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Digital sheet music – Market, use cases, and related technologies

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Digital sheet music – Market, use cases, and related technologies

INTERNATIONAL
ELECTROTECHNICAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**DIGITAL SHEET MUSIC – MARKET, USE CASES,
AND RELATED TECHNOLOGIES**

FOREWORD

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IEC TR 63020, which is a technical report, has been prepared by technical area 10: Multimedia e-publishing and e-book technologies, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
100/2540/DTR	100/2648/RVC

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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INTRODUCTION

Music notation was invented more than 3 000 years ago. As it was with books, the first and biggest technological change was introduced by the invention of the letterpress in the 14th century. Since then, sheet music technology has changed only insofar as the information age and the rise of digital media have changed all media. Specific applications of technology to sheet music are still in the very early stages. Various technologies and standards exist or have been proposed as standards. Some technology, such as MusicXML [3][1], succeeded in introducing the concept of interoperability and data compatibility to the industry, but most technologies provided little consideration for interoperability, compatibility with data and processes, or standardization for quality. In this context, the sheet music industry hasn't yet been able to offer mature digital sheet music to the market.

This Technical Report starts by reviewing the current industry and the use cases around sheet music. It then catalogues the technologies currently available in the area of digital sheet music. Finally, the report combines these two aspects to illustrate the huge potential to improve digital sheet music technology as well as the added value that standardization offers.

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[1] Numbers in square brackets refer to the Bibliography.

DIGITAL SHEET MUSIC – MARKET, USE CASES, AND RELATED TECHNOLOGIES

1 Scope

This Technical Report (TR) provides information related to digital sheet music. It starts with a brief overview of the sheet music market and then explains the use cases for traditional sheet music as well as additional use cases for digitized sheet music (digital sheet music). Finally, it shows examples of each area of technology areas.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 10744:1997, *Information technology – Hypermedia/Time-based Structuring Language (HyTime)*

ISO/IEC 14496-23:2008, *Information technology – Coding of audio-visual objects – Part 23: Symbolic Music Representation*

ISO 8879:1986, *Information processing – Text and office systems – Standard Generalized Markup Language (SGML)*

ISO 15836:2009, *Information and documentation – The Dublin Core metadata element set*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
score
collection of musical notations of different musical instruments for a musical composition

3.2
sheet music
piece of paper, sometimes bundled in a book or booklet, with musical symbols printed on it

4 Overview of the sheet music market

4.1 Market relevance

Very little information is publicly available on the market size of the sheet music industry. According to IBISWorld, the sheet music market in the United States in 2013 was 345 M USD. There is no verified or widely-accepted market size number for the sheet music global market. Using the number for the US market, this report assumes the global market size of the sheet music industry is 500 M to 700 M USD. The musical instrument market and music playback/performance markets are closely related to the sheet music market, and they generate 16 B USD and 16,5 B USD, respectively. Sheet music, musical instruments, and playback/performance are equally important in music, but the sheet music industry is the

smallest of the three. By enhancing the value of sheet music using the latest technology, the sheet music industry has a good chance to grow.

4.2 Use cases for the sheet music market

Major use cases for sheet music are listed in Table 1. These use cases are categorized into three groups, i.e. authoring, distribution, and consumption.

Table 1 – Major use cases for sheet music

Category	Use case label	Use case details
Authoring	Compose	Compose songs. Compositions can be as simple as a one bar jingle for advertisement to full-scale orchestral compositions. Traditional composers typically use pen and manuscript paper along with musical instruments while composing. However, composing on computers (desktop music) has also become common.
	Arrange	Arrange songs. "Composing" usually refers to creating an original musical work. On the other hand, "arranging" is to transform original music into other forms, such as creating variations, adding/subtracting parts for different sets of instruments, as well as the changing of the musical style. Arrangers and composers have the same requirements for sheet music.
	Engraving	Composers and arrangers cannot necessarily create playable sheet music. Their handwriting can be hard to read and the layouts of notes and bars won't always consider playability. Musical engravers turn the musical works of composers and arrangers into commercially-viable and musically-playable sheet music.
Distribution	Print	Printing music commercially. Traditional music publishers use a variety of paper sizes to print music. Not only have they not adopted paper size standards like letter or A4, but they haven't even standardized on a paper size amongst themselves. While these commercial publishers use non-standard sizes that are usually bigger than letter or A4, non-commercial printing is typically done on personal printers using standard sizes: letter or A4.
	Publishing	Sheet music is published as a single piece or as a bundled book. Sheet music pieces usually come with a simple front cover. Music books sometimes contain full color photographic pages, such as a scene for a musical. The music is usually printed in black, though is sometimes in color, especially for children's music. Publishers have their preferred musical font. Sheet music for children and beginners tend to be in larger music fonts.
	Cataloguing	Major music publishers issue regular, periodic catalogs (usually annually) for their customers. Typically, sheet music pieces listed by genre and then by name. Each entry contains the cover page image, arrangement, price, difficulty, etc. Recently, music publishers provide the same information on their websites which offer a more effective way for customers to search and find the music they want.
	Purchase / Delivery	Sheet music is typically sold at a bookstore or musical instrument shop. It is also becoming common to purchase sheet music online. Sheet music is delivered in physical form to users.
	Marketing	The sheet music market is small compared to other media markets. Therefore, sheet music marketing activity is generally inconspicuous. However, timing is very important in sheet music marketing. For example, when a song hits a top chart, or is featured in a popular movie, the sheet music should be available soon thereafter.
	Rental	Sheet music rental is common for modern classical pieces, where the number of copies to be sold will not meet a commercially viable number.
	Rights management	Copyright plays a major part in rights management for sheet music. Beside those laws and regulations enforced by governments, there are other rights based on private contracts, such as marketing territory issues. Both legal and private contracts should be considered in sheet music businesses.
Consumption	Perform	Performers play sheet music. Sometimes sheet music is rearranged or photocopied for smooth performance. For example, a photocopy of the next page might be added next to a page to avoid a busy page turn. Photocopying can also be used to enlarge the music for easier reading. Finally, printed or copied pages from a book are also used for easier handling.