Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences
**Graduation Plan: All tracks**

The graduation plan consists of at least the following data/segments:

<table>
<thead>
<tr>
<th>Personal information</th>
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<tbody>
<tr>
<td><strong>Name</strong></td>
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<tr>
<td><strong>Student number</strong></td>
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<tr>
<td><strong>Telephone number</strong></td>
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<td><strong>Private e-mail address</strong></td>
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<tr>
<th>Studio</th>
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<tr>
<td><strong>Name / Theme</strong></td>
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<tr>
<td><strong>Teachers / tutors</strong></td>
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<tr>
<td><strong>Argumentation of choice of the studio</strong></td>
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<table>
<thead>
<tr>
<th>Graduation project</th>
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<tr>
<td><strong>Title of the graduation project</strong></td>
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<th>Goal</th>
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<td><strong>Location:</strong></td>
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<td><strong>The posed problem,</strong></td>
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These tensions also pressure the spaces of the university, referred to as the university campus. The inflexible character of real estate, due to its immovable character and long lifespan, is a known problem within the real estate management domain (De Jonge et al., 2009). Although gradually spaces are shared among different faculties and used by different purposes (TU Delft, 2016), still there is a lack of effective and efficient space usage on campus (Valks, Arkesteijn, Den Heijer, & Vande Putte, 2016). When using the solid liquid and gas metaphor, there is also a shift from solid towards liquid and gas, although not as strong as on the organisational side (TU Delft, 2016). This inter faculty usage of spaces can also increase the complexity of the university setting.

These different perspectives on university change are all reflected by the multiple stakeholder approach which Den Heijer (2011) applies on the university campus. This approach connects financial, strategic, functional and physical perspectives to align stakeholder perspectives to accommodate the university. These changes shape a challenging environment for the campus manager, who needs to align this static real estate (supply) to their dynamic organisation (demand) in order to perform the core tasks of the university, education and research.

Proposed solution
In the process of aligning demand and supply, this research focusses on using smart tools as a way of matching them. Special attention is given to the temporary user of the university, the university ‘visitor’ which refers to the increasingly dynamic group of part time and temporary users of the campus. Several authors point at the increasing complexity of the university (Clark, 2004; Den Heijer, 2011; Olson & Presley, 2009). According to Ward (2016) the alignment of the organization with future trends will become easier by the support of information technologies, creating smarter corporate real estate. This is substantiated by the findings of Valks et al. (2016), who explored the usage of smart tools at 14 Dutch universities to find out how these tools work within the campus context and align demand and supply, triggered by the ineffectiveness of space usage on campus.

| research questions and | 1) How can smart tools be used to facilitate spatial demands from visitors at the university campus? |
2) What lessons can be learnt from universities abroad and other organisations when reviewing visitor oriented smart tools?

3) Which focus points can be distinguished for campus managers to accommodate the dynamics of its demands now and in the future?

| design assignment in which these result. | Research design: Comparative, Qualitative.  
1) Exploring field and cases  
2) In depth case study research on selected cases |

Note: This document is a summary of the P2 report. The P2 report contains further reasoning and referencing on the information of this summary.

**Process**

**Method description**

The research will exist of mainly qualitative research and can be divided into three parts;

1) Exploring part  
2) In-depth part

The research is a comparative design, where several case studies will be compared. This comparison takes place in the second part of the research and will cover the biggest part of the research. Below, all three parts will be explained and the accompanied methods and techniques will be listed.

*Exploring:*  
Goal: Finding appropriate cases at the university campus and other organisational settings to conduct in-depth research.

Method: Mapping examples at different settings by contacting universities and organisations and filling in a basic information sheet containing topics like; Purpose of the tool, accessibility and future ideas, to build an archive full of possible case study material. (in collaboration with research team smart campus tools)

Selecting appropriate cases: Based on the gathered information from possible cases and literature, selection criteria can be formulated to select cases for further research.

*In-depth: (Comparative case studies)*  
Goal: Gathering in-depth information about the usage of a smart tool in its specific context.

Method: Mixed method approach. To gain substantive data about the visitor group a quantitative data sample will be retrieved from social media information from a specific geographical defined location and matched with qualitative information retrieved from interviews and/ or observations (depending on the specific context).
After comparing two cases, an iteration will be made and two new cases will be selected. Depending on the findings, selection criteria can be broadened or narrowed down.

When data saturation will be reached, no more iterations will be made and the research will continue to the next step.

*Note: The quantitative data set needs to be provided by the ‘social glass’ research team of the TU Delft. Further conversations with this team should point out if this data set can be provided.*

**Literature and general practical preference**

A theoretical framework is made to position the before introduced concepts in the following sequence:
1. Real estate management
2. Alignment of demand and supply
3. Focus on the visitor

Furthermore a conceptual model is introduced to visualise the theoretical insights.

The main concepts are explored in more detail to get a starting point before exploring the cases. See p2 report for first literature review of these concepts.

The conceptual model links these concepts and divines further research fields.

The **societal context** consist of a more broad sense of the trends connected to the theme of smart tools.

The **organizational context** is part of the in depth case study and differs per case. To find common ground, this context will be explored during the exploring part of the research.
**Reflection**

**Relevance**

**Societal relevance**
Effective usage of university resources makes sure public money can be spend as much as possible on the core tasks to the university. Balancing off the four stakeholder perspectives, introduced by Den Heijer (2011), helps to align the campus to the university organisation and will thereby enhance the effective use of real estate. Valks et al. (2016) indicates that smart tools have the potential to smoothen this process of alignment. Effective use helps the university to perform its core tasks, educating and researching and reduces the amount of public funding going to facilitating tasks without actually adding value.

**Scientific relevance**
The changes universities go through have very specific characteristics which makes it impossible to have a one size fits all approach but in-depth case study research on how to accommodate this change can help other universities by means of example (Clark, 2015). Den Heijer (2011) also mentions the non-generalisability of campus research and encourages research to “collect more reliable and comparable data that supports campus decisions to accommodate the University of the Future”. In the field of smart innovations, in-depth research is still needed to reflect the desires of society (Kitchin, 2013).

**Practical relevance**
Several Dutch universities pointed at the possibilities and the wish for further research on the usage of smart tools to align demand and supply (Den Heijer, Arkesteijn, & Valks, 2017). The basis made by Valks et al. (2016) was valuable for the involved universities and enlarging of the research field was desired. They acknowledged the positive influence smart tools can have on effective space usage, efficient space usage and sustainability (Den Heijer et al., 2017).

**References:**
Den Heijer, A. C. (2011). Managing the University Campus: Information to support real estate decisions: Eburon Uitgeverij BV
Due to the minimum of 6 ECTS electives I still have to fulfill I want to finish my graduation in April instead of February. See the figure below for a schematic overview of the different parts of the graduation. I will, along with the Q1 period, start with the exploration part of the graduation and at the start of Q2 switch towards a fulltime focus on the graduation.