RESEARCH INITIATIVES

THE MODERN MARKETERS GUIDE TO SONIC BRANDING

A WHITE PAPER FROM THE ARF CREATIVE COUNCIL

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The Creative Council would like to thank Ann Green for serving as the principal editor of this white paper and John Prudente at the University of Texas at Austin for assisting JoAnn Sciarrino with her contributions to the white paper.

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SECTION 1. INTRODUCTION

Strong brands are built in part through a confluence of positive customer experiences and consistently well-crafted advertising. Effective advertising requires that the link to the brand be clear and memorable. A key strategy for securing that linkage is to create and draw upon Distinctive Brand Assets (DBAs). These assets can consist of slogans, logos, colors, images, mascots, personalities, jingles and a variety of other elements.

Sound is one of the least analyzed and utilized DBAs at a marketer's disposal, even though consumers are more connected than ever to audio through smart watches and wearables, connected home appliances, voice-activated smart speakers and passenger vehicles. Established sonic media platforms, like podcasts and live audio streams, have also extended their reach. Nearly half of U.S. internet users own at least one smart speaker (Bratten, 2021). Furthermore, sound has been proven to drive emotional connections and deepen memories which are critical to advertising performance and brand building (Mancini, 2022; Romaniuk, 2018; Holden, 1993).

While most brands will undoubtedly have a comprehensive visual identity, complete with a set of colors, fonts and aesthetic guidelines, their sonic toolbox looks rather empty in comparison. If one believes sight and sound to be two of the main senses that advertising aims to stimulate, the underinvestment in sound is akin to showing up for battle with only half the required ammunition.

Given the prevalence of sound in today's media, there has been increasing interest in sonic branding. Sonic branding refers to the strategic use of distinctive sounds to nurture, strengthen or evoke a brand identity. Sonic branding consists of more than just jingles. It encompasses "sound logos," which can be a series of notes, distinctive voice tones, and even, more recently, a unique ASMR — any sound that represents a brand's identity in the same way visual logos do.

Although many video advertisements employ music today, far fewer employ sonic brand assets. Only six percent of the more than 2,000 ads in a recent meta-analysis by Ipsos had a distinctive sonic brand cue. Moreover, Ipsos found that sonic brand cues are especially powerful. When Ipsos ranked the ads by branded attention, it found that the **creative with sonic brand cues was 8.5 times more likely to land in the top tercile than in the bottom tercile** (Sheridan, 2020).

The goal of this Creative Council white paper is to provide the industry with a comprehensive understanding of sonic branding, its importance, how it works in reinforcing brands and how it can be applied. There are sections devoted to each of these themes and related ones:

- The Evolution of Sonic Branding
- Musical Theory in Sonic Branding
- Sound and the Brain
- Types of Sonic Assets
- How Sonic Assets Impact Brands
- Measuring Sonic Effectiveness
- How Marketers Can Get Started

This is the ARF Creative Council's third white paper. It builds on and extends the two prior white papers about leveraging research to inspire and develop great creative. This white paper is based on a comprehensive literature review undertaken by members of the Council (See: References section) with the assistance of the ARF Knowledge Center. It is intended to be a general overview of sonic branding, rather than a compendium of the full body of research on this subject.

SECTION 2: THE EVOLUTION OF SONIC BRANDING

In today's highly competitive and saturated marketing landscape, brands are constantly seeking innovative ways to stand out, connect with consumers and create lasting impressions. This is where sonic branding, the strategic use of sound to create a brand identity, comes in. By exploring the historical evolution of sonic branding, the neurocognitive processes that underlie its importance, and the musical theory that helps explain how varying emotions are evoked, we will develop foundational knowledge toward creating sounds that can be leveraged as a Distinctive Brand Asset and take advantage of the opportunities in multi-sensory marketing (Rajamannar, 2022).

Although the concept may seem new, sonic branding, or the use of sound to convey meaning and create associations, has deep historical roots (Gustafsson, 2015). Early instances of sonic branding can be found to signify specific events or to evoke emotions in different cultural and historical contexts.

CHURCH BELLS

The practice of using sound to convey meaning and summon people dates back centuries. One notable example is the use of church bells. For generations, these bells served as both a functional and symbolic form of sonic branding (Gustafsson, 2015). The resonance of church bells echoing through towns and villages signaled various events, such as daily prayers, weddings and funerals.

The tolling of church bells, especially on Sundays, not only called the faithful to worship, but also created a sense of community and shared identity. This sonic branding of the church as a spiritual center and beacon of moral values had a profound impact on people's lives, so much so that bells became intertwined with religious experiences and left lasting impressions on individuals.

Similarly, in Islam, the adhan summons worshippers to the mosque for prayer, dating back to the days of Mohammed. It can be heard up to five times a day in Muslim communities, broadcast from both the minarets of mosques and in media. In Muslim folk medicine, it is even believed to have healing qualities.

PAVLOV'S CLASSICAL CONDITIONING STUDY

The idea that sounds can create meaning wasn't rigorously studied until an experiment conducted by Russian physiologist Ivan Pavlov in the late 19th century. Pavlov's study with dogs inadvertently touched upon the principles of sonic branding (Pavlov, 1927). He famously observed that dogs, when conditioned to the sound of a bell paired with food, would eventually start salivating when they heard the bell, even in the absence of food. The sound of the bell, initially neutral, became associated with the impending meal.

Pavlov's experiment not only brought to light the power of classical conditioning, but it also demonstrated the power of sound in creating strong and involuntary emotional responses, not only in animals but in humans as well. This insight laid the groundwork for future explorations into the use of sound in branding and advertising.

MUSIC IN HUMAN EVOLUTION

Going beyond the use of simple sounds, music has played a fundamental role in

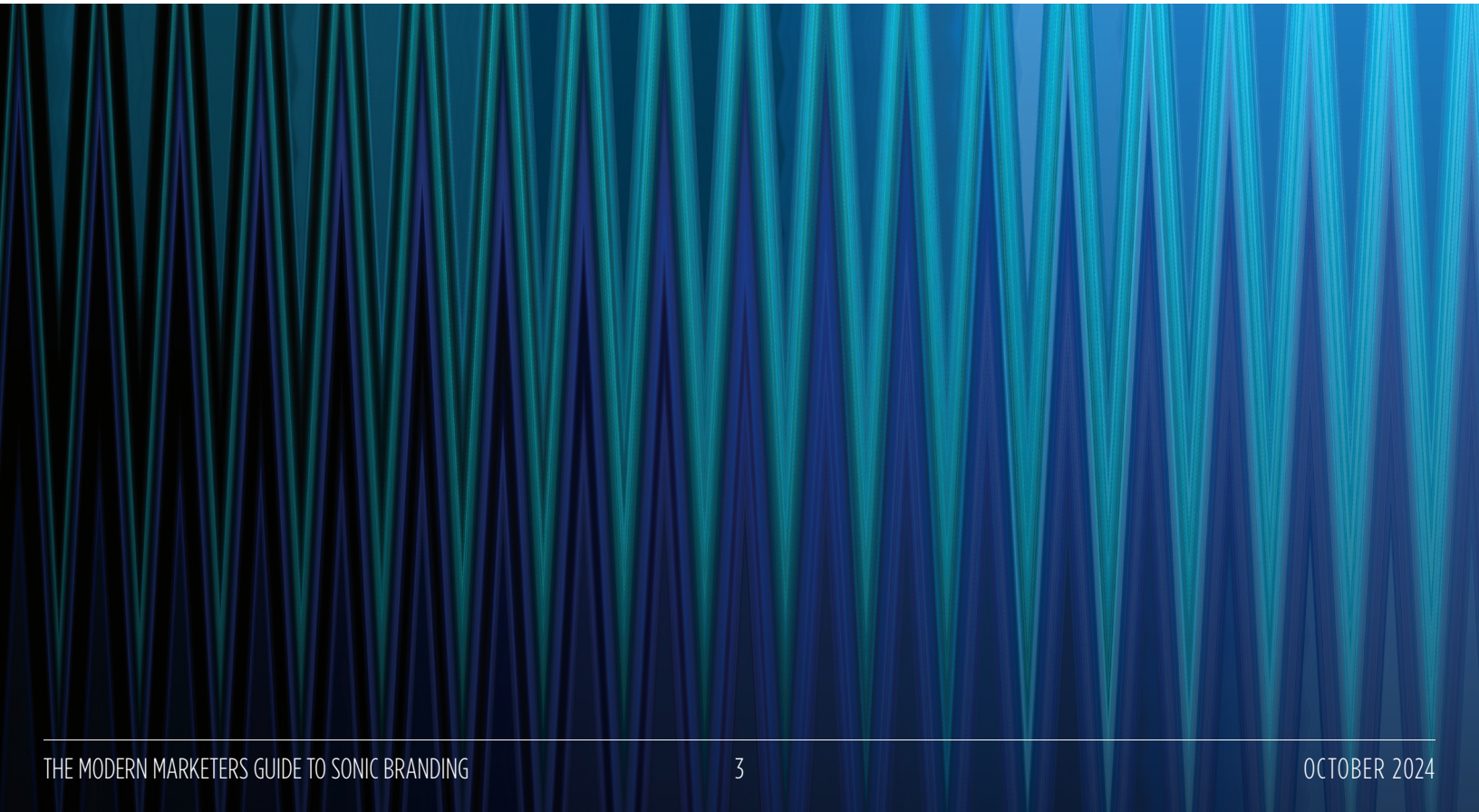
human evolution, serving as a unique and universal form of communication and expression (Perlovsky, 2012). From the earliest tribal drumming to contemporary symphonies, music has always been an integral part of human life. Its evolutionary significance lies in its ability to evoke emotions, create shared experiences and enhance memory formation. This deep-rooted connection to music is the foundation upon which sonic branding is built.

EARLY APPLICATIONS OF SOUND IN MARKETING

The 20th century saw the emergence of radio and television as dominant forms of mass communication. Advertisers working in these mediums recognized the potential of sound to capture the attention of audiences and create brand recognition.

Early radio jingles, often catchy tunes with memorable lyrics, became a hallmark of sonic branding (Gustafsson, 2015). Brands like General Mills (Jake, The Air Warden, 2020) and Pepsi-Cola (Hornbake Library, 2022) embraced these jingles as powerful tools to establish their identities in the minds of consumers. The repetition of these tunes on the airwaves reinforced brand associations, much like Pavlov's bell became associated with mealtime for his dogs.

The advent of television inspired brands to start experimenting with audio mnemonics, short and distinct audio signatures that became synonymous with their products. In 1927, the NBC chimes were developed and served to establish the broadcaster's identity. In 1950, the U.S. Patent and Trademark Office (USPTO) granted the NBC chimes the first "purely audio" service mark. Those chimes are still in use today in advertising for the TV network (Harris, 2008). While common folklore holds that the chimes' musical notes, G-E-C, referred to eventual owner General Electric Company, which was part owner of RCA, NBC's original owner, this is likely a coincidence, given that there were only four notes – for G, F, E, and C – in the handheld chimes commonly used for the sequence at that time (Wikipedia, 2024).



SECTION 3: MUSICAL THEORY IN SONIC BRANDING

Musical theory is a key component of sonic branding, providing valuable insights into how specific musical elements, including melodies, tempo, harmony and rhythm, can evoke emotions and create lasting brand associations. Musical theory provides the means for brands to craft sonic assets that align with their desired goals. Whether aiming for a joyful and uplifting tone or a sophisticated and calming ambiance, musical theory provides a framework for achieving these goals. The following are the building blocks of music, and they play a pivotal role in shaping sonic branding's emotional landscape.

TEMPO

The tempo, or speed, of a musical piece can greatly influence emotions. A fast tempo, for example, can create excitement and energy, while a slow one can evoke feelings of calm and introspection (Mas et al., 2021). Sonic logos often use tempo to align with the desired emotional response.

MELODY

Melody, the sequence of musical notes, has the power to convey a wide range of emotions. A simple, catchy melody can easily become associated with a brand, as seen in many jingles. The key in which a melody is composed can also influence the emotional response. For instance, major keys often evoke feelings of happiness and optimism, while minor keys are believed to convey sadness or seriousness (Scherer & Oshinsky, 1977; Hul et al., 1997). Brands must carefully consider the choice of key to align with their intended emotional message.

HARMONY

Harmony, or the combination of multiple musical notes played simultaneously, can evoke feelings of unity and balance. It adds depth to sonic branding by enriching the emotional experience (Marghzar, 2022).

RHYTHM

Rhythm, or the pattern of beats and pauses in music, can create a sense of anticipation and excitement (Marghzar, 2022).

PITCH

Pitch is the quality that makes it possible to judge sounds as "higher" and "lower" in association with musical melodies. A higher pitch and major key have been demonstrated to create more positive appeal (Kellaris & Kent, 1991) than a lower pitch and minor key.

CASE EXAMPLE: MCDONALD'S

The success of the classic McDonald's "I'm Lovin' It" jingle can be attributed to its careful composition based on music theory. Its upbeat tempo, catchy melody and well-crafted harmony create a sense of happiness and satisfaction, reinforcing positive associations with the brand. The choice of major key also plays a crucial role in conveying the intended emotions and aligning with McDonald's image as a fast-food chain that brings joy and comfort to its customers. Ultimately, the unique combination of the sonic brand, message, musicality, and use of voice solidifies the jingle as a strongly performing asset for the brand (Audacy, 2023). The science behind "I'm Lovin' It" and its subsequent performance proved so strong that eventually McDonald's simply utilized the notes, instead of the combined tagline and music (Sandzer-Bell, 2024; Lusensky, 2010; Dominus, 2006; Fulberg, 2003).

SECTION 4: SONIC BRANDING AND THE BRAIN

The significance of sonic branding goes beyond mere auditory experiences; it taps into deep-seated neurocognitive processes that influence human behavior and decision-making (Koelsch, 2014). According to Dr. Seth Horowitz in *The Universal Sense,* sound provides a type of cognitive shortcut to processing information: "In the actual time it takes for you to blink, sonic input gets directed through your auditory cortex to other parts of your brain that control memories and emotions" (Horowitz, 2013).

SOUND AND MEMORY ENCODING

The process of encoding sound, words or any other auditory input for storage and retrieval is known as acoustic encoding. Acoustic encoding involves two steps: First, the sound comes into the brain for a few seconds and then is then converted into long-term memory. The short length of time during which the sound remains in your brain, before it gets coded into memory, is known as echoic memory. Echoic memory is stored in your brain about four minutes. In this time, the brain records and stores the sound so you can remember it once it has stopped (WebMD Editorial Board, 2021).

Our echoic memory can either keep the memory of sound, delete it or move it to long-term memory. If the sound has relevant context, the brain will move it to short-term memory where it stays for about 20 minutes. Repeated exposure to the sound may help store the memory or move it into long-term memory. The more frequently a sound or a visual is repeated, the more likely it will be moved from short- into long-term memory (WebMD Editorial Board, 2021).

CASE EXAMPLE: TACO BELL

Since 1989, Taco Bell has deployed a single note played on a particular instrument (a bell) to facilitate a unique association with its brand (Unit 9, 2018). It has been featured in their audio and video ads since then, bringing the brand to mind almost immediately when it is heard.

SOUND AND AROUSAL OF EMOTIONS

"Sound has a holistic effect on the brain," says Paul Zak, founder of Immersion Neuroscience. "But the most important thing from a branding perspective is that sounds connect us to emotional states and emotional memories" (Mancini, 2022).

Emotional responses are controlled by the limbic system and specifically, the amygdala structure in the brain. Love, hate, fear, enjoyment, rage and other intense feelings are mediated by the amygdala, which is extremely sensitive to sound. That is why human beings have such a strong emotional response to the things we hear. In tandem with the activation of the hippocampus, emotions and memories become attached to sound through experience, and emotions triggered by experience provoke certain thoughts and behaviors.

There is evidence from research that sound, be it in the form of sonic cues, melody or music, is known to affect emotions. The emotions or feelings induced by the sound may transfer to whatever context is being shown and affect brand perceptions and even brand personality (Keller & Spence, 2023). This phenomenon is called **emotional transference**.

More recent research has shown how audio assets have the potential to elicit emotion (Nomura & Mitsukura, 2015). Using functional

magnetic resonance imaging (fMRI) analysis, when major (minor) chords were associated with happy (sad) faces, neural activity was more significant when they were congruent versus incongruent, indicating that even major and minor chords have deeply entrenched emotional connotations (Bakker & Martin, 2015).

Moreover, when survey respondents were exposed to visual symbols for brands with well-known sonic assets, brain areas consistent with emotional responses showed greater activity than when they were exposed to symbols without sonic logos. Remarkably, this occurred even though the sonic logos themselves were not played (Sung et al., 2011).

CASE STUDY: AVOIDING UNDESIRABLE SOUNDS

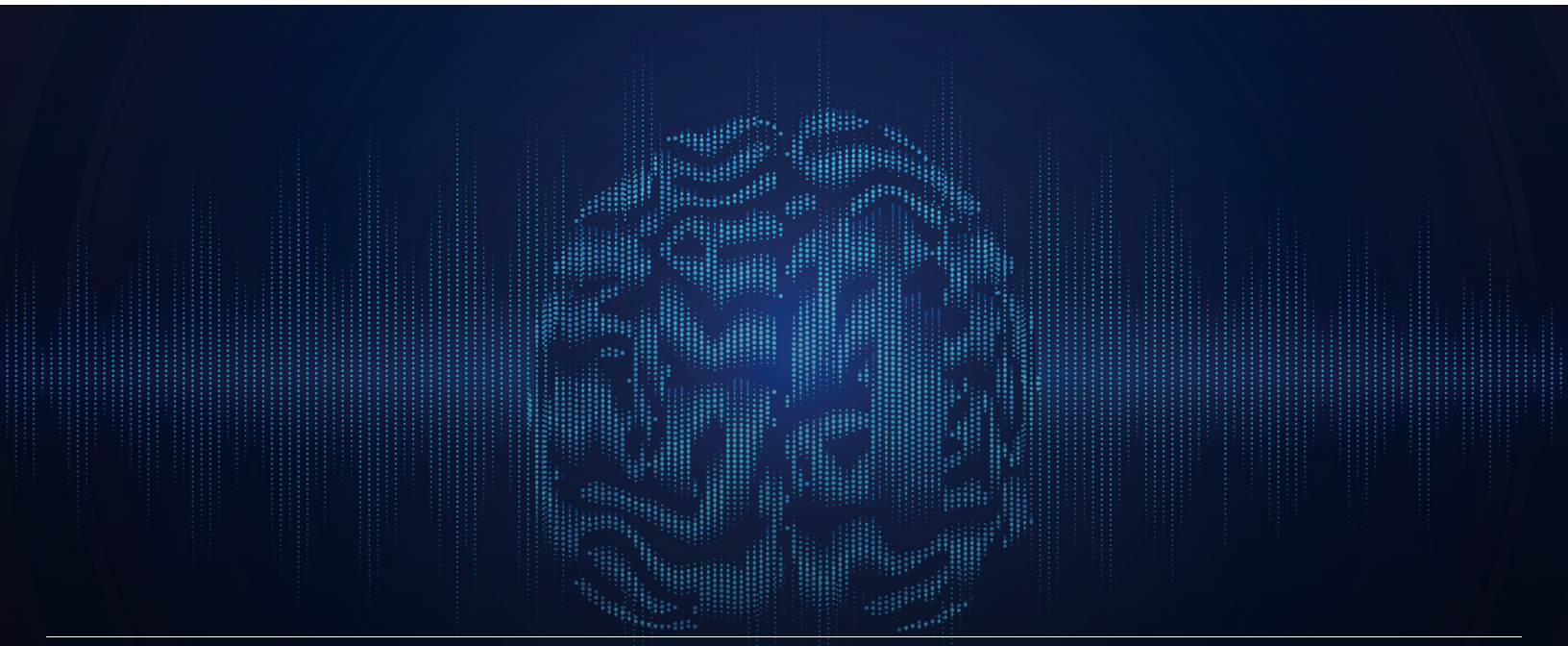
Sentient Decision Science assessed the strength of association between 20 different sounds and the emotion they inspired. Testing both the conscious (leveraging MaxDiff) and non-conscious (using implicit association testing) reactions to the sounds, they rated each sound as to how negatively or positively it makes an individual feel.

Their research revealed that a pained scream was the most unpleasant sound tested, while that of a baby laughing was the most pleasant. The credit card chip reader performed slightly better than nails on a chalkboard. The research also showed an 86 percent correlation between how sound makes people feel at the subconscious level and their conscious desire to have or avoid that experience in the future. The clear takeaway is that sound can create or destroy value and choosing the right sound should not be left to chance (Perlmutter, 2018).

CASE EXAMPLE: PANERA

Panera, the fast-casual chain, underwent an identity refresh during which they introduced a new sonic asset all about vibrancy. Music was choreographed with a visual effect during which the Panera logo is shown with bursts coming off it. The three-second sonic logo is half instrumental — played by a trumpet, an alto sax, and a baritone sax -- and half vocals. (Meyers, 2022)

The sound is meant to "capture that spirit of exciting anticipation" and "joy" around the eating experience with the vocal "Ooo" at the end conveying satisfaction. Research from Sentient Decision Science showed that Panera's sonic logo fell into the top 9% of all sonic logos Sentient has tested for emotional appeal (Inside Radio, 2022a).



SECTION 5: TYPES OF SONIC ASSETS

There are a variety of approaches to sonic branding that brands can utilize to create a unique auditory identity.

AUDIO ALONE VS. ALONGSIDE VISUALS

One of the fundamental choices in sonic branding is whether to use audio independently or alongside visual elements. Brands may opt for audio-alone strategies, or they may integrate sound with visuals to reinforce their brand identity. A variety of factors, like the advertising channel, may determine this strategy: The Oscar Mayer Wiener Jingle, for instance, first debuted on radio without visual elements, while the familiar ice cream truck jingle in your local neighborhood can be recognized before it turns the corner onto your street. Another unique example is with the Dutch bank ING, which bridges the visual identity of its omnipresent lion imagery to its sonic logo through a characteristic bass guitar slide (Massive Music, 2023b).

VOCAL MENTIONS AND TAGLINES

Verbal mentions of the brand or the inclusion of a catchy tagline can be powerful tools in sonic branding.

CASE EXAMPLE: RED BULL

Red Bull's first commercial including their infamous "Red Bull Gives You Wings" tagline offered a powerful metaphor for the idea that their product can give you a lift in energy. Additionally, the slogan is articulated in a smooth, deep and uplifting manner that suggests a playful and energizing quality to the brand, which helped in embedding the brand's identity in the minds of consumers (Lumen, n.d.).

IDENTIFIABLE SOUNDS

Some brands create distinctive sonic logos by using identifiable sounds associated with their products. For example, the hiss of carbonation when opening a Coke or the pop from a can of Pringles instantly evokes brand recognition and anticipation of a delightful experience.

CASE EXAMPLE: BUSCHHHHH

The iconic "BUSCHHHHH" sound associated with Busch beer cans first appeared in Busch commercials during the "Head for the Mountains" campaign in 1978. It continued in various forms until 2009. The distinctive crack sound became synonymous with the brand signaling refreshment and the great outdoors (Anheuser-Busch, 2017).

JINGLES

Jingles, short and memorable musical compositions, have been a staple of sonic branding for decades. Jingles are useful because they work as "mnemonics," helping consumers remember the brand (Jackson, 2003).

CASE EXAMPLE: PC RICHARD & SON

PC Richard & Son, a prominent electronics and appliance retailer, uses a catchy whistle audio signature that reinforces its brand image. The tune's upbeat melody creates a sense of excitement and friendliness to reinforce its brand image as a family-owned and welcoming store with attendants that are happy to help. Today, the whistle is even used by the New York Yankees at Yankee Stadium after their pitcher strikes out an opposing batter (Myers, 2024).

SONIC LOGOS

Today, the trend is for brands to move from the melodic "jingle" approach to a shorter, still-hummable form, that can be used in a wider variety of media and brand experience applications. The most iconic sonic logos are melodic, consisting of a short musical motif, typically five to six notes (Keller & Spence, 2023) and around three seconds long (Bonde & Hanson, 2013).

CASE EXAMPLE: NETFLIX

Netflix is known for its distinct two-tone sonic signature that plays when you start streaming content on its platform. The sound is a brief, recognizable, audio cue associated with the brand. This sound logo is designed to be easily identifiable and is commonly heard by millions of viewers around the world. According to at least one study, there is high brand recognition for this two-tone sonic logo, evoking the Netflix brand and the streaming experience (Gokhale, 2023; Soundout, 2023).

CASE EXAMPLE: SOCIÉTÉ NATIONALE DES CHEMINS DE FER FRANÇAIS (SNCF).

A lesser-known example of using sonic logos is from the French national railway, Société Nationale des Chemins de fer Français (SNCF). The railway created a four-note sonic brand logo featured in SNCF paid and owned media that turned into a significant asset. It was designed to create a strong audio association with the SNCF brand. In recent testing, 92% of listeners correctly identified the new sonic brand — with 88% of them identifying the brand after hearing just two notes. Moreover, SNCF has experienced an 18% increase in consumer perceptions of "leadership" (Minsky & Fahey, 2014).

ASMR

The use of autonomous sensory meridian response (ASMR) like whispering, typing, tapping, chewing and more, creates a richer sonic narrative for the ad and pulls the consumer deeper into the ad's contextual environment. Often thought of as "background noise" that simulates the environment for the ad, ads with an ASMR score higher on recall than those with a normal voiceover (Sands et al., 2022). Using sound in seemingly small ways can further transport the consumer into the narrative and amplify the message and its associated recall (Broadbridge, Mangio, & Di Dominico, 2023).

CASE EXAMPLE: CHILI'S

In the book The Sonic Boom*, Joel Beckerman uses the example of the sizzling hiss of a fajita that bursts out of the kitchen doors at Chili's. This sound makes us feel excited and engaged and is an example of the power of sound to enhance an experience (Beckerman, 2015).*

ORIGINAL MUSIC AND COVERS OF EXISTING SONGS

With the growth of sonic branding, increased attention has been paid to music. The use of music in advertising has continued to grow with the rise of online video, as well as the rise of video platforms that blur the boundaries between entertainment and advertising.

Often, well-known songs are used to garner attention and tap into the cultural zeitgeist, but popular songs present a double-edged sword of sorts: While they can be a shortcut to break through with the consumer, they may not always guide the consumer toward the association the brand had in mind (like using a popular retro song alongside a new high-tech product, for example). Dislodging an existing song's associations and rewiring it to forge the desired association with the

brand can be a difficult undertaking if the contextual fit is low. This is where song covers come in, which offer the best of both worlds: priming an existing attachment but providing a unique take that allows new associations to be formed (Stutz, 2018). A cover song can trigger both memorability and emotion by utilizing something consumers are already familiar with, but also grab attention through originality (Carolan, 2015). Various experiments that exposed consumers to both original and altered (cover) music found that both types of music drive high attention and memory compared to silence or instrumental-only treatments (Allan, 2006).

When it comes to the use of music, it should be noted that marketing professionals have been shown to evaluate music differently than consumers. Research shows that professionals tend to overvalue music they see as real (e.g., existing popular songs) and view commissioned music or music from generic libraries as being of a lower quality and likeability, as well as having less authenticity and fit. These perceptions do not carry over to consumers, for whom the source of music is shown to be statistically insignificant in judging its quality, likeability, authenticity or product fit (Anglada-Tort et al., 2021).

CASE EXAMPLE: NIKE "REVOLUTION"

Nike's first ad famously paired its "Just Do It" tagline with the song, "Revolution," by The Beatles. This resonated with its core target of a youthful and active audience, especially those that identified with its message of rebellion, innovation and pushing boundaries (duBrowa, 2021).

CASE EXAMPLE: HOT POCKET "POCKET LIKE IT'S HOT"

Another unique example is Hot Pocket's "Pocket Like It's Hot," a rendition of "Drop It Like It's Hot" by Snoop Dogg, which is performed by the rapper himself. The song reinforces the product's identity, as well as adding a humorous and entertaining touch that makes the brand more relatable (Bose, 2020).

CASE EXAMPLE: "THE SOUND OF COLGATE"

Colgate collaborated with composers and sound advisors to develop original music for the brand. Since Colgate views its brand DNA as a champion for optimism, they opted for the human voice, not instruments, to carry the harmony with humming. This was based on research from academics and neuroscientists suggesting that humming is a universal expression of optimism. Colgate developed two scores. The first is the brand DNA, a longer version that they adapt to different targets, message tonality (humorous messaging vs. educational) or brand category (beauty, health or wellness) yet still unmistakably Colgate. The second is the shorter iconic hum that is widely used in Colgate's broader communications (MassiveMusic, 2023a).

SECTION 6: HOW SONIC ASSETS IMPACT BRANDS

Sonic branding has been shown to improve a wide range of classical consumer measures. Using audio consistently across marketing materials and consumer interactions with the brand strengthens a variety of brand and advertising related KPIs.

EFFECT ON: ATTENTION

Attention is the cognitive process by which individuals selectively concentrate on marketing or advertising stimuli. Attention is often measured as a key or initial element in consumer behavior and a precursor or mediating variable to purchase consideration or decision-making. Attention has been found to play a crucial role in capturing and retaining consumer interest (Nelson-Field, 2020). While people can avert their eyes to ads playing on a screen, it is more difficult and requires more effort to avert their hearing (Westermann, 2008).

CASE EXAMPLE: TOSTITOS

Audio helped Tostitos stand out in a competitive snack market (Inside Radio, 2022b). The challenge was to recreate the sound and feel of the moment when people come together around the bowl, using sound and music. The brand developed a music-based sonic brand that combines three sounds: the chip's crunch, a jar top pop, and the musical tone of using salsa jars as a drumkit. The brand had a 38% increase in ***brand recall*** *and a 13% increase in* ***brand favorability (affinity) score,*** *compared to the CPG food norm, after being in the market for just six months (Inside Radio, 2022b).*

EFFECT ON: AWARENESS

Brand awareness is the knowledge that a brand exists and is typically measured as unaided (without prompting), aided (with prompting) and total (unaided and aided combined). Brands often use sonic logos, along with other identity elements, as a powerful means of building brand awareness (Linn, 2006; Walther, 2006).

CASE EXAMPLE: INTEL

Intel has used sonic logos to accompany its brand marks and taglines in communications since 1995. This was when the Intel Spiral was introduced to make the brand more noticeable as its advertising efforts moved from print to radio and television. Intel's five-note chime is an iconic example of using sound in advertising paired with a visual logo, instantly evoking the brand and desired associations of innovation and reliability (Passman, 2017).

EFFECT ON: MEMORY

Sonic branding is used as a cue to consumer memory, where (hopefully) a brand has established a deep network of associated memories, including the brand name (Romaniuk, 2018; Collins & Loftus, 1975). Just as visual branding utilizes logos and colors to create a cue for memory recognition, sonic branding aims to achieve the same with sound. Sonic branding cues may offer

CASE EXAMPLE: APPLE

An example of using sonic branding to cue memory is Apple's use of particular sounds with its products, such as the chime of a Mac switching on to the identifiable 'click' of the iPhone keyboard. For its 45th anniversary, Apple created a song to feature in owned and paid media, based on a culmination of all these little sounds, which it believes are now a core part of the brand identity and a strong cue for memory retrieval (Diaz, 2021).

another way for consumer thoughts to shape what is first available to be retrieved from memory (Holden, 1993, p. 387).

EFFECT ON: CHOICE DRIVERS

The fact that sonic cues drive emotions is important in that these positive feelings can also trigger positive associations for the brand and influence brand choice.

Sonic assets can contribute to a consumer's perception of brand differentiation and important choice drivers (Roschk et al., 2017). The five-tone Intel swirl and Windows Vista's four-tone start-up chime, for example, have been successfully used to improve differentiation (Linn, 2006) and trust, the driver of choice.

One recent study found that 18% of respondents were more inclined to buy a product or brand with a sonic identity than without one (De Lucia, 2021). Leicester University studied brands that incorporated music that identity-fit versus those with non-fit music or no music and found that respondents were 24% more likely to buy a product with music that they like (fit), recall and understand (North et al., 2004). While these studies represent attitudinal purchase intention (and not actual consumer purchases), they do present encouraging evidence for future study of consumption outcomes.

CASE EXAMPLE: MASTERCARD

Mastercard was among the first brands to commit to investing in a sonic logo, which debuted in 2019. Today, nearly 95% of all global Mastercard audio-visual content features some element of its sonic identity (Faull, 2022). Mastercard has significantly improved brand attitudinal attributes such as differentiation, image, identity and the choice driver, payment trust, with consumers.

SECTION 7: MEASURING SONIC EFFECTIVENESS

There are a variety of approaches available for measuring sonic assets and the degree to which the assets are effective. The approach to pursue and the KPIs to obtain depend in large part on the stage of a sonic asset's development and usage. Regardless of the stage, many approaches apply both System 1 instinctive techniques and System 2 considered response to gain a full picture of how an asset would be recognized and processed in all decision-making scenarios.

Common elements of these approaches include measuring . . .

i. **Distinctiveness (or Uniqueness)** — A measure of a sonic DBA's ability to avoid being misattributed to a competitor
   a. At an early stage, this might include a measure of the sonic cue's attention-grabbing capability and memorability.

ii. **Brand Fit** — Whether the asset elicits the desired emotional response aligned with the brand's values and personality. This concept incorporates the appeal of a sonic DBA on an emotional level and the potential impact of a sonic DBA on perceptions of the brand.
   a. At an early development stage, this could include an assessment of the emotions that the brand would like its sonic cue to evoke and the emotions that are often evoked by sounds with different tone, pitch, tempo and instrumentation.
   b. When the sonic cue is more established, this would include measurement of the asset's resonance in the prevailing culture.

iii. **Association** — How well consumers can remember and correctly identify the brand of the sonic cue. This is more relevant at a later stage. It includes the degree of awareness of an existing asset, which is sometimes referred to as "Fame."

iv. **Intuitiveness** — How quickly the sonic cues are associated with the brand, whether they require more considered thought.

Since many of these elements are included in assessments of visual branding assets, sonic assets are sometimes measured and evaluated in the same way as or along with other branding cues. However, according to R&D work by Kantar, sonic cues take longer to recognize than visual assets, primarily because they are processed at different modalities in the brain. Auditory stimulus evolves in time; people usually need at least a few notes to recognize the cue. By contrast, Kantar found, people usually perceive the complete visual asset from the very first moment of exposure and can instantly start processing/recognizing it. It may therefore be advisable to test sonic cues separately from visual assets, especially if intuitiveness is considered a priority (D. Varma, personal communication, July 17, 2024; D. Varma, personal communication, October 15, 2024).

SUPPLIER APPROACHES

Here are some brief descriptions of recognized suppliers' approaches to obtaining data on the above-cited metrics.

Amp

Amp uses a cloud-based research and analytics tool to analyze how brands use sound across digital channels. They

collaborate with advanced AI platforms to identify the type of sonic asset (e.g., sonic logos) and evaluate them based on market demographics and psychographics. These tools measure the impact on sonic metrics, including emotional attributes for brand fit and functional attributes such as authenticity, in pre-market or in-market conditions. Amp has also conducted research on the fit of sonic assets through interviews with both consumers and "market experts" on brands' personalities and their corresponding "music personalities" (Arnese & Reese, 2022; F. Syed, personal communication, September 27, 2024).

Ehrenberg-Bass

The Ehrenberg-Bass Institute's method focuses on retrieval of the brand from category buyer memory. Their approach measures the strength of sonic assets, primarily via surveys, to provide guidance on current asset performance and future long-term potential. The approach also determines asset strength among key demographics or buying segments to determine if there are any shortfalls in how they have been executed with those segments. The two key dimensions explored in Ehrenberg-Bass's research on sonic DBAs are "Fame" (a measure of association) and "Uniqueness" (a measure of ownership) (Romaniuk & Nenycz-Thiel, 2014; J. Romaniuk, personal communication, September 24, 2024).

Ipsos

Ipsos evaluates brand assets along the same two dimensions as Ehrenberg Bass — "Fame" and Uniqueness. Individual brand assets are shown to target category buyers, one at a time in a survey, and respondents are asked to select the brand name(s) with which they believe that asset is associated. This multi-choice reaction-time approach measures the strength of the asset as a branding device relative to competitors and relative to other assets in the brand's toolkit. These measures are mapped back to the Ipsos database to provide further context on the assets' strength. This approach is used for all types of brand assets, including sonic. (Sheridan, 2020; J. Rice , personal communication, September 9, 2024)

Kantar

Kantar uses a combination of System 1 — intuitive response — and System 2 — considered response — to gain a full picture of how an asset would be recognized and processed in all decision-making scenarios. Kantar measures brand assets, including sonic assets, with three key metrics — **Fame** (How well known are the assets or brand cues?), **Distinctiveness**, and **Intuitiveness.** Based on these, it creates an overall index which it can compare to its global database.

Kantar also measures the instant feelings associated with the sonic assets. This approach factors in the speed of consumers' response as well as their overall responses, providing an unfiltered view of feelings and emotions about the asset. The technique also measures the values/feelings associated with the brand. This reveals whether the sonic cues or assets are reinforcing core brand values and are therefore in congruence with the brand. (D. Varma, personal communication, July 17, 2024; D. Varma, personal communication, October 15, 2024)

Sentient Decision Sciences

In partnership with Made Music Studio, Sentient Decision Sciences offers SonicPulse, which is designed to assess the impact and effectiveness of music and sound on a subconscious level. The approach measures implicit associations to isolate subconscious emotional responses to, and the meaning communicated by, audio stimuli both in isolation and in-context. Further, the

SonicPulse methodology determines the impact of audio on desire for an experience using Emotion-Weighted Discrete Choice methods (Perlmutter, 2018; C. McCandless, personal communication, September 8, 2024).

Songtradr

Songtradr has developed MusicIQ to help brands measure the effectiveness of their music strategy and link it to brand and business performance.

MusicIQ is a proprietary composite metric based on five variables, including consistency in musical style across channels/content, differentiation from other brand music in the category, music quality, engagement and the music's fit with both brand and target audience. This is done by leveraging Songtradr's proprietary AI-tagging tool to scan the brand's music across all channels and by conducting statistical analysis to formulate the MusicIQ score, benchmarked against competitors. To understand the link between MusicIQ and brand and business performance, Songtradr runs a consumer assessment of how MusicIQ is driving brand preference, brand loyalty and sales. The assessment employs a neural modeling technique which quantifies the impact of the emotions triggered by sound and music on consumer decision-making and long-term memory encoding (Songtrader, 2024; A. Lennon, personal communication, September 11, 2024).

System1

In System1's "Distinctive Asset Test," respondents are exposed to different stimuli and asked for the brand that is most closely associated with those stimuli. The results are weighted by the time it takes for the respondent to pick the brand. Respondents perform this exercise with 15 sonic assets at a time, along with other brands' assets, such as logos, slogans and characters. Their samples include all who would "ever consider purchasing" a brand in the category and not just current users (System1, 2024; A. Tindall, personal communication, August 28, 2024).

Veritonic

Veritonic's platform scores and benchmarks audio creative — including audio and podcast ads, sonic brand elements, voiceovers and music — to measure how well they resonate with audiences. These scores are powered by proprietary machine learning, which is trained through years of analyzing audio files, correlating them with second-by-second human response data to predict consumer response to different sonic cues. In addition, the company offers the Veritonic Audio Score**,** a composite valuation for assessing audio efficacy. The Audio Score is based on three metrics — recall, association and "creative resonance." These measures are obtained through customizable surveys of panelists (Simonelli, 2022; K. Charron, personal communications, September 9, 2024 - October 9, 2024).

Others

Other ways of assessing audio assets include:

- A traditional semantic differential technique wherein respondents are asked to rate their perceptions of brands and sonic assets with respect to a set of adjectives, such as "vibrant" or "tranquil." This approach determines how well the emotions triggered by sonic assets fit with the emotions associated with brands (Spence & Keller, 2024).
- Sonic semiotics to uncover the "meanings, signs and/or symbols associated with certain sounds" (Spence & Keller, 2024).
- Neuro-testing methods to probe the impact of sounds at a subconscious level that can be deployed as a passive alternative to implicit association testing (Spence & Keller, 2024).

SECTION 8: HOW MARKETERS CAN GET STARTED

The playbook for sonic assets remains elusive for most marketing and advertising professionals. But if you are interested in looking deeper into how to best use sonic assets to amplify your advertising message, there are stepping stones that you can consider:

- **Identify the goal**. Have clarity on the strategic role the sound will play, including what it needs to do emotionally for the brand in a way that words alone cannot convey.
- **Align with brand values**. A crucial aspect when establishing a sonic identity is a common language between production and marketing on creating strategies that are relevant to the brand. The most successful brands use sound that is not just brand-aligned and differentiated but is also high in energy and arousal.
- **Use exploratory research methods**. Utilize qualitative research to identify the extent to which a prospective sonic identity aligns with brand values. Meaningfully explore and understand the audience emotions elicited by sonic brand concepts and avoid potential unintended red flags — for example, the sonic identity creates unintended associations or is like another sound the audience may associate with something other than your brand.
- **Use your brand sound consistently**. This means you must have very clear themes that can appear across multiple touchpoints and commit to the use of sound, not just in one ad but across the brand experience and time.
- **Include the name of the brand** (either spoken or sung) when introducing a new sonic logo to help build association and recall in the mind of the customer.
- **Develop a detailed plan to measure applications.** Measure usage, not just performance. If you have sonic brand assets, determine if they're being consistently applied across your advertising before you start to measure their impact. Like any distinctive brand asset, sonic brand assets have to be applied consistently to wear in. Understanding their activation rate, both as a percentage of ads and a percentage of media spend, can help inform whether they've been sufficiently applied to be tied back to performance.
- **Measure for effectiveness and resonance.** The next step of a well-structured measurement plan is to ensure that your audio branding efforts are effective and resonate with your audience. By systematically measuring the effectiveness of sonic brand assets, you can make informed decisions to optimize recall, brand recognition, emotional impact and engagement. Data collection tools will vary depending on learning goals. However, most brands should consider creating or adapting questionnaires for surveys and interview guides for qualitative research, setting up analytics dashboards to track and visualize metrics and/or integrating System 1 measurement tools for measuring and quantifying the impact of sonic DBAs.

REFERENCES

Allan, D. (2006). Effects of popular music in advertising on attention and memory. *Journal of Advertising Research, 46*(4), 434-444.

Anglada-Tort, M., Keller, S., Steffens, J., & Müllensiefen, D. (2021). The impact of source effects on the evaluation of music for advertising: Are there differences in how advertising professionals and consumers judge music? *Journal of Advertising Research, 61*(1), 95-109.

Anheuser-Busch. (2017, February 1). *Press releases: BUSCHHHHH beer debuts first-ever Super Bowl commercial ahead of Super Bowl LI.* Anheuser-Busch.

Arnese, M., & Reese, U. (2022). *Best audio brands.* AMP.

Audacy. (2023, February 13). *A joint study by Audacy and Veritonic highlights how to make audio ads most effective*. Audacy.

Bakker, D. R., & Martin, F. H. (2015). Musical chords and emotion: Major and minor triads are processed for emotion. *Cognitive, Affective, & Behavioral Neuroscience, 15(1), 15-31.*

Beckerman, J. (2015). *The sonic boom: How sound transforms the way we think, feel, and buy*. Mariner Books.

Bonde, A., & Hansen, A. G. (2013). Audio logo recognition, reduced articulation and coding orientation: Rudiments of quantitative research integrating branding theory, social semiotics and music psychology. *SoundEffects-An Interdisciplinary Journal of Sound and Sound Experience, 3*(1-2), 112-135.

Bose, N. (2020). The partition of pop music. *Tastemakers Magazine*. Issu.

Bratten, E. (2021, December 2). *As smart speakers evolve, so do consumers.* Comscore.

Broadbridge, F., Mangio, V., & Di Dominico, G. (2023). How brand managers can maximize engagement with ASMR YouTube content influencers who give you the "tingles" through autonomous sensory meridian response cues. *Journal of Advertising Research*, *63*(4), 313-334.

Carolan, B. (2015, May 11). *Why are ads of today increasingly using cover songs?* Little Black Book.

Collins, A. M., & Loftus, E. F. (1975). A spreading-activation theory of semantic processing. *Psychological Review, 82*(6), 407–428.

De Lucia, M. (2021, June 10). *Unlocking the power that music and sound have on consumer spending*. Brandingmag.

Diaz, A. (2021, October 18). 45 years of Apple sounds went into making this song. *AdAge.*

Dominus, S. (2006, Oct. 22). The Starbucks aesthetic. *The New York Times.*

duBrowa, C. (2021, November 11). *We can work it out: The inside story of how Nike's ad featuring The Beatles' "Revolution" started a legal (and advertising) war that eventually gave peace a chance*. Magnet: Real Music Alternatives.

Faull, J. (2022, Aug. 19). *Sound investments: Just how effective is audio branding?* The Drum.

Fulberg, P. (2003). Using sonic branding in the retail environment—an easy and effective way to create consumer brand loyalty while enhancing the in-store experience. *Journal of Consumer Behaviour: An International Research Review, 3*(2), 193-198.

Gokhale, N. (2023, July 2). *The tudum sound: Netflix's iconic audio brand identity*. LinkedIn Newsletters: The Voice of Business.

Gustafsson, C. (2015). Sonic branding: A consumer-oriented literature review. *Journal of Brand Management, 22,* 20-37.

Harris, B. (2008, March). Three famous notes of broadcasting history—The NBC chimes. Radio Remembered.

Holden, S. J. S. (1993). Understanding brand awareness: Let me give you a c(l)ue!. *Advances in Consumer Research*, *20*(1), 383-387.

Hornbake Library. (2022, May 19). Pepsi Cola jingle—Pepsi Cola hits the spot [Video]. YouTube.

Horowitz, S. (2013). *The universal sense: How hearing shapes the mind.* Bloomsbury USA.

Hul, M. K., Dube, L., & Chebat, J. C. (1997). The impact of music on consumers' reactions to waiting for services. *Journal of Retailing, 73*(1), 87-104.

Inside Radio. (2022a, August 9). *Build brand better: Panera joins the 'sonic logo' club.* Inside Radio.

Inside Radio. (2022b, October 28). *How audio helped Tostitos improve brand metrics—and have fun*. Inside Radio.

Jake, The Air Warden. (2020, October 2). Have you tried Wheaties? (1926 radio jingle) [Video]. YouTube.

Kellaris, J. J., & Kent, R. (1991). Exploring tempo and modality effects, on consumer responses to music. *ACR North American Advances, 18*.

Keller, S., & Spence, C. (2023). Sounds like branding: Cognitive principles and crossmodal considerations for the design of successful sonic logos. *Expert Journal of Marketing, 11*(2), 91-117.

Koelsch, S. (2014). Brain correlates of music-evoked emotions. *Nature Reviews Neuroscience, 15*, 170–180.

Jackson, D. M. (2003). *Sonic branding. Palgrave Macmillan Books.*

Linn, A. (2006). Start me up: The sound of Vista. MSNBC.

Lumen. (n.d.). Case study: Red Bull wins the "extreme" niche. Lumenlearning.

Lusensky, J. (2010). *Sounds like branding.* Heartbeats International.

Mancini, R. (2022, October 12). *Audacy: Sonic strategies that help brands achieve their goals*. MediaVillage.

Marghzar, S. (2022, January 14). *The science of sound*. Stephan Arnold Music.

Mas, L., Bolls, P., Rodero, E., Barreda-Ángeles, M., & Churchill, A. (2021). The impact of the sonic logo's acoustic features on orienting responses, emotions and brand personality transmission. *Journal of Product & Brand Management, 30(5), 740-53.*

MassiveMusic. (2023a). *The sound of Colgate.* MassiveMusic.

MassiveMusic. (2023b). *The sound of ING*. MassiveMusic.

Meyers, A. (2022, July 22). *How Panera incorporated sound into its brand refresh.* Marketing Brew.

Minsky, L., & Fahey, C. (2014, February 7). What does your brand sound like? *Harvard Business Review.*

Myers, J. (2024, May 6). *What is sonic branding?* MediaVillage.

Nelson-Field, K. (2020). *The attention economy and how media works* (pp.71-77). Springer Link.

Nomura, T., & Mitsukura, Y. (2015). EEG-based detection of TV commercials effects. *Procedia Computer Science, 60*, 131-140.

North, A. C., MacKenzie, L. C., Law, R. M., & Hargreaves, D. J. (2004). The effects of musical and voice 'fit' on responses to adverts. *Journal of Applied Social Psychology, 34*(8), 1675-1708.

Passman, J. (2017, February 17). Intel, Netflix, Apple and the power and influence of sonic branding. *Forbes.*

Pavlov, I. P. (1927). *Conditioned reflexes: An investigation of the physiological activity of cerebral cortex. Oxford University Press.*

Perlmutter, K. (2018, February 20). *Shoplifting & silence at Amazon Go.* LinkedIn.

Perlovsky, L. (2012). Cognitive function, origin, and evolution of musical emotions. *Musicae Scientiae.*

Rajamannar, R. (2022, June 222). Sonic branding is the next marketing disruptor. *Adweek.*

Romaniuk, J. (2018). *Building distinctive brand assets.* Oxford University Press.

Romaniuk, J., & Nenycz-Thile, M. (2014). Measuring the strength of color brand-name links: The comparative efficacy of measurement approaches. *Journal of Advertising Research, 54*(3), 313-319.

Roschk, H., Loureiro, S. M. C., & Breitsohl, J. (2017). Calibrating 30 years of experimental research: A meta-analysis of the atmospheric effects of music, scent, and color. *Journal of Retailing, 93*(2), 228-240.

Sands, S., Campbell, C., Mavrommatis, A., & Kadomskaia, V. (2022). Can a whisper boost recall of video advertisements? Exploring the effects of autonomous sensory meridian response (ASMR) in advertising. *Journal of Advertising Research*, *62*(3), 287-296.

Sandzer-Bell, E. (2024, January 11). *Sonic branding: Creating the sounds that define a company.* Audiocipher.

Scherer, K. R., & Oshinsky, J. S. (1977). Cue utilization in emotion attribution from auditory stimuli. *Motivation and Emotion, 1(4), 331–346.*

Sheridan, A. (2020, February). *The power of you. Why distinctive brand assets are a driving force of creative effectiveness.* Ipsos.

Simonelli, S. (2022). *Veritonic USA Audio Logo Index*. Veritonic.

Songtradr. (2024). *About Songtradr.* Songtradr.

Soundout. (2023). *The Soundout Index 2023, U.S. Edition. Sonic brand tracking of 135 brands 2021-2023*. Soundout.

Spence, C., & Keller, S. (2024). Sonic branding: A narrative review at the intersection of art and science. *Psychology and Marketing, 41*(7), *1530-1548.*

Stutz, C. (2018, January 10). How hit songs in commercials might be making you shop more. *Billboard.*

Sung, Y. S., Choi, M. J., Chung, S. J., & Kim, C. Y. (2011). Neural responses to sonic branding: An fMRI study. *Science of Emotion and Sensibility, 14*(1), 93-100.

System 1. (2024). *Introduction to distinctive asset testing.* System 1 Group PLC.

Unit9. (2018, November 26). *Big Ben may be out of action, but, on November 20th, a new bell stepped in to give it back its mojo*. Unit9.

Walther, K. (2006). Lufthansa's world of sound: Corporate sound increases brand recognition. Luftansha.

WebMD Editorial Board. (2021, June 28). *What is echoic memory?* WebMD.

Westermann, C. F. (2008). Sound branding and corporate voice: Strategic brand management using sound. In T. Hempel (Ed.), *Usability of speech dialogue systems* (pp.147-155). Springer Berlin Heidelberg.

Wikipedia. (2024, August 14). *NBC chimes.* Wikipedia.

ADDITIONAL READINGS

Aaker, D. A., Stayman, D. M., & Vezina, R. (1988). Identifying feelings elicited by advertising. *Psychology & Marketing, 5*(1), 1-16.

Akkawi, K. (2024, January 17). 5 Reasons why sonic branding is important. *Rolling Stone*.

Arnould, E. J., & Thompson, C. J. (2005). Consumer culture theory (CCT): Twenty years of research. *Journal of Consumer Research, 31(4), 868-882.*

Beer, J. (2016, Nov. 18). Gatorade and Spotify have teamed up to soundtrack your workouts. Fast Company.

Biehal, G., Stephens, D., & Curio, E. (1992). Attitude toward the ad and brand choice. *Journal of Advertising, 21*(3), 19-36.

Bode, M. (2009). Making sense of music in advertising research: An interpretative model of the interaction between music and image. In N. Graakjaer & C. Jantzen (Eds.), *Music in advertising: Commercial sounds in media communication and other settings* (pp. 75-98). Aalborg University Press.

Bradshaw, A., & Holbrook, M. B. (2008). Must we have Muzak wherever we go? A critical consideration of the consumer culture. *Consumption, Markets and Culture, 11*(1), 25-43.

Bradshaw, A., McDonagh, P., Marshall, D., & Bradshaw, H. (2005). "Exiled music herself, pushed to the edge of existence": The experience of musicians who perform background music. *Consumption Markets & Culture, 8(3), 219-239.*

Bruner, G. C. (1990). Music, mood, and marketing. *Journal of Marketing, 54*(4), 94-104.

Chau, C. J., Wu, B., & Horner, A. (2014). Timbre features and music emotion in plucked string, mallet percussion, and keyboard tones. *ICMC,* Athens, Greece.

DeNora, T. (2000). *Music in everyday life*. Cambridge University Press.

Gartenberg, C. (2021, Oct. 18). *Listen to the sick Mac sound effect song that Apple opened its keynote with.* The Verge.

Graakjær, N. J. (2013). Sounding out the logo shot. *Sound Effects-An Interdisciplinary Journal of Sound and Sound Experience, 3*(1-2), 78-95.

Graakjær, N. J., & Jantzen, C. (2009). *Music in advertising: Commercial sounds in media communication and other settings.* Aalborg Universitetsforlag.

Hultén, B. (2011). Sensory marketing: The multi-sensory brand-experience concept. *European Business Review, 23*(3), 256-273.

The Human Memory. (2023). *Memory encoding.* The Human Memory.

Jaquet, L., Danuser, B., & Gomez, P. (2014). Music and felt emotions: How systematic pitch level variations affect the experience of pleasantness and arousal. *Psychology of Music, 42(1), 51-70.*

Juslin, P. N., & Sloboda, J. A. (Eds.). (2010). *Handbook of music and emotion: Theory, research, applications*. Oxford University Press.

Kellaris, J. J., & Altsech, M. (1992). The experience of time as a function of musical loudness and gender of listener. *Advances in Consumer Research, 19*(1).

Kilian, K. (2009). From brand identity to audio branding. In H. Bronner & H. Rainer (Eds.) Audio branding: Brands, sound and communication (pp. 35–48). Nomos.

Kjems, K. (2023). *Audio branding*. NMSBA.

Knoferle, K. M., Spangenberg, E. R., Herrmann, A., & Landwehr, J. R. (2012). It is all in the mix: The interactive effect of music tempo and mode on in-store sales. *Marketing Letters, 23,* 325-337.

Kotler, P. (1973). Atmospherics as a marketing tool. *Journal of Retailing, 49*(4), 48-64.

Krasilovsky, W., & Shemel, S. (2007). *This business of music, the definitive guide to the business and legal issues of music industry* (10th ed.). Billboard Books.

Krishna, A. (2013). *Customer sense: How the 5 senses influence buying behavior.* Springer.

Krishnan, V., Kellaris, J. J., & Aurand, T. W. (2012). Sonic logos: Can sound influence willingness to pay? J*ournal of Product & Brand Management, 21*(4), 275-284.

Krishnan, V., Machleit, K. A., Kellaris, J. J., Sullivan, U. Y., & Aurand, T. W. (2014). Musical intelligence: Explication, measurement, and implications for consumer behavior. *Journal of Consumer Marketing, 31*(4), 278-289.

Kusatz, H. (2007, January 11). Acoustic brand management: Increasing the acoustic perception of brands. Second *International VDT Symposium–Sound Design*, Ludwigsburg, Germany.

Lennon, A., Williamson, R., Sauer, J., & Kintzer, A. (n.d.). *The music of beer*. Songtradr.

Littman, J., & Camp, S. (2017, December 31). *Sonic innovation: The new frontier*. SmartUp.

MacKenzie, S., & Lutz, R. (1989). An empirical examination of the structural antecedents of attitude toward the ad in an advertising pretesting context. *Journal of Marketing, 53*(2), 48-65.

MacKenzie, S., Lutz, R., & Belch, G. (1986). The role of attitude toward the ad as a mediator of advertising effectiveness: A test of competing explanations. *Journal of Marketing Research, 23*(2), 130-143.

Mas Manchón, L. (2019). Sonic logos: An experimental design on sound features and brand personality. *Disertaciones: Anuario Electrónico de Estudios en Comunicación Social*, *12*(2), 125-141.

McCormick, K. K. (2006). 'Ding' you are now free to register that sound. *The Trademark Reporter, 96(5), 1101–1121.*

McCusker, G. (1997). The audio logo: A case study of Radio Scotland's on-air identity. *Journal of Communication Management, 1*(4), 362-373.

McGregor, I. P., & Cunningham, S. (2015). Comparative evaluation of radio and audio logo sound designs. *Journal of the Audio Engineering Society, 63*(11), 876-888.

Morris, J. D., & Boone, M. A. (1998). The effects of music on emotional response, brand attitude, and purchase intent in an emotional advertising condition. *Advances in Consumer Research, 25*(1), 518-526.

Muzellec, L., & O'Raghallaigh, E. (2018). Mobile technology and its impact on the consumer decision-making journey: How brands can capture the mobile-driven "ubiquitous" moment of truth. *Journal of Advertising Research, 58*(1), 12-15.

Pantoja, F., & Borges, A. (2017). Is it a matter of tempo? Music tempo effects on food's purchase intentions and perceived taste: an abstract. *Academy of Marketing Science World Marketing Congress* (pp. 27-27). Springer.

Park, C. W., & Young, S. M. (1986). Consumer response to television commercials: The impact of involvement and background music on brand attitude formation. *Journal of Marketing Research, 23(1), 11-24.*

Perlmutter, K. (2018, November 12). Beep! Bloop! Buzz! Why do UX designers often neglect sound? *Wired.*

Pinch, T., & Bijsterveld, K. (2004). Sound studies: New technologies and music. *Social Studies of Science, 34*(5), 635–648.

Pittsburgh Post-Gazette. (1950, June 10). NBC's chime-like notes patented trade mark. Pittsburgh Post-Gazette.

Queens of Tech Impact Media. (2020, November 19). Consumer neuroscience: The benefits & dangers with popular music in branding [Video]. YouTube.

Scherzinger, M. (2005). Music, corporate power, and unending war. *Cultural Critique, (60), 23-67.*

Schroeder, J. E., & Borgerson, J. L. (1999). Packaging paradise: Consuming Hawaiian music. Advances in Consumer Research, 26, 46-50.

Shoshani, M. (2024). *The NBC Chimes Museum: A celebration of old-time radio's most famous signature*. NBC Chimes.

Suchman, P. (2023, Apr. 17). Your brain on sound: Marketing and the neuroscience of sonic identity. *AdAge.*

Sung, H., Chang, A. M., & Lee, W. (2010). A preferred music listening intervention to reduce anxiety in older adults with dementia in nursing homes. *Journal of Clinical Nursing, 19(7–8),* 1056–1064.

Techawachirakul, M., Pathak, A., & Calvert, G. A. (2022). That sounds healthy! Audio and visual frequency differences in brand sound logos modify the perception of food healthfulness. *Food Quality and Preference*, *99*, 104544.

Treasure, J. (2007). *Sound business.* Management Books 2000.

van Leeuwen, T. (2017). Sonic logos. Music as multimodal discourse. *Semiotics, Power and Protest, 119-134.*

Wand, R. (2009, June 30). *The ear is totally neglected. Everything is centered on the eye.* Keep the Noise Down.

Wazir, M. I. (2015). Effects of sonic logo on brand recognition of the advertised brand. *City University Research Journal, 5(2).*

Yoo, C., & MacInnis, D. (2005). The brand attitude formation process of emotional and informational ads. *Journal of Business Research, 58*(10), 1397-1406.

APPENDIX

SONIC DBAs

Busch Beer

Colgate

Duracell

Farmers Insurance

Folgers

Good Humor

Harley Davidson

Hot Pockets

ING

Intel

Liberty Mutual

Little Caesar's

Mastercard

McDonald's

Microsoft Windows

NBC

Netfilx

Nike

Nokia

Oscar Mayer

PC Richard

Panera

Pepsi (1939)

Philips

Pillsbury Doughboy

Red Bull

Société Nationale des Chemins de fer Français (SNCF)

State Farm

Taco Bell

T-Mobile

Tostitos

Tums

United Airlines

Wheaties (1926)