



# Co-designing AI services with and for students

**Seminar**

*Copenhagen, 23/09/2019*

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*Aalborg University*

# WeNet in a nutshell



## WeNet – Internet of Us

Start Date: 1<sup>st</sup> January 2019

Duration: **48 Months**

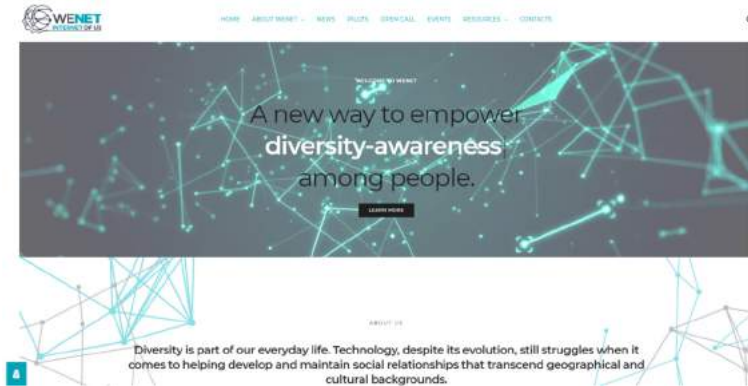
Total budget: **6.5 M€**

Coordinator: [University of Trento](#)

**Prof. Fausto Giunchiglia**

Final outcome: **an online platform that will empower machine mediated diversity-aware people interactions**

Web site: <https://www.internetofus.eu/>



# WeNet Consortium



# WeNet Main Goal



The main overall goal of WeNet is to develop the culture, science and engineering, methodologies, algorithms, social interactions protocols and an **online platform which will empower machine mediated diversity-aware people interactions.**

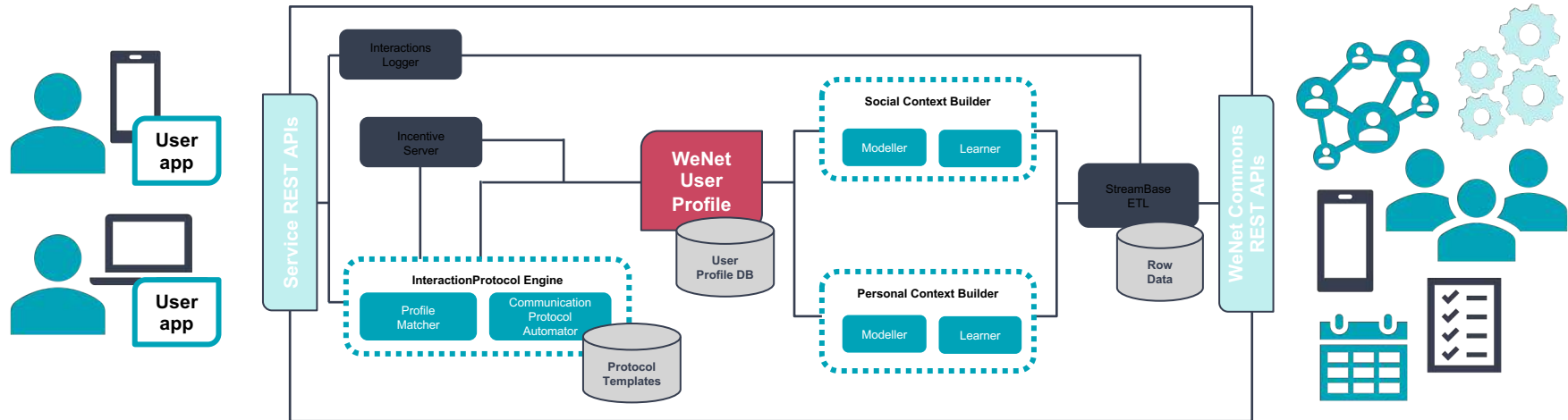
# WeNet Main Objectives



- Development of the **scientific foundations, methodologies and algorithms empowering machine mediated diversity-aware people interactions**.
- Development of the **WeNet online platform**, integrating and consolidating the implementation of the methods and tools developed
- Large scale **Smart University pilot trials** in 18 different Universities and adult school sites and involve 10,000 participants.
- **Community building**, which will expand from the consortium to all institutions worldwide
- Ensure a **clear ethical guidance for the technology development** and the pilot activities

# WeNet Platform Architecture

The WeNet platform will implement and consolidate diversity-aware interaction protocols, learning algorithms and tools, based on a computational sociological theory of diversity under a clear ethical guidance.



# WeNet Pilots

WeNet will run multiple pilot trials

- 18 worldwide sites, including universities and adult school
- 10,000 participants throughout the whole duration of the project

**Pilots will run at:**

- **August 2020 (M20)**
- **December 2021 (M36)**
- **August 2022 (M44)**



# WeNet Open Call



The cascade funding system will be used to involve additional EU academic institutions interested in piloting with their own students the WeNet approaches, technologies and services.

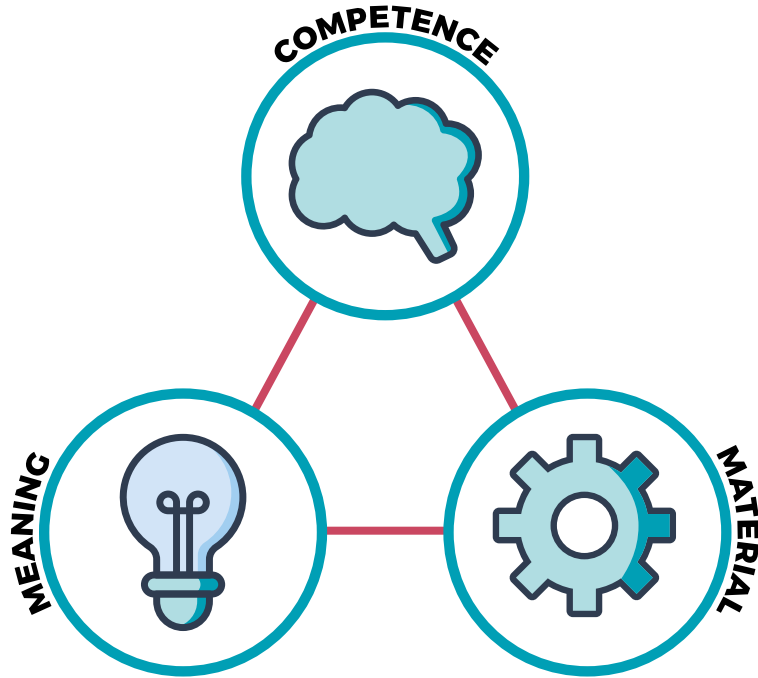
Launch **May 2021 (M30)**





**DIVERSITY**

# Diversity in WeNet – A Taxonomy



## Measure and harness diversity

- **Ascribed** / **achieved** attributes (static)
- Sensitive to **cultural** context (dynamic)
- Culture is hard to quantify. **Then what?**

## Social Practice Theory

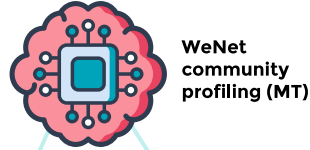
- Focus on **behaviour patterns** (routines)
- Social practice as a configuration of **material**, **meaning**, and **competence**

# Diversity in WeNet – A Taxonomy

## DIVERSITY-AWARE USER CATEGORY LEARNING

Unsupervised and semi-supervised learning methods to discover diversity-aware user categories (groups of people)

Diversity at population level  
*Socio-demo-geo Dimensions*

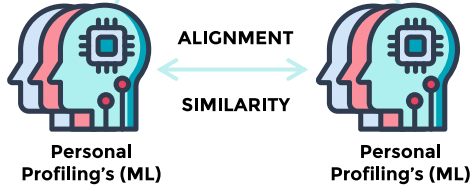


WeNet  
community  
profiling (MT)

Diversity as a deviation between  
the subject and the population for  
the same practice

## DIVERSITY-AWARE INDIVIDUAL ROUTINE LEARNING

Methods to learn individual routines (regularities in time, space, activity, and social context) according to diversity principles

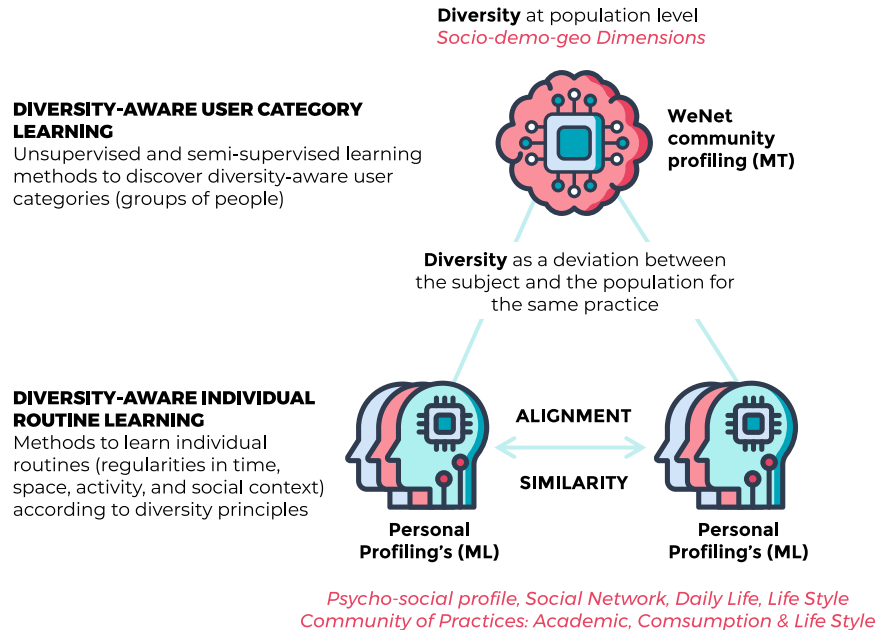


*Psycho-social profile, Social Network, Daily Life, Life Style  
Community of Practices: Academic, Consumption & Life Style*

## Computable facets of diversity

- Based on **per-practice classes**
- Individual (profile dimensions)
- Population level
  - Inter-class (core dimensions)
  - Intra-class (individual deviations)
- Machine Learning applicability
  - People clustering on practices
  - In-class individual classification
  - Individual profiling and prediction

# Diversity in WeNet – A Taxonomy



## Ongoing work:

- Learn users' individual routines
- Classify social relations/practices of users
- Design diversity-aware incentive systems
- Design diversity-aware interaction protocols
- Design WeNet architecture and technology

# Diversity in WeNet: Ethics Review



## Findings from ethical analysis of diversity in WeNet



Applying the social practices approach to model diversity has **ethical implications**: the risk is to exclude certain “alternative” practices from the dataset, particularly practices that **deviate from our understanding** of “normal” behaviour.



Similarly, it may lead to **algorithmic discrimination** if the machine-learning algorithm infers or reconstruct standard behaviour and dismisses other data.



**THE USERS**

# Students challenges



**ACADEMIC ADJUSTMENTS:** students have to deal with differences in the educational system of the university and/or country of arrival. They are exposed to new methods of teaching, new learning styles, different credits systems, different methods to register to exams, different evaluation methods, different curriculum requirements (Medisor & Sly, 2016).

**SOCIAL ADJUSTMENTS:** The social integration of students in a new culture is often influenced by their socio-cultural, linguistic, and economical backgrounds (Lawrence, 2005). Main predictors of students social adjustment depends on their english proficiency, their length of stay, their gender, personality and their interactions with locals ( Zhang & Goodson, 2011).

Participating in social activities, campus events, interactions with other students, and the use of social networks have positive impacts in students adjustments.

# Students challenges



**PSYCHOLOGICAL ADJUSTMENTS:** Mental health status and other factors (biological, environmental) are predictors of students' psychological adjustment. Depression, anxiety, loneliness, stress are often experienced during the process of adjusting to a new environment. Self-care, time management, and stress management can be critical factors for students' adjustment (Medisor & Sly, 2016).



Within the second semester of the Service Systems Design Master our students have to work in groups on a semester project. This year we gave them the following design brief inspired by WeNet:

**How to design a smart multiplatform service  
that leverages students diversity  
to address their everyday problems at the University.**

# Co-design



**6 groups of 5 students each explored the design brief conducting desktop research and field work ( interviews, focus groups etc. ), involving around 120 AAU students in total.**

# Co-design

Various things happened under the supervision of the SD lab:

Preliminary exploration on diversity

Workshop on data

Preliminary Field and Desktop research

Workshop on relational ecosystems

Workshop on video sketching

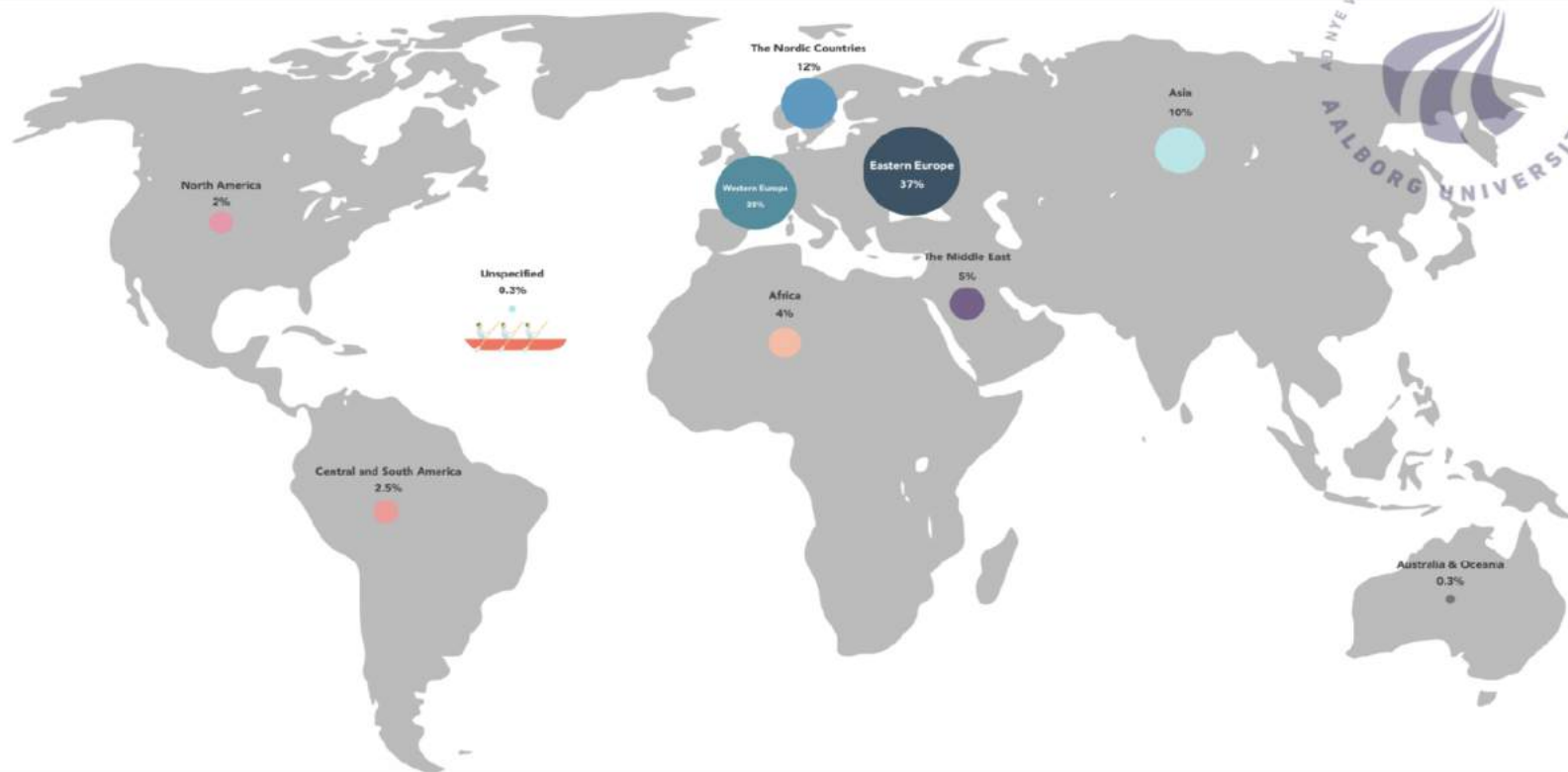
Workshop on prototyping





**AAU FACTS**

# AAU students population



# Available services

## Student Counsellors/Study Guidance

- Tutor Buddy Team
- International Accommodation Office
- Danish classes on campus
- Career Counselling
- AAU Job-bank
- Career Calendar
- Young Professionals Programme
- Friday Bar / The Coffee Spot
- Clubs (Kayak, student magazine, soccer, fitness, yoga)



Apps: AAU Student, AAU Guide, AAU Map, Moodle

# Other services

- Student discount apps (Studiz)
  - Scholarships/Grants
  - Meditation apps such as “Headspace”
  - International House CPH (guidance, support, events, seminars, networking, leisure activities)
  - Healthcare system
- 
- The students use a lot closed groups in FB to connect with their peers



# How the students define diversity

Ethnicity

Nationality

**Everyday habits**

Language

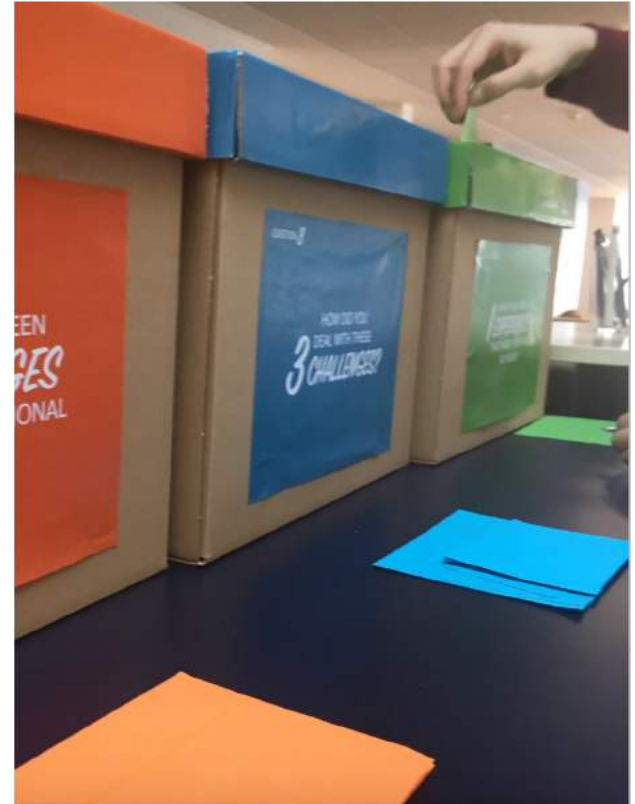
Personality

Cultural background

Study background

Level of interest/involvement (in the studies)

...





# One time and on going problems

Transportation

Accommodation

Transition / Cultural shock

Time balance

Lack of emotional support

Health

Expectations

Integration into society

Concerns on the future

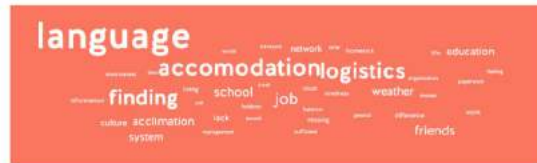
Adaptation to the University



# One time and on going problems

- Social life: "fit in the culture"
- Missing the "community" dimension
- Loneliness
- Missing someone to share your feelings with
- Balance between personal life and studies
- Language as a barrier
- Importance of a good study group

2 What are 3 challenges?



3 How did you solve it?



4 What makes you feel at home?



# Design challenges

What is a question that you can not ask google about?

What would be the motivation for using an app instead of existing social media?

What would be the motivation for helping other students?



# Gathering data from other pilots



We conducted interviews with 12 participants, both experts and students from:

- **Denmark** - Student Counsellor at AAU Copenhagen
- **Italy** - International Office and the President of the Erasmus Social Network in Trento
- **Mongolia** - International Counsellor and a group of international students from China, Turkey, Hungary, Poland
- **Paraguay** - current PHD student from Universidad Catolica
- **China** - 1 PhD student and 4 local students (digital survey)
- **Mexico** - 3 local students, 1 international student, 1 professor

# Preliminary observations



- **academic**: understanding educational offering, doubts about rules, regulations, finding information, learn how to choose courses, etc.
- **contextual**: transportation, housing, language barriers, stress management are highly dependent on the local context

# Preliminary observations



Other insights:

**Motivation for helping:** students became buddies to gain experience, actively meet new students, practice a language, improve soft skills

**Online communication:** Students use social media to connect with their classmates, exchange study material, self-organize, etc. Students expect the communication to be fast, effective and intuitive.



**SCENARIOS**

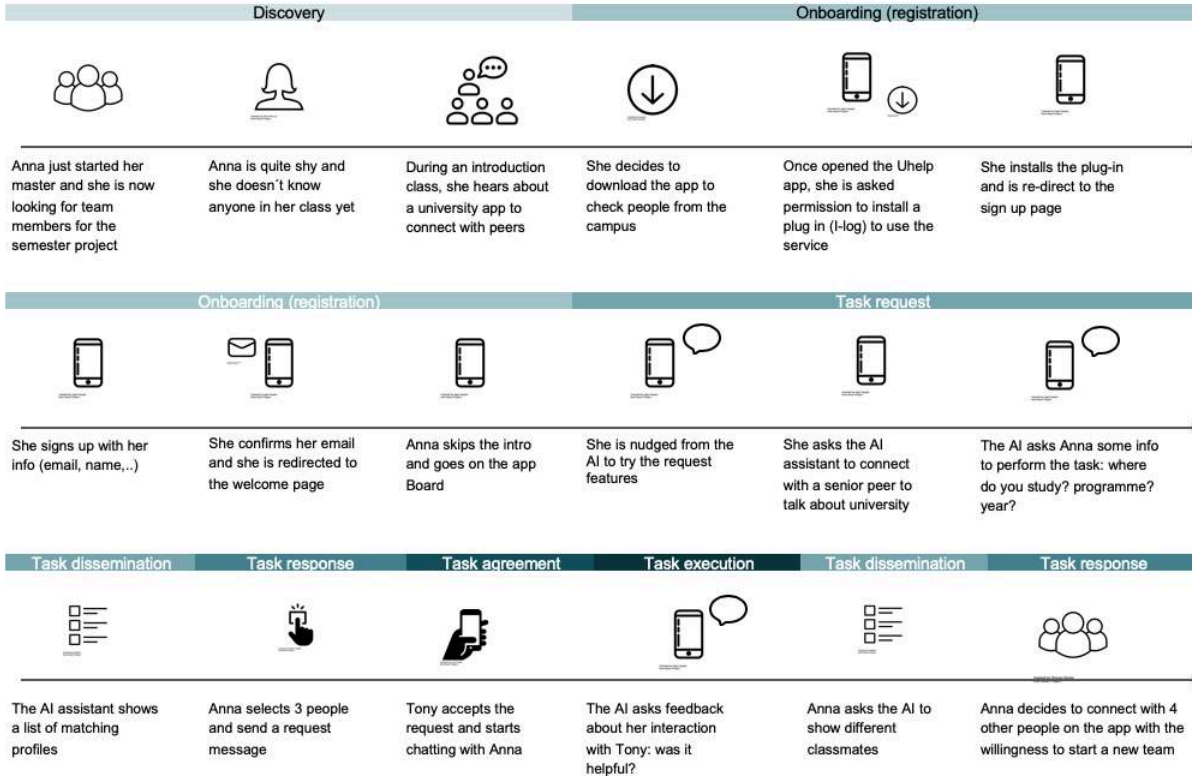
# Getting help from a senior peer



Anna arrived in Copenhagen 2 months ago to start her new bachelor on Sustainable Design. She is from Italy and she did not know anyone in the city when she arrived. She is now into the second week of her first semester and she is struggling with different issues: more practical ones, as finding accommodation, and more personal ones, like building a network with her peers and possibly finding a group of students to work with in the best fruitful way during the semester. This task is pretty stressful because Anna is also quite shy and her English skills are also quite limited. Anna got to know that there is a service/app called student-help that can support her in this difficult process. She downloads the app and she input some info about herself (to determine her type of intelligence, her character, to get what she enjoys the most and why she has chosen that specific education) and then she asks the app to find a senior peer with her very same profile to get some tips and tricks about group formation and group dynamics and to understand what could be her role in a well-balanced group. After having had the chat with the senior peer, Anna can ask the app to connect with 4 different students at the same time, with the aim of forming the group based on the diversity that she would like to see represented within the different members. Anna feels now relieved from the stress of finding team members and she feels more confident about the group work she will have to perform during the rest of the semester.



# Getting help from a senior peer



# Getting help controlling your diet



Carlos just started to study Molecular Biology at IPICYT in Mexico. He is from the small village of Merida in Yucatan, quite far away from his University. He often misses friends and family, not having yet a network of friends to rely on and hang out with. The main problem for Carlos is his obesity with a BMI above 35. Carlos is not into sports, but he likes good food, online games, and can really enjoy to chat online about life and society. He often plays online games at late night as well, but so far he is doing pretty well at the university.

He would like to learn new ways of eating and to improve his lifestyle by adopting healthier habits: this would probably also give him the confidence to be more social also offline. He has heard about this app to connect people together and possibly very diverse people and he wonders how diverse youngsters like him can be when it is about food and lifestyle and who could help him in his everyday struggle to be healthier. He downloads the app, create his own profile and asks for help. He would like to know what are the options for him in the campus to find healthy food and where are the public spaces to eat with other buddies. He is also interested in meeting students that are not much into gaming, to discover what is happening offline in the campus.

Through the app Carlos could choose to get help from very different students – the vegan, the runner, “the yoggy”, the snack lover, the diet expert – but he decided to ask Albert, a vegetarian student, now in his third year, that in the last 6 months lost 5 kilos, although he does not sleep a lot. Carlos often asks him what he had for dinner the evening before to get inspiration and sometimes they hang out together to eat with their friends.

# Getting help controlling your diet

## Discovery

## Onboarding (registration)



Carlos just started to study Molecular Biology at IPICYT in San Luis Potosí (México).



He would like to start eating healthier meals while still being with his friends but he has no idea of where to go and he feels frustrated.



While talking with a classmate, Carlos hears about a new social app which connects people based on their requests and interests.



He downloads the app and fills in basic information about himself, his studies, spoken languages, etc.



He is asked to give access to other social medias in order to use the app at best and then, he is redirected to the mainpage.



Carlos decides to validate the app concept by creating a new request and ask other peers for suggestions about where to find tasteful, healthy meals.

## Task request

## Task agreement

## Task execution

## Task evaluation



He decides to send the request only to students from his same department.



After few minutes, Carlos receives a message from Elena, a foodie student in her third year of studies.



Carlos asks her some tips to improve his eating habits and leave the chatroom



Once left, he is asked to evaluate his interaction

# Becoming a buddy



Alberto is an Italian student studying International Management at university of Trento. Last semester, he went on an Erasmus exchange in Barcelona where he had an amazing experience and he connected with many international students. He recently got back to Trento where he soon started feeling annoyed about the lack of social stimuli. Through the local Erasmus network he discovers WeNet, an app which allow students to connect with national and international students in Trento. He downloads the app and fills in basic info about himself, his studies, spoken languages, etc. After few days, he receives a request to connect from a Spanish student asking for tips on how to find a cheap accommodation in Trento. Alberto is aware of the difficulties of being an international student in exchange so he´s particular willing to give tips to the student. Moreover, by helping the student he is able to practice and improve his Spanish skills. Alberto decides to become an active “buddy” on the app and he is now looking forward to create new connections with international students.

# Becoming a buddy

## Discovery

## Onboarding (registration)



Alberto is an Italian student studying International Management at the university of Trento.

He recently got back to Trento where he soon started feeling annoyed about the lack of social stimuli.

Through the ESN, he discovers WeNet, an app to connect with locals and foreign students

He downloads the app and fills in basic information about himself, his studies, spoken languages, etc.

He is asked to give access to other social medias in order to use the app at best

He is redirect to the pre-filled profile

## Task request

## Task agreement

## Task execution



While browsing the app, Alberto receives his first request from a Spanish student, Sara, asking for local info

He accepts the request and is now able to reply

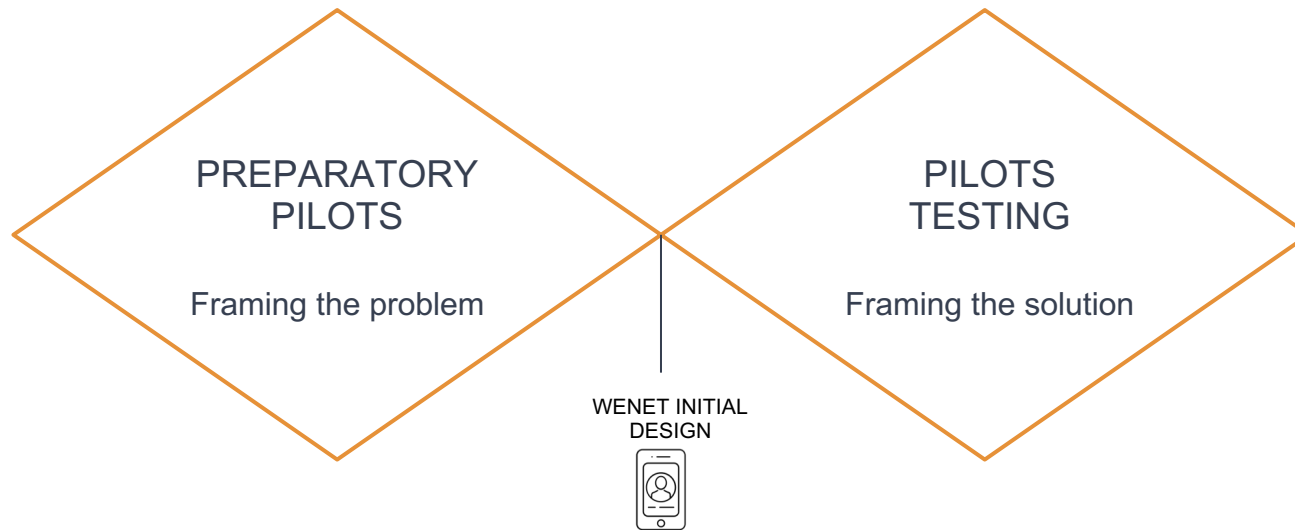
The app suggests to auto-translate his message in Spanish

After finishing the chat, Alberto receives an endorsement from Sara



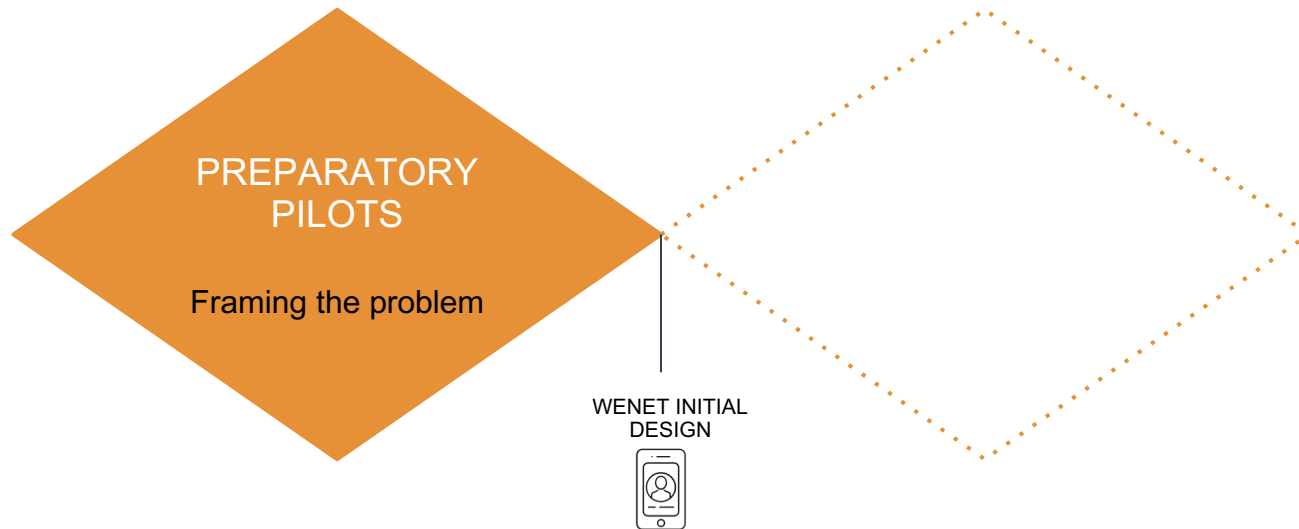
**NEXT STEPS**

# What is happening now



# What is happening now

stage 1





# Next steps

## Stage 1. Preparatory experiments

### A.1 Survey



**AIM:** Collect data to inform the model of diversity and scenarios

### A.2 I-Log



**AIM:** Test I-log application and collect data for data training

### A.3 U-Help



**AIM:** test the functionality of the app and its interface, explore ethical and trust issues

### A.4 Mock-up design



**AIM:** collect users' feedbacks about the design of WeNet and simulate its core functionalities.

### A.5 In pair interview



**AIM:** discuss the potential motivation and engagement for using the WeNet application

## September 24

Ronald Chenu Abente, University of Trento, Trento:

*Follow the WhiteRabbit workshop! From FET to innovation (how to turn privacy from an obstacle into an opportunity)*

## September 26

Nardine Osman, IIA-CSIC, Barcelona:

*Adaptive norms for online interactions*

## GET IN TOUCH



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Twitter

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# THANK YOU!