Retailers And The Digital Age
How The Music Industry Aims At Individual Taste

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Businesses have always sought new ways to link to new markets; a successful search means a growing company. With the digital era faster and more efficient ways have been found to reach untapped markets. The music industry, once thought to have been crippled by file sharing and internet downloads, may soon, however—by using data aggregation and online preference-tracking—have direct access to individual markets that traditional methods could never reach.

The growth of digital technology has also caused the near-total collapse of the physical record store, replaced by online storefronts: Amazon.com now offers an almost unlimited choice of albums, both physical and electronic. Consumers, however, feel overwhelmed by this limitless catalog: they need a way to filter the mountains of online merchandise to find the fit for their particular tastes. Retailers too need new ways to reach customers who want what was formerly a profitless fringe-product.

The technology already exists to accomplish such a feat, but the main obstacle that stands in the way is the vast amounts of personal information needed to fully analyze a person’s tastes and preferences. To make Aggregated Data Profiles work; people will have to reveal deeply personal and delicate information about themselves. Most would not hand over this information so easily; especially to someone they have to reason to trust.

Some information is already available to sites such as Google and Bing, who can build limited, yet surprisingly accurate personal profiles based on people’s search patterns and history. Pandora radio has figured out a system similar to this by creating an algorithm for music, which rates different musical aspects of a song, allowing Pandora to recommend new and different music to its listeners. If a solution is found that allows people to trust that their immensely personal information can be kept private, Aggregated Data Profiles could transform not only the music industry, but the entire retail industry as well.
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I. Introduction

In the free enterprise system, businesses are frequently searching for innovative ways to connect to new markets. Finding new means to reach untapped groups of people is consistently at the forefront of a successful business venture. In the late 1800s Sears did just that by inventing the concept of the mail order catalogue. Sears reached rural farmers who had previously bought their supplies in local general stores at high mark ups (Sears History – 1887).

With the digital age came faster and more efficient ways of doing what Sears did over 100 years ago. Amazon.com, the world’s leading on-line retailer, has gone beyond the physical constraints of a catalogue and now offers (theoretically) an unlimited number of products. With so many products to chose from, consumers are feeling overwhelmed with the unlimited choices they now face. The consumer needs a way to filter through vast amounts of product in order to find content that matches their tastes. The retailer too needs a way to reach customers who may be interested in their product. If retailers could match their inventory to customers with a particular set of preferences, not only would new markets be found, but more importantly, the right markets would be found.

This is precisely what the Aggregated Data Profile (ADP) aims to accomplish. Companies and advertisers who want to keep track of consumer buying habits and search patterns are already using a similar type of customer profile. If more complex profiles are built using these same techniques, they could accurately predict an individual’s tastes, allowing retailers to match products to customers.
There are many questions and obstacles that must be overcome before this task can be accomplished. If solutions can be found to these concerns and questions, a whole new age of retail will have been born.

People are reluctant to give away vast amounts of personal details about themselves; thus the unavoidable issue of privacy must be addressed. This issue alarms many on a personal and public level because a breach of privacy can mean a threat to public and private security. This means that the key to using the Aggregated Data Profile lies in the hands of those that can figure out how to calm the public’s fears about the security of their information.

II. Market Forces

For thousands of years markets have been constrained by the economic principle of scarcity. Our struggle with the problem of scarcity not only applies to the want of unavailable products, but also to the shelf space for these products. In a world of limited resources, our inability to fulfill our unlimited wants and needs drives us towards finding an efficient way to manage our limited products and goods. In the music industry, this efficiency was once found exclusively through profitable items. Now with the coming of the digital era, all has changed.

Figure 1, below, represents the new market of the digital era. Looking at the graph in terms of record sales, we see that a majority of album sales come from only a few albums; close to 1% of all albums. These albums, being the biggest sellers, are in the head of the chart because they sell the most copies and thus generate the
most profits. Most albums, about 99%, are not in the head; rather they make up the Long Tail, a term coined by Chris Anderson in his book *The Long Tail* (Anderson 22).

If a record store with a limited amount of shelf space could only fit 5,000 different albums on their shelves, it would be most profitable to choose to sell the albums at the head of the curve. Until recently this is the way the marketplace worked—a store only carried the most popular items in order to generate that most profit it possibly could.

**Figure 1**

![The New Marketplace diagram](image-url)
Due to the rise of the digital age, the virtual marketplace now has unlimited shelf space. iTunes, the world’s leading online music retailer that offers over 28 million songs to their users, can hold more albums than any record store before the digital age could ever conceive (iTunes Store). iTunes is the leader of digital music sales because they take advantage of the Long Tail by selling fringe, niche market songs and albums that most music retailers don’t carry.

Another astounding feature of the Long Tail is its profitability. With the ability to sell so many more titles than a physical store comes additional profits—and those additional profits are much larger than many would think. Rhapsody, a music retailer similar to iTunes, makes a large portion of its revenue from Long Tail, niche market items. As represented in Figure 2, close to half of their total sales come from music not available in large offline retailers; stores such as Wal-Mart, Target, FYE, etc. (Anderson 23).

Figure 2

<table>
<thead>
<tr>
<th>Rhapsody Total Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products Available In Offline Retail Stores</td>
</tr>
<tr>
<td>Products Not Available In Offline Retail Stores</td>
</tr>
</tbody>
</table>

45%  55%
One aspect of the Long Tail that has yet to be discussed is the concept of filters. Filters are what lead consumers to discover new music, books or movies; or in some cases what stop them from ever hearing about them to begin with. Filters are what move consumers out of the popular, hit-driven head and down into the narrowest niches of the Long Tail. According to Chris Anderson there are two types of filters, “pre-filters” and “post-filters” (Anderson 122).

Pre-filters are what filter content before it gets brought to market. Examples include record label scouts, studio executives, department store buyers and advertisers. These people are responsible for wading through piles of movie scripts, garage bands and other fringe products to determine what is and is not worth investing time and energy into selling.

Post-filters by contrast find the best of what is already on the market. Examples of post-filters include music blog sites, magazine reviews and the strongest of all, word of mouth recommendations. Post-filters are the voice to the marketplace, amplifying what is good, relevant and original and ignoring what is bad and distasteful.

Filters are useful by consumers and retailers alike, but current filters are not perfect. Due to the nature of “short head” markets, where shelf space is at a premium, the supply side of the market has to be extremely discriminatory in their filtering. Thus many niche artists, filmmakers, musicians, and products get improperly filtered through the system and disregarded.

The new digital marketplace has shifted the way in which retailers are able to sell their products. Retailors have been forced to change how they conduct business,
but now the consumer must adapt. Consumers find themselves in a marketplace that has a tail so long that searching has become laborious. The new market has demanded a way to filter and sort this Long Tail based on consumer tastes. This is precisely what the Aggregated Data Profile aims to accomplish.

III. Aggregated Data Profiles

Due to people’s diverse tastes, current filters are not the most accurate means of searching through the Long Tail for new products. They may work well for generalizing, but they certainly fail to connect, for example, 23-year-old Julie Andrews of Lima, Montana to her would be favorite orchestral psychedelic folk-rock band, The Soil & The Sun. Current filters do not account for the fact that Julie grew up going to the orchestra with her parents, and the fact that she enjoys groups such as Sigur Ros, The Beach Boys and Sufajan Stevens, who all incorporate orchestral arrangements into their music. Current filters also fail to recognize that the band’s lyrical themes regarding spirituality and life after death align with Julie’s personal beliefs and views on religion.

If a music retailer wanted to match Julie Andrews to The Soil & The Sun they would need a “super filter” that could filter the Long Tail based on many different aspects of an individual, not just their online search patterns and shopping habits. Individual’s tastes, preferences, opinions and beliefs would all need to be taken into consideration. By aggregating all the data that is already on the internet with the addition of more specific information a music retailer could build customer profiles for their customers. These Aggregated Data Profiles would contain vast amounts of
specific details about a person’s tastes. Information such as age demographic, gender, economic status, schooling history, and shopping habits would be included in the ADPs, but also the seemingly less important and more bizarre information such as preferred type of salad dressing, use of swearing and sexual habits would all be useful in building an accurate profile. The more detailed the profile gets, the more accurate it will be in predicting what type of music will pair well with an individual.

Of course, ADPs capable of predicting an individual’s taste are not yet a reality, but there are some companies very close to making such a profile. Google already holds vast amounts of information about its users based on their search patterns and search histories. While Google still makes a large portion of its revenue from classic search advertisement (i.e. search “Disney Vacation,” ads for hotels in Orlando pop up), recently a new trend in online advertisement is becoming increasingly popular that uses data profiles to target potential customers (Rosen 43).

Personalized display ads are quickly becoming the most effective way of advertising online. With the rise in popularity of smartphones and tablets, advertisers needed a way to dig deeper into consumer’s habits and preferences. The key to doing this is the cookie. Developed almost two decades ago by Lou Montulli, the cookie allows websites to track their visitors by tagging individual web browsers and then following them to different sites (Rosen 43). Based on the information that cookies gather, online companies can build comprehensive profiles of users, based on what they search, what websites they visit, and what products they buy online. After a site has tracked their users, they then group them into
market segments. It takes the information it has gathered to what is known as a
real-time bidding exchange, where advertisers bid for the access to ad space on
different sites that the targeted individuals are visiting. After the bid is won, the
advertisers will spam individuals with ads on the various internet sites that they are
visiting. This way of highly personalized advertising is known as real-time bidding.

Cookies, which allow for the building of user profiles, are one way in which
data can be gathered for ADPs, but cookies still leave holes. They only predict
spending habits, shopping preferences and vague generalizations based on websites
visited. In order to build an accurate data profile capable of matching consumers to
products, more detailed information is needed. To gather the full amount of data
needed to make an accurate ADP, people will have to fill in the parts that cookies
can't.

Data is only one facet of Aggregated Data Profiles. While having the proper
data is very important, it is useless without a means of quantifying and analyzing
that data. An algorithm will need to be constructed that will systematically pair data
values related to a person with data values related to a product. Again, strides have
already been taken towards such a feat and the people at Pandora seem to have
some sort of clue on how this could be possible.

Pandora Internet radio does a remarkable job at quantifying the
unquantifiable by designating value to the craft of songwriting. By decoding
different parts of a song, Pandora radio is trying to predict what kind of music
someone will like based on what they are already listening to. They take into
account many different aspects of a song: beats-per-minute, instrumentation, the
presence of parallel octaves, etc. (Walker 50). But their analysis goes beyond the objective and into the realm of the subjective. For example, they will rate on a scale of 1 to 5 the emotional intensity of a guitar solo. After all the data is complied for a song, it is then put in the pool of 700,000 other songs already decoded and available for listening on Pandora radio (Walker 50). This massive undertaking has become known as Pandora’s “Music Genome Project.”

After a user picks an artist, Pandora will play the selected artist, but then follow it with a different artist that has similar properties determined by the genome project. While there are doubters who claim, “You can’t just reduce it [music] to a bunch of numbers,” many others have found Pandora’s way of introducing new music to its listeners to be very effective and accurate (Walker 51).

IV. Theoretical Application/Implementation

Once a system is set in place to gather all the necessary information to build an Aggregated Data Profile, the information would then need to be sorted, assigned meaning and then assigned value. There are many different ways this could be done, but there is a more pertinent question that remains unanswered. Who is gathering and sorting all of the information? Certainly small individual companies, such as Guitar Center or Best Buy, are not taking on this task separately. They have small, limited profiles on their customer base, which will be helpful when sending out ads, but they are not capable of gathering the vast amounts of information needed for ADPs.
The question of who generates the ADP really comes down figuring out if ADPs are consumer driven or advertising drive. A consumer driven ADP would be used by the consumer to find music, books, items that interest them. The ad driven ADP would be used by retailers to send out highly specified ads to potential customers. Consumers would never willingly give away vast amounts of personal data to a company that would just turn around and use that information to try to get them to buy their products. So it seems as though an ad driven ADP is out of the question (at least one that uses large amounts of personal information). This leaves the consumer driven ADP; a way for a person to find the perfect album that they will put on repeat for days, the book they will insist that all of their friends read so they can discuss it together, or the movie that strikes just the right emotional chord to conjure up tears.

Let's look at a theoretical example of how a consumer driven ADP would look in the world of music. It would probably start as a website, call it, musictaste.com. Users would go to the site and fill out a rather lengthy questionnaire about all sorts of seemingly random personal information. Then, based on the information gathered, a profile would be generated. The user's profile would be compared to a catalogue of music, all already given ratings and values (much like the way Pandora analyzes their music), to determine profile matches. The user would then receive a read out of what the algorithm has determined to be that user's top music matches. A user could then check out a few of the artists that the site suggested. If they like some of the artists, they might buy their album, if they do not they can report back
to the site to tell that they found the site's recommendation to be distasteful. The site could then tweak that users profile based on the feedback the user gives.

It is immediately apparent how this type of service would benefit the consumer, which may make retailers uneasy about not being apart of Aggregated Data Profiles. But there is a simple solution for retailers voice to be heard in the aforementioned example. A simple “Buy This Artist On iTunes, Amazon, Rhapsody, etc.,” would create the opportunity for a tremendous amount of music sales through the music taste.com website. Just look how the music identifying phone app, Shazam, helped to boost online music sales through a similar “Buy this artist on iTunes” button. Shazam CEO David Jones reports that last year tap through sales on sites such as iTunes and Amazon was around $30 million (Dredge). Also keep in mind there is no way to count the number of people who simply did not click through, but later bought the album at a record or store or through another online retailer.

If such a website did exist, it would help to boost music sales by systematically matching peoples taste to music through the use of Aggregated Data Profiles. If it were to work so well for the music industry, there are certainly implications for such a website outside of the music world. The exact same model could be applied to books, video games, movies and television shows. Fortunately for the music industry, the “Music Genome Project” is already well underway, making it a lot easier to comprehend quantifying and analyzing all the music that is available. Unfortunately for other forms of media, such a system does not exist. There is no “Book Genome Project,” or “Art Genome Project” underway, but they could (and most likely will) be started.
The film industry already has a project similar to the “Genome Project” that works with analyzing different aspects of a movie script. The project, known as Epagogix, treats screenplays as mathematical propositions that can be broken down using categories and scores (similar to Pandora’s techniques with music) to determine the potential of a screenplay being a successful movie (Gladwell 143). Unknowns are factored in, such as what big name would play the lead and who would direct, etc., and then based on the screenplay’s score a number is calculated in dollars which represents the estimate of what the movie will gross. For the most part, Epagogix has worked well, predicting fairly accurately the actual amounts that movies have grossed. Commenting on the Epagogix team’s ability to accurately calculate the amounts actual movies grossed, one studio executive said, “They were basically within a few million” (Gladwell 145). (Keep in mind a few million is pocket change for the executives in Hollywood).

If Epagogix’s analytical model can be adjusted in a way to match different movie elements to individual’s tastes, the film industry could also see the benefits of ADPs. By matching Aggregated Data Profiles to different movie elements, recommendations could be generated that would help to boost movie sales. The same goes for television shows, video games, books and more. If it can be broken down into component elements and systematically given value, it could be used alongside ADPs to give consumers a look into the media content that they would truly enjoy.

Beyond media, ADPs have numerous potential uses in other retail oriented industries. Imagine a newlywed couple has just purchased their first home. They
need to fill it with decor; couches and drapes in the living room, new kitchen tile, repaint the downstairs bathroom and turn the spare bedroom into an art studio. Overwhelmed with the unlimited amount of choices they face, the couple needs a way to find some nice, affordable décor that fits their style. This is how other retailers could benefit from the ADP.

Stores such as Lowes, Home Depot, Sears, Wal-Mart, etc., all could have ADP “dropboxes” on their websites where customers would go to drop their profiles into a search engine that would match their profile to the store’s inventory, bringing up results that would most likely match to the consumers tastes and preferences. So for the couple in the aforementioned example, they could go to lowes.com and run a search that matches the couple’s ADPs to all the different types of floor tiles that Lowes carries. This would cut down on a consumer’s search time, and would also increase retailers’ sales due to their customer’s ability to quickly and easily find the products that match their tastes and preferences.

Thinking beyond home décor and home furnishings, ADPs could theoretically be used in any retail situation. From finding the right prom dress to trying a new restaurant to eat at for dinner, the potential uses of ADPs are endless.

V. Obstacles/Threats

In theory, the idea of Aggregated Data Profiles sounds great. The possibilities seem limitless in regards to what could be achieved in the world of retail. But in reality the idea of a profile that could understand the deepest emotions and motivations of person is a very scary thought. If all the deeply personal information
that is required to build an accurate ADP got into the wrong hands, imagine the kind of misdoings that could be done with it. Most people would feel uneasy even if a company with good intentions had their hands on such information.

Thus the first obstacle emerges: the privacy issue. Currently there is no way to safeguard any information that is put onto the internet. People will not give away their personal information freely if they feel whom they are giving it to cannot be trusted to keep it safe and private. There has already been much concern voiced over issues similar to these relating to Google’s new privacy policy changes it has implemented over the past couple years. Starting in March of 2012, Google began to “stitch together a fuller portrait of their users” by “follow[ing] the activities of users across nearly all of its ubiquitous sites, including YouTube, Gmail and its leading search engine” (Kang). Google has made this move in order to aim at individual taste, the same drive behind the ADP. Their focus is not consumer driven though, but rather ad driven.

Google has already stepped towards a type of profile building that consumer advocates find outrageous, especially because there is no way to opt out. One such advocate, James Steyer of Common Sense Media, says, “Google’s new privacy announcement is frustrating and a little frightening. Even if the company believes that tracking users across all platforms improves their services, consumers should still have the option to opt out — especially the kids and teens who are avid users of YouTube, Gmail and Google Search” (Kang). Of course Google argues there is a simple way to opt out – don’t use their services.
For the Aggregated Data Profile, it appears the only way to make its privacy trustworthy would be for users to have the ability to opt out. This means users would have to sign up to have an ADP created for them. This solves two problems at once, while at the same time limiting the potential impact ADPs could have on the retail industry. It solves the privacy issue because the only data that would be obtained would be freely shared and freely given away. It also solves the logistical problem of gathering all the information from various corners of the internet. The user would provide all the necessary information, which may also have its drawbacks. People could be dishonest when filling out their profiles, which will in turn make their ADP's inaccurate. Many people are very afraid to let anyone know true intimate details about who they are.

Unfortunately taking the opt out route also means that the impact of ADPs on the marketplace will be limited due to the decreased number of users. Not every consumer will have a profile, which means ADPs have the possibility of never catching on as a viable means of selling and finding products that match well with tastes.

Another facet of the privacy issue concerns over keeping the information out of the hands of the government. At first thought it seems the government would not have any use for ADPs and that they would be strictly left to the free market, but quite the contrary is true. Imagine the various uses that the government could have for a massive pool of information and data about its citizens. Though good intentions may be behind their actions, too much privacy would be invaded if the
government decided to start using ADPs to identify “possible homicidal types,” or “potential terrorist threats.”

A second major obstacle that stands in the way of ADPs becoming a reality is figuring out exactly what information is needed to make them accurate. It will undoubtedly take a team of data analysts, psychologists and statisticians looking at the different possible questions that can be asked in order to find the rightly phrased question that will yield an important and quantifiable answer. It will also take much trial and error followed by adjustments and retrial to find the right model that yields proper matches.

There are two ways that make the most sense for the information to be gathered. One is through the use of an online questionnaire, as mentioned above in the hypothetical model of how the ADP would work. But it would be equally helpful in building an accurate ADP if some of the information was not gathered through a questionnaire, but rather through the tracking ability of the cookie. It will be easier to get more accurate information about a person’s online shopping habits, frequented websites and other such information through cookie tracking than through just asking a person in question form. That information, once gathered, will need to be designated values. For example, someone will need to decide what amount of online shopping represents a tight spender, a medium spender or a heavy spender. Also looking at what types of products are purchased will be relevant in building a profile for the person. Once initial standards are set, building profiles will happen rather quickly.
One final issue that needs to be considered is of ethics. Will building such a
database be too much of a temptation for abuse? There are numerous ways in which
ADPs could be abused and there is currently no way to safeguard against them.
Looking to the ethical issues that Google faces concerning their users data privacy, it
is very apparent that the way they treats their user's data is in an ethical grey area.
Critics of the way Google manages their data say that they have been far too vague in
explaining how they use the data they collect, how it is shared across their different
services and how long that data is retained before it is deleted or “anonymized” so
that it can not be tracked back to any one individual (Mitchell).

Ethical use of data by the industry as a whole is beginning to be questioned
by governmental agencies. The Federal Trade Commission warned many companies
such as Google that increased regulation actions would be taken if "clear, concise,
consumer-friendly and prominent" privacy policies were not produced (Mitchell). If
ADPs are created, very careful consideration will need to be given to privacy policies
and the ethical ways in which the profiles should be used.

Though the ADP has many potential ways of impacting the marketplace in a
positive way, there are just as many ways the data could be misused. This misuse is
the biggest obstacle for the ADP. People cannot trust the privacy of a profile that
contains sensitive information. In the wrong hands, the information could be used
unethically, and that would deter most form ever giving up their personal
information in the first place.
VI. Conclusion

The digital age has brought about many changes in our society, but it is very possible that the largest change is yet to come. Many questions and obstacles stand in the way of a personal profile that is so deeply complex that it accurately predicts an individual’s taste; but no question or obstacle is insurmountable. Companies such as Pandora, Google, and Amazon all hold individual pieces to this much larger puzzle. Some may say that an Aggregated Data Profile would revolutionize the retail industry; others may say that an attempt to create something so large and encompassing would be a futile effort.

The only way to know for certain the fate of the Aggregated Data Profile would be to test it. A company such as Pandora would seem to be a well-suited company to try out ADPs. They already have one half of the equation figured out with the Music Genome Project, they would just need to pair it with the actual profiles and then Pandora would have the power of predicting different individual’s music tastes. It could be a huge turn around for a company that has been struggling financially due to having to pay out so many royalty fees to the artists they play (Gladwell).

The technology exists and the need is there, all that is missing is an organization to spearhead the Aggregated Data Profile effort. If an organization steps up, they will be faced with many challenges; ones of privacy, logistics and of ethics. But the possibilities of such a project far outweigh the challenges and obstacles. With the music industry being at the forefront of the move towards Aggregated Data Profiles, a whole new age of retail may be approaching. This new
age will see retailers aiming at consumer’s tastes and preferences as a way to reach new markets and a way to grow their company.
Works Cited:


