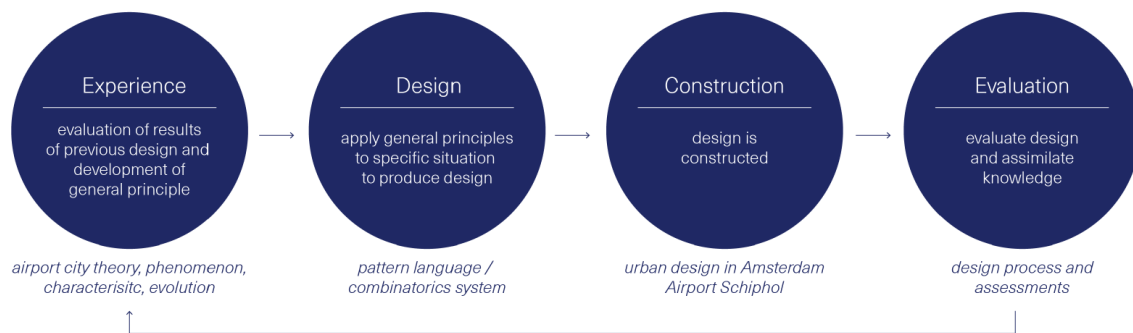


## REFLECTIONS



### 01. The relationship between research and design

Design process can be described in many ways. For my personal master thesis, design formulation was not taken from complex intellectual activity or analysis-synthesis model, because source of ideas and concept is not the site. Problem statement is relatively understood as a typological case. As illustrated in the report content, design construction is firstly started broadly to provide principle of Airport Cities typology in general, not directly Amsterdam Airport Schiphol area.

There are processes of interpreting airport city model, constructing design actions for common airport cities and applying general principle to the site situation (Amsterdam). With these steps, the approach of problem solving is holistic, even though design product will be presented comprehensively with location characteristic. This thinking process was happening naturally as understanding of problem analysis is wider and more complex.

Research techniques that were used are both implicit (personal conception) and explicit (references, experimental, comparative research). Combination of informations and intuitions research provides enough knowledge for solving the problem, which is in design form.

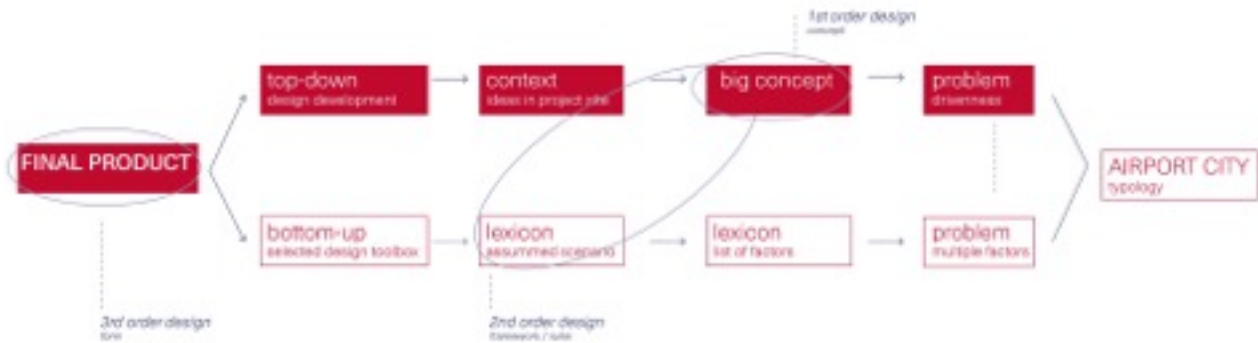
In this master thesis, research is contributing the design problem and decision in a bottom-up process (evidence-based). To truly supports the design solution, initial research was done in 2 main explicit sections:

- 1.) understanding the typology of airport cities (section 1),
- 2.) discovery of the project site (section 2).

Conclusion from results in section one and two, with additional motivation (implicit), embody design decisions within the concept of future airport city. These two research cores have given me a tool to guide the urban design under the appropriate framework. Research is applied to the design problem, which determines approach methods and analytical components. Without research, problem statement design would be determined out of nothing, which makes it not scientific.

To give distinction between design for generic, specific and in between, dividing design order into three steps with different detail levels is a clever strategic thinking for my research model. The concept of Entrepôt, that is introduce after deeper research of typological evolution and site analysis in Amsterdam Airport Schiphol, is executed through three different orders.

By the end of the project, design results will be evaluated by initiate research tools and stored for future use.



**02. The relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework (location/ object)**

The topic of the airport cannot be removed from mobility issue. Airport city and built environment around the terminal are forced physically, structurally, programmatically as mobility service areas. They are the real precedent of transportation-system-based layout and design.

My master thesis is currently under the frame of Urban Metabolism research team, with strong additional value from Urban Fabrics. The argument of incorporate my thesis to Urban Metabolism research team is the presence of the theme of mobility that is put to air transport movement, as well as terminal operational system that affect spatial alteration significantly, even to architectural scale. For these reasons, the research will also be relevant to urban design research, civil aviation engineer, air transport operator and policy makers. Urban Fabrics is also integrated along the way the research undergoes, as the methods of designing addresses the composition of urban fabrics and how it changes.

Additionally, due to airport future cities potential findings, sustainability on spatial quality has to be supported by understanding the relationship between urban environments to commuter systems and infrastructure performance. Eventually, airport downtown urban design will strongly give contribution to operational and accessibility in terminal area. Therefore, this research is relevant for civil engineering, specifically in air transportation field.

**03. the relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework**

I have taken two approaches in the design process: top-down and bottom-up. In my context, these are not referring to actors and stakeholders. The top-down design methodology is built upon a personal motivation, according to the discoveries. The bottom-up design methodology is rather a list of actions from the logic system that is preceded according to the literature and facts.

Pattern language has been practiced in Urban Fabrics research team. Even though I began with Urban Metabolism research question and analysis, Combinatorics system (de Jong, 2002) is chosen to tackle my ex-ante research (based on forecast result). Combinatorics system is a pattern language method that is based on consolidation between elements. It is chosen over traditional pattern language, because it is more important to see the relation between forces than looking at singular solutions. As example, we cannot take an action based on increasing transit passenger trend only, it has relation to the increasing maintenance area of hub airlines and transit space at the same time.

Synthesis through metabolism and flow of mobility is becoming a goal for pattern common solutions. With this, I was able to create a full lexicon of interaction. From 45 variables, I discovered 22 combinations, which will turn into scenarios to take actions from. The list of the action is to understand the physical change and to retain quality of security and speed in the evolution process (toolbox). NetLogo also a software that helped me to simulate the mobility and flow of different user type. These combinatorics system and simulation will be a device that other airports could use in order to deal with airport city change.

Mentor 2 introduced me to NetLogo that finally has supported me to visualise the interaction between variables and also to formulate strategy. NetLogo is a simulation tool in which we formulate the rules and communication between each agent. By simulating users, movement and space, it provided me correct information to construct space and circulation in design area.

In the end, methodological line of flow understanding in Urban Metabolism is combined with the pattern language and agent-based modeling that mostly used in Urban Fabrics. However, as students, I have a difficulty to be engaged to one specific research team. I might select one of them based on my initial interest and problem seeking perspective, but as the research goes, methodological and analytical aspect has shifted and interconnected to other research teams. My suggestion is that probably students should not be put in a box of only one theme, because it might limit the movements and close possibilities of other potential systems.

#### **04. the relationship between the project and the wider social context**

The project will not only give impacts to the surroundings context, but also the wider context. Apart from urbanism and civil engineering, the research is primarily relevant from economic viewpoint. Based on Wall (2009), city economic performance is related to global connectivity, associated with relation to other cities and interdependencies that they exhibit with one another. This network development is strongly considered within a framework of airport development. How physical and economic network between cities impacted economic innovation have also been studied. Additionally, by contributing tax, jobs and investments, airports become big players in city and country economy. At the same time, the ground around terminal building turns to be the most valuable and attractive real estate that offer grand interconnectivity in land and air.

In social context, the project will take into consideration the role of surrounding neighbourhood and built environment in the airport vicinity. How users get benefit form airport city urban design is the main goal of proposed plan. The aim of the project is to create opportunity for multiple actors, including local community.

For Schiphol Group and stakeholders for real estate planning, the research will contribute further discussion of challenging expansion and innovation in Amsterdam Airport Schiphol operation, as well as a tool to anticipate possibilities and scenarios in the next years. The relevance of design methods to the practice lies in the construction of scenario that can make to an in-depth analysis of certain systems. This analysis is also related to policy makers, as negotiation to the unknown changing factors, to deal with the conflict of complexity that offers million possibilities. Furthermore, by understanding planning methods of downtown airport, this research conclusion can be explored and adjusted to other airport areas globally.

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