Reflection P4
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Background
The municipality of Rotterdam decided that a new plan for the Binnenrotte should be designed, the location where the central market of Rotterdam is held two days a week. The main reason is that the square is unused for five days a week, on the days when there is no market. The cause which led to this decision is the new market hall building by MVRDV. A part of the central market will move inside this building; the market on the Binnenrotte will shrink and will not be the most important function anymore.

The Market hall building was part of a bigger masterplan for this area, named Masterplan Laurenskwartier West (2007) by KCAP. A study shows that more buildings have to be renewed, including the railway station and the central library. The railway station has grown significantly: 150% more passengers arrive and depart from this station than five years ago. The proposal of a redesign of the railway station next to the Binnenrotte itself is chosen since the railway station is the only actual building on the Binnenrotte.

Objectives and research
The design of a new square and railway station raises the following questions:
  - What functions are needed on this square in order to make the square more lively on non-market days?
  - What should the new railway station look like in terms of accessibility, taking into account the growing amount of passengers?
  - What is the best solution for the square regarding the future plans for this area?

A square can mostly become attractive by green spaces, some catering facilities and architecture. The municipality of Rotterdam share the same ideas for the redesign of the square. However, the goal of this project is not to design a building on a landscape, but a building which is part of a bigger landscape. The method of design is based on erosion landscapes.

In the design process the combination of a bottom-up approach next to the traditional top-down approach is used. Data of e.g. people movement, solar radiation and sun positions are mapped and used in computational software to generate a various kind of simulations as bottom-up approach. Figure 1 & 2 show an example how data is stored in an excel sheet and used in a simulation of possible people movement on the square.

Figure 1 & 2
Research on different kind of bottom-up strategies needs to be done in order to implement such an approach in the design process. Different ambitions of a design might ask for different strategies; research was done after the ambitions of this project are clear.

The relationship between the methodical line of approach of the Hyperbody graduation studio and the chosen design method is this particular idea of combining bottom-up and top-down approaches in the design process. Research-driven design is the key for creating such non-standard and interactive architecture. The studio specific aim is to focus on generating self-sustaining climatic ecologies, which is part of the non-standard and interactive architecture. The chosen design method is the use of a self-organising program distribution system as bottom-up approach next to top down ideas of shape creation.

The integration of gathering site specific data, is critical for a successful bottom-up approach. For example, for the self-organising program distribution system data of surrounding places are gathered. The city centre, market hall, and railway station are the biggest source of users close to the square. Data of solar radiation and sun positions is also used in this approach.

The relationship between the theme of the studio and the chosen subject (erosion based landscape)
The Hyperbody graduation studio is known for it's non-standard and interactive architecture. The general idea of an erosion based landscape can be classified as such non-standard architecture. Traditional architecture design methods always consisted of creating a 3 dimensional building from 2D floor plans, sections and elevations. The non-standard and interactive architecture which Hyperbody students create, have a different workaround: 2 dimensional drawings can be derived from 3D or even 4D computer generated models.

The chosen erosion strategy will return a landscape in which functions are placed. This design of this landscape can't be derived from traditional architectural design methods, but only by using advanced digital tools and the combination of top-down and bottom-up design methods.

Project in the wider social context
In the wider social context, the project meet the goals stated by the municipality of Rotterdam. The renewal of the Binnenrotte should consist green space and place for restaurant terraces as well as space for events like the market. The new station hall is an improvement for the users of the public transport, with easier access to the railway and subway and with more facilities around it.

Besides the goals stated by the municipality, there are more ambitions which are implemented in the design. One example is the implementation of an exhibition route through the building, which starts on the square. This route should be seen as an extension from the library, which is located next to the railway station.