Exploring student housing as opportunity for vacancy at TU Delft campus

Graduation presentation | Daniël Bosnjak | April 10th 2013
INTRODUCTION
Focus on two subjects

(C)REM & VACANCY
Corporate Real Estate Management
Each corporation has its own mission & goals.
Each corporation has its own real estate portfolio. Real estate requires maintenance & management.
Real estate management means adding value to the organization.
The Netherlands: increased vacancy problem

43% VACANT (OFFICE) SPACE*

*at the end of 2012 (NVM 2013)

STRUCTURAL VACANCY

DECREASED DEMAND
'44,000' m² VACANT SPACE SPREAD OVER 11 BUILDINGS (TU DELFT CAMPUS)
Abolition ‘OV-kaart’ INCREASES SHORTAGE!
Providing sufficient student housing also important for TU Delft.

What are the opportunities?
Can student housing be considered an opportunity for the vacancy at TU Delft Campus?
1. Does Campus REM differ from Corporate REM? And which similarities can be found?

2. How can the transformation potential of vacant real estate be measured and which tools are available?

3. How can the existing theory on transformation be applied to campus management and vice versa?
4. Does the **vacant** real estate show **transformation** potential and is **student housing** a **suitable** function?

5. What does **transformation** mean for **TU Delft** as an **organization** and how does it add **value** to the organizational **goals**? And what is the **role of student housing**?

6. What is the **economic value** of developing **student housing**?
Aim of the research is to provide a FRAMEWORK FOR CAMPUS MANAGERS ASSISTANCE IN DECISION-MAKING PROCESS. INCLUDING DESIGN PROPOSALS.
RESEARCH FRAMEWORK

TIMEFRAME

SEP – OCT (PHASE 1)

NOV – DEC (PHASE 2)

JAN – FEB (PHASE 3)

MAR – APR

MAY (PHASE 4)

JUNE (PHASE 5)
RESEARCH METHODS

- Case study
- Literature review
- Experimental study
- Document analysis
THEORETICAL FRAMEWORK.

Focus on Campus REM
Managing real estate through FOUR STAKEHOLDERS WITH INDIVIDUAL PERSPECTIVES
Adding value through REAL ESTATE INTERVENTIONS
Campus REM: adding value on two levels
INDIVIDUAL & ORGANIZATIONAL NEEDS

Maslow's Hierarchy of Needs:
- Physiological: basic needs for survival
- Safety: security, protection
- Social: love, belongingness
- Esteem: respect, recognition
- Self-actualization: self-fulfillment

Real estate functions adding value to psychological needs:
- Inspiring people
- Attracting people
- Stimulating people to higher performance
- Supporting people's activities, status, image
- Connecting people: creating a social place to meet
- Keeping people safe
Performance is measured by **KEY PERFORMANCE INDICATORS (KPIs)**

- **knowledge base**
  - knowledge workers, alumni
  - diversity in urban population: age, education, culture, lifestyle
  - student housing in units
  - hotel rooms, short stay apartments
  - housing for staff

- **competitive advantage**
  - attractiveness of a city or region
  - university rankings
  - reputation of faculty & departments
  - market share of student enrolment

- **university output**
  - diplomas
  - degrees
  - publications
  - citations
  - Patents
  - knowledge workers (alumni)

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Campus REM: relationship between CITY & CAMPUS

<table>
<thead>
<tr>
<th>current location campus - city - university</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>village</strong></td>
</tr>
<tr>
<td>• university is relatively autonomous in creating campus of the future</td>
</tr>
<tr>
<td>• distance from city will determine whether campus managers are forced to supply all campus function on their own terrain</td>
</tr>
<tr>
<td>• campus competes with city</td>
</tr>
<tr>
<td><strong>city</strong></td>
</tr>
<tr>
<td><strong>outside city / “greenfield” campus</strong></td>
</tr>
<tr>
<td><strong>campus</strong></td>
</tr>
<tr>
<td><strong>park</strong></td>
</tr>
<tr>
<td>• campus can be both isolated from city population and open for collaboration for different functions (both with advantages and disadvantages)</td>
</tr>
<tr>
<td><strong>concentrated within city / “gated” campus</strong></td>
</tr>
<tr>
<td><strong>univer-city</strong></td>
</tr>
<tr>
<td>• plenty of opportunity to supply campus functions in collaboration with city and third parties</td>
</tr>
<tr>
<td>• identity campus can be diffuse, affecting the sense of community</td>
</tr>
<tr>
<td><strong>buildings</strong></td>
</tr>
<tr>
<td><strong>buildings city</strong></td>
</tr>
<tr>
<td><strong>buildings city</strong></td>
</tr>
</tbody>
</table>
Transformation potential & financial feasibility through various models & tools
Combining theories on CAMPUS MANAGEMENT & TRANSFORMATION

USING EXISTING THEORIES & TOOLS AS A STARTING POINT ('HERBESTEMMINGSWIJZER')
OPERATION METHOD

STRUCTURE ‘HERBESTEMMINGSWIJZER’ AS BASE

3 PHASES, 9 STEPS

CASE SELECTION: VACANCY, FUNCTIONS, TRANSFORMATION

DESIGN PROPOSALS: BUILDING CONCEPTS, LAYOUT VARIANTS

ASSESSMENT: ‘ADDED VALUE’, FINANCIAL FEASIBILITY
USABILITY OF THE FRAMEWORK

VACANCY RELEVANCE & TRANSFORMATION POTENTIAL

FUNCTION DETERMINATION

DESIGN PROPOSALS & ADDED VALUE

APPLICABILITY
PHASE I: CASE SELECTION

Step 1: vacancy relevance

PART I: ASSESSMENT VETO CRITERIA (APPLICABLE TO ALL)

<table>
<thead>
<tr>
<th>ASPECT</th>
<th>VETO CRITERION</th>
<th>DATA</th>
<th>JUDGEMENT</th>
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</thead>
<tbody>
<tr>
<td>LOCATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Municipal policy</td>
<td>1. Property located in priority area</td>
<td>Municipal policy</td>
<td>NO</td>
</tr>
<tr>
<td>2. Parking</td>
<td>2. Capacity site or vicinity ≤ 1 pp / 200 sq m GFA</td>
<td>On site, brokers</td>
<td>NO</td>
</tr>
<tr>
<td>BUILDING</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Rent price</td>
<td>3. Rent price ≤ €100 / sq m GFA (reference date December 2012)</td>
<td>Literature, brokers</td>
<td>N/A (moves to gradual criteria)</td>
</tr>
</tbody>
</table>

PART II: ASSESSMENT VETO CRITERIA (APPLICABLE TO ALL)

<table>
<thead>
<tr>
<th>NAME</th>
<th>LOCATION</th>
<th>BUILDING</th>
<th>TOTAL</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kramerslab</td>
<td>75</td>
<td>125</td>
<td>200</td>
<td>2</td>
</tr>
<tr>
<td>PMB</td>
<td>75</td>
<td>20</td>
<td>95</td>
<td>1</td>
</tr>
<tr>
<td>Bld. Part 5B</td>
<td>90</td>
<td>100</td>
<td>190</td>
<td>2</td>
</tr>
<tr>
<td>MSP</td>
<td>90</td>
<td>90</td>
<td>180</td>
<td>2</td>
</tr>
<tr>
<td>P&amp;E</td>
<td>80</td>
<td>120</td>
<td>200</td>
<td>2</td>
</tr>
<tr>
<td>L&amp;R</td>
<td>90</td>
<td>75</td>
<td>165</td>
<td>2</td>
</tr>
<tr>
<td>TUDL Area</td>
<td>90</td>
<td>15</td>
<td>105</td>
<td>1</td>
</tr>
<tr>
<td>DCE 8b</td>
<td>90</td>
<td>80</td>
<td>170</td>
<td>2</td>
</tr>
<tr>
<td>Stevin II+III</td>
<td>80</td>
<td>165</td>
<td>245</td>
<td>2</td>
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</tbody>
</table>

PART II: ASSESSMENT GRADUAL CRITERIA (END RESULTS)

VERY SUITABLE - SUITABLE FOR PRESERVATION CURRENT USE
### PHASE 1: CASE SELECTION

**Step 2+3: selecting appropriate functions (Kramerslab)**

<table>
<thead>
<tr>
<th>NAME</th>
<th>ST. HOUSING</th>
<th>ALUMNI HOUSING</th>
<th>VERDICT 1</th>
<th>VERDICT 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kramerslab</td>
<td>48</td>
<td>42</td>
<td>A</td>
<td>N/A</td>
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<tr>
<td>PMB</td>
<td>57</td>
<td>50</td>
<td>E</td>
<td>A</td>
</tr>
<tr>
<td>Bld. Part 5B</td>
<td>52</td>
<td>44</td>
<td>A</td>
<td>N/A</td>
</tr>
<tr>
<td>MSP</td>
<td>51</td>
<td>44</td>
<td>A</td>
<td>N/A</td>
</tr>
<tr>
<td>P&amp;E</td>
<td>50</td>
<td>43</td>
<td>A</td>
<td>N/A</td>
</tr>
<tr>
<td>L&amp;R</td>
<td>51</td>
<td>45</td>
<td>A</td>
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<tr>
<td>TUDL Area</td>
<td>57</td>
<td>50</td>
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<tr>
<td>DCE 8b</td>
<td>51</td>
<td>45</td>
<td>A</td>
<td>N/A</td>
</tr>
<tr>
<td>Stevin II+III</td>
<td>49</td>
<td>43</td>
<td>A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

#### FUNCTION SELECTION RESULTS: STUDENT HOUSING & ALUMNI HOUSING
PHASE I: CASE SELECTION

Step 4: transformation potential

ASSESSMENT VETO CRITERIA: STUDENT HOUSING

**MARKET**
1. Current market demand
   - 1. No demand for proposed function
     - NO
     - NO

**LOCATION**
2. Urban location
   - 2. Zoning does not allow changes
     - NO
     - NO
   - 3. Serious risk to public health
     - NO
     - NO

**BUILDING**
3. Hull dimensions
   - 4. Free ceiling height < 2.60 m
     - NO
     - NO

**ORGANIZATION**
4. Initiator
   - 5. Absence enthusiastic initiator
     - NO
     - NO

5. Internal veto criteria developer
   - 6. Can not meet requirements: region/location/accessibility
     - NO
     - NO
   - 7. Can not meet requirements: building/size/image
     - NO
     - NO

6. Owner/investor
   - 8. No willingness to sell building
     - NO
     - NO

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<thead>
<tr>
<th>NAME</th>
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<th>TOTAL</th>
<th>CATEGORY</th>
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<tbody>
<tr>
<td>Kramerslab</td>
<td>5</td>
<td>24</td>
<td>29</td>
<td>1</td>
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<tr>
<td>PMB</td>
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<td>Bld. Part 5B</td>
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<td>29</td>
<td>59</td>
<td>2</td>
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<td>29</td>
<td>1</td>
</tr>
<tr>
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<td>5</td>
<td>12</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
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<td>35</td>
<td>18</td>
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<td>35</td>
<td>1</td>
</tr>
</tbody>
</table>

**TRANSFORMATION POTENTIAL: ASSESSMENT GRADUAL CRITERIA**

<table>
<thead>
<tr>
<th>TRANSFORMATION SCORE</th>
<th>TRANSFORMATION CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location + Building = 0 – 40</td>
<td>1= Very suitable for transformation</td>
</tr>
<tr>
<td>Location + Building = 41 – 80</td>
<td>2= Suitable for transformation</td>
</tr>
<tr>
<td>Location + Building = 81 – 120</td>
<td>3= Limited suitability for transformation</td>
</tr>
<tr>
<td>Location + Building = 121 – 160</td>
<td>4= Hardly suitable for transformation</td>
</tr>
<tr>
<td>Location + Building = 161 – 199</td>
<td>5= Not suitable for transformation</td>
</tr>
</tbody>
</table>

'PMB' LOWEST SCORE: HIGHEST TRANSFORMATION POTENTIAL
PHASE II: DESIGN PROPOSAL(S)

Step 5-8: building concept, design proposal (Kramerslab)
PHASE III: ASSESSMENT

Step 8: ‘added value’ of student housing

**Improved building quality**
- Decreased % of real estate in (very) bad condition
- Increased % of real estate that could be sold

**Increased real estate value**
- Increased competitive advantage
- Increased attractiveness city & university

**Decreased costs**
- Decreased total costs of ownership (generating income)
- Decreased maintenance costs

**Increased user satisfaction**
- Providing housing space
- Developing additional facilities (e.g. retail & leisure)
### PHASE III: ASSESSMENT

**Step 9: financial feasibility**

<table>
<thead>
<tr>
<th>NAME</th>
<th>RES. LAND</th>
<th>RES. PROP.</th>
<th>NPV</th>
<th>IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMB</td>
<td>€ 0,1 mil. - 1,9 mil.</td>
<td>€ 6,9 mil. - 6,5 mil.</td>
<td>€ 3,6 mil. - 0,5 mil.</td>
<td>25% - 5%</td>
</tr>
<tr>
<td>Bld. Part 5B</td>
<td>€ 0,1 mil. - 2,4 mil.</td>
<td>€ 7,6 mil. - 7,1 mil.</td>
<td>€ 3,9 mil. - 0,1 mil.</td>
<td>20% - 5%</td>
</tr>
<tr>
<td>MSP</td>
<td>€ 0,3 mil. - 3,9 mil.</td>
<td>€ 10,0 mil. - 9,5 mil.</td>
<td>€ 4,9 mil. - 1,0 mil.</td>
<td>20% - 5%</td>
</tr>
<tr>
<td>P&amp;E</td>
<td>€ 0,3 mil. - 2,7 mil.</td>
<td>€ 10,0 mil. - 9,5 mil.</td>
<td>€ 3,7 mil. - 0,9 mil.</td>
<td>10% - 5%</td>
</tr>
<tr>
<td>L&amp;R</td>
<td>€ 0,1 mil. - 2,2 mil.</td>
<td>€ 6,1 mil. - 5,7 mil.</td>
<td>€ 3,0 mil. - 0,4 mil.</td>
<td>20% - 5%</td>
</tr>
<tr>
<td>TUDL</td>
<td>€ 0,9 mil. - 0,5 mil.</td>
<td>€ 1,3 mil. - 1,2 mil.</td>
<td>€ 0,5 mil. - 36,000</td>
<td>10% - 5%</td>
</tr>
<tr>
<td>DCE</td>
<td>€ -0,1 mil. - 0,6 mil.</td>
<td>€ 2,0 mil. - 1,9 mil.</td>
<td>€ 0,9 mil. - 60,000</td>
<td>15% - 5%</td>
</tr>
<tr>
<td>Stevin II+III</td>
<td>€ -2,3 mil. - 10,7 mil.</td>
<td>€ 10,4 mil. - 9,8 mil.</td>
<td>€ -0,7 mil. - 11,5 mil.</td>
<td>5% - 0%</td>
</tr>
</tbody>
</table>

**RESULTS FINANCIAL FEASIBILITY TU DELFT: STUDENT HOUSING**

- **‘STEVIN II+III’**
  - LOWEST IRR DUE TO SIZE (INEFFICIENT SPACE USE)
  - HIGHER BUILDING COSTS (NEGATIVE NPV & LOW IRR)
FINDINGS & CONCLUSIONS
CORPORATE REM & CAMPUS REM ARE TWO DIFFERENT DISCIPLINES WITH EACH THEIR OWN IDENTITY.

BASIC STRUCTURE IS SIMILAR | CAMPUS REM FOCUSED ON ORGANIZATIONAL & URBAN LEVEL | LOCATION IMPORTANT
CORPORATE REM IS MORE FOCUSED ON ADDING VALUE ON AN ORGANIZATIONAL LEVEL, WHILE CAMPUS REM ALSO AIMS AT ADDING VALUE ON AN URBAN LEVEL.

IMPORTANT RELATIONSHIP CITY & CAMPUS / KNOWLEDGE DEVELOPMENT & COMPETITIVE ADVANTAGE
MEASURING THE ADDED VALUE OF TRANSFORMATION OPTIONS FOR CAMPUS REAL ESTATE REQUIRES A COMBINATION OF THEORIES OF BOTH DISCIPLINES.

LACK OF INFORMATION ON TRANSFORMATION OF CAMPUS REAL ESTATE
IT IS ADVISABLE FOR CAMPUS MANAGERS TO MAKE USE OF EXISTING TOOLS AND THEORY, AS COMBINED IN THE FRAMEWORK, WHEN CONSIDERING TRANSFORMATION OPTIONS.
The use of existing tools has proven that information on transformation costs is difficult to determine.

Uncertainty of using values | literature questions certain values
The framework developed for campus managers will need further adjustments in order to be fully applicable to campus management & campus real estate. Solid first step for exploring campus transformation | based on tools for office real estate | discussion needed.
1. Student housing is an applicable real estate function for all assessed properties, for transformation purposes.
2. The transformation to student housing adds value to all four stakeholders.
3. The transformation to student housing should be seen as a possible solution for the current real estate demand in Delft.

Contribution towards national vacancy problem

Possible solution for TU Delft campus (organization)

Meeting current student housing demand (urban)
QUESTIONS?

WHO
WHAT
WHERE
WHEN
WHY
HOW
QUESTIONS
ANSWERS