

ENVISIONING THE FUTURE OF STUDY PLACES

LESSONS LEARNED FROM THE GENERAL EDUCATIONAL BUILDINGS
AT TU DELFT

*A qualitative research on how TU Delft can adapt its study places in generic
educational buildings on campus to meet current and future demands*

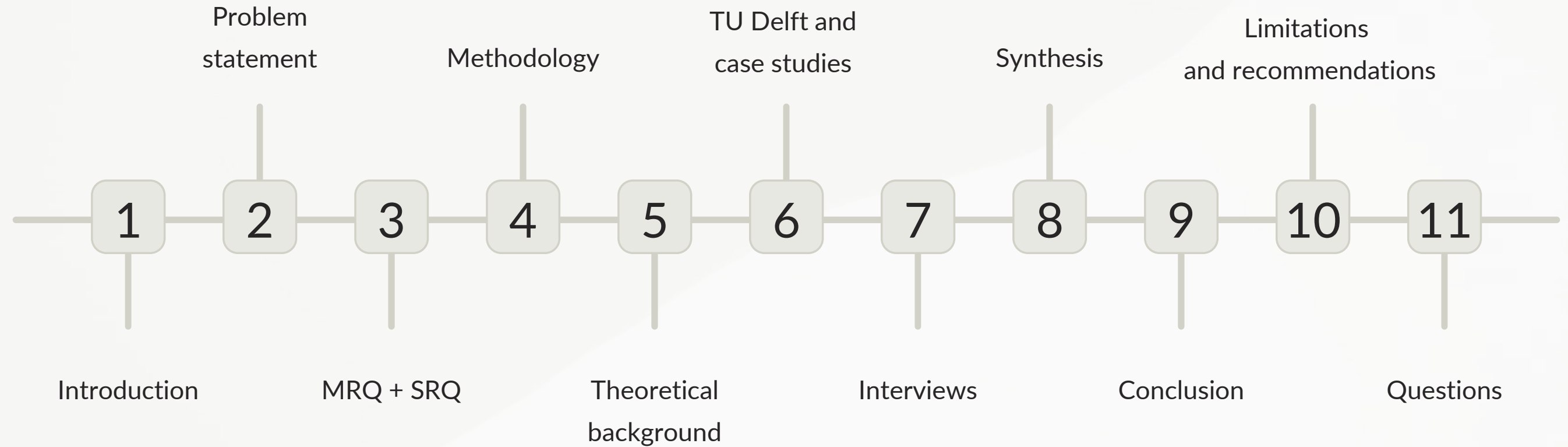
P5 – Final presentation
17/1/2024 by Laura Tangelder

Supervisors:

First thesis mentor: prof. dr. ir. A. C. (Alexandra) den Heijer
Second thesis mentor: dr. ir. E.H. (Esther) Gramsbergen
Delegate of the Board of Examiners: dr. J.R.T. (René) van der Velde
Graduation Organisation mentor: dr. ir. B. (Bart) Valks



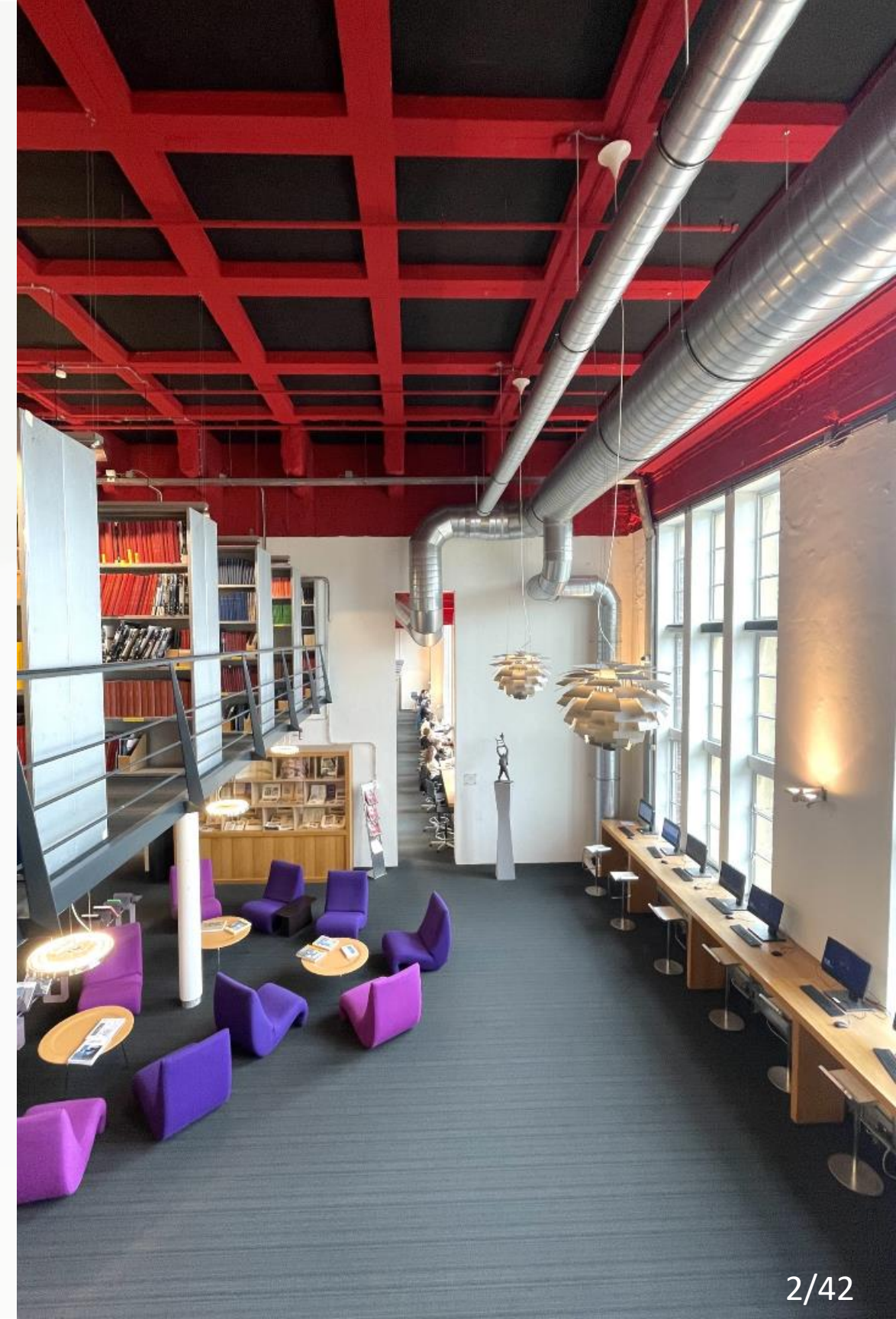
Table of content



1. Introduction

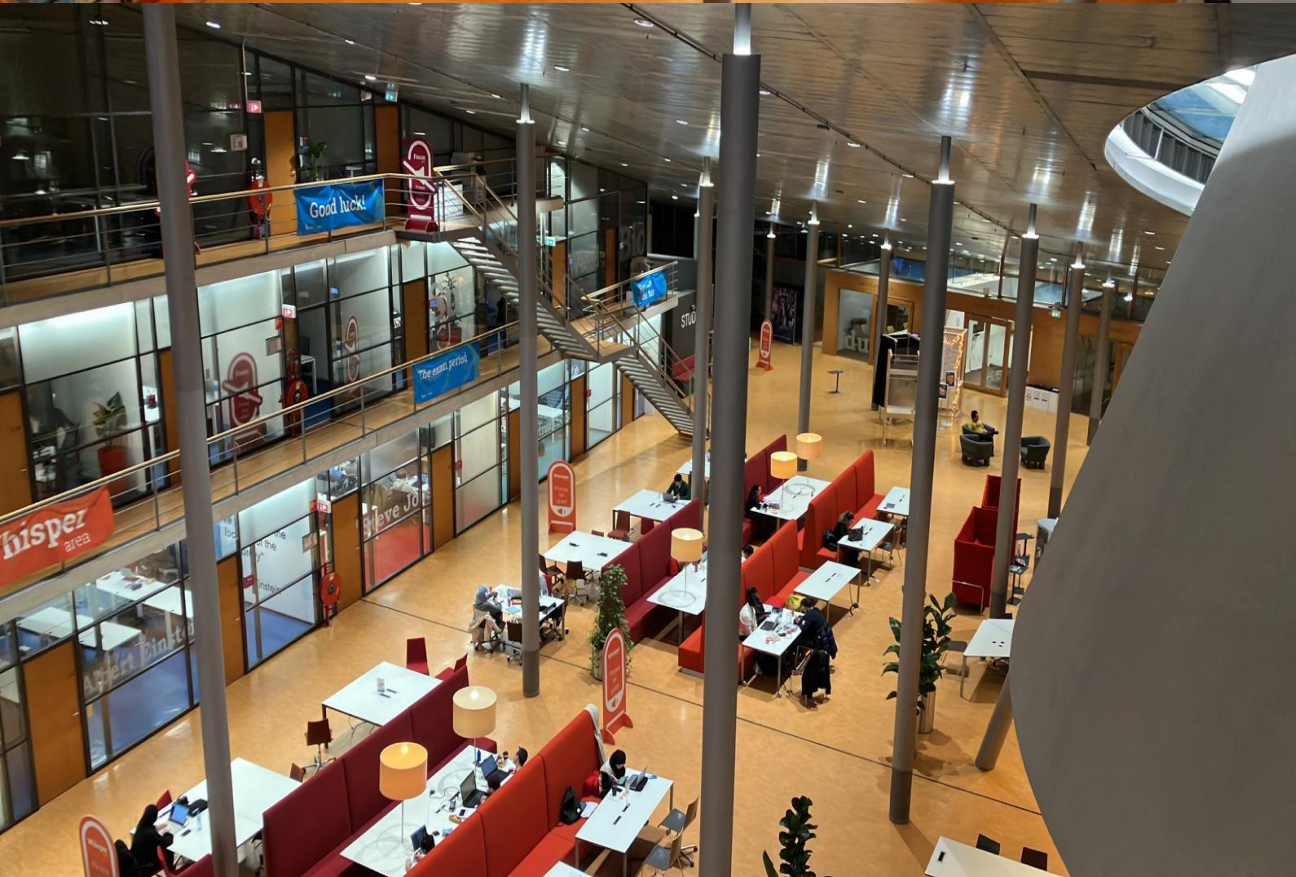
Why is it necessary to envisioning the future of study places?

- Changing role of universities
- Virtual versus physical campus
- Changing funding (1995) and changing user needs
- New building type: generic educational buildings
- Growth student numbers: future?





(source: Mecanoo, n.d.)



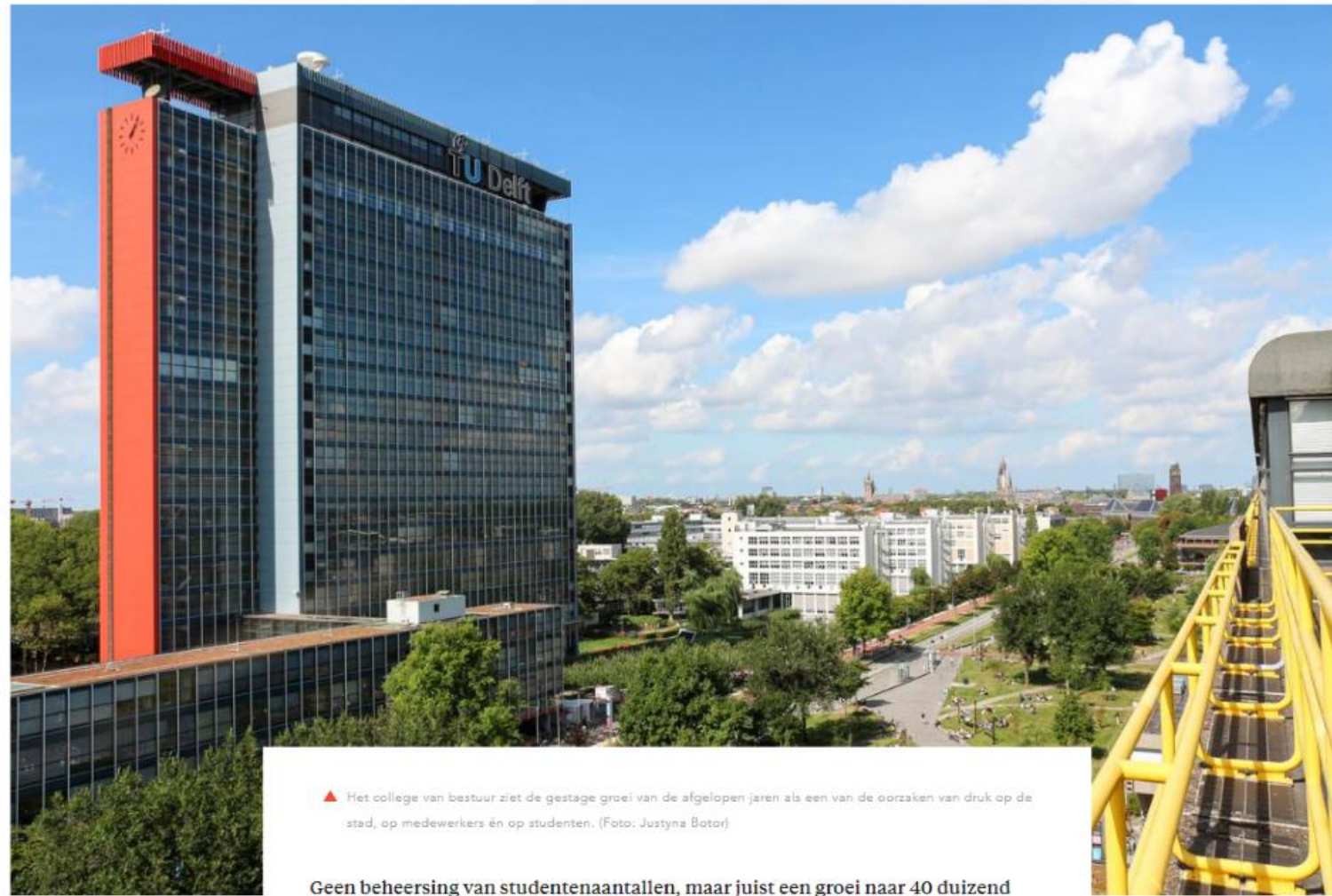
2. Problem statement

- First, some recent news articles (2022-2023) what is happening at TU Delft

CAMPUS

15 september 2022 - 18:00 door Saskia Bonger

TU Delft wil fors groeien naar 40 duizend studenten



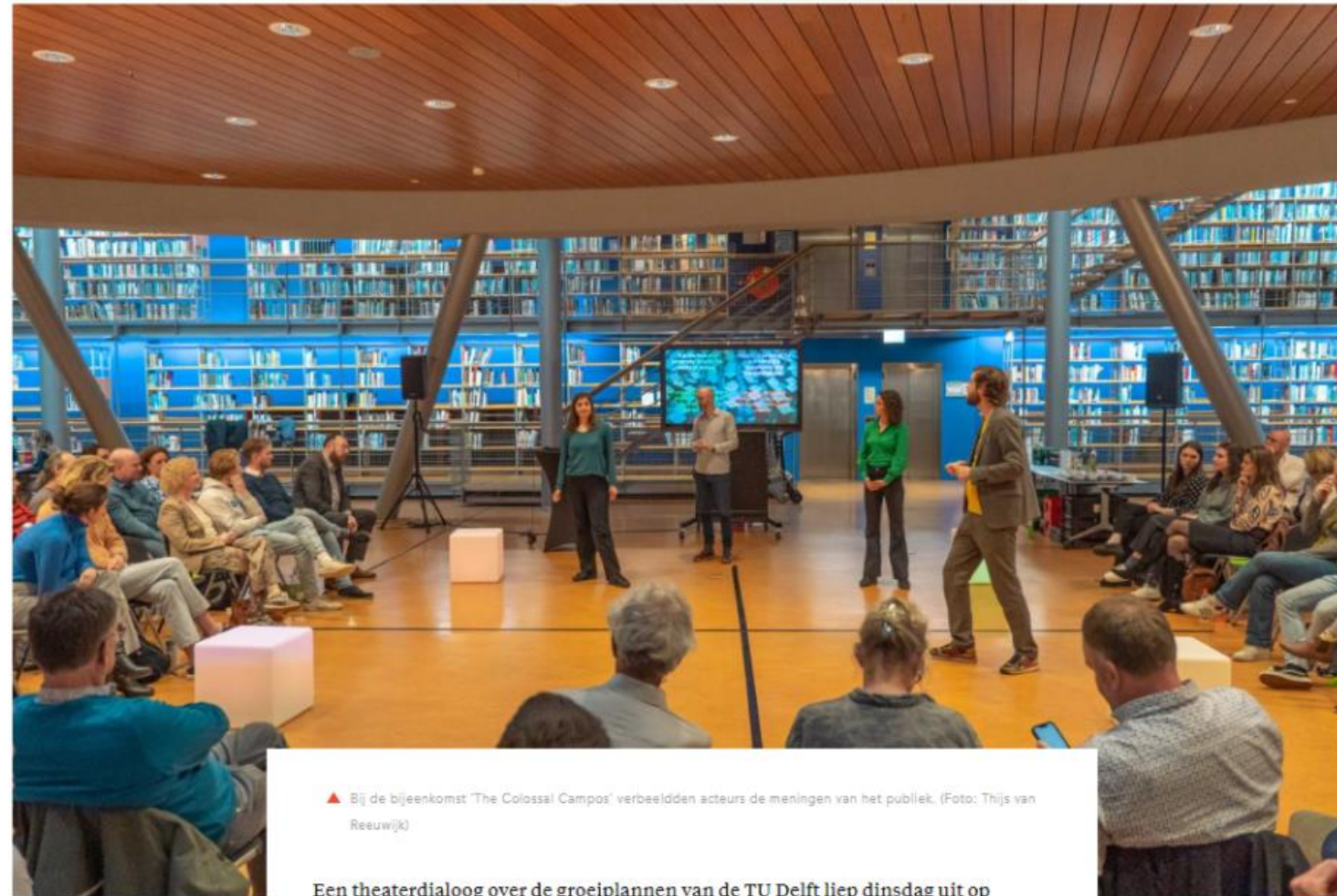
▲ Het college van bestuur ziet de gestage groei van de afgelopen jaren als een van de oorzaken van druk op de stad, op medewerkers én op studenten. (Foto: Justyna Botor)

Geen beheersing van studentenaantallen, maar juist een groei naar 40 duizend studenten. Dat wil het college van bestuur van de TU Delft.

CAMPUS

12 mei 2023 - 11:15 uur Ernst Beinema

Dialogo over groeiplannen roept spanning op



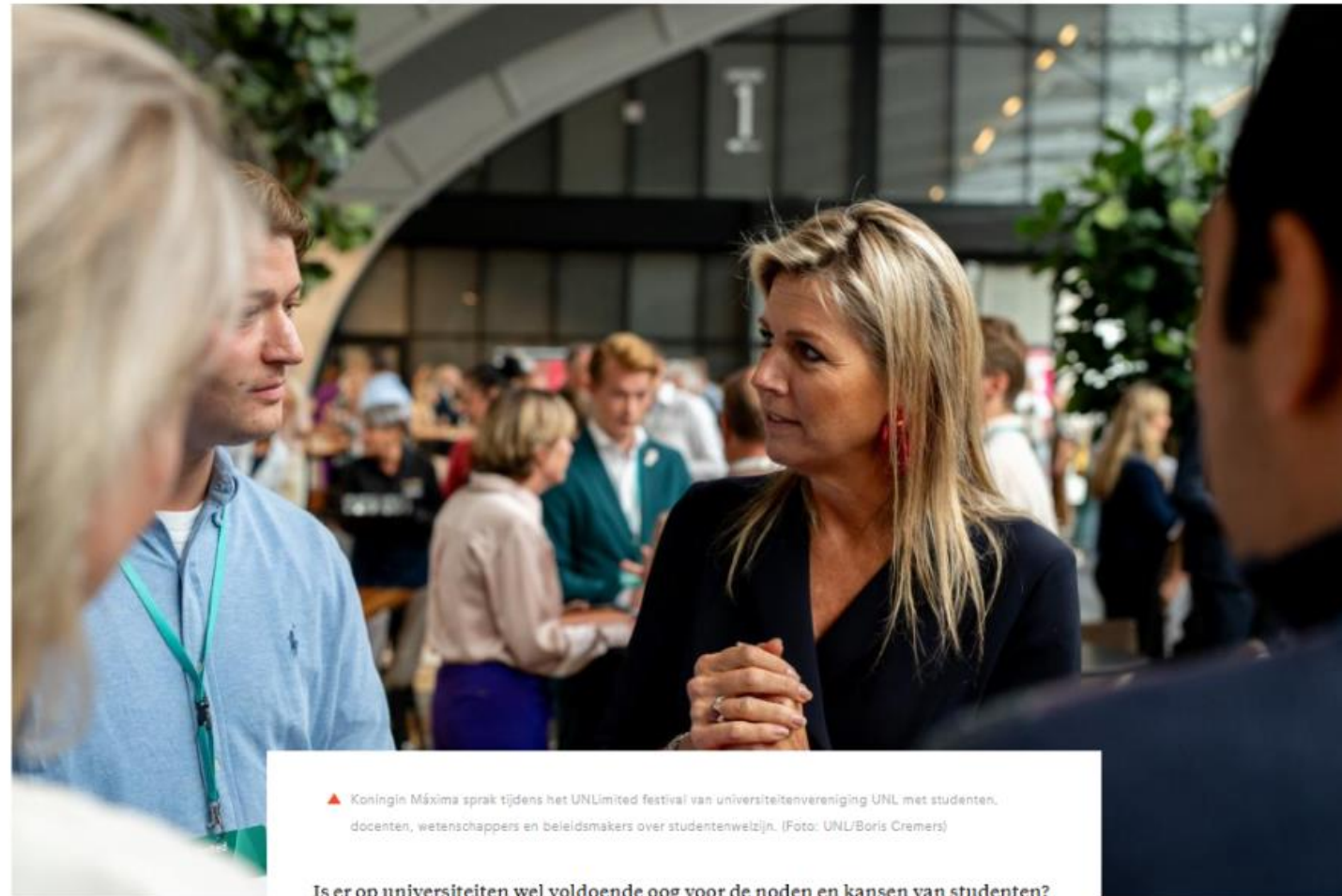
▲ Bij de bijeenkomst 'The Colossal Campos' verbeeldden acteurs de meningen van het publiek. (Foto: Thijs van Reeuwijk)

Een theaterdialogo over de groeiplannen van de TU Delft liep dinsdag uit op spanning tussen studenten en bewoners. "Dit laat precies zien hoe belangrijk de TU bewoners vindt."

EDUCATION

02 oktober 2023 - 14:52 door HCP

Studentenwelzijn: juist de international voelt de druk



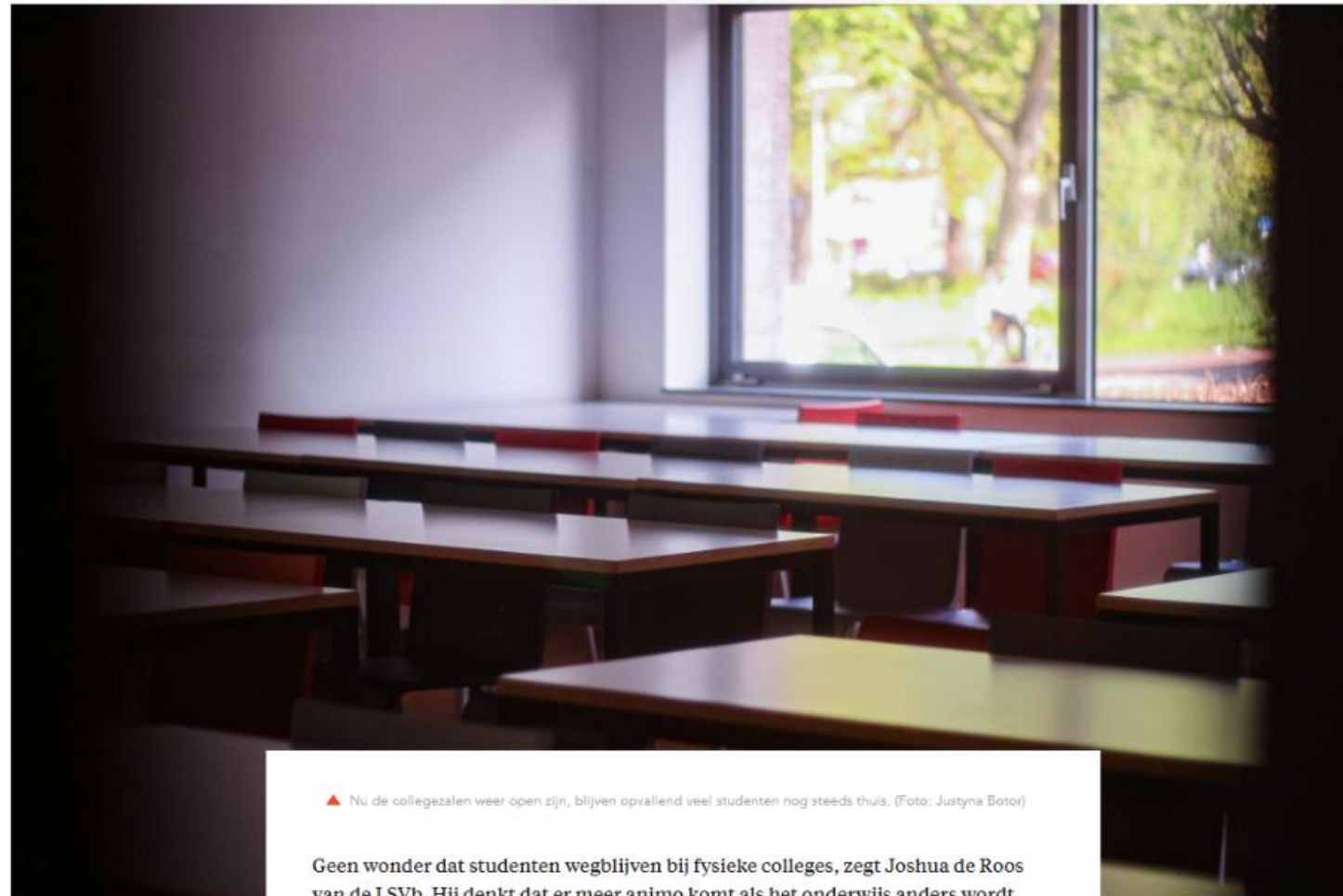
▲ Koningin Máxima sprak tijdens het UNLimited festival van universiteitenvereniging UNL met studenten, docenten, wetenschappers en beleidsmakers over studentenwelzijn. (Foto: UNL/Boris Cremers)

Is er op universiteiten wel voldoende oog voor de noden en kansen van studenten? Het kan beter, menen koningin Máxima, onderwijsminister Dijkgraaf en de studenten zelf.

EDUCATION

06 mei 2022 - 11:15 door HOP

‘Studenten zijn de binding met hun universiteit kwijtgeraakt’



▲ Nu de collegezalen weer open zijn, blijven opvallend veel studenten nog steeds thuis. (Foto: Justyna Botor)

Geen wonder dat studenten wegblijven bij fysieke colleges, zegt Joshua de Roos van de LSVb. Hij denkt dat er meer animo komt als het onderwijs anders wordt ingericht.

2. Problem statement

“TU Delft needs more and better study places for students. They've built new buildings like Flux, Pulse, and Echo, but do these buildings really meet the needs of future students? Not only the number of study places is relevant, but also whether these study places satisfy the needs of future students and future education.”

❓ Pulse (2018), Echo (2022), Flux (temporary and demountable, 2023) all provide an answer to the question about *quantity* of study places, but do they also meet the quality requirements of the future?



3. Research questions

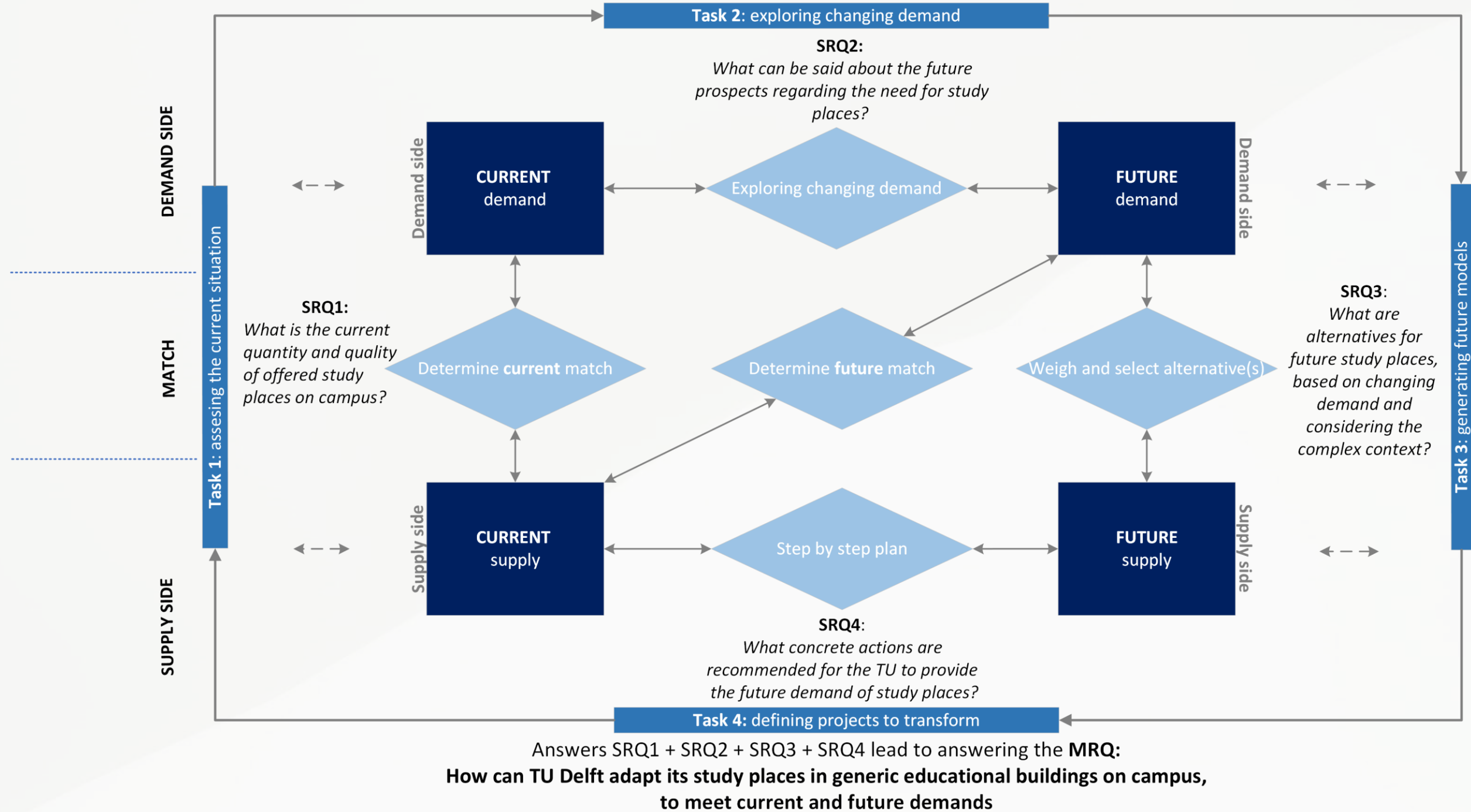
- Main research question (MRQ)
- Sub research questions (SRQ)
- Subdivision of questions using DAS framework

MRQ: How can TU Delft adapt its study places in generic educational buildings on campus, to meet current and future demands?

Hoe kan de TU Delft haar studieplekken in generieke onderwijsgebouwen op de campus aanpassen, zodat ze voldoen aan de huidige en toekomstige eisen?



SRQ1	<i>What is the current quantity and quality of offered study places on campus?</i>	Occupancy measurements + interviews (IQ4)
SRQ2	<i>What can be said about the future prospects regarding the need for study places?</i>	Literature + interviews (IQ5) + cases
SRQ3	<i>What are alternatives for future study places, based on changing demand and considering the complex context?</i>	Literature + interviews (IQ6)
SRQ4	<i>What concrete actions are recommended for the TU Delft to provide the future demand of study places?</i>	Literature + interviews (IQ2 & IQ7) + cases

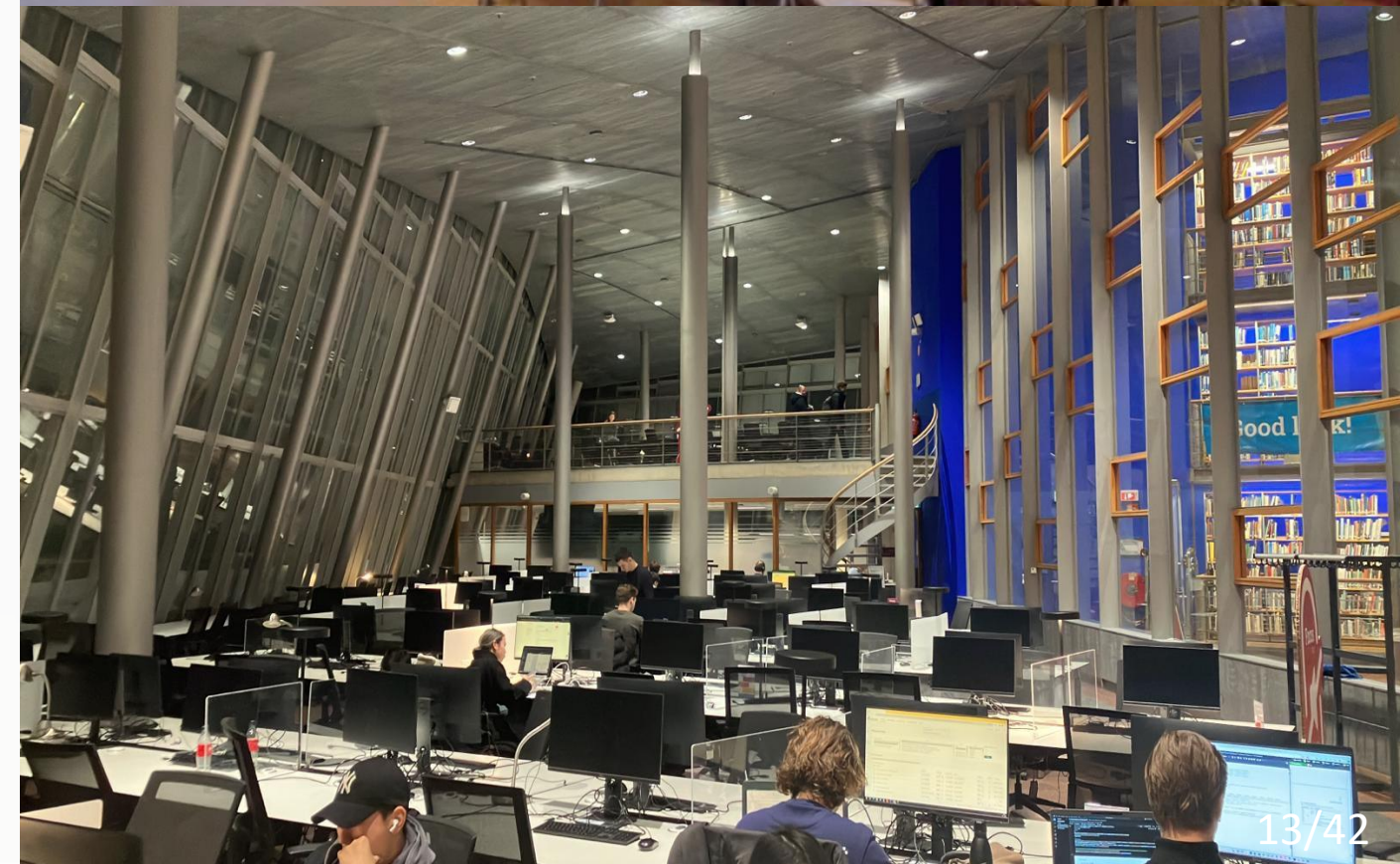


4. Methodology

- Literature review (theoretical background)
- Case studies
- Semi-structured in-depth interviews



(source: Mecanoo, n.d.)





5. Theoretical background

5. Theoretical Background - main findings from literature

1 Real estate theory and performance

- *"How does architecture (the environment) influence us?" | Norberg-Schulz (1926-2000)*
- *"The assumed added value of real estate, either positively or negatively, serves as the foundation of real estate management. No society, organisation, or individual would invest in real estate if it had no impact on performance." | Den Heijer (2011)*

2 Real estate management and campus management

- Aim of real estate management
- PREM and CREM

3 The campus as a learning community

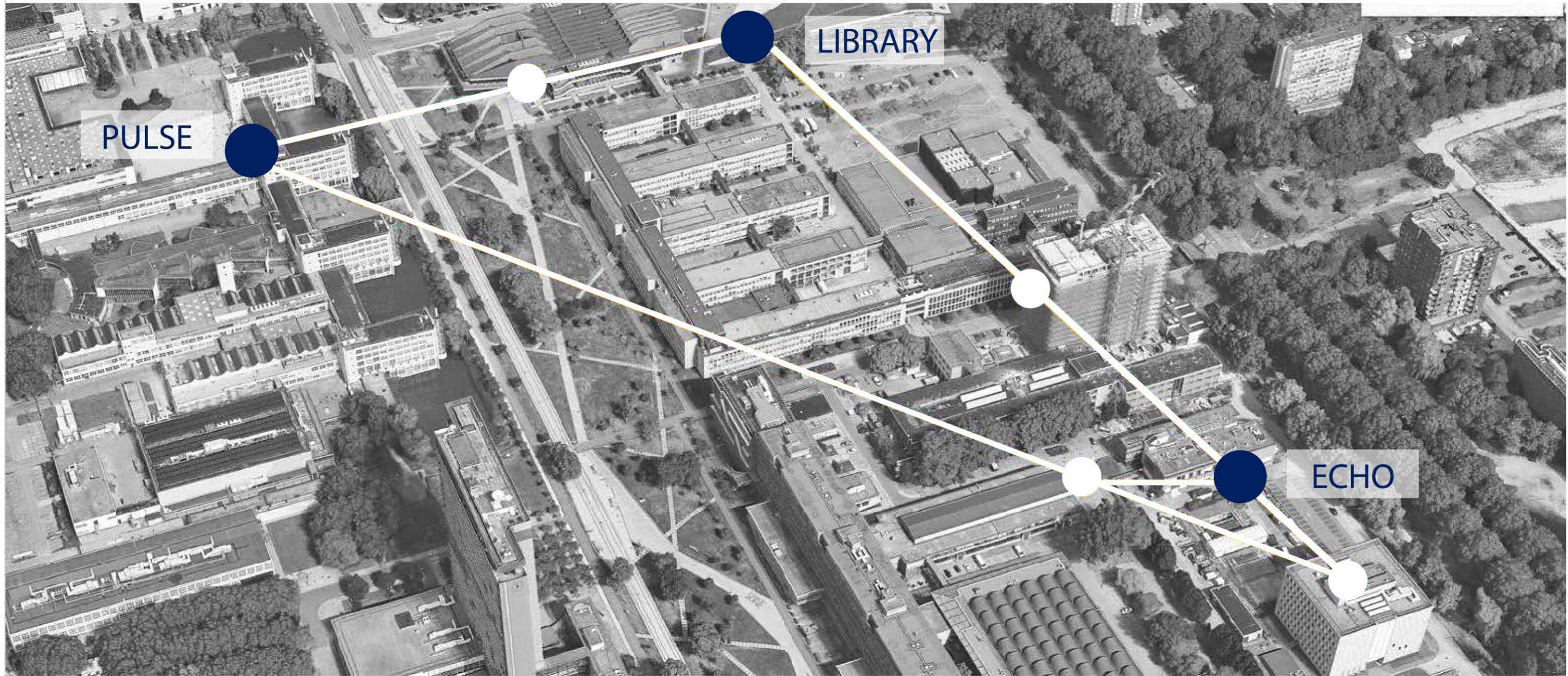
- Definition campus
- The American Campus

4 Building a community

- Why community on campus?
- Solid, liquid, gas



6. Study places at TU Delft and Case studies



6. Study places at TU Delft

Type A (A2)* **Silent study places** - (individual study place)
study places to study for many hours in a
silent area *A2- with a pc

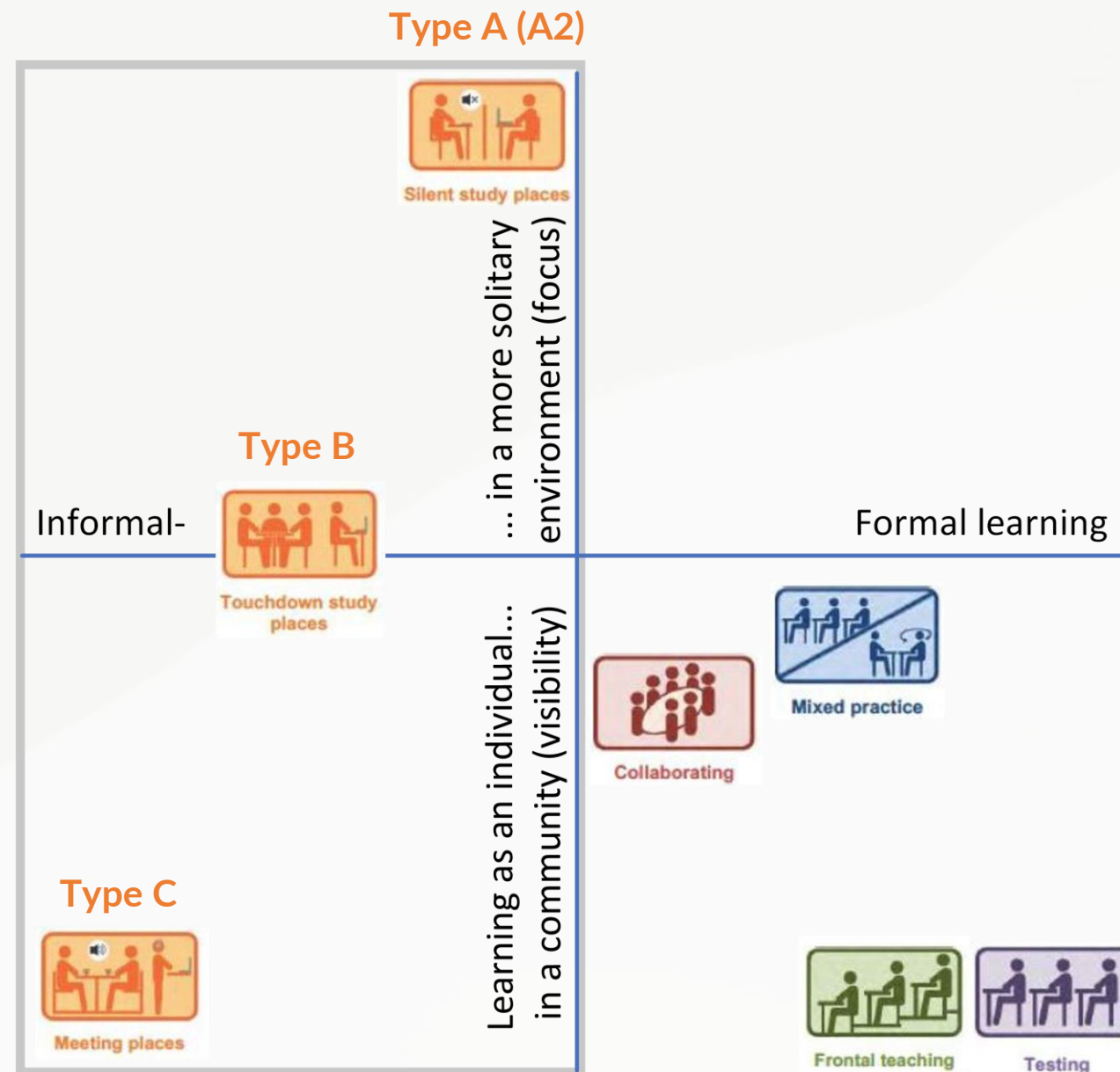
Type B **Touchdown study places** - (individual and
group). Study places for group work and
temporary self-study

Type C **Meeting places** - Multifunctional places for
various social encounters, such as informal
meetings or conversation. Such a study place
counts half a study place for capacity
planning.

Classification of study places (source: Cookbook Education Spaces, 2018)



6. Study places at TU Delft

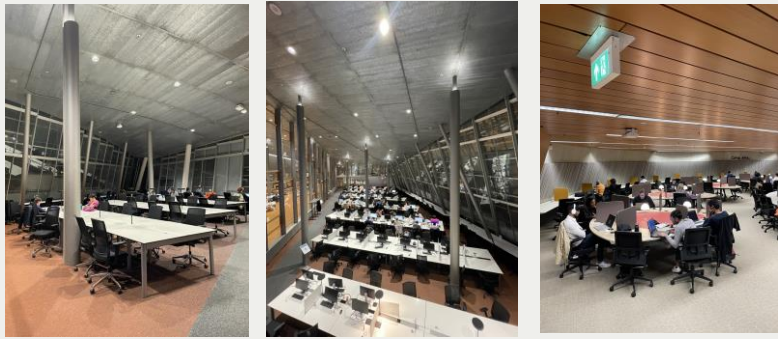


Positioning type A,B,C study places in the learning dimensions (source: author)

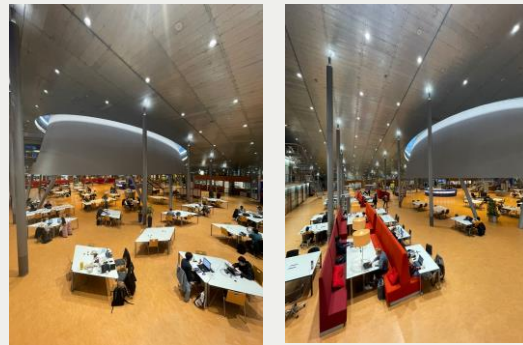
6. Study places at TU Delft - matrix

LIBRARY

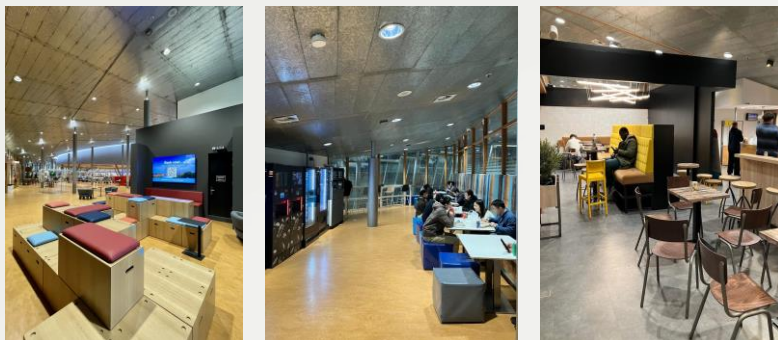
A (A2)



B

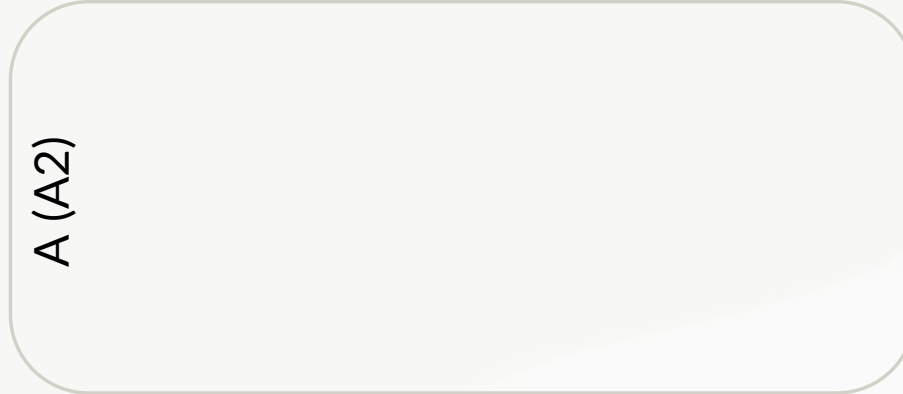


C

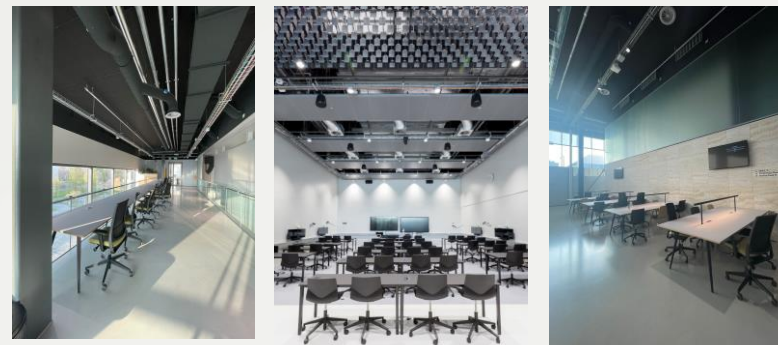


PULSE

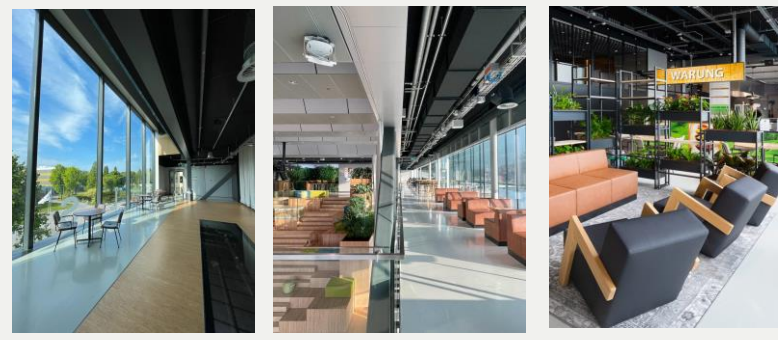
A (A2)



B



C

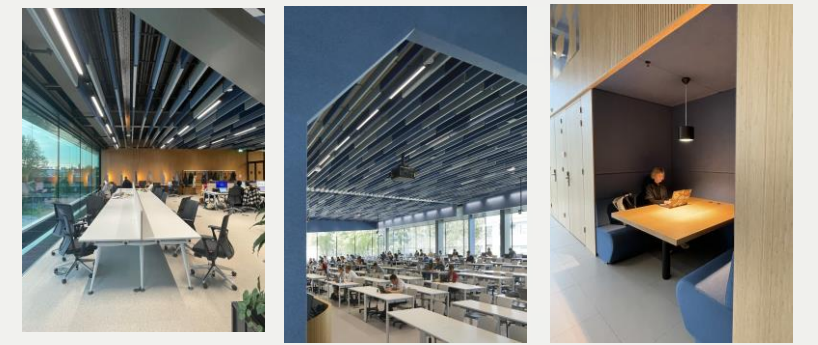


ECHO

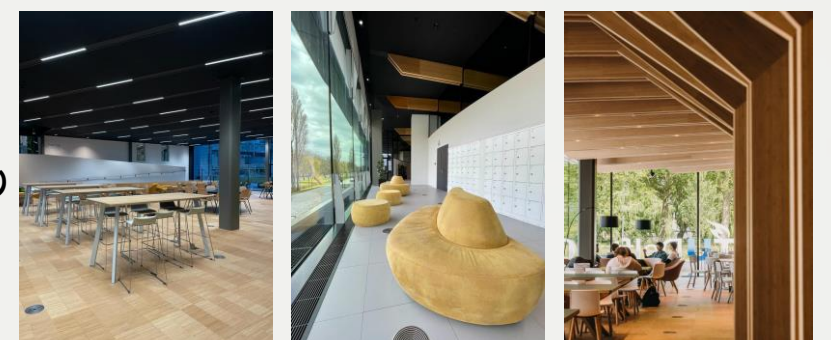
A (A2)



B



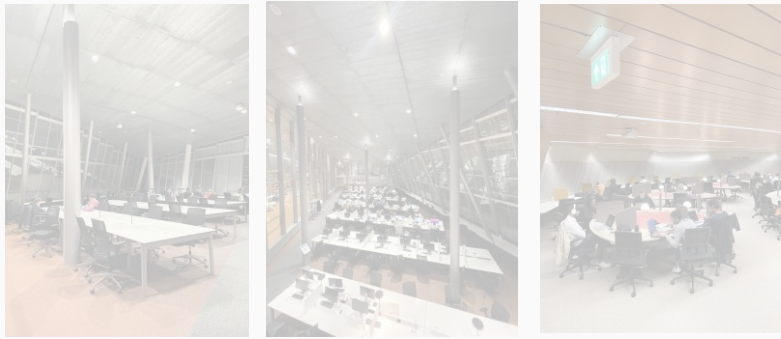
C



6. Study places at TU Delft - matrix

LIBRARY

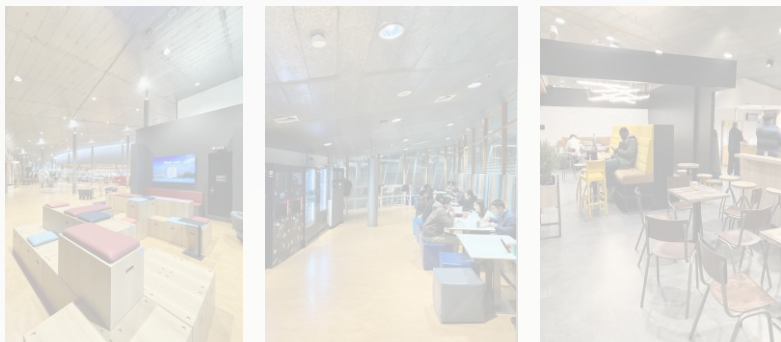
A (A2)



B

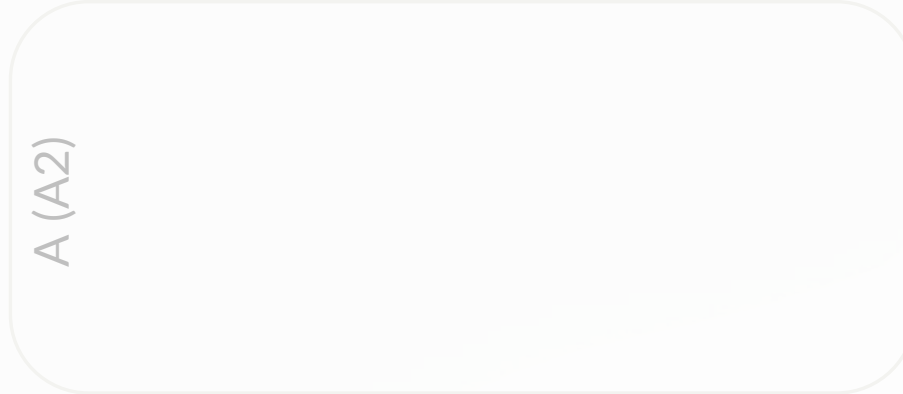


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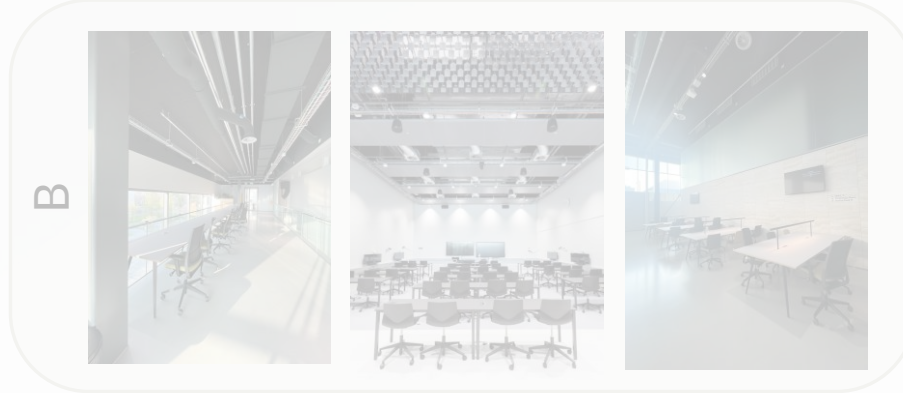


PULSE

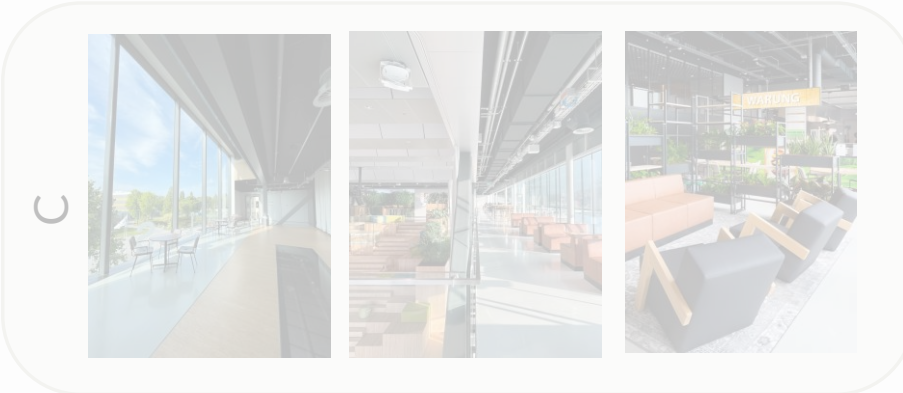
A (A2)



B

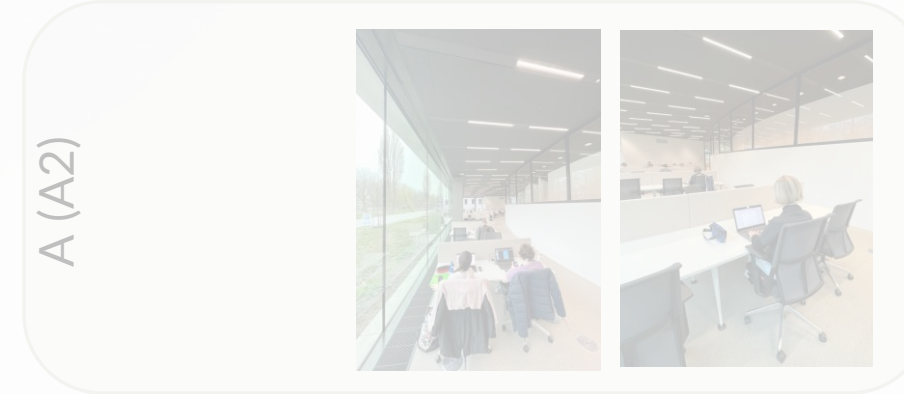


C

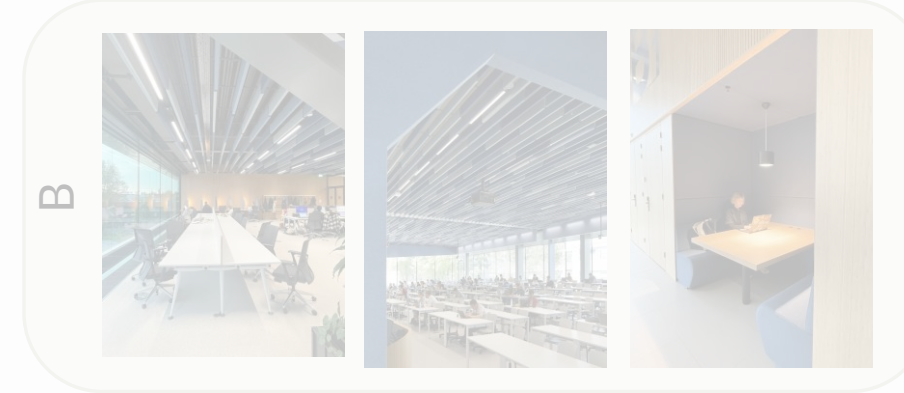


ECHO

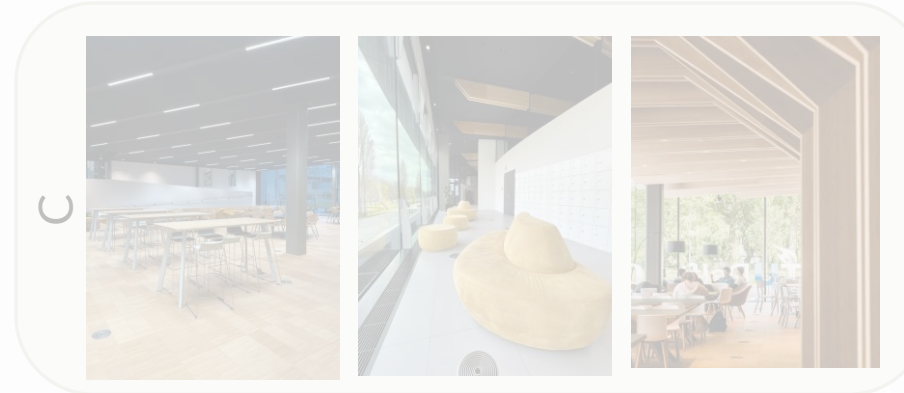
A (A2)



B



C





(source: Mecanoo, n.d.)



H6. Distribution type of study places on campus

Type	% Campus-wide	Description
A	12.3%	Silent study places
A2	8.2%	Silent study places with PC
B	50.0%	Touchdown study places
C	22.8%	Meeting places
Mixed	6.7%	Mix of A, A2, B or C

Distribution type of study places on campus by categories A,A2,B,C
(source: Cookbook Education Spaces, 2018)

6. Case studies



LIBRARY (1997)

Study type	%	Amount
A	13.8%	153
A2	12.7%	141
B	53.6%	596
C	2.6%	29
Mix	17.4%	194

Total: 1.113



PULSE (2018)

Study type	%	Amount
A	0%	-
A2	0%	-
B	82.1%	226
C	17.9%	49
Mix	0%	-

Total: 275

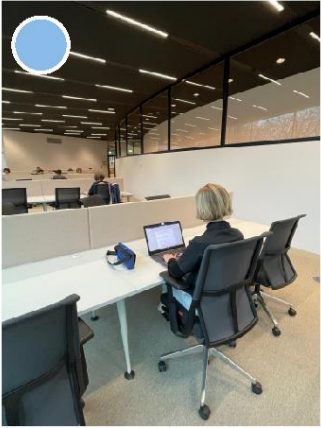
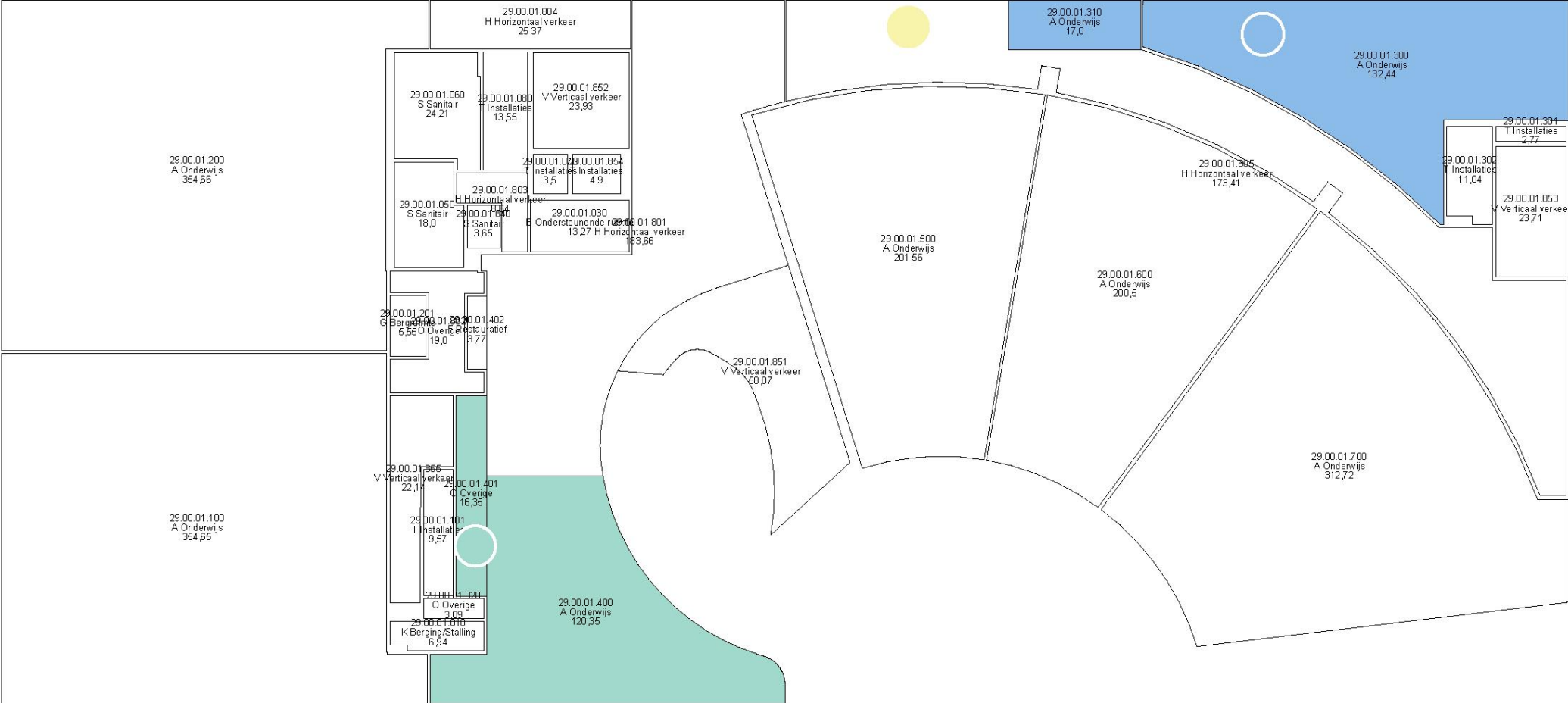


ECHO (2022)

Study type	%	Amount
A	17.7%	53
A2	0%	-
B	57.0%	171
C	25.3%	76
Mix	0%	-

Total: 300

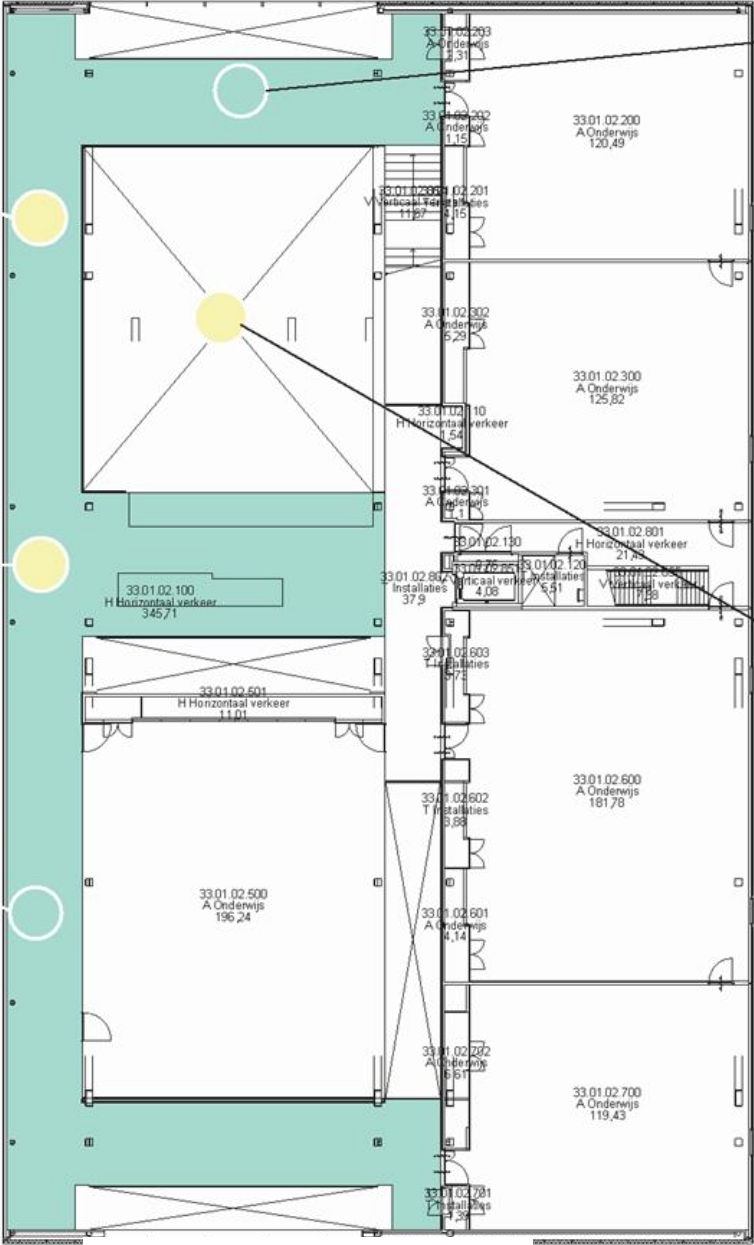
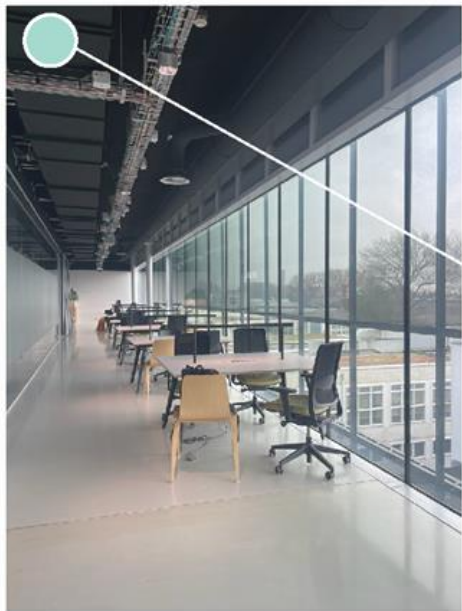
H6. The case studies- floor plan Echo (first floor)



Classification of study places

- A - Silent study places (individual study place)
- A2 - Silent study places with a pc (individual study place)
- B - Touchdown study places
- B-Touchdown study places (project rooms for collaboration)
- C - Meeting places

H6. The case studies- floor plan Pulse (second floor)



Classification of study places

- A - Silent study places (individual study place)
- A2 - Silent study places with a pc (individual study place)
- B – Touchdown study places
- B-Touchdown study places (project rooms for collaboration)
- C – Meeting places

H6. The case studies- floor plan Library (ground floor)



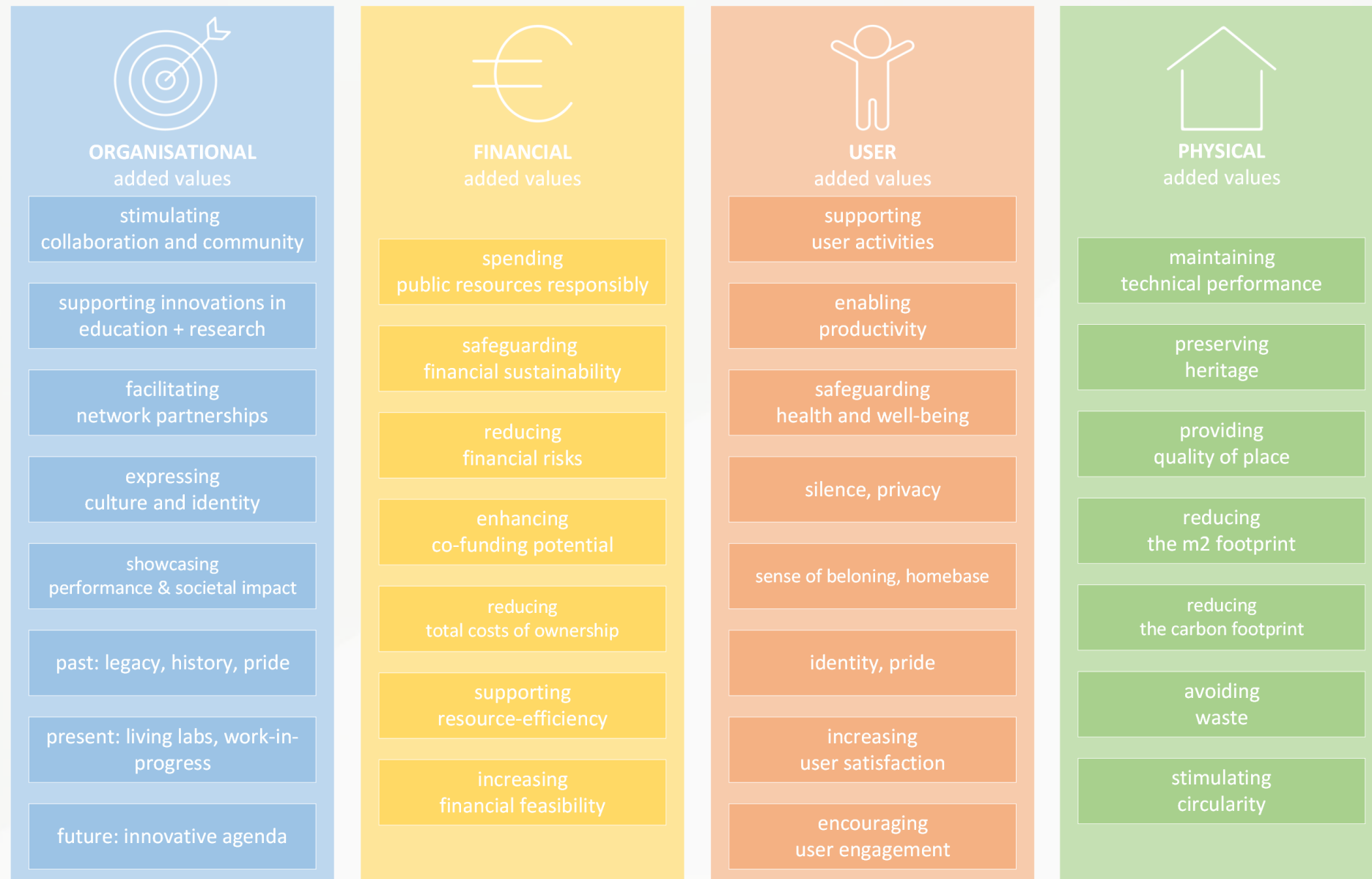
Classification of study places

- A - Silent study places (individual study place)
- A2 - Silent study places with a pc (individual study place)
- B - Touchdown study places
- B-Touchdown study places (project rooms for collaboration)
- C - Meeting places
- NEW - Other



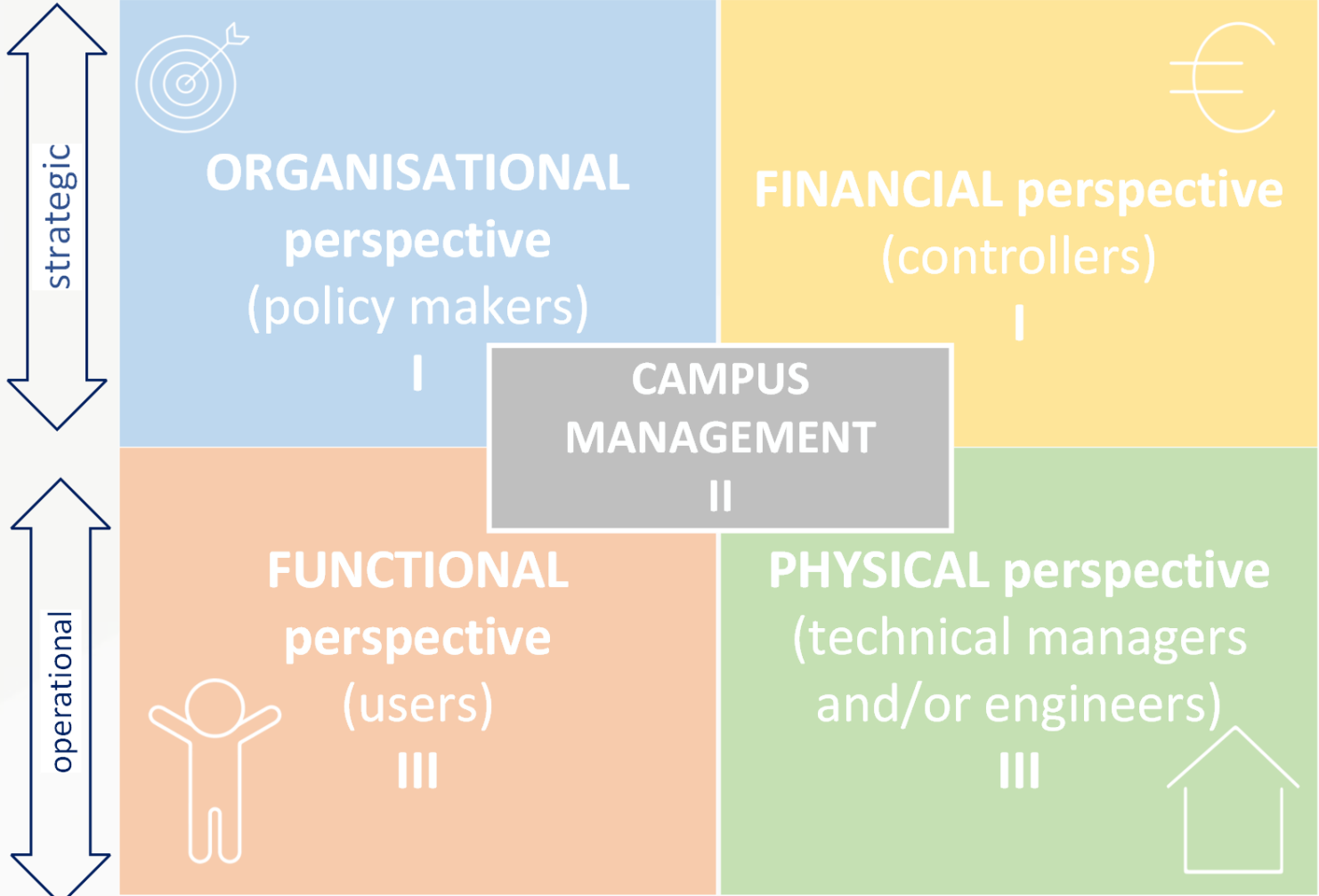
7. Interviews

7. Interviews – four perspectives and corresponding goals and values



Underlying goals and values categorised by perspective (source: Den Heijer, 2021)

7. Interviews – distribution of the participants



ORGANISATIONAL added values	FINANCIAL added values	USER added values	PHYSICAL added values
stimulating collaboration and community	spending public resources responsibly	supporting user activities	maintaining technical performance
supporting innovations in education + research	safeguarding financial sustainability	enabling productivity	preserving heritage
facilitating network partnerships	reducing financial risks	safeguarding health and well-being	providing quality of place
expressing culture and identity	enhancing co-funding potential	silence, privacy	reducing the m2 footprint
increasing performance & societal impact	reducing total costs of ownership	sense of belonging, homebase	reducing the carbon footprint
past: legacy, history, pride	supporting resource efficiency	identity, pride	avoiding waste
present: living labs, work-in-progress	increasing financial feasibility	increasing user satisfaction	stimulating circularity
future: innovative agenda		encouraging user engagement	

Division of participants per perspective according to Den Heijer's four perspective model (source: adapted from Den Heijer 2021)

7. Interviews – results (grouped by similarities)

IQ2: Do you believe there is a space shortage or space surplus on campus (regarding to study places?)

- Space surplus [6/10]

IQ3: What do you understand by the term: study place?

- Focus [5/10]

IQ4: How satisfied are you with the current status of study places, from a CREFM* point of view?

*If applicable

- Satisfied, except for managing study places

IQ5: What are the challenges of the future regarding the use of the campus?

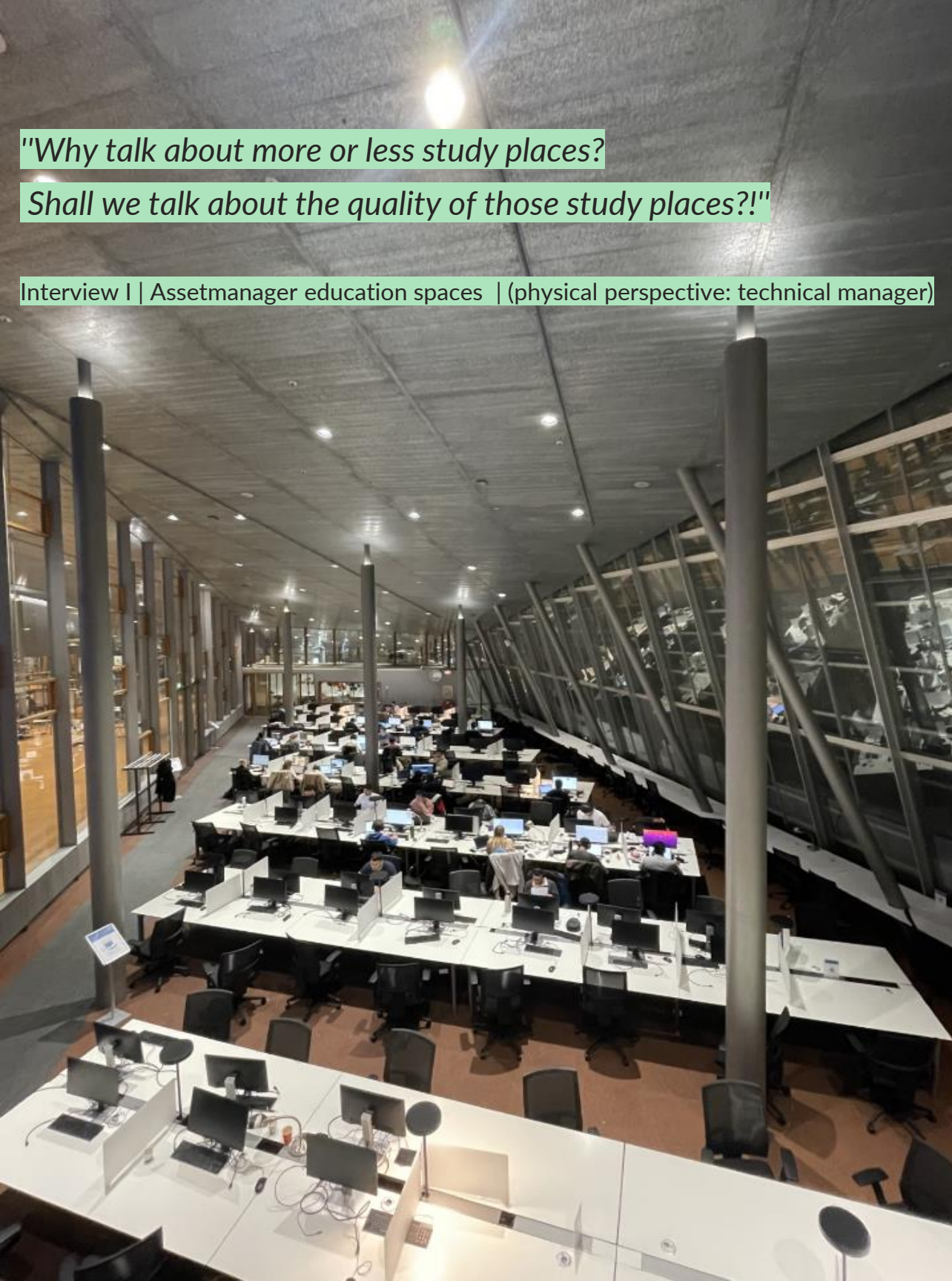
- Increasing student numbers [3/10]; Spread peak hours [4/10]; Personal growth [3/10]

IQ6: Could you describe what studying in the future will look like for students?

- Digital environment is one with (student) life [6/10]; No more lectures [4/10]; Interdisciplinary / project education [4/10]



8. Synthesis



"Why talk about more or less study places?"

Shall we talk about the quality of those study places?!"

Interview I | Assetmanager education spaces | (physical perspective: technical manager)

8. Synthesis – sub-conclusions

SRQ1 *What is the current quantity and quality of offered study places on campus?*

Current quantity

- 28.000 students
- 6000 permanent places (1:5)
- 10.000 places during peak hours (1:3)
- Problem not the quantity but the visibility and accessibility

Current quality

- Room for improvement
- *How* quality is defined
- Quantitative focus in Cookbook Education Spaces
- Possible (more holistic) qualitative addition

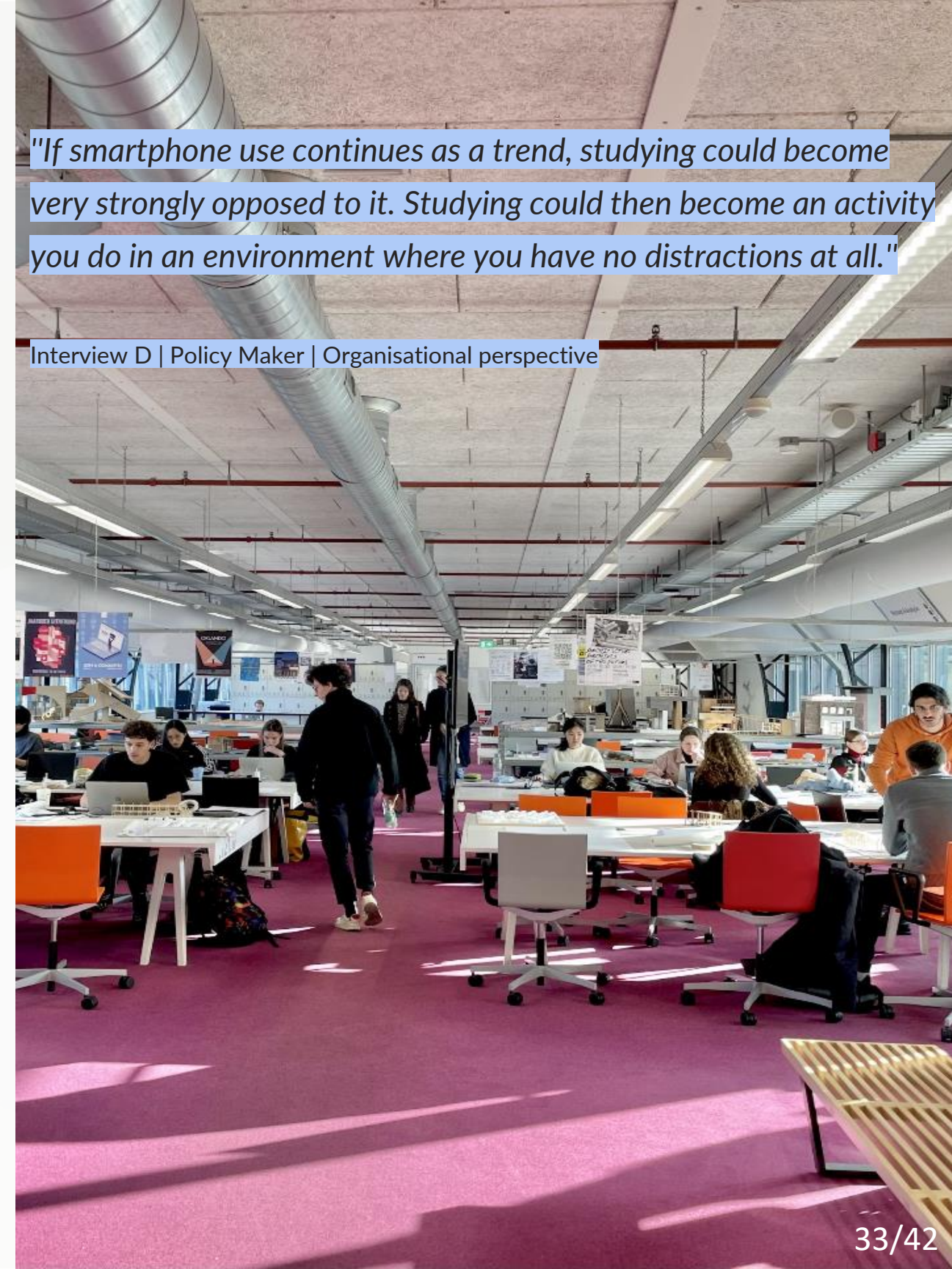
8. Synthesis – sub-conclusions

SRQ2: *What can be said about the future prospects regarding the need for study places?*

- Shift teaching methodologies
- Need for quiet, low stimuli environments
- Importance of controlling peak hours
- Disappearing boundaries private and academic life

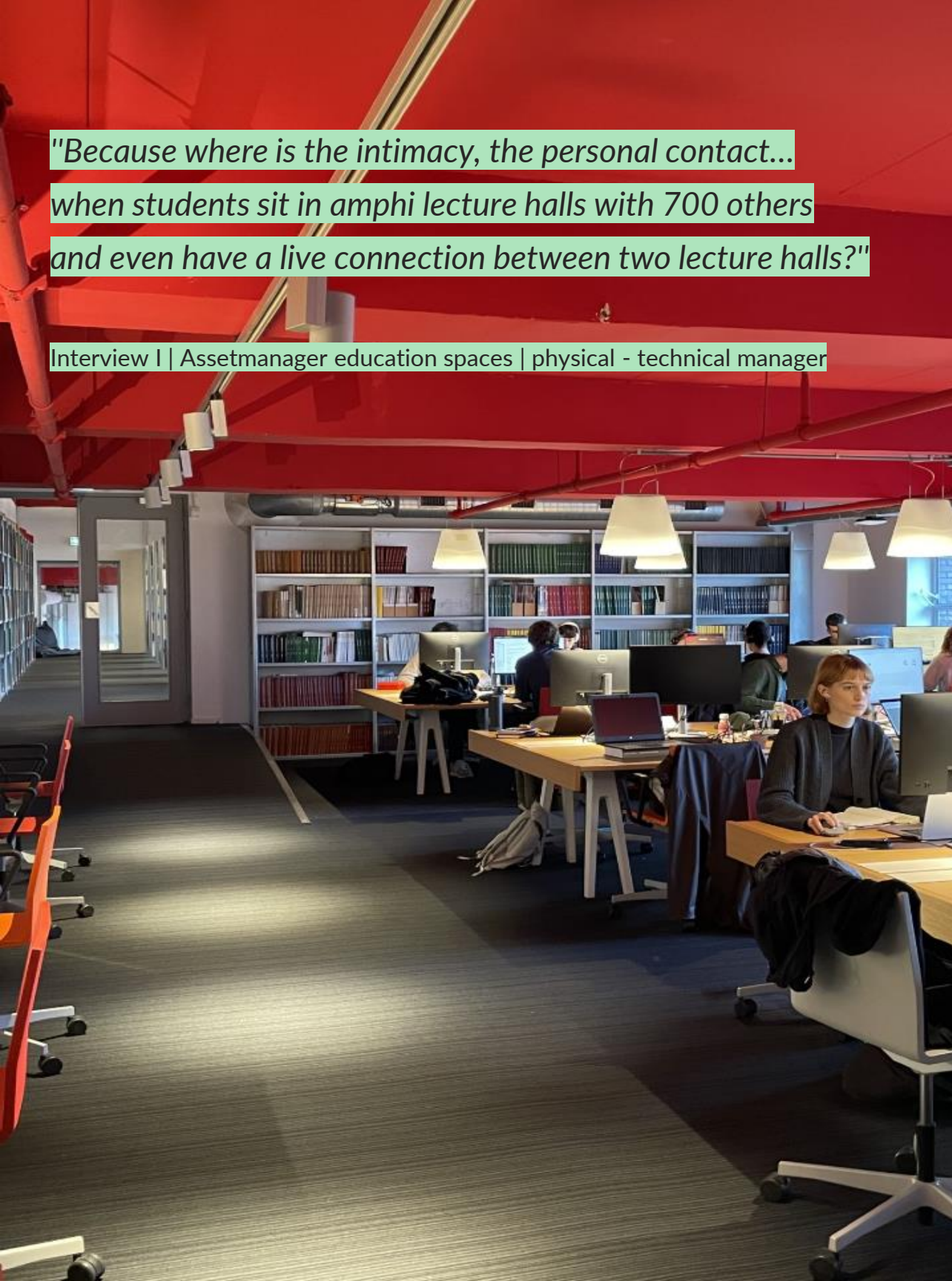
"If smartphone use continues as a trend, studying could become very strongly opposed to it. Studying could then become an activity you do in an environment where you have no distractions at all."

Interview D | Policy Maker | Organisational perspective



"Because where is the intimacy, the personal contact...
when students sit in amphi lecture halls with 700 others
and even have a live connection between two lecture halls?"

Interview I | Assetmanager education spaces | physical - technical manager



8. Synthesis – sub-conclusions

SRQ3: *What are alternatives for future study places, based on changing demand and considering the complex context?*

- Complex context (post-pandemic, internationalization, digitalisation)
- Creatively optimizing existing places
- Focusing quality over quantity
- Adaptive design principles (peak hours)

8. Synthesis – sub-conclusions

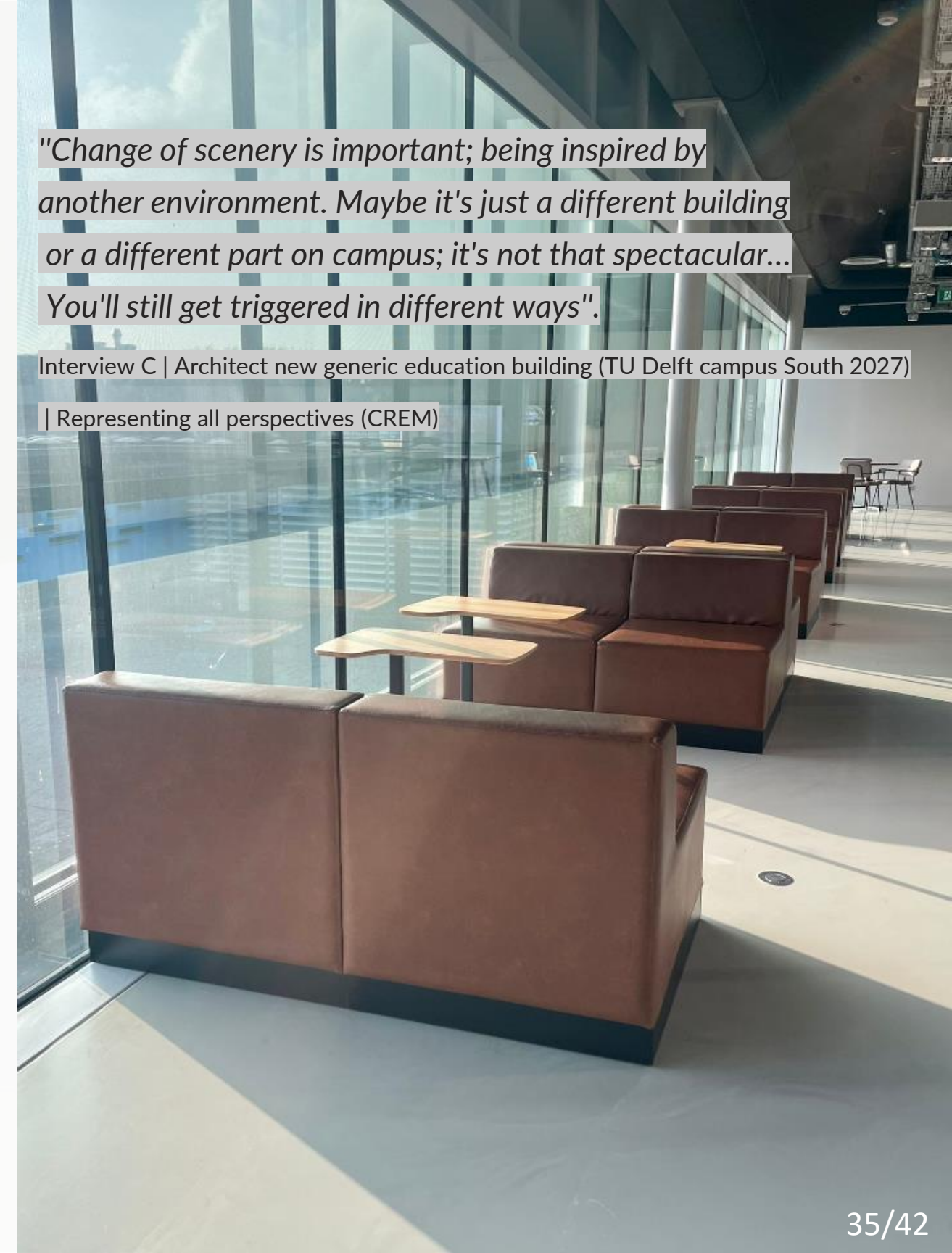
SRQ4: *What concrete actions are recommended for the TU Delft to provide the future demand for study places?*

1. Scheduling and smart campus tools
2. Redefine quality: Complement Cookbook Education Spaces
3. Create learning environments for interdisciplinary education
4. Think and facilitate in extremes: no-Wi-Fi versus social buzz
5. Centralised management and oversight for study places

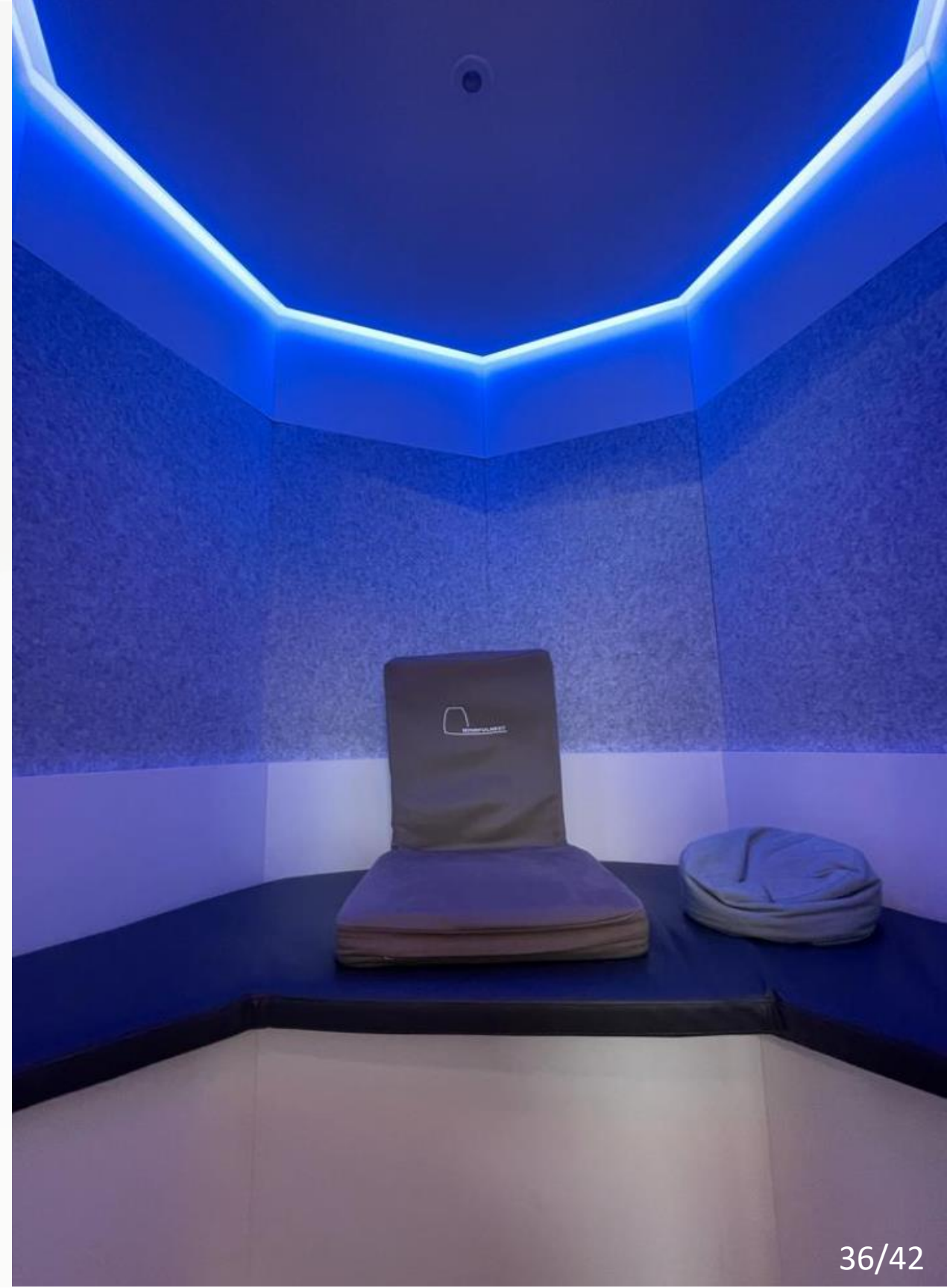
"Change of scenery is important; being inspired by another environment. Maybe it's just a different building or a different part on campus; it's not that spectacular... You'll still get triggered in different ways".

Interview C | Architect new generic education building (TU Delft campus South 2027)

| Representing all perspectives (CREM)



9. Conclusions



9. Main conclusion

MRQ: How can TU Delft adapt its study places in generic educational buildings on campus, to meet current and future demands?

1. Campus level (CREFM)

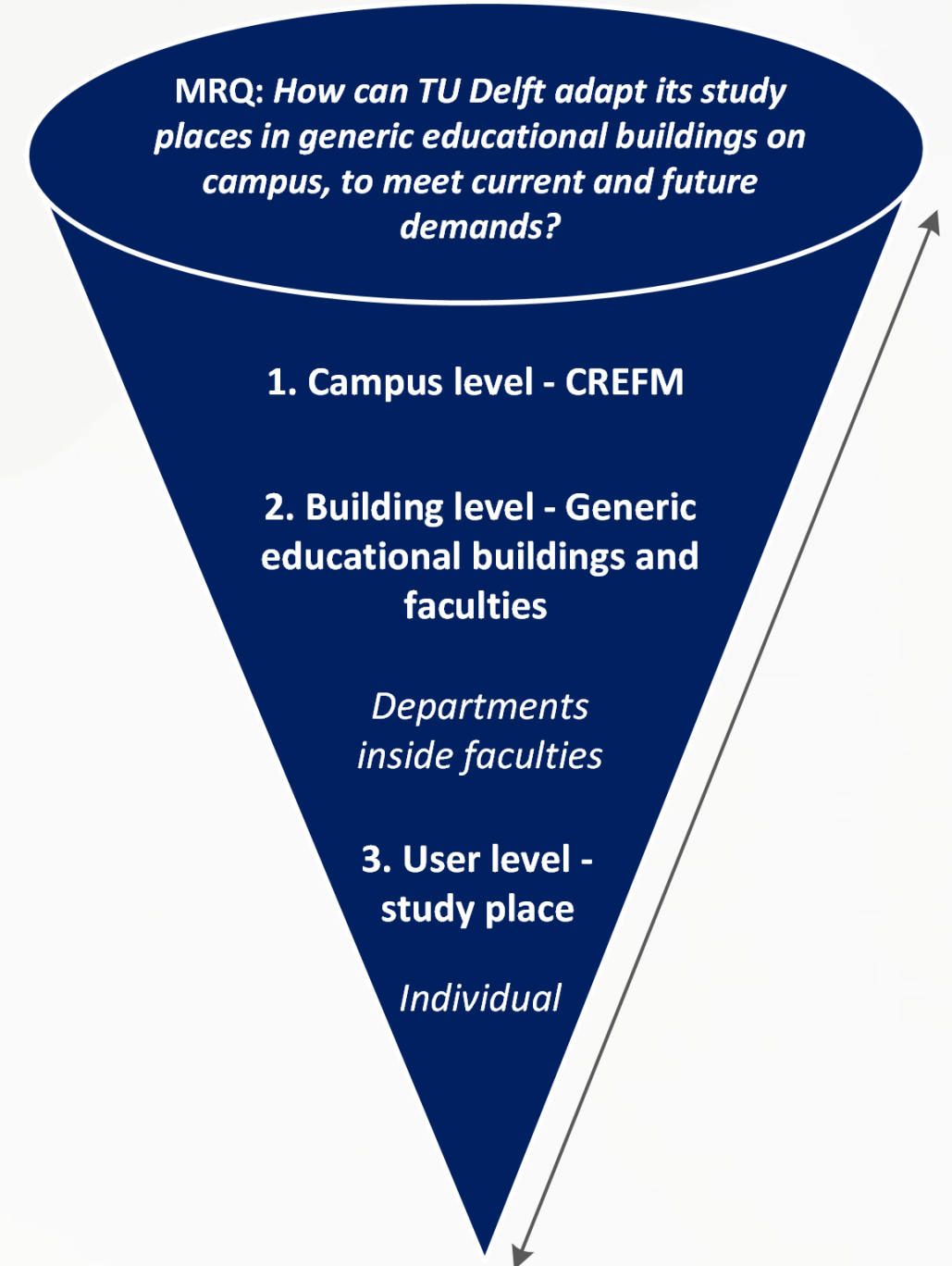
- Redefine quality - Complement cookbook education spaces
- Centralised management of the campus

2. Building level – Generic educational buildings and faculties

- Creating learning environments for interdisciplinary education

3. User level – study place

- Scheduling and implement smart campus tools
- Think and facilitate in extremes: “no-Wi-Fi versus social buzz.”





10. Limitations & recommendations

- Limitations
- Recommendations for future research



10. Limitations

- Number of the interviews
- The roles of participants
- Financial perspective (1 participant)
- Absence of student perspective
- TU Delft context
- Future number of students: influenced by political landscape
- Scope of study

10. Recommendations for further research

- Further research on student perspective
- Qualitative addition Cookbook Education spaces
- Implement smart campus tools to increase findability of study places
- Investigate *if* and/or *how* to switch different study places from one category to another (from B to A, etc.)
- Research centralised management of study places and/or opportunities for improvements in communication
- How to *design* study places of the future
- Interfaculty cross-pollination
- Generic educational buildings are complementary to faculties

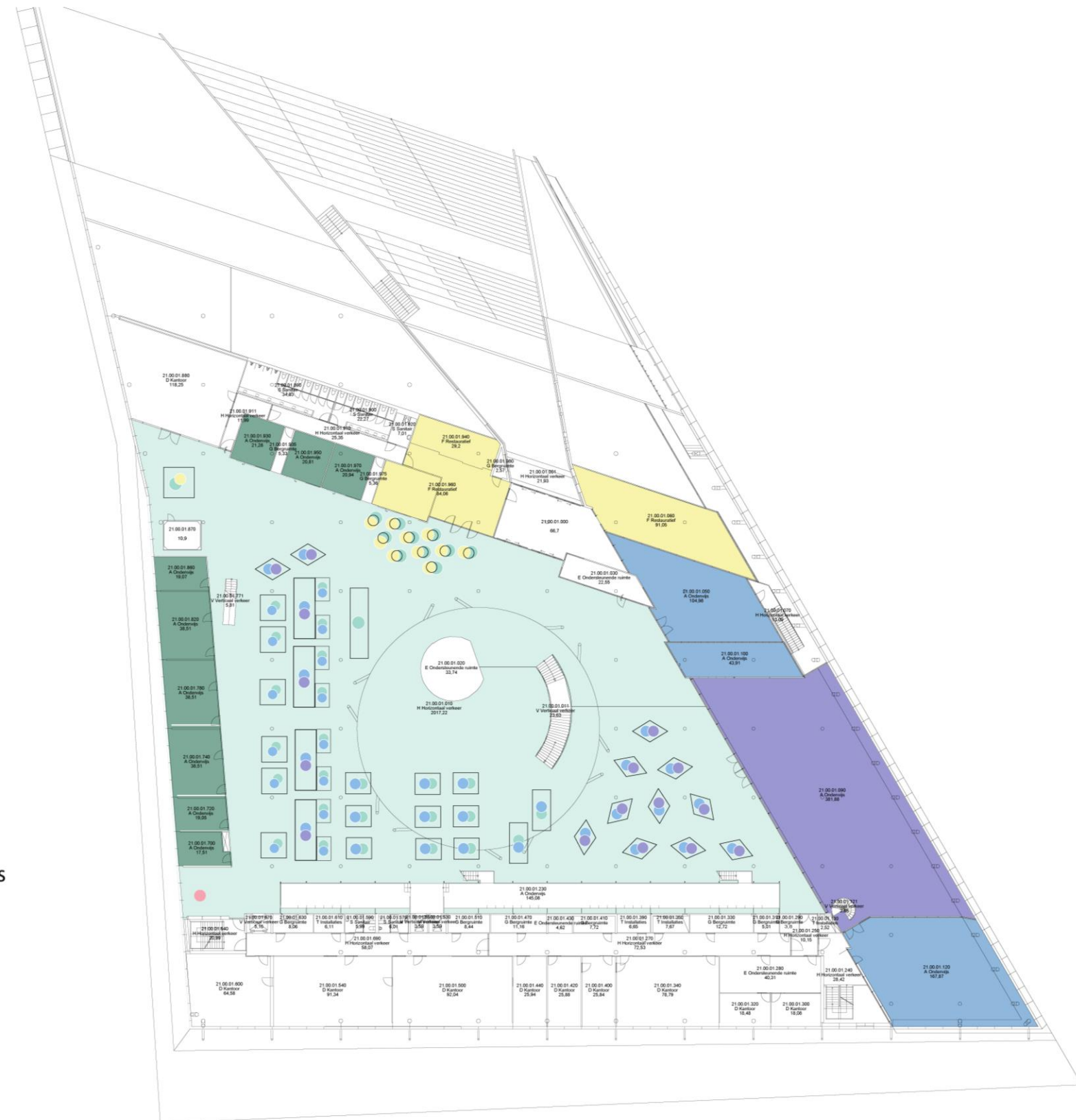


10. Recommendations – example library

- “How can you switch different study places from one category to another” (last slide)
- Are simple modifications possible to ‘upgrade’ an existing study place?

Classification of study places - possible adaptations

- A - Silent study places (individual study place)
- A2 - Silent study places with a pc (individual study place)
- B - Touchdown study places
- B-Touchdown study places (project rooms for collaboration)
- C - Meeting places
- Other (new) - The mindfulnest



11. Thank you for your attention Questions?

① Society

About what society we're talking?

② Needs

What is needed?

engineers? What sort of?

practical applications
technicians

short term.

research independent
long term.

QUALITY INSTEAD OF QUANTITY
LOOK AT TYPE

"BE CAREFUL WITH ENGAGEMENT! IMPORTANT."

"BE AWARE OF TIME MISTAKES"

Growth

Maintain!
not our focus today.
= NO GROWTH.

IS BIGGER ALWAYS BETTER!
Independent creation of knowledge

visions on the future future.

CITIZEN: WE DON'T FEEL HEARD IN THIS SESSION/DISCUSSION

Loneliness.

CITIZEN STUDENTS employees.
DIFFERENT STAKEHOLDERS
DIFFERENT VIEWS.

DIFFERENT RHYTHMS
DIFFERENT SOUND.

FRICION
SPACE
UTILITIES NEEDED.
TOP HEAVY

STUDENTS

SIZE

DEPENDENCY

Exploring scenario's

fulfill the need of society.

A place for the free and independent creation of knowledge