MS-E2191 Presentation 1 Homework model solution Miku Vilander

Describe briefly a project portfolio selection problem that was not presented in this presentation. Choose at least 3 attributes that contribute to the total benefit of certain project and discuss how they could be measured and which stakeholders should be involved in the decision-making process. Discuss also the constraint(s) and possible methods to assess the resulting optimal portfolio.

The purpose of the homework assignment was that students would give a thought on the project portfolio selection process. As stated, the problem can concern any organization, thus there is no right or wrong answer. Here is an example of possible answer.

An infrastructure agency decides on projects that enhance roads, railroad network and waterways.

3 attributes that contribute to the total benefit could be for example:

- Decrease of traffic emissions: We can measure the emissions for different vehicles, and we could estimate how many people would switch to low-emission method of transportation after certain project.
- Coverage: Some projects have better coverage as they affect to a location with high population or number of workplaces which then benefits a larger portion of people.
- Urgency: We could prioritize projects based on expert statement, as some projects are more urgent, as the condition of road network varies etc.

Different authorities have a major role in these decisions, but it is also important to consider opinions of local residents, entrepreneurs, landowners and transport companies etc.

Obvious constraints are the total budget and workforce that could be allocated for these projects. Another example is that we can not execute some projects simultaneously if they together lead to significant disruptions in traffic between some locations.

After the initial optimal portfolio has been defined, we could for example leave some chosen projects out and see which projects would then be included in the portfolio or vice versa. We could also relax the budget constraint little to possibly find solutions with notably higher benefits.