MAPPING THE SWISS PHILANTHROPIC LANDSCAPE THROUGH BIG-DATA
INTRODUCTION
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Mapping the Philanthropic (Swiss) Landscape through big-data

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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
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
Our Approach in a Nutshell

- Natural Language Processing employing Machine and Deep Learning algorithms to analyze Philanthropic Communications
- Collected Mission Statements from ≈ 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
POs Active in 14 macro-Areas

Number and % of Foundations per Macro Area
Classifying Type of POs

OPERATIVE MODE PREDICTION

- non-profit samples
  - TF-IDF matrix
  - subsample annotation
  - 147 donors
  - 147 operating

AUC 0.93

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

8485 1000 0 0.01
505 0 0 0.7
10 2 0

a=relu relu relu sigmoid
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

100 Most Specific Words Donors

100 Most Specific Words Operational

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.*)

![Maps showing language distribution](image)

- France: 89%
- Italy: 60%
- Germany: 27%
(Extended) Moral Foundations Dictionary

(moralfoundations.org)

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

![Moral Foundations Theory Diagram]

• Extended Moral Foundations Dictionary: moral words associated with each of these virtues/vices (but Liberty/Oppression)
Analyzing Moral Motives in POs

Extended Moral Foundations Dictionary

POs Words from Mission Statements

Presence of Moral Words in POs Language
POs Motivated Mainly by Promoting Virtues

![Diagram showing top words and communication overlap]

- **Top words**
  - Authority: honoring, elderly, principal
  - Care: caring, helping, nursery
  - Fairness: integrity, law, honest
  - Loyalty: families, organization, community
  - Sanctity: synagogue, priests, theology
  - Subversion: oppose, disorder, illegal
  - Harm: victims, threatened, needy
  - Cheating: fraud, disadvantaged, discrimination
  - Betrayal: NO WORDS
  - Degradation: alcoholism, addicts, disease

- **Communication Overlap - MFD & Foundations**
  - % Shared Vocabulary
  - Mean %

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[Diagram with bar chart showing overlap between MFD and Foundations]
Specific Virtues/Vice Motivate different POs Activities, Care common to most
Emotions as a combination of Arousal and Valence

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
- **Disgust**: sick, infectious, toxic
- **Sadness**: uneducated, blindness, hospice
- **Fear**: operation, stroke, dementia
- **Surprise**: accidentally, rapid, chance
- **Anticipation**: organization, renovation, possibility
- **Trust**: parish, worthy, maintenance
- **Joy**: teach, entertain, cathedral

**Communication Overlap - Emotions & Foundations**

- % Shared Vocabulary
- Correlation with Valence
Specific Emotions drive different POs Activities, Trust common to most
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

% Shared Vocabulary

0 10 20

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Engagement in SDGs by POs Area of Activity
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
UPDATE ON THE GENEVA CENTRE FOR PHILANTHROPY

Laetitia Gill
Executive Director, Geneva Centre for Philanthropy
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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