## Don’t forget about MIDI! A case study of an innovative church organ recording

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Abstract

What is the best way to record that big beast? This issue is central to many of us who have faced the challenge of recording one of the perhaps most traditional of all musical instruments: Church Organ. In this project modern music production technology innovatively was used to record a church organ. The primal purpose of the recordings was to make a documentation of how the recorded church organ sounds after a major renovation. One problem was that disturbing road noise from traffic close to the church made it very difficult to record in the daytime. Therefore, the recordings were done in the night when the surroundings were more silent. MIDI technology was used during the production work in an innovative way solving some of the production problems. Instead of playing the music live during the recording sessions, the music was first recorded digitally in music production software using midi sequencer software. During the actual acoustic recordings, the organist, instead of playing live, started playing back the pre-recorded MIDI-files live in the organ. And all the music was recorded acoustically for one night. The recordings resulted in a CD-record that is a true documentation of how the organ sounds live, even though the recordings actually were programmed over a long time. This technology opens up for innovative options for e.g. future compositional work or artistic performances. Experiences from this project also emphasizes the importance of developing collaborations where art and technology can strengthen each other. Another important experience is that it is fruitful if different team members' skills clearly overlap and that they need to collaborate to achieve favorable results.

**Keywords:** Church Organ; MIDI, Music Production: Sophia

## Introduction

It was one of those autumn evenings when the leaves begin to fall from the trees and the chilly winds clearly show that summer is over. But we were warm inside. We had spent the evening at the old EMI studio in Skärmarbrink exploring a newly developed innovative speaker design. On the way down to the subway, we started talking about how some individuals are very important to many others. Bill told me about his meeting with George Martin, the music producer who sometimes is called the fifth member of the Beatles. There is no doubt that George Martin was very important for the Beatles and their success. And the Beatles was very important for Bill and for so many others in his generation and also for me and to so many more.

When individuals are of great importance to many others, such as George Martin for the Beatles, John Culshaw for the record label Decca or Bill Brunson for the Royal College of Music (KMH) is it not infrequent that their work is done with some distance from the strongest spotlights and often without making so much attention. Thus, even though their immediate coworkers and others with insight into what they really are doing fully understand their great importance, they can pass more or less unnoticed in the surrounding community (Burgess, 2014; Culshaw,1982; Martin, 1979; Östman, 2018).

Perhaps it is common for those, who are of great importance to many others, to be more interested in creating and developing things or making change than banging on big drums or sending tweets telling others how excellent they are. Perhaps it is also the case that many of those who are of great importance to many others, above all, have created, developed and changed things together with others. Also, that their true expertise is their ability to make others in a team grow and perform well.

What best characterizes the form of expert knowledge that is the ability to get others in a team to grow and perform well can certainly be described in a variety of ways. Important such qualities appear to be thoughtfulness combined with both creative ability and perseverance and a sense of order and probably also discipline. Anyway, is it clearly more than a single kind of knowledge or ability that is required.

In ancient Greece, different concepts were used for different forms of knowledge such as *Episteme*, *Techne* and *Phonesis* (Aristotle, 2011; Gustavsson, 2000). These three can be translated into contemporary everyday concepts such as: to know; to know how to do and to know when and why to do something (Josefsson, 1998). A similar division is found in contemporary international governance documents for higher education: *Knowledge*, *Skills* and *Competence* (EU, 2005) and from the Swedish Higher Education Ordinance's degree scheme where the objectives are expressed under three main headings: *Knowledge and understanding – Competence and skills – Judgement and approach*. But in addition to the basic forms of episteme, techne and phronesis, in the Greek and Hellenistic tradition, there are also more precise forms of knowledge, skills and abilities. One such is *Nous*, which can be understood as the basic understanding or awareness that allows human beings to think rationally, and sometimes equated to intellect or intelligence and is also understood in a similar way as the concept of [intuition](https://en.wikipedia.org/wiki/Intuition_(philosophy)). Another interesting concept is *Sophia* meaning wisdom, or sagacity. It is the ability to think and act using knowledge, experience, understanding and reason. And a reasonable assumption is that those who have the ability to make others in a team grow and to perform well has a large portion of the trait that can be summed up as Sophia.

For a few years we have been working at the KMH in a research project: *Searching for Sophia in music production*, where a group of researchers study how various aspects linked to music production have contributed to the Swedish music industry´s international achievements (Gullö et al 2017; Gullö et al 2019; Gullö & Thyrén 2019. The term Sophia is used to summarize the theoretical framework of the project. One of the core aspects we explore is how different co-workers or project members interact in music production activities. An important result of this study is that it seems to be a success factor if different team members' skills clearly overlap. But, also that individual specialization and highly developed skills not are enough. The ability to collaborate is also required to achieve favorable results.

As a part of the Searching for Sophia-project, I conducted a sub-study which was a record production. In this sub-study, we tried to apply the principle of overlapping competencies in a collaborative project. The purpose is therefore to, hereafter in this text, report selected experiences from this record project and also to reflect on how we in future research further can develop methods for music production in the light of the results of this study.

## The recording - and how MIDI sometimes can be surprisingly useful

The background of this sub-study is that the organ was renovated in a church in a small Swedish town. Although the church dates back to the Middle Ages, the pipe organ in the stands was built in the seventies. And during a recent major renovation of the church a new digitally controlled remote console was installed that holds the manuals, pedals, and stop controls. The remote console is connected with the old pipe organ as well as with new digital expansions that incorporate digital components into the pipe organ. Basically, the digital components consist of transposed and processed samples from the original pipe organ played back in multiple loudspeakers placed inside the organ in the stands. The main purpose for the digital expansion was to replace missing pipes in the organ. In some ranks one octave or more were missing, and digital expansions was the most cost-effective way to solve this problem. But any kind of audio samples may be used for playback in the speakers inside the organ.

At the end of the renovation work, just over six months before the organ was officially inaugurated, I was asked to do a record recording that would be ready for the opening. A prerequisite from the organist and the congregation was to make a documentation of how the organ sounds in different registers and dynamics. The repertoire was chosen on the basis of this request.

An observed problem during the music production work was that next to the church there is a busy road and a bridge with loud warning signals. Therefore, it was difficult to record in the daytime. The solution was to record in the night when the surroundings were more silent. But one problem with this procedure would be that all of us involved in the project would need to spend many hours in the middle of the night, perhaps during a week or two to finish the recordings. And that was definitely nothing any of us wanted and also way beyond the project budget. The solution was to use the available technology in the church in an innovative way.

When I asked the organist to describe the technology that was used for communication between the remote console, in the middle of the church, and the organ in the stands he told me: “They’ve told me that it is something called MIDI”. He showed med the 5 Pin DIN MIDI connections on the remote console. Soon we had connected my computer and tested to record the MIDI-information from the remote console. It worked very well. We were able to record all MIDI-information and play it all back in the organ without any problems. Later the same day he installed the software Logic Pro on his own computer and started recording MIDI.

Consequently, instead of playing the music live when we were recording, the music, represented by MIDI-signals, was first recorded digitally in the music production software. This was carried out in daytime during a few production weeks. And during many of these recording sessions the church was open as normal with people walking in and out probably believing that the organist was practicing. But that was not the case. He spent many hours recording, week after week. But not the audio in the church. He only recorded the MIDI signal from the remote console. After each recording, he played back the MIDI-signal of the recorded music through the organ in the stands and listen. He did most of the recordings by himself. We met on several occasions and listened to the recordings. Although it was quite possible to record parts of different works, we decided to only use recordings where the complete pieces or movements were played. This was an ethical choice that we all could agree on.

When we were pleased with the musical results, we recorded the entire album acoustically in one night. During the recordings the organist, instead of playing the organ, started the sequencer program and played back the pre-recorded MIDI-files in the organ. A straightforward stereo microphone technique and a high-quality audio interface and other relevant recording equipment were used during the recordings. The result of the recordings is a CD-record that was published a shortly after all the recordings and editing was completed.

## Reflections

This technology, church organs with MIDI, opens up for new creative opportunities for both composers and musicians. For example, various church organs can be played simultaneously through remote access. Another possibility is to use church organs together with other MIDI-controlled instruments. This project provides a good basis for further artistic experimentation.

Furthermore, this project is an example of how research activities relate to artistic production. Firstly, it was only when we, the musician and the researcher, met and started working together as a team, we could make a plan for the recording project that would work. Secondly, in terms of artistic production it was exploratory because the organist had no previous experience of Digital Audio Workstations and I had very limited experience of present-day church organs. And thirdly, we developed a production method that none of had thought of before the project began. We used our overlapping competences and created new knowledge and a very cost and time effective method for recording organ music.

The project is easy to comprehend and may well be a source of inspiration for others in artistic production. But perhaps even more important is that the results give rise to new research questions. And putting together the traditions of the church organ and organ music with Digital Audio Workstation production techniques is both interdisciplinary by nature and perhaps also challenging the conventions. Furthermore, projects of this type, where different technologies overlap, may us to motivate new creative collaborations. At the Royal College of Music (KMH) there are excellent conditions for new creative collaborations through all the technical resources we have access to. In addition to all our well-equipped control rooms, we have three good concert halls where not least Lilla salen with its speaker dome invites to creative exploration of new artistic possibilities.

An important experience that I have reflected on, after the organ project described above, is that when we collaborate and learn from each other - our skills overlap - and we develop new knowledge. Together we can create innovative art with new technical solutions as well as well-designed educational environments and much more. And what we create together will in most cases exceed what we can achieve on our own. The kind of knowledge that arises we cooperate and perhaps even more when we talk to each other about things that really matters - like that autumn evening when Bill and I had been at the old EMI studio in Skärmarbrink - maybe it's on those occasions we really develop the knowledge, skills and abilities described as Sophia?

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