Audio Processing:
State-of-the-Art

The changing role of audio processing in the radio industry

Josh Gordon

Director of Marketing and Content Development

Wheatstone Corporation

How important is audio processing to a radio station?

Is processing strictly the realm of the engineer or do programming directors care about it too? Do people believe processing has an effect on programming? Does it impact ad sales?

Is it something only engineers really understand or do programmers understand its importance as well? Is it more important in larger markets than small? What sound characteristics do radio station personnel believe to be the most important for helping them stand out in their markets?

These are the types of questions this study will answer. By casting a wide net and using four different independent databases, we hope to raise the level of understanding about how processing and programming are interrelated.

The study results presented here are based on a survey that was sent to four different independent mailing lists covering radio engineers, managers, and programmers. Wheatstone databases were not used and an independent research company, Alethea Research, conducted the actual study. We wanted to uncover what respondents believe processing can and cannot do, what its relative importance is, and how it affects programming. For more information on the survey methodology give us a call.

The sample was split evenly between large, medium, and small market stations:

> ADI 1 to 25: 27.8%
>
> ADI 26 to 100: 32.9%
>
> ADI 101 to 200: 29.8%

It was weighted more toward FM stations:

> AM only: 11.1%
>
> FM only: 51.2%
>
> Both AM and FM: 36.6%.

What we discovered is a shifting landscape where many long-held attitudes about what processing can do for radio are changing.

Finding #1: The acoustic quality radio personnel now find most valuable is cleaner sound.

This finding came as a surprise to many who believe the top need is to be competitively loud. But audio processing technology has advanced to the point where virtually any audio processor can make any station loud. Loudness is a given, and will not make your station stand out like it used to.

Although 35.8% of respondents chose loudness as important, today more qualitative aspects are viewed as more valuable than simply being loud, such as sound that is cleaner (71.4%), fuller (48.3%), has more definition (44.5%), and is brighter (41.5%).
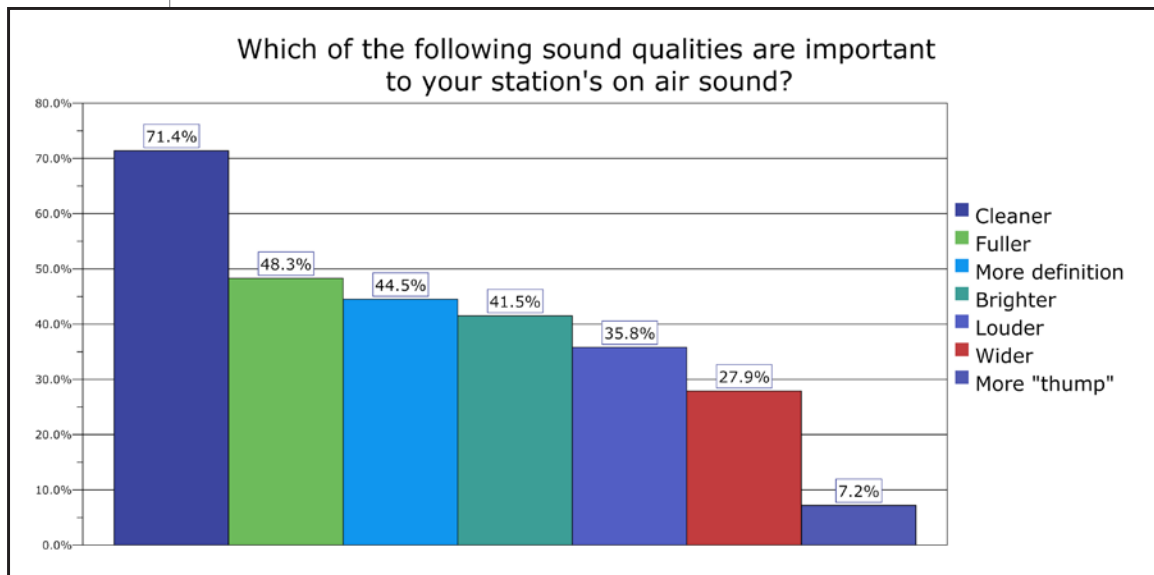
Is the loud era over? While loud is no longer the most preferred sound quality among radio station personnel, according to some (35.8%) it is still important -- it's just become a given and therefore not the way to differentiate a station like it was years ago.

Says Bill Tanner, owner of Bill Tanner & Associates, Inc., "I would advise against playing the loudness war. It is unnecessary because that's something that exists largely in the minds of program directors and not in the minds of listeners. I've never heard anybody say they listen to a radio station because it's loud. I think they want a station to sound great, and the better it sounds, the longer they will listen for. They are in the car at same time every day hearing a lot of the same songs. Make sure they sound better on your station."

Jaye Albright, partner at Albright & O'Malley Country Consulting/Radio IQ offers, "What listeners like more than anything is a station that's entertaining to listen to. I don't know that listeners would make a statement that, 'I want to listen to a station that's loud.' What listeners do want is a station that is powerful, big, so they can drive long distances and not have to change stations. People are irritated when a station that they like fades, so anything you do to create a perception that you're the biggest, most powerful thing [is good]."

Finding #2: For radio stations, being louder is more important in larger markets, and having a brighter sound is more important in smaller markets.

When we compare acoustic sound quality against the size of the radio market, having a cleaner sound is still, across the board, the most important sound quality for stations. But the value of other sound qualities varies. In larger markets (ADI 1 to 25) a higher percent of stations pick loudness as an important sound quality (42.2%). That number drops to 35.9% in ADI 26 to 100, and drops again to 32.0% for ADIs over 100. In larger markets where there is more competition, loudness matters more.

There is an opposite trend for the quality of brightness. In ADI 1 to 25 only 34.9% of respondents picked brightness as an important sound quality for their station. That number rose to 44.3% for ADI 26 to 100, and rose again to 46.4% in ADIs over 100. The smaller the market, the more likely a brighter sound plays well.

Which of the following sound qualities are important to your station's on air sound?
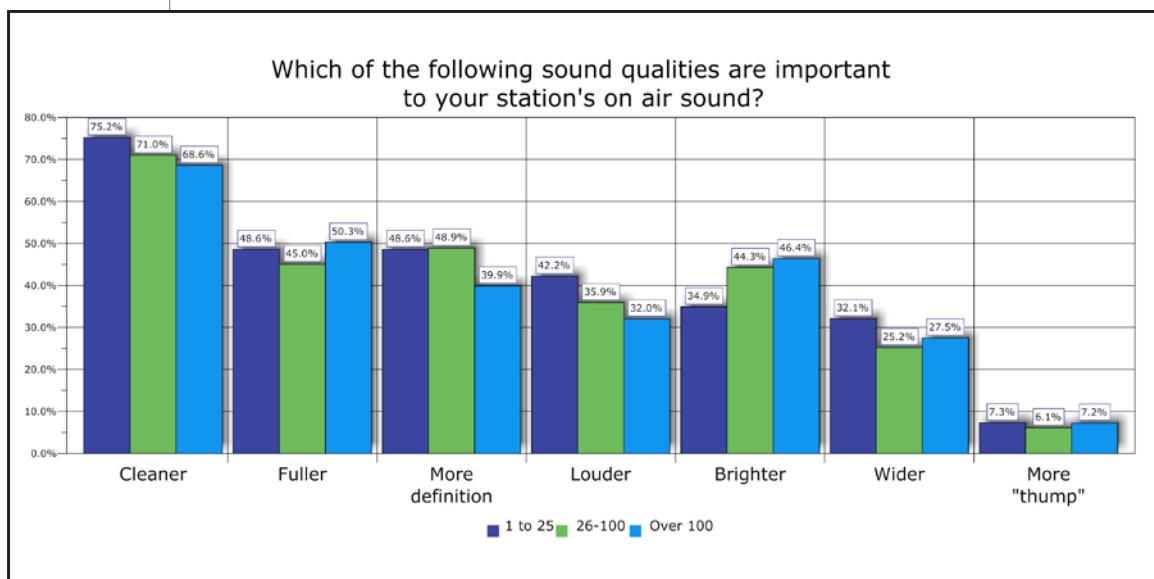
According to Gary Kline, Vice President Corporate Engineering & IT for Cumulus Broadcasting, "Because of the way your competition behaves in larger markets, your processing style might need to be adjusted to accommodate competitive challenges. It's not because radio people are saying, 'Hey, I'm in a big market so I need to be louder.' Sometimes it may be that the market is leading you rather than you leading the market."

Bill Tanner adds, "Larger market stations are trying anything to get an advantage and some feel loudness is an advantage. I feel that what's an advantage is cleanliness. But you still need to be loud. I'm not advocating letting your station die on the dial."

Finding #3: Radio engineers see more value in the high and low ends of the audio spectrum than do programmers and managers.

When respondents were asked what part of the spectral range was most important for their station, there were few surprises. The most often selected was the mid-range (at 65.6%) where most hearing sensitivity is centered, followed by the upper mid-range at 52.6%.

But when that same question was sorted against job title, an interesting dichotomy emerged. While there was some small variance between management, programming and engineering in terms of the importance of the entire mid range, there was far less agreement regarding the importance of the very high end and low end. In fact, engineers saw these two areas as about twice as important as did management and programming. Could this point to a possible weakness in management and programming's understanding of the audio spectrum?
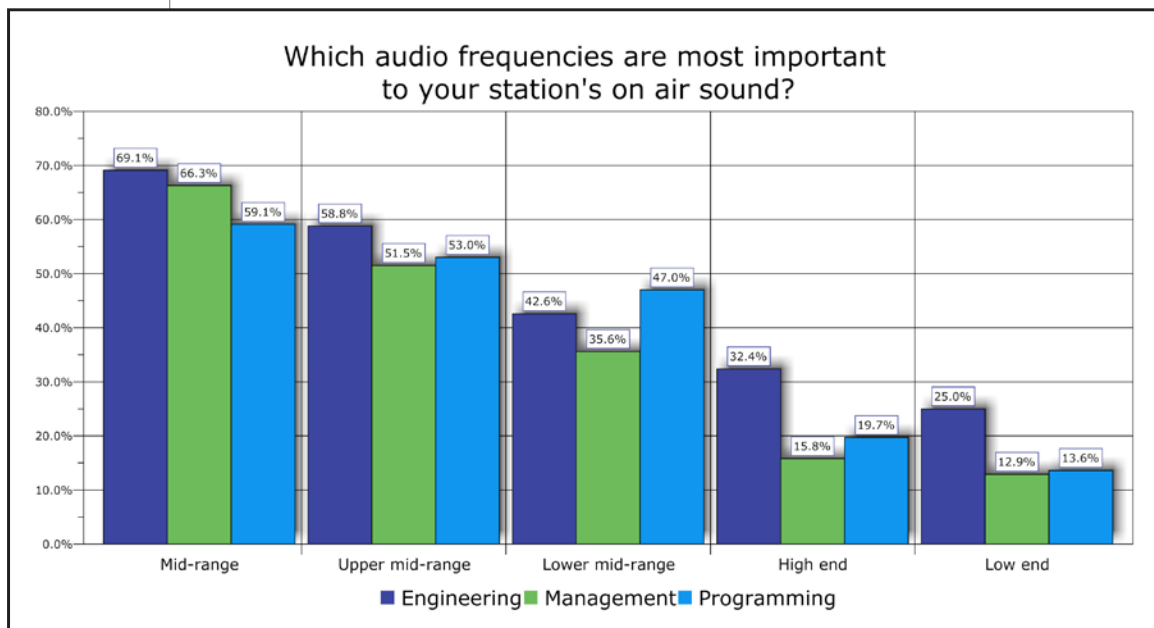
The high end and the low end of the spectrum are very important to a station's overall sound. But with fewer engineers "in the building," these could be the kind of understandings that are not being passed on to managers and programming personnel through discussions "at the water cooler."

Finding #4: When it comes to audio processing, the largest percentage of stations "set it and forget it."

How often do stations adjust their processing? The largest percent, 42.8%, say they "set it and forget it," leaving it alone once it is set up. A little less than one quarter (22%) say they constantly monitor the sound of other stations and make adjustments accordingly. One in five (20%) said they revisit their on-air sound about twice a year, while only 6.8% revisit their audio processing after every ratings period.
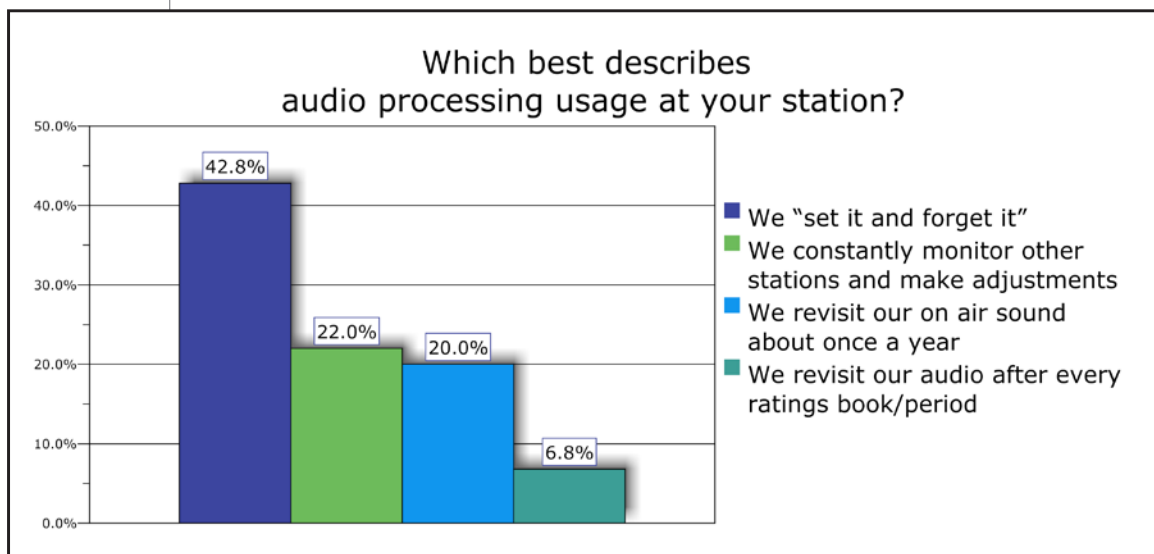

Bill Tanner also advocates a consistent approach to setting processing: "Once you have your processing set you should pretty well leave it alone. If you're just a constant knob twister, you'll lose the focus of what you're actually trying to do. I believe there is a happy medium between adjusting processing competitively and spending a lot of time with it. But the idea of tuning it every day is not too productive."

Gary Kline feels that there should be a strong link between how a station's processing is adjusted and the station's overall business plan: "Adjusting processing is not just about audio processing, it is also about business. Before you start to 'twist the knobs,' you need to have a processing strategy that supports your station's business goals. A processing business plan can [outline] how processing can continue to enhance the return on investment of a station, how it can help earn more money, or how it can retain a dominant position as a top biller in the market. Once you have buy-in on a business plan, and a processing strategy that supports it, then you are ready to adjust your processor. But I advise you to set it, lock it, and never forget it, because things can change."

**Finding #5: Stations in larger markets adjust processing more often than stations in smaller markets.**

In larger markets, where there is more competition, stations adjust their processing more often. In ADI 1 to 25 only about a third (35.8%) of stations take a "set it and forget it" approach to their processing. That number rises to 43.8% for ADI 26 to 100, and goes up again to 46.7% for ADI markets over 100.

Which best describes audio processing usage at your station?
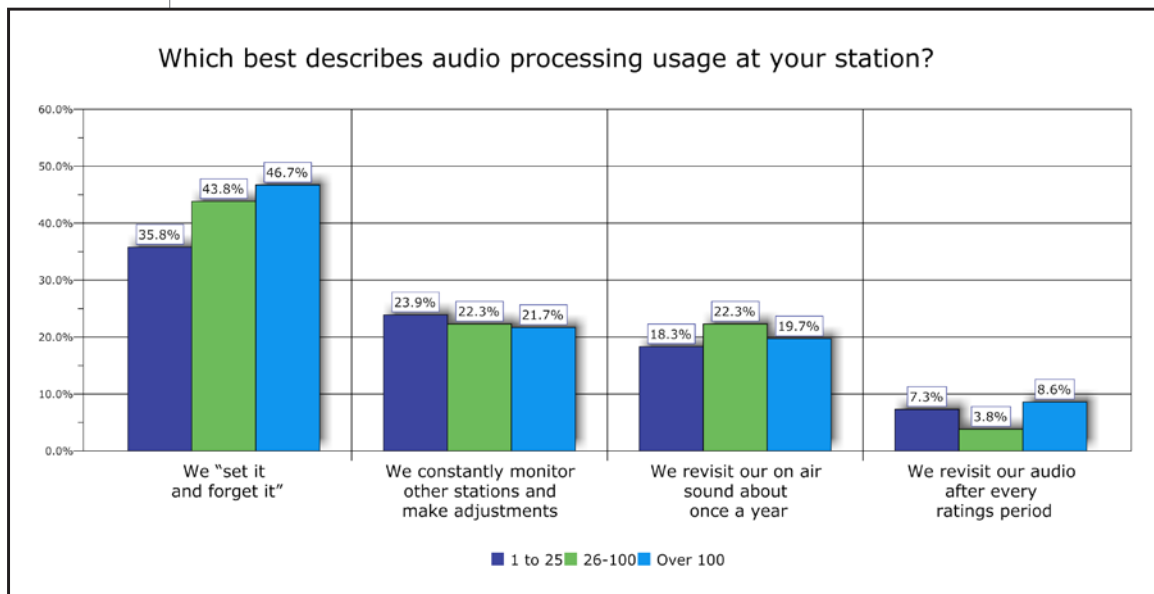
Competitive pressure affects the use of processing. In Finding #2 we saw how larger market stations put more emphasis on loudness than stations in smaller markets. Here we see similar motivation, as stations in larger markets feel they must adjust processing more often to stay ahead of the competition.

Finding #6: Processing's top benefit to radio is the sense of quality it creates.

Processing impacts a station's relationship with its listeners, but opinions as to how vary widely. About two thirds of respondents (68.3%) believe that the top benefit of processing is that it creates a sense of value for their station. About 40% (39.2%) believe that it differentiates them from other stations in their market, while almost a third (27.9%) believe that processing attracts new listeners. Only 7.27% believe that processing has no effect on the station's relationship with listeners.
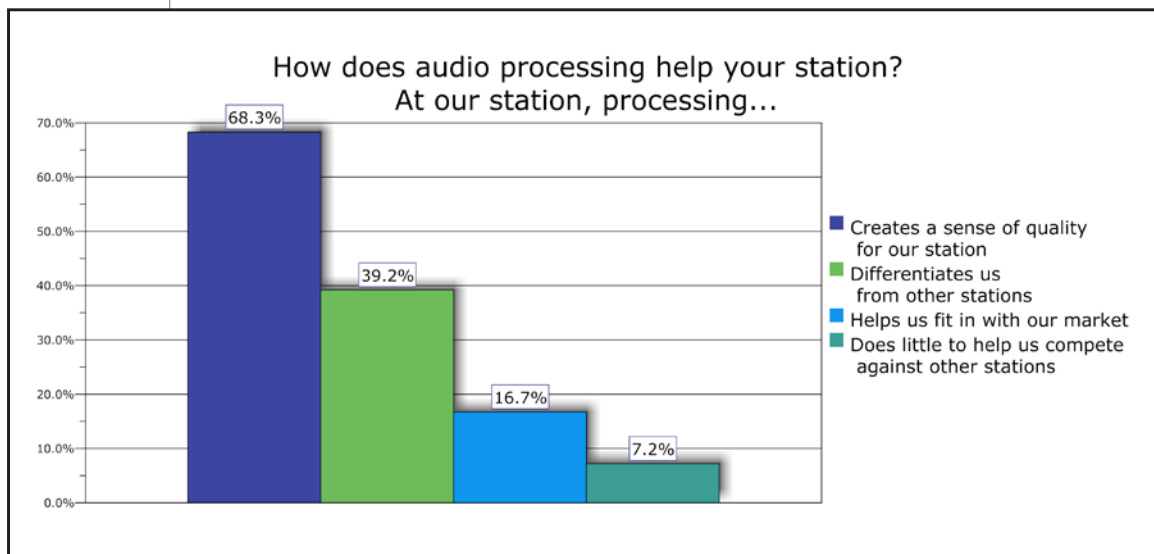
Finding #7: Programmers are more skeptical than engineers or managers on whether processing can differentiate one station from others in a market.

Programmers, managers, and engineers all agree that processing creates a sense of value for their station but they differ on how much it actually helps differentiate their station from other stations. While 45.6% of engineers and 41.6% of station managers believe that processing does help differentiate their station, only 27.3% of programmers agree. It seems that programmers believe more in programming as the differentiator.

How does audio processing help your station?
At our station, processing...
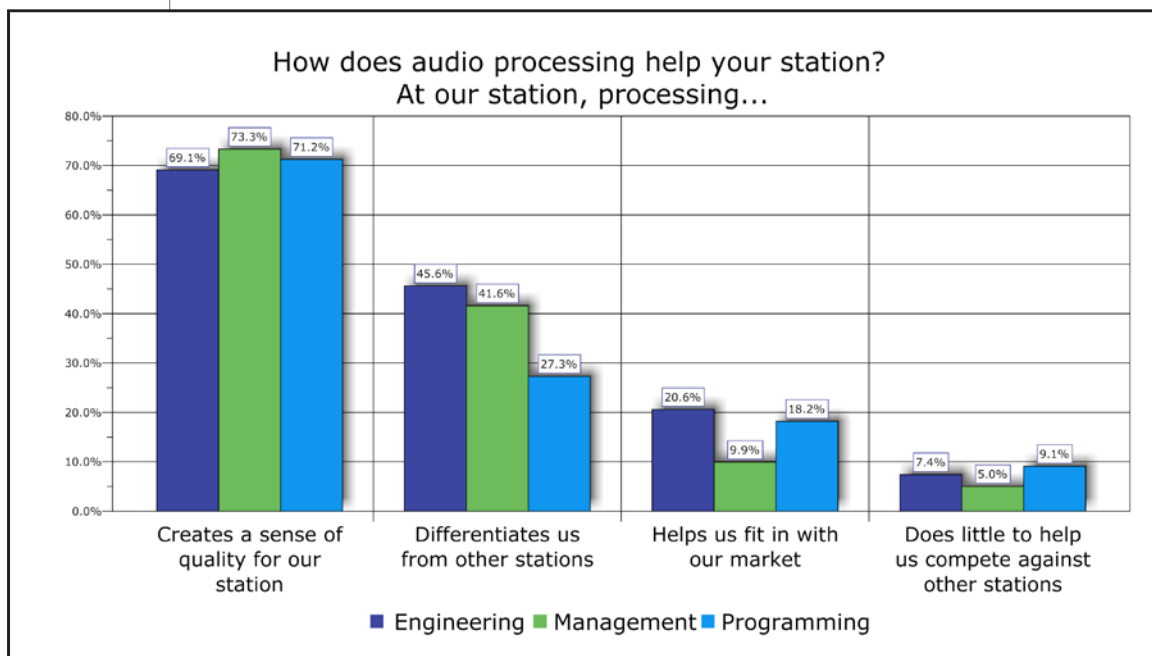
Gary Kline takes the engineers' view here: "I would say processing can help differentiate a station in a market. I'm surprised to see programmers are more skeptical about that. Maybe some of the respondents are newer, younger programmers who haven't been exposed to different and well defined audio signatures."

On the other hand, Bill Tanner points out the drawbacks of generalizing: "I have markets where the manager is absolutely focused and knows well what the station should sound like and has a great ear for it, and the programmers don't so much. And I have other markets where the programmers are really attuned to the technical sound of the station and the managers just sort of grin and say 'whatever makes you happy.' It depends on the individual talent of the people that you have at the radio stations."

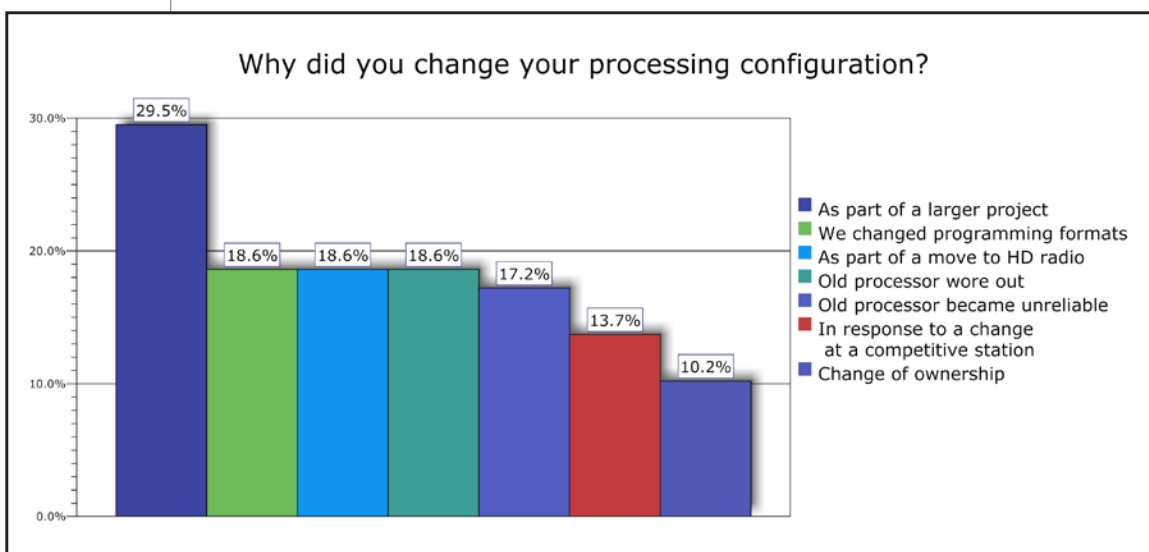### Finding #8. Few believe that processing helps radio compete with satellite radio, iPods, or Pandora.

When asked if audio processing helped their station compete against some of the new radio audience competitors, few respondents thought it could. Only 14.2% thought processing helped them compete against MP3 listening devices, 12.2% against Pandora-like services, and 12.0% against satellite radio.

How does audio processing help your station?
At our station, processing...
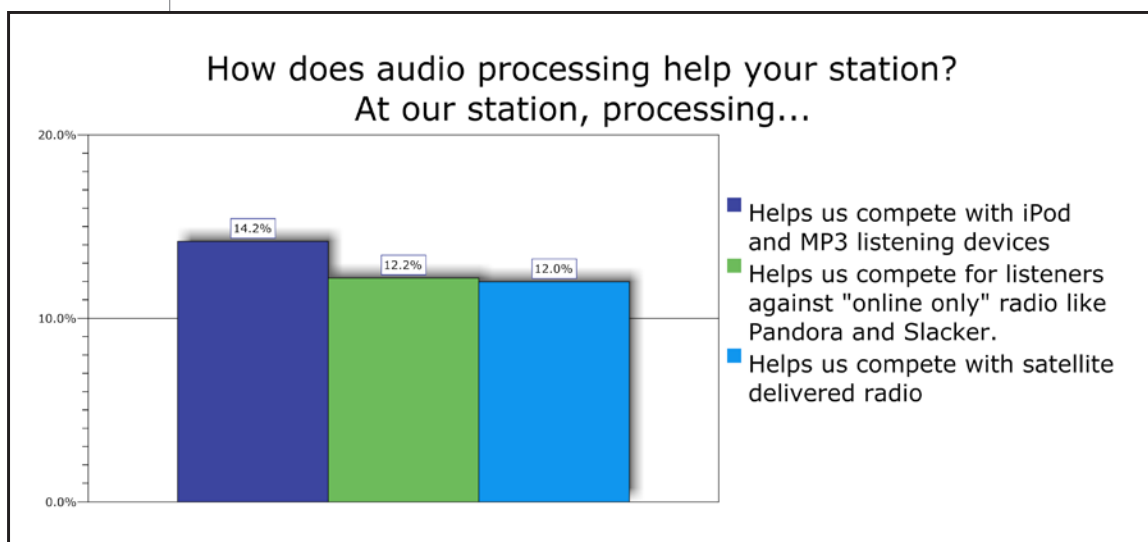
Says Gary Kline, "Keep in mind that programming sources like Pandora, Internet streaming, and satellite delivered radio all use some form of processing – even if it is basic. Technically speaking, processing is not going make a big difference here. There's a part of me that says the higher quality audio we deliver on terrestrial radio coupled with excellent processing does make a difference. But there's also a part of me that says so many people have been trained to accept the audio quality of MP3 (via iPod and other digitally delivered methods), that the bar has in a way been lowered. I've spoken to a number of people in our industry who have similar things to say. Is audio quality the main factor or are there other higher ranking reasons for choosing one medium over another?"
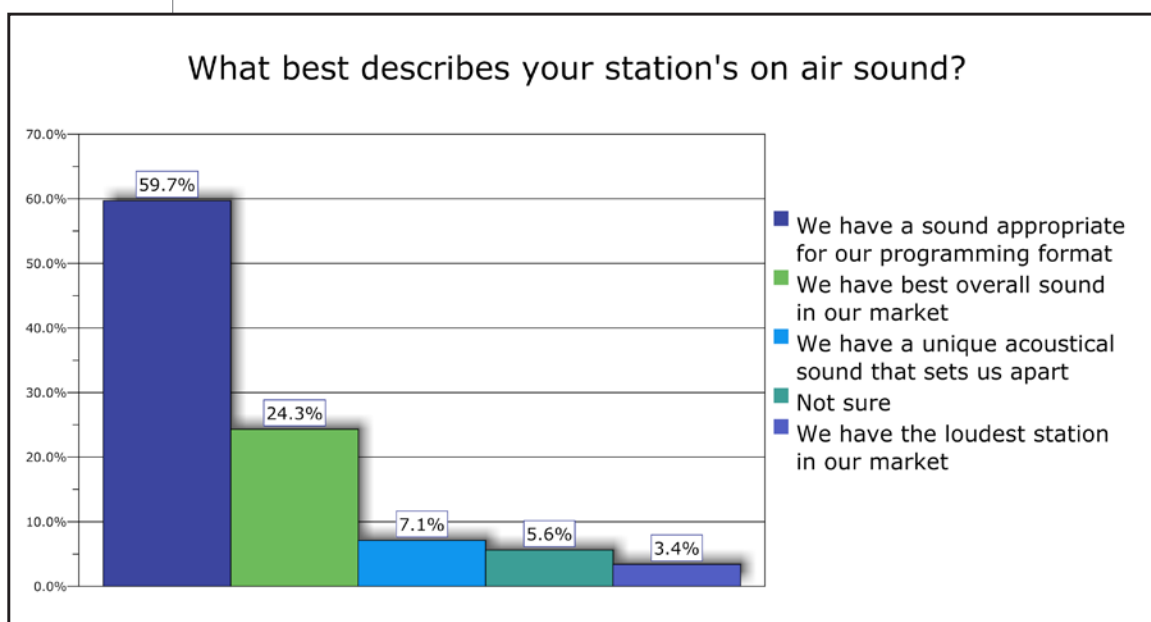
Finding #9: Changes in processing configuration are driven by internal reasons, not competition from other stations.

In a separate question, respondents were asked if their station had changed their processing configuration in the last five years. About 70% reported that they had. Of those that had changed the configuration of their processing, the reasons for changing had far more to do with internal issues at the station than with a reaction to a move by a competitive station. In fact, only 13.7% changed in response to a move by a competitive station. Meanwhile, almost a third (29.5%) changed their processing as the result of a larger project. Some of the other internal motivators included changing programming formats (18.6%), moving to HD Radio (18.6%), and changing ownership (10.2%.)

Why did you change your processing configuration?

Legend:
- As part of a larger project
- We changed programming formats
- As part of a move to HD radio
- Old processor wore out
- Old processor became unreliable
- In response to a change at a competitive station
- Change of ownership

Bar values: 29.5%, 18.6%, 18.6%, 18.6%, 17.2%, 13.7%, 10.2%

Finding #10: Respondents see audio processing as first serving their stations' programming, not so much as delivering a unique "signature sound" that sets their station apart.

When asked to choose one description of their station's on air sound from a list, almost two thirds (59.7%) picked the option "appropriate for our programming format," only a handful (7.1%) picked the description "a unique acoustical sound that sets us apart." Is this a missed opportunity or just a realistic assessment of what processing can and cannot do?

What best describes your station's on air sound?

- We have a sound appropriate for our programming format
- We have best overall sound in our market
- We have a unique acoustical sound that sets us apart
- Not sure
- We have the loudest station in our market

Some believe that once a processor does its job for loudness, there is little headroom left to craft a unique acoustical sound. Others see this as lack of awareness of how much more the newer processors are capable of, as well as a real opportunity to compete.

Finding #11: Programmers see less value in processing than do engineers or managers.

When the results of the previous finding were broken out by job function, it seems that the large majority of programmers (71.8%) see processing merely as the means to provide "appropriate" on air sound, and not as a source of a unique "signature" sound (0%). While more than half of managers and engineers also describe their station's sound as just "appropriate for the format" (61.2% and 55.5%, respectively), at least some of the others hold processing in higher regard, believing that it gives their station "a unique acoustical sound that sets us apart."

Not surprisingly, more engineers (28.1%) believe their station has the best overall sound in their market, more than managers (19.4%) and programmers (22.2%). It makes sense that respondents who are more directly involved with a station's sound think their station sounds better.

What best describes your station's on air sound?

Engineering ▪ Management ▪ Programming
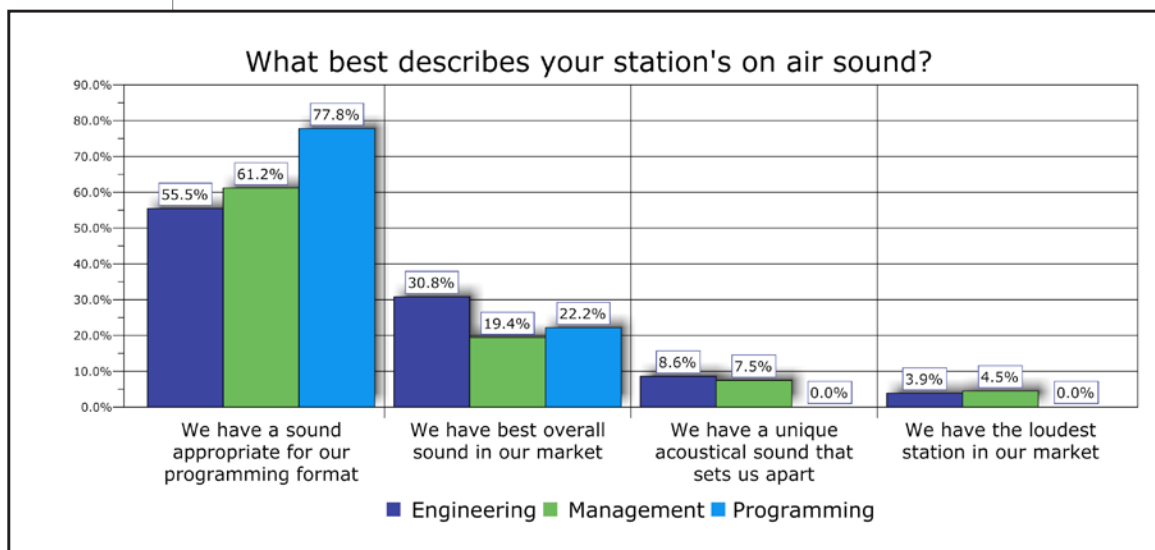
Programming directors should be grateful for processing, jokes Gary Kline: "When the ratings are great, everyone wants to take credit, and when the ratings are bad it seems that processing tends to get mentioned."

Finding #12: Few believe other stations in their market have a unique acoustical sound.

In a previous question we saw that few respondents believe that their own station has a unique acoustical "signature sound." In this finding we see that few respondents believe that other stations have one either. When asked about whether other stations in their market have a unique signature sound, 43.1% said very few, 38.1% said some, and 6.9% said none. Only 12% said many or most.
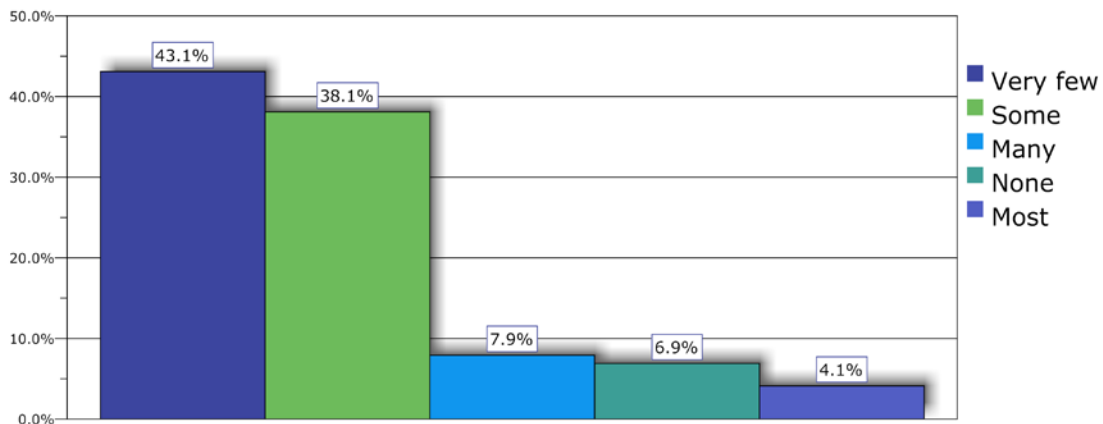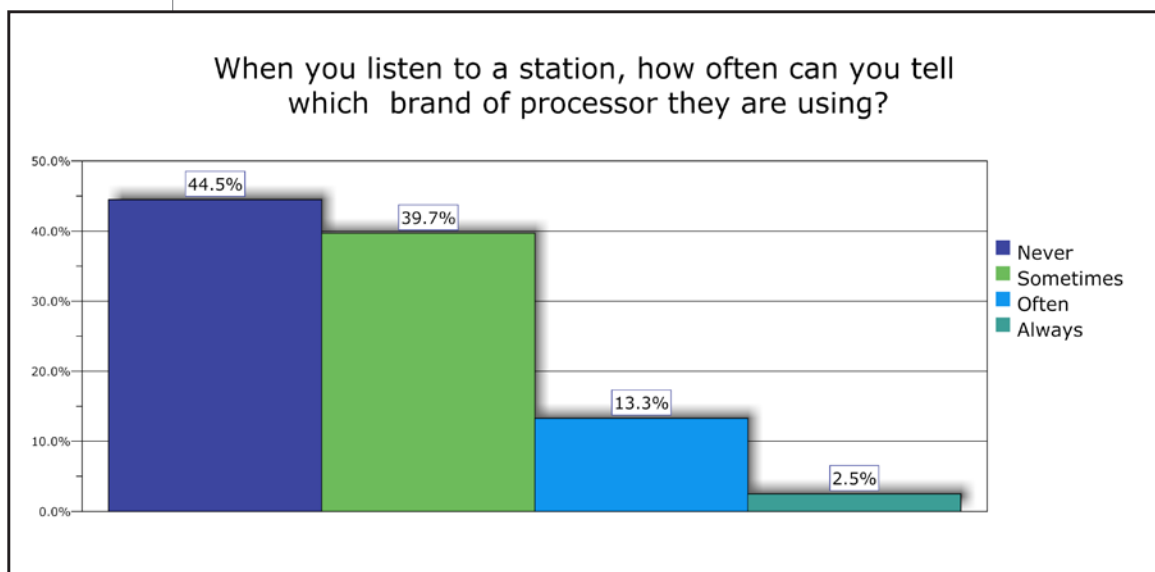

Bill Tanner believes that this could be because so many stations don't sound all that different from one another acoustically: "I program radio stations all over the country. So many have a generic, over processed, thumpy thumpy bass that's not really correct -- sort of a constricted sound -- or highs which are crying or splattering. Or they just have a nondescript sound which lacks industrial strength. I like to be able to hear into the audio, I like to be able to hear what the instruments are. I want to hear a high hat exactly like it is recorded and hear a bass that is like the producer intended."
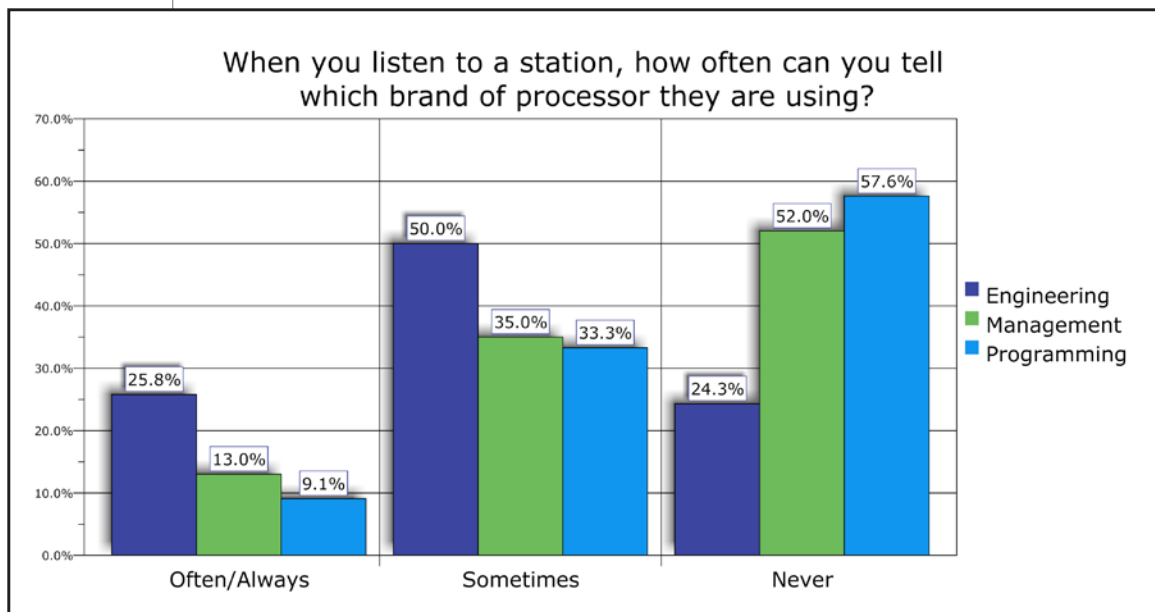
Finding #13: About half of radio personnel can "sometimes" identify which brand of processor a station is using by listening to that station's signal.

How recognizable are the "signature sounds" of different radio processors? Apparently, pretty recognizable. Almost 40% (39.7%) of respondents said they can "sometimes" recognize a station's processor by listening to that station's signal, while 15.8% said they can "often" or "always" recognize it. Another 44.5% say they can never recognize processors.

When you listen to a station, how often can you tell which brand of processor they are using?

44.5%	39.7%	13.3%	2.5%

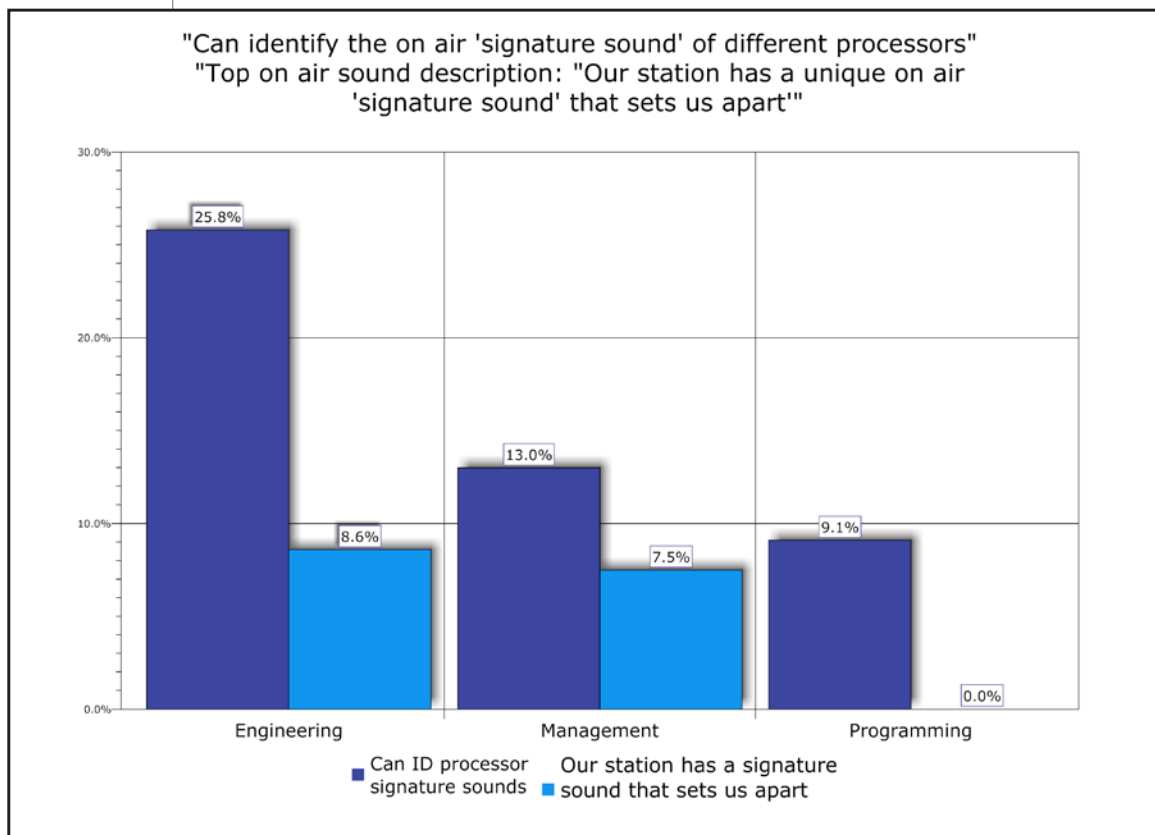Legend: Never, Sometimes, Often, Always

Finding #14: One in four engineers can "often" or "always" recognize the signature sound of different processors just by listening to the sound of a station.

To many engineers, audio processors have their own acoustical signature sound. Not only can one in four engineers "often" or "always" identify them, but another 50% can "sometimes" identify them. When a processor is recognizable, despite all the custom adjustments made to it, this means that the processor itself has a signature sound in its own right.

When you listen to a station, how often can you tell which brand of processor they are using?

- Engineering
- Management
- Programming

	Often/Always	Sometimes	Never
Engineering	25.8%	50.0%	24.3%
Management	13.0%	35.0%	52.0%
Programming	9.1%	33.3%	57.6%

Finding #15: The acoustical "signature sound" of a radio station could be more defined by the sound of a station's processor than the sound of the station itself.

In the previous finding (Finding #14), we saw that about one in four (or 25.8%) radio engineers could "always" or "often" identify the signature sound of different audio processors just by listening to that station's signal. But in Finding #10 only a handful of respondents (7.1%) picked "We have a unique acoustical sound that sets us apart" as the top way to describe processing at their station. These questions ask about different values. But looking at them together raises questions about what really determines the signature sound of stations today.

"Can identify the on air 'signature sound' of different processors"
"Top on air sound description: "Our station has a unique on air 'signature sound' that sets us apart'"

To create this chart we placed the percentage of respondents who say they can "always" or "often" identify the signature sound of different audio processors next to the percentage of respondents who described their station's sound as "a unique acoustical sound that sets us apart." For many stations, it seems that the signature sound of their processor could be more recognizable than the signature sound of their station.

In conclusion

A "cleaner" sound is now perceived as being most valuable to a radio station's overall sound. Being competitively loud is still important, but is no longer viewed as the station differentiator it once was. Loudness tends to be more important in larger, more competitive markets where stations adjust their processing more frequently than do stations in smaller markets.

Regarding processing as a business tool, there were mixed views. Most agreed that processing creates a sense of quality for the station. However, engineers and managers see processing as a strong way to differentiate stations; programming managers less so.

When asked to choose one description of their stations' acoustic sound, more respondents chose the option indicating that processing "was appropriate for our programming format," far fewer selected the option indicating their station had "the best overall sound in our market," and only a handful said that their station had a unique "signature sound." When respondents consider the impact of processing, they see it as supporting their station's music format, not as helping to differentiate their station from other stations with a unique signature sound.

However, the signature sounds of different processors are recognizable to many. One in four engineers can recognize the brand of a processor just by listening to a station. Despite all the custom settings and adjustments, the overall signature sound of a brand of processor appears to be more recognizable than the signature sound of the station itself.