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Faculty: Architecture and the Built Environment
Master track: Management in the Built Environment

Thesis Title: Smart technology in Indoor air quality management: Exploratory research to help facility managers of Dutch universities

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P5 Reflection

The aim of this research was to explore: “How does the adoption of smart IAQ technologies help the facility managers of Dutch universities and what are the barriers to it?” As a result, smart IAQ technologies were evaluated; the use of smart IAQ technologies by the facility managers of 3 Dutch universities was explored; several barriers were identified and some recommendations were provided.

Relevance

The research relates to the graduation project topic and the track of MBE by addressing real estate and facility management issues. It is also related to the master program of MSc AUBS as it contributes to creating a occupant centric design and a healthier built environment. It contributes to the scientific understanding of how technology can be implied by facility managers to address issues of IAQ. The scientific relevance of this research extends beyond immediate applications to broader implications for smart building tools and public health. Additionally, the findings have the potential to influence the development of health-focused building strategies and future technologies which takes into account the perspective of building facility managers.

As people spend a significant portion of their lives indoors and acknowledging the impact of the Covid19 pandemic, indoor air quality is a pressing health and societal concern. This research holds societal significance by examining the potential of technological interventions to positively influence occupants' health and overall quality of life. Especially due to the context specificity of universities, the research contributes to better learning environments for students' performance and productivity. Facility managers can use the insights into effective strategies that contribute to the creation of healthier indoor environments and align with broader societal aspirations for health-focused development.

Method

This research used a qualitative multi case study method which has been found to be useful in exploring different themes of interest and drawing conclusions from the different case studies. The starting point of the research was just an idea that I wanted to contribute to better occupant health. The personal experiences during and after the Covid19 pandemic inspired me to focus on indoor air quality of buildings. Additionally, I had also always been

intrigued by smart tools and technologies and how they have made such a significant impact rapidly on our daily lives. I am thankful to my mentors for helping me link my interest to the topic in the graduation themes, allowing me to explore the field of facility management. The theoretical research helped in gathering more knowledge in this topic and formulating the problem statement. The theoretical framework used (Diffusion of innovation, Rogers) to evaluate certain findings was useful as it aligned with the research aim.

For the empirical research, three cases were studied along with interviews with the facility managers of the cases which provided useful insights to answer the research sub questions. One of the cases that was originally aimed for could not be used, hence it was improvised by using a questionnaire sent out to the facility manager of a different case. Conducting the interviews was a fun and interesting part of the research as I got the opportunity to engage with professionals; talk about my research and know about their perspectives. Furthermore for the research, a step further was taken and one of the cases was explored in depth with more interviews with different professionals. This helped in gaining a better understanding from another perspective and significantly contributed to concluding the research findings.

Personal reflection on the process

The thesis process has been insightful but also very personally challenging. The most difficult part was contacting the cases for the case studies. Although the starting point of contacting was from a project, people continuously referring me to other members, and not getting responses from them was very frustrating. This made me doubt my choice of research method as I felt very dependent on others for the data I wanted, causing a significant time delay. As a consequence, I had to put a lot of time and effort working on the thesis from P3 to P4. I am again grateful to my mentors who helped me during this frustration and assured me that I could still work with Plan B and did not have to solely rely on others. They understood my problem and their words encouraged me to work even harder after P3. However, in the end, it all worked out well. I did get the responses and data I wanted and I am satisfied with the end result

I have learned a lot from the thesis process, starting with how to conduct a research project independently, perseverance and communication skills. Looking back at the entire process, I could have done better in certain things such as quick decision making and time management. At the beginning of the research, I spent more time deciding on the direction of the research which could have been shortened. The process of contacting the cases and people for interviews could have also been started earlier instead of waiting after P2. With a better planning and time management, milestones should have been set with a more even distribution of workload. Nevertheless, the journey has significantly contributed to my personal development as I stepped out of my comfort zone and learned to overcome challenges. These learnings will surely be beneficial to me in the future as I pursue new goals in life.