Teaching Case
Procyon LLC: From Music Recommendations to Preference Mapping

Susan J. Chinn
School of Business
University of Southern Maine
96 Falmouth Street, Portland, Maine 04103
schinn@usm.maine.edu

ABSTRACT

Procyon LLC had re-launched and renamed their music discovery site, Electra, to Capella, in 2008. Its core strength had originated from Electra's proprietary technology, which used music libraries from real people, its members, to generating "automated word-of-mouth" recommendations, targeted advertising and editorial content. With the re-launch, Capella's focus changed from a business-to-consumer destination site to a demonstration site for Procyon as it pursued a new business-to-business strategy. What led Procyon to make this strategic change? What products and services should it market, and to whom? This case describes the transition from music recommendation to preference mapping, and provides students with a variety of alternative partnering options to consider as they move forward.

Keywords: E-commerce, Strategic alignment & deployment, Case study

1. BACKGROUND

1.1. Introduction
In this case, a small entrepreneurial firm made a move from providing a music recommendation product, Electra, to re-launching a new product, Capella, with a new purpose. Instead of focusing on end users in a saturated market, Procyon used its experiences with music discovery to find new partners and customers in the business-to-business (B2B) marketplace that would benefit from their personalized music recommendations, advertising and editorial content preference mapping technology. The business on which the case is based has been disguised to protect the source.

The case is especially useful for graduate MBA and upper level MIS students studying e-commerce, Internet marketing, strategy, or entrepreneurship. In the MBA course, the case could be used to consider the overall strategy for an organization in a rapidly evolving e-commerce environment. In a strategy course, the notion of core competency becomes key as Procyon seeks to apply its technology to a different marketplace. For entrepreneurship, the case illustrates the need for small businesses to be nimble and adaptable. MIS students could explore how online music sites with recommendation features work, and which components can be used by business partners. E-commerce students would benefit from analyzing this type of Internet business as it moves from a business to consumer (B2C) orientation to B2B, and its struggle to find the right market segment and business partners.

Learning Objectives
As stated above, the case provides opportunities for discussion on various topics by both undergraduate and graduate students. The major objective is to determine the company's core competencies, assess the different directions it could take with its shift in strategy, and make a case for pursuing new B2B choices with new business partners. Other learning objectives are:
1) To discuss how a small technology company's mission and strategy has evolved over time and why.
2) To explore the nature of the online music marketplace and discuss industry directions.
3) To discuss the concept of the "long tail" (Anderson, 2008) and the impact this has had on e-commerce.
4) To discuss the impact of Web advertising and marketing, as well as other nontraditional method, such as the use of social media.
5) To discuss critical success factors based on competitor analysis, and then to decide what Procyon's critical success factors are.
6) To examine different types of B2B partnering arrangements.
7) To explore the phenomena of both the "local web" and geo-location, and the broad market opportunity associated with targeted advertising based on taste and psychographics as an extension of demographic targeting – first in music, and then potentially in other categories.

2. THE CASE

The following sections provide company background and evolution up to the re-launch of the new recommendation site, an analysis of music recommendation systems and the Internet marketplace. The case then describes the options Procyon faced in pursuing a B2B strategy. The ultimate decision is left for students to discuss.

2.1. Company Background: Procyon LLC

Procyon LLC was founded in 2004 as Procyon Music LLC by Laura Hewitt, Elizabeth Gray, Ray McCarthy, and Sergei Bodrow. Ray and Elizabeth had built software that could provide music recommendations, but lacked the business and music industry connections to market it. Laura and Sergei had the music industry connections as a result of work they had done together on a music festival, and Sergei had received ten Grammy Award nominations; in addition, Laura's experience at a leading computer software organization followed by a successful entrepreneurial venture in the mobile phone industry gave the group the necessary know-how and impetus to move forward. The original vision for the company focused on combining the music recommendation software and the management team's connections in the music industry to provide a launch pad for music discovery, especially for "indie" artists that needed more exposure. In 2005 Procyon launched a desktop application for music discovery called Electra. The original technology behind Electra generated music recommendations by comparing a user's own iTunes libraries and listening behavior with other listeners' song collections and listening behaviors. At the time, providing a means for new artists to be discovered by linking them to other artists based on users' listening preferences was unique.

During the first few years, Procyon received several seed grants from the North Coast Technology Institute. These grants were used to improve user navigation and usability testing for the application, develop the infrastructure and features needed to help the business generate revenue, extend the technology to make video and movie recommendations, and create programs to attract music industry partners. In 2008, the application, which had been cumbersome to download and use, was completely redesigned and re-launched as Capella, a Web-based service that by this time had accumulated a database of over ten million tracks.

2.2 Procyon's Management Team

The CEO of Procyon, Laura Hewitt created Procyon in 2004 and provided the leadership for the organization. Her view was that "People are the path to music and the best way to find new music is through others who share a similar passion." Elizabeth Gray became the CTO of Procyon. Elizabeth's work in collaborative filtering was a real breakthrough -- she deployed her work in an early venture that was one of the first community-based automated recommendation systems. The technology she invented became the foundation for the music discovery algorithms used on Electra and Capella. Chief Engineer and co-founder Ray McCarthy's background included software development at large technology firms. Truong Nguyen, Creative Director, brought to Procyon his skills as a Web and typeface designer, exhibit curator, and musician. Sergei Botow, VP of Music Industry Relations, pioneered the idea of using the Electra technology to target free, promotional MP3s to the right audience. Electra Free Music (EFM) served as both a marketing strategy for Electra.com and as a promotional vehicle for the labels and artists who submitted the MP3s. Rounding out the team was Stan Norton, in charge of networks and eventually, web hosting.

Steven Aronson became Procyon's President and COO in 2008, assuming responsibility for developing and executing business and technology strategies to enable Procyon to pursue business-to-business opportunities to generate revenue in scale, and create new exit strategies. Previously he had been responsible for launching, growing and managing five new businesses and executive initiatives in emerging markets. Steve soon hired Mark Pettinger, who had also worked on start-up market opportunities as a short-term advisor to assist with branding and business-to-business marketing strategies. Steve subsequently hired Sanjit Patel as VP of Sales and Marketing to lead business-to-business sales and marketing efforts on a full-time basis. Sanjit had spent more than 15 years selling and marketing high-tech products and ideas. For an organization chart, see Figure 1.
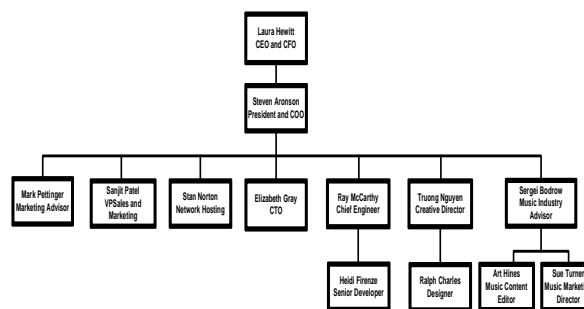

Figure 1: Organization Chart

2.3 Electra

Procyon's principal product had been a music recommendation system called Electra. The recommendation system was initially based on comparing, analyzing and sharing iTunes playlists among its members (i.e., the users of its 20 MB desktop application). In addition to the drawback of requiring users to download a 20 MB application and an install process that could often involve a 20 minute wait while it scanned a hard disk looking for music, the software suffered from a cumbersome look and feel. In contrast, established competitors Pandora and Last.fm only required users to go to their site and register, and then they could simply type in an artist and press play. Electra was harder to figure out because of the decisions that needed to be made regarding a number of features. In addition, Electra content was limited to EFM full length MP3s and 30 second samples of all other recommended music since the company elected not to incur the significant expense of licensing music, or play full tracks without a license and deal with the legal consequences later.

In order to grow its user base for Electra, Procyon implemented in the spring of 2008 a partnership with a Web-based company called Spica. Spica offered music services to over a million college students via subscription. Procyon's

patent-pending technology enabled Spica to use their users' individual music profiles to provide personalized music discovery opportunities and specific song recommendations, editorial and promotional content, and connections to users with similar musical taste to each Spica user. In return, Spica promoted the Electra brand on their music player, and provided direct links to the Electra website from the "My Spica" section of its website.

3. MUSIC DISCOVERY SYSTEMS

3.1 Characteristics of the Marketplace

Music recommendation and discovery systems had been noted as one of the top ten Internet trends of the first decade of the 21st century (McManus, 2009). Music, as with other forms of media, such as movies and books, had become a commodity that required little storage space in digital form. As user tastes had become increasingly fragmented and specialized, marketers recognized the potential of the "long tail" (Anderson, 2008). Blockbuster titles might have many sales at the head of the tail, but there were also many more titles in a huge inventory of products that sold in very small amounts, but that, in the aggregate, could be just as profitable. According to Tim Westergren, Pandora Radio's founder, 70% of music is "obscure," and people had a hard time both finding it in the first place and then buying it (Starr, 2006). Recommendation systems could bring that music to potential consumers' attention.

Combined with music volume in the long tail was the increased delivery of purchased music as individual songs in digital format instead of CDs. Forrester research predicted that by 2012 music downloads would outpace CD sales, and forecasted an average growth rate of 23 percent in digital sales, generating $4.8 billion in revenue (Harris, 2008). In November 2008, Atlantic Records posted more sales of MP3 files than CDs for the first time (England, 2008). The category killer was iTunes, Apple's popular digital music store. Although profit margins were slimmer for individual tracks than for CDs, increasing sales, as well as Apple's own payment methods to reduce transaction fees, had started to disprove the contention that iTunes only "broke even" (Marsal, 2007). In addition, the characteristics of modern technology had made Internet radio services such as Pandora popular, as more users upgraded to personal computers with pre-installed, media-ready hardware, software and broadband Internet access.

A variety of distribution models for music had been launched, ranging from e-commerce downloads to mobile computing. E-commerce download sites, as exemplified by iTunes, offered song downloads with various pricing strategies. Music streaming on demand was another distribution model, usually involving a subscription fee. Some of the free sites offered restricted downloads supported by ads. Other distribution models included search engine approaches, where users could search the Internet for sites streaming particular songs; social networking sites, offering streaming and free downloads (e.g., MySpace Music); mobile bundling, offering music over handheld devices; video games offering music downloads; and artist direct distribution, where artists could stream and sell music directly to fans (Redwood Capital, 2010). Over time, distinctions among many of these models had begun to blur,

typical of any industry trend where rapid technological breakthroughs result in multiple products and services until a shakeout occurs (e.g., the "dot-com" boom), and consumer preferences solidify.

Most music recommendation and discovery systems had similar features in common. These included using an analyzer to scan existing playlists, providing users with controls to accept or reject recommendations, and creating online playlists that could be shared. Some of these systems supplied widgets or other mini-applications that could be integrated easily with social networking sites or deployed on a mobile device. Additional services included promotions for related concerts, new releases, blogs or discussion forums, access to other members' playlists, and tools for emerging artists to submit music. Finally, listeners were often directed to a commercial site such as iTunes or Amazon to buy songs they liked.

3.2 Industry Directions

The music discovery and recommendation industry seemed to be combining various business models with others (notably music streaming), and the industry was far from stable, but overall the direction in 2008-2009 appeared to be three-fold. First, there was already movement in the area of mobile applications. Pandora, for example, became available as an application on the iPhone in 2008. The application allowed the user to listen to 100 stations, rate songs, and make purchases through iTunes. Researchers were also studying mobile devices as vehicles for viral and word of mouth marketing. A challenge with mobile applications was making them run on any type of handset and operating system (Conrad, 2008). This challenge led to the second issue, the establishment of cross-platform communities for video, music, movies, games, and other media, so that there was a common interface and a consistent set of services. Pandora, Last.fm, and others were working on making music streaming applications work in this consistent way (Sandin, 2009). The third notable direction was international expansion. In 2006, Pandora, for example, was developing a world "music genome" and was actively partnering with more international labels; however, licensing issues and subsequent litigation had stymied these initiatives, and, in the case of Pandora, had limited membership to U.S. residents only.

3.3 How They Work

Recommendation systems were first introduced in the mid-1990s and gained traction with the success of e-commerce, which had provided access to a vast quantity of available goods and services, as well as a large set of consumers who left evidence of their online behavior (e.g., cookies, clickstream metrics, actual sales conversions, etc.). These systems had their roots in both information retrieval and artificial intelligence. Several approaches to providing recommendations and aiding discovery had been used. Some systems were completely algorithm-based and employed some variant of *k*-nearest neighbor, while others worked on the concept of collaborative filtering, based on users' behaviors and profiles. Some systems were completely machine-based, while others relied on human experts. In addition, some degree of data mining software was required

to sift through the data, looking for new, unexpected connections.

Some of the algorithms used in recommendation systems were reminiscent of work in case-based reasoning. One of the best known set of methods and the simplest form of machine learning was called *k*-nearest neighbor, which looked for a certain number (*k*) of listeners who liked the same songs, and then used other songs that each person in the network had listened to as the basis for providing new recommendations. Latent factor algorithms, though less efficient than *k*-nearest neighbor, looked at patterns of consumer preferences. Both of these methods could be applied to domains other than music, because they could examine consumer preferences independent of the subject domain (e.g., music, movies, books, etc.). These methods tended to fall short if there was limited data (e.g., a completely new music genre) or tastes changed frequently. Mufin was an example of an Internet music site using algorithms to provide correlations based on song similarity and music attributes; listeners searched for music based on musical attributes such as tempo and mood (Lardinois, 2009). Mufin Player Pro also provided a visual *k*-nearest neighbor map of user playlists based on sound attributes.

Collaborative filtering was a very widely used mechanism for music recommendations, and often but not always employed *k*-nearest neighbor algorithms. This method was based on the concept of "the wisdom of crowds" (Surowiecki, 2004), which posited that a large number of independently-minded people in a community were more accurate in their decision making or problem solving than a group of experts. In the case of music, sites monitored listening behavior from their user communities. What strengthened the recommendations in addition to the community's consensus was the additional use of user profiling. The profiling came from user likes and dislikes, voting, and other comments. Last.fm was a well-known example of a music site using collaborative filtering. It used a technique called "audioscrobbling" to add information about songs from a user's computer or MP3 player to the user's profile on its site. Last.fm reported over 30 million active users; the site was bought by CBS in 2008. Along with Pandora, it was consistently listed among top music discovery sites ("What It's Really Like Inside Last.fm," 2009).

Classification systems, the most notable being the Music Genome Project powering Pandora, used expert analysis of music attributes. The Music Genome project started in 2000 with 30 experts in music theory analyzing music from over 10,000 artists over a five-year period. The analysis was based on attributes such as tone, rhythm, beat, or vocals. When listening to a recommended song, users could ask why a song was selected and the music analysis was displayed. Users could then vote to play more songs like the one in question, or request never to hear it again. According to Tim Westergren, Pandora's founder, collaborative filtering could never be as successful for music discovery because filtering was based on popularity, and popular listening focused on major hits; therefore the user was not introduced to new music as much (Starr, 2006).

In addition to algorithmic methods, collaborative filtering, or human-based classification systems, music sites employed different hybrid methods based on combinations of recommendation strategies. Last.fm, for example, allowed listeners to recommend music to each other directly in addition to collaborative filtering; MOG allowed artists to share their digital music libraries with fans (Bruno, 2006); iLike, a site using a social networking approach, allowed users to share and recommend songs, although it too scanned music libraries on the users' computers to make additional recommendations. Two/thirds of iLike users accessed the service directly from Facebook (Mortimer, 2008).

4. INTERNET MARKETING STRATEGIES

4.1 Personalization and other Forms of Revenue Generation

In general, music discovery sites generated revenue through targeted advertising. Banner ads or in-stream ads were often used. The user was forced to view the ad if it was positioned in-stream or, in the case of Pandora, the ad was shown in order for the user to continue to listening. Rather than showing generic advertising, however, more companies began to consider using cookies and clickstream metrics to track user behavior and preferences to deliver personalized advertising via dynamic Web pages. Clickstream data was particularly valuable, because it could reveal information such as what items customers might have looked at but did not purchase, what items were purchased with other items, which advertisements generated a lot of hits but few sales, as well as the order in which pages on the site were viewed and other browsing behavior.

Web personalization was seen as much more important on music sites compared to regular e-commerce sites because users tended to spend a lot of time on a few pages and thus had a higher engagement level, an effect often referred to as "stickiness." Traditional metrics such as cost per impression, therefore, did not capture this deeper relationship. Targeted advertising that offered the listener something of value (e.g., a screen skin) was seen as essential to building and nurturing that relationship (Morrissey, Harding, and Bruno, 2009). Web personalization helped to reduce the feeling of information overload and also provided access to the long tail. Beginning in 2004, ChoiceStream, a recommendation service provider, had conducted an annual survey on personalization to U.S. adult Internet users. Several of the key findings from the 2008 survey covered personalized Web advertising. Frequent shoppers (58%), as well as 50% of the biggest spenders, were more likely to click on personalized ads. Most respondents (79%) also acknowledged the impact of advertising's influence and brand advertising on their consumption habits; they also understood that Web purchase behavior was collected to determine how to target ads. Seventy-eight percent of consumers were interested in receiving personalized content, particularly for "cultural goods" (e.g., music (40%), books (32%), and DVDs (29%)). They also saw the value of personalization in improving their experiences on social networking sites. However, poor quality recommendations were noted, such as inappropriate recommendations or recommendations unrelated to their online shopping (ChoiceStream, Inc., 2008).

Affiliate sales were also used to generate revenue. For example, an iTunes affiliate would be allowed to use Apple's marketing material in emails, web sites, and Internet

promotions. The affiliate could also link to the iTunes store, as well as to content and applications for an Apple device, such as the iPod. Commissions were earned from links to iTunes from the affiliate's site (iTunes, 2011). If a user bought a song through an affiliate's link to iTunes, the site would receive part of the royalty.

Music sites often also featured subscription services to provide the user with additional benefits including a lack of advertising, unlimited listening, and preference on the server (Pack, 2008). The real challenge, according to Felix Miller, founder of Last.fm, was getting the customer to the site. After that, he said, "we invariably have a user for life" ("What It's Really Like Inside Last.fm," 2009, p. 55). For traditional marketers, social network sites offered more opportunities to offer promotions, such as coupons or free music downloads. In addition to tracking more traditional Web metrics, marketers could use search capabilities, found on sites like Twitter, to find keywords of interest and could even trace that down to who initiated, participated, or followed the tweets.

4.2 Viral Marketing, Word of Mouth, and Web 2.0
Viral marketing, also known as network, buzz marketing, or word of mouth (WOM) referred to any strategy that used individuals to pass on a marketing message, thereby increasing its reach. Principles in a successful viral marketing strategy included giving away *valuable* free goods and services, making the transfer of them easy between individuals, using motivation (e.g., getting something now), planning for scalability if the promotion took off, leveraging existing networked communities, and using others' resources, such as affiliate programs (Wilson, 2005). Although the marketing message originated with the company, its effect could be exponential since individuals that were excited about the product or service increased the buzz by promoting it on their own without compensation.

For cultural goods such as books, movies, and music, WOM was a powerful promotional vehicle. It could be especially effective for media items that received limited promotion, as opposed to blockbusters which were extensively advertised prior to their release. WOM had been shown to be very effective in extending the lifetime value of the customer. For niche items in particular, interest tended to spread more slowly due to limited access or exposure; interest also was more likely to spread by word of mouth (Higham, 2005). WOM thus became a customer-driven way of mining the long tail. The Internet served as an efficient, low-cost delivery vehicle for WOM "seeded" campaigns. WOM delivered a way to circumvent the continual erosion of positive consumer attitudes toward traditional marketing communication strategies. Finally, customers could generate excitement through positive WOM, which would increase the likelihood that they would return to a site. WOM was particularly well suited for social networking sites. In social networks, WOM was generated through invitations to join, requests to follow others, becoming fans of members or businesses, as well as specific recommendations. Consumers would be more likely to modify their purchasing behavior, based upon the effect of this "third party" relationship. It could be especially critical if a consumer had no previous experience with the product or service and used WOM to make decisions.

Music discovery sites had been promoted on social networking sites. Twitter, which had a music player, was also being used for music streaming. Applications like TwistenFM, a mashup of a music service Grooveshark and Twitter (Fitzpatrick, 2009), scanned tweets for mentions of songs, and added links to them to play through Twitter's music player. Twitter's open development platform made it easy to build applications using this service's capabilities. Twitter had also been studied for its use as a WOM vehicle. Research found that 19% of tweets mentioned a brand; of those tweets, 20% contained opinions or emotions about brands (Bruno, 2009).

5. NEW DIRECTIONS FOR PROCYON

5.1 Music Discovery Re-launch
Procyon's B2C site was overhauled extensively, and was re-launched and re-branded as Capella in November 2008. In addition to the new and improved features (see below), Capella's purpose was redefined. Its primary focus was no longer a B2C destination site in what had become a more established market with big players with expensive music licensing agreements such as Last.fm and Pandora. Instead, it would primarily be used as a demonstration site and test bed for its recommendation and editorial and advertising preference mapping technology and new company initiatives using free music and video content from YouTube and Capella Free Music (CFM) – a free music catalog based on the free music supplied by Procyon partners (e.g., labels, digital marketers, associations, individual artists, etc.).

Capella was launched as a server-based recommendation and advertising and editorial content preference mapping service that included an optional iTunes "Helper" for users interested in a richer music discovery and recommendation experience based on their favorite music in their iTunes library. It also featured a more user-friendly interface with greatly improved content. Although the details of its technology were proprietary, in general the recommendation and preference mapping solution demonstrated on Capella was a collaborative filtering solution that used statistical techniques and data-mining methodologies to compare a user's taste in music to other users across the community to make automated "word-of-mouth" recommendations from the community to each user (or from users to each other). The solution's tiered approach enabled recommendations to be provided even if only one artist was provided to start the recommendations process – actively (e.g., typing an artist's name into a search box) or passively (e.g., by browsing an artist's page). More precise recommendations could be provided initially if the user chose to download the optional iTunes Helper. In either case, the solution was focused on providing efficient, precise and broad-based recommendations that included "long-tail" discovery (i.e., discovering new music that includes less well-known artists that cater to specialized niches). The result of these advancements enabled the recommendations and targeting of advertising and editorial content to be more flexible, scalable, and easy to integrate with partners and customers via a web service operating through a standard API (application programming interface) Procyon created. In addition, the same technology could be applied to categories beyond music (e.g., books, music, video, travel, financial

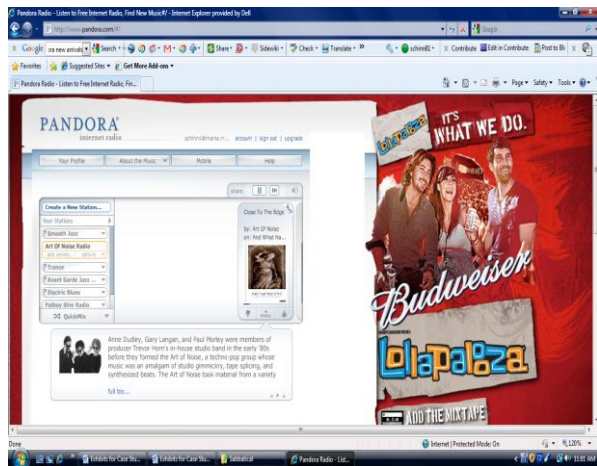services, healthcare, etc.) with the right additional data sources.

Figure 2: Pandora Web Site Showing a Smart Playlist
(Source: Pandora.com)

The user experience centered on making a "smart" playlist built around a taste profile (see Figure 2 for an example similar to Capella's player). The profile was generated from voting on songs (liked/disliked), searches the user performed looking for particular artists or songs. Smart playlists could be enhanced by adding selected YouTube videos. Users could access their smart playlists from any computer, and non-registered users could easily find saved smart playlists (available from cookie information on the computer that they had used to create them). Smart playlists could be renamed and shared with others. It was also possible to copy other users' smart playlists. Procyon also built a catalog of over 10,000 songs from over 1,000 labels, digital marketers, associations, independent artists, etc., and allowed the user to listen to and download full-length tracks. Tracks could easily be added to or deleted from smart playlists, andvoting on tracks could enhance the recommendations. Tracks that were not free for download were identified and linked to YouTube videos; the user could link from Capella to purchase these songs from online music stores.

Once the site was tested and fine-tuned, Procyon promoted it to determine how to best sell their recommendation and taste-targeted advertising and editorial content capabilities to prospective partners and customers, and drive their business goals as well. Procyon established presences on Facebook, MySpace, and Twitter, which strengthened existing relationships with their listeners as well as attracting new listeners from current users' social networks. Procyon also developed a widget (see Figure 3 for an example similar to Proycon's widget). Using a widget was seen as a way to extend the promotional reach of business partners and customers using Procyon's recommendation and advertising and editorial content preference mapping technology, as well as creating a data asset for other sites, such as social network sites, music blogs, and content partner sites.

Procyon recognized that Capella could be most valuable in the near-term as a demonstration site to test new services after time and money spent on technology and marketing the

site resulted in only small increases in user acquisition. Music sites needed "deep pockets" to pay the licensing fees to record labels. Procyon needed to redefine itself as a company, in terms of its core competencies, and then find the products and services it could offer to a new market. The B2C market was already dominated by key players such as Pandora and Last.fm. The combination of licensing fees plus the effects of the recession led the management at Procyon to explore the B2B market in order to leverage Procyon's core competencies and to optimize its revenue potential by entering partnerships with companies interested in recommendation systems and preference mapping.

During this period, Procyon had implemented a successful partnership with Spica, a college music Web site. Procyon had provided an API, which allowed business partners to integrate the technology into their websites without coding. This was a tremendous advantage because other software systems required adopters to write extensive program code to link their applications. Second, Procyon proved that they were able to scale efficiently – they were able to accommodate growth as the number of subscribers grew without a decrease in performance. Third, Proycon
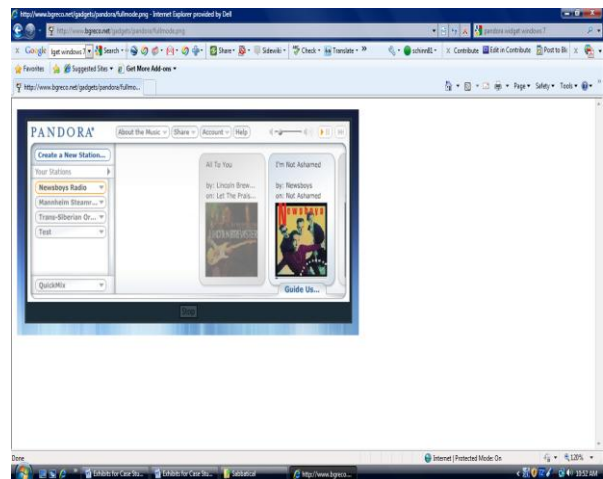

Figure 3: Pandora Sample Widget *(Source: bgreco.net/gadgets/Pandora)*

was able to improve the user experience and correspondingly the site metrics (frequency, length of stay, page views, impressions) to improve the economics of the site (e.g., reducing churn of existing subscribers and making the site more engaging for attracting new subscribers). Although Spica became a victim of the recession, the partnership had served as proof of Procyon's technology and business acumen.

5.3 Identifying the B2B opportunities

Based on their success with Spica, Procyon conducted an analysis to determine the key competitors in B2B preference mapping. Most of Procyon's key competitors were privately held firms who did not publish marketing or financial information; they spanned different business categories such as consumer electronics, content management, software development, mobile applications, online media sales, and retail media sales. Procyon was not only interested in

identifying the competitors, but in looking at various critical success factors such as:

1. Type of recommendation/discovery technology. For example, what degree of personalization was offered? Were there interfaces to social networks, or extensions such as widgets? Was content management part of the package? Did the technology work across multiple platforms and devices? How scalable was the software?

2. Pricing model used. For example, were there initial fees for software installation or setup? Were there ongoing licensing, service, or maintenance fees? Were there additional fees for customization? What revenue share would be received for transactions or ads?

3. Company stability and maturity. How long had they been in business? What was the size and type of customer relationships? What types of website content, programs, or tools were available for their partners? Were they financially stable and positioned for growth?

In all, nine competitors were identified based on a weighted set of critical success factors. The top three standouts were Gracenote, Media Unbound, and Strands. Gracenote, a subsidiary of Sony, offered products and services including music recommendation, playlist generation, content management, and a technology for finding music through voice commands. Gracenote's clients were primarily in the fields of software development (notably iTunes), portable and mobile applications, automotive systems, and home entertainment (http://www.gracenote.com/). Media Unbound's offerings included customizable playlists, including video playlists, recommendations tailored to specific regions, and a tool that could match users' playlists based on how much a user could "gain" from a match with another user. Media Unbounds' clients included eMusic (similar to iTunes), Viacom, and Napster (http://www.mediaunbound.com/). Strands offered recommendation tools aimed at businesses to track customer tastes over time, and services to deliver related content based on customers' (and their friends') views, page clicks, and ratings. Configurable widgets were available for site, email and mobile applications. Strands also provided an e-commerce merchandising interface to control when recommendations were shown, content filtering tools, and reporting and testing for social media creators. Their clients included General Mills, SkyMall, and BodyGlove (http://recommender.strands.com/home.php).

Next, Procyon identified potential business partners and customers: retail enterprises, widget creators, marketing services, music-focused sellers, and artists' services. Retail enterprises, whether strictly web-based or bricks and clicks (e.g., CD Universe) were attractive markets for Procyon. These enterprises were interested in driving demand across a wide variety of shopping categories. Many retail web sites could benefit from improved recommendation technologies, owned large music catalogs, and drew lots of web traffic. There were additional opportunities to move into recommendations for other types of products. The large sizes of many retailers, however, could make them a "tough sell" to partner with a small company. They might have been

developing their own in-house solutions, and they tended to rely less on third-party targeted ads.

Widget providers (e.g., Widgetbox) allowed users to create content, put it into a widget format, and then embed it on a website, blog or social media page. They provided a means for quick, viral, and highly scalable distribution. These companies offered an established distribution network, relationships with social media outlets, and a solutions track record, but many of them were in the early stages of development and could require different (individually tailored) partnership agreements. Many of these providers lacked music widgets, and could benefit from preference mapping technology as an enhancement.

Marketing services providers (e.g., 9seconds) as well as advertising networks (e.g., Google's AdSense) offered potential partnership opportunities. Marketing services included search engine marketing and search optimization, pay-per-click management, affiliate marketing, email and direct marketing, as well as consulting services. This type of organization could be interested in taste-targeted advertising or interactive taste-oriented services. Advertising networks such as Google's AdSense provided sponsored ads on client Web sites, and featured the ability to customize those ads. Ad network services would be looking for assistance in executing various functions such as recruiting advertisers, providing the technological infrastructure, serving the ads, and handling the collection of advertiser payments.

Music-focused sellers and artists' services were also highlighted as potential partners, especially middle-tier enterprises, whose focus was driving ad revenue and/or transactions. Music focused sellers such as ArtistDirect offered multimedia content, music news, and music discussion forums. These sites tended to lack recommendation engines or even music catalogs, but would be more willing to partner with a smaller company than would big retail sites. They could benefit from a more refined, targeted approach instead of relying on third party ads. As with widget creators, many of these enterprises were not mature and had many different business models, so adopting a strategy would have to be custom designed for each prospect. Artists' services (e.g., Nimbit.com) offered a variety of integrated tools to create, upload, share, distribute, and promote music, concert tickets and other promotional items. These services met the needs of growing numbers of "working class" artists – artists with day jobs and local followings trying to expand into larger markets and get national attention through relationships with iTunes, Amazon and other distributors. Was there an opportunity to target their output more precisely?

5.4 Finding the Right Partners with the Right Services: Decision Time
As Procyon evolved its recommendation and advertising and editorial content preference mapping technology, it was asked by prospective partners and customers to develop contest technology as a natural extension of their recommendation technology. They developed a turnkey solution for companies to develop their own playlists on which users could vote. The playlists were not limited to music, but could include album art, YouTube videos, or similar content. Companies needed to establish a broadcaster account with Procyon, which would enable them to create

multiple contest categories and items, as well as creating their own voting player with custom colors, logo, and dimensions. The player could then be easily posted to a Web site or blog (see Figure 4 for an example of a music contest). In addition to seeking out big partners with a national footprint, Procyon realized that preference mapping efforts

Figure 4: Music Contest Example *(Source: eurovision.tv)*

could be deployed over the "local web" (Turoczy, 2009). The local web represented a convergence of social networks, locally focused offerings from sites such as Craigslist, the proliferation of customer reviews for local music, local Facebook and MySpace pages, and online local directories that were replacing traditional telephone yellow pages. Access to local content was being strengthened by increased use of mobile technologies, especially smart phones. In addition, geo-location, whereby advertising content could be served to consumers based on their location, was starting to be deployed using Twitter and mobile phone apps. If the content could be based on individual preferences plus location, this model could be a potential application for preference mapping.

Enormous potential was emerging for revenue generation in marketing new releases through brand and music alignment. The Music Marketing Forum of 2009 highlighted the beneficial relationships to be gained from brand-music associations, and presented five key objectives in these partnerships: exposure, markets, imaging, distribution, and revenue (MIDEM, 2009). Exposure had traditionally been the main objective, but as both artists and brands sought new markets, image or brand perception became more important. Therefore it was even more important to target brand promotions to users carefully. For example, recommendations in music to heavy metal enthusiasts could lead to product recommendations, but who were these listeners? Would the brand's image appeal to this market segment?

Targeted recommendations could leverage the relationship between branding and music sponsorships. Sponsorship spending had increased 3.8 percent in 2009, up from $1.04 billion in 2008, and corporations were increasingly focused on associating brands with individual artists in addition to music festivals (Waddell, 2009). For example, Jessica Simpson's and Avril Lavigne's relationship with the

Proactive skin care product line created an opportunity to link those promotions on music sites for persons who like those artists. In addition, artists increasingly sought non-traditional distribution channels for new releases. Releasing new music on a company's Web site or retail establishment could strengthen the relationship with the brand, as well as providing additional metrics to fine-tune preference mapping initiatives.

Procyon needed to focus on identifying the products and services they could offer to the potential partners. The question was, what and to whom? There seemed to be many directions to pursue. What they brought to the table was a proprietary technology, along with taste-based content and connections to users. How should this filtering technology be deployed? One solution would be embedding it in widgets, which had already been successfully tested for the B2C user. What about emerging artists and labels? How could Procyon's technology allow them to find supportive and profitable business relationships? Was the content management functionality worthwhile? Were the promotional tools that were developed, such as contests, something that could be of value to partners? How could preference mapping- be deployed both at the national and local levels?

Procyon also saw that their focus would have to shift from development to sales in order to land lucrative deals with business partners. The plan for using Capella as a demonstration site only diminished the need for a company with limited resources to maintain content on the site or develop new features. What would the implications be for the staff, including some of the creative team who had founded the company? Which partners were most likely to be receptive to a young, energetic enterprise? Would that be limited to the small to mid-size market, or a larger one? Should Procyon focus on cultural goods, or look to deploy its technologies in related areas? What could it offer to social media sites, or the local community? There seemed to be a lot of opportunities for evaluating and promoting content, and making it accessible to the right people. Procyon's challenge was to make the most sustainable and profitable choices.

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AUTHOR BIOGRAPHY

Susan J. Chinn is an Associate Professor of MIS at the University of Southern Maine. She holds a Ph.D. from Kent State University, and spent several years in industry as a programmer/analyst and consultant. She currently teaches introductory classes in MIS and e-commerce at the undergraduate level, and topics in MIS at the graduate level. Her research interests include organizational uses of the Internet, and the application of Web 2.0 technologies in particular.

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