DESIGN FOR OUT future



IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy". Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1!

family name	Kuiper	Your master program	nme (only select the options that apply to you):
initials	J.J. given name Jelle	e - Jacob IDE master(s):	() IPD → Dfl () SPD
student number		2 nd non-IDE master:	
street & no.		individual programme:	(give date of approval)
zipcode & city		honours programme:	() Honours Programme Master
country		specialisation / annotation:	Medisign
phone			() Tech. in Sustainable Design
email			Entrepeneurship

SUPERVISORY TEAM **

Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair ** mentor	Suzanne Hiemstra-van Mastrigt Tomasz Jaskiewicz	dept. / section: <u>SDE/M&M</u> dept. / section: HCD/DDC	0	Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v.
2 nd mentor	Claudia Spaargaren		0	Second mentor only
	organisation: <u>TU Delft, Seamless Mo</u>	bility Lab		applies in case the
	city: <u>Delft</u>	country: The Netherlands		an external organisation.
comments (optional)				Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

Chair should request the IDF



APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair <u>Suzanne Hiemstra-van Mastrigt</u>	date <u>16 - C</u>) <u>4 - 2020</u>	signature		
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name FORMAL APPROVAL GRADUATION PROJECT To be filled in by the Board of Examiners of IDE TU I Next, please assess, (dis)approve and sign this Proj	date Delft. Please chec ect Brief, by using	- k the supervisory g the criteria belo	signature team and study the p w.	arts of the brief marke	:d **.
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- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks ?
- Does the composition of the supervisory team comply with the regulations and fit the assignment ?

Content:	\bigcirc	APPROVED) NOT API	PROVED
Procedure:	\bigcirc	APPROVED	NOT APP	PROVED
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name	date	signature	
IDE TU Delft - E&SA Department /// Gra	duation project brief & study o	verview /// 2018-01 v30	Page 2 of 7
Initials & Name <u>J.J. Kuiper</u>		Student number <u>4209796</u>	
Title of Project <u>Personal Mobility: Th</u>	ne Sustainable Commute		



We live in challenging times, with the exhaustion of our planet just around the corner we need to look into sustainable alternatives to construct our future. According to the climate agreement of Paris, in 2030 the Netherlands will have reduced its emissions with 49% compared to its emission in 1990. This goal is ambitious and should be practised in all industries, including the personal mobility industry, in order for it to succeed.

The Dutch Institute for Transport Policy Analysis (KiM) state that traffic and transport, excluding international aviation and the shipping industry, are responsible for 20% of the total CO2-emission in the Netherlands. This shows that personal mobility can play a significant role in achieving our societal goals regarding sustainability in 2030.

However, these ambitions collide with what we perceive in our country. The demand for mobility is increasing and the current infrastructure of the Netherlands is over-saturated with public and private transport. This growth of mobility underlines an opportunity to create sustainable mobility alternatives for the people that are willing to commute in a sustainable way.

Many citizens recognize the need to take responsibility and to behave in more sustainable ways. Even though they would like to make changes in their behaviour regarding mobility, it is not always apparent what these changes should be. However, the concept of Mobility-as-a-Service (MaaS) can provide opportunities in supporting commuters who are willing to decrease their CO2-emissions during their daily commutes.

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Initials & Name J.J. Kuiper

Title of Project <u>Personal Mobility: The Sustainable Commute</u>

Student number 4209796





introduction (continued): space for images



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 Initials & Name
 J.J.
 Kuiper
 Student number
 4209796

 Title of Project
 Personal Mobility: The Sustainable Commute
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PROBLEM DEFINITION **

Mobility as a Service (MaaS) is a flexible, multimodal mobility service that enables users to plan, pay, book and modify their journey in real-time in a one-stop-shop fashion. Possible positive effects are a better spread of public transport and traffic, an increase of sustainability in personal mobility, and wider accessibility of hard-to-reach regions. Therefore, the Dutch Ministry and transport operators within the personal mobility industry are looking into MaaS and its benefits as a solution for the future of mobility in the Netherlands.

More specifically, MaaS is an opportunity to form a breeding ground for sustainable commuting solutions and increase environmental awareness amongst travellers. This can, for example, be done by educating travellers on the positive or negative impact of their travel behaviour and/or illustrating trade-offs between time and emissions or their commutes.

MaaS consists of four cornerstones: 1. The personal mobility offer in an area. 2. The use of mobility hubs, for transitioning between modes. 3. The city and its infrastructure regarding mobility. 4. The use of multimodal trips (Kuiper, 2020).

The use of multimodal trips will form the base and at the core will be the commuters who are willing to travel in a more sustainable way. As stated by CBS, 30% of all personal mobility kilometres made in the Netherlands consist of commuting traffic. This unveils the opportunity that the biggest positive impact is to be made within trips between work and home, hence my focus for this project. Furthermore, there are two methods to decrease CO2-emissions: by decreasing kilometres made; and by lowering CO2 emissions during these kilometres. My focus will be on the latter as it is more in line with the multimodal approach. The challenge, however, is to find the balance between making sustainable commuting a viable option for commuters on the one hand, and not having the commuters to compromise on travelling values such as speed, comfort, convenience, etc. on the other hand.

ASSIGNMENT**

Design a service that supports commuters who want to decrease their CO2-emissions during their daily commutes, utilising Mobility as a Service principles.

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Student number 4209796

Initials & Name J.J.

Kuiper Title of Project Personal Mobility: The Sustainable Commute



PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

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zoom in for visibility

holiday break in week of 27/4

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Initials & Name <u>J.J.</u>

Title of Project _____Personal Mobility: The Sustainable Commute

Kuiper

Student number 4209796



MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, Stick to no more than five ambitions.

- Learn to deal with complex service systems.
- Learn to deal with complex contexts and human-technology interactions
- Learn to plan, structure and execute more specifically to minimise stress and maximise overview.
- Experiment with designing for future solutions

FINAL COMMENTS In case your project brief needs final comments, please add any information you think is relevant.

Impact of COVID-19 measures will affect user testing activities, which will need to be conducted online/at a distance. Also, with the majority of people currently working from home, there are hardly any commuting trips right now.

Reference: Kuiper, J.J., 2020. Mobility as a Service: Exploring travel patterns, behaviours and preferences of travellers. Research elective report, DDL Seamless Mobility Lab, Delft University of Technology, Delft, January 2020 (draft).

_____ Student number <u>4209796</u>

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Initials & Name <u>J.J.</u>

Title of Project <u>Personal Mobility: The Sustainable Commute</u>

Kuiper