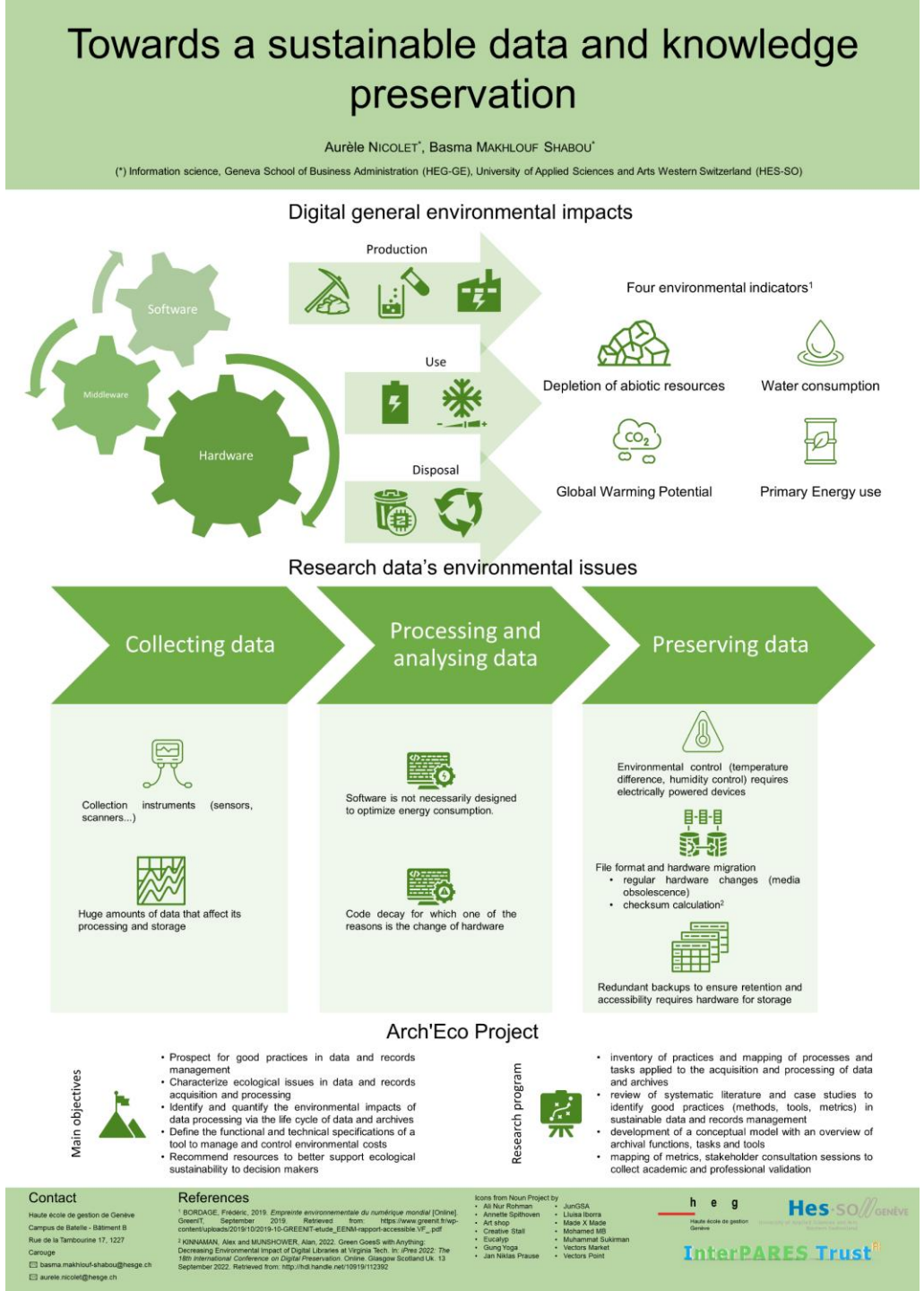


#4705
Towards a sustainable data and knowledge preservation

Aurèle Nicolet , Basma Makhlouf Shabou

# Towards a sustainable data and knowledge preservation

Aurèle NICOLET*, Basma MAKHLOUF SHABOU*

(*) Information science, Geneva School of Business Administration (HEG-GE), University of Applied Sciences and Arts Western Switzerland (HES-SO)

## Digital general environmental impacts


## Research data's environmental issues

### Collecting data

Collection instruments (sensors, scanners...)

Huge amounts of data that affect its processing and storage

### Processing and analysing data

Software is not necessarily designed to optimize energy consumption.

Code decay for which one of the reasons is the change of hardware

### Preserving data

Environmental control (temperature difference, humidity control) requires electrically powered devices

File format and hardware migration

- regular hardware changes (media obsolescence)
- checksum calculation[2]

Redundant backups to ensure retention and accessibility requires hardware for storage

## Arch'Eco Project

**Main objectives**

- Prospect for good practices in data and records management
- Characterize ecological issues in data and records acquisition and processing
- Identify and quantify the environmental impacts of data processing via the life cycle of data and archives
- Define the functional and technical specifications of a tool to manage and control environmental costs
- Recommend resources to better support ecological sustainability to decision makers

**Research program**

- inventory of practices and mapping of processes and tasks applied to the acquisition and processing of data and archives
- review of systematic literature and case studies to identify good practices (methods, tools, metrics) in sustainable data and records management
- development of a conceptual model with an overview of archival functions, tasks and tools
- mapping of metrics, stakeholder consultation sessions to collect academic and professional validation

## Contact

Haute école de gestion de Genève
Campus de Batelle - Bâtiment B
Rue de la Tambourine 17, 1227
Carouge
basma.makhlouf-shabou@hesge.ch
aurele.nicolet@hesge.ch

## References

[1] BORDAGE, Frédéric, 2019. *Empreinte environnementale du numérique mondial* [Online]. GreenIT, September 2019. Retrieved from: https://www.greenit.fr/wp-content/uploads/2019/10/2019-10-GREENIT-etude_EENM-rapport-accessible.VF_.pdf

[2] KINAMAN, Alex and MUNSHOWER, Alan, 2022. Green GoesS with Anything: Decreasing Environmental Impact of Digital Libraries at Virginia Tech. In: *iPres 2022: The 18th International Conference on Digital Preservation*. Online. Glasgow Scotland Uk. 13 September 2022. Retrieved from: http://hdl.handle.net/10919/112392

Icons from Noun Project by

- Ali Nur Rohman
- Annette Spithoven
- Art shop
- Creative Stall
- Eucalyp
- Gung Yoga
- Jan Niklas Prause
- JunGSA
- Lluisa Iborra
- Made X Made
- Mohamed MB
- Muhammat Sukirman
- Vectors Market
- Vectors Point