# TROMPA

TROMPA: Towards Richer Online Music Public-domain Archives

# Deliverable 6.3

## Working Prototype for Music Scholars v2

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# Executive Summary

The main entry point to TROMPA for Music Scholars is the Digital Score Edition (DSE) component (see Deliverable 5.2), which has a role at various points within TROMPA. This gives access to TROMPA scores and other resources for display and interaction of various kinds (including playback of audio and video recordings). Users are able to search for works within the Contributor Environment via faceted metadata search, and visually display encoded scores stored as MEI files. The DSE offers normal functions for display, such as scroll and zoom, and for navigation, such as next/previous page commands.

## Digital Score Edition component (DSE) and Music Scholars

Users of the DSE can enter and view annotations to any note or measure of music in a score, and these may be made public to all viewers of the score in question, or reserved for private purposes by the user or a selected group of users. This is enabled by storing annotations in Personal Online Datastores (PODs - see **D5.1-TROMPA Data Infrastructure**) implemented by the W3C Solid platform, allowing users to retain ownership of their data up until the point of (voluntary) publication to the TROMPA Contributor Environment.

The following features of the DSE of special interest to Scholars are summarised here:

- **Selection**, from TROMPA resources registered in the Contributor Environment (CE), of an encoded score in MEI format, via metadata (composer, title, date of composition, etc.) (2.1.1, below)
- High-quality zoomable **display**, with navigation controls, of the selected score (2.1.2)
- **Score annotation** of measures, notes or other visible elements (dynamics, expression marks, lyrics, other text) (2.1.3). Such annotations can form the basis for discussions with a user group, or provide materials for a discourse which might be worked up into a scholarly presentation or published output.
- Flexible **annotation types** (free text, direct links to other resources, annotations of pre-existing annotations) (2.1.4)
- Selection of TROMPA **resources to be linked** as annotations (scores, recordings, videos, etc.), and their dynamic display within the same interface (2.1.5)
- Control of **annotation ownership** and visibility (private, group, public) (2.1.6)

## Working prototype: Showcase on Mahler's 4th symphony

The symphonies of the Austrian composer Gustav Mahler (1860-1911) are of huge interest to music scholars owing to their immense influence on other composers of later generations, and are also amongst the most popular in the orchestral repertory. They guarantee full audiences wherever they are performed, and are the subject of innumerable recordings made over more than a century since the composer's death. One characteristic is their expansive scale, involving large orchestras, and the lengths to which Mahler attempted to convey the emotional content of these vast works in expression marks inserted into the scores as directions to conductors. In the case of the 4th symphony, we are fortunate that Mahler's younger contemporary, the Dutch conductor Willem Mengelberg (1871-1951), has left his own copies of the symphonies with detailed annotations of Mahler's own comments made during the composer's visits to conduct the works in Amsterdam. It is of obvious scholarly interest to compare these markings with the original printed scores (and other

sources, such as the autograph manuscript). Our showcase on the 4th symphony shows how such comparisons can be displayed within the DSE, discussed by annotating the digital score, and further enriched by comments on those annotations (annotations of annotations).

## Two evaluation exercises: Mahler and Early Music.

We shall further be carrying out two evaluation exercises during TROMPA's final two months, one on Gustav Mahler's 4th symphony, the other on Early Music. These are intended to engage members of the public and to offer some understanding of the way scholars carry out musicological investigations, beyond the primary aim of evaluating the useability of the DSE interface. They also will give users important insights into the types of source material with which scholars work.

In the case of Mahler, references to the different states of the published score, manuscript copies (including the autograph MS) and contemporary arrangements, will show the task faced by a scholar or conductor in considering what to use as a basis for their own interpretation. In the Early Music case, it will be possible to consult a range of modern editions of a work, but also original source material, which is often extremely different in appearance from a modern score.

For the Early Music evaluation, we shall further enable Music Scholars to interrogate a musical-content-based full-text search service using a passage of music selected in the DSE as query. To construct a query we extract, from the MEI of a musical passage selected by the user, sequences of notes encoded in the format required by the search engine, and send this as a JSON request; the returned results will be presented to the user as a list of matches within the DSE. Users will also be able to explore musical similarities of whole pieces, pages or shorter passages between the scores of 16th-century vocal music already registered within the CE for the Choir Singers use case.

| Version Log | | |
|---|---|---|
| # | Date | Description |
| v0.1 | 17 February 2021 | 1st draft version |
| v0.2 | 23 February 2021 | 2nd version after review |
| v1.0 | 28 February 2021 | Final version |

# Table of Contents

# 1. Introduction

This document describes the background to, and the development of, a working prototypical app using TROMPA tools and resources to demonstrate how they can be used to serve the interests of Music Scholars. (This community is to be understood as including non-professional experts, such as non-academic music researchers, as well as professional musicologists and university teachers.) From the outset we knew that interactive display of fully digitised scores and the ability to annotate them flexibly with comments were two important requirements of the design. For this reason we base what follows on the current technical state of the Digital Score Edition component (DSE; see **D5.2-Score Edition Component**[1]), which is at the heart of most of the interactions between Music Scholars and the TROMPA framework, supported by the TROMPA Annotation Tools (**D5.5-Annotation Tools**[2]). In particular, it shows how the DSE as now developed enables users without high levels of computer skill to annotate and comment on a musical score and its recorded performances, and also to reply to or comment on annotations previously made by others. These annotations may be kept private by their 'owner' or shared publicly at user choice, thanks to the universal adoption in TROMPA of the W3C Solid platform (described in the 2nd version of **D5.1-Data Infrastructure**[3]). The annotations themselves may comprise or contain links to other scores, images, web-documents, or to audio or video recordings cued precisely to a required time within the performance.

The prototype consists of an implementation of the DSE with fully-featured annotation facilities built on low-level interaction with the TROMPA Contributor Environment (CE; see D5.1), and ensuring data-security by taking advantage of the affordances of the Solid platform. This has been done within TROMPA's instantiation of the MELD (Music Encoding and Linked Data) multimedia framework (see D5.2, section 3), enabling a wide range of annotation types and other forms of linkage, with a particular emphasis on the advantages of the MEI (Music Encoding Initiative) encoding format for musical scores, as required by Music Scholars for most purposes.

At an earlier stage of our planning, before the COVID crisis of 2020-21, we had intended to develop a working demonstrator program, or prototype, to be used to build crowd-sized communities for our use-case who would interactively work on tasks such as OMR error-correction. However, as became clear during plenary discussions at various early TROMPA project meetings, this is not an appropriate model for Music Scholars, since (a) the numbers involved was likely to be well below the 'crowd' necessary to develop a product-style prototype, and (b) the requirements and activities of scholars are very largely unpredictable, varying with the topic of their investigations, while any such demonstrator program could only focus on a single task out of an indefinite range of possibilities.

Furthermore, we had intended to show how Music Scholars will make use of the DSE and other TROMPA facilities in two example showcases, one of which was to be a public event on Mahler's symphonies to be held in Amsterdam. However, due to lasting effects of the COVID pandemic on our development plans, and the cancellation of Amsterdam's Mahler Festival (planned for May 2020) it was decided that we should focus on producing a more sophisticated version of the DSE incorporating the functionality appropriate for a purely virtual version of the Mahler event, and run

[1] https://trompamusic.eu/deliverables/TR-D5.2-Score_Edition_Component_v2.pdf
[2] https://trompamusic.eu/deliverables/TR-D5.5-Annotation_Tools_v2.pdf
[3] https://trompamusic.eu/deliverables/TR-D5.1-Data_Infrastructure_v2.pdf

a user-facing test of the capabilities of the software as a showcase during TROMPA's concluding evaluation phase (months 35-6). The versatility of the DSE's GUI and its integration with other TROMPA components will now be further demonstrated in a second similar evaluation on selected items of Renaissance vocal music, closely coordinated with repertory choices made in the final stages of the Choir Singers Use Case.

## 1.1 Music Scholars

The term Music Scholars is used within TROMPA to mean experts in any particular musical repertory, its sources and the various contexts in which music has been composed and performed: historical, religious, social, political, cultural. This includes professional academic musicologists as well as non-professionals, who often possess high levels of expertise, but lack formal training or qualifications. Although not a main focus of TROMPA, teaching is often an important role for this category of users (especially the professional musicologists), and the project's resources and tools have good potential for exploitation in future music pedagogy.

## 1.2 Digital Score Edition

The main entry point to TROMPA for Music Scholars is the Digital Score Edition (DSE) component (see D5.2), which has a role at various points within TROMPA. (It is not a music editor, per se, but rather a highly featured display interface.) This gives access to TROMPA scores and other resources for display and interaction of various kinds (including playback of audio and video recordings). Users are able to search for works within the Contributor Environment via faceted metadata search, and visually display encoded scores (stored as MEI files, usually converted from MusicXML - MEI offers several types of functionality not present in MusicXML which TROMPA exploits heavily in its data modes and other aspects). The DSE offers normal functions for display, such as scroll and zoom, and for navigation, such as next/previous page commands.

The Mahler use-case described below in 1.4 will be used in the working prototype of the DSE, which is demonstrated in the accompanying showcase video[4] illustrating the various ways in which the interface can be used to annotate a score and comment upon existing annotations. In the final, evaluation, phase of TROMPA, the same interface software will be used in a public release engaging with two contrasting musical repertories (expression marks in Mahler's 4th symphony, and 16th-century choral music) the main goal of the evaluation being to assess useability of the interface in these very different cases.

## 1.3 Annotations

A important feature of the DSE for Music Scholars made possible by TROMPA's data model and facilitated by the use of Web Annotations, MEI, and Linked Data using the MELD framework, is the facility to enter and view annotations to any note or measure of music in a score. These may be made public to all viewers of the score in question, or their visibility reserved for private purposes by the user or a selected group of users; this is enabled by storing annotations in Personal Online Datastores (PODs; see D5.1) implemented by the W3C Solid platform, allowing users to retain ownership of their data up until the point of (voluntary) publication under public license to the TROMPA Contributor Environment. Such annotations can form the basis for discussions with a user group, or provide materials for a discourse which might be worked up into a scholarly presentation or published output.

[4] https://trompamusic.eu/demos/scholars

## 1.4 Use case: Tempo and expression marks in Mahler's 4th symphony

To demonstrate the unique advantages offered to Music Scholars by the DSE, we devised a specific use case to show the versatility of the design of the interface. This is described in detail in Section 3, below, and forms the platform for the video demo referenced there, which uses a set of annotations, provided for us by a Mahler expert, on the unusual tempo and expression marks in the first 100 measures of his 4th symphony. This will be released publicly, inviting interested users to submit their own annotations and comments, during the TROMPA evaluation phase (months 35-36); at the same time we shall carry out an online evaluation of the same interface, but this time using user-selectable scores of a contrasting repertory, 16c Renaissance polyphonic vocal music.

# 2. Main functionalities of the prototype

## 2.1 Main functionality of the Music Scholars working prototype

The Music Scholars Use Case makes extensive use of the Digital Score Edition interface (DSE; described in **Deliverable 5.2 - Score Edition Component**. This is based on a prototype 'Selectable Score' interface developed by MDW and UPF with GOLD. The following features of the DSE of special interest to Scholars are summarised here:

- **Selection**, from TROMPA resources registered in the Contributor Environment (CE), of an encoded score in MEI format, via metadata (composer, title, date of composition, etc.) (2.1.1, below)
- High-quality zoomable **display**, with navigation controls, of the selected score (2.1.2)
- **Score annotation** of measures, notes or other visible elements (dynamics, expression marks, lyrics, other text) (2.1.3)
- Flexible **annotation types** (free text, direct links to other resources, annotations of pre-existing annotations) (2.1.4)
- Selection of TROMPA **resources to be linked** as annotations (scores, recordings, videos, etc.), and their dynamic display within the same interface (2.1.5)
- Control of **annotation ownership** and visibility (private, group, public) (2.1.6)

### 2.1.1 Selection of scores from the Contributor Environment

- Managed by low-level interaction (transparent to the user)
- Faceted search via metadata, with intuitive hierarchical-choice interface

### 2.1.2 Score display

- High-quality rendering using the Verovio MEI display javascript library
- Zoom, with automatic page-reformatting
- Navigation controls

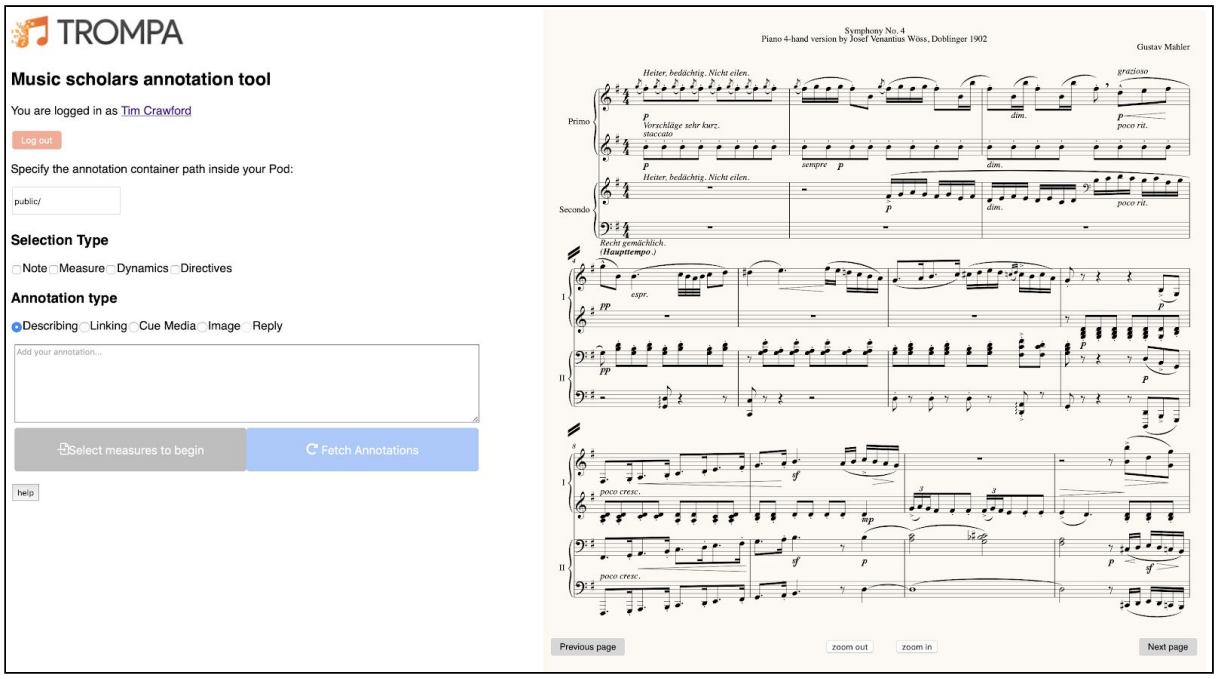


**Figure 2.1.** Normal default zoom on opening a score; buttons are provided to turn to 'Next' or 'Previous' page

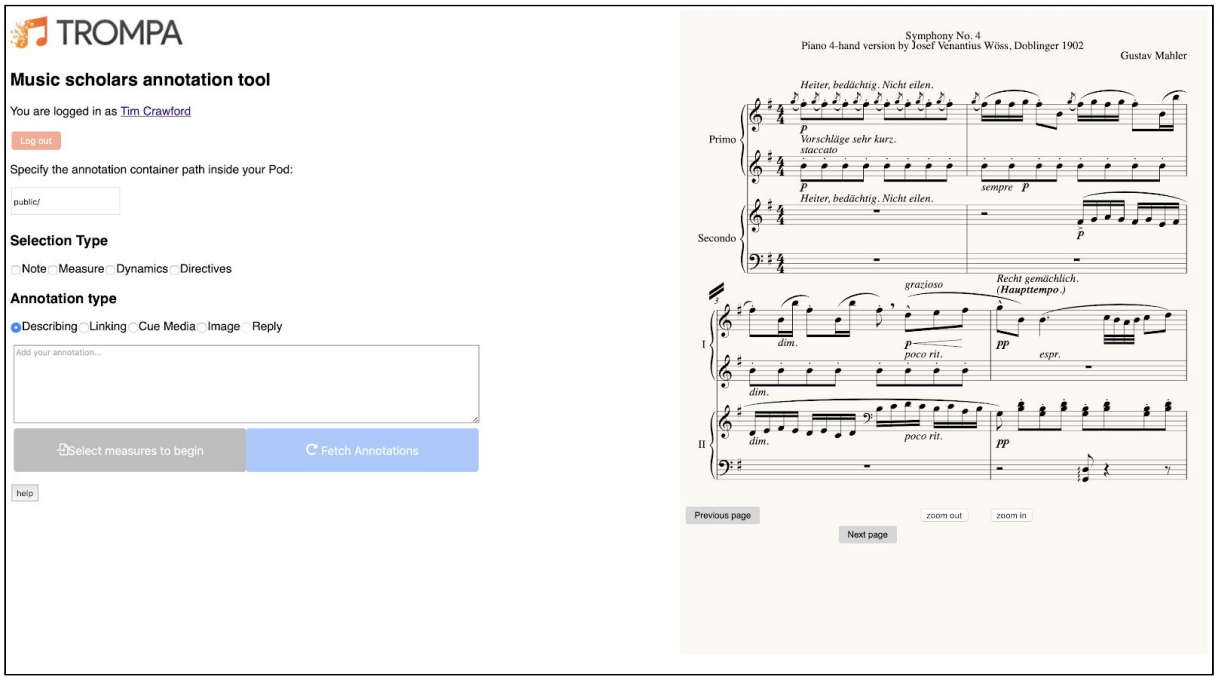


**Figure 2.2.** Score zoomed in for work at a more detailed level showing two measures per system; note that the music has 'wrapped round' correctly

### 2.1.3 Score annotation

- User-selectable range of types of visible score-elements to be annotated

- Selection and annotation of score-elements either by clicking on individual elements or with ‘marquee’ selection by dragging

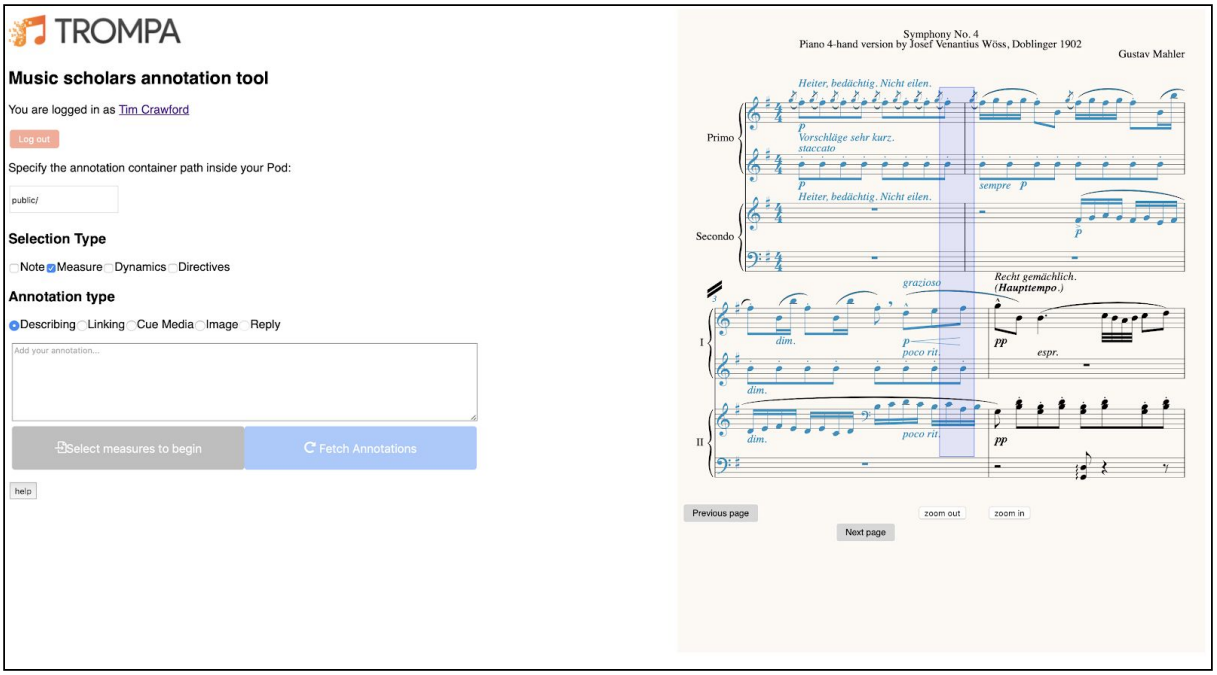


**Figure 2.3.** All elements within three complete measures (highlighted in blue) have been selected by the user dragging across them with ‘Measure’ chosen as Selection Type

## 2.1.4 Choice of annotation type

- Annotation types may be simple textual comments, or might include links to other TROMPA resources, to external resources, or to other annotations


**Figure 2.4.** The user can choose from a list of selection and annotation types.Lock/unlock sliders indicate the level of access granted by the author.

## 2.1.5 Selection and dynamic display of TROMPA resources as annotations

- Annotations linking to media (audio/video, cued to a given start-time) and their display within the main interface
- Selection of media from TROMPA resources

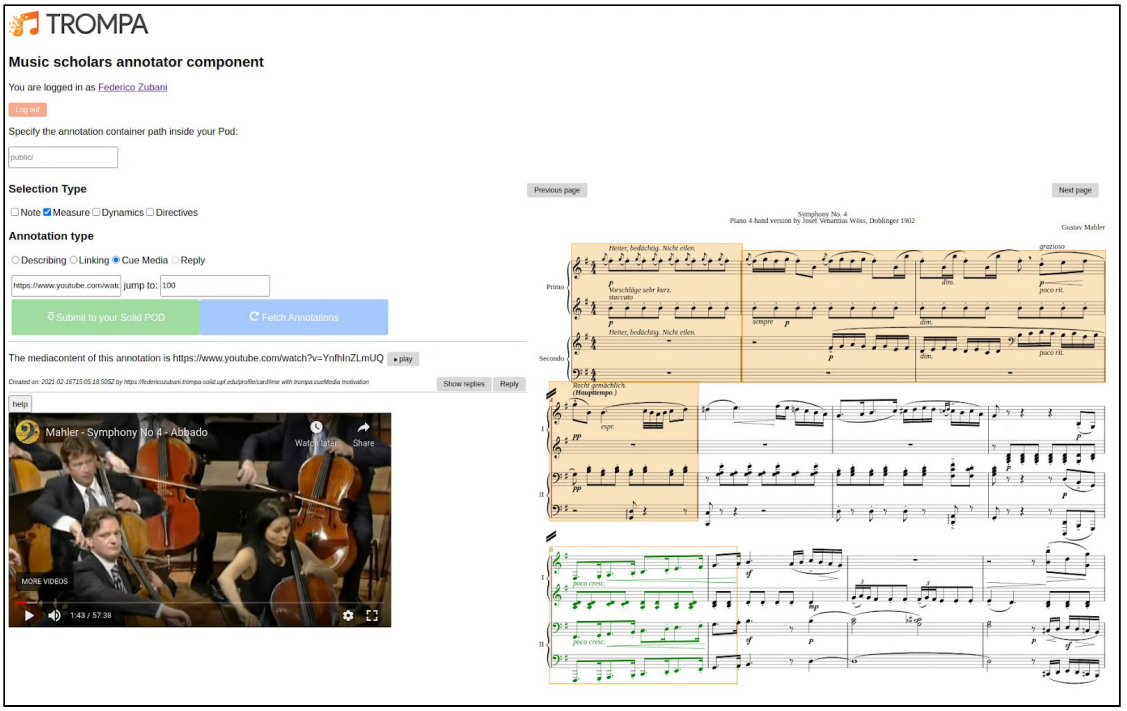


**Figure 2.5.** Measures 1-4 are linked to a video performance displayed within the interface..

## 2.1.6 Control of annotation ownership and visibility

- Personalised control of public/private annotations
- Sharing (group, public)
- Solid integration; annotations stored in user's POD until 'published' (see Fig. 4)

# 3. Showcase: Mahler's 4th symphony

## 3.1 Mahler's symphonies and the Dutch legacy

The symphonies of the Austrian composer Gustav Mahler (1860-1911) are of huge interest to music scholars owing to their immense influence on other composers of later generations, and are also amongst the most popular in the orchestral repertory. They guarantee full audiences wherever they are performed, and are the subject of innumerable recordings made over more than a century since the composer's death. One characteristic is their expansive scale, involving large orchestras, and the lengths to which Mahler attempted to convey the emotional content of these vast works in expression marks inserted into the scores as directions to conductors. In the case of the 4th symphony, we are fortunate that Mahler's younger contemporary, the Dutch conductor Willem Mengelberg (1871-1951), has left his own copies of the symphonies with detailed annotations of Mahler's own comments made during the composer's visits to conduct the works in Amsterdam. It is of obvious scholarly interest to compare these markings with the original printed scores (and other sources, such as the autograph manuscript). Our showcase on the 4th symphony shows how such comparisons can be displayed within the DSE, discussed by annotating the digital score, and further enriched by comments on those annotations (annotations of annotations).

## 3.2 DIgital annotation and the 4th symphony

We have assembled a group of internationally respected Mahler experts assembled by Dr Paul Banks (London) who have been considering the detailed tempo and expression marks in the 4th symphony. These markings are mostly in German, and sometimes idiosyncratic, showing Mahler's intense desire to ensure the maximum expressive impact in performance. As such, they cannot always be easily translated into other languages, such as English or Dutch, and a variety of interpretations due to differing scholars' opinions is to be expected. Similarly, there is little uniformity between conductors' recorded interpretations. For our purposes, Paul Banks and Tim Crawford created a spreadsheet which links Dr Banks's comments on a selection of the expression marks in the first ~100 measures of the symphony with locations within an encoding of the score in MEI; because of the great amount of vertical screen-space occupied by a full score, the actual score we use for display within our app is of the same extract from the symphony in a piano-duet arrangement made by Wöss under Mahler's direction in 1902.

For the evaluation phase of TROMPA (months 35-36), we will unveil a use-case to explore the range of the textual and musical interpretations, and allow non-expert listeners to express their own opinions, based on what they read of the scholars' work and hear in the recordings. Listeners will be asked to record their reactions to different recorded performances, most of which are exclusive to TROMPA, to see how they feel the different conductors have realised Mahler's intentions, based on what the scholars reveal about the tempo and expression marks in various versions of the score (which exhibit varying degrees of the composer's authority).

# 4. Integration with other TROMPA WPs

## 4.1. Relation with TROMPA WP3

| WP3 tasks | Integrated in prototype v1 | Integrated in prototype v2 |
|---|---|---|
| Music description | n/a | n/a |
| Audio processing | n/a | n/a |
| Visual analysis of scores | n/a | x |
| Alignment of musical resources | n/a | x |
| Multimodal cross-linking | n/a | n/a |

### 4.1.1 Visual analysis of scores and Alignment of musical resources

Although the original intention had been to provide score-viewing from PDF files as well as from MEI-encoded scores, it was decided that the latter gave more opportunity to show the capabilities offered to Music Scholars of the TROMPA system as a whole. While alignment of PDF pages to an MEI score to enable automatic page-turning, etc., is possible and has been used in other MELD applications, our main focus has been on the provision of annotation facilities for Music Scholars.

## 4.2. Relation with TROMPA WP4

| WP4 tasks | Integrated in prototype v1 | Integrated in prototype v2 |
|---|---|---|
| Crowd-powered improvement | n/a | n/a |
| Annotators | n/a | x |
| Incentivisation of TROMPA crowds | n/a | n/a |
| Campaign design | n/a | n/a |

### 4.2.1 Annotators

Users can annotate scores by inserting comments, links and other cross-references, and these are linked to their locations within the MEI encoding so that a visual indication of their presence and nature can be displayed. It is also possible to 'annotate' an existing annotation, as a means of continuing a scholarly discourse about questions that may arise. The 'ownership' of all annotations is under the control of their contributor until the point at which they are 'published'; this is enabled by the use of the W3C Solid platform as mentioned above in Section 1.3.

## 4.3. Relation with TROMPA WP5

| WP5 components | Integrated in prototype v1 | Integrated in prototype v2 |
|---|---|---|
| Score edition component | x | n/a |
| Processing library | n/a | x |
| Multimodal integration | n/a | x |
| Performance assessment | n/a | n/a |
| Annotation tools | n/a | x |

### 4.3.1 Processing library

One way in which Music Scholars can take advantage of the exclusive facilities of the TROMPA environment is by making calls to certain components of the CE TROMPA Processing Library[5]. To demonstrate this, during the TROMPA evaluation phase (months 35-36), we shall enable Music Scholars to interrogate the API (external to TROMPA) of a musical-content-based full-text search service using a passage of music selected in the DSE as a query. The external service we shall use, F-TEMPO,[6] strongly related to the Early Music use-case described above (Section 3.2), currently holds indexes for about half-a-million pages of 16th-century printed music, representing a significant proportion of the musical repertory of the age. To construct a query a simple CE Processing Library script extracts, from the MEI of a musical passage selected by the user, sequences of diatonic intervals encoded in the alphanumeric format required by F-TEMPO, and this is sent as a JSON request (with certain parameters) to F-TEMPO's API; then the returned results (also in JSON) are parsed and presented to the user as a list of matches within the DSE. This requires the implementation of some simple string-processing routines within the CE Processing Library and a workflow for handling them (see Fig. 6). This will be in place for the TROMPA evaluation phase (months 35-36).

We shall also run F-TEMPO's indexing methods (or a customised adaptation of them) over MEI or MusicXML files of other music repertories represented in the CE, so that musical similarities of whole pieces, pages or shorter passages between certain categories of works in the TROMPA CE can be investigated by Music Scholars and others. The chosen repertory for this will be the scores of 16th-century vocal music already registered within the CE for the use of the Choir Singers use case.


**Fig. 4.1**. Workflow for queries to external API from a score displayed within TROMPA

[5] https://trompamusic.eu/deliverables/TR-D5.3-TROMPA_Processing_Library_v2.pdf
[6] f-tempo.org

### 4.3.2 Multimodal integration

Users can select from the resources of TROMPA's Contributor Environment by means of a dialog interacting to provide searches through the CE's multimodal component. This includes both scores for display/interaction within the DSE and example files (images, audio or video recordings) which can be shown or excerpted in the interface.

### 4.3.3 Annotation tools

Users are now able to annotate scores by inserting comments, links and other cross-references, and these are linked within the CE to locations in the MEI encoding so that a visual indication of their presence and nature can be displayed onscreen. They can also 'annotate' an existing annotation, as a means of continuing a scholarly discourse about questions that may arise. The 'ownership' of all annotations is under the control of their contributor until the point at which they are 'published'; this is enabled by the use of the W3C Solid platform as mentioned above in Section 1.3.

# 5. Adjusted target audience and user-evaluation

We have altered our plans to focus on a public release of the DSE and the working prototype described herein. We shall further be carrying out two evaluation exercises during TROMPA's final two months, one on Gustav Mahler's 4th symphony, the other on Early Music.

These are intended to engage members of the public and to offer some understanding of the way scholars carry out musicological investigations, beyond the primary aim of evaluating the useability of the DSE interface. They also will give users important insights into the types of source material with which scholars work. In the case of Mahler, references to the perhaps surprising number of different states of the published score that exist for his 4th symphony, as well as various manuscript copies (including the autograph MS) and contemporary arrangements, will show the often complex task faced by a scholar or conductor in considering what to use as a basis for their own interpretation. In the Early Music case, it will be possible for the first time to consult not just a range of modern editions of a work, but also, in many cases, representative examples of the original source material, which is often extremely different in appearance from a modern score.

## 5.1. Initial target audience & recruitment strategies

Participants for the software user testing will be recruited from both TROMPA's social media dissemination accounts as well as word-of-mouth advertising by the team at Goldsmiths. At the time of writing, five participants have already voiced interest in participating, with a goal of ten to fifteen for a final sample between both the Mahler and Early Music evaluations. Individuals who volunteer for the study will participate in a one hour long focus group with 2-3 people per session where, after providing informed consent, they will be given a brief introduction to the software interface, then given several tasks that require them to engage with the user interface. After attempting each task, meant to understand the usability of each feature, participants will fill out a short survey taking quantitative measures of aspects such as usability and design, then meet to give further qualitative feedback. Participants will only need access to a web browser and video conferencing software. Below we list a brief overview of the tasks for both the Mahler and Early Music studies.

For each evaluation we shall ask participants to carry out a similar sequence of tasks, one of which will be specific to the use-case. For both cases, users will be asked to log into the interface (with a new Solid POD if needed), and become familiar with the DSE interface using its tools to navigate the default score (page zoom, page turn). They will be asked to create an annotation on a pre-existing one (a 'Reply'), and make their own independent annotation (testing the user experience of the DSE), which they will then be asked to make private (testing the user experience for Solid interaction).

The differences between the cases are in the selection of scores for viewing/annotating. In the Mahler case, the score will be pre-loaded with a set of annotations based on those provided by Dr Paul Banks, including references to various audio recordings and other external links. Participants will be asked to create a response to one of these before they create their own free annotation. For the Early Music case, as well as some minimal annotations in the default 16c vocal music score on which they will base their own, several other similar scores will be available to choose via the CE, on one of which they will be asked to create an annotation and make it public, as above.

For the Early Music evaluation, we intend to further enable Music Scholars to interrogate a musical-content-based full-text search service using a passage of music selected in the DSE as query.

To construct a query we extract, from the MEI of a musical passage selected by the user, sequences of notes encoded in the format required by the search engine, and send this as a JSON request; the returned results will be presented to the user as a list of matches within the DSE. Users will also be able to explore musical similarities of whole pieces, pages or shorter passages between the scores of 16th-century vocal music already registered within the CE for the Choir Singers use case. We shall invite informal responses to this additional feature.

Both use cases will have a continuing online presence as features of TROMPA, linked from the main website, and we shall actively promote them via social media and blogs, to recruit many more users to try them out.

## 5.2. Useability and the TROMPA interface

The main goal of our evaluation is to determine the extent to which non-technical users (that is, those without computing expertise) find the interface and its operation intuitive and easy to understand. Throughout the design and development process, we have endeavoured to avoid unusual modes of operation (special key-strokes and codes, etc). However, it is possible that many operations which have become familiar and obvious to us as developers are non-obvious to our typical users; we have tried to eliminate these as far as possible.

An example is the choice of a score to display: initially, a simple text-box was provided into which a URL link to an MEI file needed to be entered (a default URL was provided, but any different file needed to be accessible via the http protocol). At a further stage of development, scores could be selected directly from the Contributor Environment, requiring the understanding and use of the GraphQL data query language which was not designed for normal user-interaction. In the final release of the DSE, corresponding to this working prototype, this has been replaced by an intuitive display of TROMPA score-resources organised hierarchically by generic headings (composition type, composer, title, date of composition, etc.), from which items can be selected, which sends the appropriate GraphQL query to the CE.

# 6. Conclusion

In this document we have described the working prototype for Music Scholars built on the Digital Score Edition (DSE) component to show some of the investigative possibilities TROMPA offers to Music Scholars. The prototype is demonstrated in a video showing its main features and the way in which it can be used to annotate a score, or comment upon existing annotations, without assuming any technical (computer) skill on the part of the user. The prototype and the video use the opening of Mahler's 4th symphony as the score example, but the release version of the DSE software will allow choice of any MEI-encoded score from the TROMPA Contributor Environment. During the final evaluation phase of TROMPA (months 35-6) we shall be conducting two user surveys to test the usability of the software for Music Scholars in two contrasting music types: the same Mahler extract will be used to investigate the annotation of certain features of the score and their historical performances by leading conductors, allowing users to add their own comments on the emerging discourse around Mahler's idiosyncratic expression marks; in the other survey, based around a repertory of 16th-century choral music related to the Choir Singers use case, users will be encouraged to enter, comment upon and discuss the nature of the scores, the editions from which they derive and the original printed sources of the music. Furthermore, in the latter case, they will be able to query an external music database to find instances of music (either complete voice parts or short note-sequences) selected within the TROMPA interface in the original 16th-century printed sources.