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# MAPPING THE SWISS PHILANTHROPIC LANDSCAPE THROUGH BIG-DATA

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# INTRODUCTION

Prof. **Henry Peter**

Head, Geneva Centre for Philanthropy (GCP)

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PANEL

MODERATED by

Prof. **Henry Peter**

Head, Geneva Centre for Philanthropy (GCP)

Prof. **Giuseppe Ugazio**

Holder of the Edmond de Rothschild Foundations  
Chair in behavioural Philanthropy

**Karin Jestin**

Strategic Philanthropy Advisor and Founder,  
Philanthropic & Humanitarian Initiatives (PHI)

**Marc Pfitzer**

Managing Director, FSG

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# Mapping the Philanthropic (Swiss) Landscape through big-data

Lucia Gomez Teijeiro & Giuseppe Ugazio

Geneva Finance Research Institute & Geneva Center for Philanthropy  
University of Geneva

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# Philanthropy in Switzerland

In Switzerland there are over 13,000 Philanthropic Organizations (POs)



No existing comprehensive database of these POs

# Two Main POs data-bases

- StiftungSchweiz



- Fundraiso





# One Annual Report on the Financial Activities of POs in CH

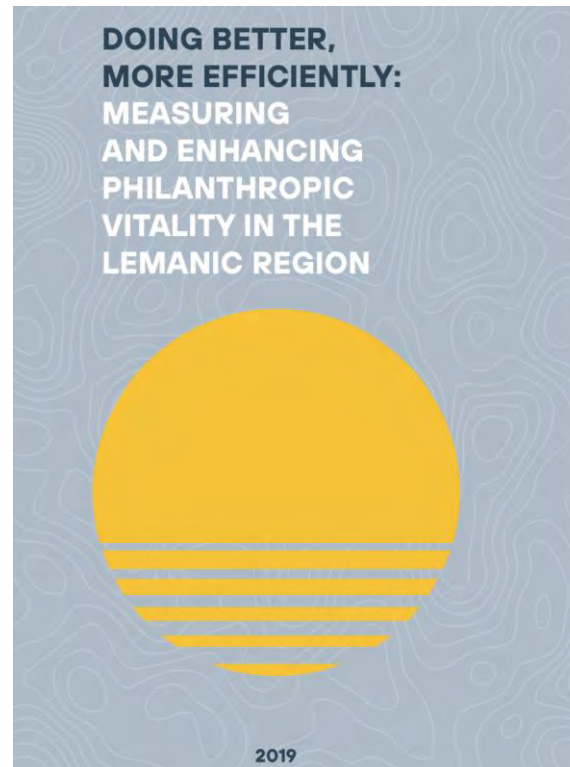
- Swissfoundations Report

Foundation Report 2019: Latest figures on the Swiss foundation sector



# One Report on Lemanic POs

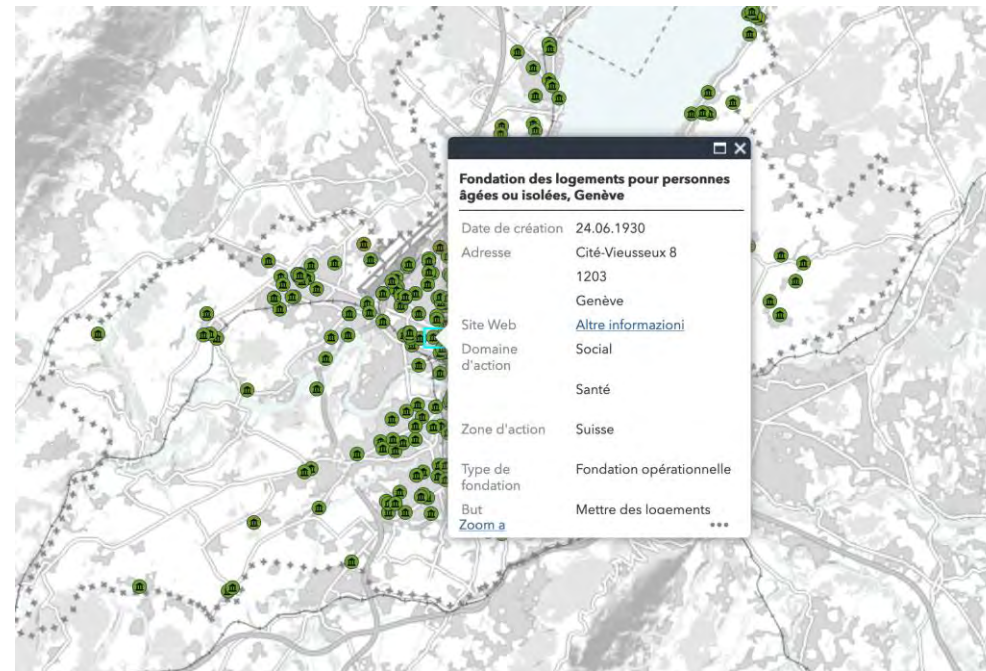
- Doing Better More Efficiently: Measuring and enhancing Philanthropic Vitality in the Lemanic Region





# One map of POs in Geneva

- Department for Development and Economics of the Republic of Geneva & StiftungSchweiz

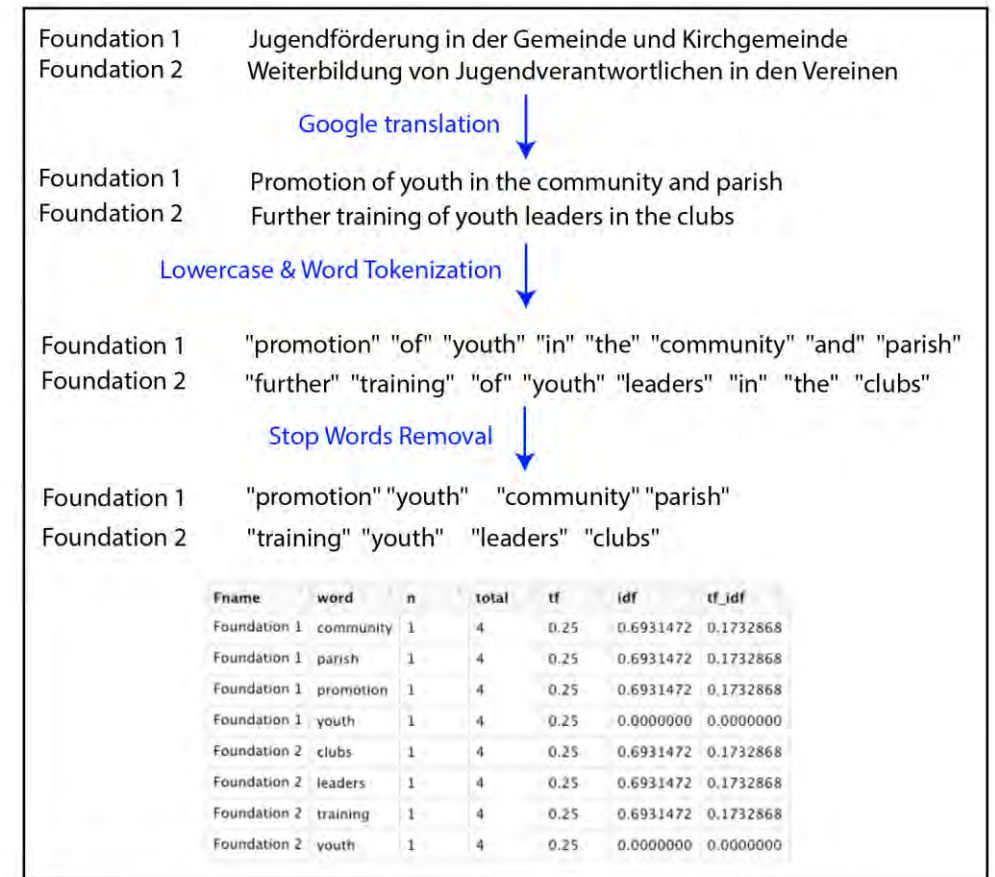


# Mapping Swiss Philanthropic Organizations

- In what and in how many areas do Swiss POs operate?
- According to which Type do these work (Donors vs. Operating)?
- Are different Types of POs using a similar language?
- What motives determine these POs engagement?
- To which extent are the U.N. SDGs addressed by Swiss POs?

# Big Data: Texts from Mission Statements

- Mission statements (and other data, e.g. geo-location) collected from StiftungSchweiz
- Pre-processed and cleaned the data:
  - Translation to English
  - tokenization, i.e. segmenting sentences in words
  - Removal of stop words (the, a, ...)
  - Calculate importance of each word through TF-IDF
- Identified 8485 unique and meaningful words from 10755 POs



organization professional  
maintenance property

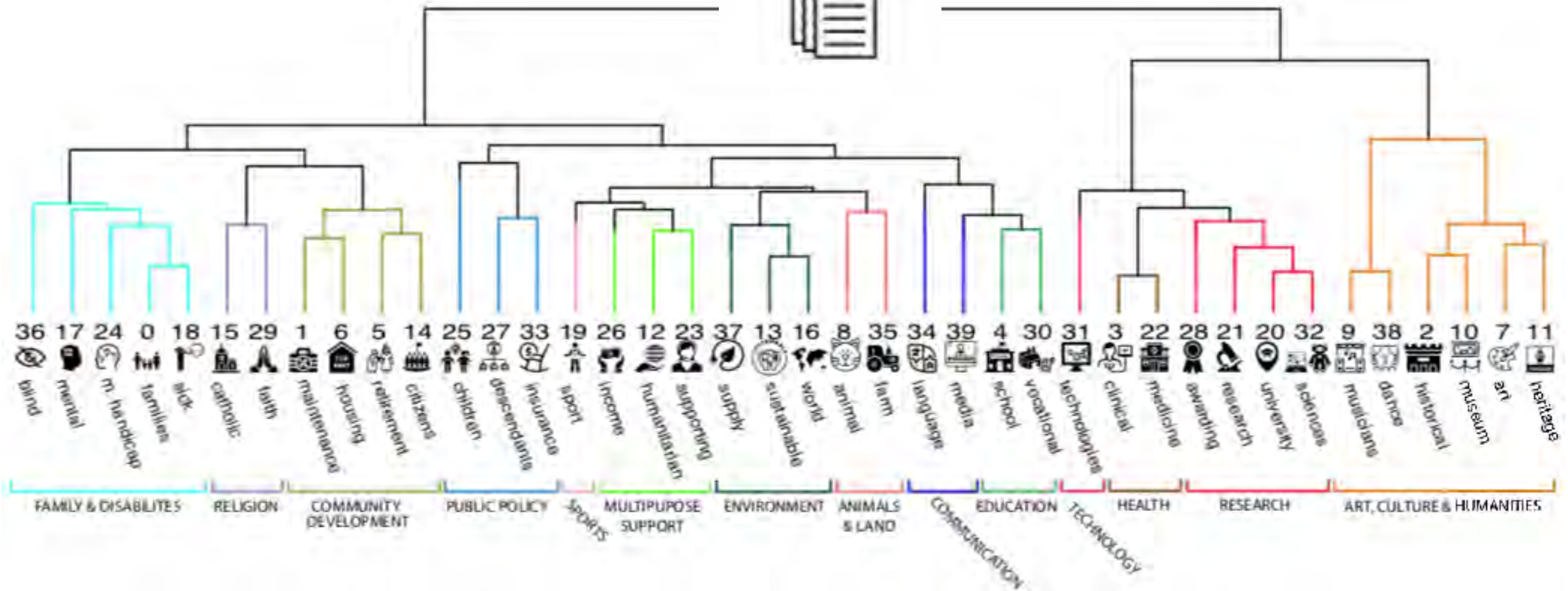


# Our Approach in a Nutshell

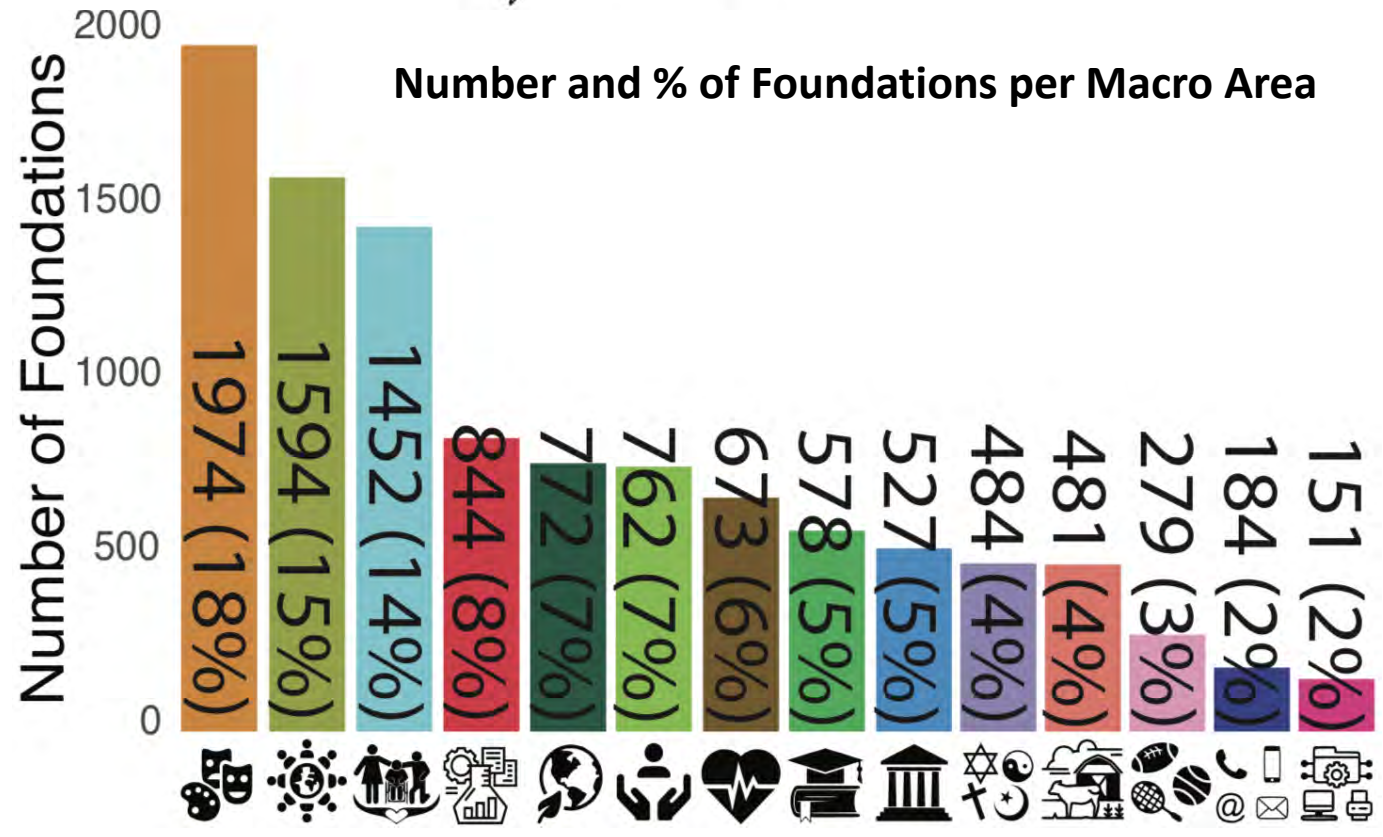
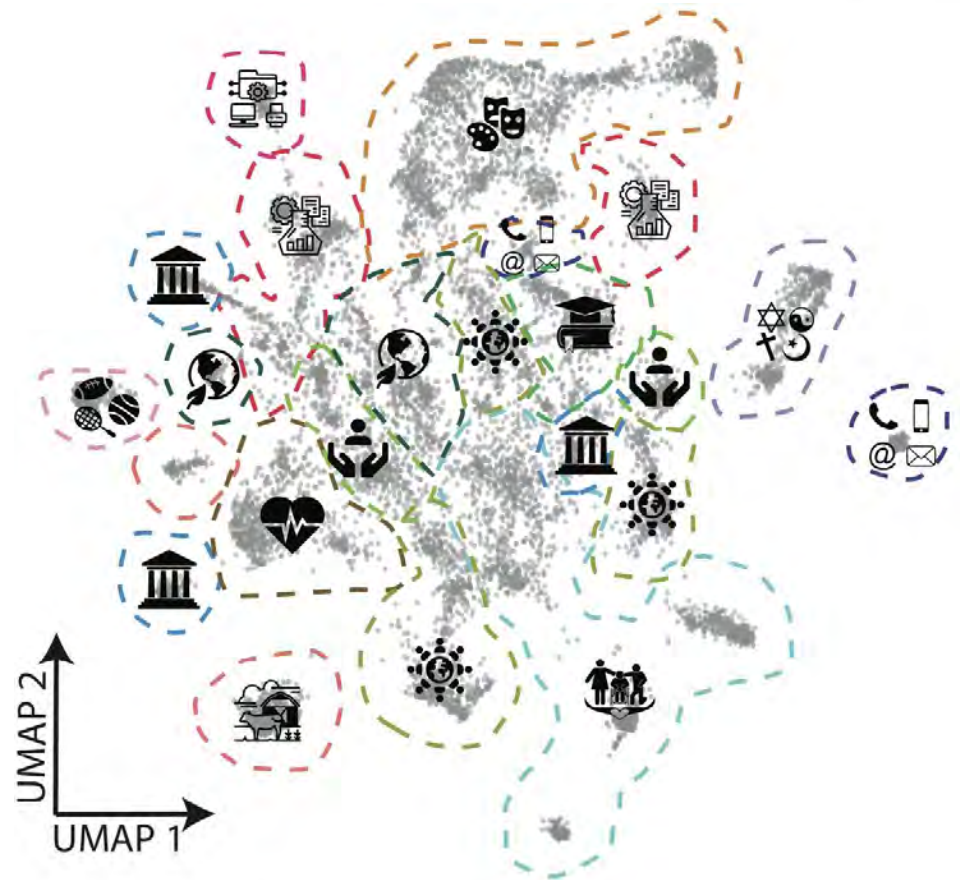
- Natural Language Processing employing Machine and Deep Learning algorithms to analyze Philanthropic Communications
- Collected Mission Statements from  $\approx$  11.000 Philanthropic Organizations
- Unsupervised Learning to:
  - Cluster organizations in Areas of Activity;
- Supervised Learning to:
  - Categorize an organization as Donors **or** Operating
  - Determine overlap in communication used by Donors and Operating
  - Determine Motives driving POs: Moral Values and Emotions
  - Identify engagement of POs with the SDGs

# POs active in 40 micro-Areas

Mission Statements  
n=10755 non-profit



# POs Active in 14 macro-Areas





# Classifying Type of POs

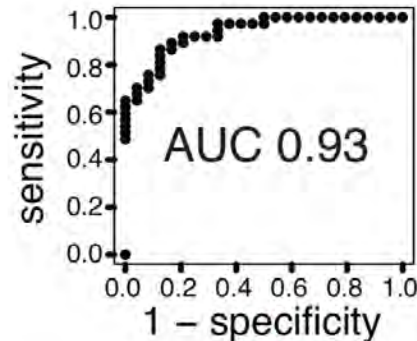
## OPERATIVE MODE PREDICTION

non-profit samples  
TF-IDF matrix

subsample annotation

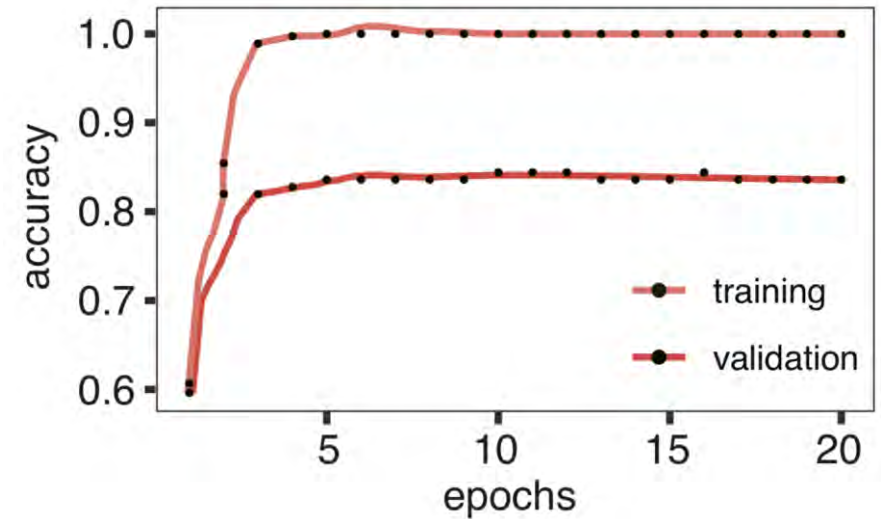
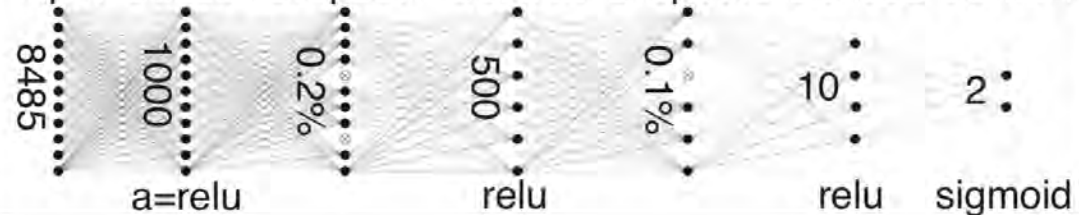
SwissFoundations 147 donors

fundraiso.ch 147 operating



Deep Learning KERAS sequential model training-testing  
bach(15) - epochs(20) - class balancing(0.55 vs 0.45)

Input Dense1 Dropout1 Dense2 Dropout2 Dense3 Dense4



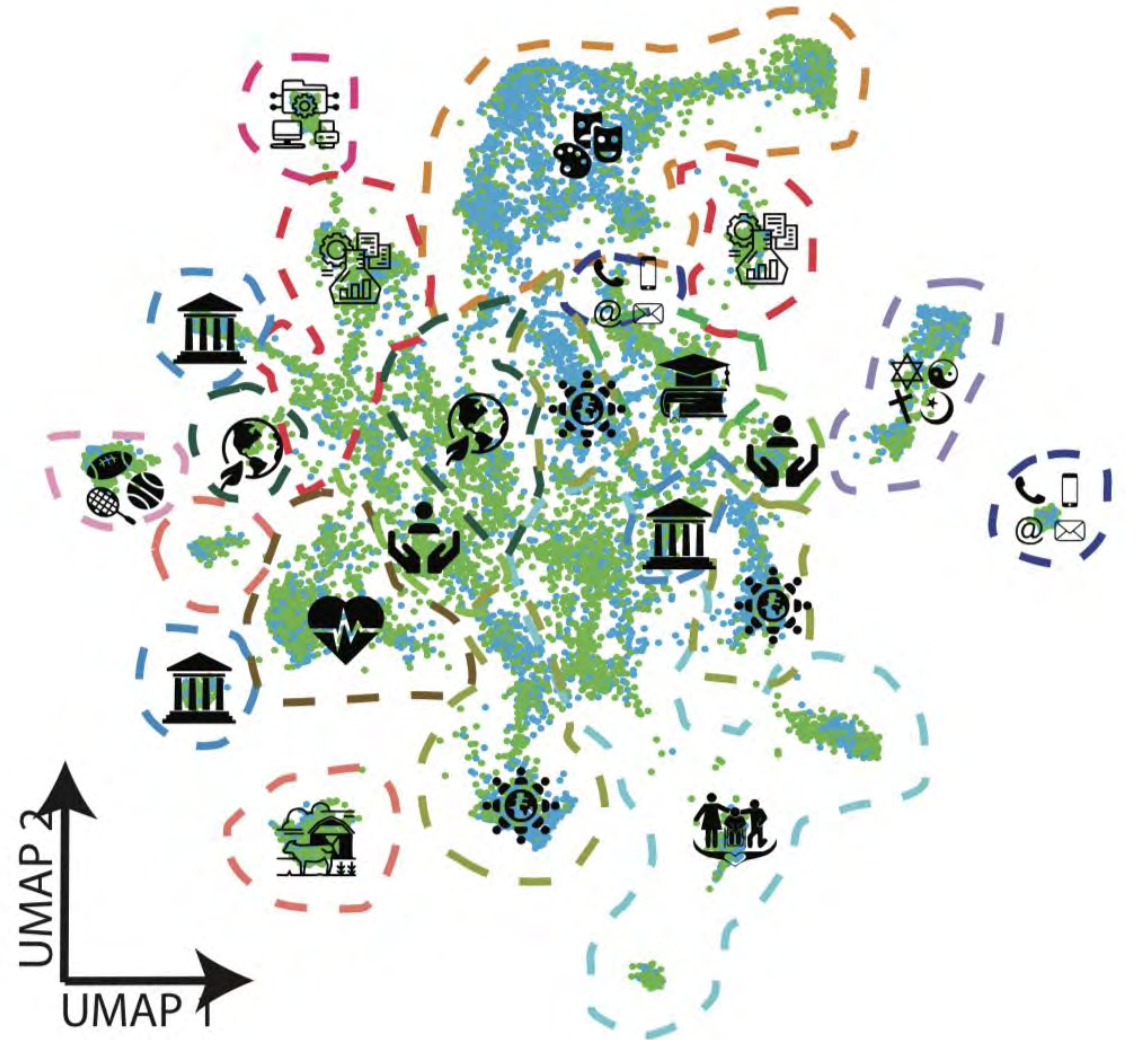
## Prediction Result



Operating 40.4%

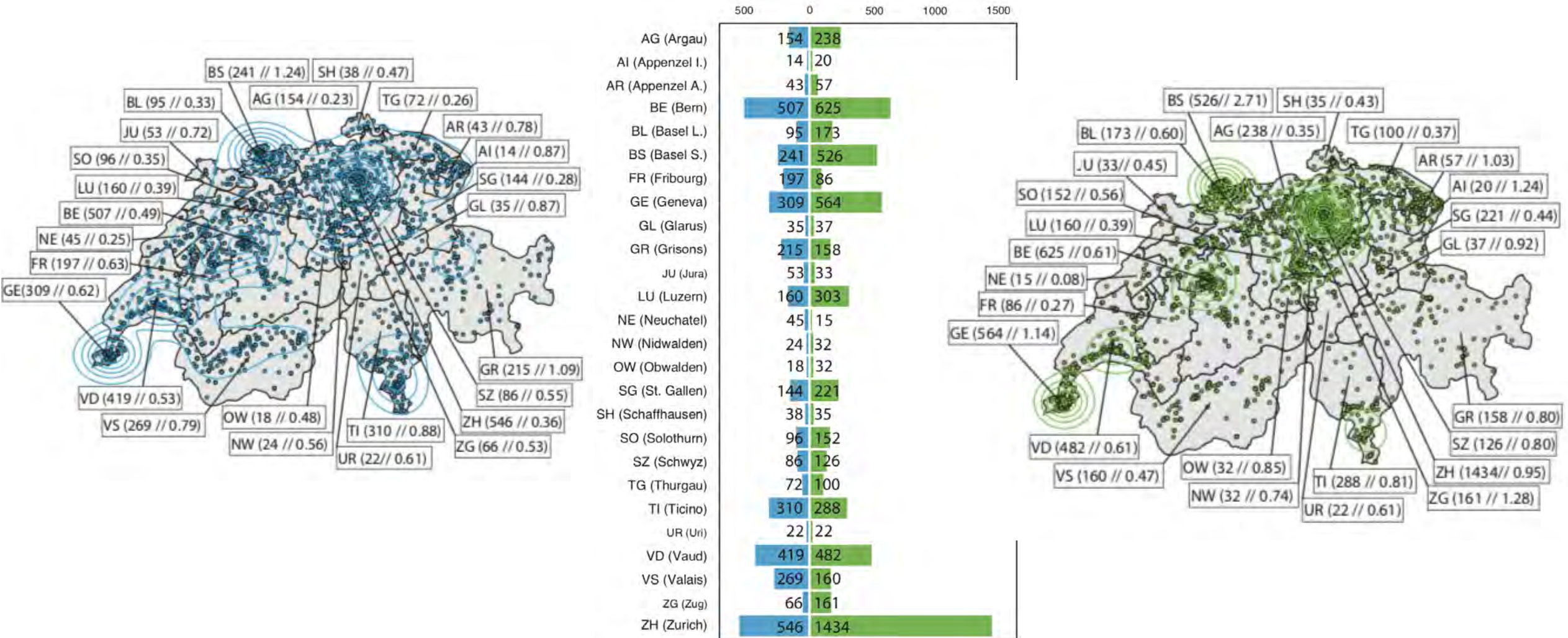


# Type of POs Across Areas of Activity



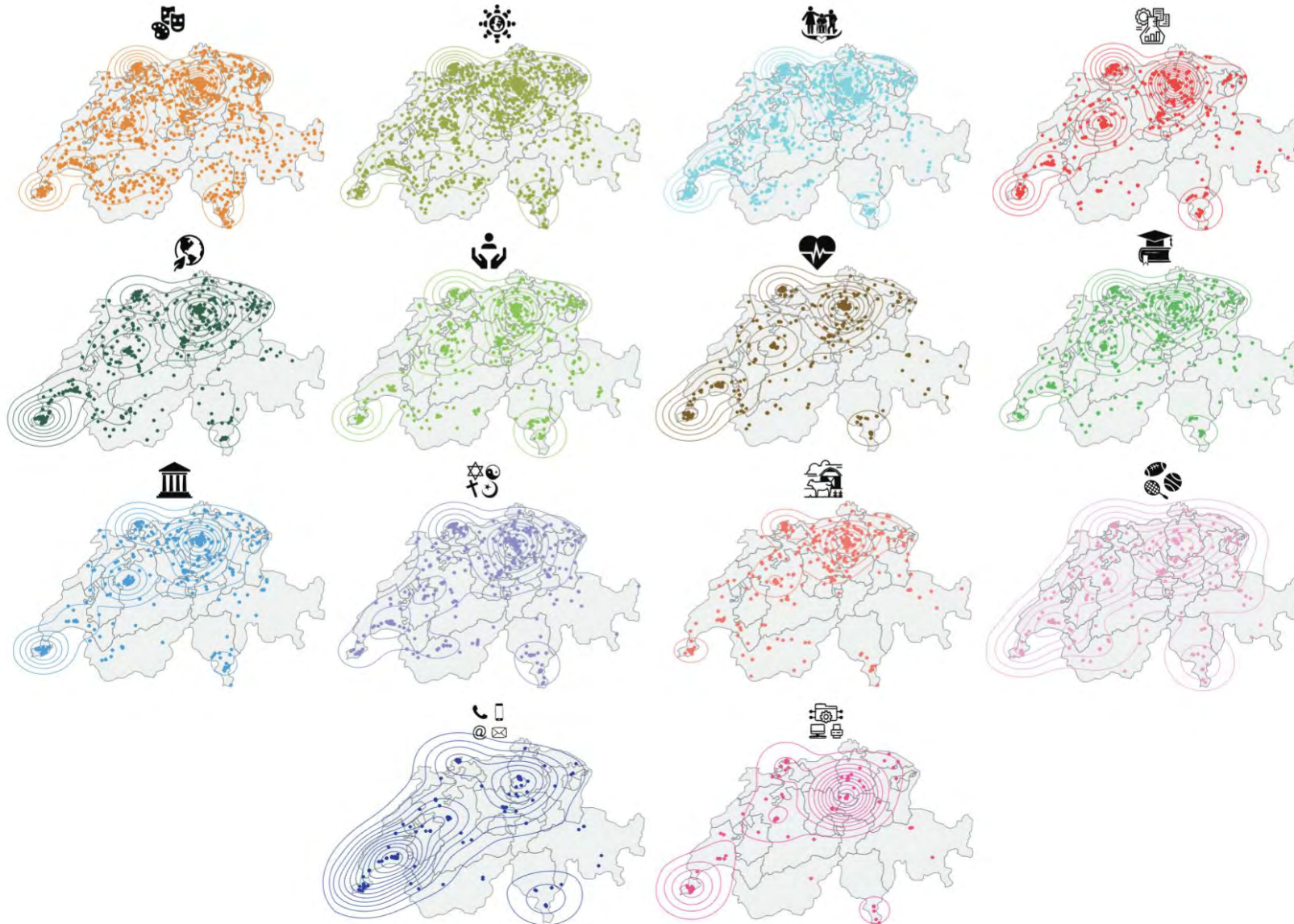


# Overall Donor and Operating POs are well distributed across Switzerland

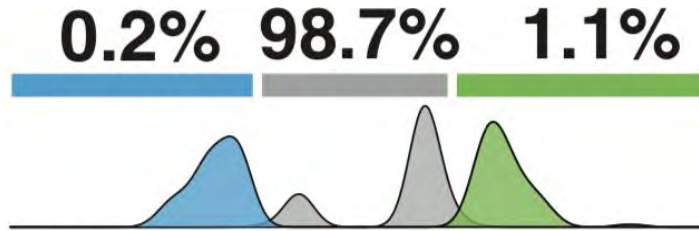




# Some Activities more present in some regions



# Overall, large overlap in language used by different POs

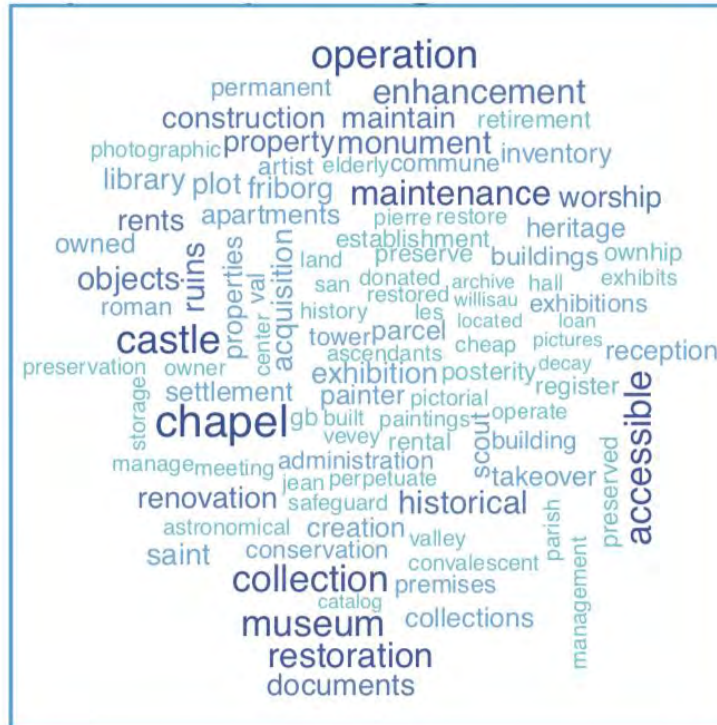


## Differential

100 Most Specific Words Donors



100 Most Specific Words Operational



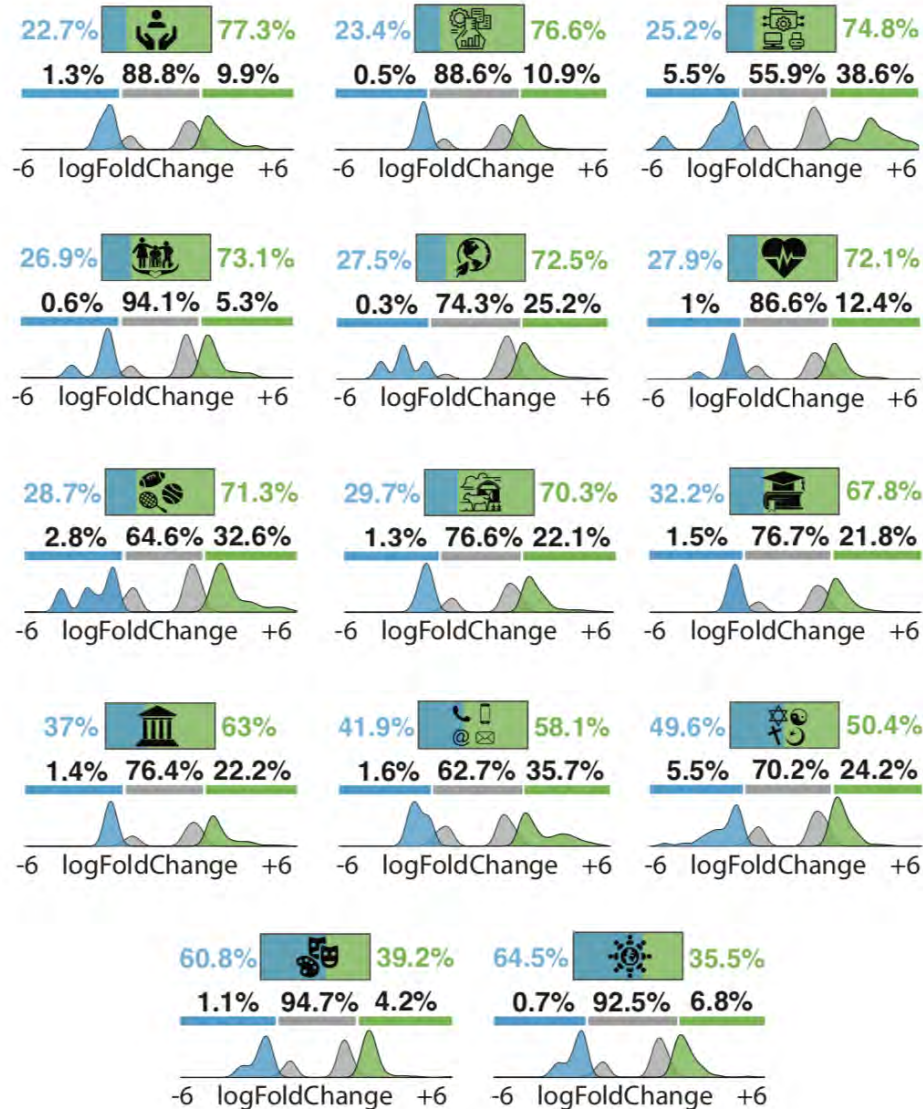
## Overlapping

100 Most Generic Words Across Types

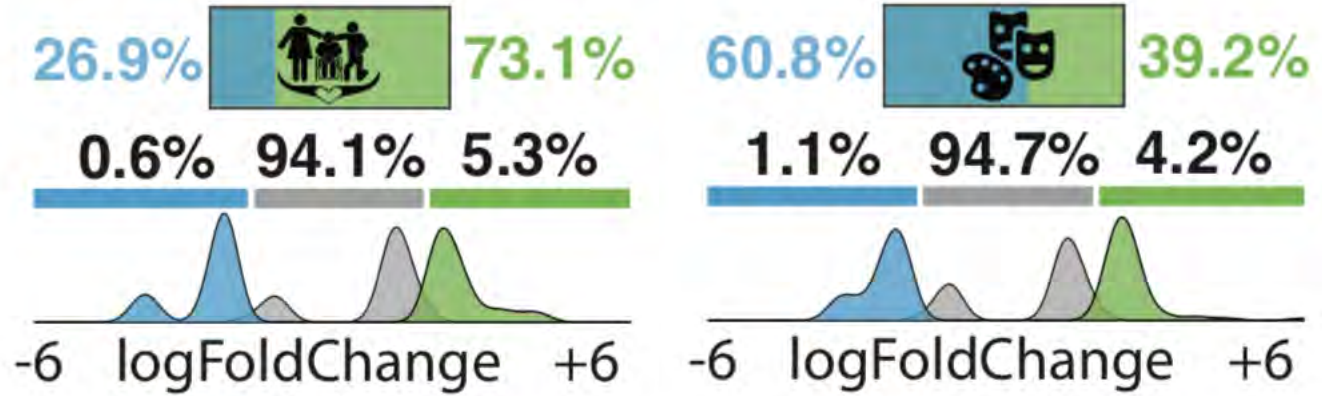




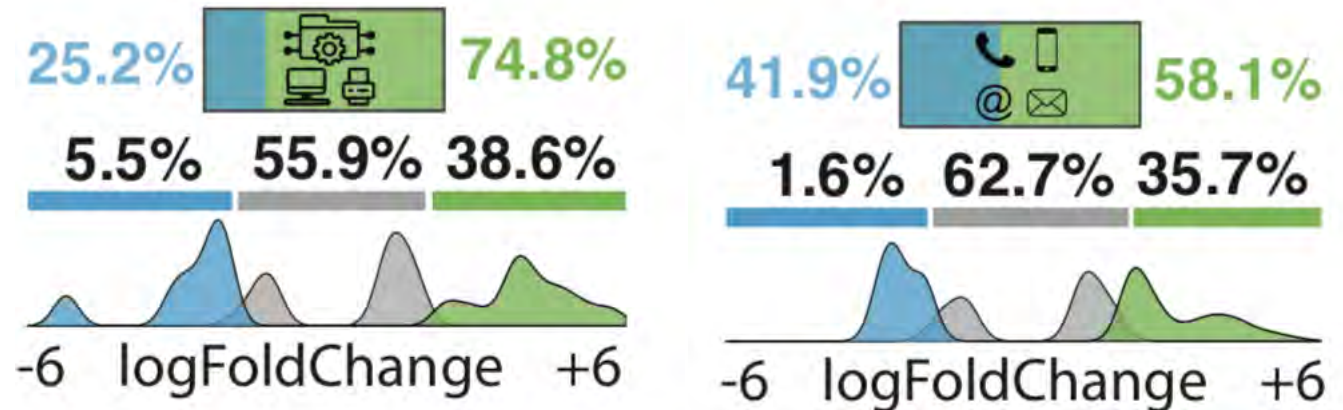
# Language Overlap Differs by Area of Activity



## High Shared Language



## Low Shared Language





# “Related Dialect” Spoken in 6/14 areas of activity

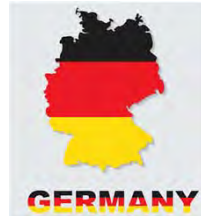
- Related Dialects = 85% or more words shared across two languages (Eberhard, D. et al, 2020, *Ethnologue: Languages of the World*.)



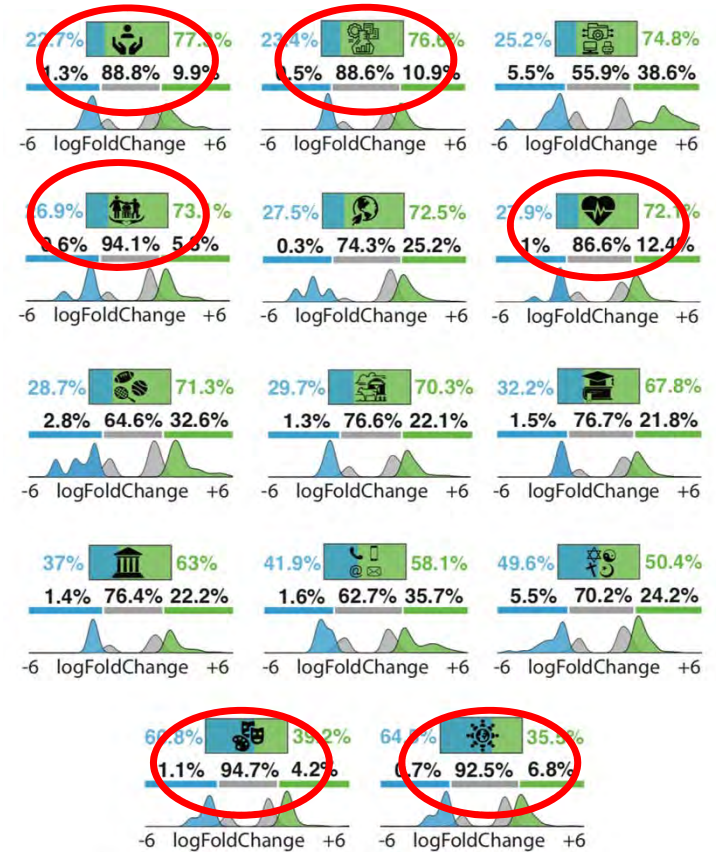
89%



60%



27%



# (Extended) Moral Foundations Dictionary

(moralfoundations.org)

- Moral Foundations Theory (Haidt - The Righteous Mind)
- Morality Characterized By Six Main Virtues & Vice:

Moral Foundations Theory					
Care	Fairness	Liberty	Loyalty	Authority	Sanctity
Harm	Cheating	Oppression	Betrayal	Subversion	Degradation

- Extended Moral Foundations Dictionary: moral words associated with each of these virtues/vices (but Liberty/Oppression)

# Analyzing Moral Motives in POs

## Moral Foundations Theory

Care	Fairness	Liberty	Loyalty	Authority	Sanctity
Harm	Cheating	Oppression	Betrayal	Subversion	Degradation

Extended Moral Foundations  
Dictionary

POs Words from Mission  
Statements



Presence of Moral Words in POs Language



# POs Motivated Mainly by Promoting Virtues

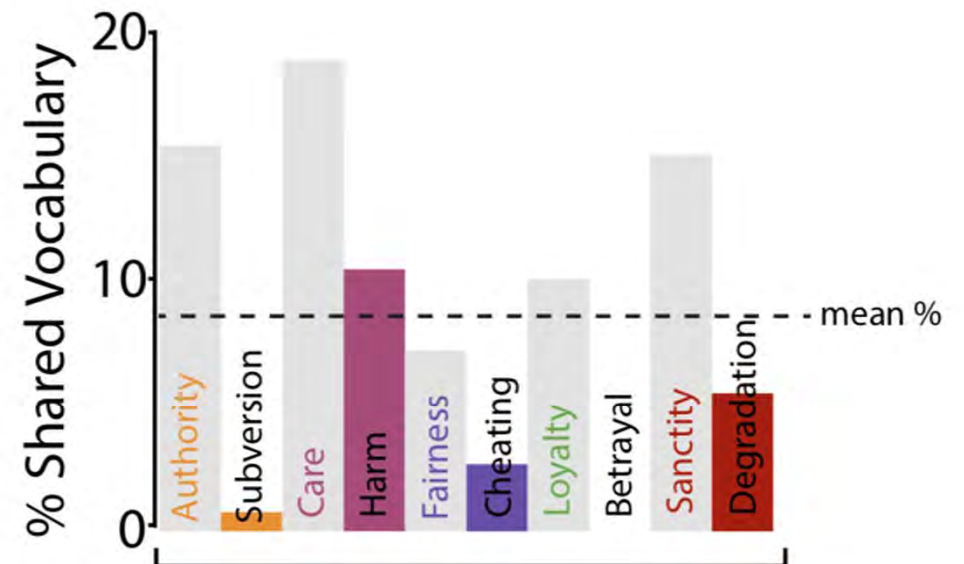
## Top words

### MFD- Foundations TF-IDF embeddings

(most representative moral word in mission statements)

<b>Authority</b>	honoring elderly principal	<b>Subversion</b>	oppose disorder illegal
<b>Care</b>	caring helping nursery	<b>Harm</b>	victims threatened need
<b>Fairness</b>	integrity law honest	<b>Cheating</b>	fraud disadvantaged discrimination
<b>Loyalty</b>	families organization community	<b>Betrayal</b>	NO WORDS
<b>Sanctity</b>	synagogue priests theology	<b>Degradation</b>	alcoholism addicts disease

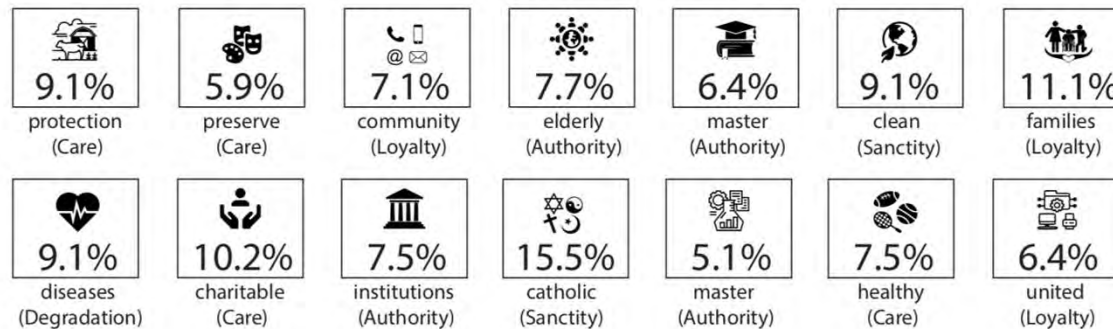
## Communication Overlap - MFD & Foundations



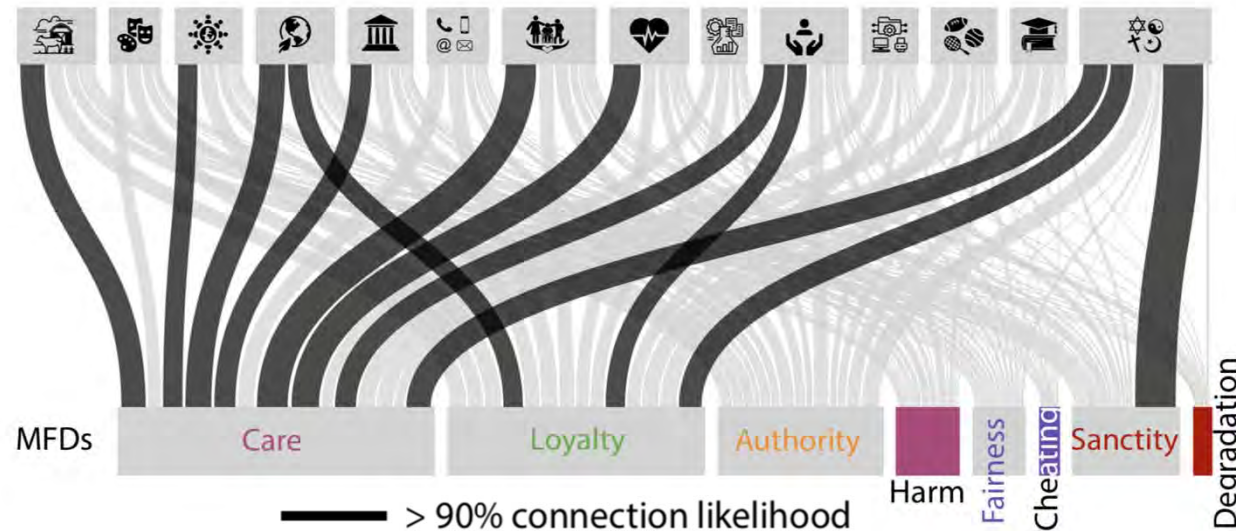
# Specific Virtues/Vice Motivate different POs Activities, Care common to most

## Joint-MFD Shared Vocabulary by Philanthropic Purpose

Examples - enriched words by purpose overlapping with MFDs shared vocabulary



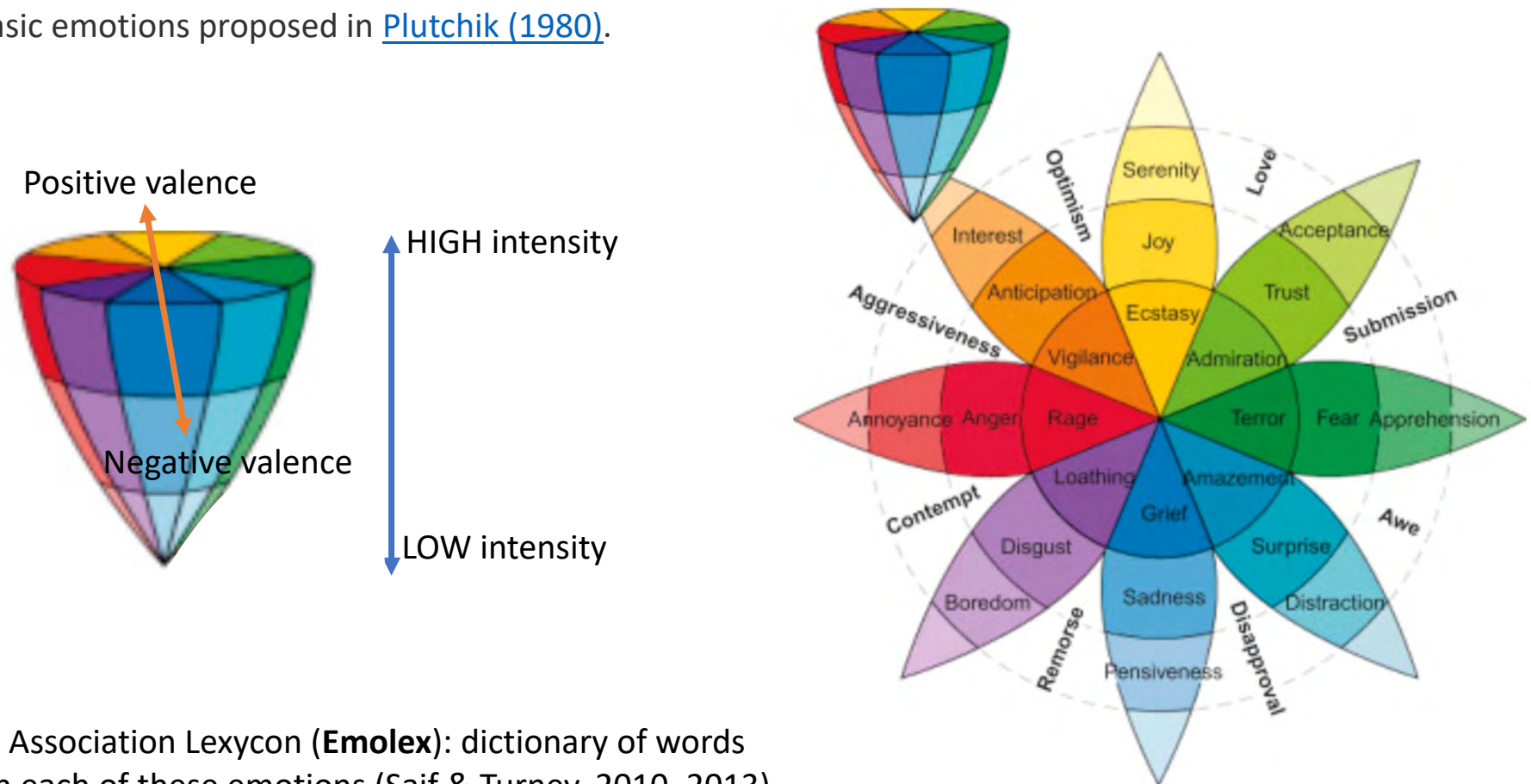
POs  
Area of Activity



# Emotions as a combination of Arousal and Valence

Joint with Prof. Cova (CISA)

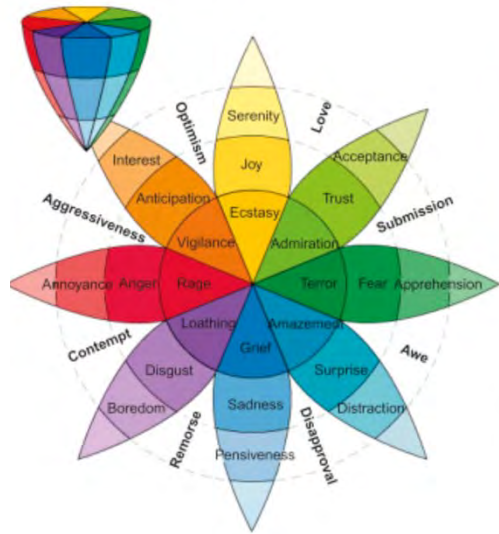
Set of eight basic emotions proposed in [Plutchik \(1980\)](#).



Word-Emotion Association Lexycon (**Emolex**): dictionary of words associated with each of these emotions (Saif & Turney, 2010, 2013)



# Analyzing Emotional Motives in POs



EmoLex

POs Words from Mission Statements



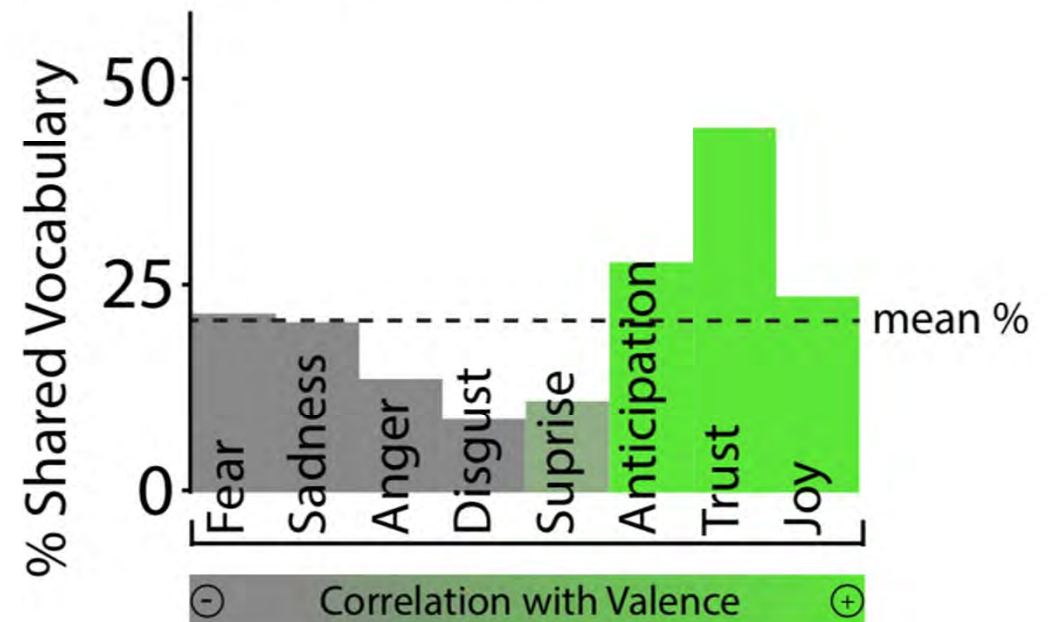
Presence of Emotional Words in POs Language

# POs Motivated by a wide spectrum of Emotions

Top words  
Emotions- Foundations TF-IDF embeddings  
(most representative emotional words in mission statements)

Anger	struggle prison traumatic	Surprise	accidentally rapid chance
Disgust	sick infectious toxic	Anticipation	organization renovation possibility
Sadness	uneducated blindness hospice	Trust	parish worthy maintenance
Fear	operation stroke dementia	Joy	teach entertain cathedral

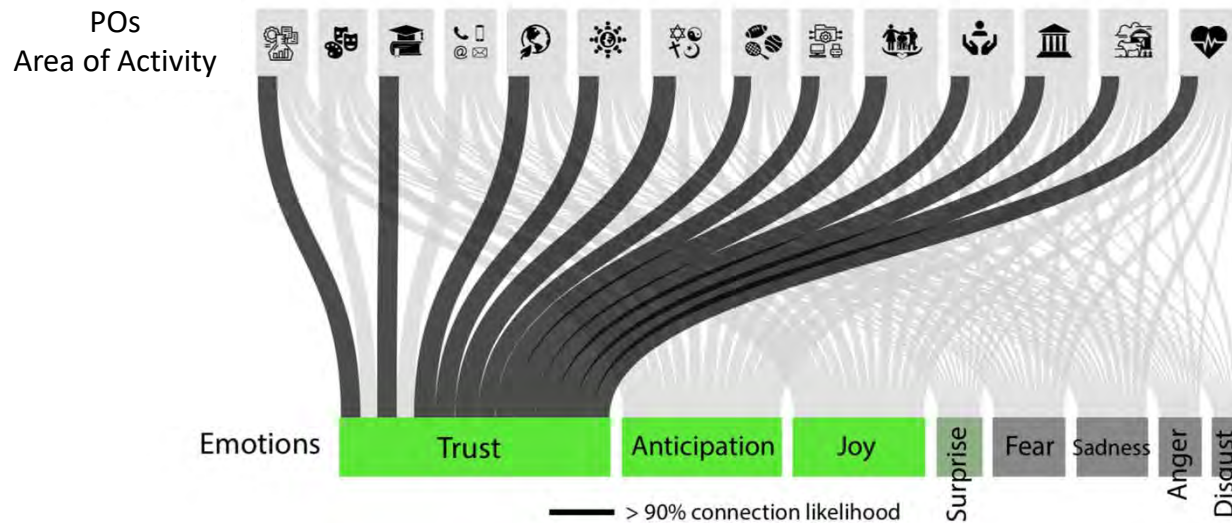
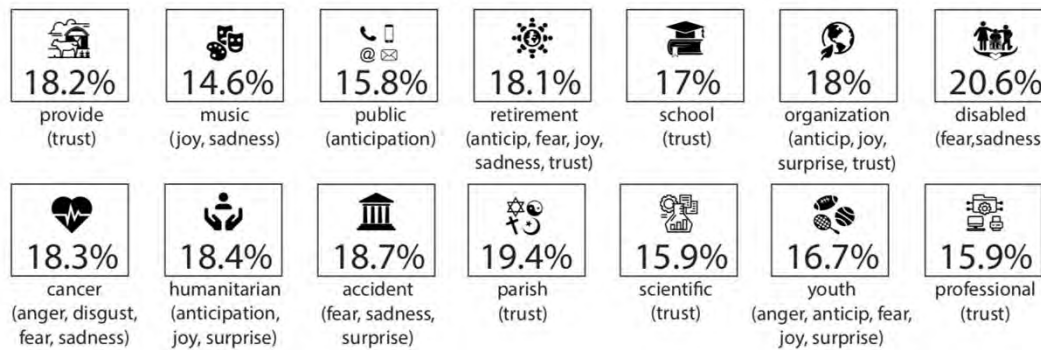
Communication Overlap - Emotions & Foundations



# Specific Emotions drive different POs Activities, Trust common to most

## Joint-Emotions Shared Vocabulary by Philanthropic Purpose

Examples - enriched words by purpose overlapping with Emotions shared vocabulary





# Analyzing POs Engagement with SDGs



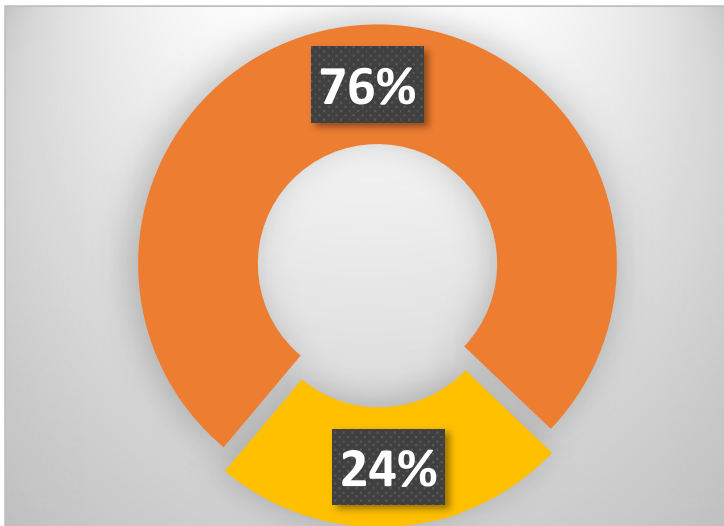
TF-IDF NLP embeddings  
SDGs descriptions

SDG-Normalized POs Words  
from Mission Statements



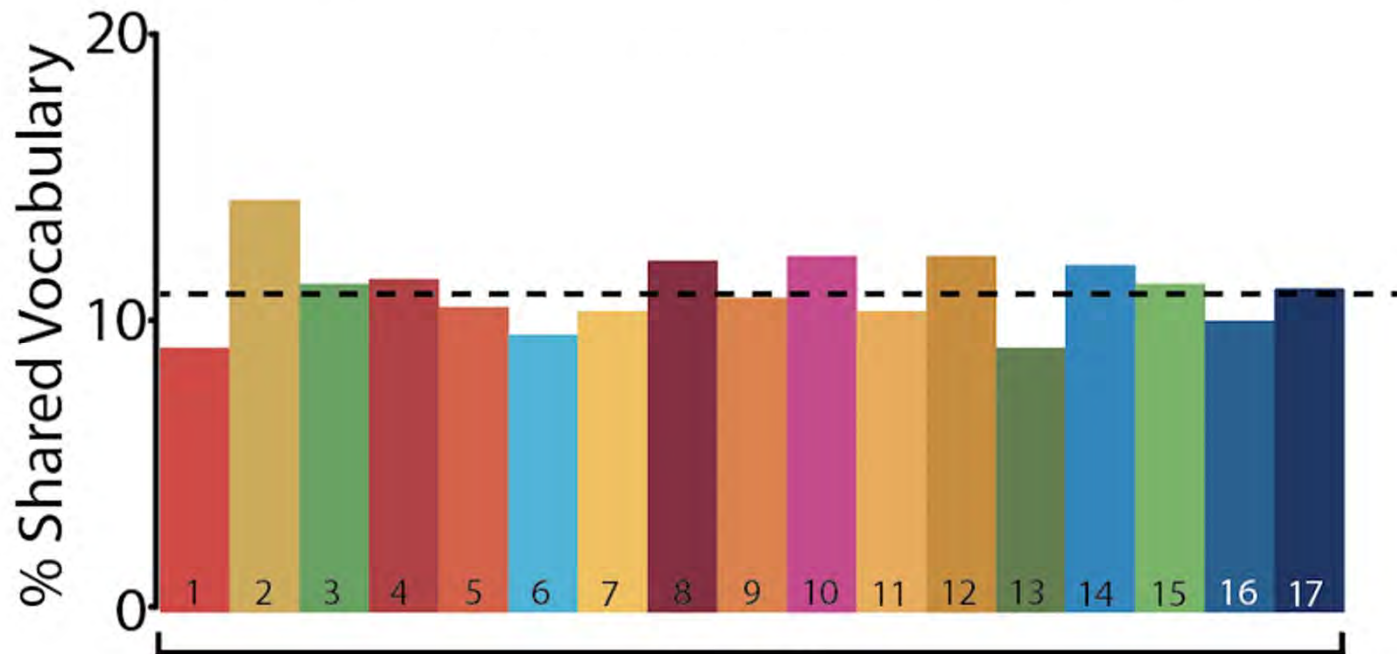
# Overlap in POs and SDGs Language varies across SDG

Presence SDGs words



76% of SDGs words appear in POs mission statements

## Communication Overlap - SDG & Foundations

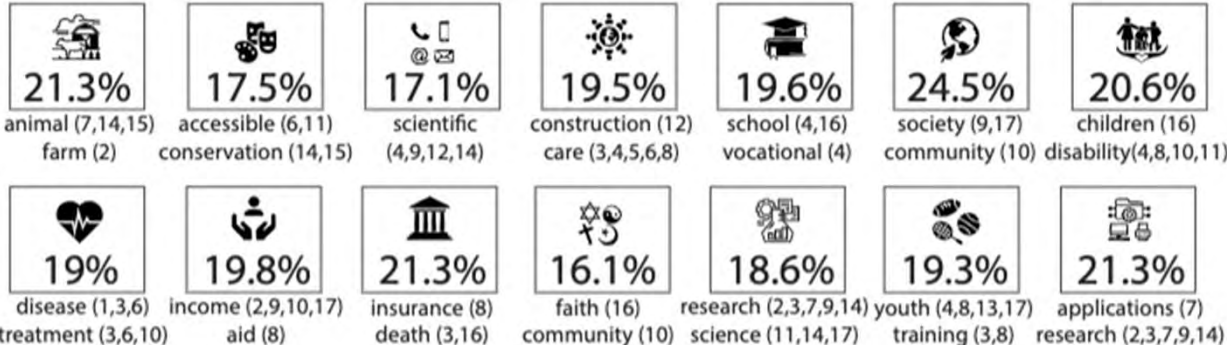


mean % SDG words in Foundations mission statements

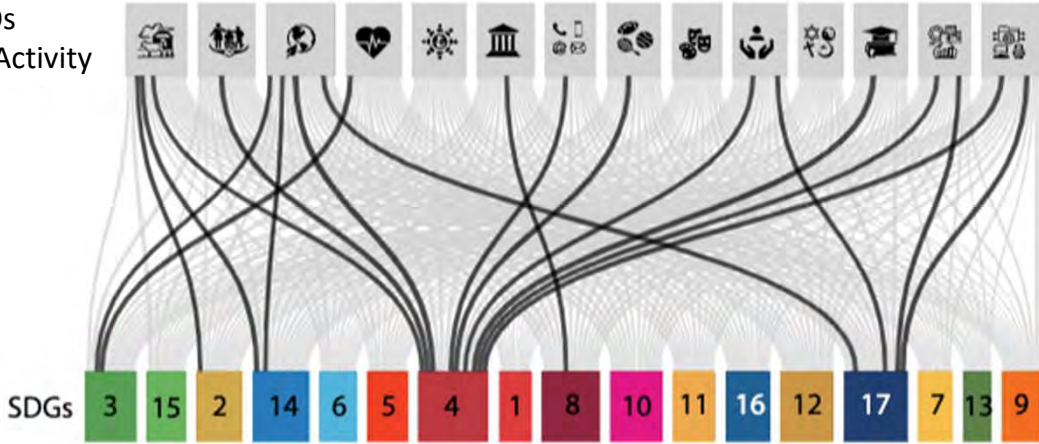
# Engagement in SDGs by POs Area of Activity

## Joint-SDG Shared Vocabulary by Philanthropic Purpose

Examples - enriched words by purpose overlapping with SDGs shared vocabulary



POs  
Area of Activity



— > 90% connection likelihood



# Conclusion

- We are building a comprehensive data-base of POs in Switzerland
- We are developing an AI based Tool to Map POs:
  - Areas of Activity
  - Type of Activity
  - Geographical Distribution
  - Motivations, emotions & moral values
  - Alignment with SDGs
- Key Advantages:
  - Can be used to find patterns too hard for humans to detect
  - Open Access, can benefit from inputs from anyone
  - Can be easily used to map and compare other regions

# Next Steps

- Refine our method
- Explore use of MFD/EmoLex/SDGs language by Type of POs
- Include information on Number of Projects and Funds invested/used in each Area of Activity by the two Types of POs
- Look at temporal dynamics of POs language
- Investigate For Profits, and compare these to POs
- Make our Maps open-access and interactive
- Determining level of Innovation in NGOs (joint with. Prof Amboss and Straub)

# Thank You!

Special thanks to master and bachelor students who helped us enormously with the collection of data used in this research

Please get in touch with any comments, suggestions, questions or any feedback: [Giuseppe.ugazio@unige.ch](mailto:Giuseppe.ugazio@unige.ch)





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# UPDATE ON THE GENEVA CENTRE FOR PHILANTHROPY

## Laetitia Gill

Executive Director, Geneva Centre for Philanthropy

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# TEACHING

## Academic courses for the coming academic semester:

- *La philanthropie et ses principaux enjeux juridiques*, Dr. Neri-Castracane, Autumn 2020 (french)
- *L'éthique de la philanthropie* , Dr. Tieffenbach, Autumn 2020 (french)
- **NEW- The many faces of Philanthropy A**, Prof. Ugazio, Autumn 2020
- **NEW- The many faces of Philanthropy B: Regional Philanthropy**, Prof. Ugazio & Dr Monks, Autumn 2020

# NEXT EVENTS

- **01.10.2020** Online Philanthropy Lunch **Philanthropic funding for individuals: historical and contemporary challenges**

Panel with Prof. Tournès, Dr. Smith, Prof. Carton, Dr Tarradellas, moderated by Prof. Peter

- **29.10.2020** Philanthropy Lunch **Diversity in the foundations boards**

Presentation of the results of a survey involving more than foundations

Panel with Dre Kratz-Ulmer, Catherine Labouchère + TBC, moderated by Laetitia Gill

- **25-27.11.2020** Conference on Taxation and Philanthropy, Geneva

Presentation of an important research conducted by OECD and GCP involving 35 countries

- **02.02.2021** Philanthropy Lunch **How can philanthropy support companies to advance human rights?**

Panel with Prof. Baumann-Pauly, Ambassador Zimeray, Dr Neri-Castracane, moderated by Prof. Peter

- **25.03.2021** Philanthropy Lunch **Philanthropy and emotions**

Panel with prof. Cova + TBC, moderated by Prof. Sander





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OPEN SESSION  
Prof. **Giuseppe Ugazio**

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