-4). The case of NWA provides the most telling contrast between the old and new reporting systems. The same week NWA placed Number 2 on the revamped album chart, the release debuted at Number 50 on the Rhythm and Blues chart, which was compiled via the old system of subjective reports from a limited number of retailers. While sales of rap and country music rose, new artists and alternative rock acts suffered the greatest losses in chart positioning under the new system. The week before SoundScan was used to compute the Top Pop Albums chart, 18 college-oriented albums placed in the Top 200. The week after, this number was reduced to 11 (Tannenbaum, 1991a: 78).

One apparent contradiction in the SoundScan charts was particularly noteworthy. Citing the success of NWA and others, SoundScan's proponents claimed that the system revealed far more fan support for non-mainstream acts than the industry previously believed. Yet *Rolling Stone* found that established rock artists, country artists and mainstream performers were the primary beneficiaries of the new chart system (Goldberg, 1991: 17). While actual genre diversity may be greater on the Hot 100 chart since SoundScan's implementation, industry analysts believe that the artists representing these genres may be characterized by their crossover appeal. SoundScan favors suburban retailers who are more likely to be equipped with bar code scanners than inner-city retailers, which helps account for the popularity of 'crossover' black music in the Hot 100. In addition, country radio increasingly features pop-oriented performers, and MTV airplay has enabled 'gangsta' rappers like NWA and Ice Cube to cross over to white teenage audiences. MTV also played a pivotal role in popularizing 'grunge' rockers like Nirvana who were largely ignored by commercial radio programmers until the recent development of the 'Modern Rock' format, and the increasing fragmentation of radio has led to a group of stars rising within each format.

SoundScan's implications

Computerized point-of-sale information now accounts for all of *Billboard's* charts, and point-of-sale information is used to track both albums and singles in virtually every musical genre.⁹ As they grow into a single, unified source for tracking sales and airplay, SoundScan and other computerized technologies will have a profound impact on the development, manufacturing, distribution and promotion of recorded music. SoundScan minimizes errors stemming from company pressures on retailers, and promises to increase the cost-effectiveness of record company operations by reducing inventory. According to Sound Data, the average record return rate before SoundScan was 21 percent, and each percentage point cost the industry more than \$11 million (Holden, 1991: 16). Similarly, BDS notes actual airplay and cuts down on 'paper adds' and false airplay reports.

SoundScan has been extended to other aspects of the music industry besides retail sales. An October 1991 agreement with Sound Data provided the ABC Radio Network with exclusive radio distribution rights to SoundScan data. This arrangement eliminated the need for ABC affiliates to contact local record stores to ascertain record popularity and determine subsequent airplay. A program director at an ABC affiliate told *Billboard*, 'When you're dealing with record store clerks, you're dealing with human emotions. People can be swayed by record company promotions or salesmen [*sic*]. The SoundScan information is faster and more accurate' (Stark and Levy, 1991: 3). Later that year SoundScan made its data available to non-affiliated stations as well.

The *Los Angeles Times* noted that 'the record industry now spends hundreds of millions of dollars annually on promotion and marketing, without much guidance about how effective the expenditures are' (Shiver, 1990: D-2). SoundScan's ability to precisely pinpoint markets where particular artists and genres are popular will enable record companies and promoters to reduce uncertainty in marketing and promotion. One month after the ABC agreement, 12 major concert promoters signed agreements with SoundScan to obtain regional sales figures on top-selling acts, at a cost of \$5000 per company (Phillips, 1991: 6). Tommy Boy Record's CEO, Tom Silverman, told *Billboard*, 'You can analyze what regions are strongest, and plan tours accordingly; you can see where the holes are. You can figure out where you should be advertising. We've never had that kind of information available before' (McCormick, 1992: 1-4.)

By providing exhaustively detailed sales figures, SoundScan can inform corporate decisions on which acts to sign, and for how much; it also provides a negotiating tool when dealing with artists (Woletz, 1992: 26). The likely result is that record companies and promoters will exploit 'proven' properties at the expense of fledgling performers in order to

reduce uncertainty of demand.¹⁰ Developing bands on both major and independent labels often rely on their meager showings at the bottom end of the chart to attract club owners and MTV executives, and tour support is paramount for record sales. Here SoundScan will primarily benefit major record companies with extensive marketing operations, yet it may strengthen the position of independent companies that can afford the service. Although they may not place on the charts, sales of these artists will be tabulated. This will increase the independents' negotiating power with distributors, many of whom are affiliated with major labels. Artist management also is soliciting SoundScan information to bolster its bargaining positions with record labels.

The incorporation of point-of-purchase data undoubtedly has affected occupational relationships within the popular music industry. Record company policy makers with access to detailed sales information surely have benefited, while the power of retailers as well as promoters who lack access to the big picture, has diminished. As a result of SoundScan and changes in promotional practices, the power of 'racked' stores like WalMart has declined while chain stores have gained. Such technology obviously threatens elements of the status quo, and SoundScan was not immediately embraced by the music industry. Indeed, the initial controversy regarding SoundScan is reminiscent of the furor that surrounded the use of 'people meters' by A.C. Nielsen, which indicated that television viewing patterns differed significantly from perceptions held by the industry.

Today, SoundScan claims to measure 85 percent of all record, tape, CD and music video sales and returns in the USA. To expand its hegemony in the industry, Sound Data has carefully managed access to SoundScan data. Point-of-sale purchases currently are tabulated from 3700 chain record stores, 600 independent retailers and 6500 discount and department (or 'racked') stores.¹¹ SoundScan pays for exclusive access to their sales information, and retailers are compensated according to their share of sales in local markets. These stores are contractually bound to keep all sales information confidential and cannot release point-of-sales data or sales rankings to any outside parties. Sales information can only be furnished to SoundScan customers as part of aggregate sales reports for particular markets. Thus, SoundScan has succeeded by packing formerly accessible sales information into an exclusive, marketable commodity. SoundScan's data is priced beyond the reach of smaller independent record companies, which increases the disparity between majors and indies. This marginalizes struggling operations and increases integrated corporate control over the popular music industry.

Many record chains contribute data to SoundScan, but several major chains lack bar code scanning capability. As a result, the system initially ignored such major retailers as Tower, Strawberries and Warehouse.

Critics also have charged that the service overrelies on chain and department stores while marginalizing independent stores. Of 10,800 retailers surveyed by SoundScan, only 600 of these, or one in 18, are independent record stores. Although Sound Data has expanded its sample of independent stores (and garnered this information for its exclusive use in the process), this sample has not significantly affected the ratio of independents to chains and rack jobbers. It is inarguable that independent stores set trends while chains and rack jobbers stock proven sellers. By focusing largely on chain and racked stores, SoundScan tracks retailers who follow the market, rather than those who start the market. This weight toward rack jobbers hurts new and developing talent. Independent labels that feature jazz, blues, new age and alternative rock are carried primarily by independent record stores, and gospel and new age titles are often stocked by book stores and gift shops outside of SoundScan's reach. In addition to providing fewer titles, department stores and discount chains frequently refuse to stock titles by controversial artists.¹²

Examining the charts

Assessing SoundScan's actual effects on the popular music industry grows more difficult as it is assimilated into a variety of decision making processes. But much of SoundScan's importance rests on its application in compiling charts, and these charts inform a myriad of decisions — from talent contracts, release and tour schedules through promotional strategies and radio play. Charts also are interpreted as historical indicators of musical popularity and quality, which lends them an important cultural function. Given the evidence since its inauguration, we may now begin to assess SoundScan's effect on the charts.

We expect SoundScan and its related technologies to reduce the amount of turnover on the charts. The reporting system formerly used by *Billboard* combined sales and airplay figures. Since sales and airplay accelerate each other in a positive feedback cycle, successful songs tended to rise up and fall off the charts quickly. SoundScan differentiates between sales and airplay, and also can differentiate between sales of 100,000 on a slow week or 600,000 during a major week. SoundScan also reveals equivalent sales between a release that goes to Number 1 but drops off the chart after four months, as opposed to a release that peaks at Number 25 but hovers around that position for nine months. SoundScan has decreased the importance of chart position in favor of the number of units sold, and the expected result is a slower turnover in the Hot 100. Second, we expect SoundScan to favor the major companies by increasing their ability to keep successful releases on the charts for as long as possible.

Our pretests examined averages for chart turnover during the six months immediately before and after SoundScan's introduction. Specifically, we looked at the top, bottom and number of total entries in the *Billboard* Hot 100 Singles and Top Country Albums charts. These tests showed substantial negative percentage changes, indicating that the charts had experienced less turnover after SoundScan was introduced. We then compiled statistics for the Hot 100, Country Albums, and Top 200 Albums (formerly Top Pop Albums) charts from 9 January 1988 through 24 December 1994 on a week-by-week basis.¹³ These statistics included the total number of songs to place in each chart, the number of new songs in the top and bottom fifth of each chart and the number of songs re-entering each chart. Our ongoing work is devoted to building statistical models of chart behavior. These time-series models provide statistically reliable and accurate assessments of the random and systematic components of selected chart characteristics (such as number of new songs and re-entries per week) and differences before and after SoundScan was introduced. What follows are descriptions and results of tests for SoundScan's impact on the total number of new entries per week to each of the three charts.

Our procedures were as follows: we began by listing and graphing each data series (e.g. the number of new songs each week on the Hot 100). Next, we calculated means, standard deviations, box and whisker plots and other descriptive statistics for each series overall, as well as before and after SoundScan.¹⁴ We then used Box-Jenkins ARIMA procedures to produce unbiased models of the time-series data, since time-series data almost always contain autocorrelation and other patterns that bias variance estimates and significance tests. These procedures test for secular trends, autoregression and moving averages and allow their statistical control. When the introduction of SoundScan is a variable in these models, they produce intervention parameters that are unbiased estimates of the size of the effect of SoundScan relative to the other processes characteristic of chart behavior.

The *Billboard* Hot 100

An average of 7.42 (SD = 1.95) new songs per week appeared in the Hot 100 for the 200 weeks before 23 November 1991, when SoundScan was introduced. This dropped to an average of 6.60 (SD = 1.89) new songs for the 158 weeks that followed. The projected annual average of new songs on the chart fell 11 percent, from 385 to 343.¹⁵ We also found that the number of new songs appearing in the bottom 20 positions on the chart fell from 5.04 (SD = 1.70) to 4.77 (SD = 1.67), but the number of new songs debuting in the top 20 rose from one in 200 weeks to 10 in 158 weeks.

While the number of songs debuting on the chart each week has decreased, more debut in the upper reaches of the chart.¹⁶

Billboard Top Country Albums

The Top Country Albums chart (with a total of 75 positions) exhibited much less turnover than the Hot 100 Singles chart. The number of new entries per week averaged 1.70 ($SD = 1.41$) in the 173 weeks before SoundScan was implemented on 18 May 1991, and 1.43 ($SD = 1.39$) in the 185 weeks following. The median and the mode are one new album charting per week; and, as may be inferred from the size of the variances, the listed data series indicates that weeks with no new albums charting are frequent. The overall shift was down 0.27 albums per week after SoundScan was introduced. This represented a 17 percent drop, from a projected average of 88 to 74 new albums per year. The internal dynamic of the chart also changed, with more new albums debuting in the top 15 slots and fewer new albums placing in the bottom 15 positions after SoundScan. In the 173 weeks before SoundScan, seven new albums placed in the top 15 positions of the Country Albums charts; in the 185 weeks after SoundScan, this jumped to 50 — an increase of over 500 percent.

In this chart SoundScan's effect again is significant and negative, with fewer new albums appearing in the Top Country Albums chart after SoundScan was introduced. Although this shift is only three-tenths of an album per week we predict an average of 15 fewer albums charting per year.

Billboard Top 200 Albums

An average of 9.07 ($SD = 3.54$) new albums per week appeared in the *Billboard* Top 200 Albums (formerly Top Pop Albums) chart in the 173 weeks preceding the introduction of SoundScan on 18 May 1991. On average, 8.48 ($SD = 3.53$) charted each week in the following 185 weeks. The overall shift was down 0.59 albums per week after SoundScan's introduction, representing a decrease of 6.5 percent. The projected annual average of new albums dropped from 472 to 441.

Similar to the Hot 100 and Country Albums charts, more songs debuted in the top slots of the chart after SoundScan than before, and fewer in the bottom. Unlike the other charts, however, these changes were larger while the overall change was smaller. In 6 of the 173 weeks before SoundScan, two new albums placed in the top 40 positions of the Top 200 Albums chart. In 65 of the 185 weeks after SoundScan, three or more new albums placed in the top 40 positions, and only 37 weeks had no album debuting in the top slots.

After SoundScan, new albums could place in the top fifth of the chart more easily, but the overall number of new albums decreased. Correspondingly, a smaller number of new albums placed in the bottom fifth of the chart. These results indicate that fewer albums are working their way up the charts, replaced by a new pattern of album debuts spread across chart positions from top to bottom. Another important change in the Top 200 Album chart involves re-entries, or albums that have appeared on the chart, dropped off, and then reappeared. In the first week of SoundScan's use, 34 albums re-entered the chart. In the preceding 173 weeks, only once had there been as many as four re-entries. The average number of re-entries per week before SoundScan was 0.83 ($SD = 0.94$); after SoundScan this rose to 3.64 ($SD = 3.50$). The tendency for albums to re-enter the chart has increased markedly and constitutes a new and more complex form of chart-life. We know from examining graphs, means and other indicators that the behavior of this chart changed significantly following SoundScan's introduction, even if SoundScan did not have as large an effect on the average number of new entries per week as it did in the Hot 100 Singles and Top Country Albums charts.

Summary

The introduction of SoundScan undeniably has had a significant impact on the Hot 100 Singles, Top Country Albums, and Top 200 Albums charts. As we hypothesized, the number of new items that placed on the chart each week was substantially reduced in two of the three charts (the Hot 100 and the Country Albums). With fewer new items placing on the charts, charted items enjoyed greater longevity. The Top 200 Albums chart also showed a decline in the number of new items added each week, but the decline was not significantly large. However, examination of graphs shows that the behavior of the chart was very different after SoundScan, with new items placing in the top fifth of the chart much more often (the other charts also displayed this pattern). Records also re-entered the charts more frequently.

Discussion and conclusions

To reiterate our rationale and research expectations: we posit that SoundScan, as an innovation in information technology, provides information about only *some* consumers, is affordable to only *some* industry players, and increases the efficiency of commercial exploitation for those who can afford it while decreasing opportunities and raising costs for others. In brief, we expected that SoundScan has contributed to a consolidation of control in the popular music industry. Historically, periods of consolidation

are associated with reductions in the number of different songs, musicians, songwriters, producers and record companies that appear on the charts. While many variables remain unaccounted for, one indicator of consolidation of control would be an increase in the chart-life of songs and albums and a corresponding decrease in the number of new items placing on the charts.

Throughout the discourse surrounding SoundScan, industrial consolidation is presented in the guise of 'scientific' objectivity. Although SoundScan purports to be objective, this objectivity remains questionable: a service can hardly be considered neutral when it is supported by revenues from those it is intended to serve. The development of SoundScan and BDS has clear precedents in the evolution of the television ratings industry, as described by Eileen Meehan:

First, develop a new procedure or a variation in a procedure; then, shape that innovation to manipulate differences in demand; finally, promote that innovation as another step forward in the progress of science while building cross-industrial alliances with those firms whose particular interests are best served by the innovation. (Meehan, 1984: 222)

Similarly, the relationship between *Billboard* and SoundScan bears out Meehan's finding that such systems appear to be:

open and competitive — and just happen to have a single most important firm. This lends the status quo within the ratings industry an aura of naturalness; the industry appears to 'simply exist' abstracted from the processes of history and the imperatives of capitalist economics. (Meehan, 1984: 218)

But even assuming that SoundScan's data is not colored by the company's financial relationships, its procedures remain suspect for several reasons. By referring to samples, SoundScan frames its procedures in scientific terms of representativeness and response rates. A sample that purports to include 85 percent of the recording purchases in the USA is extraordinarily dense by the standards of survey sampling. If representative, this sample would be more than adequate. However, SoundScan's sample is based on convenience rather than representativeness. Purchases are included in the sample only if they were made in stores that possessed scanner technology and were contractually bound to SoundScan. Therefore, the sample could be statistically representative only if it included 100 percent of all transactions. This problem is confounded by the fact that the stores not represented in the SoundScan group differ systematically in their stock and customer base.

SoundScan may represent the bulk of consumer purchases more accurately than the old system, but it may be less effective in representing purchases by the most active record buyers. If the bulk of purchases are made by people who buy only a few recordings a year, then the industry is

at least as dependent, in the long term, on the smaller number of people who buy many records a year. This latter group is much more knowledgeable and involved in its music purchases and frequently sets trends. SoundScan minimizes these nuances; indeed, SoundScan's proponents depict the old system's sensitivity to the dedicated audience as a bias.

SoundScan and BDS may be characterized as mechanisms for reducing uncertainty within the music industry. These and other information technologies result in cultural homogenization, in which diverse types of information are massed and leveled into a generalized medium for processing and exchange by the social system. Although they purport to represent consumer sovereignty and promote cultural pluralism and diversity, SoundScan and BDS will continue to consolidate control by major companies over local markets. While appearing to foster innovation, SoundScan and BDS ultimately have strengthened conservative industrial practices.

SoundScan has transformed chart data into a commodity accessible only to the biggest players, and the commodification of information it represents signifies the ways in which industries may appropriate information technology to increase control and profits at the expense of pluralism. While ostensibly reflecting public opinion, SoundScan masks increasing corporate consolidation and control over the marketplace. Similar to the ratings industry, SoundScan's rationale shifts responsibilities from corporate decision makers to the public; SoundScan gives the people what they want, but the menu grows increasingly slim. While many argue that technology must be shaped to suit public needs and wants, SoundScan clearly indicates that in this instance information technology has been used to serve the needs of capital.

Notes

We are grateful to Jim Sernoe, Nikhil Sinha, John Streck, Sharon Strover and Nabeel Zuberi for comments on earlier drafts of this article. Julie McCourt's editing skills were invaluable. Of course, any faults or errors in this work are our own. An earlier version of this article was presented at the 1995 annual meeting of the International Communication Association in Albuquerque, New Mexico.

1. The popular music industry contains a number of occupational roles and interests, including musicians, record producers, record company policy makers, promoters, retailers, radio programmers and the public. The roles they carry out in the industrial system are linked to what Hirsch (1969) terms a process of preselection, or a means of anticipating and making choices for the public. In this process, overabundant products pass through a sequential, staged filtering in anticipation of an uncertain demand. The music industry moves recordings through the system in a linear fashion and rejects or continues them at each stage (see Peterson and Berger, 1971). Decision makers try to anticipate what will be

successful at later points in the system by using feedback on recent successes. Hence, reducing uncertainty at each of these points is of paramount importance.

2. The system at present appears to be coupled more loosely than in earlier periods of oligopolistic control. Indeed, it appears to be associated with higher sales and greater musical diversity than in the early 1950s or late 1970s and early 1980s, the other periods of oligopolistic control.

3. These include video services like MTV and the Box, digital cable radio and formats like compact discs, cassette singles, DCC and Minidisc.

4. Scanning devices are responsible for frequent overcharges, but industry spokespeople ascribe these errors to store personnel failing to change the price of shelf items to match those encoded into the scanners.

5. Whether or not they do is another question. As DiMaggio and Hirsch (1976) observed, managers of production organizations in the arts worry incessantly about their audiences, but they tend not to make good use of available information.

6. See Whitburn (1986: 7–8) for a brief discussion of *Billboard's* predecessors.

7. For example, employees in rock-oriented stores reported country and rhythm and blues sales only in their respective charts and neglected to include them on more influential pop charts.

8. BDS allows record companies to closely scrutinize the efforts of independent promoters, who are hired to supplement the label's efforts at gaining airplay. However, BDS has been criticized for neglecting secondary, or startup, markets and concentrating on large urban stations with short playlists and less willingness to expose new artists. It also threatens the independence of radio program directors. Since BDS allows record companies to know how many times a record is played, and at what time of day it is played, the system puts pressure on programmers not only to add records, but to play them a certain number of times per week during specific dayparts (Boehlert, 1994: 87).

9. The New Age and World Music charts converted to SoundScan data effective December 1994. The last chart not covered by SoundScan, Top Contemporary Christian Albums, switched to point-of-sale data on 15 April 1995.

10. This is reflected in comments by a promoter for Interscope Records, a former Warner subsidiary label that was dropped for 'offensive' rap music: 'In the old days you'd [release] a record at radio and retail simultaneously, but now we build up awareness through touring, radio, MTV and the Box. We have all these different avenues at our disposal, and then we release the album' (Rosen, 1994: 93).

11. SoundScan monitors 16 record stores and 25 general merchandise stores in Austin, Texas. It does not include leading independents like Waterloo, nor local high-volume outlets like Tower Records. Of the six record stores in Iowa City, Iowa, three are chain outlets contributing to SoundScan. All of the contracts are handled through national headquarters, rather than locally. SoundScan excludes Iowa City's three independent retailers, used CD and record stores, as well as a New Age store and bookstores that also sell recordings.

12. For example, WalMart stores refused to carry Nirvana's *In Utero* and Snoop Doggy Dogg's *Doggy Style* on grounds of objectionable subject matter.

13. The Hot 100 chart provided 200 weeks of data before SoundScan and 158 weeks afterward, while the Country Albums and Top 200 Albums charts both yielded data for 173 weeks preceding SoundScan and 185 weeks after the system was implemented.

14. Note that the series are censuses of production runs rather than sample data. Consequently, confidence intervals and significance tests are unnecessary and the statistics can be read as numerical descriptions rather than parameter estimates.

However, significance tests can be used as conventional indications of effect size relative to effect variance.

15. We hereafter base our calculation on 52 weeks per year although *Billboard* publishes 51 issues during most years.

16. A full report of statistical procedures and results is available from the authors.

References

- Ang, I. (1991) *Desperately Seeking the Audience*. New York: Routledge.
- Boehlert, E. (1994) 'Labels Put New Spin on Indie Promo', *Billboard* (22 Jan.): 1, 87.
- Burnett, R. (1992) 'The Implications of Ownership Changes On Concentration and Diversity in the Phonogram Industry', *Communication Research*, 19: 749–69.
- DiMaggio, P. and Hirsch, P.M. (1976) 'Production Organizations in the Arts', *American Behavioral Scientist*, 19: 735–52.
- Goldberg, M. (1991) 'Biz Blasts New LP Chart', *Rolling Stone* (11 July): 17.
- Hesbacher, P., R. Downing and D. Berger (1975) 'Record Roulette: What Makes It Spin?' *Journal of Communication* 25: 74–85.
- Hirsch, P. (1969) *The Structure of the Popular Music Industry*. Ann Arbor, MI: Institute for Social Research.
- Hirsch, P. (1972) 'Processing Fads and Fashions: An Organization-Set Analysis of Cultural Industry Systems', *American Journal of Sociology* 77: 639–59.
- Hirsch, P. (1975) 'Organizational Effectiveness and the Institutional Environment', *Administrative Sciences Quarterly* 20: 327–43.
- Holden, S. (1991) 'Billboard's New Charts Are Roiling the Record Industry', *New York Times* (22 June): 11, 16.
- Lanthier, N. (1990) '#100 With an Anchor', *Canadian Composer* (Summer): 15–17.
- Lopes, P. (1992) 'Innovation and Diversity In the Popular Music Industry, 1969–1990', *American Sociological Review* 57: 56–71.
- McCormick, M. (1992) 'SoundScan: Boon or Bane for Indies?', *Billboard* (21 March): 1, 4, 28–9.
- Meehan, E. (1984) 'Ratings and the Institutional Approach: A Third Answer to the Commodity Question', *Critical Studies in Mass Communication* 1: 216–25.
- Miller, T. (1991) 'BMG Distributors, PGD Sign On as SoundScan Clients', *Billboard* (17 Aug.): 82.
- Peterson, R. and D. Berger (1971) 'Entrepreneurship in Organizations: Evidence From the Popular Music Industry', *Administrative Science Quarterly* 16: 97–107.
- Peterson, R. and D. Berger (1975) 'Cycles in Symbol Production: The Case of Popular Music', *American Sociological Review* 40: 158–73.
- Phillips, C. (1991) 'Rock 'n' Roll Revolutionaries', *Los Angeles Times* (8 Dec.): Calendar: 6, 68–9.
- Rosen, C. (1994) 'Heatseekers Explode on Billboard 200', *Billboard* (26 Feb.): 1, 84.
- Rothenbuhler, E. (1985) 'Programming Decision Making in Popular Music Radio', *Communication Research* 12: 209–32.
- Rothenbuhler, E. and J. Dimmick (1982) 'Popular Music: Concentration and Diversity in the Industry, 1974–1980', *Journal of Communication* 32: 143–9.

- Rothembuhler, E. and T. McCourt (1992) 'Commercial Radio and Popular Music: Processes of Selection and Factors of Influence', in J. Lull (ed.) *Popular Music and Communication* (2nd edn), Newbury Park, CA: Sage.
- Schiller, A. and H. Schiller (1982) 'Who Can Own What America Knows?' *The Nation* (17 April): 1.
- Shiver, J. (1990) 'Rivals to Launch New Record Rating System', *Los Angeles Times* (8 Nov.): D2.
- Stark, P. and R. Levy (1991) 'ABC Buys Radio Distribution Rights to SoundScan Info', *Billboard* (12 Oct.): 3, 90.
- Tannenbaum, R. (1991a) 'Rockbeat', *Village Voice* (28 May): 78.
- Tannenbaum, R. (1991b) 'Rockbeat', *Village Voice* (3 Dec.): 80.
- Whitburn, J. (1986) *Pop Memories 1890–1954*. Menomonee Falls, WI: Record Research.
- Woletz, R. (1992) 'Technology Gives the Charts a Fresh Spin', *New York Times* (26 Jan.): 2, 26, 32.