

FINAL REPORT

Project no **93p9**
Project name: **Life cycle cost modelling using 6D BIM in construction**

Aktion - Austria - Czech Republic

Partners: Brno University of Technology, Czech Republic
 FH Joanneum, Austria

The aim of this project was to establish a functional international cooperation between the Brno University of Technology and FH Joanneum within the Construction Management field, more specifically with a focus on life-cycle costing (LCC) and 6D building information management (BIM).

The realization of the project was based on three controllable outputs: (i) two scientific workshops, (ii) a common scientific intention for 2023, and (iii) a joint publication (article for conference). Beyond these controllable outputs, a lecture for students at FH Joanneum was planned.

Firstly, an initial online meeting has been organized (MS Teams) in order to fix the agenda for the first scientific workshop.

The first meeting

The first meeting was held in Brno on September 13-14, 2022 at the premises of the Brno University of Technology. All members of the project have participated in this event. The content of the meeting involves mutual presentation and introduction of partner universities in general and previous research achievements.

Further discussion focused on state-of-the-art analysis and the study of the specifics of the Czech Republic and Austria regarding LCC and 6D BIM. The main challenges facing the Czech and Austrian industries were identified and compared. Finally, a more detailed analysis of the areas of potential cooperation was conducted.

The second meeting

In the meantime, the teams were in contact via email and through Teams to ensure the necessary preparations for the second meeting. The second meeting was held in Graz on November 8-10, 2022 at the premises of FH Joanneum. All team members personally participated in the meeting, with the exception of Prof. Korytářová, who had to stay in Brno for family reasons.

The main emphasis of the second meeting was on the specification of the article objective and its expected scientific outcomes. The project team has determined the conference paper working title, discussed the scientific structure of the paper, and distributed tasks for conference paper writing.

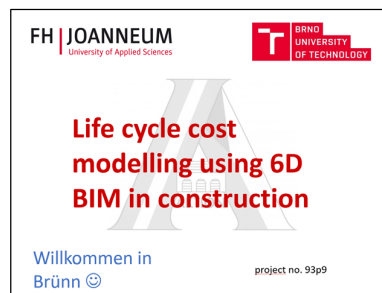
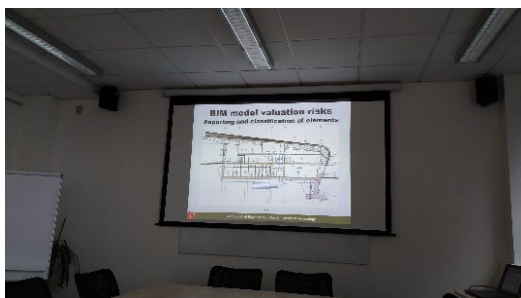
Furthermore, the discussion also involved, among others, considerations of available funding and relevant calls for subsequent international scientific cooperation in 2023 and later, as

well as opportunities for cooperation within the pedagogical process. On the third day of the meeting, a lecture for students was given. The topic of the lecture was *Electronic Reverse Auctions in Construction: An Innovative Procurement Route* presented by Tomáš Hanák.

During December, project team members continued with the work on the conference paper and considered the formulation/specification of the scientific intent of the joint future research activity in the follow-up period. The conference paper is being finalized in January 2023. The manuscript will be submitted to the *World Multidisciplinary Civil Engineering – Architecture – Urban Planning Symposium* for consideration. Abstract submission is on February 17, 2023; submission of full papers on March 3, 2022. More information can be found in Appendix 4. When the paper is published, the project team will send the manuscript to the Aktion agency. Publication fees will be covered by participating universities.

Overview of controllable outputs:

(i) First scientific workshop in Brno, September 13-14, 2022



Appendix 1: List of participants

Second scientific workshop in Graz, November 8-10, 2022



Appendix 2: List of participants

(ii) Common scientific intention for 2023

Appendix 3: Document of common scientific intention for 2023

(iii) Conference paper

Appendix 4: Information on the conference paper with the working title 'Life cycle cost modelling using 6D BIM in construction: a comparative study'

Lecture for students:

Graz, FH Joanneum, November 10, 2022

Appendix 5: List of participants and photo

The realization of the project has contributed successfully to the establishment of close scientific and personal relations between project team members. We thank to AKTION for the opportunity to realize this interesting project.

Project team:

Scientists Assoc. Prof. Ing. Tomáš Hanák, Ph.D., Brno University of Technology
 Prof. Jana Korytářová, Ph.D., Brno University of Technology
 Ing. Miloslav Výskala, P.D., Brno University of Technology
 DI Dr. Thomas Mathoi, FH Joanneum
 DI (FH) Marianne Alb, FH Joanneum
 DI Katharina Schachner, FH Joanneum

Students Ing. Michal Mikulík, Brno University of Technology

Appendix 3

COMMON SCIENTIFIC INTENTION FOR 2023

We hereby confirm that we intend to continue mutual international cooperation in 2023. More specifically, we plan to apply for a follow-up project in the Aktion program. The main objective is to strengthen the established cooperation, ensure its continuation, further develop appropriate topics in the Construction Management field, and to start preparations for the possible submission of an application for a multi-year bilateral research project, e.g. within GAČR-FWF Weave initiative in 2024 or 2025.

Assoc. Prof.

Tomáš Hanák

DI Dr.

Thomas Mathoi

Appendix 4

INFORMATION ON JOINT CONFERENCE PAPER

Working title: Life cycle cost modelling using 6D BIM in construction: a comparative study

Authors: Tomáš Hanák, Thomas Mathoi, Marianne Alb, Katharina Schachner, Miloslav Výskala, Michal Mikulík, Jana Korytářová

Conference: World Multidisciplinary Civil Engineering – Architecture – Urban Planning Symposium

Abstract submission deadline: February 17, 2023

Full paper submission deadline: March 3, 2023

Conference dates: September 4 – 8, 2023

Expected publication time: end of 2023

Venue: Prague, the Czech Republic

<https://www.wmcaus.org>

Publication form: conference proceedings

Life cycle cost modelling using 6D BIM in construction: a comparative study

Tomáš Hanák^{1, a)}, Thomas Mathoi², Marianne Alb², Katharina Schachner²,
Miloslav Výskala¹, Michal Mikulík¹, Jana Korytářová¹

¹ *Veveří 95, 602 00 Brno, Czech Republic*

² *Alte Poststraße 154, 8020 Graz, Austria*

^{a)} Corresponding author: hanak.t@vutbr.cz

