

Designing and Testing a Strategy Game

Problem Statement

In CREM theory and practice alignment is a long-standing issue. An example of this in practice is experienced by the TU Delft itself; therefore FMRE has requested the department of Real Estate and Housing to develop a solution that enables them to manage their real estate more efficiently. Within this context a solution based on PAS has been developed. The PAS is an alignment approach based on the simulation of real estate strategy design in a multi-actor environment. In the past various models have been developed to solve similar design or decision-making problems. Some of these models encounter problems relating to user-friendliness and complexity. If the decision-making process in real estate is becoming more complex over time, then the importance of the aforementioned problems will only increase. Therefore, this is a significant hurdle which has to be eliminated in order for these approaches to be usable in practice.

Hypothesis

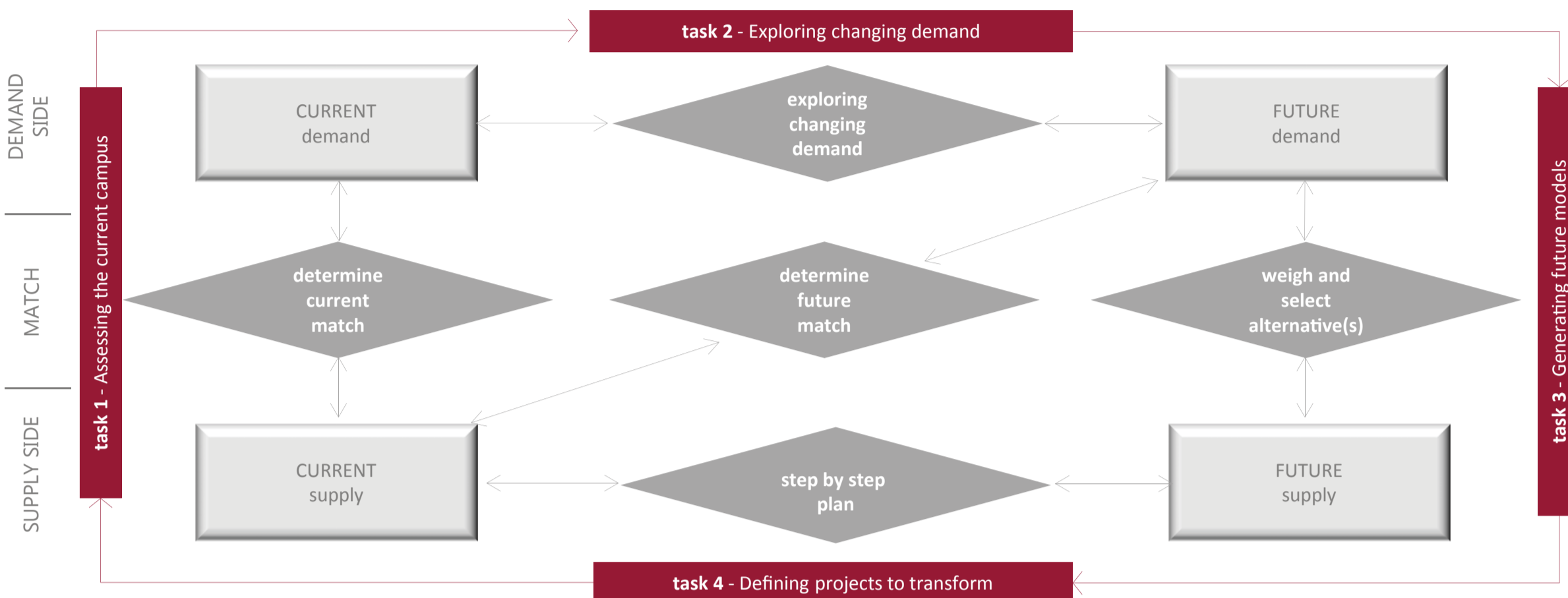
Decision-making models (such as those identified in the previous sections) are becoming increasingly complex and therefore more difficult to understand. If users do not understand such models, they are not likely to take decisions based on their outcome. Gaming is a valid technique that can help users to comprehend the complexity in these models. Therefore the use of gaming in these kinds of models increases their potential.

Objective

1. Designing a PAS model for the educational facilities of the TU that can deal with the complexity of the problem.
2. Gaining knowledge about the purpose and role of gaming in these models.
3. Making progress in solving the problem of alignment in CREM/PREM.

Foundations

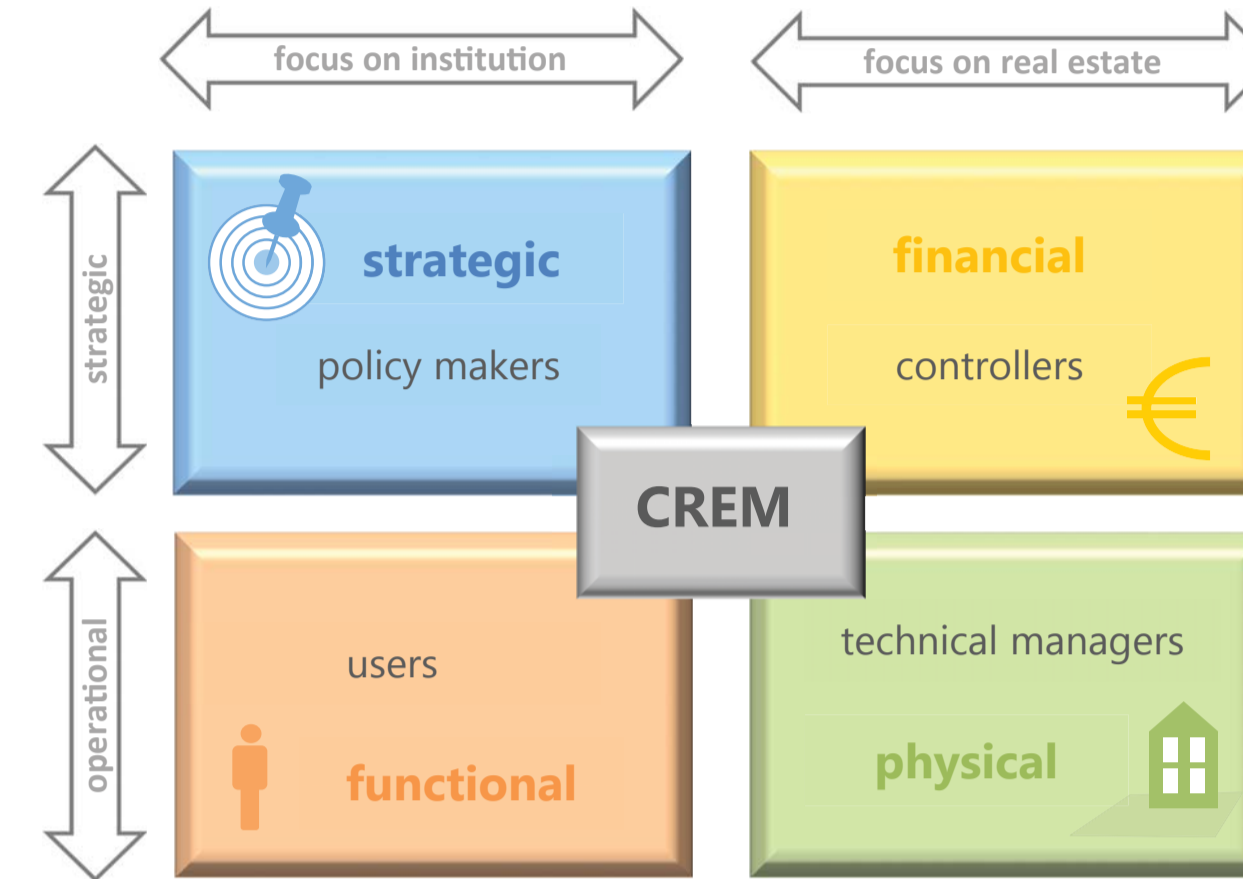
1. DAS Frame (Den Heijer 2011, adapted from: De Jonge et al. 2009)



Corporate Real Estate Management (CREM): how to align real estate to organizational objectives.

Matching demand and supply in a cyclical design process.

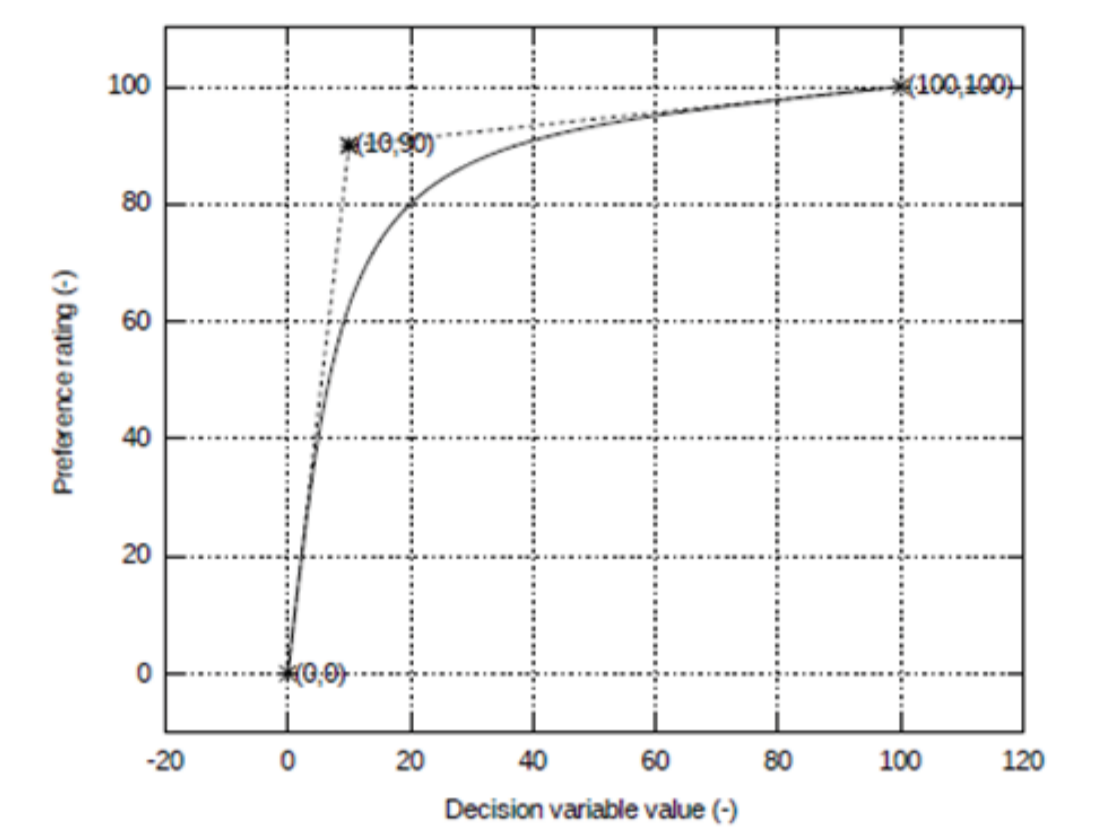
2. CREM Model (Den Heijer 2011)



What information needs to be collected in order to make decisions [on how to manage the university campus].

Include four different stakeholder perspectives.

3. Preference-based Design (Binnekamp, 2010)



How to calculate the optimal solution for a design or decision-making problem in a mathematically correct way.

Preference-based Accommodation Strategy [PAS] (Arkesteijn 2014)

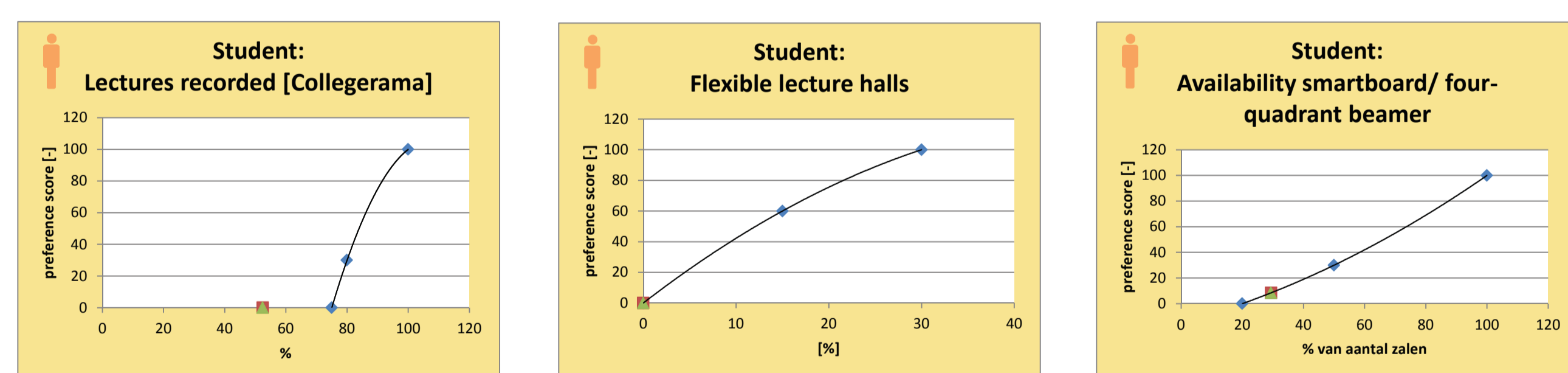
Formulating the problem

DAS Frame Task 1+2

CREM Model: Involve stakeholder groups. Board of Directors, Directors of Education, Facility Management, Students, Teachers, and Education and Student Affairs (Scheduling dept.).

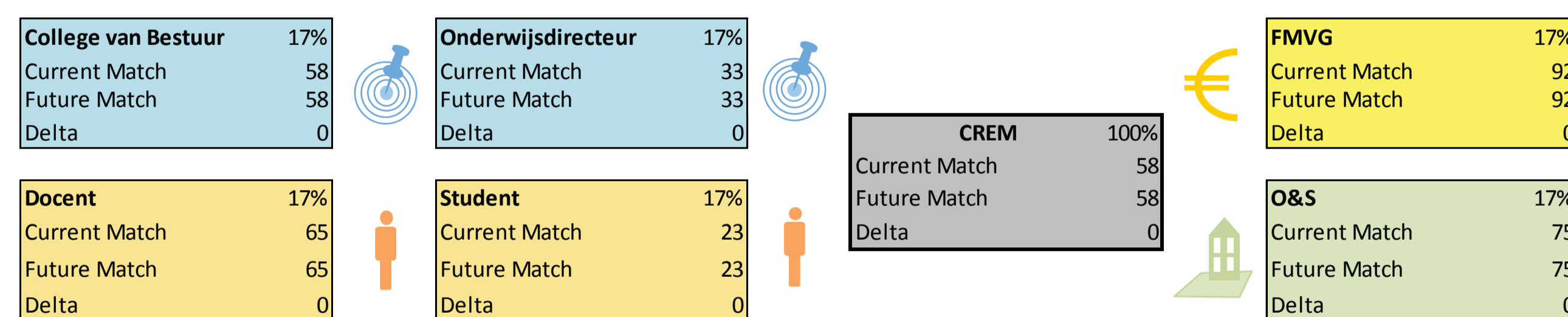
Preference-based portfolio design: Stakeholders define decision variables, assign preference scores, assign weights, determine design constraints.

Example: Student defines criteria.

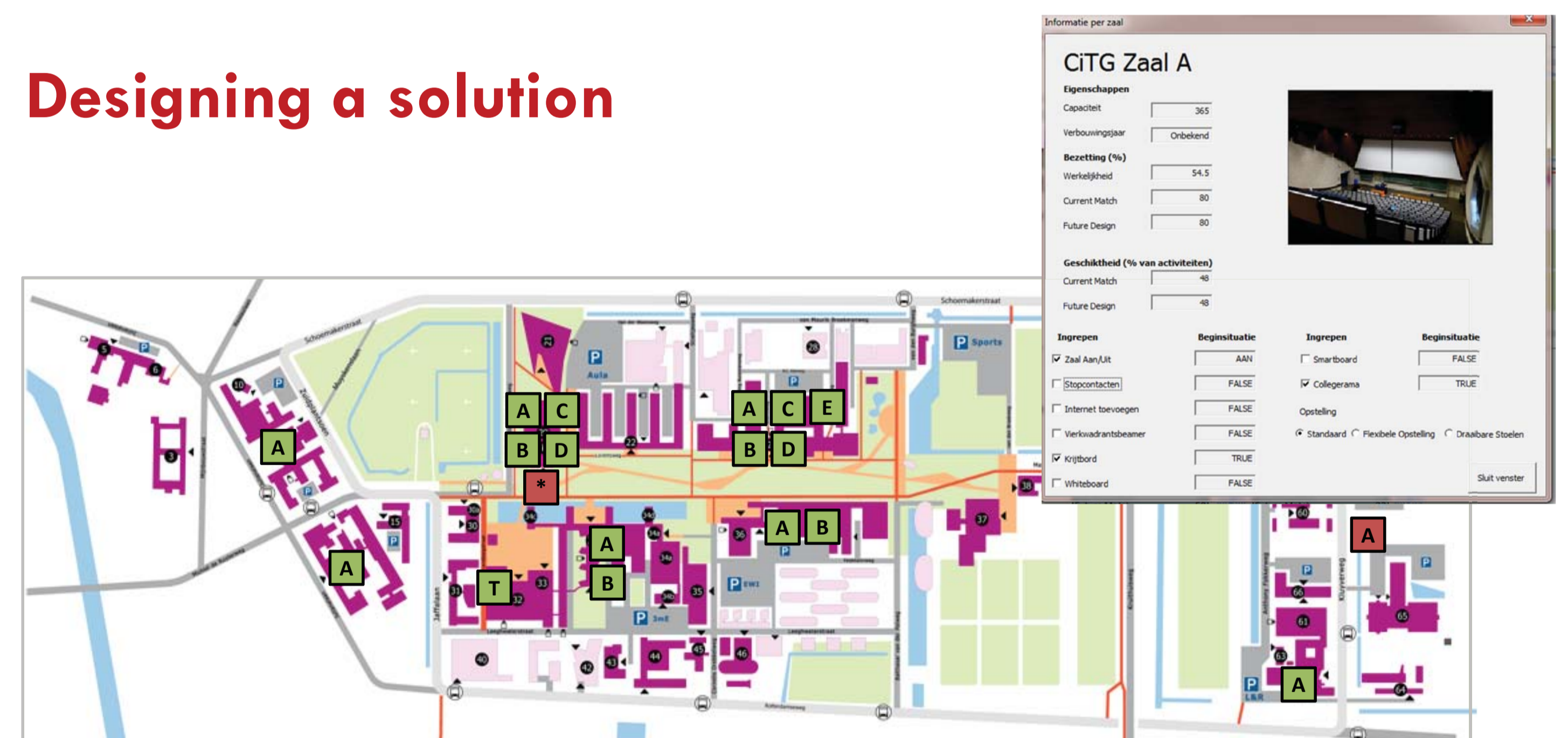


Other criteria: 50%
Stakeholder weight: 17%

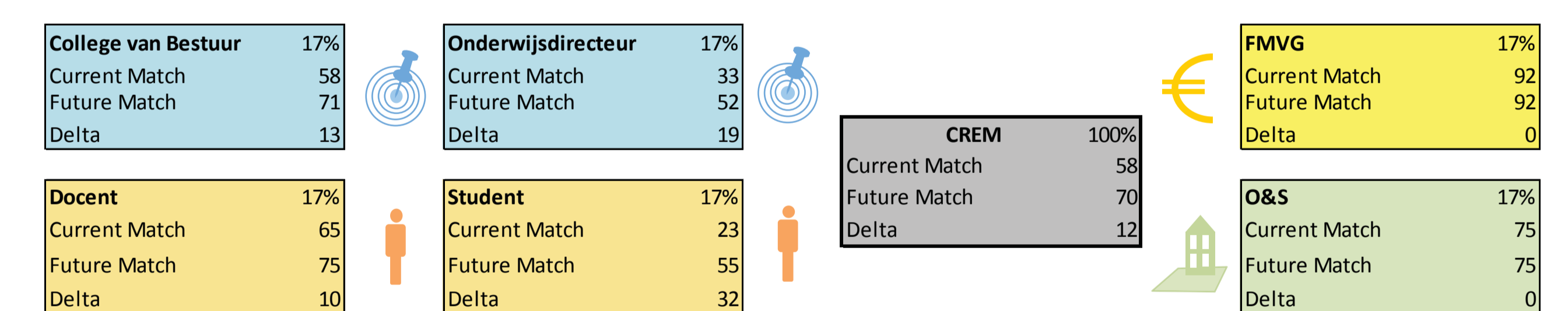
DAS Frame: Current Demand (Stakeholder criteria) and Current Supply yield a Current Match. The Current Match is expressed in the overall preference score.



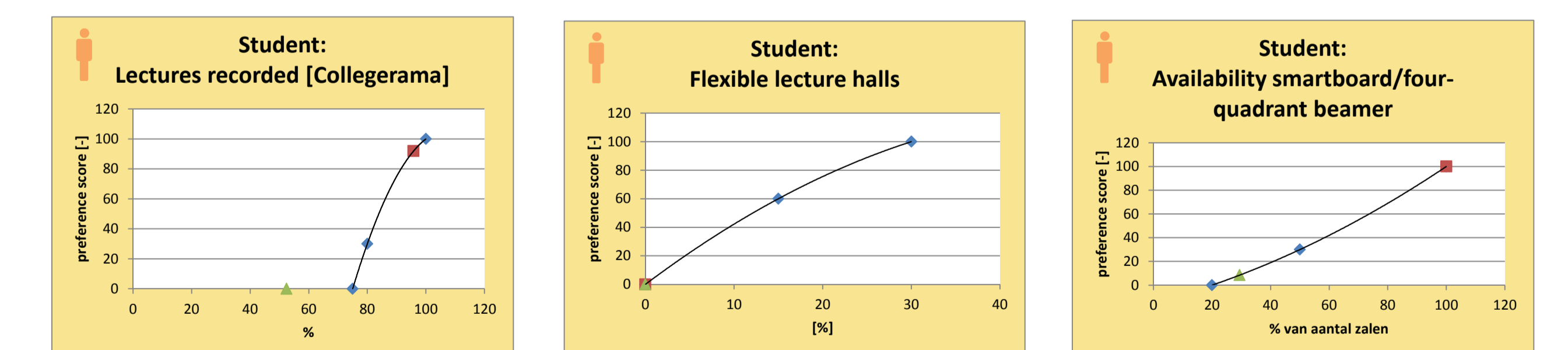
Designing a solution



DAS Frame Task 3
Designing future alternatives by doing interventions in the current supply.



Results of the interventions are fed back to the user directly; both the overall preference score and the preference score per stakeholder are displayed.

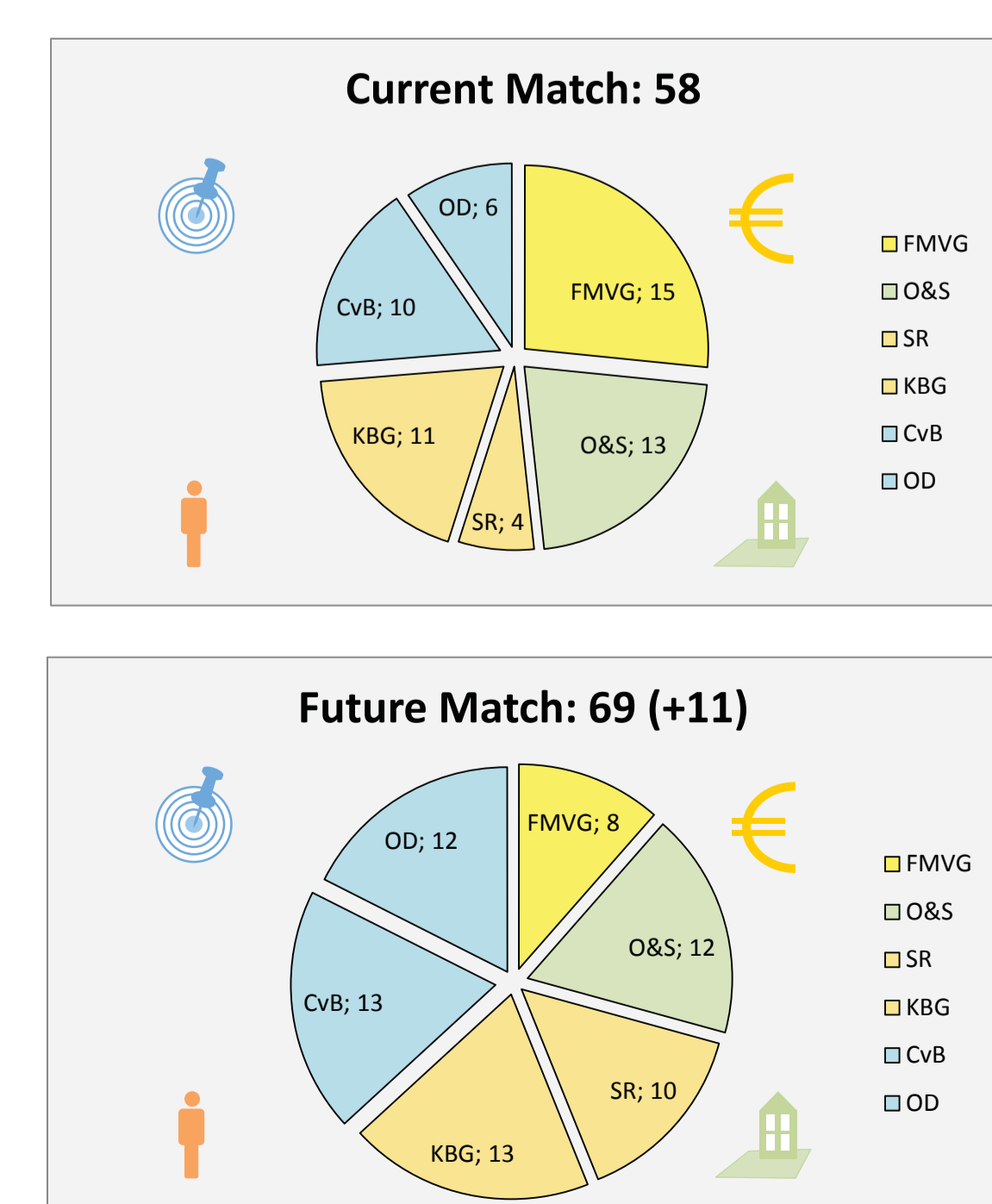


The user can also view the preference scores per criterion for the alternative that he/she has designed.

Results

Testing PAS; Final design alternative workshop 2

Stakeholder Evaluation



- 1. Experiences with the model**
This model is ideal to have the discussion about what we need.
- Education and Student Affairs
- 2. Attractiveness of the method**
The methodology is the most important aspect.
- Director of Education
- 3. Perception of effectiveness of the method**
The process is faster, more to the point and more transparent.
- Student Council

Conclusion

The role of gaming in this process is that stakeholders are allowed to readjust and refine their decision variables. This iterative process has two advantages.

Firstly, readjusting and refining criteria helps the stakeholders to understand what they really want and thereby creating a more accurate representation of their preferences.

Secondly, it gives them a safe environment to experiment in and gain insight into the consequences of their actions in the model on their preferences without being held to the results.



Student: Bart Valks
Student no.: 1503650
Department: Real Estate and Housing
Grad. Lab: Real Estate Management
Mentors: Ir. M.H. Arkesteijn
Dr. R. Binnekamp