



# Key Performance Indicators (KPIs) and Multicriteria Approach for Assessing Sustainable Student Housing

Authors: Pierre ALPHONSINE  
E-mail: pierre.alphonsine@epfedu.fr

Supervisor: Prof. Dr. ATTIA Shady

Address: Building Design Lab (SBD)  
Quartier Polytech 1  
Allee de la Decouverte 9  
4000 Liege, Belgium  
www.sbd.ulg.ac.be  
Tel: +32 43.66.91.55  
Fax: +32 43.66.29.09

## ABSTRACT

Student accommodation in Belgium needs to be improved in several respects. The characterization of the student housing stock in Wallonia has been essential to identify the problems and needs of students in terms of living conditions. This allowed the evaluation criteria for the rating system to be defined. We then weighted the criteria according to the level of importance and implemented the evaluation model that will allow us to rate the housing.

## KEYWORDS

Rating system, Evaluation, Priority Level, Criteria, Assessment, Label, Student needs

## PROBLEM

In Wallonia, problems of student housing are recurrent, they are often associated with poor quality. Already many housing agencies already qualify complaints about the poor condition and high prices of this housing. A major problem with these units is the health point, most units have at least one health problem. These problems are problems that often do not allow students to study in the best conditions.

## OBJECTIVE/HYPOTHESIS

The main aim is to improve student housing on different points.

- Characterize the student housing stock to identify the different problems of students.
- Define the evaluation criteria and have a tool to evaluate these units.

## AUDIENCE

Students, Government departments, Experts, and Architects or Engineers building student housing.

## RESEARCH QUESTION

What are the key performance indicators that can influence the improvement of student housing?

## ORIGINALITY

First of all, no evaluation system with a scientific approach is used for the evaluation of student housing. The labels for student accommodation are based on simple and succinct criteria. Having a multi-criteria approach and applying a data analysis method called the "Severity Index" based on a survey of the majority of students, we will be able to identify the most important and less important criteria to take into account for the improvement of these housing units.

## METHODOLOGY

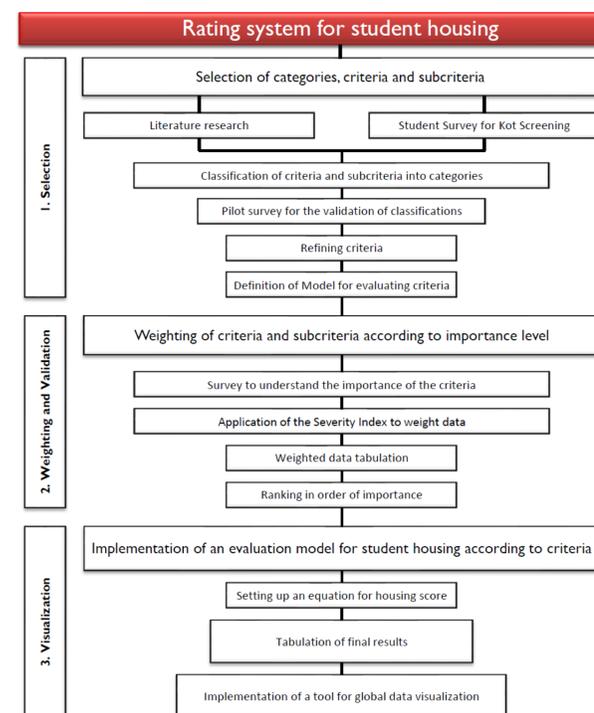


Figure 1-Research Methodology Phase

Methodology developed in 3 phases :

- Selection
- Weighting and Validation
- Visualization

## RESULTS



Figure 2-Visualization of graphs characterize the housing units

- Visualization of the weighted scores for each point in the housing.
- Consideration of the performance and importance of each criterion.

## CONCLUSION

This research made it possible to understand the needs of students in terms of living conditions. We were able to make a classification of the criteria that are involved in the evaluation of student housing, we were able to note that for students it was comfort that was most important in a housing. The creation of a tool to evaluate student housing that takes into account the importance and performance of evaluation criteria allows us to visualize the strengths and weaknesses of each housing unit using radar graphs.

## Resources

- Chen, Y., Okudan, G. E., & Riley, D. R. (2010). Sustainable performance criteria for construction method selection in concrete buildings. *Automation in construction*, 19(2), 235-244.
- Anfrie, M. N., Cassilde, S., Kryvobokov, M., & Pradella, S. (2013). Évaluation de la pertinence de la mise en œuvre d'une labellisation dans le secteur du logement étudiant (Doctoral dissertation, Centre d'Etudes en Habitat Durable).