Acoustical Cultural Heritages at the Centre of Cultural Exchanges. Origins and Distribution Patterns of Organ Building in South-East Europe

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Introduction

With its roots stretching over several centuries, the distribution of the organ offers a rich source of information from which trans-regional cultural exchange is just as visible as political and social events. The classification by UNESCO as an intangible world cultural heritage of Germany (UNESCO, 2017) raises the question of how these cultural artefacts and practices were exported to non-German-speaking countries, and whether there were also retrogressive influences that may have affected the construction and sound. South-East Europe offers an exceptionally interesting region for investigating this question, especially Slovenia, Croatia, Romania, and Hungary. The historical boundaries of the German-speaking area of influence are clearly visible here, but conversely also the influences of South-Eastern organ builders on important Central European developments. Furthermore, the installation of organs in mostly historical buildings is also a point of interest, as it is their acoustic resonance that leads to the unfolding of the intended sound spectrum in the first place. In this sense, the adaptation of the organ sound characteristic of Central Europe to South-Eastern European elements of architecture, which show unique variations depending on the region, will be examined.

Data Acquisition, Data Analysis and Visualizations

To be able to comprehensively answer the questions, all organ builders who were active in the South-Eastern European countries were identified through publicly available information and databases, their life and work data, relations to places, objects, and training centres as well as the identifiers to norm databases and sources were transferred into a consistent database and finally stored on the organological platform musiXplora (Khulusi et al., 2020) under a joint subset. Sources used include Orgbase (Bron, 2022) and Wikidata, as well as digitized archives of organ building companies. From the data sets obtained, it was possible to interactively visualize not only the region-specific statistics, but also the networks of relationships and geographical movements over a period of time; furthermore, it was possible to identify which organ builders had their place of work exclusively in South-East Europe or alternately in Central Europe. In the process, it was also possible to trace the places where the organ builders were trained including the groups of people they worked with. Some related work has been done in our research group regarding the methodology (Khulusi et al., 2016; Jänicke/Focht, 2017).

The acquired information was linked to the available organological data of the organs in order to establish priorities for future comparative acoustic analyses. Higher priority was assigned to organs built by those builders who, on the one hand, fulfilled the criterion of a recognizable exchange between Central and South-Eastern Europe and, on the other hand, carried out organ installations in architecturally varying buildings. The prioritized objects will be considered for a comprehensive digitization into the format of Virtual Acoustic Objects (VAO).

These VAOs can be generated using a framework that is currently being developed within the MODAVIS project (Ukolov, 2022); the virtual objects are composed of multimodal data, more precisely of photogrammetric 3D models of an instrument and the surrounding room, individually recorded sounds and their activation logics, associated interaction data as well as measurements and existing identifiers of the object.

To answer the question of the spectral comparison between the selected objects, however, the focus is on the sound analysis of the different organ stops using the LTAS-method (Kaczmarek et al., 1999; Hergert/Höper, 2022), whereby frequency-dependent room impulse responses are also included, which can either be recorded on site or simulated from different positions using the room model (Scheibler et al., 2018).

First Results and Future Research

On the basis of the methodology described, direct conclusions could be drawn about cultural exchange and the development of organ building in South-Eastern Europe; for example, a distribution of organ building characteristics from Germany and Austria towards Romania is significantly higher than towards Bulgaria and Greece, while in Croatia a higher proportion of Italian organ builders from the regions of Northern Italy could be found than in the other countries. Among the most active regions of exchange were Slovenia, Hungary, and Istria, while Slovenia stands out in particular, where the peak of organ building is in stark contrast to the time of the Soviet Union, where a decline became apparent, probably due to the religious connotation and expropriation of organ building companies.

As a centuries-old cultural heritage that has hardly been studied outside of Central Europe, the organ, as the world's largest instrument, is just as threatened by the consequences of climate change and economic crises as it is by military and religious conflicts, which is why further digitization and analysis projects are being planned.

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