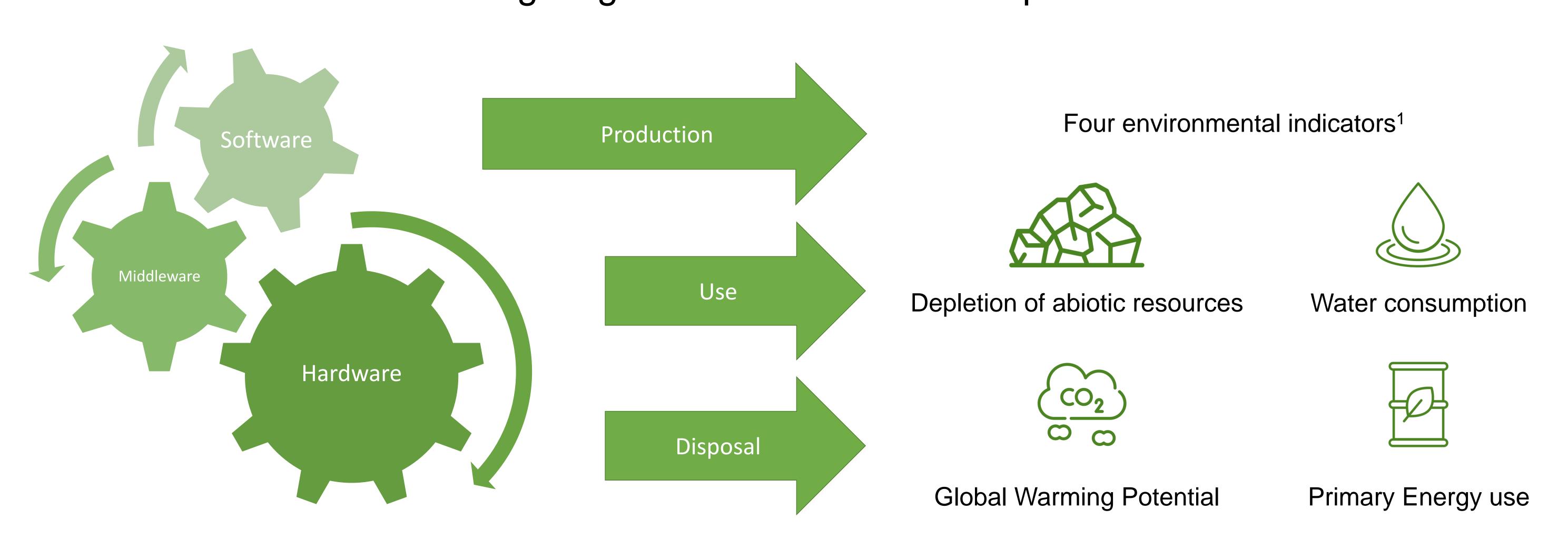
Towards a sustainable data and knowledge preservation

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

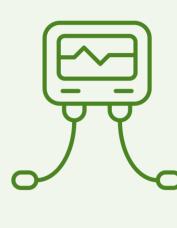


Research data's environmental issues



Processing and analysing data

Preserving data



Collection instruments (sensors, scanners...)



Huge amounts of data that affect its processing and storage



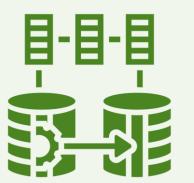
Software is not necessarily designed to optimize energy consumption.



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



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



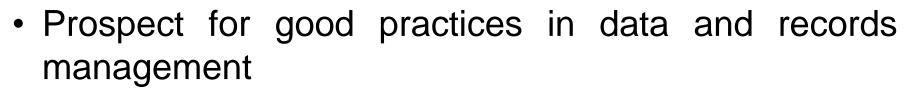
File format and hardware migration

- regular hardware changes (media obsolescence)
- checksum calculation²



Redundant backups to ensure retention and accessibility requires hardware for storage

Arch'Eco Project



- 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
- Recommend resources to better support ecological sustainability to decision makers



- 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

Main objectives

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 KINNAMAN, 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

- Annette SpithovenEucalyp
- EucalypGung Yoga
- Jan Niklas PrauseJunGSA

Vectors Point

- JungsaLluisa IborraMade X Made
- Mohamed MBMuhammat Sukirman





