



Report WG3 activities

NEOH final conference

Bologna

2018 September the 10th

Introduction

- One Health is now a widely adopted concept
- The literature contains hundreds of conceptual, methodological, opinion, guideline papers on One Health
- It is more difficult to find papers that report on actual implementations of the OH framework
- It is consequently difficult to figure out
 - how widely the OH approach is in practice implemented for the actual surveillance, prevention and control of health issues.
 - to what extent implementations of the OH approach and initiatives labelled as OH actually follow the principles of the OH paradigm (an initiative can be labelled as OH solely because it addresses a zoonosis, whereas the OH paradigm implies the adoption of specific objectives, concepts and methods)
 - what is the added value of the OH approach to health issues as compared with the traditional sectorial approach

Existing reviews of OH initiatives

- Schurer, J. M., et al. "Community-based surveillance of zoonotic parasites in a 'One Health' world: a systematic review." *One Health* 2 (2016): 166-174.
 - focuses on studies that characterized endoparasites at the community level using an OH framework
 - **32 OH studies** identified
 - identifies the **OH domains covered** in such studies (animal, human, environmental)
 - describe the **methods and geographic distribution** of these studies.
- Falzon, Laura C., et al. "Quantitative outcomes of a One Health approach to study global health challenges." *EcoHealth* (2018): 1-19.
 - identify and summarize primary research that describes **monetary and non-monetary outcomes** following adoption of a One Health approach
 - **85 OH studies identified**
- Nguyen-Viet, Hung, et al. "Ecohealth research in Southeast Asia: past, present and the way forward." *Infectious diseases of poverty* 4.1 (2015): 5.
 - review of **10 "EcoHealth research programs** in SE Asia.
 - description of the programs, **lessons learned, challenges faced and the way forward**
- Baum, Sarah E., et al. "Evaluating one health: are we demonstrating effectiveness?." *One Health* 3 (2017): 5-10.
 - **39 studies** referencing a specific OH intervention
 - focuses on how the **effectiveness of the OH approach** was evaluated in these studies
- Manlove, Kezia R., et al. "'One Health' or three? Publication silos among the One Health disciplines." *PLoS Biology* 14.4 (2016): e1002448.
 - systematic survey of One Health studies constructing dynamic **pathogen transmission models**.
 - **1628 papers** used for social network analysis to **measure interdisciplinarity**
- Wendt, A., L. Kreienbrock, and A. Campe. "Zoonotic disease surveillance—inventory of systems integrating human and animal disease information." *Zoonoses and public health* 62.1 (2015): 61-74.
 - **20 surveillance systems** identified
 - described regarding their concepts and realization

Existing reviews of OH initiatives

- Focus on particular types of initiatives
 - Initiatives addressing endo-parasites in communities
 - Surveillance systems
 - Pathogen Transmission Models
- Evaluate specific aspects regarding One Health
 - One health domains covered
 - Geographic distribution
 - Degree of interdisciplinary collaboration
 - Evaluation of the value of OH
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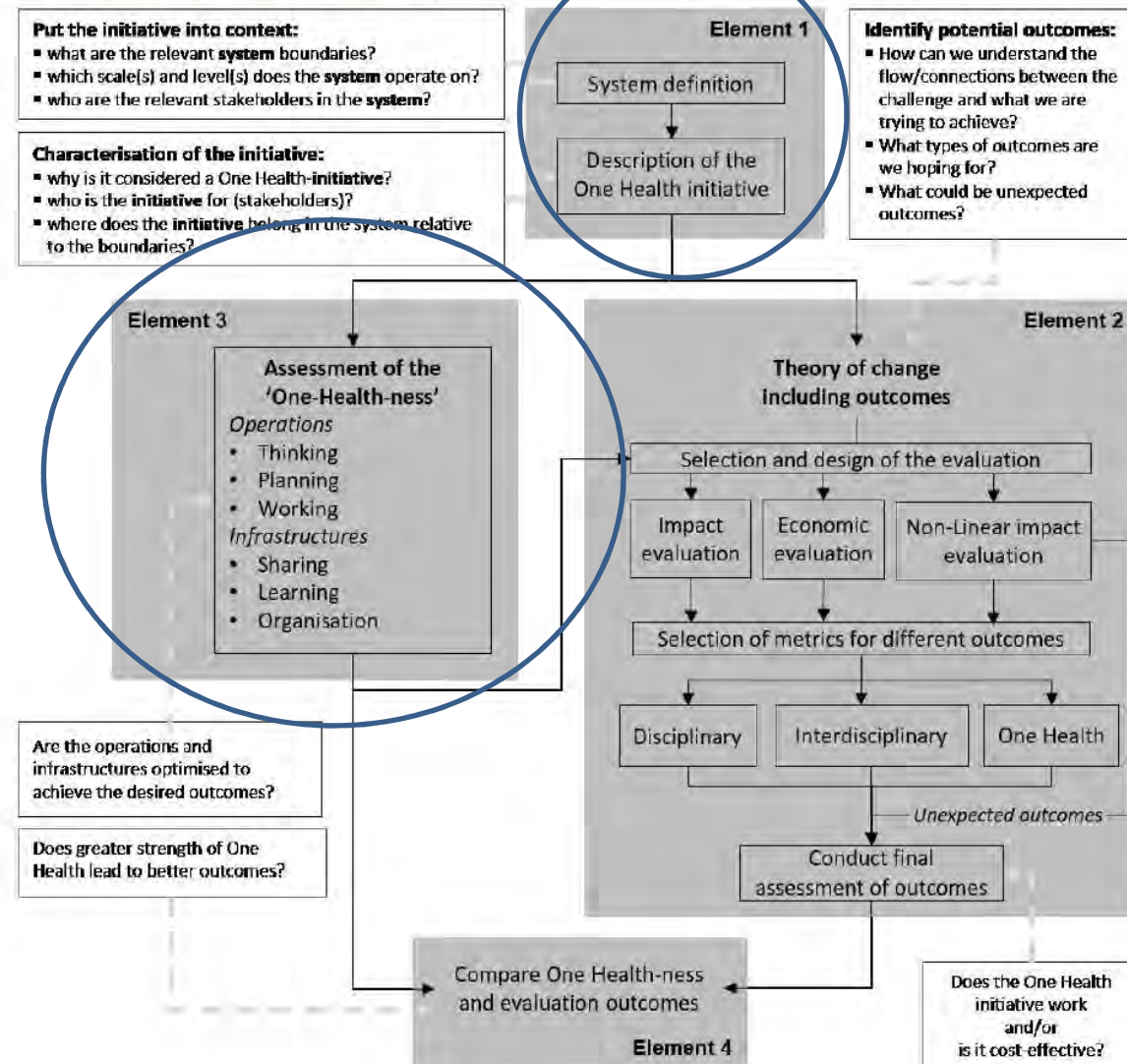
NEOH : a suitable framework for the development of an integrative analysis of OH initiatives

- WG1 has developed
 - a comprehensive framework for the characterisation and the evaluation of OH initiatives
 - a tool for the evaluation of OHness
- WG2 provides case studies of very diverse nature that have been thoroughly characterised and evaluated
- The NEOH community is large and diverse in terms of background, expertise and origin, and constitutes a great reservoir of potential evaluators

Objectives of WG3

- Characterise and evaluated as many OH initiative case studies as possible
 - Case studies provided by WG2
 - Case studies from the literature
- To produce of typology that accounts for the contexts and the characteristics of OH initiatives
- And to analyse the relationships between
 - OH initiative types
 - “One-Health-ness”
 - Outcomes of OH initiatives

1. Schematic overview of evaluation Elements (in grey) and the associated questions that can be answered (white boxes)



From
NEOH Intro paper

The different steps

- Select case studies
 - Case studies analysed by WG2
 - Additional case studies from the literature
- Characterize the OH initiatives
 - Build a typology of OH initiatives and classify the selected case studies
- Compute the OHness indicators for the selected case studies
- Analyse the variation in OHness indicators among case studies (*i.e.* among OH initiatives types)



WORKSHOPS AND WORK SESSIONS ORGANIZED BY WG3 DURING THE NEOH PROJECT

WG3 workshop in Skopje (Macedonia)



WG3 workshop in Skopje (Macedonia)

- 25-27 September 2017
- Co-organized by Mijalce Santa, Vladimir Grosbois and Barbara Häsler
- 4 invited speakers
 - Joann Lindenmayer (One Health Commission)
 - Mark Edwards (Jönköping International Business School, metatheory)
 - Sally Thorne (University of British Columbia, metasyntheses and metastudies,)
 - Ivan Corbev (Univeristy of Skopje, Open MultiMed cost action)
- 15 NEOH participants (presentations by Sara Savic (WG2 leader), Liza Rosenbaum-Nielsen (WG1 and WG2) and Vladimir Grosbois (WG3))

WG3 workshop in Skopje (Macedonia)

- Work sessions on
 - Process to select case studies from the literature
 - Designing a form to store information on OH initiatives characteristics and contexts
 - Simplification of the OHness evaluation tool for application to literature case studies

WG3 first STSM session in Montpellier (France)



WG3 first STSM session in Montpellier (France).

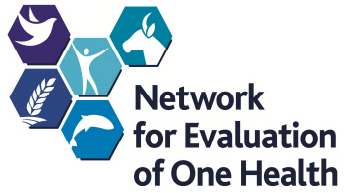
- 15-17 January 2018
- 4 STSM applicants
 - Liza Rosenbaum-Nielsen (Danemark, WG1 and WG2)
 - Sandra Buttigieg (Malta, WG3 co-leader)
 - Thanos Angelou (PhD student, Greece)
 - Aitor Vozmediano (PhD student, Italy)
- Working on 3 case studies from the literature (two scientific papers, one project report) to test and improve the OH initiative characteristics form and the simplified OHness evaluation tool.

WG3 second STSM session in Montpellier (France).



WG3 second STSM session in Montpellier (France).

- 9-13 April 2018
- 3 young scientist STSM applicants
 - Ida Söderström National Veterinary Institute (Sweden),
 - Ranya Özcelik, PhD student from the Veterinary Public Health institute in Bern (Switzerland)
 - Violeta Munõz from SAFOSO (Switzerland).
- Training on the OH-ness evaluation tool
- Evaluation of three case studies from the literature



INTEGRATED ANALYSIS OF OH INITIATIVES

Selection of case studies

- Case studies from WG2
 - 5 case studies integrated so far
- Case studies from the literature
 - We didn't undertake a systematic review of the literature (too time consuming)
 - We used case studies already identified in existing systematic reviews
 - 11 case studies integrated so far
- Many more case studies are available in the literature which could/should be integrated but the characterisation and evaluation of each case studies is time consuming (during each of the 2 STSM sessions it took one week to fully describe and evaluate 3 case studies from the literature).

List of evaluated case studies

WG2

- Fonseca AG, Torgal J, de Meneghi D, Gabriël S, Coelho AC and Vilhena M(2018) One Health-ness Evaluation of Cysticercosis Surveillance Design in Portugal. Front. Public Health 6:74. doi:10.3389/fpubh.2018.00074
- Paternoster, G., et al. The Degree of One Health Implementation in the West Nile Virus Integrated Surveillance in Northern Italy, 2016
- Laing G, Aragrande M, Canali M, Savic S and De Meneghi D (2018). Control of Cattle Ticks and Tick-Borne Diseases by Acaricide in Southern Province of Zambia: A Retrospective Evaluation of Animal Health Measures According to Current One Health Concepts. Front. Public Health 6:45. doi: 10.3389/fpubh.2018.00045
- Léger, Anaïs, et al. "A One Health Evaluation of the University of Copenhagen Research Centre for Control of Antibiotic Resistance"
- Muñoz-Prieto A, Nielsen LR, et al. Application of the NEOH Framework for Self-Evaluation of One Health Elements of a Case-Study on Obesity in European Dogs and Dog-Owners. Front. Vet. Sci. 5:163. doi: 10.3389/fvets.2018.00163

List of evaluated case studies

Literature

- Sripa, Banchob, et al. "Toward integrated opisthorchiasis control in northeast Thailand: the Lawa project." *Acta tropica* 141 (2015): 361-367.
- James Conlan et al. Management of pig-associated zoonoses in Lao PDR. Project report. <https://www.aciar.gov.au/node/10756>
- Rubanga, Stephen Venny, and Gladys Kalema-Zikusoka. "The Establishment and Use of Field Laboratories: Lessons from the Conservation Through Public Health Gorilla Research Clinic, Uganda." *Journal of exotic pet medicine* 22.1 (2013): 34-38.
- Ndeledje, Noël, et al. "Treating cattle to protect people? Impact of footbath insecticide treatment on tsetse density in Chad." *PLoS One* 8.6 (2013): e67580.
- Schurer, Janna M., et al. "Parasitic zoonoses: one health surveillance in northern Saskatchewan." *PLoS neglected tropical diseases* 7.3 (2013): e2141.
- Sudarshan, M. K., et al. "Rural Rabies Prevention Project-A 'One Health' Experiment in India: An Overview." *Int J Trop Dis Health* 3.2 (2013): 104-13.
- Waleckx, Etienne, et al. "An innovative ecohealth intervention for Chagas disease vector control in Yucatan, Mexico." *Trans R Soc Trop Med Hyg* 109 (2015): 143-149.
- Thumbi, S. M., et al. "Linking human health and livestock health: a "one-health" platform for integrated analysis of human health, livestock health, and economic welfare in livestock dependent communities." *PloS one* 10.3 (2015): e0120761
- Coffin, Jeanne L., et al. "A One Health, participatory epidemiology assessment of anthrax (*Bacillus anthracis*) management in Western Uganda." *Social Science & Medicine* 129 (2015): 44-50.
- Uncovering zoonoses awareness in an emerging disease 'hotspot'. Paige SB, Malavé C, Mbabazi E, Mayer J, Goldberg TL. *Social Sciences & Medicine*. 2015. 129 (78-86)
- Human health benefits from livestock vaccination from brucellosis: case study. Roth F, Zinsstag J, Orkhon D, Chimed-Ochir G, Hutton G, Cosivi O, Carrin G, Otte J. *Bulletin of the World Health Organization*. 2003. 81(12)

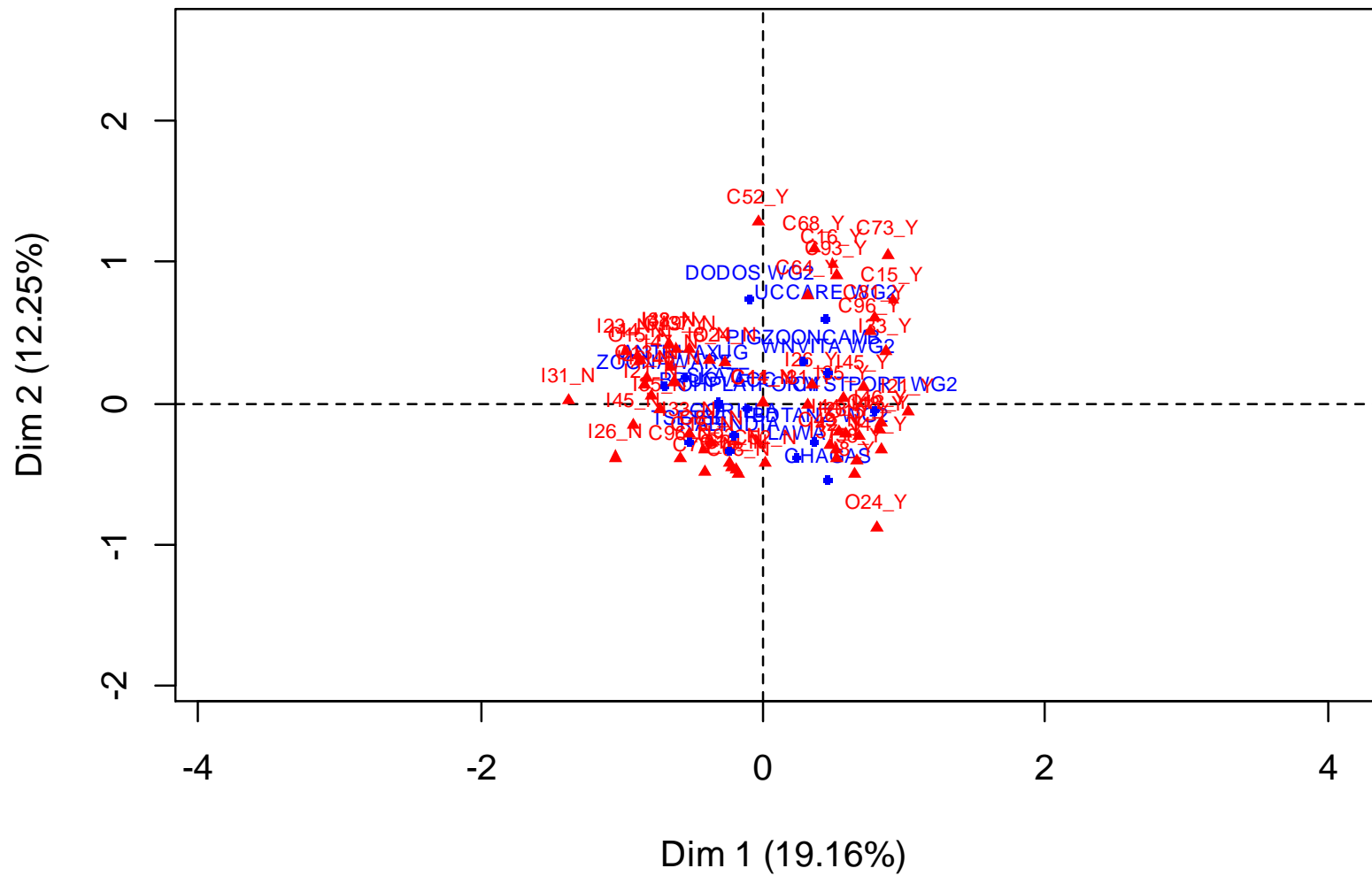
Characterization of case studies

- Description of the context and of the initiative: form including 90 questions (i.e. 90 categorical variables)
 - Context / System definition
 - Component of the system which health is affected by the issue
 - Component of the system driving/creating the health issue
 - Pathogenic agent
 - Geographic range of the health issue
 - Type of system where the main health issue occurs
 - Components of the system economically or socio-culturally impacted by the Health issue
 - Time scale of the issue
 -
 - Description of the initiative
 - Objectives
 - People involved
 - Actions undertaken as part of the initiative
 - Main geographic scale at which the initiative is implemented
 - Funding
 -
 - Impact
 - first order (short term)
 - second order (long term)
- Application of a simplified version of the OH-ness evaluation tool developed by WG1
 - 6 components (Thinking, Planning, Working, Learning, Sharing Systemic Organisation)
 - Only Thinking, Working, Learning and Planning could be evaluated for all case studies

Integrated analysis

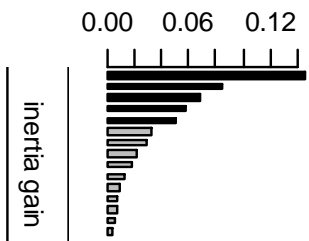
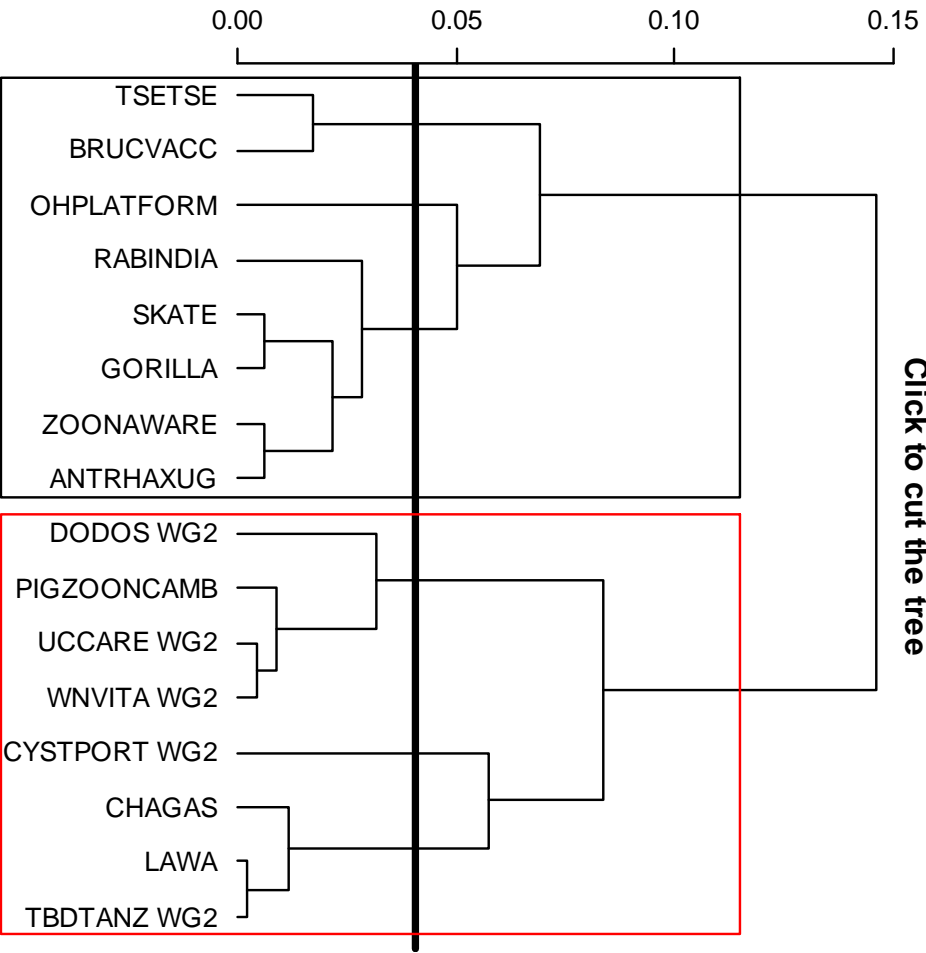
- Use multivariate statistics methods (Multiple Component Analysis) to integrate the information regarding the description of the context and of the initiative
 - Allows dimension reduction
 - Simultaneous graphic representation of the variables and of the case Studies
- Produce a typology based on context and initiative description
 - MCA can produce typologies when combined with hierarchical ascending classification
- Comparison of OH-ness among types of OH initiatives

MCA factor map

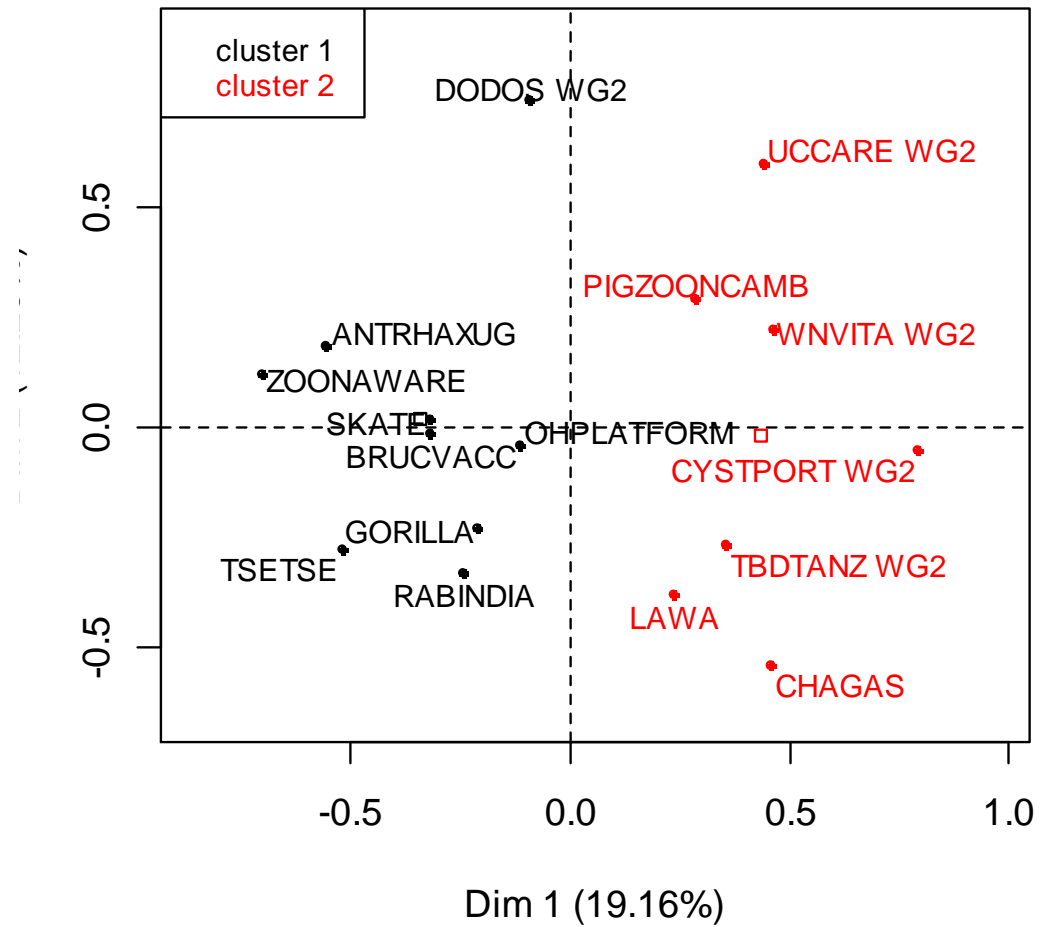


Hierarchical Clustering

Click to cut the tree



Factor map



Characterisation of the clusters

	Cluster 1	Cluster 2
Context: health issue influenced by global changes	No 100%	Yes 57%
Objective: controlling the Health issue	No 100%	Yes 100%
Objective: increasing awareness, communicate about the health issue	No 67%	Yes 100%
People involved: local community members	No 78%	Yes 85%
People involved: decision/policy makers	No 78%	Yes 85%
People involved: business community	No 89%	Yes 71%
Action: capacity building by improving skills	No 78%	Yes 100%
Action: capacity building by providing resources	No 89%	Yes 100%
Action: capacity building by improving knowledge/awareness	No 67%	Yes 100%
Action: designing policies, plans, programs	No 89%	Yes 86%
Action: changing behaviours, habits	No 89%	Yes 86%
Impact: improved skills	No 78%	Yes 100%
Impact: reduce the frequency of risky behaviours	No 89%	Yes 100%

Variation in OH-ness between the 2 identified types of initiatives

Initiatives from cluster 2 have statistically significant larger scores for

- Thinking: mean for cluster 1 = 0.55 vs mean for cluster 2 = 0.73
- Learning: mean for cluster 1 = 0.30 vs mean for cluster 2 = 0.66

Conclusion

- We have established an operational methodology for an integrated analysis of OH initiatives
- Even with few case studies, patterns emerge from the analysis
- However the completion of an integrated analysis will require the integration of many more case studies (not easy because the evaluation step is very time consuming)