The downfall of traditional radio: Will personalized radio surpass preprogrammed radio?

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ABSTRACT
In this study, the future of the radio industry has been examined according to a literature review, in addition to empirical research through the use of a survey. The sample size was 180 participants of multiple nationalities of both male and female. The findings showed a clear difference in preference for preprogrammed radio (AM/FM-radio) and personalized radio (Spotify, Apple music, Pandora). Younger participants heavily preferred personalized radio, in particular streaming services, whereas older participants favored preprogrammed radio. Based on the findings, there is a strong case to be made for millennials preferring personalized radio and will likely cause personalized radio to take over in the future. More research is needed to see if the results are replicable in order to draw a definitive conclusion.

Keywords
Radio, AM, FM, Streaming, Music, Spotify, Apple music, Pandora, Personalized, Preprogrammed

1. INTRODUCTION
With the increasing affordability and availability of mobile internet, new possibilities in the music industry have opened up. Some of these possibilities have replaced the existing products or services with newer ones, such as the rise of music streaming services which have extinguished music hardware like MP3 players or iPods. Similarly, this study will research whether there is a demand for personalized music radio and discover whether personalized radio will surpass preprogrammed. Online radio stations have the advantage that they can be used regardless of geographical location as opposed to FM-based radio stations, as long as the user maintains an internet connection. In addition, personalized radio allows users to select songs, playlists or radio stations according to their preference.

If there is a demand for online streaming radio to exist as a replacement or alternative to traditional FM-based radio stations, the entire music radio industry could be altered. Products that implement radio functionality, such as cars, could implement new forms of radio that better facilitate the needs of customers by integrating online music radio stations into them. Providers of online music services could expand their business model and collaborate with these manufacturers to attain a partnership and thus provide an extra source of income. From a consumer perspective, users would no longer have to resort to workarounds such as a Bluetooth or AUX cable connection in cars in order to listen to music. The outcome of this paper could be the first step to evolve the radio music industry as a whole.

1.1 Structure
The paper will be structured in the following manner. In section five a literature review will be performed regarding the radio industry. Section six will contain the details on the empirical part of the research with the results of the survey.

Section seven will discuss the outcome of these results, as well as the limitations of the study. Lastly, in section eight both the sub-questions and the research questions will be answered.

2. RESEARCH METHODS
The research method of the paper will consist of two components, a literature review and a survey.

2.1 Literature review
A literature review will be conducted regarding the current state of the radio industry, as well as the developments regarding mobile internet services. This shall be done by analyzing papers regarding the current situation, as well as the future of both mobile internet and radio. In addition, literature regarding the transition in popularity from AM/FM based radios to online music streaming will serve as a fundamental foundation of knowledge.

2.2 Survey
The information extracted from the literature review shall assist with the empirical part of this research, which will be executed from the perspective of the users (listeners) of radio services. Quantitative data will be gathered in the form of a survey from users in order to evaluate the potential of online radio services

3. GLOSSARY
Radio: The activity or industry of broadcasting sound programs to the public (Oxford dictionaries[1]).

CAGR: Abbreviation of the term Compound Annual Growth Rate, which is the mean annual growth rate of an investment over a specified period of time longer than one year (Investopedia[2]).

The following definitions for age generations are according to Pew Research Center's standards.[3]

Millennials: The generation born between 1981 and 1996.

Generation X: The generation born between 1965 and 1980.

Baby boomers: The generation born between 1946 and 1964.

Silent generation: The generation born between 1928 and 1945.

[1] Oxford dictionaries: https://en.oxforddictionaries.com/definition/radio

[2] Investopedia: https://www.investopedia.com/terms/c/cagr.asp

[3] http://www.pewresearch.org/fact-tank/2018/03/01/millennials-overtake-baby-boomers/

Greatest generation: The generation born between 1901 and 1927.

4. RESEARCH QUESTIONS

The central research question which the paper revolves around is as follows:

"Will personalized radio (such as Pandora or Spotify) replace preprogrammed radio (such as FM radio)?"

In order to assist in answering this, the following sub-questions will have to be answered:

- What are the age demographics of listeners of respectively preprogrammed radio and personalized radio?
- What are the growth rates of respectively preprogrammed radio and personalized radio?
- What are the reasons for listeners to use personalized radio?
- What are the reasons for listeners to use AM/FM radio?

Online radio services will be defined as follows: "the listening to personalized streamed audio content on the internet". The channels through which these types of radio are consumed are irrelevant, what matters is the preferred radio style of listeners.

The aim is to uncover insights as to why people prefer personalized online radio over traditional radio and inversely, what's holding people back from using online personalized radio rather than listening to AM/FM radio stations.

5. LITERATURE REVIEW

In this section, relevant literature will be analyzed in order to establish sufficient background knowledge in order to answer the research questions.

Within the radio industry, multiple variations of radio can be distinguished. In this research, traditional radio will be compared to personalized radio. Traditional radio refers to radio that is broadcasted to users, but to which the users have no control over on an individual level. The broadcaster decides what is being broadcasted and listeners have no say in this matter. An example of this would be AM/FM radio and shall be noted as preprogrammed radio.
On the other hand, personalized radio refers to radio that allows listeners to customize their radio according to their individual needs. Listeners can add, remove or skip music to their desired needs. Examples of these are services like Spotify, apple Music or Pandora. Personalized radio often requires an internet connection, therefore there are two important industries that have to be reviewed. The mobile data industry and the global radio industry.

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5.1 Mobile data industry

Up until this point, the mobile internet market has flourished and is expected to continue on into the future. The global mobile audio streaming traffic is forecasted to reach 2.7 million terabytes per month by 2021 (figure 1), along with a tremendous CAGR of 37% from 2016 up to 2021 (Cisco[4]).

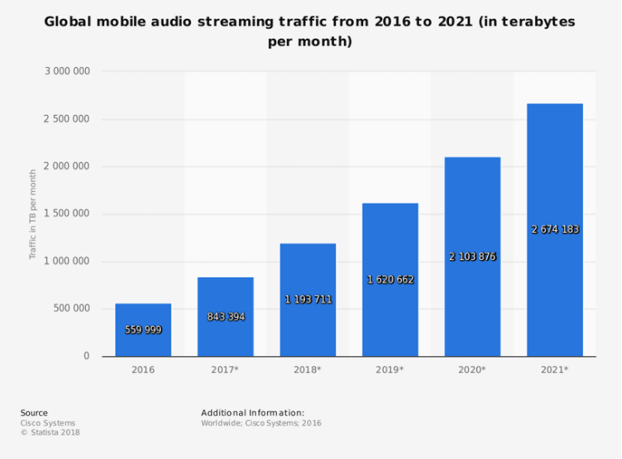

Figure 1 Global mobile data traffic 2016-2021

Not only is the mobile audio streaming traffic expected to grow, monthly mobile internet subscription prices have decreased over the years. Ficora, the Finnish communications regulatory authority, published statistics on the monthly mobile data consumer prices in Finland. These statistics show a trend in decreasing monthly subscriptions for mobile data over the course of 2008 to 2014. In general, Finnish mobile data subscriptions have become cheaper (Ficora[5]).

Similar patterns have also been found in other countries. The central bureau for statistics in the Netherlands (CBS) has published a report regarding the price developments of Dutch telecom services, including mobile telephone services. It includes both the cost of phone calls, as well as mobile internet from providers. From 2010 to 2016, telecom prices for mobile phone services have decreased tremendously (figure 2).

Back in 2010, telecom services were relatively expensive due to the transition companies made in charging customers for their products. Starting that year, customers were no longer charged per second, but instead phone calls were rounded up to minutes. Interestingly, landline telephone and bundled telecom services have become more expensive. However, from 2011 onwards mobile telephone service prices have diminished severely, even though they have surpassed the alternative in terms of usage. As mentioned earlier, this price reduction applies to mobile phone telecom services as a whole, including mobile internet. It is important to realize that these numbers come from western European countries and likely do not represent the global economy.

[4] https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html

[5] https://www.viestintavirasto.fi/en/statisticsandreports/reviewsandarticles/2015/communicationssectorreview32015.html

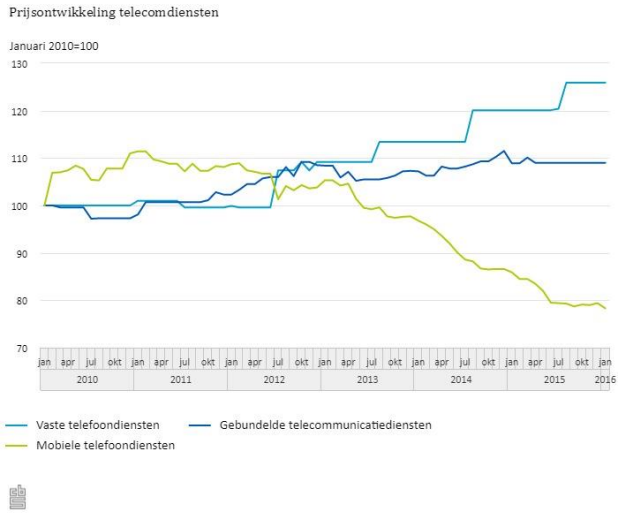

Figure 2 Price developments of Dutch telecom services

5.2 Radio industry

Moving onto the radio industry, it's important to understand why listeners prefer personalized radio over preprogrammed radio. A research firm by the name of Bridge Ratings published a study in 2017 regarding the preferences for audio streaming (Bridge Ratings[6]). This research shows that the most prominent reasons for preferring audio streaming were the ability to choose what to listen (84%), an increased variety in music (78%) and to better match the music preferences of the listener (65%).

In addition, participants were asked why they would listen to AM/FM radio. The most prominent reasons for this were the ease of use (89%), companionship (75%) and local information (66%).

Traditional AM/FM radio stations always have been and still are more popular than online radio stations. However, there is a changing trend going on. Over 55% of FM radio's listeners are aged 45 or older, with the age bracket of 45-54 making up the largest age group with 19% (Marketingcharts[7]). The millennials on the other hand (roughly age 15-35), are the smallest demographic and this comes from the fact that millennials make more use of online streaming services.

However, age demographics have to be put in perspective in order to draw conclusions from them. A study done by Pew Research Center projected US populations per generation from 2016 until 2050 (Pew Research Center[8]). The millennials have been projected to overtake baby boomers and become the largest generation in the US (figure 3), peaking at 76 million people in 2036. Meanwhile, all the other generations are projected to stagnate, effectively making millennials the driving work force of the economy.

This information leads to the conclusion that millennials hold the most power when looking at the demand for personalized or preprogrammed radio and should be taken into account for the results of the empirical part of this research.

In terms of growth, the digital music streaming industry is expected to grow at an incredibly fast rate. A study back in 2016 estimates digital music streaming revenue to keep growing from 2015-2020 at a CAGR of 22.2% (PWC[9]). In contrary to the extraordinary growth rate of music streaming, the total radio industry is only expected to over the same time period at a CAGR of just 2.1%.

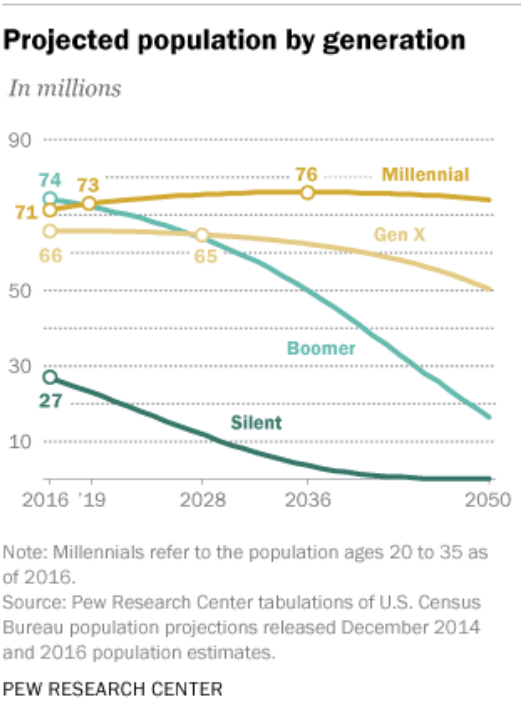

Figure 3 Projected US population by generation 2016-2050

A research group by the name of Edison Research performed a study in 2017, called The Infinite Dial, where 2.000 persons at the age of 12 and older were interviewed to explore Americans' use of digital platforms and media. This also included the use of online music streaming, which has led to promising results. Over the course of 2000-2017, the percentage of Americans who listen to online radio weekly has increased from 2% in 2000 up to 53% in 2017, which comes up to an estimation of 148 million Americans.

Not only has the percentage of monthly listeners increased, the reach of online radio in cars has also expanded. Over the course of seven years, ranging from 2010 to 2017, they found that online radio usage in cars has grown from 6% in 2010 up to 40% in 2017 (figure 4). The growth comes primarily from the addition and wider use of smart phones with capabilities to stream online music.

[6] http://rainnews.com/new-research-on-listeningstreaming-preferences-charts-pros-and-cons-of-radio/

[7] https://www.marketingcharts.com/industries/media-and-entertainment-78425

[8] http://www.pewresearch.org/fact-tank/2018/03/01/millennials-overtake-baby-boomers/

[9] https://www.pwc.com/gx/en/entertainment-media/pdf/outlook-music-and-radio-article-2016.pdf

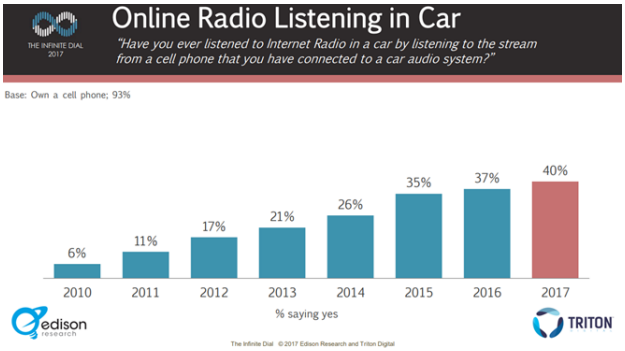

Figure 4 Online radio listening in car

In addition, the age group of monthly online radio users was divided into three separate categories. Among the age of 12-24, 87% of the participants listened to online radio on a monthly basis. For the age of 24-54 this was 70% and finally for ages 55 and up this came down to 32%. In the first two groups the growth has kept rising, however the growth for 55+ has stagnated in comparison to 2016.

However, the definition of online radio that was used in The Infinite Dial went as follows: "the online listening to AM/FM radio station streams, or to streamed audio content only available on the internet". Only live listening was included in this study, therefore podcasts were not included.

Because the data includes the online listening to AM/FM radio stations, the results from the study will only suffice as an indicator for this study's research question. The vast majority of these results likely come from personalized online radio. However, this cannot be taken for granted without the appropriate data.

6. EMPIRICAL RESEARCH

The Empirical part of this research consists of a survey filled in by users from all over the world. The goal of the survey is to provide quantitative data on the participants' preferences when it comes to music listening. The survey was created in Google Form in both Dutch and English in order to reach a wider audience, yet also prevent as many language barriers as possible.

Previous research has shown that surveys held in English, when English is not the native language, may pose a threat to the participants' ability to adequately answer the questions (Koster[10]). This comes from the fact that English is often a second language to the participants, which increases the difficulty of understanding the questions and sometimes results in participants failing to fully comprehend the questions if they're not in their native language. Even when participants do understand the questions in English, had the survey been in their native language, some participants would have interpreted the questions slightly differently as a result of the language gap.

For these reasons, the ability to choose between Dutch and English was given. Participants were asked a number of questions regarding their music preferences, both in terms of music taste and listening method. Participants were also asked to elaborate on their choices and provide arguments as to why they preferred one type over another. The full survey can be found in Appendix A. In the survey audio streaming and personalized radio are two separate options. For the sake of analyzing the results, both count as forms of personalized radio.

6.1 Survey results

6.1.1 Introduction section

The total sample size was N=180 responses. There was an even split in submissions in both Dutch (49.4%) and English (50.6%). The participants consisted of 109 (60.5%) females and 71 (39.5%) males. Interestingly, among the Dutch participants, the genders were split relatively evenly. However, on the English survey the majority of the respondents were female. Participants were asked to fill in their age in years as an integer. When split up into age groups, the following results show. Split up into five age demographics, 32% of the participants were under 20 years old. 47% were between the 20-29 years old. 7% were between the 30-39 years old. 9% were between 40-49 years old. Lastly, the 50 and over age group made up 5% of the total participants.

Participants originated from all around the world and differed for the Dutch and English version. Within the Dutch survey the participants came from a total of 6 different countries with the Netherlands forming the dominant country at 92.1% of the participants. On the English survey the variety increased tremendously with participants from many countries. There were a total of 28 countries, but there are two dominant ones. Firstly, the largest country being Georgia with 24.2% of the English participants and closely following that, Argentina with 20.9% of the participants.

Moving onto the next question, participants were asked about their preferred music genre. This information might be useful to find any correlations between music genre and preference for radio type. Because of the many different music styles, participants were given the ability to input their own music genre in case the given options did not represent their choice. This resulted in a large number of music genres manually submitted, however the following genres were the most prominent. The most popular genre was pop music, making up 47% of all the responses. The second largest was the Rock & Metal genre with 12% and lastly tied for third largest were both Rap and Indie with 8%. Given the abundance of data for the pop genre and lack of adequate sample sizes for the other genres, it is difficult to determine correlations based on music genre.

Finally, the last question of the introduction section asked participants to select their preferred method for music listening. In both the Dutch and English version personalized radio dominated. In the English version there was no competitor to audio streaming services as it received 85.7% of the total English responses. In the Dutch version, there was more variety among the responses. Audio streaming services were the dominant group with 55.1% of the responses and in second place came preprogrammed radio with 32.6% of the responses. Combining both versions results in audio streaming services making up 71% of the total responses, followed by preprogrammed radio with 16%. Based on existing literature, the hypothesis was that personalized radio would be dominant among younger audiences. In particular, millennials were expected to predominantly prefer personalized radio. The majority of the responses came from

[10] Koster, S.R. User Acceptance of I-Music Services: A way to measure user acceptance of pleasure-oriented information systems.

the millennial age demographic which could explain these results.

Figure 5 outlines which methods were chosen by every age demographic within either the English or Dutch survey. The English data does not show promising results for a conclusion. The lack of participants above 30 years old results in insufficient data for a proper conclusion for older demographics. The data does show personalized radio (audio streaming) to outweigh all the other choices significantly among younger audiences. The Dutch results mimic the English ones, but also contained older participants. Interestingly, listening method preference evens out among the 30-39 years old category (figure 5). From this point onwards, personalized radio (audio streaming) falls in popularity as preprogrammed radio gains popularity and surpasses personalized radio.

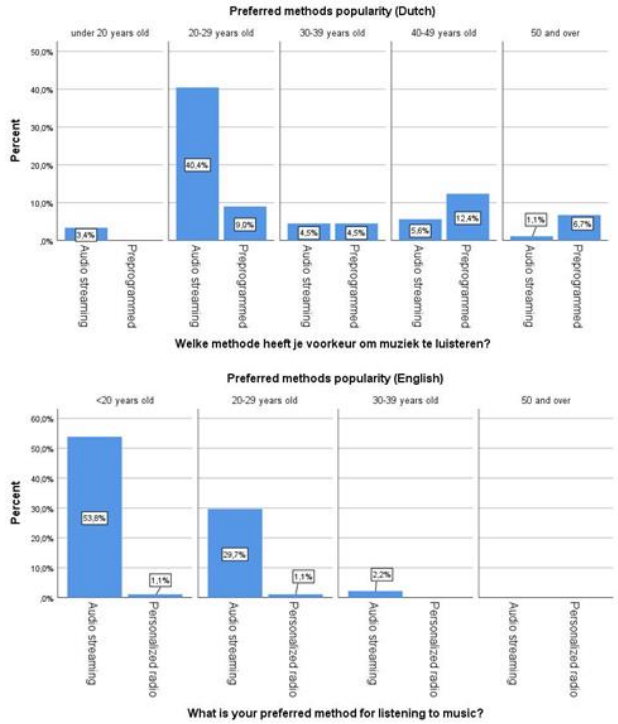

Figure 5 Preferred methods per age demographic relative to all the responses

Figure 5 is restricted to only display the most important results. A more in-depth approach shows how each age demographic behaved. Figure 6 displays the relative preferred listening methods per age demographic. Participants were allowed to input their own method in the survey and these have been summarized and grouped under "Other" (figure 6). Other often included options that could be categorized under one of the three other methods and could indicate a misinterpretation of the participant. 100% of the youngest demographic (under 20 years old) prefers audio streaming services. As the participants' age increases, preference for audio streaming services relatively decreases down to 12.5% at the oldest demographic (50 and over). Conversely, preprogrammed radio shows the complete opposite pattern. 0% of the youngest demographic prefer preprogrammed radio and this increases up to 75% at the oldest demographic.

		What is your preferred method for listening to music?			
		Audio streaming services	Preprogrammed radio	Personalized radio	Other
Dutch responses	under 20 years old	100,0%	0,0%	0,0%	0,0%
	20-29 years old	69,2%	15,4%	1,9%	13,5%
	30-39 years old	44,4%	44,4%	0,0%	11,2%
	40-49 years old	29,4%	64,7%	0,0%	5,9%
	50 and over	12,5%	75,0%	0,0%	12,5%

		What is your preferred method for listening to music?		
		Audio streaming services	Personalized radio	Other
English responses	Under 20 years old	92,5%	1,9%	5,6%
	20-29 years old	81,8%	3,0%	15,2%
	30-39 years old	50,0%	0,0%	50,0%
	40-49 years old	0,0%	0,0%	0,0%
	50 and older	0,0%	0,0%	100,0%

Figure 6 Preferred listening methods per age demographic

Following the introduction section of the survey are three different sections depending on the choice of preferred listening method. Each of the three sections belongs to a listening method and will be analyzed.

6.1.2 Preprogrammed radio

Among the English survey, none of the participants chose preprogrammed radio. In the Dutch survey, a total of 29 participants opted for preprogrammed radio. By far the most popular reason in favor of preprogrammed radio was the familiarity and ease of use. Participants mentioned they do not have to deal with remembering artist/song names, in addition to not having to download music. As most of the preprogrammed radio's audience is relatively old (figure 6), age is likely an important factor for this. Other reasons were the variety of music that preprogrammed radio provides and the ability to easily discover new music. Surprisingly, there were two reasons that have not been mentioned in the literature yet. The first one being that traditional radio allows them to stay up-to-date with news broadcasts. Secondly, participants mentioned they often listen in the car and prefer to talk over the music in the background. However, a few participants mentioned that they did not know what personalized radio was. This could indicate an inadequate job at explaining personalized radio to the audience.

When asked how much they listened on a weekly basis, the dominant answer was more than six hours a week (44.8%). The other three categories followed with four to hours a week (24.1%), two to four hours a week (20.7%) and fewer than two hours a week (10.3%). Participants were asked when they listened the most to music and were able to select multiple answers. Most of them listen to music either in the background while performing other activities (62.1%) or during transportation (58.6%). Finally, when asked whether they could switch to personalized radio in the future only 10% responded with no. 69% were unsure and 21% responded with yes.

6.1.3 Personalized radio

This section will combine audio streaming and personalized radio from the survey and analyze them as one. Personalized audio was by far the most popular, getting a total of 127 submissions from audio streaming and 3 from personalized radio. The dominant reasons in favor of personalized radio were shared across the Dutch and English version. By far the most common reason is the ability to choose and control your

own music. Many participants mentioned their music choices depend on their mood and they like the ability to skip, add or remove songs. Closely following that, many prefer the lack of commercials that most services offer (often for a subscription fee). Contrary to participants who favored preprogrammed radio, many expressed their satisfaction of not having to listen to somebody talk in between the songs. Another common reason is the availability aspect. The ability to listen to their music of choice, where and when they want was another strong argument. With today's streaming services, users are able to listen to their music at all times. Lastly, some of the participants found streaming services to be easier to use. Considering that the majority of the streaming participants belonged to the younger age demographics (figure 6), this reinforces the idea of younger generations gravitating towards personalized radio.

On a weekly basis, most of the participants listen more than 6 hours a week (58%). Followed by four to 6 hours a week (23%), two to four hours a week (14%) and less than two hours a week (5%). These numbers resemble the data from preprogramed radio and only slightly differ. This indicates that weekly listening likely does not correlate with age. In terms of when the participants listen to music, during transportation (75%) and in the background while performing other activities (70%) are the two major choices. These results resemble the results from the preprogrammed section. Lastly, the participants were more reluctant to the idea of switching over to preprogrammed radio. 51% of the participants responded that they were unsure. 44% responded with no and 5% responded yes.

7. DISCUSSION

This section will go into detail on the results of the survey and discuss the benefits and the limitations. The goal of this research is to get a better understanding of the music radio environment and determine the future direction of the radio industry.

7.1 Survey results

The survey results meet the expectations based on existing literature of the radio industry. The results are overwhelmingly favorable for personalized radio among age demographics up to 30-39 years old, known as the millennial generation. As the demographics increase in age, preference for personalized radio decreases as preference for preprogrammed radio increases. They equalize around the border where millennials cross over into their predecessor, generation X. This phenomenon is amplified as traditional preprogrammed radio surpasses personalized services among the participants of this experiment. This supports the theory that millennials are setting a new trend in terms of consuming music in the form of personalized radio. In addition, the literature review has shown that millennials are expected to become the driving force of the US economy. Therefore, they hold great power and may shape the future of the music industry.

More extensive research is needed to support this theory. A sample size of 180 participants is insufficient for a definitive conclusion. In addition, the number of participants in older categories was underwhelming. Across both the English and Dutch survey, merely 15% of the participants were aged 40 and older. This 15% came entirely from the Dutch part of the survey, despite attempts to reach older participants. Perhaps the unfamiliarity of Google Forms scared potential participants off, or they simply were not as interested as younger people. That being said, although the number of older participants was less than desirable, the pattern that emerged from the analysis indicates that younger generations prefer personalized radio, whereas older generations prefer preprogrammed radio.

Previous articles have shown that fans of metal music are one of the most loyal fans in the world (Mashable[11]). Based on this information, it could be the case that fans of certain music genres behave differently. However, the vast majority of the participants preferred pop music, causing the pop sample size to be more than large enough. However, other genre's sample sizes were inadequate to determine any correlations regarding music genre.

Among the reasons why participants preferred a certain type of radio, there was some controversy. Most of the responses were objective arguments, such as the preference of a DJ or a lack of commercials. However, in some cases both preprogrammed and personalized radio were given the same reasons. In both cases participants argued that their preferred method was easier to use or allowed them to discover new music. These reasons are subjective and up to preference of the user. Some participants did not take the reasons question seriously and dodged it by submitting a random answer. This can be avoided through the use of semi-structured interviews, where the interviewer can press on and dig deeper into the subject matter at hand.

However, the credibility of the participants should not be taken for granted. The survey was created in Google Forms and distributed online. Therefore, submissions were unsupervised. This had led to a fraction of responses existing out of trolls and rendered useless. These results have been filtered out of the analysis. In order to prevent this issue in the future, interviews may provide an increased level of commitment from the participants.

Lastly, the survey was kept short in an attempt to draw in more participants. As a result, 180 responses make for a relatively large sample size given the duration of the research. However, this restricted the depth of the survey and could be extended upon in the future.

8. CONCLUSION

To summarize, this research aims to provide a clear understanding of the state of the radio environment and determine the future direction of the radio industry from a radio user's perspective. A literature review was performed to gain knowledge of the state of the industry and form a clear overview of existing knowledge. Quantitative data was gathered through the use of a survey among 180 participants in order to answer the research questions.

In order to answer the main research questions, four sub-questions were created. These shall be answered sequentially below. To begin with the first question, what are the age demographics of both types of radio? The age demographics from the survey matched those from the literature review. Personalized radio consisted almost solely out of participants within the millennial generation. Given the substantial sample size of millennials, it is probable to assume it as an accurate age demographic. The preprogrammed participants consisted almost solely out of participants above the age of 40, which coincides with the literature. Although the sample size of

[11] https://mashable.com/2015/05/31/spotify-mixed-blessing-metal/?europe=true#y_u1K4q59kqJ

participants aged above 40 was considerably smaller than younger participants, it is still sufficient to draw a conclusion from. Before researching the user perspective of preprogrammed and personalized radio, the industry itself has to be researched. In order to get an idea of the future radio industry, the following question needs to be answered, what are the growth rates of respectively preprogrammed and personalized radio? As shown in the literature review, there is a tremendous difference in forecasted growth rates between the two sectors. Digital streaming revenue is expected to grow from 2015-2020 at a staggering CAGR of 22.5%. On the other hand, the total radio revenue is expected to grow at CAGR of just 2.1%. Personalized radio is expected to grow at a much higher rate than preprogrammed radio.

Moving on to the next sub-question, what are the reasons for using personalized radio? The most common reasons were the following. Most importantly, the ability to choose and control their own music. The lack of commercials came in a close second, due to streaming services often requiring a subscription fee. The final argument for personalized radio, is the availability of streaming services compared to the availability of AM/FM radio. With either offline access from a downloaded library or online access regardless of geographical location, personalized radio outweighs AM/FM radio.

And lastly, the final sub-question, what are the reasons for users to listen to AM/FM radio? By far the most popular reason was the familiarity and ease of use of traditional radio. On the second place came the music variety that an FM-radio channel provides. Lastly, a rather surprising argument was brought forth. The last major reason was the ability to keep up-to-date with news broadcasts.

To conclude, given the combined answers the sub-questions, personalized radio is expected to keep thriving and in the future, end up surpassing and replacing preprogrammed radio. However, this study is not enough to definitively determine the future of the radio industry.

9. ACKNOWLEDGEMENTS

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Appendix

A. Survey

Table 1. General demographic questions.

1. What is your age?	Fill in integer								
2. What country are you from?	Select country								
3. What is your gender?	Male			Female					
4. What is your preferred music genre?	Pop	Rap	Rock/Metal	Electronic	R&B	Classical	House	Indie	Other
5. What is your preferred method for listening to music?	Preprogrammed radio (such as AM/FM based radio channels)			Personalized radio (such as Pandora)		Audio streaming services (such as Spotify, Apple music)		CDs	Other

Table 2. Preprogrammed radio.

1. What are the reasons for preferring preprogrammed radio over personalized radio?	Fill in reasons					
2. On a weekly basis, how much do you listen to music?	Less than 2 hours a week	2 to 4 hours a week		4 to 6 hours a week	More than 6 hours a week	
3. When do you listen to music the most?	During transportation	During exercising	During studying	In the background while performing other activities	During my free time when all my attention is focused on the music	Other
4. Do you see yourself switching to personalized radio in the future?	Yes			No		

Table 3. Personalized radio.

1. What are the reasons for preferring personalized radio over preprogrammed radio?	Fill in reasons					
2. On a weekly basis, how much do you listen to music?	Less than 2 hours a week	2 to 4 hours a week		4 to 6 hours a week	More than 6 hours a week	
3. When do you listen to music the most?	During transportation	During exercising	During studying	In the background while performing other activities	During my free time when all my attention is focused on the music	Other
4. Do you see yourself switching to preprogrammed radio in the future?	Yes			No		

Table 4. Audio streaming services.

1. What are the reasons for preferring audio streaming services over preprogrammed radio?	Fill in reasons					
2. On a weekly basis, how much do you listen to music?	Less than 2 hours a week	2 to 4 hours a week		4 to 6 hours a week	More than 6 hours a week	
3. When do you listen to music the most?	During transportation	During exercising	During studying	In the background while performing other activities	During my free time when all my attention is focused on the music	Other
4. Do you see yourself switching to preprogrammed radio in the future?	Yes			No		