Campus of the future
Key asset in the battle for brains

Dr. ir. Alexandra den Heijer
associate professor Faculty of Architecture,
Delft University of Technology (TU Delft), Netherlands

CONTENT
1. Vision on managing the university campus (THEORY)
2. The campus of the future: opportunities and threats (PRACTICE)
3. Guidelines for decision makers (STRATEGY)

FUNCTIONAL definition of “campus”

• ACADEMIC
classrooms, library, offices, laboratories, lecture halls, ...
• RESIDENTIAL
student housing, hotels, ...
• RELATED BUSINESS
start-ups, incubators, industry, ...
• RETAIL & LEISURE
sports, restaurants, cafes, ...
• INFRASTRUCTURE

the “campus” is defined as the (collection of) buildings and land, used for university or university-related functions

http://www.managingtheuniversitycampus.nl
The campus is a key asset in “the (global) Battle for Brains”

**good facilities can attract talent**

**bad facilities can chase them away...**

Why study abroad?
Reasons (not) to go

<table>
<thead>
<tr>
<th>reasons to go</th>
<th>reasons not to go</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. academic reputation</td>
<td>1. academic reputation</td>
</tr>
<tr>
<td>- professors, programme, teaching method, rankings</td>
<td>- English language skills of staff, workload</td>
</tr>
<tr>
<td>2. country / city / culture</td>
<td>2. city / culture</td>
</tr>
<tr>
<td>- employability, learning the language, personal/intercultural relations</td>
<td>- lack of integration</td>
</tr>
<tr>
<td>3. career development</td>
<td>3. social life</td>
</tr>
<tr>
<td>- employability, learning the language, personal/intercultural relations</td>
<td>- lack of organised events</td>
</tr>
<tr>
<td>4. university services</td>
<td>4. university services</td>
</tr>
<tr>
<td>5. social life</td>
<td></td>
</tr>
<tr>
<td>- quality of life, friends, love</td>
<td></td>
</tr>
</tbody>
</table>

UK research (HEDQF 2012) showed that 1/3 of all students admit to have rejected a university based on the (poor quality*) of the physical environment.

*That does not necessarily mean “buildings in bad condition”, but could also refer to an isolated campus or lack of social space.

The campus is a key asset in “the Battle for Brains” for global competition in attracting talent for productivity – workplace for future student / faculty / staff for profitability – finding most effective way to spend budget for sustainable development – footprint – m2 / user

Performance criteria university

- competitive advantage: RANKING MARKET SHARE
- profitability: financial resources (€)
- productivity: QUALITY & QUANTITY OUTPUT
- sustainable development: RESOURCES (m² / CO₂)

Each campus decision about WORKSPACE, BUILDING, LOCATION positively or negatively affects these 4 performance criteria

Goal of “managing the university campus”: find estate strategy that optimally contributes to all performance criteria

Content

1. Vision on managing the university campus (THEORY)
2. The campus of the future: opportunities and threats (PRACTICE)
The European campus is a key asset in “the (global) Battle for Brains”
- European campus as an enabler for Europe 2020
- European campus as a disabler for Europe 2020

Universities as urban growth engines
- Where technology campuses are located, innovation takes place
- Relation economic growth and presence (top-ranked) university

The European campus is a key asset in “the (global) Battle for Brains”
- European campus as an enabler for Europe 2020
- University as economic engines: “place matters”

Campus of the future:
- More quality, less quantity
- New life for old buildings
- Increase benefits / m² to cover high maintenance cost / m²
- Users accept more defects of meaningful, historic buildings

http://www.managingtheuniversitycampus.nl
The European campus is a key asset in “the (global) Battle for Brains”

European campus as an enabler for Europe 2020

The campus of the future is a city

El campus del futuro es una ciudad.
Le campus de l’avenir est une ville.
Der Campus der Zukunft ist eine Stadt.
Kampus budoucnosti je město.
Framtidens campus är en stad.
De campus van de toekomst is een stad.

column June 2013
http://managingtheuniversitycampus.nl

Where to study? Students become tourists
by Alexandra den Heijer

If students could study anywhere, where would they go? My theory: they would select their learning environment the same way tourists: des places with unique qualities – usually cultural heritage – are attractive. Spots, densely populated areas that encourage social interaction or at least give a sense of place. At the same time many universities in the world are adding new buildings to ‘create a campus’ where they are not necessarily attractive for public space or public transport to the city. Of course, researchers that use specialized labs that are only available on specific locations will still come, but more and more university activities become place-independent and flexible to accommodate. Periodically, move place independence makes (qualitatively) place more important. If students can go anywhere, why would they go to your campus or university-city? Or why would they stay in your univer-city after graduation?

http://www.managingtheuniversitycampus.nl
Rural campus 
UPM/Politécnica

New campus
- subsidized by the EU
- computer sciences, biotech, chemistry, planetarium etc.
- incubators

our perception
- no sense of Madrid (accessible with a hourly bus service)
- no place to meet – distances between buildings do not encourage to share
- is there going to be enough demand for this campus?

source: HOI study trip 2012

The European campus is a key asset in “the (global) Battle for Brains”

European campus as an enabler for Europe 2020

1. Universities as economic growth engines: “place matters”
2. Europe’s knowledge economy accommodated in cultural heritage buildings
3. European “univer-cities” are considered attractive places to live, work, be...

Technical condition campus potential risk

Netherlands

<table>
<thead>
<tr>
<th>Grade</th>
<th>% of m2</th>
<th>Required intervention (expressed as a % of replacement cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>33%</td>
<td>20%</td>
</tr>
<tr>
<td>B</td>
<td>32%</td>
<td>40%</td>
</tr>
<tr>
<td>C</td>
<td>21%</td>
<td>60%</td>
</tr>
<tr>
<td>D</td>
<td>10%</td>
<td>80%</td>
</tr>
<tr>
<td>E</td>
<td>4%</td>
<td>100%</td>
</tr>
</tbody>
</table>

37% * 4,4 mln = 1,7 mln m2 needs reinvestment in NL

France

<table>
<thead>
<tr>
<th>Grade</th>
<th>% of m2</th>
<th>Required intervention (expressed as a % of replacement cost)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>33%</td>
<td>20%</td>
</tr>
<tr>
<td>B</td>
<td>32%</td>
<td>40%</td>
</tr>
<tr>
<td>C</td>
<td>21%</td>
<td>60%</td>
</tr>
<tr>
<td>D</td>
<td>10%</td>
<td>80%</td>
</tr>
<tr>
<td>E</td>
<td>4%</td>
<td>100%</td>
</tr>
</tbody>
</table>

35% * 18,6 mln = 6,5 mln m2 needs reinvestment in France

Space types on campus, example NL

- Low utilization rates: high vacancy rates of offices, laboratories, classrooms
Campus of the future:
- changing the academic workplace
  ➔ space use < 20% of workplaces used

Campus of the future (challenge):
- changing the academic workplace

Campus of the future:
- sharing laboratories and other expensive facilities
  avoid vacancy + redundancy

Campus of the future:
- intensive and flexible use of high quality facilities

The European campus is a key asset in “the (global) Battle for Brains”

European campus as a disabler for Europe 2020

(re)investment costs: € 500 - € 4000 / m² gross floor area (price level 2011)
Campus of the future:
- sustainable solutions
- CO2 neutral campus

The European campus is a key asset in “the (global) Battle for Brains”

European campus as a enabler for Europe 2020
1. Universities as economic growth engines: “place matters”
2. Europe’s knowledge economy accommodated in cultural heritage buildings
3. European “univer-cities” are considered attractive places to live, work, be...

European campus as a disabler for Europe 2020
1. > 50% from 1960s/70s
2. bad functional / technical state: reinvestments required
3. low utilization rates: high vacancy rates of offices, laboratories, classrooms
4. campus 10-15% of total costs
5. negatively affects “financial sustainability” of universities

CONTENT
1. Vision on managing the university campus (THEORY)
2. The campus of the future: opportunities and threats (PRACTICE)
3. Guidelines for decision makers (STRATEGY)

the academic workplace
workplace → university building → city

TRADE-OFF
one territorial workplace → many non-territorial places (to share)
quantity of space → quality of place

http://www.managingtheuniversitycampus.nl
From literature: what generates innovation?

1. Interaction – between academic ‘acquaintances’ from different scientific backgrounds is better than ‘academic friends’ or ‘academic family’ (analogy: genetics)
2. Serendipity as innovation motor – new ideas by accident, unplanned interaction
3. The physical presence of people relevant to universities – ‘meeting of minds’
4. “No clicks without bricks” – no world-class university can be entirely virtual
5. Informal meetings: build trust (biology matters) – (espresso) bars, public space, social media contribute to that
6. Importance of place attachment 2nd home for international community – ‘feeling at home’ will make knowledge workers stay (1st house, 1st child)


“Online students can’t help being sociable” (April 9, 2014)

It was a revolution moving higher education from bricks to clicks... and now it’s started to go back to bricks again.

Online university providers, which offered people the chance to study from home, are turning full circle by creating a network of learning centers where students can meet and study together.

Instead of demolishing the dusty old classrooms of academic, the online university revolution is responsible for opening some new ones.

Coursera, a major California-based provider of online courses, is creating an international network of “learning hubs,” where students can follow these virtual courses in real-life, bricks and mortar settings.

They’re scheduled and arranged online, with the only vital ingredients being a laptop, wi-fi and somewhere to talk.

“The typical completion rate for a MOOC is about 5% to 10%.

For MOOC students (“Moocers”) attending learning hubs, the completion rates are between 30% and 100%.”

Source: Coursera (7 mln students)
The campus of the future is a city

The city of the future is a campus (univer-city)

1. use heritage for branding – students* become tourists
2. reduce the footprint – densely populated areas contribute to innovation
3. less private, more public use of space – showcase, open, 24/7 access
4. "urban meeting rooms" – to merge urban and university communities
5. regional alignment – planning in a public-private network

*and other knowledge workers

Follow me on Twitter: @alexandra_dh

More about the book and research “Managing the university campus”, http://managingtheuniversitycampus.nl
(see DOWNLOADS for hand-out)