THE INTERNET PUBLICATION PROJECT
ANNUAL REPORT

September 1, 2004 – August 31, 2005

Submitted by
Internet Publication Advisory Team
Internet Publication Task Force
Audio Studio Equipment Task Force

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I. Executive Summary

The Internet Publication Project was initiated during Fall, 2004 to promote the vitality, multiplicity, and excellence of the University of Michigan through web-based publication of media-rich scholarly and creative research. The project, a collaboration among the School of Music, the Duderstadt Center, and the University Libraries, achieved many of its project deliverables as documented in this annual report. There were several unanticipated outcomes: 1) the creation of a University record label named "Block M Records" with imminent distribution of content through an online distribution source and 2) the redesign of the School of Music website to facilitate streaming of multimedia content. Project funding is from the School of Music, the Office for the Vice President for Research, the James and Anne Duderstadt Center, and the Provost's Office. Additional funding for classroom renovation and equipment was obtained from the Provost's Office.

II. Goal Statement

The motivation for the Internet Publication Project is the timely convergence of interrelated technologies, specifically media streaming, the Digital Asset Management System (DAMS) and DSpace, for the capture, archive, dissemination, and intellectual property rights management of media-rich content. The School of Music, the guardian of the performing arts on campus, serves as the archetype that tests the boundaries of these technologies for the publication of creative and scholarly research. The goal of the Internet Publication Project is to relate DAMS and Dspace to the creation, production, publication, and archiving of creative and scholarly research.

III. Project Personnel

Roger Arnett, Media Engineer, School of Music
Maria Bonn, Senior Associate Librarian, Scholarly Publishing Office, University Libraries
James Borders, Professor, Musicology, School of Music
Jason Corey, Assistant Professor, Audio Engineering, School of Music
Tim Flood, Graduate Student Research Assistant, School of Music
Louis King, Managing Producer, Digital Asset Management System
Greg Laman, Computer Systems Consultant, School of Music
Robert Newcomb, Director of Information Technology, School of Music
Charles Reynolds, Head, Music Library
Mary Simoni, Associate Dean Technology Initiatives & Internet Publication, School of Music
Ron Torrella, Administrative Assistant, School of Music
John Merlin Williams, Director, The James and Anne Duderstadt Center

IV. Project Teams

Internet Publication Advisory Team – Provides project oversight and coordination (Mary Simoni, Chair; Maria Bonn, James Borders, Jason Corey, Louis King, Robert Newcomb, Charles Reynolds, Ron Torrella, and John Merlin Williams)

Internet Publication Task Force – Responsible for detailed organizational and technical implementation for recommendations of the Internet Publication Advisory Team (Mary Simoni, Chair; Jason Corey, Tim Flood, Greg Laman, Robert Newcomb, Ron Torrella)

Audio Studio Equipment Task Force – Responsible for evaluating the technical specifications and pedagogical value of large format audio consoles and supporting equipment. (Tom Bray, Digital Media Commons; Jason Corey, David Greenspan, Audio Coordinator, Duderstadt Center; David Kovicek undergraduate student; Mary Simoni, John Merlin Williams)

V. Project Deliverables 2004-05

A. Evaluate and recommend system configurations for digitizing, encoding, and editing media-rich content

The delivery of media-rich content using dissemination models such as the web, compact disc, CD-ROM, or DVD requires an efficient means of converting media to multiple output delivery formats. Audio, video, and still image files are large in comparison to text files so various compression algorithms are used to reduce file size. Converting a source file to a compressed output format is called encoding and converting a source file to multiple compressed output formats is called transcoding. Compression algorithms may be characterized as lossless or lossy.

The School of Music uses Macintosh G5 computers equipped with digital audio interfaces manufactured by MOTU or Digidesign for audio digitization at sampling rates up to 96kHz at 16-bit or 24-bit resolution. Audio editing software includes Bias Peak for mono or stereo output or Digidesign ProTools for mono to user-specified multi-channel output.

The School of Music uses the firewire ports (IEEE1394) standard on Macintosh G5 computers for digital video and audio transfer. Video editing software includes Apple's iMovie or Final Cut Pro HD depending on the requisite sophistication of the video editing. Media is streamed using a QuickTime Streaming Server (QTSS) managed by the School of Music. Additional information on QTSS is available at:

http://www.apple.com/quicktime/streamingserver/

The School of Music uses Media Cleaner Pro for individual or batch encoding and transcoding of audio and video. See:

http://usa.autodesk.com/adsk/servlet/index?id=5562025&siteID=123112

Audio is archived as lossless Audio Image File Format (AIFF) at a sampling rate and bit depth consistent with recording and production parameters. Sample rate conversion or dithering is avoided since these algorithms may introduce artifacts. Video is archived as lossless DV format.

Table 1 summarizes the various media formats used by the project by digital source, file format, compression algorithm, and delivery format.

Digital Source	File Format	Compression Algorithm Characteristic(s)	Delivery Format(s)
Audio	AIFF QuickTime	lossless	Archive, Compact disc
Audio	Quicktime	Lossy, variable bit rate compression	Web via QuickTime streaming server
Video	DV (NTSC)	lossless	Archive, DVD
Video	Quicktime	Lossy, variable bit rate compression	Web via QuickTime streaming server
Video	MPEG-1	Lossy, variable bit rate compression	Web
Video	MPEG-2	lossless	DVD
Video	MPEG-4		Web, CD-ROM,
Still Image	TIFF	lossless	Archive, Compact disc, DVD

Table 1: Media Formats used by the Internet Publication Project

Output File Formats:

- AIFF (Audio Interchange File Format) developed by Apple for linear PCM (Pulse Code Modulation) audio files. AIFF supports one or two channels, bit depths ranging from 8 to 64, and sampling rates ranging from 22.05kHz to 192kHz.
- DSD (Direct Stream Digital) currently developed by Sony and Philips to SACD
- DV (Digital Video)
- HD (High Definition)
- MPEG-1 (Motion Pictures Expert Group 1)
- MPEG-2 (Motion Pictures Expert Group 2)
- MPEG-4 (Motion Pictures Expert Group 4)
- Quicktime – crossplatform that allows MacOS and Windows applications to playback video, audio, and still image files.

B. *Develop roles and organizational processes that facilitate the scheduling of laboratories, studios, performance venues, and personnel for the capture and production of media-rich content*

The School of Music issued a Request for Proposals (RFP) in May, 2005 to determine the most effective means of integrating and extending the functionality of multiple existing scheduling systems to facilitate electronic publication in the performing arts (see Appendix A). The proposed scheduling system must capture performance information such as title, composer, performer, instrumentation, and venue to reduce the amount of data entry required to track recordings through the production process as well as generate outputs such as press releases and concert programs. The RFP returned two proposals: one from Dean Evans & Associates for an existing scheduling system called Event Management System ($24,550) and another from Belcan ITD for the design and implementation of a custom scheduling system ($525,420). Event Management System was unable to meet our needs as verified by Dean Evans & Associates as well as on-campus users such as the Duderstadt Center. Notable shortcomings in Event Management System include dependence on a Windows platform for the server and administrative clients and the company's unwillingness to extend the software to meet our needs. The proposal from Belcan ITD exceeded our budget of $50,000. The RFP was re-bid in August, 2005 with proposals due September 19, 2005. We are in the process of contracting with Internet Application Solutions for $46,250 for a PHP/MySQL comprehensive solution that services the multifaceted resource scheduling needs of the School of Music.

C. *Upgrade equipment in university facilities to improve the capture quality and production of media-rich content (Music Technology Lab, Multimedia Lab, Electronic Music Studios, Audio Studio)*

The Music Technology and Multimedia Labs in the Moore building support the Performing Arts Technology curricula of the School of Music as both a classroom as well as a lab. The twelve-station Music Technology Lab was upgraded during Summer, 2004 at a cost of $83,040. The upgrade includes Macintosh G5 computers ($36,386), software upgrades ($35,454), and digital audio interfaces ($11,200). The Music Technology Lab is capable of state-of-the-art audio and video processing.

The Electronic Music Studios A &B in the Duderstadt Center supports the Composition and Performing Arts Technology curricula of the School of Music as both a classroom as well as a lab. The Electronic Music Studios are open to any University of Michigan student, faculty, or staff upon successful completion of a non-credit certification program. The Electronic Music Studios were upgraded during the Summer, 2005 at a cost of ($32,070). The upgrade includes installation of a surround sound 5.1 monitoring system in each studio ($13,300), two digital mixing consoles ($18,320), and furniture renovation ($450).

The Audio Studio in the Duderstadt Center supports the Performing Arts Technology curricula of the School of Music both as a classroom as well as a lab. The Audio Studio is open to any University of Michigan student, faculty, or staff upon successful completion of a non-credit certification program. During June, 2004, the School of Music and the Duderstadt Center issued a RFP for the redesign of an existing recording studio (see Appendix B). The RFP returned three proposals: Acoustics by Design, Kirkegaard Associates, and the Walters-Storyk Design Group. The Walters-Storyk Design Group was awarded the contract ($8,500) and the acoustical consultant and studio designer John Storyk conducted an on-site assessment of the Audio Studio and associated facilities on October 5, 2004. Storyk issued a report, hereafter referred to as The Storyk Report, that includes an acoustical analysis and assessment of the Audio Studio and associated spaces and a recommendation to upgrade equipment (Appendix C).

Several communications with Associate Provost Janet Weiss resulted in a cost estimate of $400,000 for physical renovations to the Audio Studio based on The Storyk Report. On July 19, 2005, the Audio Studio Equipment Task Force submitted an equipment proposal for the Audio Studio to Associate Provost Janet Weiss (see Appendix D). On July 25, 2005, Janet Weiss allocated $400,000 for the physical renovation of the Audio Studio and $460,000 toward equipment upgrades. These allocations will put on well on our way to developing a state-of-the-art recording studio.

D. *Develop and implement an organizational process and define the specifications of a database that ensures permission and performance rights of ASCAP, BMI & SESAC web-based performances*

An Internet Publication Process Flow was developed to track the electronic production process. Figure 1 is a flow diagram that describes the internet publication process through event scheduling, production planning, recording, post production, asset management, and publication. University units contributing to the realization of internet publication are the School of Music, DAMS, and the University Libraries (Dspace). The flow diagram tracks the internet publication process as it migrates through unit responsibilities. Metadata creation and mapping include metadata standards derived from ID3 for online dissemination and Dublin Core and MARC for library publication or archive. The amalgamation of these metadata standards forms the Performing Arts Metadata Schema (PAMS)– a direct outgrowth of our research to facilitate search and retrieval of internet publication across multiple targets, namely Quick Time Streaming Server (QTSS), the World Wide Web (WWW), DAMS, MIRLYN, and Dspace.

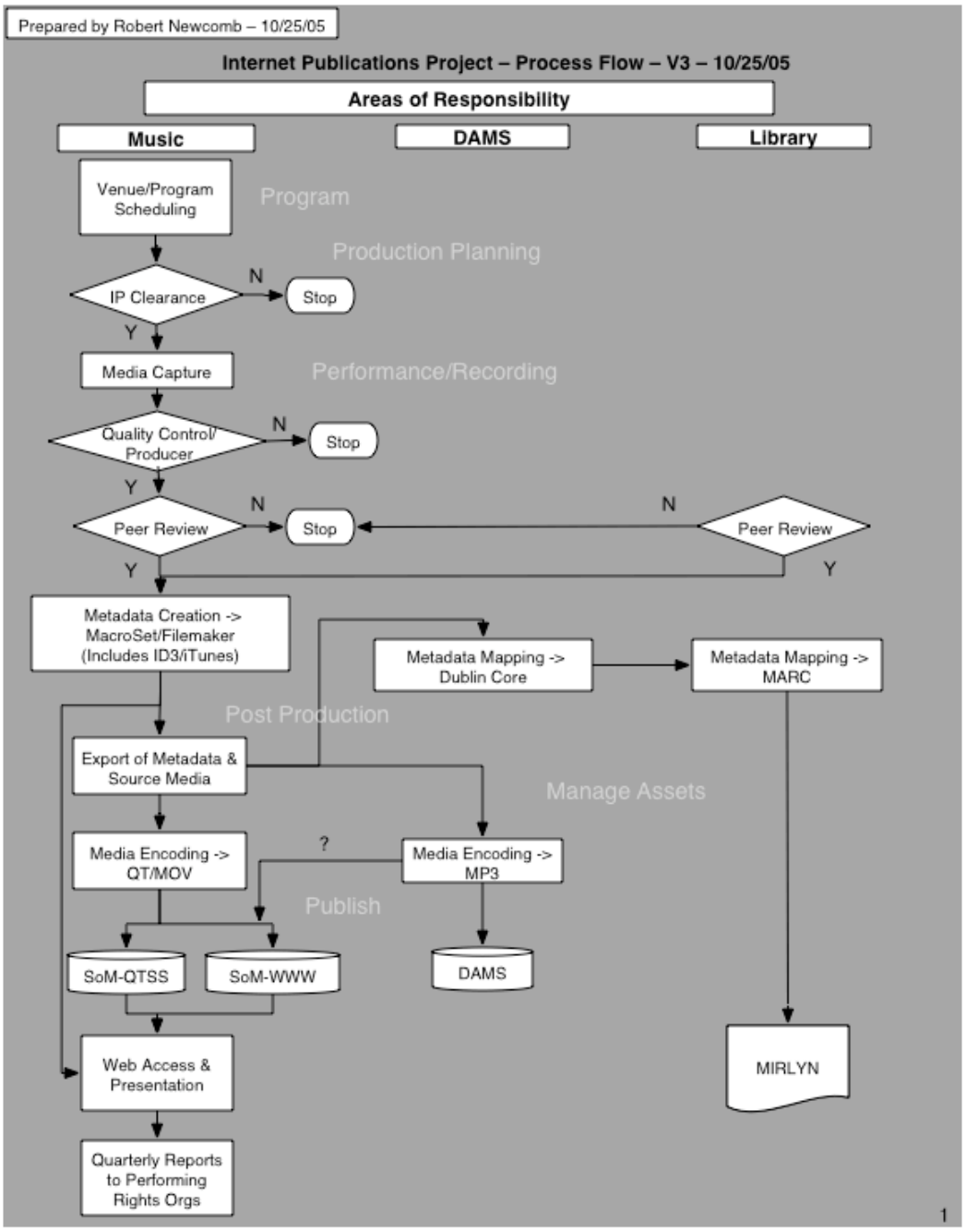

Figure 1: Internet Publication Process Flow

E. *Develop legal guidelines for the fair use of copyrighted recordings in scholarly publications*

The School of Music, in consultation with the Office of General Counsel, developed a form entitled the Consent to Record or Document Electronically (Appendix E) that grants the School of Music permission to audio record, video record, and photograph during a student's time at the University of Michigan. The form was developed into a web form and introduced during Student Orientation. The Consent grants the School of Music permission to disseminate performances by students.

The School of Music is exploring the applicability of the fair use doctrine to the use of copyrighted recordings in scholarly publications. Professor James Borders was appointed by Dean Karen Wolff as Scholarly Publication General Editor through June 30, 2007. Professor Borders is responsible for the quality and integrity of all predominantly text publications that fall under the purview of this project and to formulate models that facilitate content creation, media integration, electronic peer review, search and retrieval, and publication.

F. *Investigate Dspace capabilities for peer review, critiques, and performances and specify system extensions or customizations*

In 2004, the University Library identified development and support of an institutional repository as one of its top new priorities. In pursuit of this goal, the Library hired a program coordinator and a full-time programmer to work on both the programmatic and technical development of repository during a two-year pilot phase. During the pilot phase the Library is working to identify needs, assess the costs of meeting those needs, refine repository policies and guiding principles, and create work flows and procedures for moving the repository to full production. Because Deep Blue is designed to meet not only today's needs, but also new needs as they evolve, its service will also evolve to reflect current needs and norms identified by UM faculty, staff, students, and the communities they form.

The repository has been named Deep Blue, and is the University of Michigan's permanent, safe, and accessible service for representing its rich intellectual environment online. The University Library's primary goal for Deep Blue is to provide access to the work that makes Michigan a leader in research, teaching, and creativity. By representing UM's faculty, staff, and student scholars, as individuals and as members of communities, Deep Blue provides a framework for preserving and finding the best scholarly and artistic work done at the University.

The Deep Blue program coordinator has identified a number of campus partners to work with in the pilot phase to both provide content for Deep Blue and to serve as test cases for acquiring and representing a number of different types of content. The School of Music will serve as an ideal partner in this case for two reasons. First, because of its commitment to the Internet Publication Project, the School is already grappling with many of the same issues about access and delivery that are

integral to Deep Blue and thus is well-positioned to give informed feedback on the repository's services. Second, the School can provide Deep Blue with multi-media content which will test the adequacy of the repository's functionality for materials other than relatively simple texts and images.

Deep Blue is first and foremost about service and content, but it also requires a software platform to provide those services and access to the content. For the pilot phase, the Library has selected the DSpace open source software, developed at MIT specifically for supporting the work of institutional repositories. The DSpace software provides a number of features that would be useful to the School of Music should it choose to use this as a tool for long term preservation and for access to School of Music content. It provides simple and flexible tools for uploading files to the repository, for describing those files and for retrieving those files through searching or browsing descriptive metadata, and, in cases where applicable full text. It also facilitates setting restrictions on files so that the content is only available to individuals, groups or the campus, for specified periods of time.

There are other areas in which the current DSpace functionality is currently not adequate for the needs of the Internet Publication Project. The software has some ability to create associations and relationships among files, but not currently at the level of intelligence that would make this useful for associating critiques and commentary with performance recordings. DSpace also supports a basic level of review; a file can be identified as in need of approval and an email message is automatically sent to a known administrator for alert that person to assess the file and then release or reject it. While this is useful functionality, it does not represent the kind of full-blown support for peer review and content management which the IPP would like to see in place for both its published performances and textual scholarship.

G. *Investigate DAMS "producer" role to facilitate production tracking and ensure quality control of media-rich publications*

Multimedia assets were used to test the producer role of DAMS with varying degrees of success. We anticipate improvements in the producer role during 2005-06 as a result of recent upgrades to DAMS.

H. *Develop and implement metadata lectionaries that describe media-rich content*

See Appendix F: Performing Arts Metadata Schema

I. *Appoint a .20 FTE Media Arts Graduate Student Research Assistant*

A Graduate Student Research Assistant was hired to assist with media encoding, metadata tagging, web template creation, and QTVR production.

J. *Stream all available media. Make media-rich content available for the purposes of teaching, research, and service while promoting the University of Michigan*
Organizational and technological processes were developed to record and produce selected School of Music events. After post-production,these events are reviewed by faculty and students within Ctools. Events that are approved by the event producer may be promoted to the School of Music Media Showcase for internet streaming to the public. Visit the School of Music Media Showcase at:

http://www.music.umich.edu/media_showcase/media.lasso

VI. Additional Accomplishments 2004-05

A. Web Redesign

During Winter, 2005, the School of Music issued a Request for Proposals (RFP) for the redesign of our web site (see Appendix G). Terapixel, Inc. was contracted for the redesign and the new site was launched July 13, 2005 (http://www.music.umich.edu). The new site supports decentralized content creation and the integration of media-rich content throughout the site.

B. Block M Records

In consultation with the Office for the Vice President for Research and Office of Technology Transfer, the University created a recording label named Block M Records as well as a logo and tagline (Figure 2). A school based royalty distribution model was negotiated with and approved by the Office for the Vice President for Research.

Figure 2: Block M Records logo and tagline

C. Online Electronic Distribution Initiative

In consultation with the Office of Technology Transfer, the University is in the final stages of negotiation for distribution of Block M Records repertoire through an online distribution source.

VII. Project Deliverables 2005-06

The Internet Publication Advisory Teams has established the following items as project deliverables for 2005-06:

1) Implement a School of Music scheduling system that automates acquisition of metadata
2) Implement electronic peer review, critiques and performance tracking of media rich content
3) Continue to investigate the capabilities of DAMS as a mechanism to facilitate internet publication.
4) Publish metadata schema that describe media-rich content
5) Communicate findings of the project team to the University community and interested institutions through web publication and conference presentations

Appendix A: Scheduling System Request for Proposals

REQUEST FOR PROPOSALS

Project: 1. Evaluation of Existing School of Music Resource Scheduling Systems
2. (a) Recommendation for Purchase of Scheduling System (or)
(b) Design and Implementation of a new integrated web-based, cross platform, reservation-on-demand Scheduling System

Project Director: Mary Simoni, Ph.D.
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I. Statement of Need

The School of Music requests the services of a company to determine the most effective means of integrating and extending the functionality of multiple existing resource scheduling systems now being used. The resulting project deliverable may be either the development of a new system or the customization of a commercially available product. The system will provide for efficient web-based scheduling, querying and reporting within a time window of up to five years for the following types of ***resource objects***: 'things' (equipment, instruments), 'spaces' (classrooms, performance and rehearsal venues), 'people' (staff, and an optional associated hourly billing rate). These resources will be mapped to ***events*** within periodically recurring and non-recurring times of variable length, and include ***event types*** such as classes, seminars, rehearsals, performances, workshops, research projects and productions. Extensive querying, reporting and access management functions are required to retain administrative flexibility and expand usability.

II. Background Information

A. School of Music

Founded in 1880, the School of Music will celebrate its 125th anniversary in 2005 as one of the oldest and largest schools of music in the United States. Michigan is consistently ranked among the top five schools of music in the country, whether it is being compared to performance-oriented conservatories (such as Julliard and Curtis) or with prestigious academic departments of music (such as Chicago, Princeton, and Yale).

The School has an enrollment of more than a thousand students, approximately three-quarters of whom are undergraduates. About half of the students are from Michigan, and international students number about 65 each year. The School of Music offers the professional B.Mus. and B.F.A. undergraduate degrees. Additionally, the Bachelor of Dance Arts (B.D.A.), Bachelor of Musical Arts (B.M.A.), and Bachelor

of Theatre Arts (B.T.A.) degrees are interdisciplinary degrees, intended to allow students a wider exposure to the liberal arts within a professional degree. Undergraduates may also choose to pursue joint degree programs involving other academic units at the University, such as Engineering, Art, or Literature, Science, and Arts. At the graduate level, the School offers the M.Mus., M.A., and M.F.A. (in dance and theatre), as well as doctoral degrees in composition, conducting, music theory, music education, historical musicology, ethnomusicology, performance, and theatre.

B. User Groups

• *University Productions* manages the scheduling and rental of major performance venues for UM and non-UM events, as well as managing a portion of classroom and rehearsal space.
• *The Scheduling Office* manages a portion of classroom, rehearsal and performance venues, facilitating the needs of academic departments, faculty, staff and students.
• *The Publicity Office* produces printed programs for approximately 400 concerts per year, the Calendar of Event listings, and press releases in print and online media.
• *Sound & Video Services* and *Piano Technology* schedule support tasks and equipment movement associated with performances and rehearsals that require sound reinforcement, recording and piano tuning.
• *Information Technology* provides specialized computer and audio/video equipment to faculty, staff and students in support of their projects.
• *The Internet Publication Program* facilitates the production, delivery and dissemination of media-rich scholarly and creative research.
• *The Ensembles Office* coordinates the scheduling of orchestras, bands and choirs.
• *The Public* relies on accurate, easily accessible and searchable event information to make choices in attendance of both ticketed and free School of Music events.

C. Current Scheduling Systems Technologies

The School of Music is currently scheduling resources using three non-integrated technologies:

• *Web Event Publish (version 2.71)*
A portion of venues, classrooms and equipment are scheduled using this web based system written in Perl which runs on an Apple OS X (10.3) XServe web server.

• *Filemaker Pro (Advanced Server 7), Lasso (version 8)*
Content is moved to and from FileMaker Pro resident databases by Lasso middleware, and presented on the web for informational access or as interactive forms. FMP runs on a dedicated Apple OS X (10.3) XServe. Lasso runs on the OS X (10.3) XServe web server.

• *SUN (4th Dimension - version 3.6, and Hypercard)*
This is a proprietary application written in 4D using a Hypercard GUI front end, and runs on Mac OS 9, currently on an Apple G4/500 tower. Due to the legacy nature of these technologies, some supplementary data and formatting is maintained offline in Excel, Word and FileMaker Pro.

III. Requirements

General

1. Fully comply with the technological infrastructure of the School of Music and the University of Michigan.
2. Evaluate current scheduling components: Web Event, Lasso, Filemaker Pro, SUN, and recommend replacement with a commercially available application or develop a proprietary web based scheduling application, so as to optimize functionality, performance and maintenance.
3. Ensure system is compatible with Apple OSX Server architecture.
4. Provide a minimum of 20 hours on-site consultation with selected administrative staff to ascertain the optimal organization and technological integration of the scheduling system.
5. Provide complete technical and user documentation for all scheduling services and provide at least one intensive training session for each constituent user group, plus additional training for system adminsitrators as needed.
6. Provide a suite of system maintenance tools.
7. Provide a timetable for completion of the project.

Functionality

1. Allow for multiple access levels based on user function ***(user profile)***, for example, 'External' - web data entry only; 'Internal Primary' - web and backend update access; 'Internal Secondary' - web and backend read-only access.
2. Distributed Approval Process for all reservations. Each resource object must be linked to an administrative user who will act as sole approval filter for any activity within that object via email requests, reminders and confirmations of scheduling additions/changes.
3. Daily, weekly, monthly, term (semester - Fall, Winter, Spring, Summer) and yearly calendar views per single and multiple resources based on search criteria.
4. Searchable content, across all field criteria, including ability to search for open time slots for a given resource.
5. Requirement of a valid UMID and/or uniqname (login name) for any scheduling request. A link to central UM PeopleSoft data warehouse will be established to retrieve student/staff/faculty status and relationship to UM ***(****known as* ***UM Role).***
6. All view components and search criteria must be customized based on user profile, presenting only the information relevant to a user.
7. Scheduling, timekeeping and task lists for hourly staff through associated hourly rate and task data.
8. Mechanism for the archiving and retrieval of all database content by a user-definable period.
9. Reporting Functions (view, print, export to standard desktop application formats)
    - Press Releases - Microsoft Word format
    - Programs for Concerts - Adobe Indesign format
    - Work Orders - for staff at venue and production specific sites (MS Word)
    - Productions - tracking production level information (MS Word/Excel)
    - Contracts - merge documents for customer contracts (MS Word)
    - Actions - tracking tech staff progress with productions (MS Word)

• Contacts - addresses, phones, etc. (MS Word/Excel)
• Venue and Equipment rental billing (MS Word/Excel)
• Payroll and timekeeping - Excel format, to be used in a manual (external to this system) FTP function into central UM Payroll.

10. All databases accessible to appropriate user profiles for offline manipulation.
11. Value List usage wherever possible to constrain data, and optimize reporting. Examples are venues, equipment, event types, etc.
12. Use of UM Role of individual to reflect limits on number of hours or reservations, per type of object, able to be booked within a user specified time period.
13. Use of an ***object profile*** to optionally associate attributes to a resource object which can constrain eligible user profiles or types of events able to be mapped to this object; for example, events requiring special equipment such as Internet2 network bandwidth are only able to be held in specific locations; similarly, only faculty and staff can reserve computers for checkout, etc.
14. Optionally, find time slots, so that within a slot, scheduling requests must progress through the slot chronologically, so as to make optimal use of resources.
15. A queuing, waitlist or 'hold' function, allowing for backup reservations to be promoted to active state should a time slot become available due to a cancelled reservation.
16. Ability to reserve resources across day, week, month, and year boundaries.

Notes

1. The School of Music will provide on-going communication with the contracted company to ensure all aspects of the redesign are consistent with School of Music requirements.
2. The School of Music will provide prototypical scheduling data to assist in Quality Assurance testing.
3. The School of Music will provide live scheduling data to be migrated to the new system if a non-manual data entry mode of migration is implemented at the time of cutover.

IV. Schedule of Events

Request for Proposal Issued:	May 27, 2005
Deadline for submission of supplier questions:	June 10, 2005
Response to questions by the University:	June 17, 2005
Submission of Intent to Respond:	June 27, 2005
Deadline for Submission of Proposals:	July 6, 2005
Award of Contract:	July 25, 2005
Start of Project:	September 6, 2005
Parallel running of old and new systems:	March 1, 2006
Final System Cutover:	May 1, 2006

V. Proposal Evaluation Criteria

1. Company profile.
2. Quality and quantity of experience in design and implementation of resource scheduling software systems.
3. Familiarity with the technological infrastructure of the School of Music and the University of Michigan.
4. Preference will be given to companies that can complete the implementation during the time period September 6, 2005 - April 30, 2006.

Appendix B: Redesign of an existing recording studio Request for Proposals (excerpt)

REQUEST FOR PROPOSALS

Project Director: Mary Simoni, Ph.D.
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The School of Music and the Duderstadt Center wish to engage an acoustical consultant skilled at redesigning an existing recording studio and its associated spaces based on our program statement stipulating desired functionality.

The Audio Studio of the Duderstadt Center was constructed in 1996. The primary function of the Audio Studio is the recording, mixing and production of stereo and 5.1 recordings. The Audio Studio is comprised of a control room, a performance studio; an isolation room, a machine room, and a storage closet (see area floor plan below):

Control Room (Room 1335D)
Performance Studio (Room 1335)
Isolation Room (Room 1335A)
Machine Room (Room 1335C)
Storage Closet (Room 1335E)

The Audio Studio has several acoustic shortcomings:

1. A low frequency hum in the control room that originates from the building transformer in the basement directly below the control room
2. A squeaky raised computer floor in the control room
3. Problems with acoustic isolation among the rooms and adjoining corridors
4. Improper sight lines between the isolation room and the performance studio hindering visual communication among the people in the control room, isolation room and live room.
5. Musicians have difficulty hearing themselves performing particularly when playing as a member of an ensemble.

Program Statement:

Our goal is to mitigate or eliminate the shortcomings listed above by renovating the existing studio so that it is professional recording studio that presents a welcoming environment to a wide variety of musicians performing diverse musical genres. These genres include classical music featuring vocal and instrumental ensembles of approximately 30 performers, classical instrumental chamber music, a cappella ensembles, percussion ensembles, opera, musical theatre, jazz, rock, and contemporary electronica. The Audio Studio should be a place that inspires musicians by creating a hospitable environment through lighting, color, and sound. Each room that comprises the Audio Studio should be acoustically isolated from the others as

well as the rest of the building. The acoustical attributes of the live room and the isolation room should be variable depending on the needs of the musicians and the demands of the music that they perform.

Expectations of the Acoustical Consultant:

The role of the acoustical consultant is to make specific prioritized recommendations that would facilitate the renovation of the Audio Studio based on the Program Statement. The acoustical consultant works closely with the Audio Coordinator of the Duderstadt Center with input from representatives of the School of Music and the Duderstadt Center.

Appendix C: The Storyk Report

Appendix D: Audio Studio Equipment Proposal

Equipment Recommendations

for the

Audio Studio

of the

Digital Media Commons

at the

Duderstadt Center

Submitted by:

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Mary Simoni, Professor, Music Technology, Associate Dean
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John Williams, Director
Executive Producer, Digital Media Commons, Duderstadt Center, jmerlinw@umich.edu

Executive Summary

The Audio Studio in the Duderstadt Center is a professional audio recording studio that includes a control room, a main recording room, an isolation booth, machine rooms, and a storage room. It operates 24 hours a day and supports teaching and learning, student projects, faculty sound recording (publishing), research, and interdisciplinary collaboration.

We propose an equipment upgrade in the Audio Studio. The primary reason for the upgrade is to advance the audio engineering pedagogy of the Performing Arts Technology curricula that benefit undergraduate and graduate students primarily in the School of Music, College of Engineering, and LS&A. This equipment upgrade will significantly raise the level of the educational experience that students receive by exposing them to a wider variety and higher quality of equipment than is possible with our current configuration, and thus better prepare them to excel as leaders in music technology and audio engineering upon graduation.

The Audio Studio is the university's flagship recording studio supporting such large-scale projects as the Internet Publication Project. This project is a collaboration among the School of Music, University Library, Provost's Office, Office for the Vice President for Research, and the Duderstadt Center to promote and support publication of music recordings, scholarly writing, video productions, and other enriched media produced by faculty members. As such, the Audio Studio has the potential to become the primary location for music recording for faculty publications. An improvement in the quality and variety of equipment in the Audio Studio will have a direct positive effect on the sound quality of music recordings that are released from the University.

In addition to serving as a teaching and research facility, the Audio Studio is also available to all students, faculty, and staff of the university community who have completed training and certification in the studio.

The budget for the equipment upgrade includes the following main categories with subtotals:

1. Large format recording console	$312,026
2. Outboard audio processing equipment	$81,588
3. Microphones	$66,296
4. Studio infrastructure	$2,000
5. Installation estimate	$20,000
Total	$481,910

Proposal

Our goal with this technology upgrade is to replace the aging Euphonix recording console in the Audio Studio and augment our current outboard equipment, microphones, and studio infrastructure. The Euphonix console is deteriorating and becoming unreliable,

and since the company no longer manufactures this model, it is difficult to find replacement parts. Additionally, it has almost nonexistent surround sound mixing capabilities. With more than 30 million consumer surround systems found in U.S. homes, we see surround sound is an vital topic for the sound engineering curriculum, but one that we cannot fully support with our current recording console.

A recording console is the centerpiece of a recording studio and provides the recording engineer with sophisticated tools to manipulate the dynamics and spectra of audio signals, as well as mix, amplify, and route audio to multitrack recorders. Outboard equipment includes other sound amplifying and processing equipment that is separate from the recording console, such as microphone preamplifiers, compressors, equalizers, and artificial reverberation. Outboard equipment provides the engineer with more processing power and gives a wider variety of sound processing options.

During the summer of 2006 we will renovate the Audio Studio to improve its acoustics and working environment. John Storyk, the architectural acoustician consulting on the renovation, recommends that we upgrade not only the recording console but also the outboard processing equipment and microphones in parallel with the renovation. An equipment upgrade will augment the benefit of the physical renovation. Please refer to the report from John Storyk, Appendix B, for details on the renovation.

We have considered several models and types of consoles and recommend what we believe to be the most practical model from a pedagogical viewpoint and as well as a console that has the highest sound quality with the longest useful life. The audio industry is continually changing in response to technological innovation and we believe an analog console such as the API Vision will deliver the highest sound quality available and remain compatible with technological changes for next decade. API is known internationally for producing some of the highest quality professional audio equipment since the late 1960's. The API Vision analog console we propose is compatible with all current digital audio formats and will remain so for future higher resolution formats. We do not support the selection of a digital console because a digital console locks us into current digital formats that are likely to be incompatible with future formats.

The outboard equipment listed in the Appendix A includes equipment commonly found in professional recording studios. This equipment allows the recording engineer to perform several types of sound processing such as compression/limiting, equalization, reverberation, pitch correction and harmonization, as well as amplify microphone level signals.

We also recommend a number of industry-standard microphones to augment our current collection. These high quality microphones offer the engineer various choices in terms of sound "color" due to differences in their electronics and construction. Since there is no perfect microphone for all situations, it is important to have a variety from which to choose. Because microphones can easily last 25 years or more, this acquisition represents a solid long-term investment in the Audio Studio.

This equipment will support a number of courses offered by the School of Music, namely Sound Recording I & II (PAT331 & PAT332), Directed Individual Study (PAT407), and Advanced Sound Recording (PAT480 & PAT580) taught by Prof. Jason Corey. These courses use the Audio Studio as a classroom, laboratory, and project workspace. The quality and variety of equipment found in the Audio Studio have a direct impact on the quality of the learning experience. From a pedagogical point of view, an analog console is a more effective teaching tool than a digital console because the layout of the control surface makes it easier for students to learn the fundamentals of audio signal flow. At the same time, the sound quality is unrivaled by digital consoles.

In addition to teaching, the equipment upgrade will support the Internet Publication Project. Through this project, the School of Music and the Office of Technology Transfer have created a record label named "Block M Records" that will increase the prestige of the University through dissemination of recordings. A high quality recording console, coupled with an expanded array of outboard equipment and microphones, will provide a significant improvement in the quality of sound recordings that can be made produced by "Block M Records."

Timetable

We would like to purchase the equipment to coincide with the studio renovations scheduled to commence in May 2006. We need to place the order on the console by December 31, 2005 to take advantage of a 5% discount and ensure its delivery by June 1, 2006. The console pricing above reflects the 5% discount if ordered in 2005, as well as an additional 15% educational discount.

Fall 2005	Token deposit for console (10%) approx. $ 31,202
December 2005	Build deposit for console (20%) approx. $ 62,404
January 2006	Begin preparation for new console arrival
July 2006	Acquire
August 2006	Build
August 2006	Test
September 2006	Classes begin

Closing Remarks

The Audio Studio proposed equipment upgrade totaling $481,910.00, will significantly enhance and extend each student's educational experiences as well as elevate the level of sound quality for recording and audio engineering research. The equipment includes not only products of the highest sound quality for music recording, but also represents a significant investment for years to come.

In summary, the equipment upgrade will help maintain pedagogical practices that are consistent with contemporary recording and production techniques, and will maximize

the benefits of the physical renovation of the Audio Studio. Finally, without the upgrade many faculty members will continue to seek funds to record music off campus using studios that are better equipped.

We thank you for your thoughtful consideration of our equipment upgrade proposal for the Audio Studio in the Duderstadt Center, especially in light of your forthcoming appointment as Dean of Rackham. Congratulations! If there are questions about this proposal, please contact Professor Mary Simoni: 936-0425; msimoni@umich.edu.

We understand you have little time in your current appointment at Associate Provost but would appreciate a response to this proposal at your earliest opportunity to facilitate curricular and project planning.

Appendix E: Consent to Document or Record Electronically

THE UNIVERSITY OF MICHIGAN

SCHOOL OF MUSIC

ANN ARBOR, MICHIGAN 48109-2085

Consent to Document or Record Electronically

(Version 3.0; 05/24/05)

Name: _____

UM ID #: _____

I permit the Regents of the University of Michigan (University) to create photographs, videotape, film, audio recordings, web-cast or cable-cast content, or otherwise document and record my participation at the University of Michigan School of Music, including any materials already in its possession, for educational, academic, or research purposes.

If the University determines that education or research may benefit from the use of these materials, the University may publish or sell the materials for academic purposes or use them in any other professional manner that the University believes is proper. I understand and agree that the University has my permission to use and distribute my name, likeness, image, performance, voice, appearance, and/or recorded participation, that the recorded materials belong to the University, and that I may not receive payment or any other compensation in connection with the recorded materials.

I have had a chance to discuss this form with the University of Michigan staff and have received complete answers to all my questions.

I release the University of Michigan from any and all liability that may or could arise from the recording of my image or performance.

Signed: _____ Date: _____

Address: _____

_____

Implications of Signing or Not Signing
THE CONSENT TO DOCUMENT OR RECORD ELECTRONICALLY

If you elect agree to the *Consent to Document or Record Electronically*:
Your consent allows the School of Music to publish recordings of your performances during your tenure as a University of Michigan student. Archived performances, as distinct from published recordings of performances, serve the mission of the School of Music and the University of Michigan and do not require your consent. (For example, the School of Music and the University of Michigan may use archival recordings of your performances for purposes of demonstration in classes, as a means of recruiting students, and as a means of documenting School of Music activity.) School of Music recordings that are published require your consent.

If you elect **not** to agree to the *Consent to Document or Record Electronically*:
Your nonconsent may prevent the School of Music from publishing those recordings of your performances created during your tenure as a University of Michigan student. Faculty or staff may ask you to excuse yourself from performances that may be recorded for purposes of publication. Your absence from recorded performances that occur under the auspices of a class will not alter your grade in that class because you have not consented to document or record electronically. Electing not to agree at this time does not prevent you from electing to agree in the future.

Appendix F: Web Redesign Request for Proposals

REQUEST FOR PROPOSALS

Project: Redesign of School of Music Web Site
Project Director: Mary Simoni, Ph.D.
2231A Moore
(734) 936-0425
msimoni@umich.edu

I. Statement of Need

The School of Music requests the services of company to redesign the School of Music Web Site (www.music.umich.edu). The redesign will present a visually and aurally appealing contemporary gateway to the School of Music, facilitate secure internet publication of multimedia content through dependence on underlying databases, and allow for ease of modification to structure and content.

II. Background Information

A. School of Music

Founded in 1880, the School of Music will celebrate its 125th anniversary in 2005 as one of the oldest and largest schools of music in the United States. Michigan is consistently ranked among the top five schools of music in the country, whether it is being compared to performance-oriented conservatories (such as Juilliard and Curtis) or with prestigious academic departments of music (such as Chicago, Princeton, and Yale).

The School has an enrollment of more than a thousand students, approximately three-quarters of whom are undergraduates. About half of the students are from Michigan, and international students number about 65 each year. The School of Music offers the professional B.Mus. and B.F.A. undergraduate degrees. Additionally, the Bachelor of Dance Arts (B.D.A.), Bachelor of Musical Arts (B.M.A.), and Bachelor of Theatre Arts (B.T.A.) degrees are interdisciplinary degrees, intended to allow students a wider exposure to the liberal arts within a professional degree. Undergraduates may also choose to pursue joint degree programs involving other academic units at the University, such as Engineering, Art, or Literature, Science, and Arts. At the graduate level, the School offers the M.Mus., M.A., and M.F.A. (in dance and theatre), as well as doctoral degrees in composition, conducting, music theory, music education, historical musicology, ethnomusicology, performance, and theatre.

B. Internet Publication Program Statement

In Fall, 2004, the School of Music in partnership with the Duderstadt Center, University Libraries, Office for the Vice President for Research, and the Provost's Office embarked on a campus-wide initiative to facilitate the production, delivery and

dissemination of media-rich scholarly and creative research. The objectives of the program are to develop organizational and technological processes that facilitate the capture, editing, encoding, publication, and archiving of quality media-rich content, document organizational and technological processes for web-based publication that fully comply with copyright law, improve methods that facilitate the evaluation of web-based publication by using methods currently upheld by the academic and artistic research communities such as peer review, critiques, and performances, and extend organizational processes that solicit and promote web-based publication from all constituencies of the University community. The School of Music serves as the archetype for this campus-wide initiative and the redesign of www.music.umich.edu is one of the first steps in the internet publication program.

C. Technical Specifications

The School of Music is currently using Apple OS X WWW server running Apache, Lasso 6 (upgrading to Lasso 7), and a WebEvent scheduling system. The future scheduling system needs to be the front-end for data acquisition for internet publication tracking such fields as title, composer, duration, conductor, and performer. Similarly, the scheduling system generates request for recording of events that may result in internet publication. Delivery of multi-media content is via a QuickTime Streaming Server. Databases that currently assist in delivery of content are derived from a File Maker Pro Server 5.5 and FMPU (Upgrading to FMP AS 7). Current development tools are the Adobe Creative Suite (InDesign and GoLive) and BBEdit. We prefer that design templates are based on CSS, and Adobe Photoshop/ImageReady layers/splices. We require Kerberized secure Intranet for internal staff/faculty access of confidential data. We would like to migrate portions of existing Lasso code to PHP while retaining existing Filemaker Pro data structures.

III. Schedule of Events

Request for Proposal Issued: November 15, 2004
Deadline for submission of supplier questions: December 1, 2004
Response to questions by the University: December 10, 2004
Submission of Intent to Respond: December 20, 2004
Deadline for Submission of Proposals: January 5, 2005

IV. Requirements. The School of Music requires the following features in the redesign of the web site:

1. Create a visually and aurally appealing web site that communicates the breadth and depth of the scholarly, creative and performance endeavors of the School of Music.
2. Fully comply with the technological infrastructure of the School of Music and the University of Michigan
3. Ease of navigation including a site map, searchable content, and a reorganization of content to maximum of 5-levels of depth
4. Interactive and branching interface for admissions, curricular, and student services content for prospective and enrolled students. Students must be able to self identify by major or prospective major and receive relevant content. The

majority of content necessary to fulfill this requirement currently exists in print media known as the *Student Handbook*.

5. Ease of modifying pages that may derive content from external databases
6. Ease in presenting third-party vendor applications while maintaining University of Michigan School of Music branding
7. Dynamic, easily modifiable roll-over menus
8. External links to a shopping cart model for media, merchandise, and alumni/donor giving with links University-sponsored e-commerce
9. Evaluate current Web Event Scheduling System, and recommend modification or replacement with a commercially available scheduling application, so as to optimize functionality, performance and maintenance.
10. Provide complete technical and user documentation for all web services and provide a minimum of two training sessions to School of Music faculty and staff
11. Alternate Flash Content for Homepage of www.music.umich.edu
12. Virtual Tours of Facilities such as Hill Auditorium, Audio Studio, Electronic Music Studios, Music Technology Lab, Britton Recital Hall, and the McIntosh Theatre
13. Allows creation of Kerberos-authenticated web pages with a consistent "look and feel" that supports the decentralized dissemination of multimedia content by organizational units in the School of Music
14. A minimum of 10 hours of on-site consultation with selected faculty and staff to ascertain the optimal organization and technological integration of the web site
15. A timetable for completion of the project

The School of Music will provide on-going communication with the contracted company to ensure all aspects of the redesign are consistent with School of Music requirements. The School of Music will provide content for web pages. The School of Music will provide prototypical multimedia content to assist in testing delivery of multimedia and e-commerce.

Proposals will be evaluated on the following criteria:

4. Company profile
5. Familiarity with the technological infrastructure of the School of Music and the University of Michigan
6. Quality and quantity of experience delivering multimedia content over the web
7. Extent of experience in various publication tasks including managing the production process, peer review, and media encoding.
8. Preference will be given to companies that can complete the redesign during the time period January 15 - July 1, 2005.

Appendix G: Performing Arts Metadata Schema

ipc_performances Field Name	Field Type	Formula / Entry Option
approved_for_internet	Text	Indexed
arranger_first_name	Text	
arranger_last_name	Text	
arranger_middle_name	Text	
assistant_engineer1	Text	
assistant_engineer1_detail	Text	
assistant_engineer2	Text	
assistant_engineer2_detail	Text	
composer	Calculation (Text)	Unstored, = ipc_titles::composer
composer_first_name	Text	
composer_last_name	Text	
composer_middle_name	Text	
conductor	Calculation (Text)	= conductor_first_name & If(IsEmpty(conductor_middle_name); " ";" " & conductor_middle_name) & " " & conductor_last_name
conductor_first_name	Text	
conductor_last_name	Text	
conductor_middle_name	Text	
date_created	Date	Indexed, Auto-enter: “Creation Date”, Prevent data that is automatically entered from being changed.
date_modified	Date	Auto-enter: “Modification Date”, Prevent data that is automatically entered from being changed.
date_of_recording	Calculation (Date)	Unstored, = Recital_Form::Greg_Date
description	Text	
ensemble1	Text	Indexed, Allow user to override validation, Value List (Field): “ipc_ensembles1::ensemble_name”
ensemble2	Text	Allow user to override validation, Value List (Field): “ipc_ensembles1:: ensemble_name”
ensemble3	Text	Allow user to override validation, Value List (Field): “ipc_ensembles1:: ensemble_name”
ensemble4	Text	Allow user to override validation, Value List (Field): “ipc_ensembles1:: ensemble_name”
image1_filename	Text	Indexed
instrument1	Text	
instrument2	Text	
instrument3	Text	
instrument4	Text	
keywords	Text	
media_type	Text	Indexed, Allow user to override validation, Value List (Custom Values): Audio Video
perf_rights_org	Text	Allow user to override validation, Value List (Custom Values): ASCAP BMI SESAC

ipc_performances

Field Name	Field Type	Formula / Entry Option
performance_num	Number	Indexed
perfrum_titlenum	Calculation (Text)	Indexed, = GetAsNumber(performance_num) & GetAsNumber(title_num)
primary_engineer	Text	
primary_engineer_detail	Text	
primary_photographer	Text	Indexed
primary_photographer_detail	Text	
sequence_num	Number	Indexed
soloist1	Text	
soloist2	Text	
soloist3	Text	
soloist4	Text	
stat_1	Text	
stat_1_date	Date	
stat_1_who	Text	
status	Text	Indexed
status_1	Calculation (Text)	= "Scheduled"
status_1_date	Date	
status_1_who	Text	
status_10	Calculation (Text)	= "Quality Approved"
status_10_date	Date	
status_10_who	Text	
status_2	Calculation (Text)	= "Recorded"
status_2_date	Date	
status_2_who	Text	
status_3	Calculation (Text)	= "IP Approved"
status_3_date	Date	
status_3_who	Text	
status_4	Calculation (Text)	= "Edited"
status_4_date	Date	
status_4_who	Text	
status_5	Calculation (Text)	= "Encoded"
status_5_date	Date	
status_5_who	Text	
status_6	Calculation (Text)	= "Exported to DAMS"
status_6_date	Date	Indexed
status_6_who	Text	
status_7	Calculation (Text)	= "Indexed in DAMS"
status_7_date	Date	
status_7_who	Text	

ipc_performances Field Name	Field Type	Formula / Entry Option
status_8	Calculation (Text)	= "Metadata Created"
status_8_date	Date	
status_8_who	Text	
status_9	Calculation (Text)	= "Captured on SOM Web"
status_9_date	Date	
status_9_who	Text	
title	Calculation (Text)	Unstored, = ipc_titles::title
title_num	Number	Indexed
venue	Calculation (Text)	Unstored, = Recital_Form::Location
www_directory_name	Calculation (Text)	Unstored, = GetAsText(performance_num) & "_" & GetAsText(Year (Recital_Form::Greg_Date)) & GetAsText(Month(Recital_Form::Greg_Date)) & GetAsText(Day(Recital_Form::Greg_Date))
www_MSTR_file_name	Text	Indexed
year_of_recording	Calculation (Number)	Unstored, = Year(Recital_Form::Greg_Date)

Appendix H: Request for Proposals (RFP) for the redesign of our web site

Project: Redesign of School of Music Web Site
Project Director: Mary Simoni, Ph.D.
2231A Moore
(734) 936-0425
msimoni@umich.edu

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fully comply with copyright law, improve methods that facilitate the evaluation of web-based publication by using methods currently upheld by the academic and artistic research communities such as peer review, critiques, and performances, and extend organizational processes that solicit and promote web-based publication from all constituencies of the University community. The School of Music serves as the archetype for this campus-wide initiative and the redesign of www.music.umich.edu is one of the first steps in the internet publication program.

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Deadline for Submission of Proposals: January 5, 2005

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17. Fully comply with the technological infrastructure of the School of Music and the University of Michigan
18. Ease of navigation including a site map, searchable content, and a reorganization of content to maximum of 5-levels of depth
19. Interactive and branching interface for admissions, curricular, and student services content for prospective and enrolled students. Students must be able to self identify by major or prospective major and receive relevant content. The majority of content necessary to fulfill this requirement currently exists in print media known as the *Student Handbook*.
20. Ease of modifying pages that may derive content from external databases
21. Ease in presenting third-party vendor applications while maintaining University of Michigan School of Music branding

22. Dynamic, easily modifiable roll-over menus
23. External links to a shopping cart model for media, merchandise, and alumni/donor giving with links University-sponsored e-commerce
24. Evaluate current Web Event Scheduling System, and recommend modification or replacement with a commercially available scheduling application, so as to optimize functionality, performance and maintenance.
25. Provide complete technical and user documentation for all web services and provide a minimum of two training sessions to School of Music faculty and staff
26. Alternate Flash Content for Homepage of www.music.umich.edu
27. Virtual Tours of Facilities such as Hill Auditorium, Audio Studio, Electronic Music Studios, Music Technology Lab, Britton Recital Hall, and the McIntosh Theatre
28. Allows creation of Kerberos-authenticated web pages with a consistent "look and feel" that supports the decentralized dissemination of multimedia content by organizational units in the School of Music
29. A minimum of 10 hours of on-site consultation with selected faculty and staff to ascertain the optimal organization and technological integration of the web site
30. A timetable for completion of the project

The School of Music will provide on-going communication with the contracted company to ensure all aspects of the redesign are consistent with School of Music requirements. The School of Music will provide content for web pages. The School of Music will provide prototypical multimedia content to assist in testing delivery of multimedia and e-commerce.

Proposals will be evaluated on the following criteria:

9. Company profile
10. Familiarity with the technological infrastructure of the School of Music and the University of Michigan
11. Quality and quantity of experience delivering multimedia content over the web
12. Extent of experience in various publication tasks including managing the production process, peer review, and media encoding.
13. Preference will be given to companies that can complete the redesign during the time period January 15 - July 1, 2005.