MULTIDISCIPLINARY ASPECTS OF DIVERSITY

A WENET WEBINAR

SEPTEMBER 21, 2021 | 17:00 CEST

THE WENET VISION

Multidisciplinary Aspects of Diversity webinar

Online, 21/9/2021

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WENET CONCEPT

Concept

Diversity is pervasive in our everyday life and technology, despite its evolution, still cannot develop and maintain the social relationships that transcend geographical and cultural backgrounds.

WeNet addresses this gap by providing **a diversity-aware, machine-mediated paradigm of social relations**.

The goal is **connecting people** that can support each other, and the key is **leveraging their diversity**.

Concept

The WeNet paradigm includes a family of computational diversity-aware models supporting social relations, such as:

- A diversity-aware **profile building** via machine learning on users' behaviors
- A diversity-aware **search** of these profiles to connect the "right" people together.
- A diversity-aware **alignment mechanism** to support people's interactions
- A diversity-aware **incentive mechanism**

The entire paradigm is developed taking into consideration ethical and privacy guidelines.

The WeNet platform will be the basis of a series of studies within universities worldwide with diverse student populations to improve students' quality of life inside and outside the academic environment.

The WeNet consortium will develop a research infrastructure to exploit the project results and strengthen the European innovation eco-system in a worldwide perspective.

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WENET OBJECTIVES & PILOTS

WeNet Objectives

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

O.1) Development of the ***science***, ***methodology*** and ***algorithms*** empowering ***machine mediated diversity-aware people interactions.***

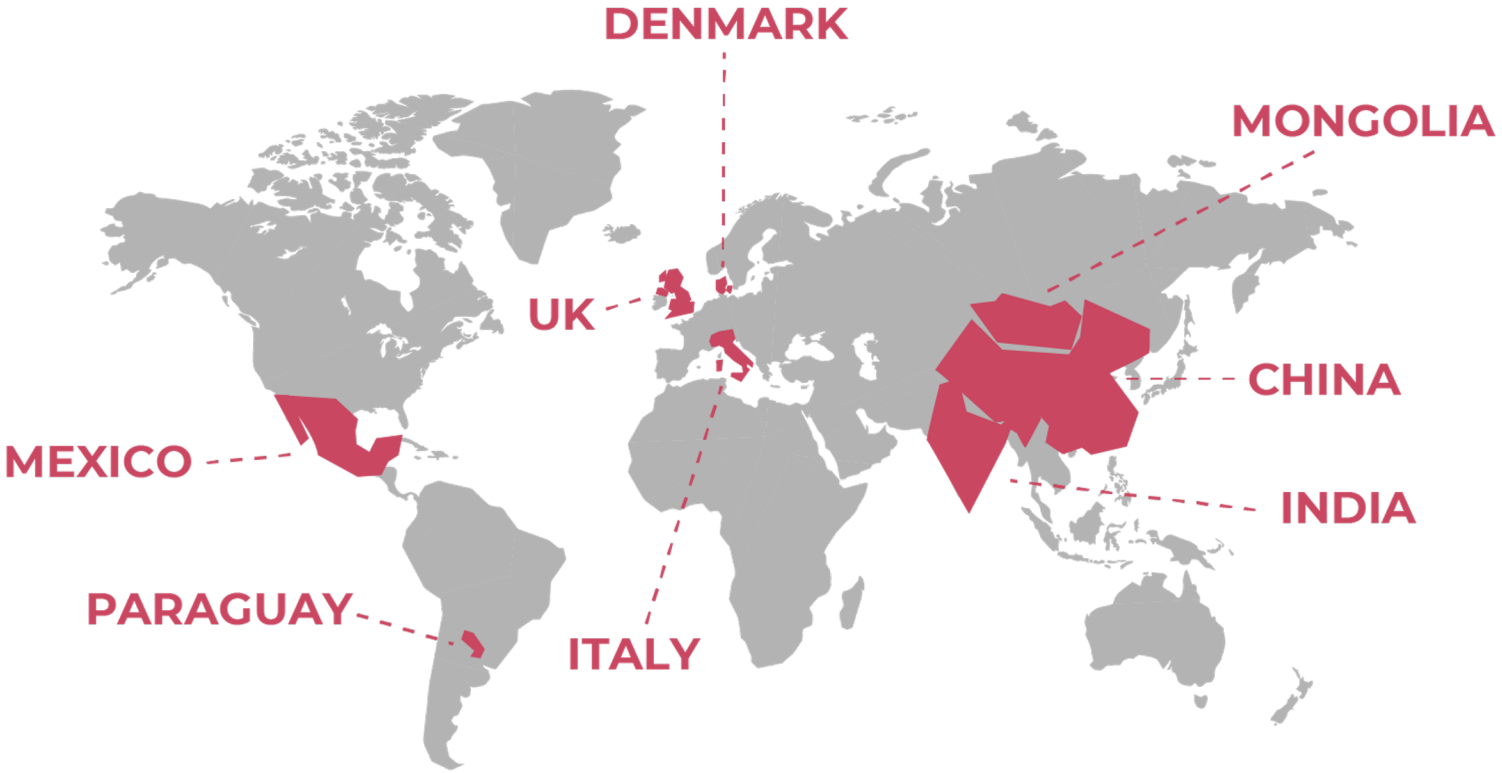
O.2) Development of the ***WeNet online platform***, integrating and consolidating the implementation of the methods and tools developed as part of Objective O.1

O.3) Large scale ***Smart University*** pilot trials in 18 different University and adult school sites and involve 10,000 participants.

O.4) Community building (via a ***research infrastructure***) which will expand from the consortium to all institutions worldwide

O.5) Ensure a ***clear ethical guidance*** for the ***technology development*** and the ***pilot activities***

Pilots



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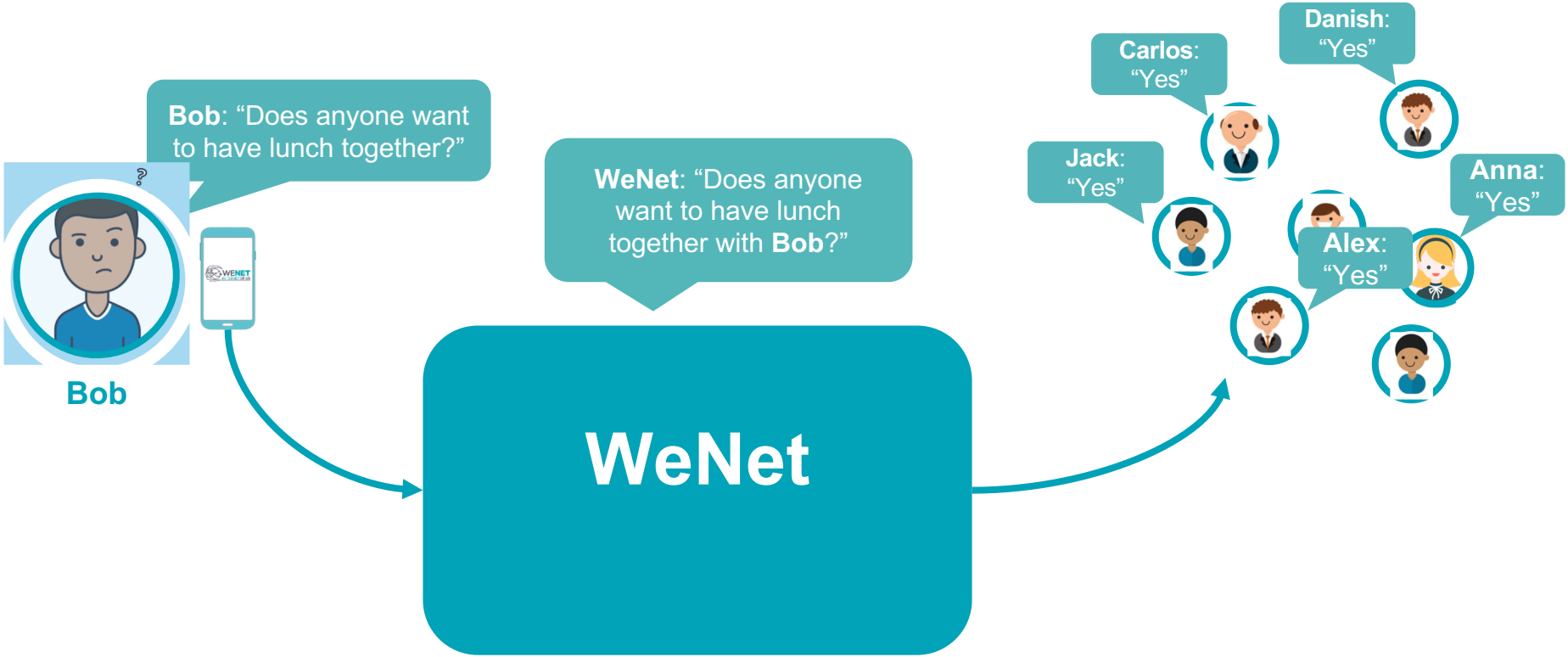
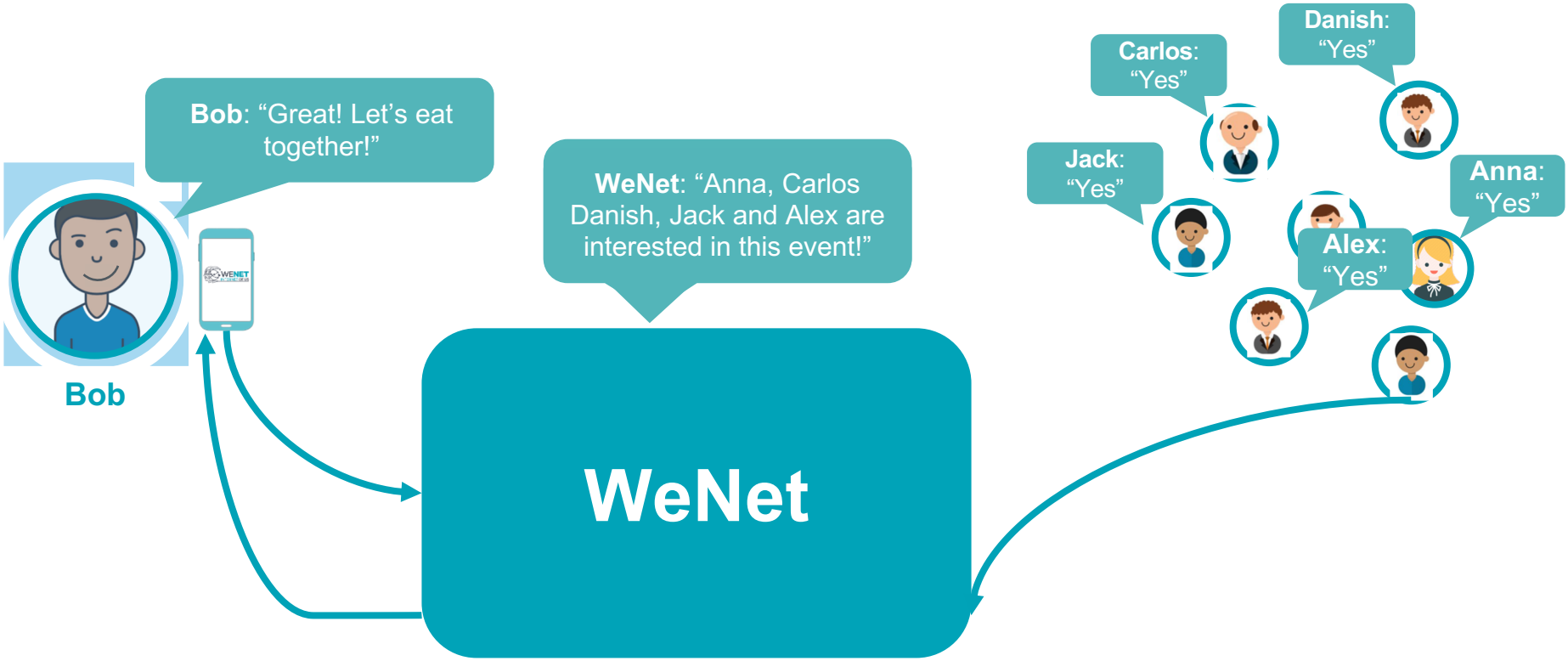
SCENARIOS

Motivating Example



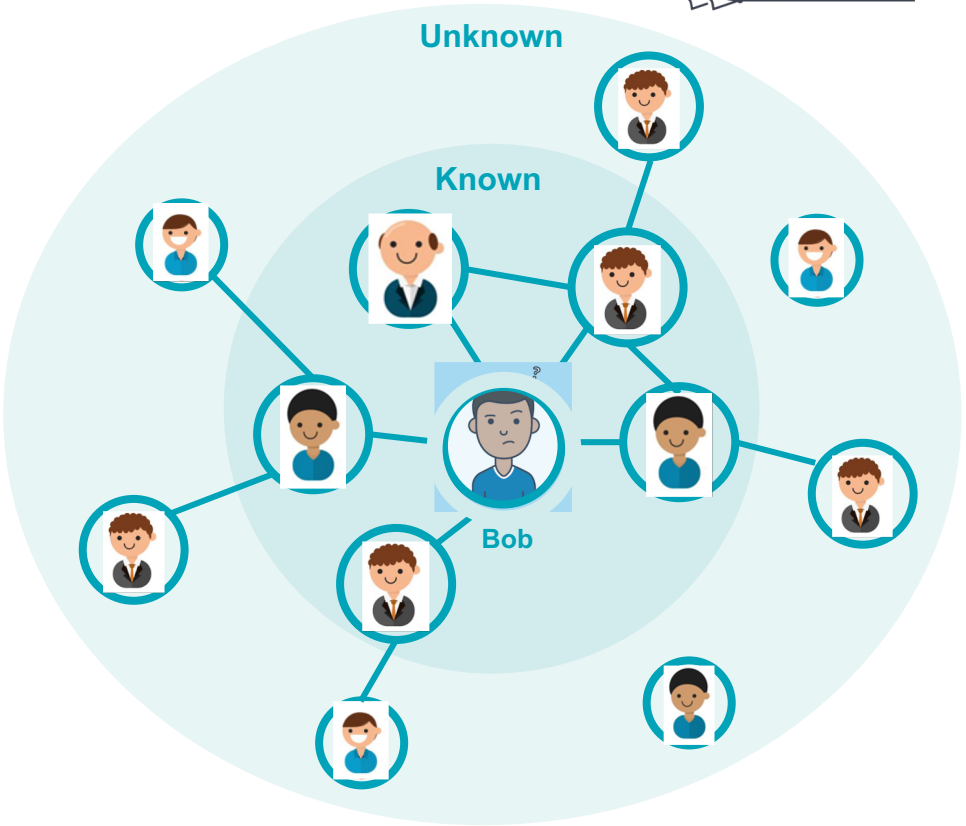
Motivating Example



Motivating Example

WeNet

- Search the Unknown
- Incentives
- Interaction Model
- Situational Context
- Conversational Context
- Diversity
- Ethics



Motivating Example

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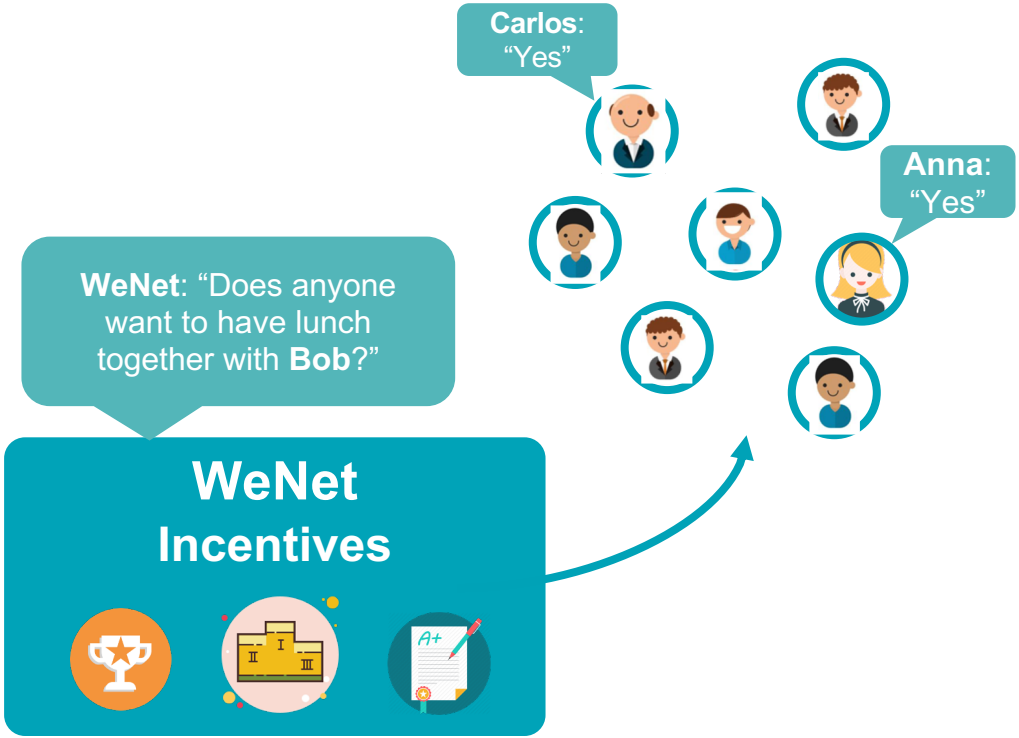

Motivating Example

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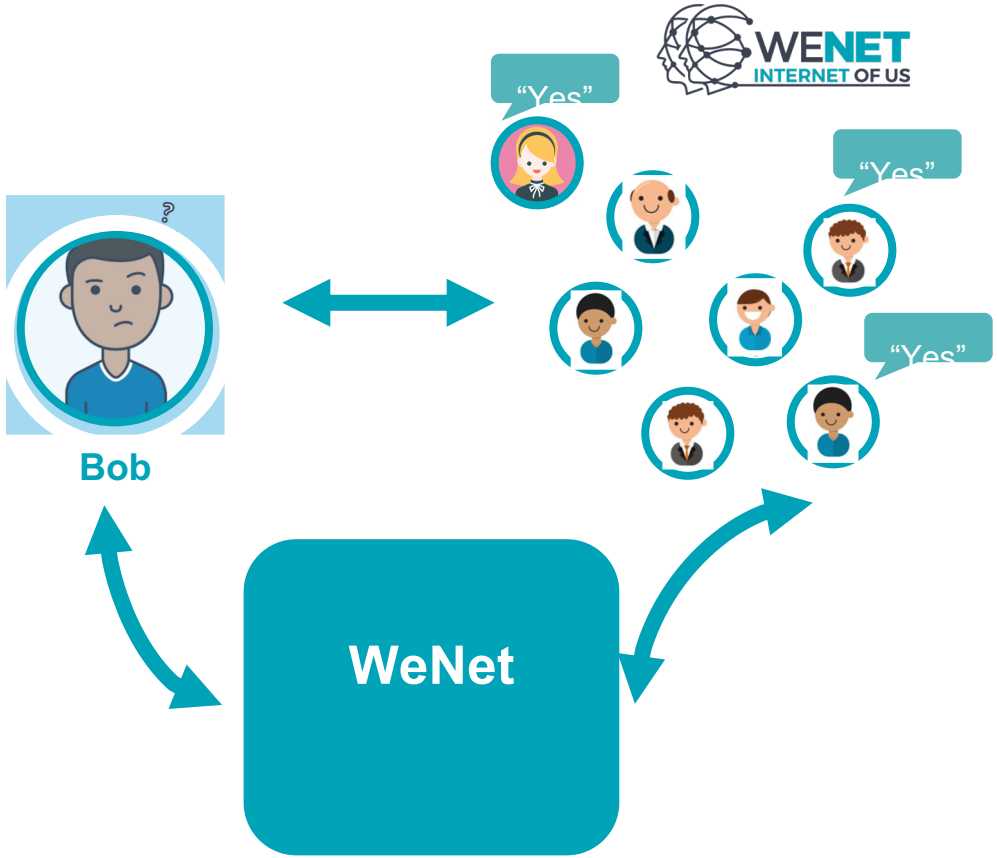

Motivating Example

WeNet

- Search the Unknown
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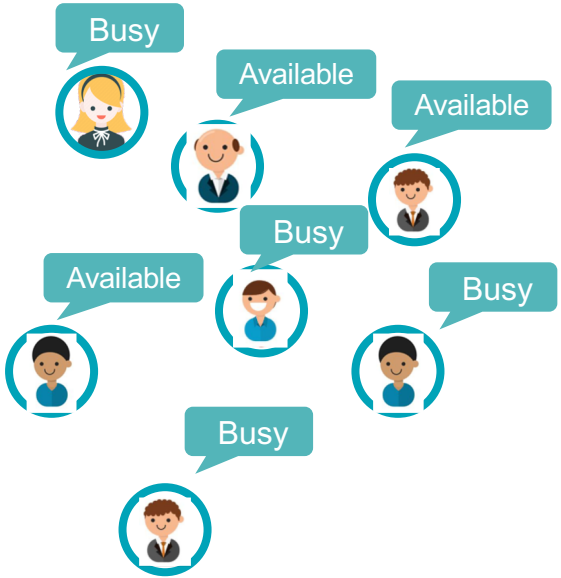
- Ethics

Bob



Motivating Example

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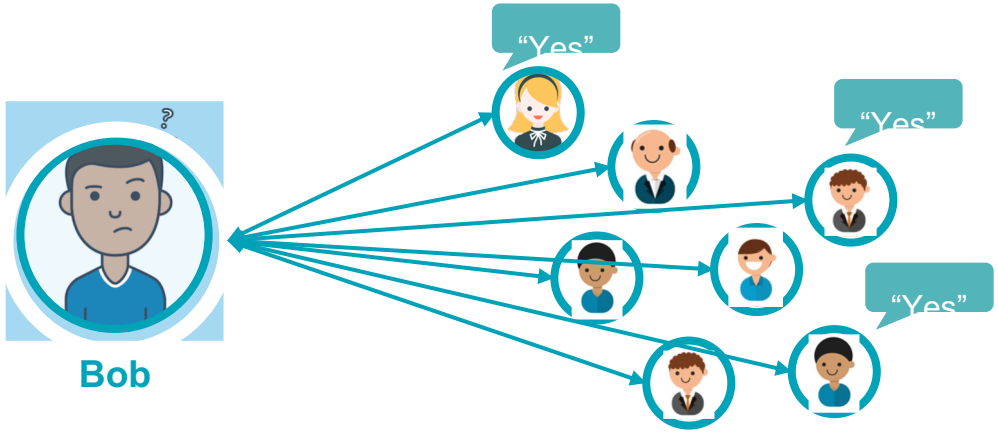

Motivating Example

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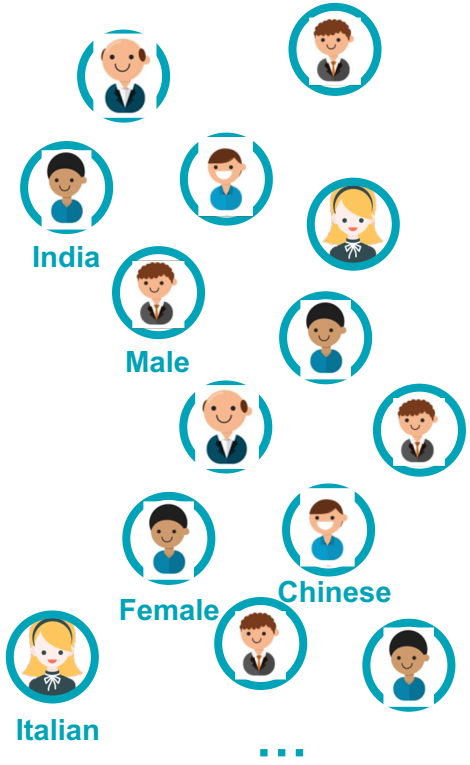

Diverse in:

Visible properties:
Gender
Nationality
Age
Role
…

Deep properties:
Personality
Culture
Competence
…

Motivating Example

WeNet

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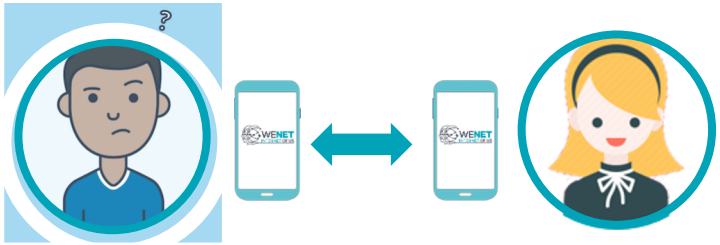


WeNet

Private Profile

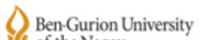
Public Profile

Ethics (gender, Nationality…)

More Scenarios

Physical Activity/Mobility	Get an answer	*Can someone who is nearby walk and check if the library is still open?*
	Help me move	*Can someone help me move my stuff to my new apartment?*
	Walk me home	*Is any student driving in the same direction to share a ride?*
Food and Nutrition	Let's eat together	*Can we coordinate cooking (and then eating) a meal together?*
	Food purchase	*Can anybody buy me a healthy snack?*
	UNI healthy eating	*Can the university student office call for ad-hoc groups who want to participate in a communal soup making?*
	UNI food waste	*Can the university student office call for ad-hoc groups who want to participate in a food recuperation challenged?*
Time Management	Fill the gap	*There is a bunch of footballers free now. Are you interested in playing football with them?*
	…	*...*

Consortium



PANEL ON MULTIDISCIPLINARY ASPECTS OF DIVERSITY

DIVERSITY & COMPUTING

1. Diversity of people whose data is used to build computing technology

Under-represented groups

Under-represented world regions

Implications for machine learning

Example: Large-scale image datasets

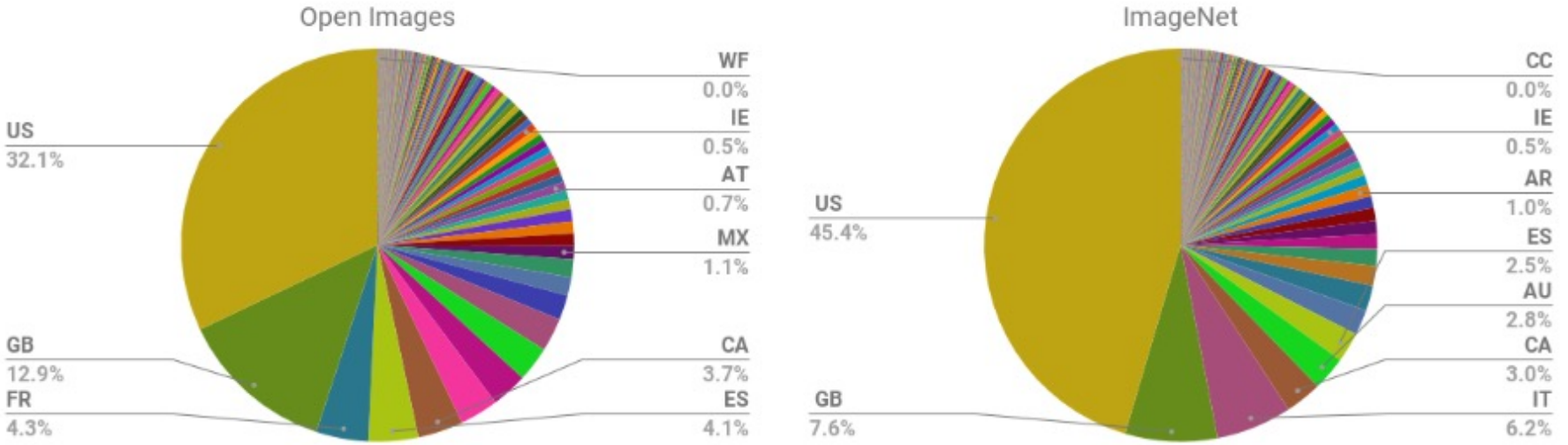


Figure 1: Fraction of Open Images and ImageNet images from each country. In both data sets, top represented locations include the US and Great Britain. Countries are represented by their two-letter ISO country codes.

S. Shankar, Y. Halpern, E. Breck, J. Atwood, J. Wilson, D. Sculley, No Classification without Representation: Assessing Geodiversity Issues in Open Data Sets for the Developing World, in Proc. NIPS Workshop on Machine Learning for the Developing World, Dec. 2017

2. Diversity of people who build computing technology

18% CS bachelor degrees in US are women (2017) [1]

8% (resp. 6%) of US CS graduates are Hispanic (resp. Black) (2016) [2]

3% (resp. 1%) tech workers at Google, Microsoft, Facebook, Twitter are Hispanic (resp. Black)

4% of ACM Turing Award winners are women (2021) [3]

[1] L. J. Sax et al., Anatomy of and enduring gender gap: the evolution of women's participation in computer science. The Journal of Higher Education 88 (2), 2017
[2] Q. Bui and C.C. Miller, Why tech degrees are not putting more Blacks and Hispanics into tech jobs, New York Times, 26.02.2016
[3[S. D'Agostino, Why Have so Few Women Won the Most Important Award in Computing? Slate, 06.01.2020

3. Diverse uses of computing technology

Diversity can contribute to design technology that support specific needs and address common problems

“The AI world order will combine winner-take-all economics with an unprecedented concentration of wealth in the hands of a few companies in China and the United States. This, I believe, is the real underlying threat posed by artificial intelligence.”

Kai-Fu Lee,
AI Superpowers, 2018

"Data Feminism offers strategies for data scientists seeking to learn how feminism can help them work toward justice […] But it is about much more than gender. It is about power, about who has it and who doesn't, and about how those differentials of power can be challenged and changed.”

Catherine D’Ignazio & Lauren F. Klein,
Data Feminism, 2020

Diversity is a characteristic only of groups, not of individuals, so in that sense diversity is a relational concept. (Tilly 1998)

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What is diversity?

"the beauty of the world lies in its diversity."
(Damian S. Pyrkosz 2021:141)

What is diversity?

The research addresses a range of categorical differences, but especially the following:

race (Dovidio et al. 2002, Reskin et al. 1999), **ethnicity** (Portes & Rumbaut 1996), **gender** (Chatman & O'Reilly 2004, Heilman et al. 1995, Reskin 1993), **age** (Zenger & Lawrence 1989), **education** (Halaby 2003, Rosenbaum et al. 1990), **sexual orientation** (Ragins et al. 2003), **physical ability** (Colella& Varma 2001), **religion** (Islam & Hewstone 1993)

When we refer to **diversity** or **social diversity** it is the way in which people within a community are perceive as different and then separated from each other.

Elements of diversity can include among them, *gender, ethnicity, religion, language, skin color, etc*. And often, in turn, these are sources of biases, prejudices, stereotypes, exclusions and inequality.

The consequences of all of this are that the focus on raising awareness of the existence of diversity through its negative aspects has distracted attention from the other side of the coin, on how to harness diversity and how through its exploitation both individuals and the whole community can benefit.

Social diversity is richer and more complex, encompassing competencies, tastes, preferences, values, beliefs, lifestyles.

Diversity from problem to resource.

My computer doesn't work.

Who do you ask for help? Him or Her?

~~Man~~
Accountant

~~Woman~~
Computer technician

Non-visible characteristics

Why did you choose him or her?

Because s/he's **having the skill** or because you assume s/he's having the skill?

When our decision is based on **visible characteristics** or on the **probability that** (e.g., s/he's more competent than s/he), they are likely to evoke responses that are due directly to biases, prejudices, or stereotypes.

Leveraging diversity

Diversity is/as a relational process

- Initial categorizations are accompanied by perceptions of similarity or dissimilarity that are based on surface-level demographic data; these perceptions change when deep-level information is obtained (Harrison et al, 1998)

- Over time, as people acquire more information, their perceptions are based more on observed behaviors and less on stereotypes driven by demographic characteristics. (Jackson, May and Whitney, 1995)

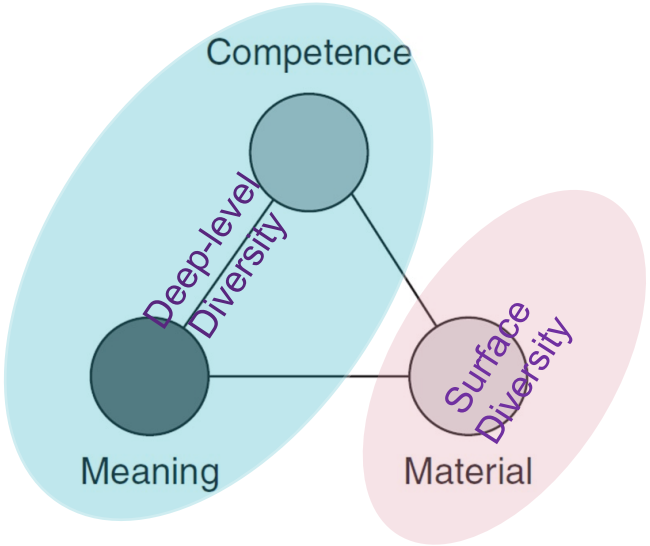
Leveraging diversity

Relational demography

Visible/Surface diversity	Not visible/Deep-level diversity
➢ Observable demographic characteristics ➢ Readily detectable attributes ➢ Surface-level diversity	➢ Less observable demographic characteristics ➢ Underlying attributes ➢ Deep-level diversity
such as: race or ethnic background, age, gender, disabilities	such as: education, technical abilities, functional background, tenure in the organization, or socioeconomic background, personality characteristics, cultural, cognitive, or values

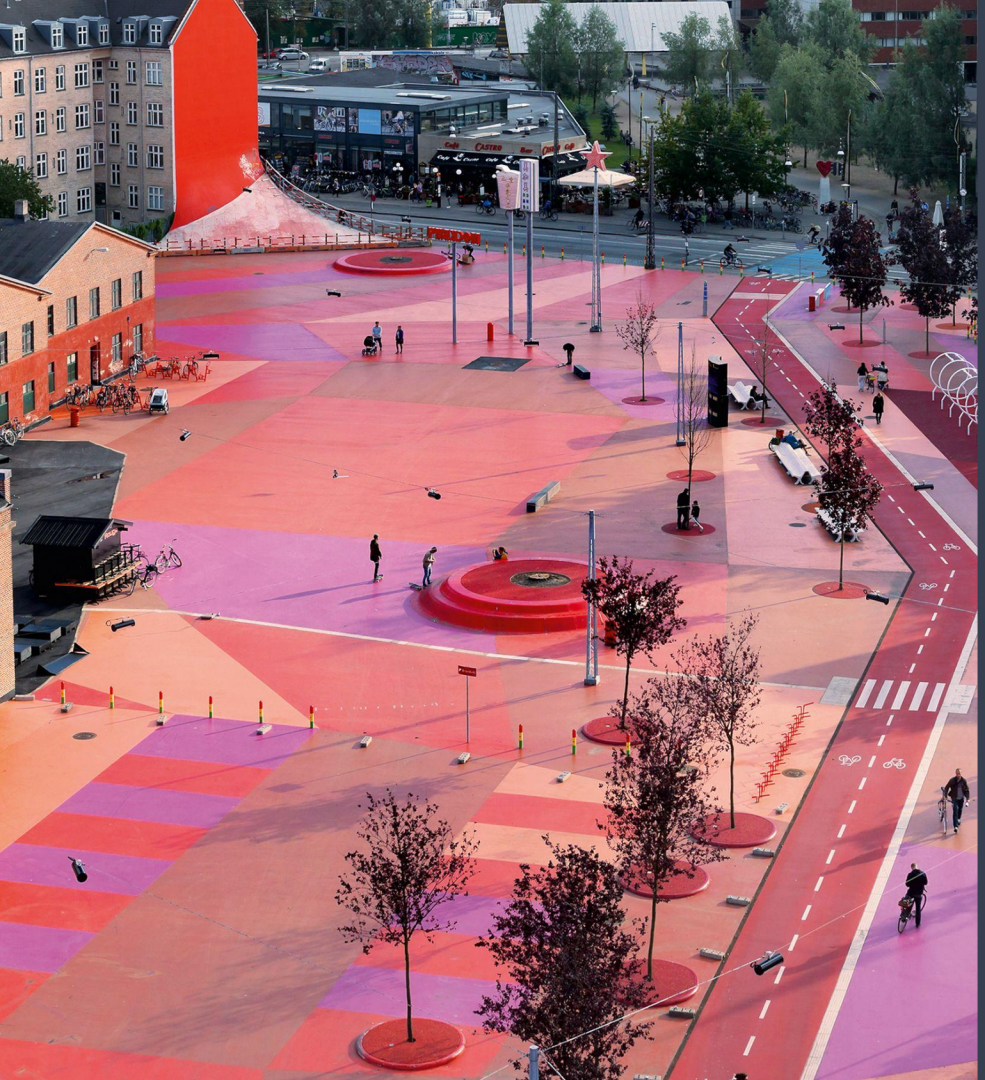
Leveraging diversity

The components of diversity: material, meaning and competence.



The elements are linked within but also across these components to form a ‘block’ of interconnected elements – the practice.

- **Material** covers all physical aspects of the performance of a practice, including the human body.
- **Competence** incorporates *skills, know-how, (background) knowledge as well as social and relational skill* which are required to perform the practice.
- **Meaning** incorporates the issues which are considered to be relevant with respect to that material, i.e. the *understandings, beliefs, value, norms, lifestyle and emotions*.



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DIVERSITY AND DESIGN

Design: from products and services...

Inclusive design

“Inclusive Design is a methodology, born out of digital environments, that enables and draws on the full range of human diversity. Most importantly, this means including and learning from people with a range of perspectives.”

MICROSOFT

...to complex systems

Social Innovation and democracy

“Meanwhile, designers transmute into public practitioners, expanding the role of design in society through engaging with governments to devise and draft administrations, bureaucracies, and policies. These are modes of design that negotiate, facilitate, advocate – provoke and evoke – incite, and experiment with putting civic-led commons-based values into practice. “

Michelle Christensen Board of International Research in Design (BIRD)

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DIVERSITY AND ETHICS

Dr. Paula Helm
International Center for Ethics in the Sciences
University of Tübingen

Diversity as a common good

Definition inspired by the work of political philosopher Iris M. Young (1949-2006)

Diversity means radical difference among a variety of people in a plural society. Diversity is not something "that enriches me" or a means to achieve optimal usability of people or to increase the performance of institutions and organizations. Instead, diversity is about the question of how we can live together in a plural society in an inclusive, participatory, and non-discriminatory way.

CURATING DIVERSITY

In a world where power asymmetries are a social fact, diversity needs to be curated with care.

Balancing protection and inclusion is one of the biggest challenges in curating diversity.

2nd Open Call Info webinar

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Thank you!