Managing the University Campus
Towards a maturity model for campus management

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2nd mentor: Yawei Chen
INTRODUCTION

• Problem statement
• Research questions
• Research design
• Theoretical framework
• Maturity model
• Expert interviews
• Operationalization maturity model
• Case study 1: TU Delft
• Case study 2: CUHK
• Conclusion
• Recommendations and discussion
INTRODUCTION

• Challenging task for institutions to match demand with their assets

• **Resources** put for the right use: updating portfolio to changing demand-efficient application, or it will be a drain on available funds (Musa, 2012)

• Shift from supply-driven approach to new, more customised and demand-oriented ways of teaching and learning (Simons et al, 2008)

• Many institutions are not sufficiently prepared for future needs and demands (Vries et al, 2008)

• **Adding value** by finding the match between demand and supply, now and in the future
PROBLEM STATEMENT

WHY

- Universities lack understanding
- Too little real estate decision supporting information systems
- Lack of references and figures from comparable situations to assess their own situation
- Maturity difficult to measure in different context
RESEARCH QUESTIONS

How can the maturity level of campus management of a university be determined in order to create added value in terms of performance*, and support decision-making?

*competitive advantage, sustainable development, profitability and productivity
1) How can the maturity level of campus management of a university be determined?

- What levels in the model can be determined?
- How can the maturity model to be operationalised?

Quick scan

Full scan
2) How does the maturity level express in the performance level (evidence) of the campus?
3) What is the **applicability** of the developed model?

Testing the model:

- **TU Delft**
- **CUHK**

Limitations, advantages, disadvantages, differences and similarities between the quick scan and full scan model

Which model is better?
Knowing the current state of maturity

Knowing the current performance level

Maturity model
Knowing what to do!!

Maturity model
TARGET GROUP

- Strategic Policy makers
- Financial Controllers
- Functional Users
- Physical Technical managers

Campus management
TARGET GROUP

Strategic Policy makers

Functional Users

Strategic component
- Goal focus
- Enhancing quality
- Enhancing user satisfaction
- Competitive advantage
- Innovation & improvement
- Internationalisation, marketing

Financial Controllers
TARGET GROUP

Functional component
- Decisions related to supporting users of the building
- Enhancing productivity users
- Space use (flexible, multifunctional, transformation)
- Controlling quality of space
TARGET GROUP

Financial component
- Controlling/ reducing costs & risks
- Budget control
- Generate revenue through related business
- Management and efficient use of financial resources

Financial Controllers

Physical Technical managers
TARGET GROUP

Physical component
- Reducing footprint
- Sustainable development
- Controlling technical risks
- Improving condition
- Improving technical quality
- Maintenance buildings

Physical Technical managers
RESEARCH DESIGN

- Literature review
  - Literature study on CREM performance indicators
  - Literature study on UAD performance indicators
  - Literature maturity model

- Problem analysis
  - Research questions

- Maturity model
  - Quick scan
  - Full scan
  - Expert interviews

- Testing the model
  - Maturity assessment
  - Performance assessment

- Case study 1
  - Case study 2
  - Findings

- Recommendations
  - Scientific field
  - Applicability maturity model

- Conclusions
RESEARCH DESIGN

Literature review

Problem analysis
Research questions

Literature study on CREM
performance indicators

Literature study on UAD
performance indicators

Literature maturity model

Maturity model

Expert interviews

Testing the model
Maturity assessment
Performance assessment

Case study 1
Case study 2
Findings

Recommendations
Scientific field
Applicability maturity model

Conclusions
Management perspectives

**Strategic component**
- Goal focus
- Enhancing quality
- Enhancing user satisfaction
- Competitive advantage
- Innovation & improvement
- Internationalisation, marketing

**Functional component**
- Decisions related to supporting users of the building
- Enhancing productivity users
- Space use (flexible, multifunctional, transformation)
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**Financial component**
- Controlling/ reducing costs & risks
- Budget control
- Generate revenue through related business
- Management and efficient use of financial resources

**Physical component**
- Reducing footprint
- Sustainable development
- Controlling technical risks
- Improving condition
- Improving technical quality
- Maintenance buildings

**Evidence in performance**

**Strategic variables**
- Quality of education
- Quality of facilities
- User satisfaction

**Functional variables**
- Students output
- Staff output
- Space usage
- Functional mix

**Financial variables**
- Total costs
- Total income
- Real estate value

**Physical variables: building level**
- Energy efficiency
- Technical condition
- Level of maintenance, renewal & innovation

**Physical variables: urban level**
- Quality of built environment
- Amenities
- Infrastructure
- Relationship campus and surroundings
Quality of the campus management

Management perspectives

- Strategic component
  - Goal focus
  - Enhancing quality
  - Enhancing user satisfaction
  - Competitive advantage

- Functional component
  - Decisions related to supporting users of the building
  - Enhancing productivity

- Financial component
  - Controlling/reducing costs & risks
  - Budget control
  - Generate revenue through

- Physical component
  - Reducing footprint
  - Sustainable development
  - Controlling technical risks
  - Improving condition

Maturity levels

Level 1
- Initial
  - No evidence
  - No awareness
  - No focus on future changes

Level 2
- Repeateable
  - Awareness of current state
  - Awareness of current mismatch
  - Presence of plans to improve the campus but not implemented yet

Level 3
- Defined
  - ‘On their way’
  - Presence of management
  - Presence of plans to improve the campus implemented

Level 4
- Managed
  - Full implementations of plans, and pro-active in developing new plans incorporating the future
  - Awareness of future changes (scenario-planning)

Level 5
- Optimizing
  - Performance is maximized in current state
  - Awareness + encountering changing demand and trends
  - Alternatives in their plan-making

Evidence in performance

- Strategic variables
  - Quality of education
  - Quality of facilities
  - User satisfaction

- Functional variables
  - Students output
  - Staff output
  - Space usage
  - Functional mix

- Financial variables
  - Total costs
  - Total income
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- Physical variables: building level
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  - Technical condition
  - Level of maintenance, renewal & innovation

- Physical variables: urban level
  - Quality of built environment
  - Amenities
  - Infrastructure
  - Relationship campus and surroundings
Quality of the campus management

Management perspectives

<table>
<thead>
<tr>
<th>Strategic component</th>
<th>Functional component</th>
<th>Financial component</th>
<th>Physical component</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Goal focus</td>
<td>-Decisions related to supporting users of</td>
<td>-Controlling/ reducing costs &amp; risks</td>
<td>-Reducing footprint</td>
</tr>
<tr>
<td>-Enhancing quality</td>
<td>the building</td>
<td>-Budget control</td>
<td>-Sustainable development</td>
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<tr>
<td>-Enhancing user satisfaction</td>
<td>-Enhancing productivity</td>
<td></td>
<td>-Controlling technical risks</td>
</tr>
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<td>-Competitive advantage</td>
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<td></td>
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</table>

Level 1
Initial
-No evidence
-No awareness
-No focus on future changes

Evidence in performance

<table>
<thead>
<tr>
<th>Strategic variables</th>
<th>Functional variables</th>
<th>Financial variables</th>
<th>Physical variables: building level</th>
<th>Physical variables: urban level</th>
</tr>
</thead>
<tbody>
<tr>
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<td>-Amenities</td>
</tr>
<tr>
<td>-User satisfaction</td>
<td>-Space usage</td>
<td>-Real estate value</td>
<td>-Level of maintenance, renewal &amp;</td>
<td>-Infrastructure</td>
</tr>
<tr>
<td></td>
<td>-Functional mix</td>
<td></td>
<td>innovation</td>
<td>-Relationship campus</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td>and surroundings</td>
</tr>
</tbody>
</table>
Quality of the campus management

Level 2
Repeatable
- Awareness of current state
- Awareness of current mismatch
- Presence of plans to improve the campus but not implemented yet

Evidence in performance

Strategic variables
- Quality of education
- Quality of facilities
- User satisfaction

Functional variables
- Students output
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Financial variables
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Physical variables: urban level
- Quality of built environment
- Amenities
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- Relationship campus and surroundings
Quality of the campus management

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- 'On their way'
- Presence of management
- Presence of plans to improve the campus implemented

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Quality of the campus management

Management perspectives

- Strategic component
  - Goal focus
  - Enhancing quality
  - Enhancing user satisfaction
  - Competitive advantage

- Functional component
  - Decisions related to supporting users of the building
  - Enhancing productivity

- Financial component
  - Controlling/ reducing costs & risks
  - Budget control
  - Generate revenue through

- Physical component
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  - Sustainable development
  - Controlling technical risks
  - Improving condition

Level 4
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Level 5
Optimizing
- Performance is maximized in current state
- Awareness + encouraging changing demand and trends
- Alternatives in their plan-making

Evidence in performance

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- Quality of built environment
- Amenities
- Infrastructure
- Relationship campus and surroundings
Expert interviews

- Complementing MM with insight from experts
- Importance variables which affects the performance
- Effort (time & resources) to retrieve the data concerning the variables
FINDINGS

Importance variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>not relevant</th>
<th>very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>quality of built environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>amenities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>user satisfaction</td>
<td></td>
<td></td>
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<tr>
<td>quality of education</td>
<td></td>
<td></td>
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<tr>
<td>infrastructure</td>
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<tr>
<td>level of maintenance</td>
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<td></td>
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<tr>
<td>quality of facilities</td>
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<tr>
<td>space usage</td>
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<tr>
<td>functional mix</td>
<td></td>
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<tr>
<td>relationship campus/surroundings</td>
<td></td>
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<tr>
<td>technical condition</td>
<td></td>
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<tr>
<td>total costs</td>
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<tr>
<td>total income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>energy efficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>students &amp; staff output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>real estate value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FINDINGS

Importance variables

Key variable

Quickscan
- Quality of built environment
  - Public space, campus, safety & hygiene
- Amenities
- Infrastructure
  - Accessibility, public transport, parking, roads
- Quality of education
- Quality of facilities
- Research output
  - Total income
  - Total costs

Full scan
- User satisfaction
- Attractiveness buildings and campus
- Functional mix
- Space usage
- Indoor quality
- Relationship university and its surroundings
- Technical condition building
- Energy efficiency
- Relationship with the city
Quick scan

Methods:

• Analysing reports (annual reports, technical reports, financial reports)
• Analysing plans and visions (campus vision, real estate strategy, planning)
• Online-resources (website, ranking systems, monitors, reviews)
• Area analysis (maps, drawings, floor plans, public transport maps)
Maturity Model

Full scan

Methods:

- All the methods described in the quick scan, complemented with:
- Visiting the location (observation, analysing buildings and campus, space usage)
- Conducting interviews (with experts, or people from the university)
- Conducting surveys

Full-scan model

<table>
<thead>
<tr>
<th>General Information</th>
<th>Maturity Level</th>
<th>Physical Evidence</th>
<th>Physical Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background (context)</td>
<td>Strategic</td>
<td>Level 1</td>
<td>+ User satisfaction</td>
</tr>
<tr>
<td>General building</td>
<td>Functional</td>
<td>Level 2</td>
<td>+ Space usage</td>
</tr>
<tr>
<td>Data</td>
<td>Financial</td>
<td>Level 3</td>
<td>+ Functional mix</td>
</tr>
<tr>
<td>Location</td>
<td>Physical</td>
<td>Level 4</td>
<td>+ Indoor quality</td>
</tr>
<tr>
<td>Facilities</td>
<td></td>
<td>Level 5</td>
<td>+ Energy efficiency</td>
</tr>
<tr>
<td>Amenities</td>
<td></td>
<td></td>
<td>+ Relationship campus and surroundings</td>
</tr>
<tr>
<td>Statistics</td>
<td></td>
<td></td>
<td>+ Relationship campus and the city</td>
</tr>
<tr>
<td>Education programmes</td>
<td></td>
<td></td>
<td>+ Attractiveness buildings and campus</td>
</tr>
<tr>
<td>Reputation</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Ranking</td>
<td></td>
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</tr>
</tbody>
</table>

Quick-scan variables:
- Quality of education
- Quality of facilities
- Research (influence, volume, income)
- Quality of built environment
- Amenities
- Infrastructure
- Level of maintenance
- Technical condition building
- Total income & costs
- (Investments & operation costs)

High effort variables:
- User satisfaction
- Space usage
- Functional mix
- Indoor quality
- Energy efficiency
- Relationship campus and surroundings
- Relationship campus and the city
- Attractiveness buildings and campus
OPERATIONALISATION
STEP 1
Collect background data about the case
**STEP 2**

**Determining the maturity level**

| Criteria 1 | Awareness       | • Awareness of the current condition and (mis)match  
|           | clueless up     | • Awareness of changing demand and trends involved in the higher education sector  
|           | prepared down   |                                           |
| Criteria 2 | **Goal focus**  | • The level of goal focus expresses in the presence of plans and statements in improving a certain subject (e.g. enhancing competitiveness, reducing energy costs, increasing amount of amenities etc.)  
|           | aimless up      | • Statements  
|           | high ambition   | • Plans, strategies, visions  
| Criteria 3 | **Innovation level**  | • Innovation drives up the competitive advantage, which means the level is determined by renewal of systems, tools, building materials and processes.  
|           | old fashioned   |                                           |
|           | innovational    |                                           |
| Criteria 4 | **Tools and systems**  | • The presence and maturity of research tools concerning a certain subject (e.g. monitor for energy usage).  
|           | underdeveloped  | • Systems are related to the presence and maturity of documentation systems of information.  
|           | advanced up     |                                           |
| Criteria 5 | **Skills and expertise**  | • The skills and expertise of the staff are an important factor which influences the maturity level of campus management. When people lack the skills to make links between disciplines, the true added value will be lost  
|           | incompetent up   |                                           |
|           | outstanding     |                                           |
| Criteria 6 | **Communication**  | • Information share: The presence and maturity of information sharing systems  
|           | poor up         | • The communication between stakeholders involved in the campus management.  
|           | excellent down  |                                           |
STEP 2
Determining the maturity level

<table>
<thead>
<tr>
<th>Strategic</th>
<th>Level 1 Initial</th>
<th>Level 2 Repeatable</th>
<th>Level 3 Defined</th>
<th>Level 4 Managed</th>
<th>Level 5 Optimizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Financial</td>
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<tr>
<td>Physical (building level)</td>
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<tr>
<td>Physical (urban level)</td>
<td></td>
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</tr>
</tbody>
</table>

- strategic
- physical (urban)
- physical (building)
- functional
- financial
STEP 3
Determining the performance level

Quick-scan model

- **general information**
  - background (context)
  - general building data
  - location
  - facilities & amenities
  - statistics
  - education programmes
  - reputation
  - ranking

- **maturity level campus management**
  - Strategic
    - Level 1
  - Functional
    - Level 2
  - Financial
    - Level 3
  - Physical
    - Level 4
    - Level 5

- **physical evidence quick-scan variables**
  - quality of education
  - quality facilities
  - research (influence, volume, income)
  - quality of built environment
  - amenities
  - infrastructure
  - level of maintenance
  - technical condition building
  - total income & costs
    - (investments & operation costs)

Research timeline
STEP 4
Determining the performance level

Full-scan model

general information
background (context)
general building data
location
facilities & amenities
statistics
education programmes
reputation
ranking

maturity level
campus management
Strategic
Level 1
Level 2
Level 3
Level 4
Level 5
Functional
Financial
Physical

physical evidence
quick-scan variables
quality of education
quality facilities
research (influence, volume, income)
quality of built environment
amenities
infrastructure
level of maintenance
technical condition building
total income & costs
(investments & operation costs)

physical evidence
high effort variables
user satisfaction
space usage
functional mix
indoor quality
energy efficiency
relationship campus and surroundings
relationship campus and the city
attractiveness buildings and campus

Research timeline
CASE 1: TU DELFT
### STEP 1

#### Education
- Bachelorprogrammes: 15
- Masterprogrammes: 30
- Student population: 18781
- PhD Students: 2445
- International students: 2948
- First year students: 3914
- Master degrees (2012): 2090

#### Research
- Professors (in fte): 226
- Publications (scientific): 5432
- Promotions: 353

#### Valorisation
- Startups: 17

#### Personnel
- Scientific staff (in fte): 2579
- Scientific staff (in head-count): 2836
- Professional services: 1858
- Ranking 2014-2015: 71

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<table>
<thead>
<tr>
<th>Type</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plangebied</td>
<td>500 ha</td>
</tr>
<tr>
<td>Grondoppervlak TU</td>
<td>160 ha</td>
</tr>
<tr>
<td>TU-gebouwen bezit</td>
<td>535 duizend m² BVO</td>
</tr>
<tr>
<td>Parkeerplaatsen</td>
<td>4 duizend plaatsen = 12 ha</td>
</tr>
<tr>
<td>Studenten</td>
<td>15,5 duizend</td>
</tr>
<tr>
<td>Staf</td>
<td>5 duizend</td>
</tr>
</tbody>
</table>
## STEP 2

- Anticipating on trends, collaborations, maturity in systems and tools
- Investing in enhancing the skills of staff: providing courses
- Anticipating on future amounts of students
- Enhancing quality of working environment; enhancing productivity
- Anticipating on changing demand of working environment
- Risk analysis, feasibility analysis, investments demand focused
- Disposing bad m2, reducing energy use, maintenance strategy
- Plans to improve accessibility

<table>
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<tr>
<td><strong>(building level)</strong></td>
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<td><strong>(urban level)</strong></td>
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</tr>
</tbody>
</table>

![Radar chart illustrating strategic, functional, and financial aspects across different levels of management.](image)

48 MANAGEMENT
### Quality current state TU Delft

<table>
<thead>
<tr>
<th>Category</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>quality of education</td>
<td>very bad</td>
</tr>
<tr>
<td>quality of facilities</td>
<td></td>
</tr>
<tr>
<td>user satisfaction</td>
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<td>research output</td>
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<td>space usage</td>
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<td>functional mix</td>
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<tr>
<td>very good</td>
<td></td>
</tr>
</tbody>
</table>
QUICK SCAN

Quality current state TU Delft

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>quality of education</td>
<td>very good</td>
</tr>
<tr>
<td>quality of facilities</td>
<td>very good</td>
</tr>
<tr>
<td>user satisfaction</td>
<td>very good</td>
</tr>
<tr>
<td>research output</td>
<td>very good</td>
</tr>
<tr>
<td>space usage</td>
<td>very good</td>
</tr>
<tr>
<td>functional mix</td>
<td>very good</td>
</tr>
<tr>
<td>total costs</td>
<td>very good</td>
</tr>
<tr>
<td>total income</td>
<td>very good</td>
</tr>
<tr>
<td>energy efficiency</td>
<td>very good</td>
</tr>
<tr>
<td>technical condition</td>
<td>very good</td>
</tr>
<tr>
<td>level of maintenance</td>
<td>very good</td>
</tr>
<tr>
<td>quality of built environment</td>
<td>very good</td>
</tr>
<tr>
<td>amenities</td>
<td>very good</td>
</tr>
<tr>
<td>infrastructure</td>
<td>very good</td>
</tr>
<tr>
<td>relationship campus/surroundings</td>
<td>very good</td>
</tr>
</tbody>
</table>
CASE 2: CUHK
The Chinese University of Hong Kong

- Established in 1963
- 8 Academic faculties
- 1,37 km² campus area
- Located on the mountain range of Hong Kong
- ‘City within the city’
- Excellent connected to existing urban structure

<table>
<thead>
<tr>
<th>Education</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor programmes</td>
<td>58</td>
</tr>
<tr>
<td>Master programmes</td>
<td>36</td>
</tr>
<tr>
<td>Student population</td>
<td>18781</td>
</tr>
<tr>
<td>PhD Students</td>
<td>1768</td>
</tr>
<tr>
<td>International students</td>
<td>3419</td>
</tr>
<tr>
<td>Student enrollment</td>
<td>19.263</td>
</tr>
<tr>
<td>Student admission</td>
<td>5236</td>
</tr>
<tr>
<td>Master degrees (2013)</td>
<td>5782</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Research output</td>
<td>7778</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personnel</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching staff</td>
<td>1647</td>
</tr>
<tr>
<td>Research staff</td>
<td>1339</td>
</tr>
<tr>
<td>Professional services</td>
<td>4410</td>
</tr>
</tbody>
</table>

STEP 2

- Attract (international) students, teachers and scientists
- To be acknowledged locally, nationally and internationally
- Class schedule improvements; using the right space to the right amount of students
- Reducing energy use, reducing carbon emissions
- Enhancing quality of life on campus
- Campus master plan: improving connectivity, optimize transport facilities, road improvement

<table>
<thead>
<tr>
<th>Strategic</th>
<th>Level 1 Initial</th>
<th>Level 2 Repeatable</th>
<th>Level 3 Defined</th>
<th>Level 4 Managed</th>
<th>Level 5 Optimizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical (building level)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical (urban level)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
STEP 3

Quality current state CUHK

- Quality of education
- Quality of facilities*
- Research output
- Total costs
- Total income
- Technical condition
- Level of maintenance
- Quality of built environment
- Amenities
- Infrastructure

*Data could not be found
CONCLUSION
1) How can the maturity level of campus management of a university be determined?

- What **levels** in the model can be determined?
- How can the maturity model to be **operationalised**?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4 (FULL)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>general information</strong></td>
<td><strong>maturity level campus management</strong></td>
<td><strong>physical evidence quick-scan variables</strong></td>
<td><strong>physical evidence high effort variables</strong></td>
</tr>
<tr>
<td>background (context)</td>
<td>Strategic</td>
<td>quality of education</td>
<td>user satisfaction</td>
</tr>
<tr>
<td>general building data</td>
<td>Functional</td>
<td>quality facilities</td>
<td>space usage</td>
</tr>
<tr>
<td>location</td>
<td>Financial</td>
<td>research (influence, volume, income)</td>
<td>functional mix</td>
</tr>
<tr>
<td>facilities &amp; amenities</td>
<td>Physical</td>
<td>quality of built environment</td>
<td>indoor quality</td>
</tr>
<tr>
<td>statistics</td>
<td></td>
<td>amenities</td>
<td>energy efficiency</td>
</tr>
<tr>
<td>education programmes</td>
<td></td>
<td>infrastructure</td>
<td>relationship campus and surroundings</td>
</tr>
<tr>
<td>reputation</td>
<td></td>
<td>level of maintenance</td>
<td>relationship campus and the city</td>
</tr>
<tr>
<td>ranking</td>
<td></td>
<td>technical condition building</td>
<td>attractiveness buildings and campus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>total income &amp; costs</td>
<td>(investments &amp; operation costs)</td>
</tr>
</tbody>
</table>

Research timeline
ANSWERS

2) How does the maturity level express in the performance level (evidence) of the campus?

**Physical evidence quick-scan variables**
- quality of education
- quality facilities
- research (influence, volume, income)
- quality of built environment
- amenities
- infrastructure
- level of maintenance
- technical condition building
- total income & costs
  (investments & operation costs)

**Physical evidence high effort variables**
- user satisfaction
- space usage
- functional mix
- indoor quality
- energy efficiency
- relationship campus and surroundings
- relationship campus and the city
- attractiveness buildings and campus
3) What is the applicability of the developed model?

**Quick scan**

**Advantages**
- Limited resources needed
- Clear view about a case which is not inferior compared to the full scan

**Disadvantages**
- Some key variables are left out
- Possibility of missing some important aspects which can only be derived from personal contact/observation/visits
- Sometimes subjective view of researcher

**Full scan**

**Advantages**
- Complete view
- Triangulation of data
- Confidential data

**Disadvantages**
- Possibility of biased view of interviewees due to commitment to university
- Difference in findings when talking to experts from different fields
- Risk of spending resources
3) What is the **applicability** of the developed model?

**Similarities**

- The data derived from the quick scan and the full scan were quite in accordance.
- Answers given by interviewees are similar with data that could be found in (annual) reports, visions, technical reports, monitors, and drawings.

**Differences**

- The answers given by the interviewees tend to be more honest, but it also depends on the character of the person.
- The ratings derived from the interviews tend to higher than the assessment made by the quick scan (0,5 points on a 5-points scale).
3) What is the applicability of the developed model?

**Applicability in a different context**

- Some variables were difficult to find
- Data tend to be glorifying
- Data and statements sometimes seem vague, while Delft is very specific in what they want to reach
- Masterplan very ambitious
- Quick scan gives overall a good view about the case
- The reliability of the quick scan is dependent on the case
Amity-University. (2014). The Times higher education- Asia University Rankings 2014
Ansoff, I. (1965). *Corporate Strategy*
GoogleMaps. (2014). Campus map


ARE THERE ANY QUESTIONS?