

Pandora

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1. Introduction.

This report is to critically analyse and review the business strategies, challenges and revenue mechanisms, the macro-economic landscape, managerial approaches and lean business methods and techniques of the American streaming platform Pandora. Its current and previous products and services, new business development and growth in the entertainment sector, including the critical evaluation of sources and routes to creative project financing, highlighting strategies for raising capital given key project criteria.

2. Company History

In late 1999, Will Glaser and Tim Westergren envisaged the concept of an algorithm-based musical classification software database by analysing the composition's unique traits and attributes related to the key and tempo of the given genre, (Middleton, R. 2020), further progressed by Westergren providing the underpinning musicological content through his ability to understand fundamental conceptions of music, due to being a professional film composer and Pianist specialising in Jazz, Rock, Blues, and Classical composition styles and also the higher education he received at Stamford University. There, he earned a BA in Recording Technology and Computational Acoustics (Shankbone, D. 2019) and finalised the core development of the technology. Shortly afterwards, in January 2000, Westergren pitched the idea to Jon Kraft and with Kraft's experience gained through founding and developing his recently sold company, Stanford Technology Group, specialising in the design and implementation of large-scale analytical database management system software, successfully raised \$1,500,000 in funding from non-disclosed investors. With additional input from Jeffrey P. Stearns, the four partners filed a patent at the US office on 14th January 2000 as The Music Genome

Project. Kraft, Westergren, and Glaser then formed a company called Savage Beast Technologies to bring the newly developed invention to market as an e-commerce music recommendation platform, which Westergren detailed at the 2011 Vator Splash conference¹.

In March 2000, following the peak of the dot.com expansion, Savage Beast Technologies would again change its business model and direction to begin licensing The Music Genome Project software as a business-to-business (B2B) model to shops and retail organisations, such as the American chains Tower Records and Best Buy, to trail its use in their stores nationwide. With the initial funding exasperated by early 2001, the trio foolishly convinced the fifty employees to work illegally on a deferred payment basis for two years until several disgruntled employees successfully sued them due to California State Law forbidding deferred salaries (*The California Labour Code*, § 204. 2013). In February 2003, AOL Music reached an agreement with Savage Beast Technologies to incorporate The Music Genome Project across AOL Music's products to drive the personalisation and navigation features allowing custom playlist creation based on similar music to the user's favourites, as Kevin Conroy, the AOL Entertainment General Manager and Senior Vice President, said at the time².

In November 2004, Westergren secured \$7.8 million in the second round of funding after 348 failed pitches raised from Selby Venture Partners, Walden Venture Capital,

¹ ... "I had this idea to codify that genomic approach to understanding musical taste and leveraging technology and the Web to build a recommendation engine, the initial thesis of the company was that we would build this intellectual property and license it out to this growing array of music properties, portals and websites, etcetera. CDNow, eMusic, IUMA, this generation of new music businesses. And, through an API, we would become a licensed technology" (Loeb, S. 2017).

² ... "By integrating Savage Beast's technology, AOL will begin to deliver on the long-awaited promise of personalized music on the Internet. By placing control in the hands of the consumer, Savage Beast has created something truly unique. This remarkable software will enhance the programming strengths of AOL to expand our current services, help attract and retain AOL Broadband consumers, and further our ability to provide unique value to artists and label partners," (Conroy, R. 2003)

Labrador Ventures, Robert Kavner and Peter Gotcher. Larry Marcus of Walden Capital is credited with changing the company's business model by introducing an Internet radio service they internally named One Click Custom Radio (Harrison, J.D. 2015). One Month later, in December 2004, Savage Beast Technologies changed senior management, with Westergren becoming the Chief Strategy Officer and Joe Kennedy replacing Westergren as CEO and President.

After settling the Californian wages lawsuit, five and a half years after incorporation in July 2005, following a suggestion from Kennedy³, Savage Beast Technologies changed its business model. They rebranded as a business-to-consumer (B2C) focused internet radio station named Pandora (Pandora Media Inc, 2005). Following a five-week soft release, on August 29, 2005, Pandora went live to the public (Conrad, T. 2005), gaining over 100,000 users signing up to the platform within the first month, although most left after the 10 hours of free access granted to new users.

In November 2005, in the third round of funding applications, Pandora secured a further \$12 million from Walden Venture Capital, Hearst Ventures, Labrador Ventures, Crosslink Capital and Selby Venture Partners (Marshall, 2005) and, as Kennedy says, then changed the business model to become advertising-based opposed to a subscription-based model⁴. After gaining over \$56 million in funding,

³... "The problem was that music sales were declining big time and so you can't chase after a business opportunity in a market that's falling off a cliff. That's pretty fundamentally flawed. It was bad timing and the timing only got worse. It was a mediocre idea with terrible timing. I think also what is vitally important in a young company is founding sense of purpose. We want to enable people to discover and enjoy music that they'll love. That founding purpose, we never moved away from it." (Loeb, S 2017)

⁴ "The truth is that when we were just getting around to launching the product, we were running out of money, and none of us had experience running an ad-supported business. We were slow to see that ad-supported was a big opportunity partly because it was not our experience that we were afraid to see ad-supported as a big opportunity, fortunately along came a new investor who not only brought the money but brought the perspective that the big opportunity is ad supported." (Kennedy, J. 2009)

Pandora went public in 2011 on the New York stock exchange selling 14.7 million shares at \$16 per share, which generated the company \$234.9 million in revenue, creating a company value of \$2.56 billion. This is remarkable considering the company was yet to profit in the eleven years since incorporation and six years of trading history (Cowan, L. 2011).

In 2015, Pandora acquired Rdio, another on-demand music streaming service like Spotify, purchased for \$75 million in cash and as well as buying Next Big Sound for an undisclosed amount (Faughnder, R. 2015). Next Big Sound provided a platform detailing comprehensive streaming and social data for musical compositions, bands, and artists to create successful datum-led reporting systems and marketing campaigns comparable to Chartmetric, retired in 2021 and was combined into Pandora's Artist Marketing Program (AMP) as detailed in a statement by the Next Big Sound business analyst, Jay Troop⁵. In February 2019, Pandora was acquired by American media giant Sirius XM Holdings Inc., a Liberty Braves Group subsidiary, for around \$3.5b. Since the acquisition, according to financial reports, SiriusXM posted a \$743 million gross profit for Pandora in 2021, its second annual profit in the previous ten years.

⁵ ... "After 12 years of tracking music data across hundreds of thousands of artists and hundreds of billions of streams, it is time to say goodbye. Next Big Sound will be shutting down on November 1, 2021. This is just the final step of a multi-year transition, and our team is excited to focus on improving and expanding the awesome marketing tools and data-driven insights available in Pandora's Artist Marketing Platform. We have decided that Next Big Sound social data is not going to be moving over to AMP with us. We have decided to focus our team's efforts on giving artists valuable, actionable insights to help them grow and monetise their fan bases on Pandora. This means that it is also time to say goodbye to the Pandora Predictions chart." (Troop, J. 2021)

3. Music Genome Project

The description listed in the patent registration for The Music Genome Project⁶ informs that the technology fundamentally would analyse the most basic-level principles and, thus, understand the essence of each composition. Using several mathematical algorithms, musical attributes appear as similar compositions linked to each other in a mind-map-orientated database. The genres analysed in The Music Genome Project are Classical, World Music, Jazz, Pop and Rock, Hip-Hop and Electronica. Each song has nearly 450 genre-specific alternatives for comparison, detailed as genes; a term used in genetics analogous to genes in living organisms that determine traits.

Each gene has an individual musical characteristic or trait assigned, such as the key and tempo of the composition, the use of, or the volume of effects used in the recording of the composition, i.e., echo delays, reverb on vocals, distortion etc., the gender of the vocalist or instrumentalists etc. According to Pandora's description of The Music Genome Project, Classical and World music have 300–450 genes, and Jazz songs have around 400. There are 150 genes for Pop and Rock songs and 350 for Hip-Hop and Electronica compositions. Each gene lists a number varying in half-integer increments between 0 and 5 vis-a-vis the similarity of other genres' pieces. The database relies on many genes to provide precisely defined terminology, obtaining the most accurate and beneficial results in any search. Continuous input

⁶"A database of multiple items, such as songs, is created. Each song is also represented by an n-dimensional database vector in which each element corresponding to one of n musical characteristics of the song. An n-dimensional source song vector that corresponds to the musical characteristics of a source song is determined. A Distance between the source song vector and each of database song vector is calculated, each distance being a function of the differences between the n musical characteristics of the source song vector and one of source database song vector" (Pandora Media LLC, 2002)

to the database to further consolidate the results is essential to maintain consistent and reliable high data integrity.

To ensure internal standards and statistics, a musician will analyse ten per cent of the material to obtain the vector of the individual songs and compile a list of similar content. Pandora calls this process their matching algorithm, which the music analytics team has used over the past twenty-three years to measure and organise millions of songs, which can take more than half an hour per song. This provides a level playing field for all artists rather than being led by popularity or promotion.

4. Competitors and products

When Apple launched the App Store in 2008, Pandora's decision to stop everything and develop an app to move into streaming on mobile devices was one of their greatest. Pandora now adds more than three million new users per month, including nearly two million on mobile devices. The company consistently ranks among the top five most popular apps on the Apple App Store, with over one hundred and fifty million registered users in the US alone. Fifty-five million of them are monthly listeners, compared to almost seven million at the same time in 2007, and over half of all streams accessed from Pandora are now on an Apple-made device.

In 2010, Pandora partnered with Ford Motor Company to advance the technology to stream the Pandora app in their cars through the Ford Sync system, becoming the first internet radio streaming service available in vehicles. In 2012, Apple decided to create its streaming service, directly becoming a competitor of Pandora, by providing the user with a choice of virtual stations, categorised by the genre, that continuously play similar content in the 'station' This content would be available to the user, for free, in the iTunes application either on a Macintosh computer, iPod or

iPhone. Still, it would incorporate paid adverts to the broadcast stream, Siri's voice-activated control and in-app links to purchase the content, as Apple's senior vice president, Eddy Cue, said in 2013.⁷

There have been, and still are, many companies providing similar online streaming services to consumers. This idea started with the Internet Underground Music Archive (IUMA), part of a Usenet newsgroup, launched in 1993, five years before the mp3 was invented. The platform's three creators, Jeff Patterson, Jon Luini and Rob Lord, said it was designed for independent and unsigned artists to distribute their music and communicate directly with their fanbase. They allowed artists to distribute their music unconventionally (zzsounds, 2016).

Artists will sign up for free and receive their unique URL, providing a basic web page to showcase their music on the World Wide Web. The music was then accessible in a live stream, file download, or internet radio station format.

In 2006, the IUMA website was taken offline, and all workers were laid off. The Italian company, Vitaminic, purchased IUMA for \$900,000 in cash and stock to bring the website back and sell CDs, but unfortunately, this never happened (Healey, J. 2001). Other examples include Last FM, Napster, Bandcamp, Google Play Music, AOL Music, YouTube Music, Qobuz, Tidal, Soundcloud, and Amazon. These range from Pandora's advertising-led internet radio model to revenue split models seen with Bandcamp, Last FM, Spotify, and Google Play Music. Pandora has only 6% of the national market share.

Napster entered the public eye in the late 1990s when online digital music became popular, rather than playing traditional formats like cassette tapes, vinyl records, or CDs. Napster designed a P2P (peer-to-peer) system where the encoded copy of a CD was a very small-sized audio file, enabling users to upload it to the Napster database and play it back on computers linked anywhere on the internet leading to

⁷ "iTunes Radio is an incredible way to listen to personalised radio stations which have been created just for you, it is the music you love most and the music you are going to love, and you can easily buy it from the iTunes Store with just one click." (Cue, E. 2013)

users sharing copyrighted prohibited music on P2P services such as FastTrack and LimeWire. This model was incredibly lucrative for Napster, with the number of verified global users peaking at around 26 million in 2001 when Napster faced several lawsuits for copyright infringement by A&M Records and the Recording Industry Association of America (RIAA) successfully for \$36 million, resulting in Napster shutting down its entire network and filing for bankruptcy in 2002. Pandora recently launched a new application called Stories, a marketing tool providing insights into music, like Genius' Behind the Lyrics⁸. It also launched podcasting services like Spotify and leading online digital content providers.

5. Critical analysis of the business model

- **Customers**

The two customer models that Pandora currently has are Pandora Plus, where users are categorised as subscription-based payment tier. The subscription benefits are that users have fewer skipping tracks, no advertisements interrupting the radio streaming, and considerably fewer station pauses, which provide the user a longer, more enjoyable experience listening to the station before it times out and the user must select a different station and their 'free-tier' users, who pay nothing to stream music or digital content.

⁸ ... "Creators are able to curate Playlists and Mixtapes comprised of music and comedy tracks from Pandora's extensive catalogue. Curators can further customize Programs with their own commentary, or that of a collaborator, by uploading Voice Tracks sequenced within the Program. Pandora Stories combines the best aspects of podcasts and playlists to help Creators expand beyond classic listening experiences and bring exclusive, engaging content to people in a whole new way." (Pandora, 2022)

- **Value creation**

Pandora provides the user with an individual and personalised experience on both the premium and free tiers; this creates an incredibly unique listening experience on their platform, while an easy-to-use operating system provides an effortless user interface as well as offering a far superior product than that of their competitors for the paid-tier users.

- **Value capture.**

Pandora uses revenue generated from advertising to pay for the content consumed by users of its free tier. It charges subscribers \$10 a month, about a third of the price of most other music streaming services.

- **Operating model.**

The essential element of Pandora is The Music Genome Project's technology; with such complex mathematical algorithms and musical trait analysis, it creates an unparalleled music recommendation system. Further core operating model attributes to Pandora include publishing, artists, record labels, intellectual property content rights holders, and other businesses such as Stories.

6. Financial landscape, macro environment and share of the market

Following the dot-com bubble crash in 2000 and the 911 terrorist attacks in the United States of America, the FED lowered the federal funds rate by 5.5% between May 2000 and June 2003 by the Federal Reserve from 6.5% to 1%, to make money freely available, boosting spending and thus increase the economy; the FOMC sets the target interest rate for commercial banks to either lend or borrow from one another out of their reserves overnight. The result was a huge increase in property

prices as people utilised the low lending interest rates. Subprime borrowers with poor or no credit history can buy overpriced homes with little or no savings and no realistic way to pay off their debt. Lenders then sell these bad loans to commercial banks, which reclassify them into less risky financial portfolios, such as mortgages and collateralised debt obligation (CDO)-backed securities.

Eventually, the property market reached a critical point of saturation, with homeownership peaking at 69.2%, (Fred Economic Data, 2023) this forced the Federal Reserve in 2004 to increase the interest rates again, and by 2006, it had reached 5.25%, not changing again until August 2007.

But in early 2006, property prices began to fall, causing a very high number of sellers to enter a position of negative equity. People could only sell their houses with debt left outstanding to the lender, and if they had variable-rate mortgages, their repayments increased as the value decreased. This situation left the worst affected borrowers in a position they could neither sell nor afford the repayments needed to stay put. Between February and March 2007, more than 25 subprime lenders went bankrupt. Between February and March 2007, more than 25 mortgage lenders in the United States declared bankruptcy. New Century Financial was one of the subprime mortgage firms of the era, with nearly \$60 billion in loan revenue in 2006. According to the Reuters news service, it filed for bankruptcy protection in 2007. (Stempel, J. 2007)

By August of that same year, financial markets could not resolve the subprime mortgage crisis, and the effects of the problems extended far beyond the United States. The interbank market that keeps money flowing worldwide was frozen, primarily due to fear of the unknown. Due to liquidity problems, Northern Rock had to seek emergency funding from the Bank of England. In October 2007, Swiss bank UBS became the first central bank to announce losses on subprime mortgages or related investments of more than \$3.4 billion. (Hanson, LK. and Essenburg, T.J. 2014)

As falling asset prices had stalled, the Federal Reserve and commercial banks would coordinate a plan to lend billions of dollars to global credit markets. Financial lenders and analysts were left in a position they were unable to determine the value of mortgage-backed securities in their corporate portfolios, amounting to trillions of dollars. By the winter of 2008, the global economy was crippled by a full-blown recession due to a lack of liquidity. The stock markets fell to their lowest point since the 911 attacks. In January 2008, the Federal Reserve slashed interest rates by 0.75%, the most significant reduction in 25 years, to try to slow the crisis and restore market confidence. The following month in February, the United Kingdom's government nationalised Northern Rock. In March, American investment bank Bear Stearns collapsed and was incorporated into JPMorgan Chase.

In 2008, IndyMac Bank failed in one of the most widespread bank failures ever and caused financial chaos around the world, only to be paralleled by the collapse of Lehman Brothers in September, marking the largest bankruptcy in history. Global financial markets went into a free fall, suffering some of the highest losses ever on record. There have been very few financial crises like that of 2007/8 in history; it impacted the financial system so dramatically that it damaged the entire global economy for many years afterwards while ruining millions of lives and businesses that were not involved in mortgage-backed securities leaving little or no money spare for internet radio subscriptions or other luxuries. While the Music Genome Project led a revolution in how people listened to music, with listeners who enjoyed the continuous 'background noise' approach of discovering new content, it was nearly impossible to sustain financially. In 2007, The Copyright Royalty Board changed the US performance royalty rates copyright law, so those web-based radio operators had to pay over double the pre-existing royalty rates, while terrestrial radio was not liable to make the payments at all and Satellite radio got far lower rates, comparatively speaking than Internet radio providers, (Congress, 2007).

Westergren said that if the rates stayed at that level, it would cause the end of Internet radio and effectively put Pandora out of business⁹ (Westergren 2007), as he said in an interview with The New York Times, the company considered ceasing operations and closing permanently (Millar, C.C. 2010). Initially, Pandora started contacting other webcasters and forming the SaveNetRadio organisation. The group instructed Qorvis, the Washington D.C. lobbying firm that had successfully worked previously for Amazon and AOL, to write Op-Eds and opinion pieces in newspapers and obtained positive endorsements from over six thousand people relevant to the music and radio industries. They organised groups of broadcasters and musicians to visit Capitol Hill, where they met with government workers and detailed the impact of the ruling on their lives and businesses and how the industry was best as a self-regulatory sector, free to decide its royalty payment amounts, as Even Manzullo publicly detailed.¹⁰ The organisation announced that on June 26th, 2007, there would be a day of silence on all their combined platforms of internet radio, so when users attempted to listen to content on Pandora, Live365, AOL Music, Yahoo Music, and many more, they would receive a message detailing the situation and instructing the user to contact Congress and local members of the government to request repeal. This approach proved successful, with Pandora estimating that more than one million requests were sent by federated users of the SaveNetRadio organisation. This response equals the number of letters received about the Iraq war. In 2009, Inslee and Illinois Representative Don Manzullo authored a companion bill sponsored by Sam Brownback and Ron Wyden in the Senate. The response brought the royalty payment rate for internet radio to a viable level, although still high, but in line with satellite radio at 4%.

⁹ "The RIAA has effectively convinced this federal committee to establish rates that make online radio a non-viable business." (Westergren, 2007)

¹⁰ ... "the last thing you want to do is have Congress regulate royalty rates; industry should regulate them." (Manzullo, E. 2007)

The company was also generating an additional revenue stream from TicketFly, which it acquired in 2015 for \$450 million. Subsequently, it was sold two years later to Eventbrite for \$200 million, equating roughly to a \$250 million loss, said to be most likely as a condition of the \$480 million sale to SiriusXM that occurred in 2017. However, Pandora retained a commercial agreement with Eventbrite to continue selling tickets in an unspecified context. According to research by BTIG on Pandora's CPMs (cost per mile), we see the company losing money due to mobile device streaming being more popular for subscribers than streaming on a computer¹¹. While Pandora has not given exact numbers, it is estimated at \$43 CPM for computer streaming in 2011 compared with a \$20 CPM for streaming on mobile devices. In 2008, Pandora was streamed almost entirely on computers, and in 2011, 60% of streaming content was played on mobile devices. Other notable problems reducing Pandora's profits are the royalty costs paid to record labels and publishers, an increase in competition within the digital music online sector, and the complexities of scaling the business internationally, primarily due to considerable differences in tax and royalty payment systems between individual territories.

According to financial reports, the number of monthly listeners on Pandora has been declining since 2016, with 52 million in 2022 and only 6.3 million paid-tier users, which has remained the same for the last three years. The reliance on advertising revenue doesn't provide Pandora with the capture value it needs. Pandora has always relied on advertising-generated revenue to generate a larger share of the company's revenue, while it can create value for free tier users by making content easily accessible. The same cannot be said for the paid-tier users and encourages the company management to focus on free-tier users.

¹¹ "For each mobile listening hour that cannibalises a PC-based hour, against which the company is paying a fixed cost, Pandora is being hurt by deleveraging, from a profitability standpoint." (BTMG, 2011)

Indeed, it is logical and the best business practice to focus on advertising which brings in 80% of revenue and creates value for 95% of customers, right? This theory is not applicable when applied to Pandora's business model. Pandora's executive management seemingly does not understand why paid-tier users are crucial to the company's survival. Subscribers pay Pandora for a personalised music experience powered by its technology. The fact that as of June 2021, Pandora has only 12% of paid-tier users on the platform, compared with 21% for Spotify, suggests Pandora's technology provides enough value to engage free-tier users but not enough to justify the costs incurred with their subscription models, especially when compared to the user personalisation available from their competitors.

Pandora, and internet radio providers, have an entirely different model than Spotify, and music-on-demand providers, with equally other technologies behind them. Pandora recommends content to users as a suggestion service, while MOD providers allow users to choose whatever they want and create libraries and playlists with endless volumes of material available. If the music-on-demand providers' technology is deemed more favourable, Pandora's business model will remain unprofitable due to provider switching costs. This seems to explain the decrease in Pandora's monthly active users and the increase in Spotify and most of its other competitors.

7. Conclusion

While Pandora has an attractive free-tier model for users, the underlying technology model may need to be stronger to convert free-tier users into monthly paying subscribers to become a consistently profitable company.

However, according to Westergren¹², there may be more critical issues.

¹² ... “We all know here that what we’ve created is unique and it is solving a gigantic problem. No one on earth is going to do what we’ve done and when you use this product, we all know how magical it is. It will find its home. Everyone on the planet loves music, there are millions of musicians that produce great music, and they can’t find each other. When this thing finally finds its home, it will change culture and how many times in your life do you have to do that?” (Westergren, 2004)

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