Recorded Music: An Online future or a call for action?

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ABSTRACT

This paper reports the findings of some preliminary research into the characteristics and challenges facing companies trying to legitimately sell music online via the Internet. It examines the characteristics of a variety of online music sites of both companies and artists and identifies generic attributes of those sites. The paper considers the challenges of piracy as well as desirable characteristics that do not appear on the websites researched. The paper then suggests a further programme of research aimed at identifying the characteristics of a future website and business model for the music industry that would attract users willing to pay for music. Such a model would include the ability to upload and download music, enable music creation with artists and have an embodied conversational agent as a guide.

1. INTRODUCTION: MUSIC AND THE INTERNET

The sales of Compact Disks (CDs) were reported as being down in April 2002 for most countries other than the United Kingdom. Some of the reasons cited were the growing access to online music and piracy through easy access to CD burners. It has been estimated (BBC, April 2002) that one in two music CDs sold is a pirated copy in a market worth some £23 billion. However, it is not just piracy via CDs that is a problem: The transmission of music digitally is easier and quicker than the transmission of video and graphics (Markiewicz, 1999). Further, music is downloaded in its consumable form – no printing required (Duncan, 2000). Given this problem, will piracy grow? Will music companies ever be able to charge for online music? EMI shares have been declining over fears about piracy; EMI's recorded music division posted a 40% decline in pretax profits and an 11% decline in music sales. Last year global music sales fell 5% to $33.7 billion; it was estimated that music with a value of $4.2 billion was stolen. However, the head of recorded music at EMI said of the issue of piracy: "I think the issue is generally exaggerated." (Trefgarne, 2002). J. Burman, Chairman of the International Federation of the Phonographic Industry said: " We need to figure out the business models that make sense in this environment…in electronic commerce, it's totally pirate and we're trying to break into their business…we need to figure out how to make our music accessible to a consumer in the same way that the free services have and to get people to pay for it." (In business, BBC R4, 30th May 2002). Will artists take to creating their own music, distributing it and excluding the music moguls? This paper explores some of the issues surrounding the online music business model.

2. A REVIEW OF PRIOR WORK

Lam and Tan (2001) posit that the Internet will become the main conduit for both information and entertainment. This infers that music will mainly be accessed online; if this is the case, a solution to the piracy issue must be found.

In 1998, record companies and electronics companies formed a group called the Secure Digital Music Initiative (SDMI) to build an anti-piracy system (the Madison system) Duncan, 2000. This need accelerated with the advent of a website calling itself Napster; a system that allowed music files to be shared between people. The legality of Napster allowing the sharing of copyrighted material was eventually settled by a legal judgement in a case brought by A&M Records (A&M Records v Napster, 2001). A still more serious development appeared in the form of Gnutella and Freenet: These systems allowed the sharing of music files without the use of a central server that could be traced and regulated (Duncan, 2000). A question that must be asked is this: Is there evidence that the ability to share music files is any more detrimental to sales of music than, say, the introduction of the cassette tape? An example is given by Duncan (2000), indicating that the impact on sales for one record shop near a university campus was a reduction in sales of 90%. Hopes that the issue can be solved have borne fruit: The SDMI has outlined a system of “Watermarks” that can be used to prevent illegally copied and transmitted files from playing on many popular devices (Duncan , 2000); but is this the whole answer? Surely, it would be better to offer music for sale legitimately as well as putting in place measures to prevent piracy? A complication arises from the relationship between the music companies and its distributors / retailers: The music companies might damage their relationship with the music retailers if they sold direct and excluded them from the

value chain (Ellram, 1991; Imrie & Morris, 1992). Online marketing and retailing eliminates the cost of manufacturing and distributing CDs. Further, 95% of releases do not prove profitable for either the artist or the record company. As Duncan observes in an interview with the founder of Atomic Pop, interactivity could change that: People registering at the websites of artists are fans – and that makes marketing easier. It also opens up opportunities for all in the music supply chain to get some of the average 60% mark-up on retailing music. One scenario that has occurred is a situation where rap band Public Enemy bypassed the usual channels by dumping their record company and marketing and selling their music through their website. (Islam & Helmore, 1999). Tom Petty had 150,000 downloads from his website over a two day period when he published on the web. Using this route, Bands could reduce the price of their music and take all of the profits.

All of this is meaningless if digital music is continually pirated and it may spell the end of recorded music as a source of revenue. In 1999 "E-music" accounted for 0.2% of music sales (Islam & Helmore, 1999) but the potential is obvious, even though the cost of failure can be high: Goodway (2002) describes the impact of EMI's decision to buy artiste Mariah Carey out of her contract following the poor sales of her album "Glitter": 20% of EMI's workforce will lose their jobs as a result, including the closure of the CD manufacturing plant in Swindon.

2.1 Business Models

New business models are developing in the music industry for content management: These models, epitomised by the likes of Napster.com, MP3.com and Gnutella are based on bi-directional communication as opposed to the music industry's usual uni-

directional communication model (Lechner & Hummel, 2002). What are the models behind these names? MP3.com is an online repository for user's music files that facilitates access via the Internet; Napster.com is a directory of lots of files to be shared and software to participate in the community. Gnutella is a file-sharing application without any central structure. Common to all of these models, is a focus on storing and distributing music files, thereby potentially facilitating piracy. None focus on music creation or participation in the creation of music even though the technology could facilitate that.

Lechner & Hummel (2002) observe:

> "In respect of business models, the position of MP3.com seems to be perfect: One has to access the Server to get files. Community building relies on data known from the individual. However, since community organising is apparently the main source of revenue, the architecture of Napster is much more efficient."

2.2 Anti-Piracy Systems

As described above, SDMI have proposed a security system that aims to prevent large-scale piracy, the Madison system. This system "watermarks" the music files in two ways and prevents piracy whilst allowing legitimate use by an owner. The system is a combination of IBM and RealNetworks software. Microsoft subsequently announced that they were launching MSAudio 4 with its own built-in safeguards and received a hostile reception in doing so. Why not utilise the same method of anti-piracy measures? This move seems typical of the media and entertainment business and more than a little reminiscent of the Videotape VHS vs BETAMAX and the

Video CD vs DVD vs CDI technology battles. Meanwhile the pirates accumulate their booty!

Other anti-piracy systems include BayTSP's system that uses amplitude and frequency to extract a digital signature from the music file and then patrols the Internet for matching signatures. It then e-mails infringement notices to offenders (Roush, 2002).

2.3 Copyright issues

It is estimated that music piracy costs the music industry approximately $300 million per year (Cohen, 2000; Silverman, 2000; Skelton, 1998). Napster brought the problem to a head: In early 2001, the entire catalogues of Bands like The Beatles, Limp Bizkit and Metallica were available, free, online (Langenderfer & Lloyd-Cook, 2001). The further fact that contributes to the popularity of Internet piracy is that each replication is perfect digital quality and that distribution is simple – and free! It is difficult to trace and carries a lower penalty than if piracy is done for money (Grafney, 2000; Hill, 2000). The result of the case of A&M Records v Napster (2001) was a landmark for the record industry. Is it the case that the owner of the copyright for work published on the Internet will always lose out? Das (2000) argues that the growth in publishing MP3 files and the production of MP3 players will open up new markets for the music industry, just as the VCR did. Many sites still offer free downloads of music files, including AOL and MusicNet (Grimes & Waters, 2002), but presumably in these cases copyright has not been infringed.

2.4 Website requirements

Aside from the attempts to find a technological solution to defeating piracy and given that the future probably lies in purchasing music online (Lam & Tan, 2001) the websites set up by music companies, retailers and artists must be able to attract and retain users in order that they do not refuse to adopt Internet purchasing. Keen pricing would help, but other factors are key to ensuring successful adoption of Internet sites:

Tactinsky & Rao (2001) identified factors that represent the social dimensions of web store design, namely:

- Politeness.
- Flattery.
- Self-evaluation.
- Other-evaluation.
- Expertise.
- Aesthetics.

Certainly the latter two factors occur in prior research (eg Barnes & Vidgen, 2001; Zhang & von Dran, 2002). In research conducted on business-to-business electronic markets (Moon, 2002a) identified the following generic factors as influencing the perceived quality of a website:

- Usability.
- Information quality.
- Security.
- Empathy.
- Design.

2.5 Technology acceptance

Acceptance of an information technology has been widely studied and one widely accepted descriptive tool is the Technology Acceptance Model (TAM) (Davis et al., 1989). Many variations of TAM exist, all with their relative merits; several have been described by Moon (2002b) including the factors influencing internet adoption by professional services people. The factors described included:

- Temporal dissociation.
- Pleasurable discovery.
- Playfulness.
- Self-efficacy.
- Perceived function.

2.6 Usability and trust

Much research has been carried out in the field of website usability (eg Neilsen, 1993; Alexander & Tate, 1999; Flanders & Willis, 1998) and on methods by which to collect and analyse usability information (Hilbert & Redmiles, 2000). A further factor identified as a barrier to website use is trust (Harrison-McKnight & Chevany, 2002). Cassell & Bickmore (2000) posit that the use of embodied conversational agents (ECAs) provide a means of transitioning into a trust relationship, particularly for websites users have not seen before.

2.7 Research question

Given the apparent complexity of these factors, it would be useful to at least have a view concerning what types of attributes music websites currently have:

1. What attributes do music websites have at present?
2. What scope could there be to extend music website functionality?

To answer these questions the author conducted some empirical research on the functional attributes of music-related websites.

3. ASSESSMENT OF CURRENT WEBSITES

3.1 Methodology

The methodology adopted for this study consisted of the following procedures: In the first instance, a selection of music-oriented websites was chosen (see 3.1.1. below). Data collection relied on the electronic documentation that formed the website and was collected using an observational recording form (Bickman & Rog, 1998; p21) to record observed functional attributes of the websites. The instrument for recording attributes was derived from the factors influencing website use described in the review of prior research above. The observational recording form is attached as Table 3.

The methods of analysis employed are mainly qualitative and include the use of a Checklist Matrix (Miles & Huberman, 1994; p105); Content-Analytic summary tables (Miles & Huberman, 1994; p183); comparisons, counting and contrasting analytical techniques (Miles & Huberman, 1994; p 250-153) and Dendrogrammatical methods (Krippendorff, 1980).

3.1.1. Study context and sample

The sample chosen for study was a cross section of music industry websites that included record companies, music distribution and musicians, the details of which are provided in Table 1 below. The technique used to decide the sample was random selection from a list (Bickman & Rog, 1998; p443).

Company	**Artist(e)**	**Website address**
EMI		www.emigroup.com
EMI Records		www.emirecords.co.uk
Food Records		www.food-records.co.uk
Virgin Records		www.vmg.co.uk
Sony Music		www.sonymusic.co.uk
Warner Brothers Music		www.warnerbrosrecords.com
Eel Pie Studios		www.eelpie.com
	Linkin Park	www.linkinpark.com
	Red Hot Chilli Peppers	www.redhotpeppers.com
	B*Witched	www.b-witched.com
	Kylie Minogue	www.kylie.com
	Sheryl Crowe	www.sherylcrow.com
MP3.COM		www.mp3.com
A&M Records		www.amrecords.com

Table 1: Sample of websites researched

The websites in Table 1 above fall into three categories:

- The websites of record companies (EMI, Food, Virgin, Sony, Warner Brothers, Eel Pie and A&M).
- The websites of Artists (Linkin Park, Red Hot Chilli Peppers, B*Witched, Kylie Minogue and Sheryl Crowe).
- MP3.COM, a website that allows sharing of music files and the purchase of music.

3.1.2. Operationalisation of research variables

The research variables were defined as attributes, derived from prior research (see Table 2 below). The research presented in this paper is an initial evaluation of whether or not websites do or do not have a certain functional attribute. This study does not attempt to quantify the *EXTENT* to which the functionality attribute exists.

Much of the prior research discussed above posits quantitative methods for measuring certain attributes; the research presented in this paper simply aims to compare the websites listed in Table 1 to determine the existence of certain characteristics. For consistency, the comparisons were made by one person – the author.

Construct	Observed Attribute	Reference
Information quality	General information	Moon (2002b)
Information quality	Information about record labels	Moon (2002b)
Information quality	Publishing information	Moon (2002b)
Information quality	Artist(e) information	Moon (2002b)
Information quality	List of songs	Moon (2002b)
Bi-directional communication	Interactive functionality	Lechner & Hummel (2002)
Uni-directional communication	Music/video downloads	Lechner & Hummel (2002)
Uni-directional communication	Music/video online streaming only	Lechner & Hummel (2002)
Bi-directional communication	Music / sample upload	Lechner & Hummel (2002)
Bi-directional communication	Online music submission	Lechner & Hummel (2002)

Construct	Observed Attribute	Reference
Politeness / Flattery	Direct communication facility	Tactinsky & Rao (2001)
Empathy	Community of interest	Moon (2002b)
Online Purchasing	Extranet for retailers	Lam & Tan (2001)
Online Purchasing	Online consumer	Lam & Tan (2001)

	purchasing	
Uni-directional communication	Link to Studios	Lechner & Hummel (2002)
Uni-directional communication	Link to other media sites	Lechner & Hummel (2002)
Expertise	Guide to signing & recording contracts	Tactinsky & Rao (2001)
Other Evaluation	Facility to vote on demos	Tactinsky & Rao (2001)
Bi-directional communication	Competitions	Lechner & Hummel (2002)
Online Purchasing	Music player software download	Lam & Tan (2001)
ECA	ECA	Cassell & Bickmore (2000)

Table 2: Source of attribute derivation

3.1.3. Results

Analysis of the data collected utilised a number of techniques:

3.1.3.1. Checklist Matrix

A Checklist Matrix (Miles & Huberman, 1994; p 105) was employed to compare the attributes listed in Table 2 across the various websites. The results of the analysis are displayed in Table 3 below:

	EMI Group	EMI Records	Food Records	Virgin	Sony	Warner Bros	Eelpie	Linkin Park	Red Hot Chili s	B*Witched	Kylie	Sheryl Crowe	MP3.COM	A&M Records
General Information	Y		Y		Y		Y			Y			Y	Y
Info about record labels	Y	Y				Y								Y
Publishing info.	Y												Y	
Artist info	Y	Y	Y		Y	Y							Y	Y
List of Songs	Y	Y					Y	Y	Y	Y	Y	Y	Y	Y
Interactive Functionality														
Music/Video downloads								Y	Y	Y			Y	Y
Music/Video online streaming			Y	Y		Y	Y	Y	Y	Y	Y		Y	Y
Music/Sample upload													Y	
Online Music submission		Mail			Mail								Y	
Direct Communication			Y	Y	Y	Y		Y		Y			Y	Y
Community of interest								Y	Y	Y	Y	Y	Y	Y
Extranet for retailers		Y												
Online purchasing							Y	Y	Y	Y	Y		Y	Links
Link to Studios		Y												
Link to other media		Y			Y			Y			Y	Y		
Guide to recording contracts		Y	Y		Y								Y	
Facility to vote on demos			Y	Y										
Competitions			Y	Y						Y				Y

	EMI Group	EMI Records	Food Records	Virgin	Sony	Warner Bros	Eelpie	Linkin Park	Red Hot Chili s	B*Witched	Kylie	Sheryl Crowe	MP3.COM	A&M Records
Music Player Software downloads					Y				Y	Y			Y	Y
ECA														

Table 3: Checklist Matrix of online music site observed attributes

An analysis of the percentage of the total number of attributes measured that each of the sites has is as follows:

- EMI Group: 26%
- EMI Records: 37%
- Food Records: 37%
- Virgin: 21%
- Sony: 26%
- Warner Bros: 21%
- Eel Pie: 21%
- Linkin Park: 37%
- Red Hot Chili Peppers: 26%
- B*Witched: 42%
- Kylie: 26%
- Sheryl Crowe: 16%
- Mp3.Com: 63%
- A&M Records: 47%

It is interesting to note that only one site was recorded as having more than 50% of the attributes measured on its website and that the company was mp3.com. Of the record company and Artist sites, two achieved greater than 40%: B*Witched and A&M Records. At the other end of the scale, Sheryl Crowe's website scored the lowest with just 16% of the attributes being identified.

In terms of the most commonly occurring functionality attributes, the following observations were made % websites with the attribute):

- General information: 50%
- Information about record labels: 29%
- Publishing information: 14%
- Information about artist(e)s: 50%
- Lists of artist(e)s' songs: 71%
- Interactive functionality: 0%
- Music / Video download facility: 36%
- Music/Video streaming online: 71%
- Music / Sample upload to site: 7%
- Online music submission: 7%
- Direct communication link: 57%
- Community of interest: 50%
- EXTRAnet for retailers: 7%
- Online purchasing for consumers: 43%
- Links to Studios: 7%
- Links to other media sites: 36%
- Guide to recording contracts: 29%
- Facility to vote on demos / Bands: 14%
- Competitions: 29%
- Music Player Software download: 36%
- Embodied Conversational Agents (ECAs): 0%

The most common attributes, with 71% of websites containing them were Lists of songs and music/video streaming online (no "save" facility), whilst the least common were any form of interactive functionality and the use of ECAs. Information provision, contact via e-mail and communities of interest were also popular, with 50%+ of websites containing these functionalities. The ability to submit music to companies or artists or to vote on whether or not users of the website liked particular pieces of music were very limited.

In order to identify differences between Artist(e)s' websites and company websites, a Content-Analytic summary (Table 4) displays the differences (Miles & Huberman, 1994; p183):

Artist Website average number of attributes	Record Company Website average number of attributes	Mp3.com average number of attributes
29%	28%	63%

Table 4: Content Analytic Summary Table for Artist and Company websites

Table 4 essentially demonstrates that mp3.com, described as a bi-directional communications model (Lechner & Hummel, 2002) stands apart from record company and artist(e) website designs in terms of the number of functional attributes contained within the site. Whilst a site such as mp3.com allows a two-way exchange of musical files, it does not encourage the creation of music and, therefore, does not have facility hereby users can evaluate music or provide feedback to artists in the way that the Food Records site does. It is also interesting that even on the more

complicated sites evaluated, there has been no attempt to use an ECA to help guide users through using the site.

3.1.3.2. Dendrogrammatical analysis

By analysing the attributes described in Table 3 and clustering them to create higher level categories and differentiating the various website functionalities, it is expected that a degree of insight into the types of function websites might generally be said to have. A proven method for this type of analysis is the Dendrogram (Krippendorff, 1980). Figure 1 is a dendrogram that illustrates the clustering of the attributes evaluated on the websites. Analysis using the dendrogram method identified four clusters that appear to encapsulate the observed attributes:

- Information richness.
- Functional reciprocity.
- Market access.
- Expert resource.

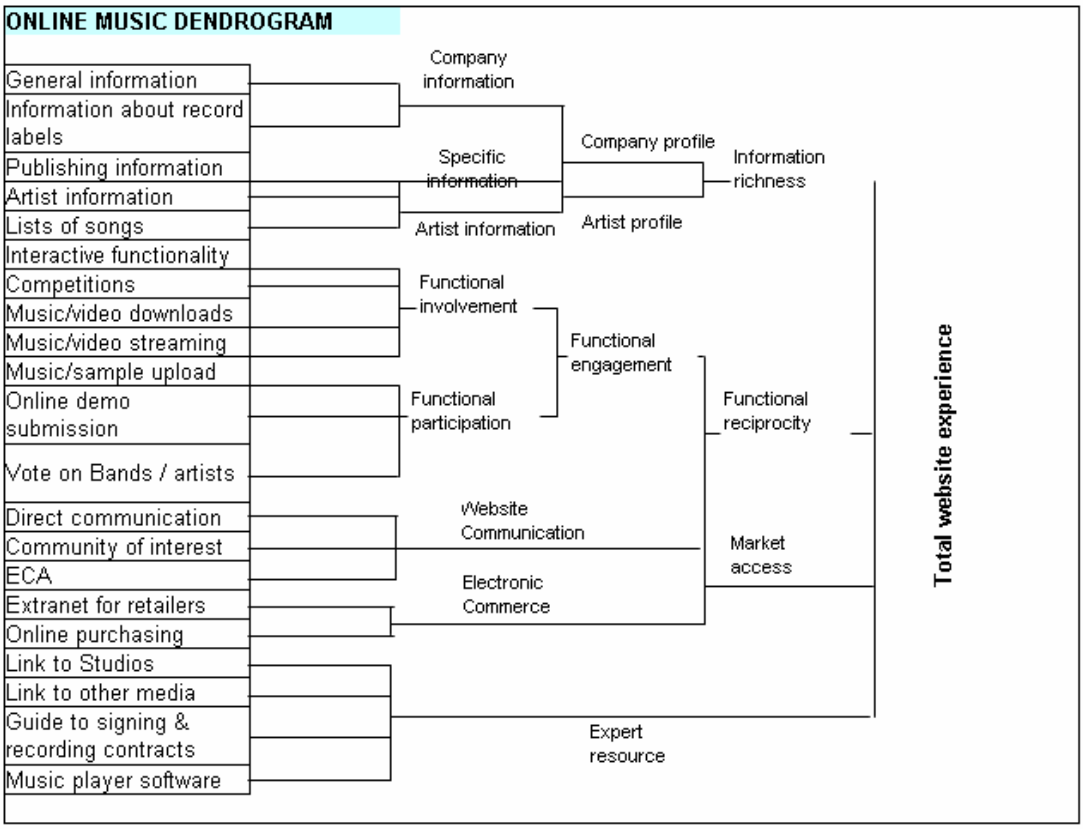

Figure 1: Online music website attribute dendrogram

Having identified higher-level clusters, it is possible to determine which of the websites researched contains a majority of the elements that make up these clusters, using the results from Table 3 and Figure 1 above. The results of this analysis are displayed in Table 5 below.

	Information richness	Functional reciprocity	Market access	Expert resource
EMI Group	Y			
EMI Records	Y		Y	Y
Food Records				Y
Virgin Records				
Sony Music				Y
Warner Brothers Music				
EelPie			Y	
Linkin Park			Y	
Red Hot Chili Peppers			Y	
B*Witched			Y	
Kylie			Y	
Sheryl Crowe			Y	
Mp3.com	Y	Y	Y	
A&M Records	Y			

Table 5: Analysis of Websites v Clusters

The analysis clearly indicates that none of the websites researched possess all of the clustered attributes. However, mp3.com and EMI records demonstrate the broadest range of attribute, with a majority of elements in three out of four of the clusters.

3.1.4. Limitations

This is a high level investigation into the nature of a sample of Internet music websites. The research does not make an exact comparison of functionalities, nor does it claim to cover all music websites or online business models. Further, the research does not detail the exact nature of the website functionality in each case, but simply seeks to classify it into general typologies. That is, the research does not classify the detailed website functionalities or categorise them by record company / artist / other

types of website; that is proposed future research. The research is qualitative in nature and does not seek to quantify performance or consumer preferences in any way other than by looking at ranges and potential ranges of functionality.

4. DISCUSSION AND CONCLUSIONS

None of the websites evaluated contained all of the functionality clusters identified above; those that did possess some of the functional clusters did so to varying degrees. Of the websites analysed, mp3.com had the broadest range of functional attributes. How do the observations help to answer the research questions in 2.6 above?

Research question 1 asked about the current website functional attributes that exist. From the results obtained, the range of attributes can be described by the illustration in figure 2 below:

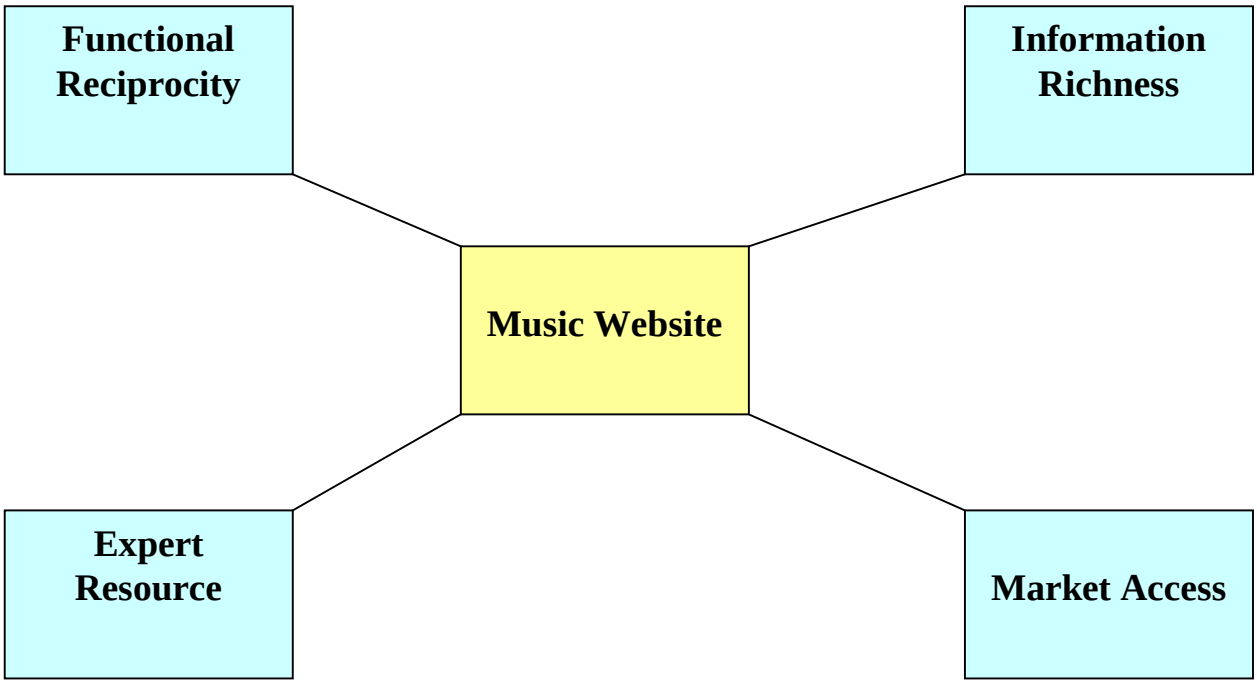

Figure 2: Current Music website model

The model illustrated in figure 2 reflects the current range of attributes identified from the cluster analysis described in 2, above. However, this model does not address issues of piracy (Langendorfer & Lloyd-Cook, 2001) nor does it address the dimensions identified by Tactinsky & Rao (2001) as described in section 2 above. The model does not reflect the full extent of the variation in website functional attributes observed (see Table 3). Therefore, figure 2 describes the generic functional attributes observed in music websites. The model cannot, therefore, be described as a truly bi-directional communication model (Lechner & Hummel, 2002).

Research question 2 asked about the scope that exists for extending website functionality: The research and analysis shows that such scope exists in terms of anti-

piracy measures (Duncan, 2000) true bi-directional communication (Lechner & Hummel, 2002) website characteristics identified by Tactinsky & Rao, (2001), Moon, (2002a) and Cassell & Bickmore (2000). Further, by taking the most extensive functional attributes observed in Table 3, it is possible to posit a range of website functional attributes for music industry websites. These would include the ability to submit own music, vote on music, download music, buy music, communicate and even the use of ECAs. Such a model is discussed in section 4 below. In both cases, the models are derived using the grounded theory approach (Glaser & Strauss, 1967). This was done by looking at the broadest set of functionalities found from the research and extending them further by inclusion of theoretical aspects derived from prior research (e.g. the inclusion of ECAs).

5. FURTHER RESEARCH

To follow on from the study presented in this paper, the researcher has identified an area of further research that would provide insight into theories of website quality, technology acceptance and it is believed, bring tangible benefits to the music industry in terms of combating piracy, attracting a greater number of people to the websites and creating a sustainable revenue source. The research will be based on identifying the influences that would attract people to websites allowing legal access to music and that would encourage them to spend money. This research will enable the design of interactive websites that do not facilitate piracy, but do generate revenue and help identify new talent.

The concept aims to overcome technology acceptance issues by music fans ("why wait for ages to download something when I can go to the shop & get it?") and provide some means of tackling the issue of piracy and performers' rights:

- Delivery of customised music for sale over the Internet.
- Utilisation of SMDI anti-piracy technology.
- Facilitation of the public recording and submitting tracks or whole versions of artists' songs / music for inclusion on and publication for sale on the artist's or record company's web site.
- Music that is artist specific, but allows collaborative inclusion of other musicians of record companies and the public.
- No more standard albums, but variations of works or collections of works – the public choose which version(s) they want to buy.
- Not just an "online record shop", but a truly interactive musical experience that allows artists to publish multiple versions of their work and for the public to record their versions / additions using a subscription ASP (application service provider) version of recording software and then to feed it back to the artist / record company for remixing and inclusion.
- Incorporation of Embodied Conversational Agents (ECAs) to guide users around the site.

Figure 3 illustrates how such a website might be structured. The model aims to incorporate the functionalities discussed in section 4 above. This is further endorsed by plans announced by Dave Stewart to establish a record company for young talent that will allow multi-media access to buyers (BBC R4, The Today programme, 5th June 2002). Such multi media access is likely to include functional elements of the model proposed in Figure 3.

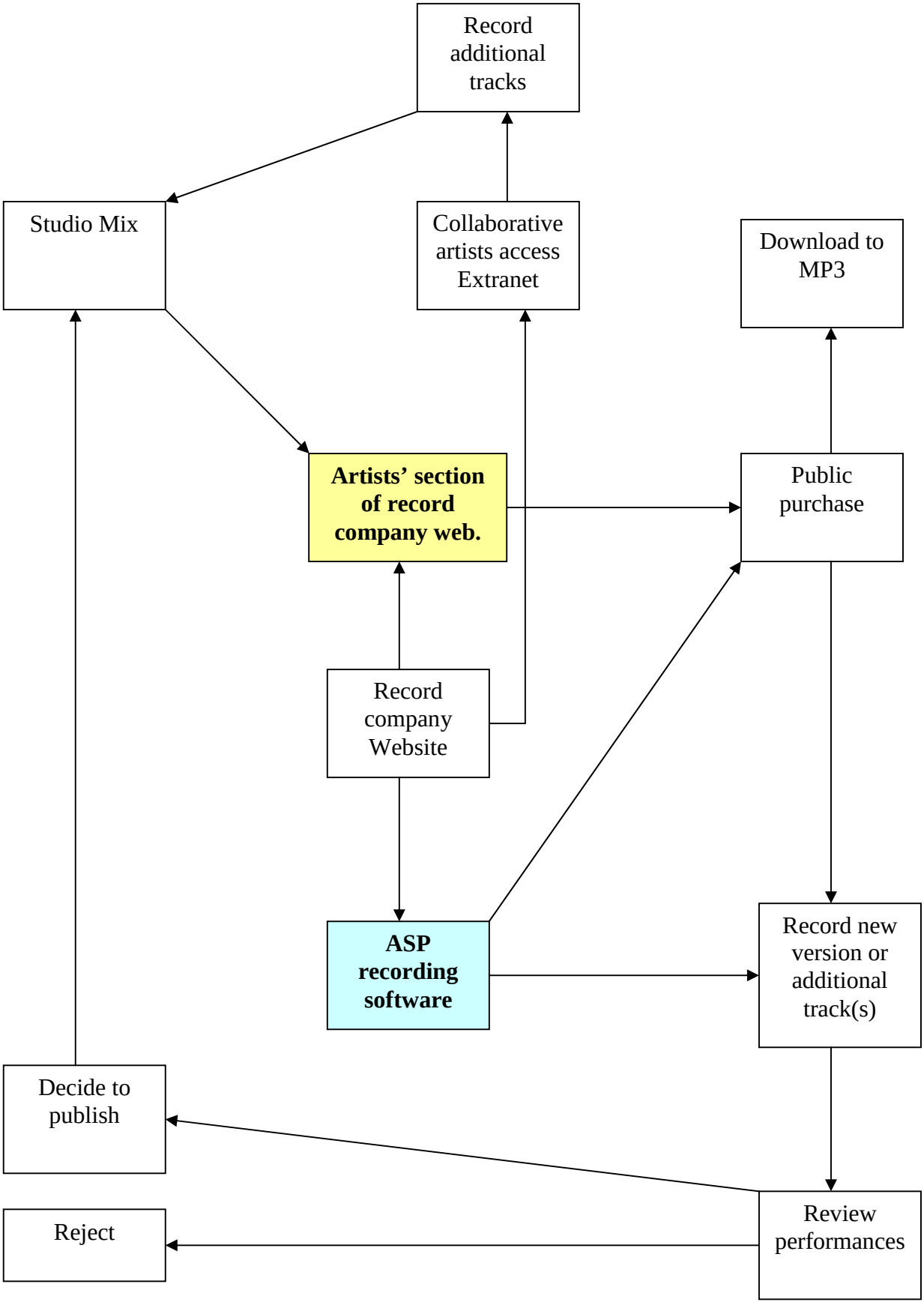

Figure 3: Possible website functionality structure

LIST OF ABBREVIATIONS USED IN THIS PAPER

AOL – America On Line

CD – Compact Disk

CDI – Compact Disc Interactive

DVD – Digital Versatile Disk

ECA – Embodied Conversational Agent

MP3 – Music Player file type

SDMI – Secure Digital Music Initiative

TAM – Technology Acceptance Model

VCR – Video Cassette Recorder

VHS – Type of Video tape recording format

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