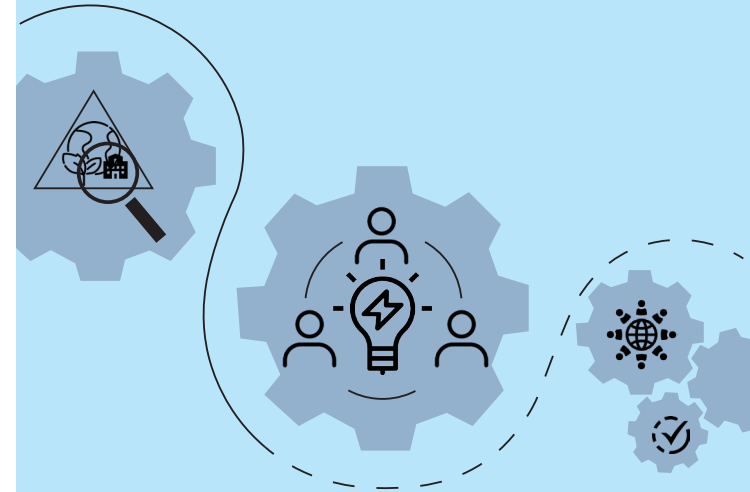


The use of knowledge transfer in campus real estate management about sustainability

An exploratory study

Neva (N.O.) Wardenaar
4593308



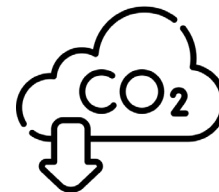
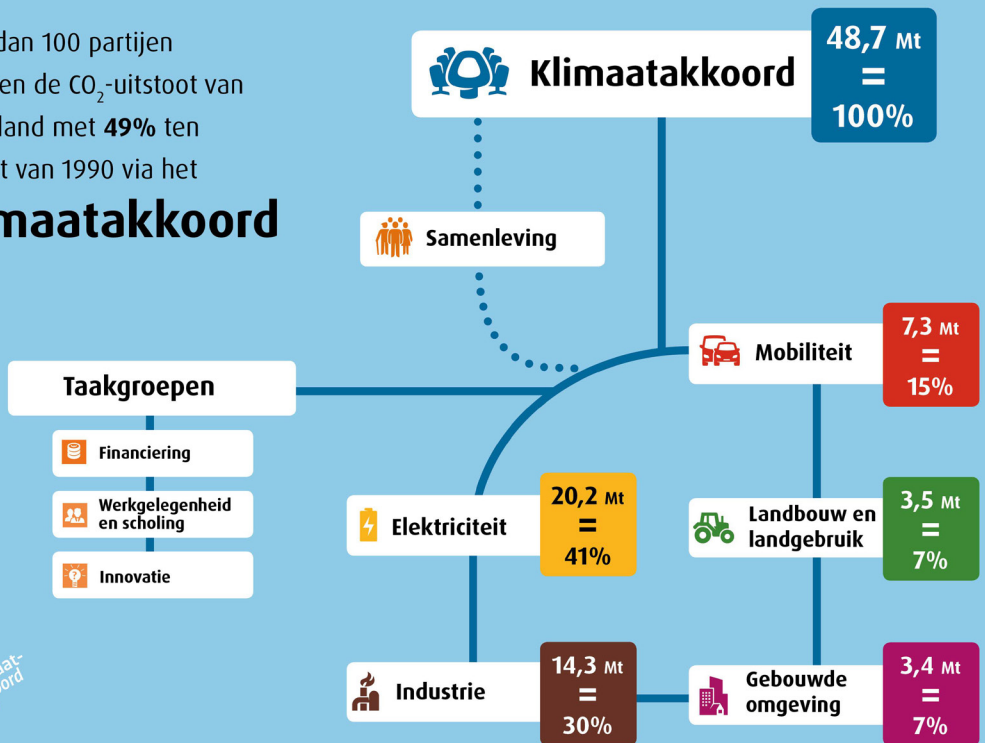
P5 presentation
30/06/2023

TU Delft
MSc Architecture, Urbanism &
Building Sciences
Mastertrack Management in the
Built Environment

introduction.

climate agreement.

Meer dan 100 partijen
verlagen de CO₂-uitstoot van
Nederland met **49%** ten
opzicht van 1990 via het
Klimaatakkoord



by 49% by 2030
(compared to 1990)

Source: klimaatakkoord.nl, 2018

climate agreement.

5 sectors



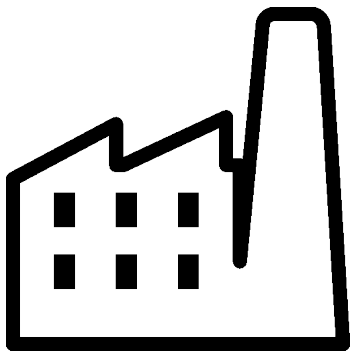
Energy

climate agreement.

5 sectors



Energy



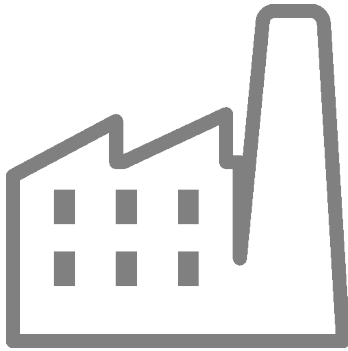
Industry

climate agreement.

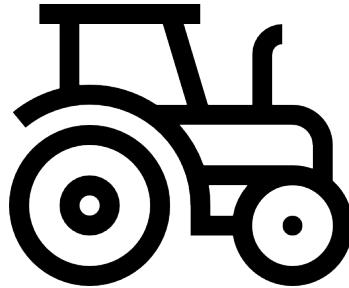
5 sectors



Energy



Industry



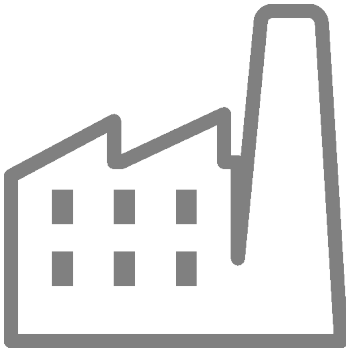
Agriculture &
land use

climate agreement.

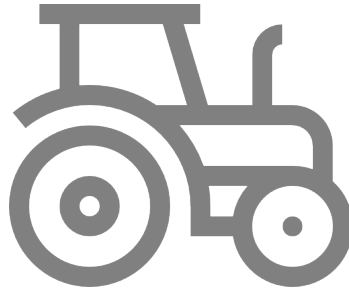
5 sectors



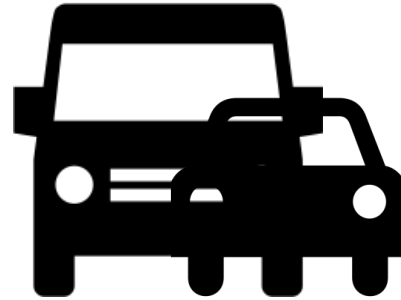
Energy



Industry



Agriculture &
land use



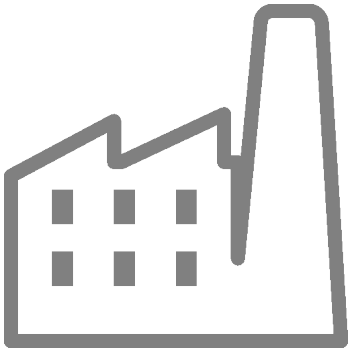
Mobility

climate agreement.

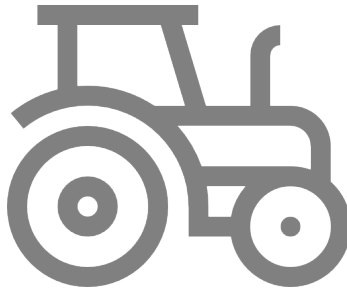
5 sectors



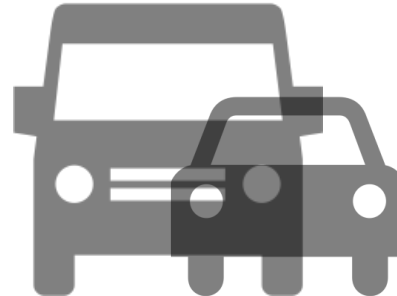
Energy



Industry



Agriculture &
land use



Mobility



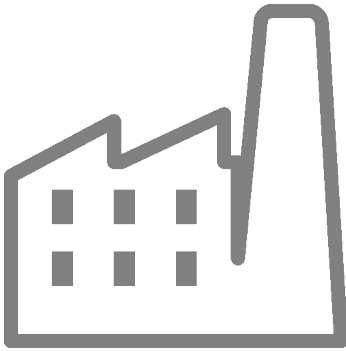
Built
environment

climate agreement.

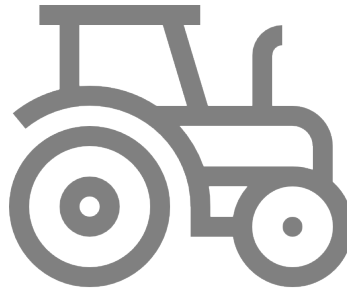
5 sectors



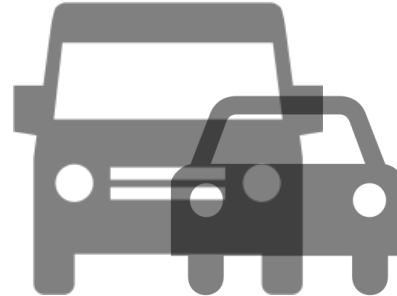
Energy



Industry



Agriculture &
land use



Mobility



Built
environment

climate agreement.



Built
environment

climate agreement.



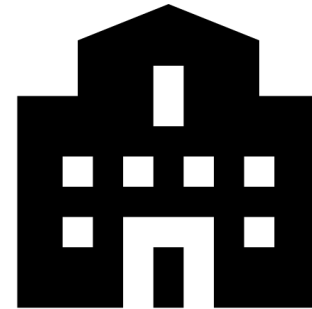
Built
environment



climate agreement.



Built
environment



Campus real
estate

climate agreement.

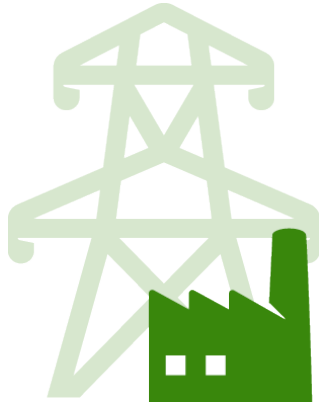


Built
environment



Campus real
estate

campus real estate.



MJA3 covenant
2008

campus real estate.



MJA3 covenant
2008



Universiteiten
van Nederland }

Roadmap

campus real estate.



campus real estate.



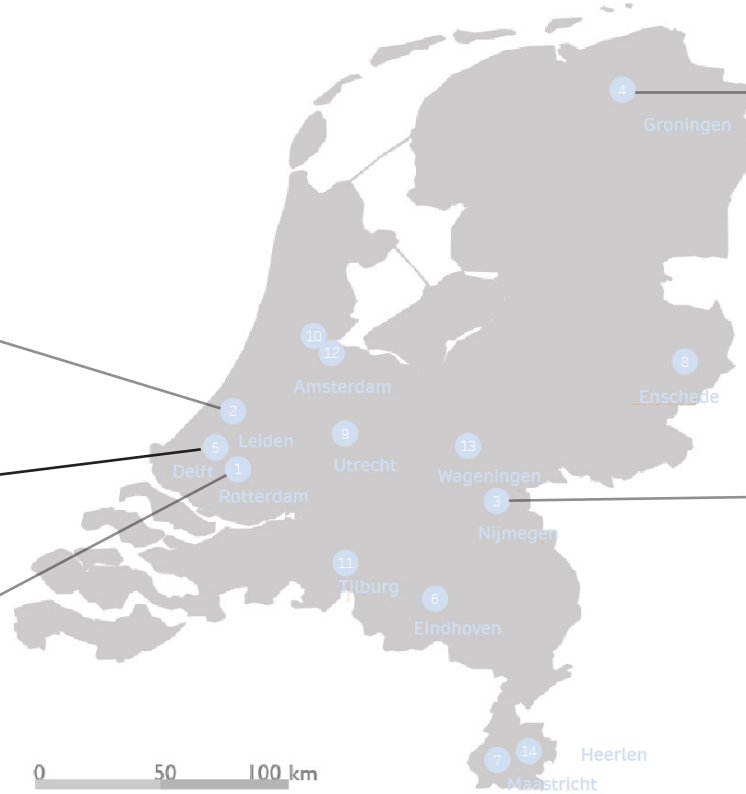
campus real estate.



campus real estate.



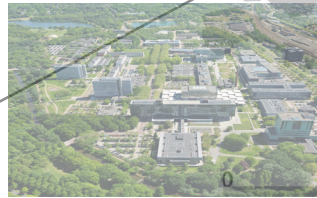
campus real estate.



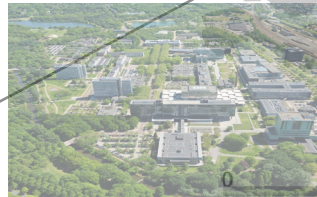
campus real estate.



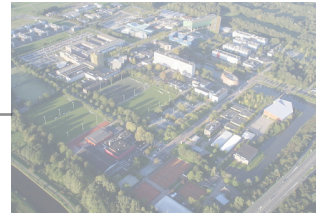
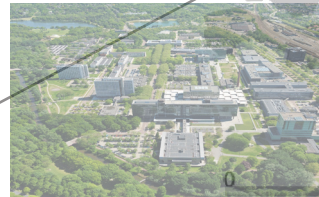
campus real estate.



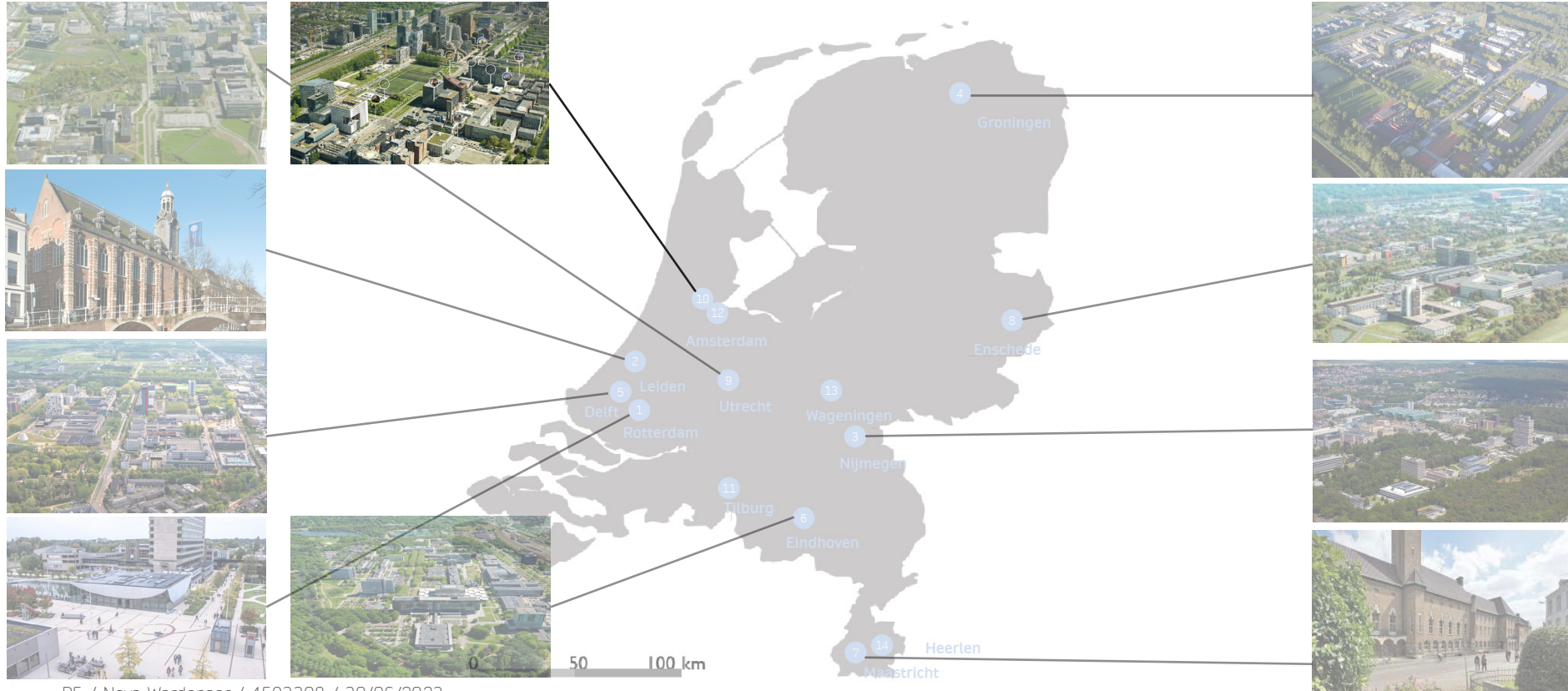
campus real estate.



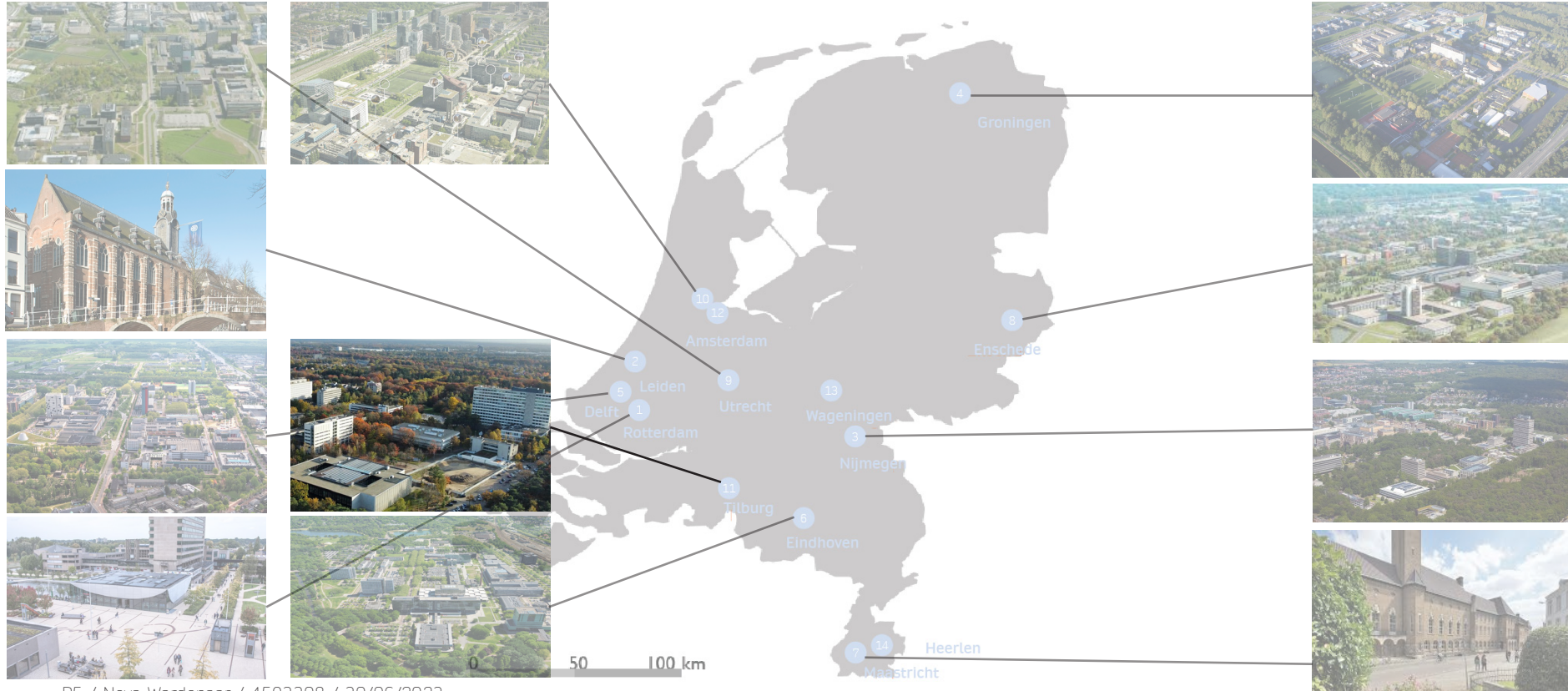
campus real estate.



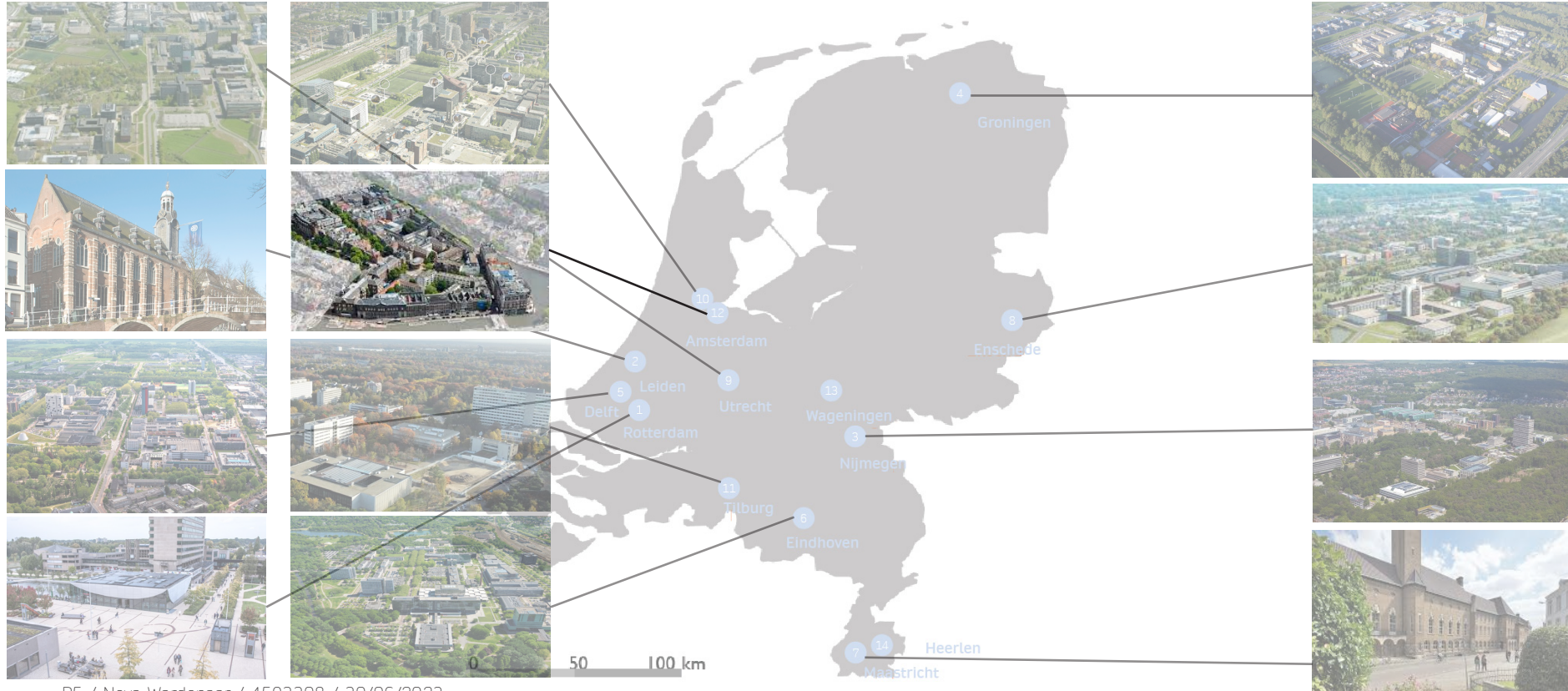
campus real estate.



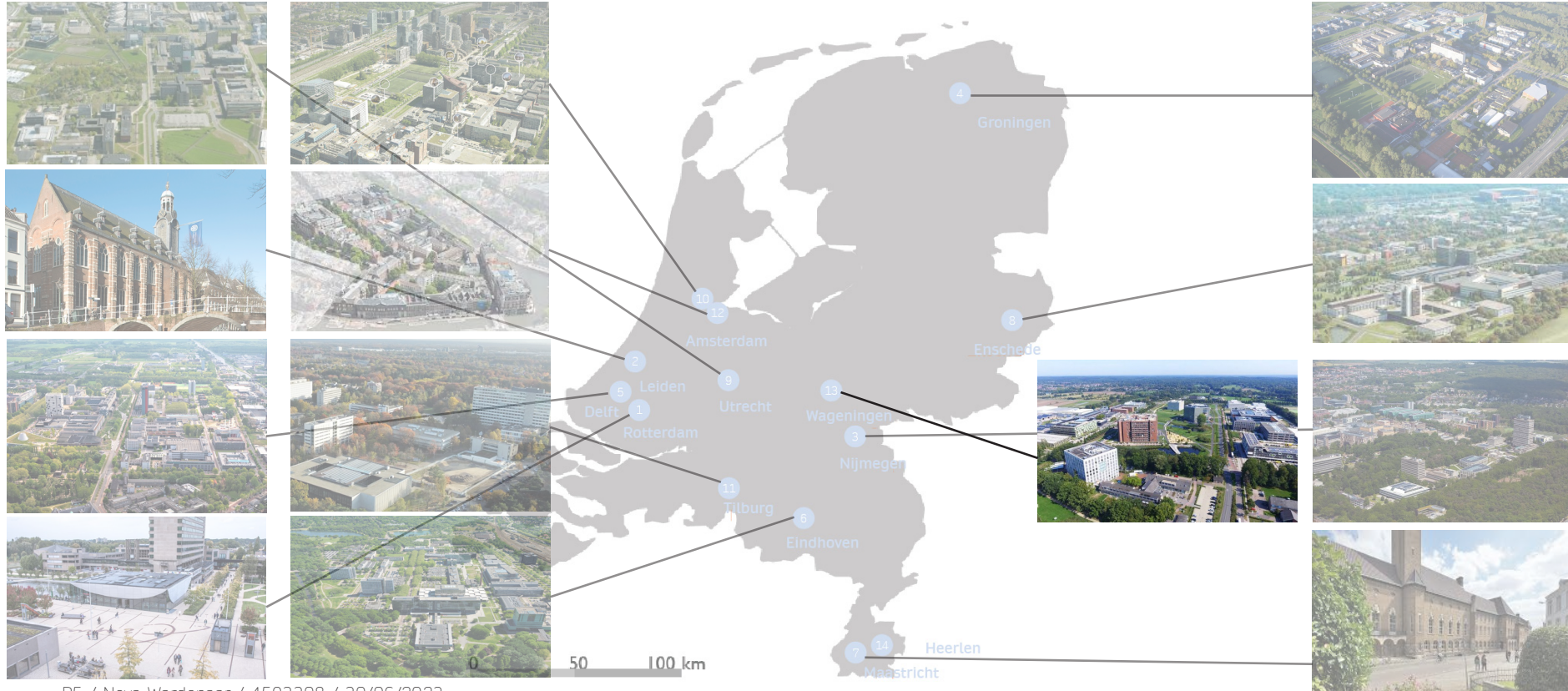
campus real estate.



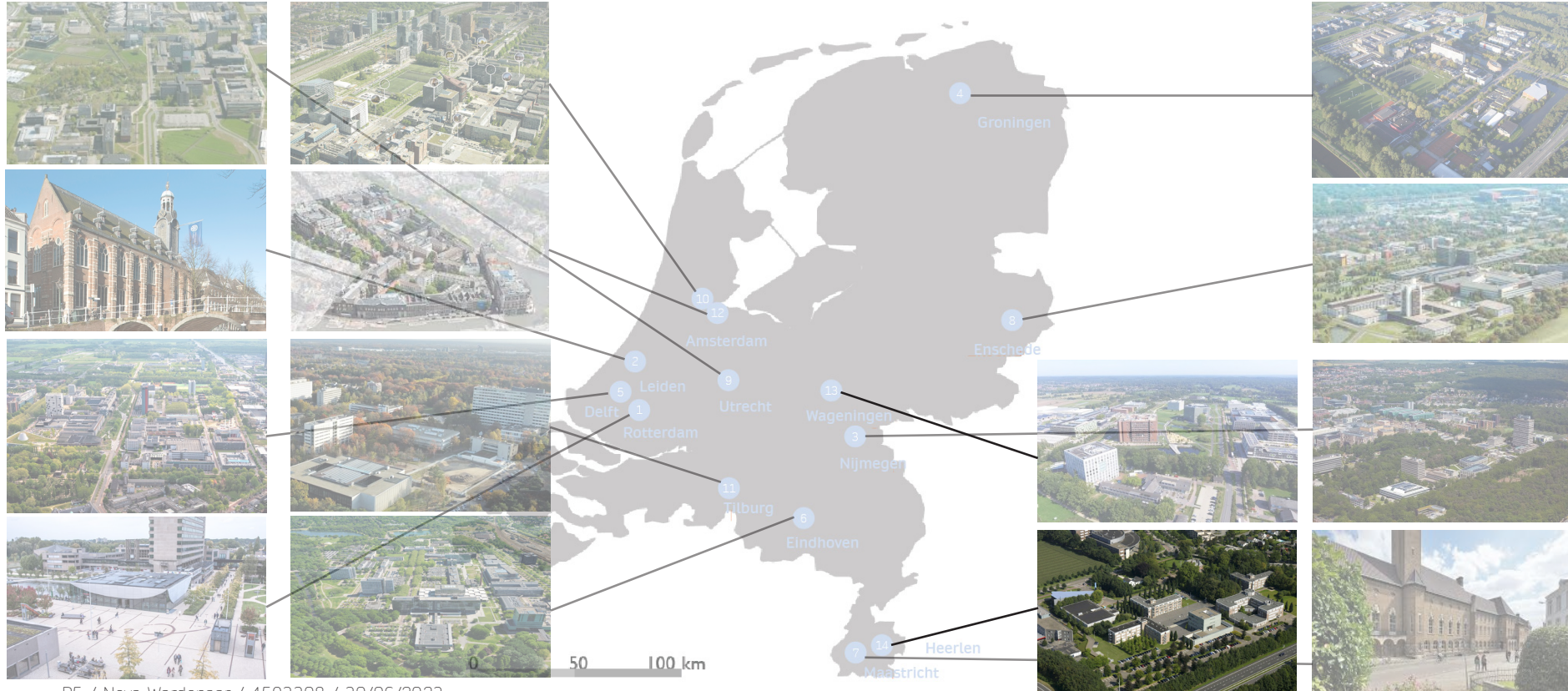
campus real estate.



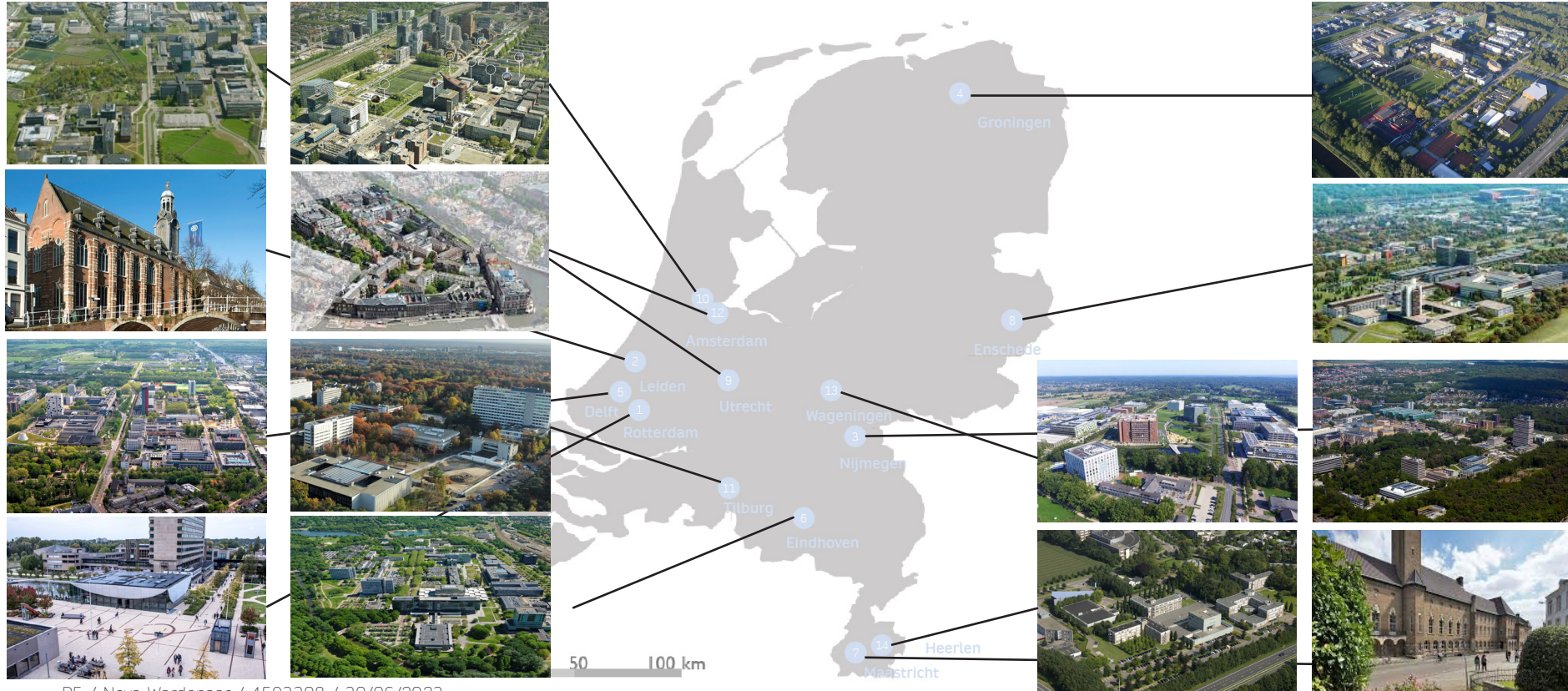
campus real estate.



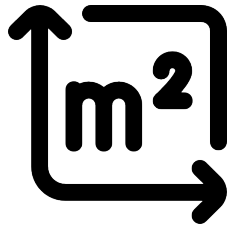
campus real estate.



campus real estate.



campus real estate.

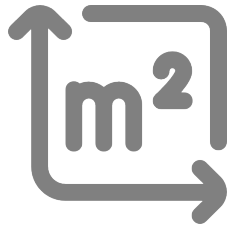


4.4 million m²

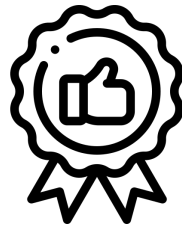
6% of total public real estate

(VSNU, 2019)

campus real estate.

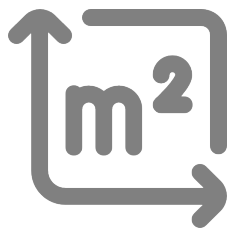


4.4 million m²
6% of total public real estate
(VSNU, 2019)

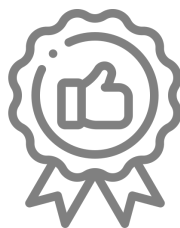


49%
good quality in 2016
(den Heijer et al., 2016)

campus real estate.



4.4 million m²
6% of total public real estate
(VSNU, 2019)

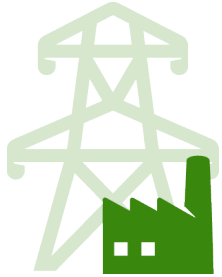


49%
good quality in 2016
(den Heijer et al., 2016)



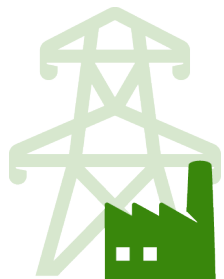
33%
buildings outdated
(Algemene Rekenkamer, 2018)

problem statement.



MJA3 ended
in 2020

problem statement.

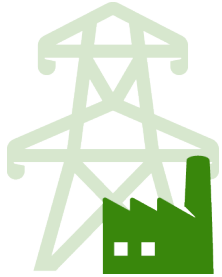


MJA3 ended
in 2020



Same goals

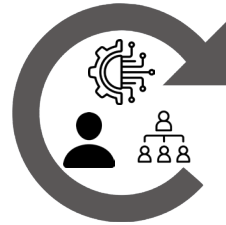
problem statement.



MJA3 ended
in 2020



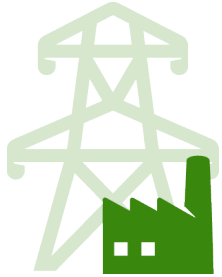
Same goals



Changes
needed

(Dall-Orsoletta et al., 2022)

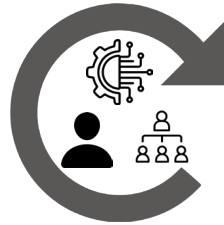
problem statement.



MJA3 ended
in 2020



Same goals



Changes
needed

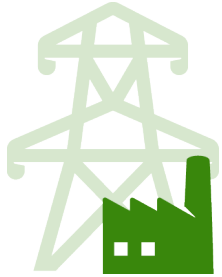
(Dall-Orsoletta et al., 2022)



Valuable
insights

(Hopff et al., 2019)

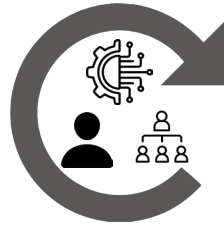
problem statement.



MJA3 ended
in 2020



Same goals



Changes
needed

(Dall-Orsoletta et al., 2022)



Valuable
insights

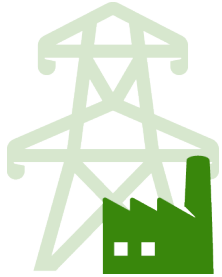
(Hopff et al., 2019)



Support
needed

(den Heijer, 2021)

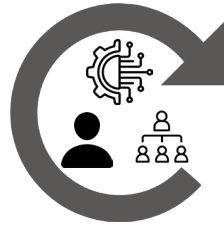
problem statement.



MJA3 ended
in 2020



Same goals



Changes
needed

(Dall-Orsoletta et al., 2022)



Valuable
insights

(Hopff et al., 2019)

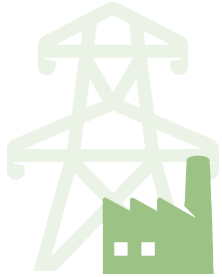


Support
needed

(den Heijer, 2021)

However,

problem statement.



MJA3 ended
in 2020



Same goals



Changes
needed

(Dall-Orsoletta et al., 2022)



Valuable
insights

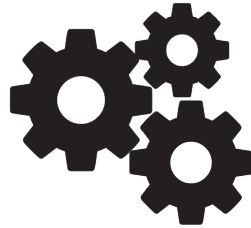
(Hopff et al., 2019)



Support
needed

(den Heijer, 2021)

However,



universities are reinventing the wheel

(Hopff et al., 2019)

possible solution.



Knowledge transfer between universities

research questions.

Main research question:

"How can inter-university knowledge transfer support university campus managers to achieve the universities' sustainability goals"

Sub-questions:

- 1. What are barriers, drivers and tools of knowledge transfer?*
- 2. What does the sustainability task of university real estate management entail?*
- 3. How and to what extend are universities transferring knowledge to other universities about their real estate?*

aim.

- knowledge transfer between Dutch universities

aim.

- knowledge transfer between Dutch universities
- barriers, drivers, and tools

aim.

- knowledge transfer between Dutch universities
- barriers, drivers, and tools

Relevance

aim.

- knowledge transfer between Dutch universities
- barriers, drivers, and tools

Relevance



aim.

- knowledge transfer between Dutch universities
- barriers, drivers, and tools

Relevance



Source: sdgs.un.org

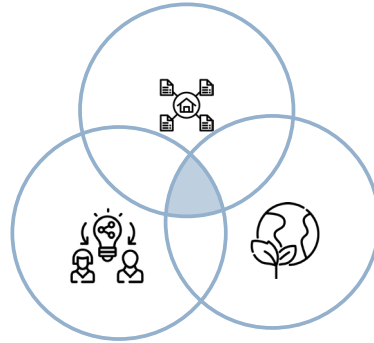
aim.

- knowledge transfer between Dutch universities
- barriers, drivers, and tools

Relevance



Source: sdgs.un.org



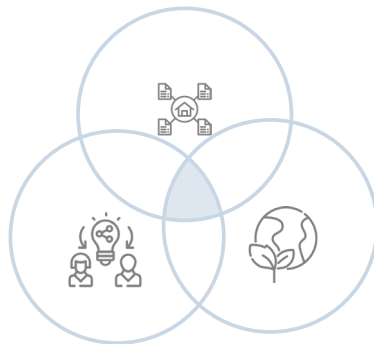
aim.

- knowledge transfer between Dutch universities
- barriers, drivers, and tools

Relevance



Source: sdgs.un.org



Campus NL

Source: Campus NL (2016)

campus NL.

- 2006 and 2016



Dutch universities. Adapted from Campus NL (2016)

campus NL.

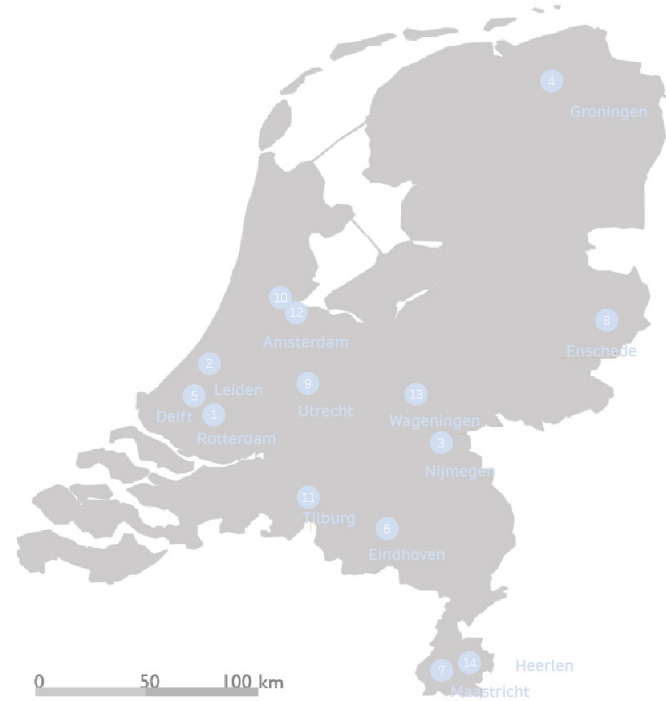
- 2006 and 2016
- “Combine knowledge and experience of the 14 dutch universities to tackle the challenge of an innovative, sustainable, affordable, inspiring, purposeful and healthy campus”



Dutch universities. Adapted from Campus NL (2016)

campus NL.

- 2006 and 2016
- “Combine knowledge and experience of the 14 dutch universities to tackle the challenge of an innovative, sustainable, affordable, inspiring, purposeful and healthy campus”
- Organise campus management (more) efficiently



Dutch universities. Adapted from Campus NL (2016)

campus NL.

- 2006 and 2016
- “Combine knowledge and experience of the 14 dutch universities to tackle the challenge of an innovative, sustainable, affordable, inspiring, purposeful and healthy campus”
- Organise campus management (more) efficiently
- ‘Campus learning’



Dutch universities. Adapted from Campus NL (2016)

contents.

theory.

research methods.

results.

conclusion.

discussion.

theory.

campus management.

- Since 1995, university buildings are decentralized to the universities

campus management.

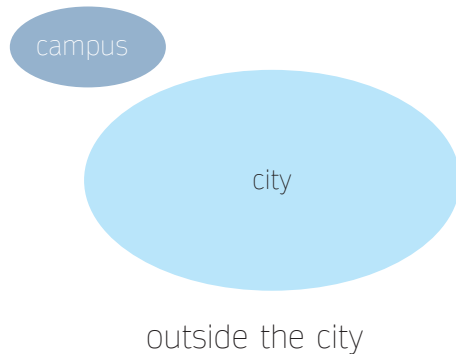
- Since 1995, university buildings are decentralized to the universities
- Definition Campus

"The collection of buildings and land, used for university and university-related functions and not necessarily on one location" - Den Heijer (2011)

campus management.

- Since 1995, university buildings are decentralized to the universities
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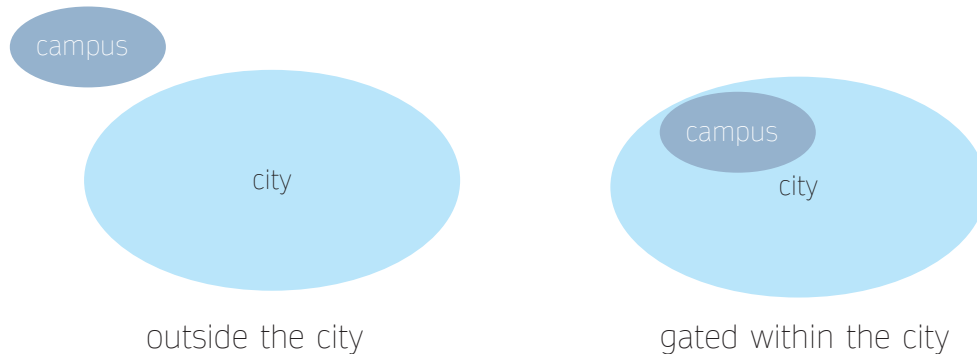


Different spatial configurations of the campus. Adapted from Den Heijer (2011)

campus management.

- Since 1995, university buildings are decentralized to the universities
- Definition Campus

"The collection of buildings and land, used for university and university-related functions and not necessarily on one location" - Den Heijer (2011)

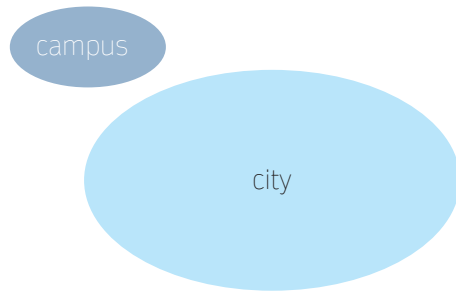


Different spatial configurations of the campus. Adapted from Den Heijer (2011)

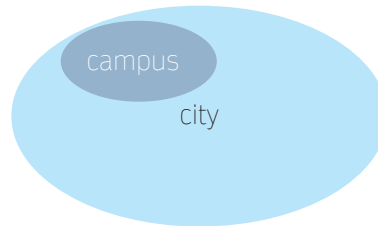
campus management.

- Since 1995, university buildings are decentralized to the universities
- Definition Campus

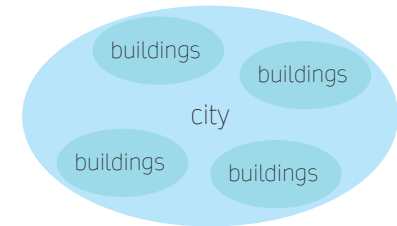
"The collection of buildings and land, used for university and university-related functions and not necessarily on one location" - Den Heijer (2011)



outside the city



gated within the city



integrated with the city

Different spatial configurations of the campus. Adapted from Den Heijer (2011)

campus management.

- Since 1995, university buildings are decentralized to the universities
- Definition Campus
- Campus management

campus management.



Basic framework for campus management, adapted from Den Heijer (2011)

campus management.



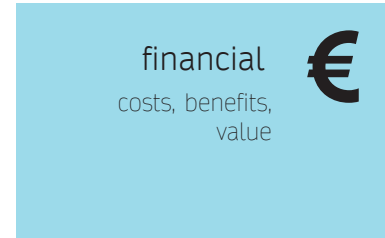
organisational
goals to support,
quality levels



financial
costs, benefits,
value

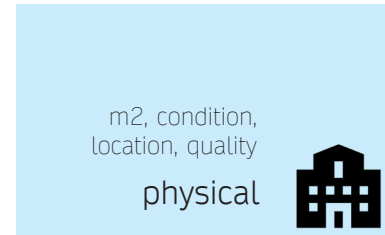
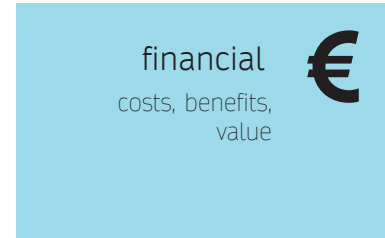
Basic framework for campus management, adapted from Den Heijer (2011)

campus management.



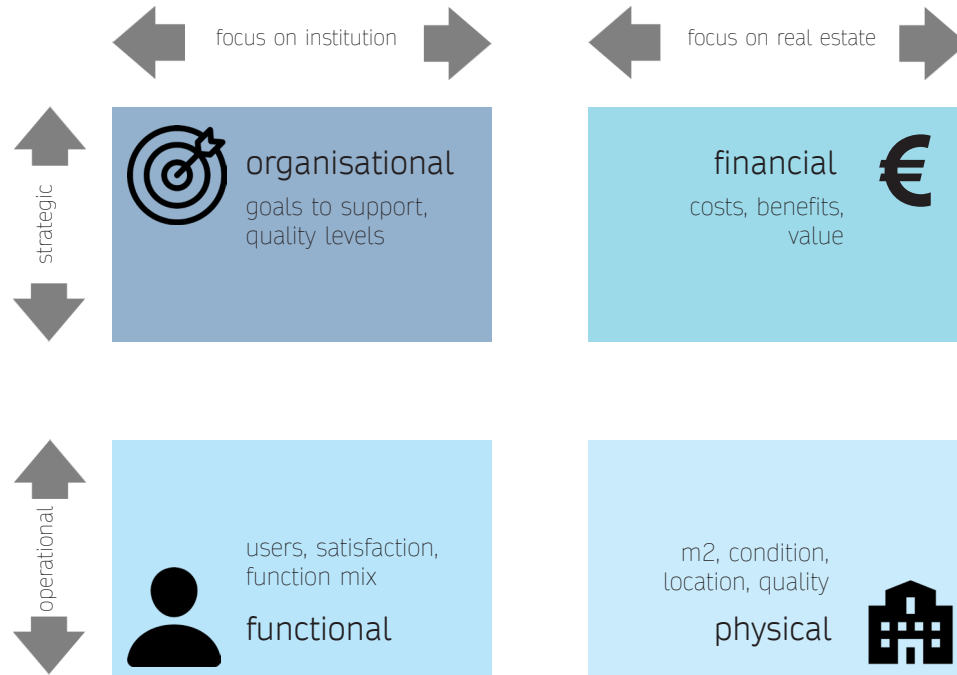
Basic framework for campus management, adapted from Den Heijer (2011)

campus management.



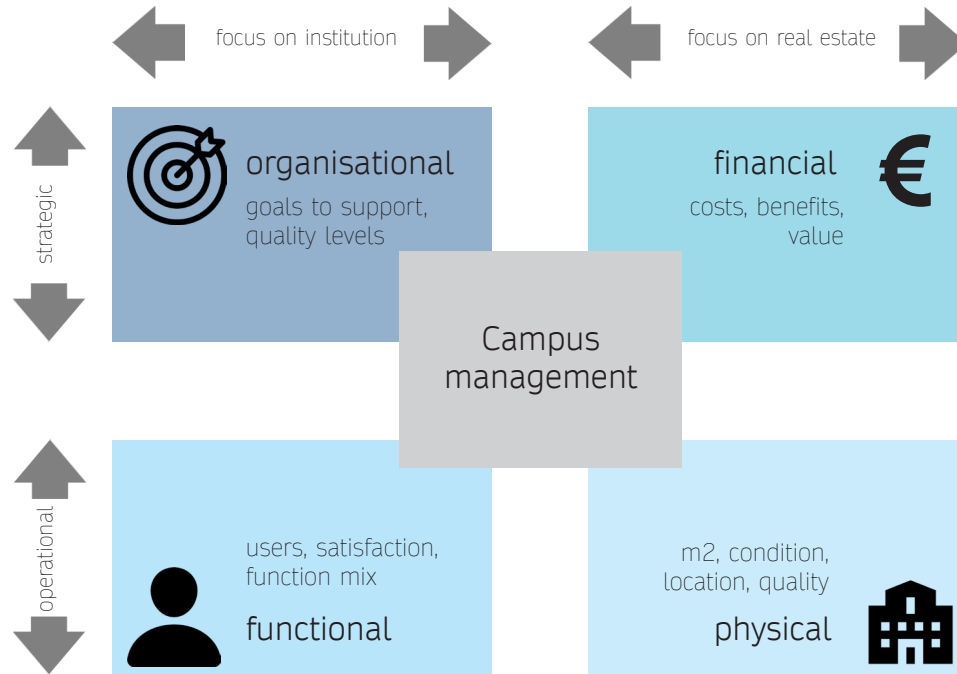
Basic framework for campus management, adapted from Den Heijer (2011)

campus management.



Basic framework for campus management, adapted from Den Heijer (2011)

campus management.



Basic framework for campus management, adapted from Den Heijer (2011)

knowledge management.



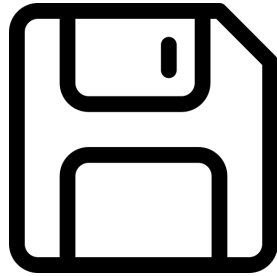
Generation

Wunram et al. (2002); Ranjbarfard et al. (2014); Pemsel et al (2014)

knowledge management.



Generation



Storage

Wunram et al. (2002); Ranjbarfard et al. (2014); Pemsel et al (2014)

knowledge management.



Generation



Storage



Distribution

Wunram et al. (2002); Ranjbarfard et al. (2014); Pemsel et al (2014)

knowledge management.



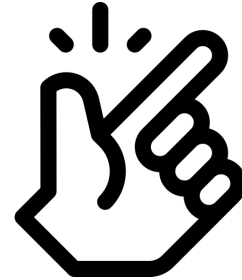
Generation



Storage



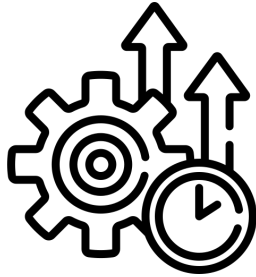
Distribution



Application

Wunram et al. (2002); Ranjbarfard et al. (2014); Pemsel et al (2014)

knowledge management.



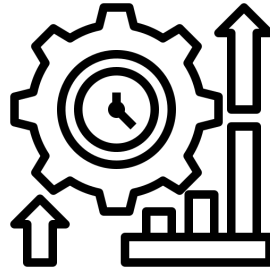
Productivity

Asrar-ul-Haq & Anwar (2016)

knowledge management.



Productivity



Performance

Asrar-ul-Haq & Anwar (2016)

knowledge management.



Productivity



Performance



Innovation

Asrar-ul-Haq & Anwar (2016)

knowledge management.

Inter-organisational knowledge transfer

“Dissemination of existing knowledge among organizations and bringing new knowledge into the organization from the external environment” - Rosen et al. (2007)

knowledge transfer.

Barriers, drivers and tools

Barriers	Drivers
<i>Individual level</i>	
Lack of time	Willingness
Fear	Asking for help
Bad communication	Skills
Lack of social network	Central point
Lack of trust	
Lack of motivation	
Lack of openness	
Overload on information	
<i>Organisational level</i>	
Lack of integration	Integration
Poor leadership	Good leadership
Lack of support	Rewards
Lack of rewards	Contact
Lack of space	Culture
Culture	Networks
Lack of networks	Structure
Structure	Training
Financial constraints	Help
Time pressures	Information methods
<i>Technological level</i>	
Lack of integration	Central point
Lack of support	Support
Unrealistic expectations	Communication
Mismatch	Time
Lack of training	
Overload	

knowledge transfer.

Barriers, drivers and tools



Digital



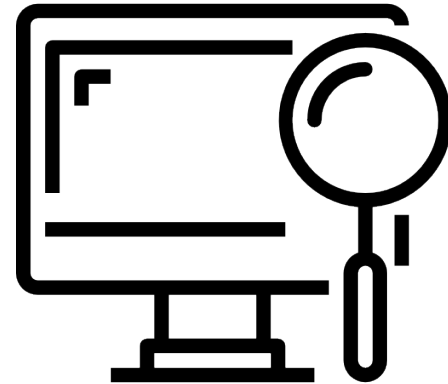
Physical

Barriers	Drivers
<i>Individual level</i>	
Lack of time	Willingness
Fear	Asking for help
Bad communication	Skills
Lack of social network	Central point
Lack of trust	
Lack of motivation	
Lack of openness	
Overload on information	
<i>Organisational level</i>	
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<i>Technological level</i>	
Lack of integration	Central point
Lack of support	Support
Unrealistic expectations	Communication
Mismatch	Time
Lack of training	
Overload	

research methods.

methods.

- Desk research



methods.

- Desk research
 - Literature review
- Field study



methods.

- Desk research
 - Literature review
- Field study
 - Reports



- Do they mention knowledge sharing?
- What does their sustainability task entail?
- “networks”, “collaboration”, “knowledge transfer”, “knowledge sharing”

methods.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations

Wageningen 06/04/2023

9:30 walk in with coffee and tea

10:00 welcome

10:30 future of the energy coördinators meeting

12:00 lunch

13:00 tour on campus

14:00 explanation DUMAVA subsidy

14:45 explanation energy saving obligation

15:30 break

15:45 situation sectoral roadmap

16:30 closing with drinks

methods.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews



- tasks, networks, barriers, drivers, tools
- what do they miss?



Statements

case study selection.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews



- online available
- reports, websites

case study selection.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews

- Purposive sampling



Energy transition

case study selection.

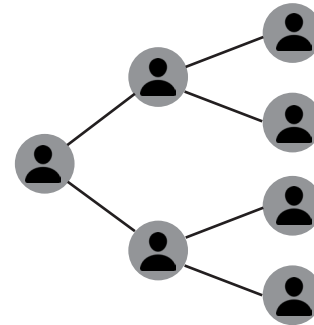
- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews

- Purposive sampling



Energy transition

- Snowball effect



interviewees.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews
 - (1) University A
Energy coordinator
Working on long term policy (2050)
 - (2) University B
 - (3) University C
 - (4) University D
 - (5) University E
 - (6) University F
 - (7) University G
 - (8) University H
 - (9) University I
 - (10) University J

interviewees.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews
 - (1) University A
 - (2) University B
Head facilities and energy
Executing the universities' policy
 - (3) University C
 - (4) University D
 - (5) University E
 - (6) University F
 - (7) University G
 - (8) University H
 - (9) University I
 - (10) University J

interviewees.

- Desk research
 - Literature review
 - Field study
 - Reports
 - Observations
 - Interviews
- (1) University A
 - (2) University B
 - (3) University C
 - Energy coordinator
 - Focus on energy policy of university
 - (4) University D
 - (5) University E
 - (6) University F
 - (7) University G
 - (8) University H
 - (9) University I
 - (10) University J

interviewees.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews
 - (1) University A
 - (2) University B
 - (3) University C
 - (4) University D
 - Facilitator energy transition
 - Gain momentum in sustainability task
 - (5) University E
 - (6) University F
 - (7) University G
 - (8) University H
 - (9) University I
 - (10) University J

interviewees.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews
 - (1) University A
 - (2) University B
 - (3) University C
 - (4) University D
 - (5) University E
Sustainability manager
Working on sustainability roadmap
 - (6) University F
 - (7) University G
 - (8) University H
 - (9) University I
 - (10) University J

interviewees.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews
 - (1) University A
 - (2) University B
 - (3) University C
 - (4) University D
 - (5) University E
 - (6) University F
Advisor energy management
Stimulating innovation, comply with climate agreement
 - (7) University G
 - (8) University H
 - (9) University I
 - (10) University J

interviewees.

- Desk research
 - Literature review
- Field study
 - Reports
 - Observations
 - Interviews
 - (1) University A
 - (2) University B
 - (3) University C
 - (4) University D
 - (5) University E
 - (6) University F
 - (7) University G
Head of energy department
Energy policies
 - (8) University H
 - (9) University I
 - (10) University J

interviewees.

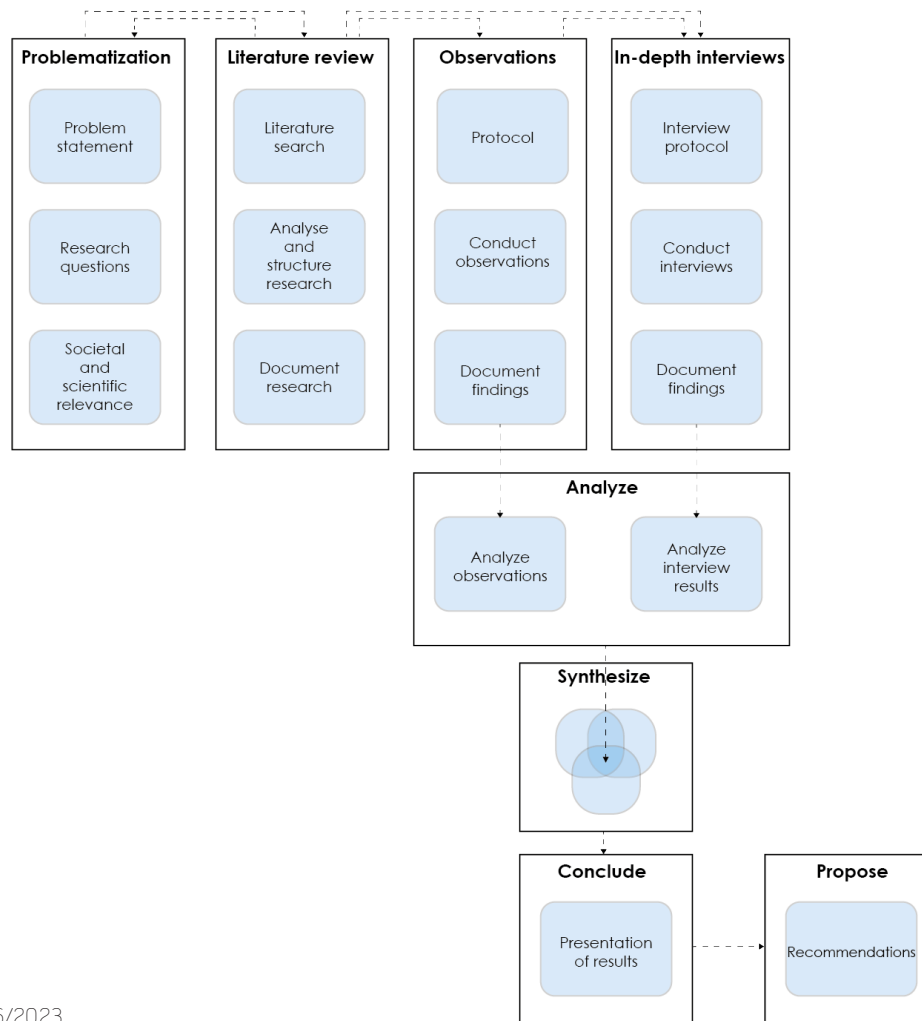
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 - Reports
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 - Interviews
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 - (2) University B
 - (3) University C
 - (4) University D
 - (5) University E
 - (6) University F
 - (7) University G
 - (8) University H
 - Sustainability advisor
 - Long term real estate approach
 - (9) University I
 - (10) University J

interviewees.

- Desk research
 - Literature review
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 - Reports
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 - (1) University A
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 - (4) University D
 - (5) University E
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 - (7) University G
 - (8) University H
 - (9) University I
Sustainability manager
Focus on real estate
 - (10) University J

interviewees.

- Desk research
 - Literature review
- Field study
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 - (4) University D
 - (5) University E
 - (6) University F
 - (7) University G
 - (8) University H
 - (9) University I
 - (10) University J
 - Quality manager
 - Energy management reviews, progress and goals



results.

strategy analysis.

SQ2 + SQ3

desk research
field study

Campusplan 2022 – in het kort








Definitieve versie | 7 juni 2022

Inleiding

"Campusplan 2022 – in het kort" geeft beknopt de programma's, projecten en activiteiten weer op het gebied van campusontwikkeling. Een nadere beschrijving met onderbouwing, planning en kosten is opgenomen in het uitgebreide Campusplan.

Het campusplan is afgeleid van de campusstrategie en de Radboud Strategie: a significant impact. De campusstrategie geeft richting aan hoe de campus er in de toekomst uit zou moeten zien. Centraal hierin staat dat de campus primair een plek is voor onderwijs en onderzoek, met daarnaast diverse vormen van bedrijvigheid, wonen, cultuur en sport.

Campus Development, onderdeel van de divisie Campus & Facilities, heeft voor de campusontwikkeling uit de Radboud Strategie zes ontwikkelingsprincipes afgeleid en één principe toegevoegd: de campus is betaalbaar. De zeven ontwikkelingsprincipes zijn:

	1. Onze campus is inspirerend en verbindend
	2. Onze campus is groen¹, duurzaam en gezond
	3. Onze campus is open, toegankelijk en veilig
	4. Onze campus is levendig en dynamisch
	5. Onze campus is slim en flexibel
	6. Onze campus is persoonsgericht en sociaal
	7. Onze campus is betaalbaar

Alle programma's, projecten en activiteiten voldoen aan meerdere principes zodat zij bijdragen aan de ontwikkeling van de campus.

Na analyse van de campus, vele gesprekken, sessies en interviews zijn in de campusstrategie 21 strategische doelstellingen geformuleerd waarbij is aangegeven op welke manier het doel bijdraagt aan de ontwikkelingsprincipes. Deze doelstellingen zijn gerubriceerd naar de in de Radboud Strategie benoemde aandachtsgebieden 'onderwijs, onderzoek, impact, mensen en faciliteiten'. Deze doelstellingen zijn:

¹ Ten opzichte van de vastgestelde campusstrategie is 'groen' toegevoegd op verzoek van de GV en na goedkeuring CvB.

Sustainability goals for the TU Delft Campus

Carbon-neutral campus

Everything done on and from the campus, as part of activities of TU Delft, need to be carbon neutral by 2030. This means that in the period of a year no more CO₂ or other greenhouse gases are net emitted as a result of the direct and indirect activities and facilities (scopes 1, 2 and 3)¹. By 2030, all energy for electricity and heat comes from renewable sources. This also applies to the user-related energy required for research (primary processes).

Circular campus

By 2030 too, TU Delft intends to have a circular campus. This means that activities on and from the campus form part of the circular economy. Insofar as new materials, products or services are required, these are contracted or procured on the basis of sustainable, circular processes. The lifespan of available raw materials is maximised without harmful emissions to the environment. As described in the Roadmap Circulaire Campus 2030 [Ellen 2020], it is a requirement for both procurement and construction projects that they follow circular guidelines. Circularity will be translated to KPIs, just as with carbon emission targets.

Climate-adaptive campus

Although we attempt to diminish the long-term effects as much as possible, recent measurements indicate the climate is already changing rapidly. This means that the built environment should cater for different circumstances than it has been developed for so far. Also, the TU Delft Campus should be climate adaptive, ready for different circumstances, as expected by the meteorological institutes. In particular, this means that the urban plan and buildings should be better prepared for hot summers, for more precipitation on average, but long periods of drought too, and for extreme weather conditions, storms in particular.

A campus contributing to quality of life

Quality of life can refer to the life of people, but also to that of plants and animals on the campus. Therefore, improving the ecological value of the campus and increasing biodiversity is a deliberate goal of the sustainability action plan. This ambition should coincide with improved climatic conditions on campus, contributing to the health of staff, students and visitors. The TU Delft Campus should offer a high-quality working and learning environment in which health and well-being are at the core and where sustainable circular initiatives are stimulated, tested and evaluated.

A fifth objective has not been mentioned yet. That one refers to making the campus a place where every user forms part of the experiment. This campus as a living lab will be discussed hereafter.

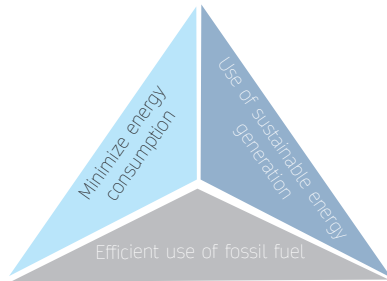
¹ CRE [2020] limited this goal to direct activities and facilities (scopes 1 and 2), but we expanded it to scope 3 as well.



strategy analysis.

SQ2 + SQ3

desk research
field study

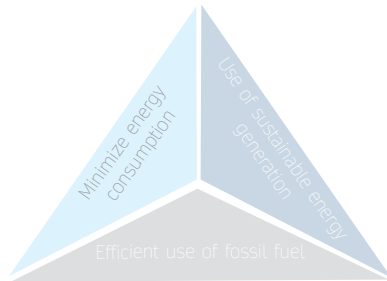


Trias energetica

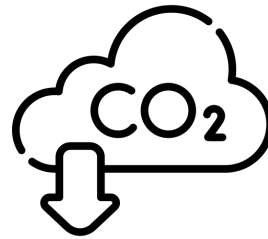
strategy analysis.

SQ2 + SQ3

desk research
field study



Trias energetica

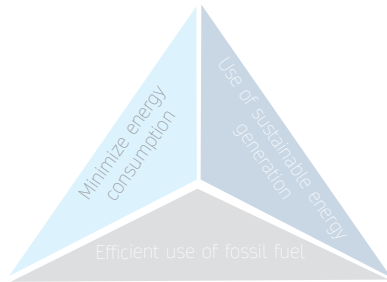


Reduce CO2
49% by 2030

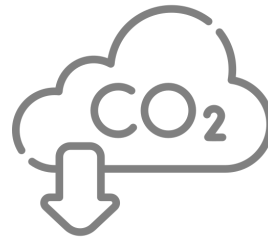
strategy analysis.

SQ2 + SQ3

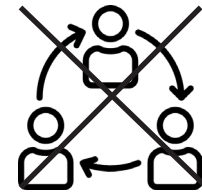
desk research
field study



Trias energetica



Reduce CO₂
49% by 2050



Collaboration
not about real
estate

There is ... to share knowledge with other universities	#	Agree	Disagree	N/A
Enough time	10	100%	0%	0%
Oral or written communication	10	90%	10%	0%
A social network	9	89%	11%	0%
Trust	8	100%	0%	0%
Motivation	10	90%	10%	0%
Openness	10	80%	10%	10%
A lot of information	10	90%	0%	10%
Tools	10	70%	20%	10%
Central point	9	44%	56%	0%
Financial	8	25%	75%	0%
Frequent contact	8	88%	12%	0%
A feeling of loss of ownership	7	0%	100%	0%

organisation and networks.

SQ3
Interviews

"I joined there [energy coordinators meeting] myself in 1998, but it has been here for much longer. And there is now also an environmental coordinators consultation. That is also quite old, but about 6 years ago, a sustainability consultation also started in the same form, so in principle there are 3 of these networks"



"The MJA started about 13 years ago. And at that moment meetings started, I think, or at least became firmer."



organisation and networks.

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"Well, which networks or consultations there are is a bit hazy. But the most important consultation is the one for the energy coordinators."



"For example, there are few people who oversee all aspects. What also often plays a role is how energy is organized in the organization. I am part of, and positioned within real estate and housing. Sometimes energy is positioned outside real estate and housing, which makes cooperation in the field of energy a bit more difficult."



organisation and networks.

SQ3
Interviews

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"We have a strong link here with the university hospital"



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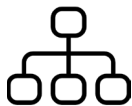


"I am very positive about the meetings and knowledge sharing. Knowledge sharing and learning from one another, that is what it is about. Not reinventing the wheel, but also working together"



barriers.

SQ3
Interviews

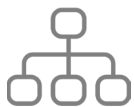


Structure

"I think that campuses and real-estate differ way too much ... of course, you can always learn from each other, but you will have to focus more on which things are the same" - University G

barriers.

SQ3
Interviews



Structure

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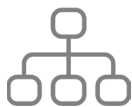


Time

"Look, everyone is pretty busy ... going and organizing those consultations for knowledge exchange is something that people do a little on the side. That is at the expense of the quality." - University C

barriers.

SQ3
Interviews



Structure

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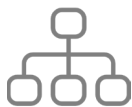


Communication

"We are old-fashioned after all. It is barely searchable, not transparent, especially in emails. Only receiver and sender know what it is about" - University A

barriers.

SQ3
Interviews



Structure

"I think that campuses and real-estate differ way too much ... of course, you can always learn from each other, but you will have to focus more on which things are the same" - University G



Time

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Communication

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Culture

"The university does not encourage participation in consultations" - University H



Structure

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Communication

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Culture

"The university does not encourage participation in consultations" - University H



Financial

"the VSNU simply doesn't have a budget for it, and don't want to make it available either". - University H



Willingness

"I actually see zero competition, say between universities in this area". - University F

"We don't want to reinvent the wheel" - University B



Willingness

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Network

"It is often that you first have a conversation. You get to know more, and you start exchanging things one-on-one. That often gives me more input"- University I



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Time

"You make time, I think we are all autonomous people" - University A

drivers.

SQ3
Interviews



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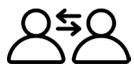
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Time

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Communication

"I notice, and I often do it, if you know the network well, and know what is going on with whom, then you exchange extra information one-on-one, and you really benefit from it" - University I



Willingness

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Network

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Communication

"I notice, and I often do it, if you know the network well, and know what is going on with whom, then you exchange extra information one-on-one, and you really benefit from it" - University I



Culture

"Universities are no competitors at all ... if we have learned certain things and they can do it better, then I think that is only beautiful" - University C



Digital

"there is a teams-site, that is being hosted by one of the universities" - University A



Digital

"there is a teams-site, that is being hosted by one of the universities" - University A



Physical

*Transition table - University D
Networks*

conclusion.

“how can inter-university knowledge transfer support university campus managers to achieve the universities' sustainability goals”

conclusion.

“how can inter-university knowledge transfer support university campus managers to achieve the universities' sustainability goals”

- Sharing problems and gaining insights

conclusion.

“how can inter-university knowledge transfer support university campus managers to achieve the universities' sustainability goals”

- Sharing problems and gaining insights
- Clear structure and guidance needed

conclusion.

“how can inter-university knowledge transfer support university campus managers to achieve the universities’ sustainability goals”

- Sharing problems and gaining insights
- Clear structure and guidance needed
- Funding (by third party)

conclusion.

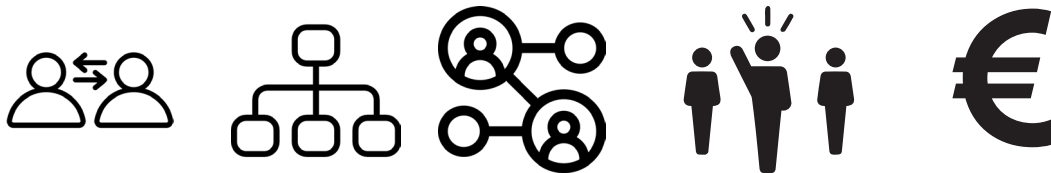
“how can inter-university knowledge transfer support university campus managers to achieve the universities' sustainability goals”

- Sharing problems and gaining insights
- Clear structure and guidance needed
- Funding (by third party)
- Communicate, work together, find solutions together

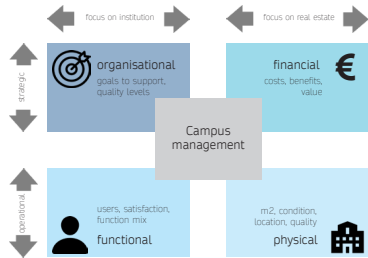
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“how can inter-university knowledge transfer support university campus managers to achieve the universities’ sustainability goals”

- Sharing problems and gaining insights
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key findings.

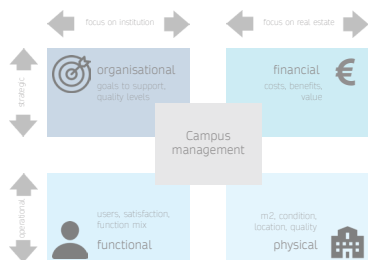


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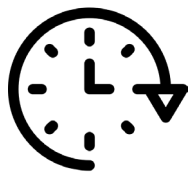
? no campus managers

? no priority

key findings.

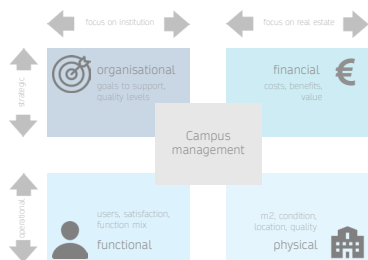


not mentioned
? no campus managers
? no priority



contradictory to
questionnaire
? motivation

key findings.



not mentioned
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? no priority

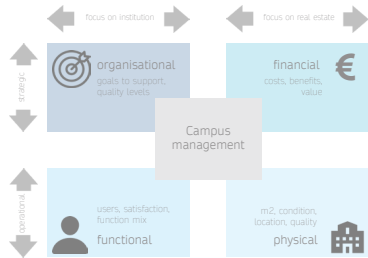


contradictory to
questionnaire
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barrier/driver
- openness
+ no competition

key findings.



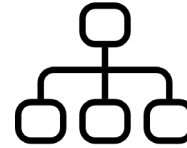
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contradictory to
questionnaire
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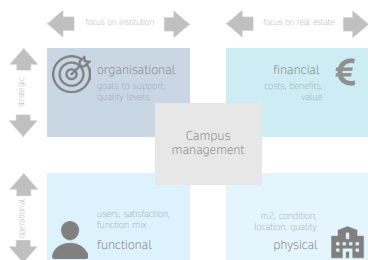


barrier/driver
- openness
+ no competition



- power barriers
- + face-to-face
- + regular meetings
- unclear structure
- expectations

key findings.



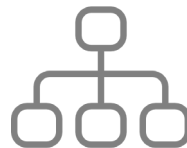
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contradictory to
questionnaire
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barrier/driver
- openness
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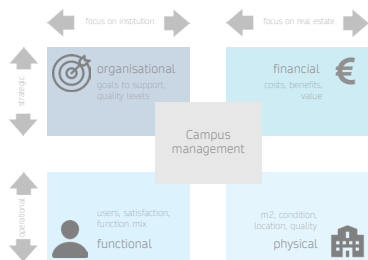


- power barriers
+ face-to-face
+ regular meetings
- unclear structure
- expectations



- takes a lot of time
+ building network
+ know who to
contact

key findings.



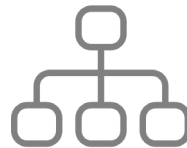
not mentioned
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contradictory to
questionnaire
? motivation



barrier/driver
- openness
+ no competition



- power barriers
+ face-to-face
+ regular meetings
- unclear structure
- expectations



- takes a lot of time
+ building network
+ know who to
contact



- no obligation

limitations.

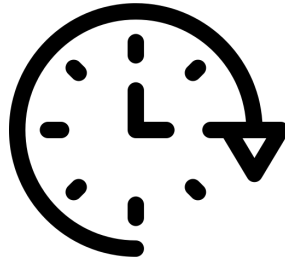


Sampling

limitations.



Sampling



Time

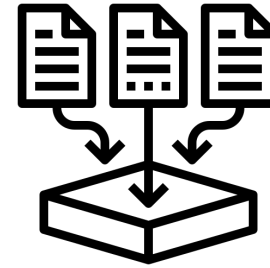
limitations.



Sampling



Time



Data collection

recommendations campus nl.

- Internal structure

recommendations campus nl.

- Internal structure
- Include more perspectives

recommendations campus nl.

- Internal structure
- Include more perspectives
- Time is a barrier

recommendations campus nl.

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- Look at commercial networks

recommendations campus nl.

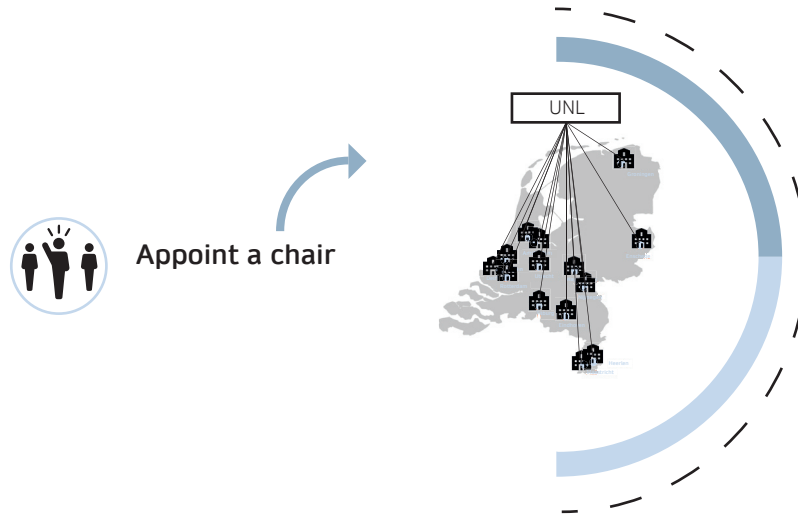
- Internal structure
- Include more perspectives
- Time is a barrier
- Questionnaires considered a burden
- Look at commercial networks
- Also include UNL or government

recommendations.

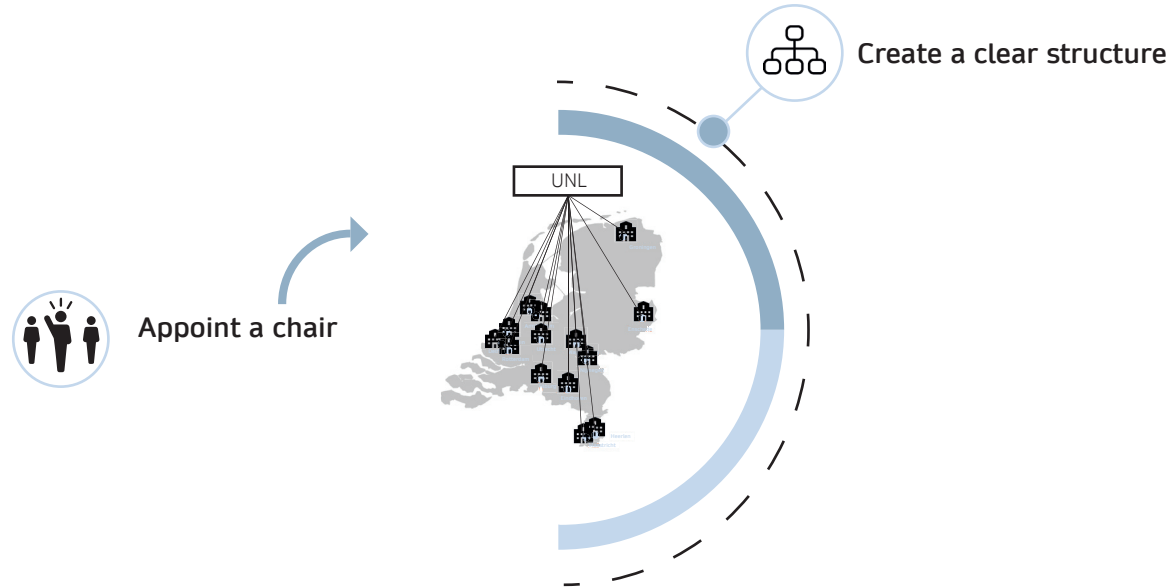


Appoint a chair

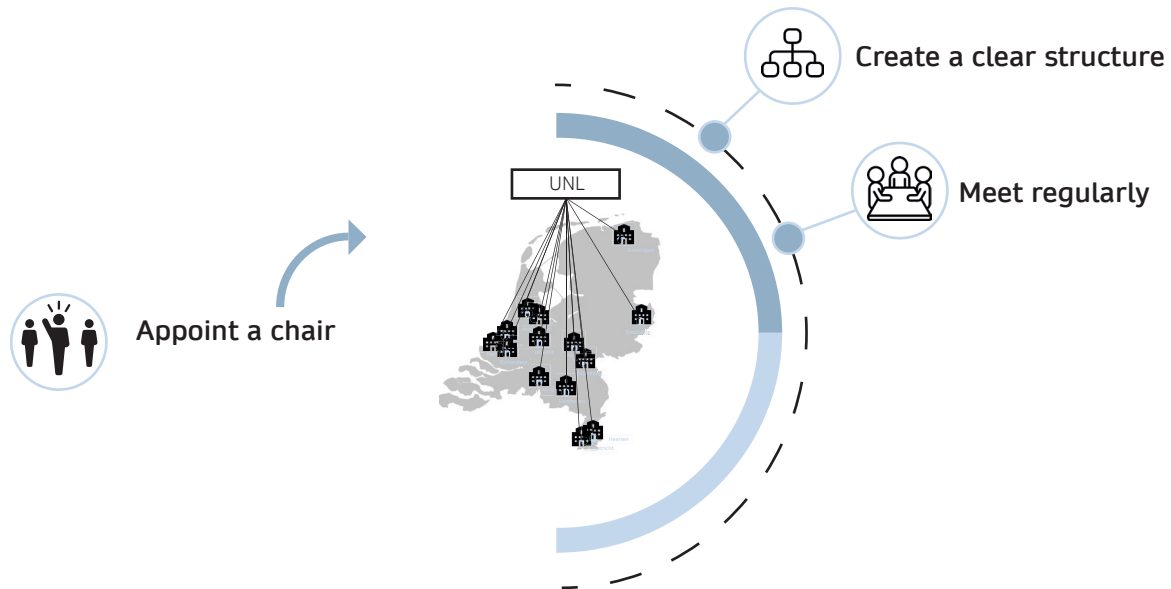
recommendations.



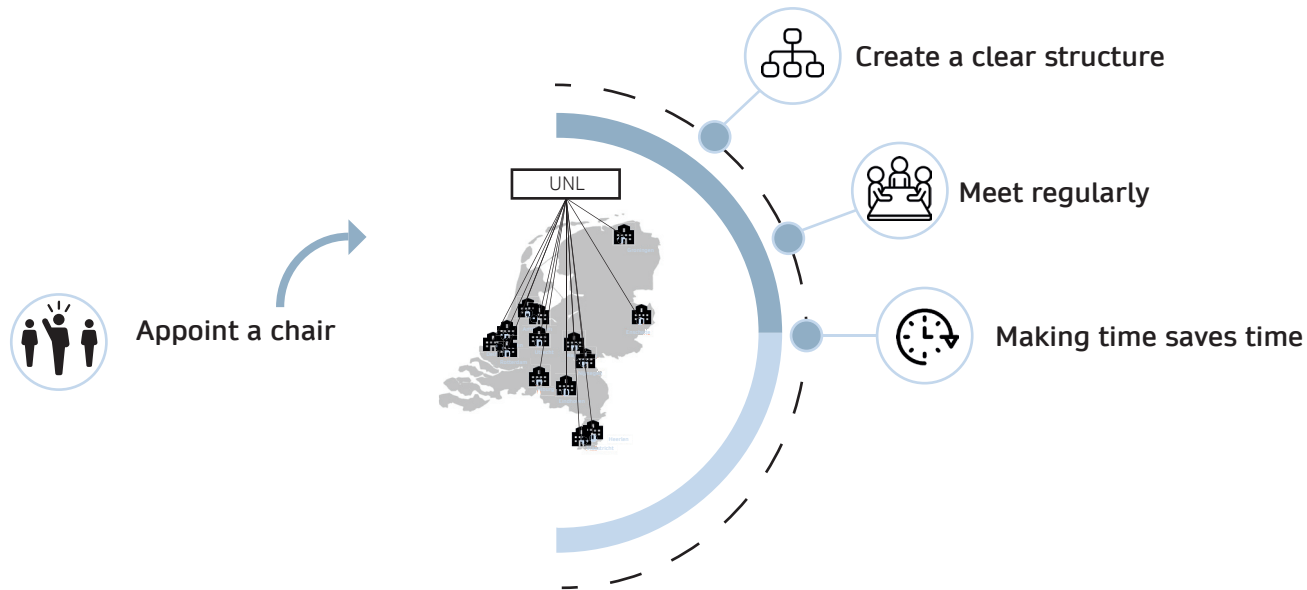
recommendations.



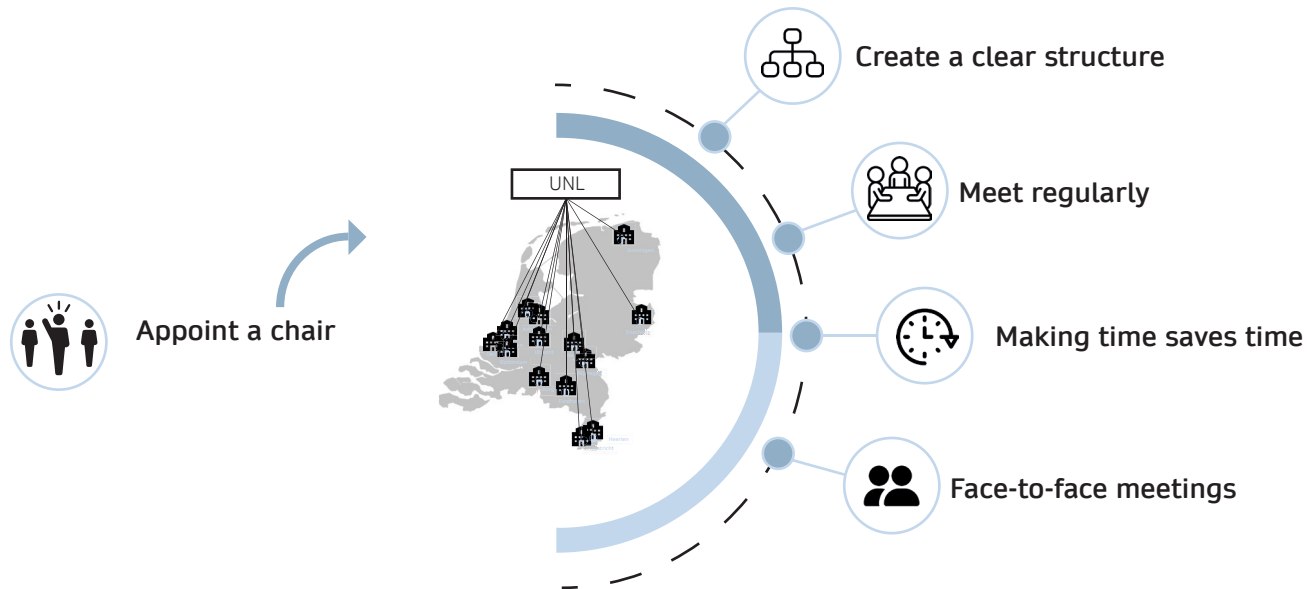
recommendations.



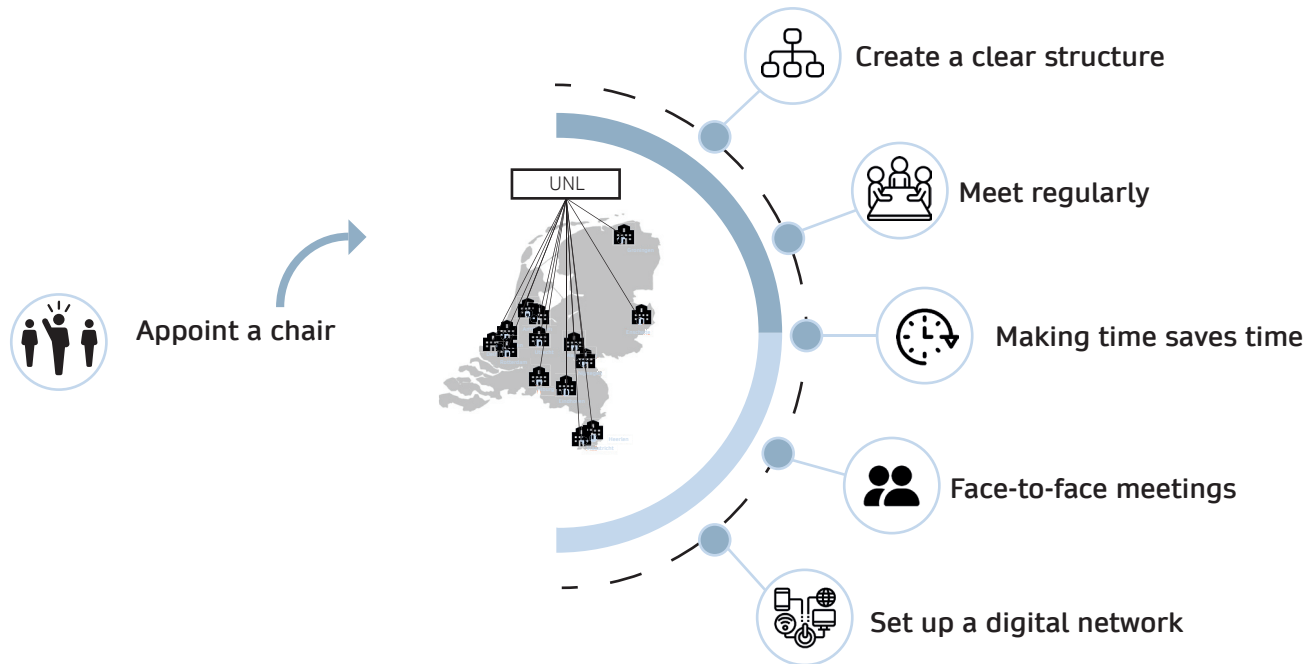
recommendations.



recommendations.



recommendations.



recommendations.



KNOWLEDGE TRANSFER BETWEEN UNIVERSITIES

Knowledge transfer is important due to its many positive effects, such as increased productivity, higher performance, and better innovation capability. This could help **campus management** to achieve their **sustainability goals** and speed up the energy transition. However, in practice every campus reinvents the wheel.

BARRIERS OF KNOWLEDGE TRANSFER BETWEEN UNIVERSITIES



Lack of structure



Lack of motivation/urgency



Lack of time



Old fashioned communication



Organisational culture



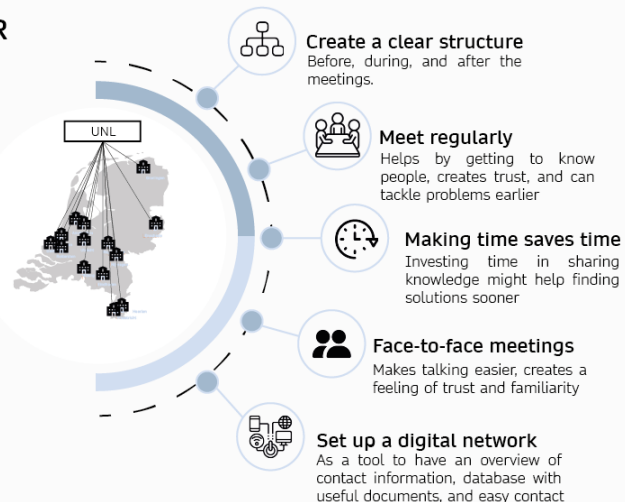
Financial constraints

RECOMMENDATIONS FOR KNOWLEDGE TRANSFER BETWEEN UNIVERSITIES



Appoint a chair

Preferably an external party like UNL/VSNV, because they already have an overview



questions?