Innovative Doctoral Courses for Sustainability (IDOCOS)

Digital transformation and sustainable development

"The purpose of digitalisation needs to be subordinated to the goals of a deep and sustainable transformation of society"
Digitalization for Sustainability (D4S), 2022: Digital Reset.

Welcome to the IDOCOS platform for co-creation and sharing of innovative doctoral courses for sustainability

Open for the world
Provided by IDOCOS

Access course

Henrik Hansson, IDOCOS (2023-05-15).

The online course

- Open for all PhD students in the world
- Free
- IDOCOS platform:
    - Instructions
    - Forum
    - Course material
    - Recorded online presentations/seminars
- Two assignments
- Two peer-reviews
- Four online sessions

Course material

- Two books:

Digitalization for Sustainability (D4S), 2022: *Digital Reset. Redirecting Technologies for the Deep Sustainability Transformation*. Berlin: TU Berlin.

Cöster, M., Ekenberg, L., Gullberg, C., Titlestad, G., Westelius, A., and Wettergren, G. *Digital transformation Organizations, Processes, and Decisions*. Open Publishers

- Research publications
- News media: France, Germany, UK, USA, Spain, Portugal, Brasil, Sweden, Denmark, Italy, Finland
- Websites: Data, Communities, Systems

Online seminars

Introduction

Henrik Hansson, IDOCOS (2023-05-15).

Assignment 1

Assignment 1: Digital transformation and sustainable development

a) Select a theme of relevance for the SDGs, e.g., education, energy, health, etc. Some of these are included in the literature for the course.

b) Write a report discussing the theme and a specific problem based on the course material and any other sources you find relevant.

You can discuss the theme and problem from a global perspective or a regional or local perspective.

Be critical and reflect on how did we get there?

What are the causes (always more than one)?

What are the options/scenarios/alternatives for the future?

What needs to be done?

Who are the stakeholders?

What are the risks and opportunities?

Maybe a SWOT table could be a way to end your report with a summary and concluding remarks.

The report should be maximum 3 000 words (500 words/page single-spaced = 6 pages), excluding references.

The problem

The physical world

Increased temperature, pollution of air, land, and water, increased drought and fires, extreme weather, water shortage, ice melting, land degradation etc

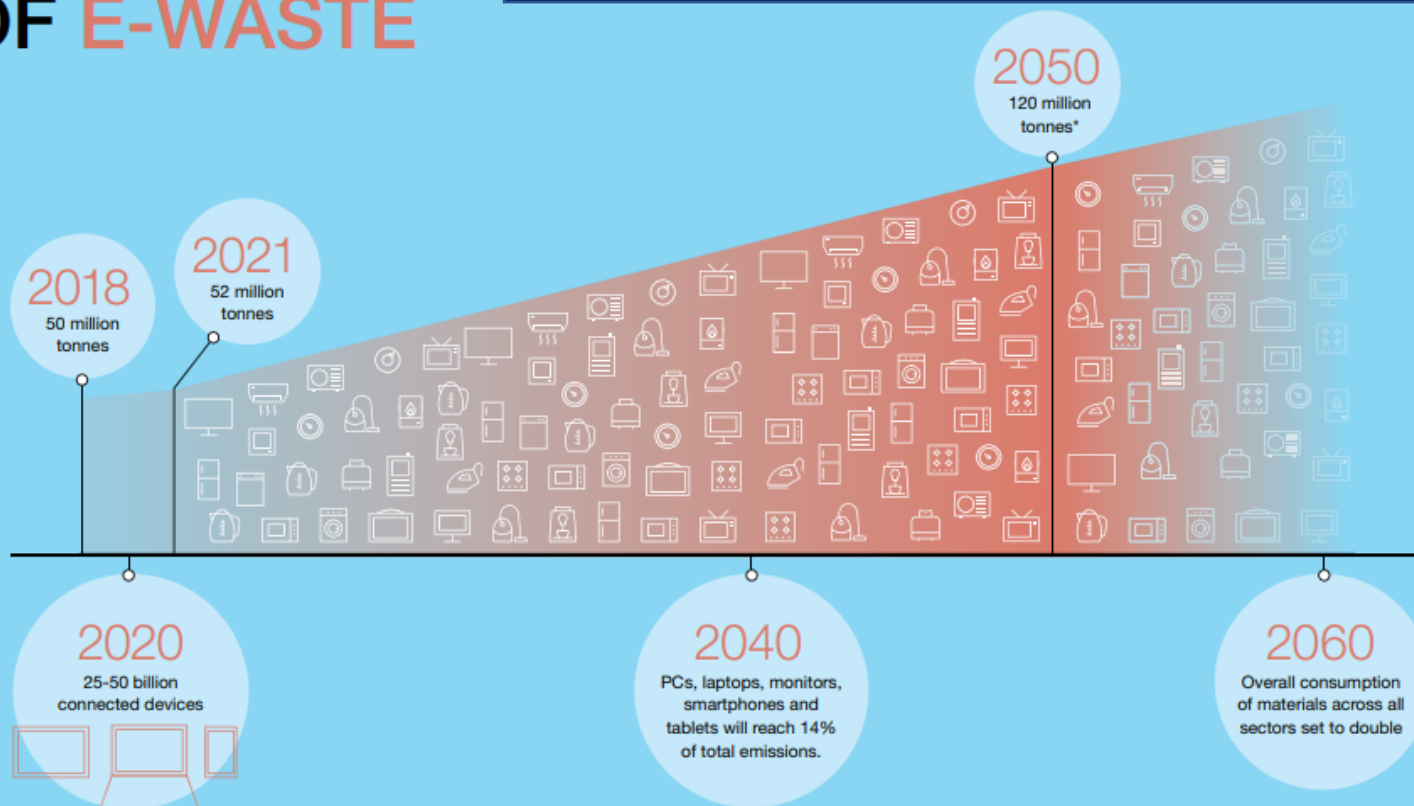Henrik Hansson, IDOCOS (2023-05-15).

https://climate.nasa.gov/

Henrik Hansson, IDOCOS (2023-05-15).

THE FUTURE OF E-WASTE

Global generation of e-waste is estimated to rise by 100% compared to 2014 and amount to 74 megatons by 2030 (Digital Reset, 2022)

2018 — 50 million tonnes

2021 — 52 million tonnes

2050 — 120 million tonnes*

2020 — 25-50 billion connected devices

2040 — PCs, laptops, monitors, smartphones and tablets will reach 14% of total emissions.

2060 — Overall consumption of materials across all sectors set to double

Report: The Platform for Accelerating the Circular Economy (PACE). (2019). *A New Circular Vision for Electronics Time for a Global Reboot*. World Economic Forum
Source: Global E-waste Monitor, 2017

"a tsunami of e-waste"

" E-waste can be toxic, is not biodegradable and accumulates in the environment, in the soil, air, water and living things. It can also have an adverse impact on health. Children and women are particularly vulnerable to the health risks of e-waste exposure."

"a product can be made up of more than 1,000 different substances."

"There is 100 times more gold in a tonne of mobile phones than in a tonne of gold ore."

Henrik Hansson, IDOCOS (2023-05-15).

Resistance to change

- Change is not perceived as necessary
- Change is not cost-effective
- Change would cause personal losses
- Change is inconsistent with values
- Leaders of change are not trusted
- Reasons for change are not understood
- The information is not wanted
- Decisions are unpopular
- Trust in faith – "we will see"
- Not a problem – fake news
- Other priorities more urgent

- Against our business model
- Lack of altruism and solidarity
- Fear – "safe" to do business as usual
- Denial
- Lack strategies
- Science does not reach out – a communication problem
- Lack of knowledge, education
- Structural barriers
- Does not affect me personally
- It is not my problem

Students

PhD students – countries, alpha group

- Sweden
- Zimbabwe
- Greece
- South Africa
- Nigeria
- Kenya
- Rwanda
- Ethiopia
- +…

Sustainable goals: assignment 1
Topics selected

- **Energy Poverty**: An Examination of the Causes, Alternatives, and Solutions Introduction

- **Powering Digital Ethiopia**: The Role of Hydropower

- **The South African energy and sustainability crisis**: an overview from a local perspective

- **A smarter, Greener World**: sustainable digitization

- **Global climate change** impacts: causes, risks, mitigation opportunities

- Digital transformation for sustainable development in the **banking sector** in Ethiopia

Sustainable goals: assignment 1
Topics selected

- Developing Sustainable Spaces for Interprofessional Education and Health: Driving knowledge through Digital Transformation in a Post-Pandemic Era in Higher Education in Southern Africa

- Digital health to scale up services for the achievement of SDG Goal 3 (Good health and well-being)

- Digital transformation for sustainable development in food system in Rwanda

Sustainable goals: assignment 1
Topics selected

- Digital Transformation in Higher Education: A South African Context
- Sustainable Digitalisation in Swedish Higher Education Institutions: A Review of the Current Situation
- Challenges of e-learning adoption in South African public
- Youth unemployment in Zimbabwe: Evidence and policy intervention areas

Assignment 2

Henrik Hansson, IDOCOS (2023-05-15).

Assignment 2:
Implementing digital transformation for sustainable development through projects

Write a report. Discuss implementing *digital transformation through projects* in a selected area of your interest (for example higher education, health care, energy, transport) *with a sustainability goal perspective.*

Consider and use - conceptual framework and terminology in - literature.

Structure your text in a time perspective (history – present – future) and with a specific context; what is - current state?

What are - potentials in a specific socio-cultural context (geographic area - country, region – target group, stakeholders, culture etc)?

Risks and opportunities in - future?

How can change be achieved?

Consider also resistance to change.

Be creative, critical, constructive, realistic, visionary and innovative.

- Action
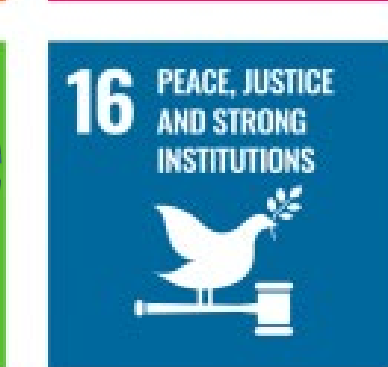Digital transformation
A way forward
"A solution"

Maximum 3 000 words (500 words/page single spaced = 6 pages), excluding references.

Henrik Hansson, IDOCOS (2023-05-15).

The living world

Species extinction, habitat loss, biodiversity loss, food production, health issues, sustainable agriculture and fish farming

Henrik Hansson, IDOCOS (2023-05-15).

SCIENTIFIC AMERICAN

Subscribe | Latest Issues | Cart 0 | Sign In | Newsletters

COVID   Health   Mind & Brain   Environment   Technology   Space & Physics   Video   Podcasts   Opinion   Store

CONSERVATION | OPINION

What We've Lost: The Species Declared Extinct in 2020

Dozens of frogs, fish, orchids and other species—many unseen for decades—may no longer exist because of humanity's destructive effects on the planet

By John R. Platt on January 13, 2021

"A few months ago a group of scientists warned about the rise of **"extinction denial"** an effort much like climate denial to mischaracterize the extinction crisis and suggest that human activity isn't really having a damaging effect on ecosystems and the whole planet."

Henrik Hansson, IDOCOS (2023-05-15).

Names - common, scientific, regions etc...   🔍   **Advanc**

More than 42,100 species are threatened with extinction

That is still 28% of all assessed species.

The International Union for Conservation of Nature's Red List of Threatened Species has evolved to become the world's most comprehensive information source on the global extinction risk status of animal, fungus and plant species.

AMPHIBIANS	MAMMALS	CONIFERS	BIRDS	SHARKS & RAYS
41%	**27%**	**34%**	**13%**	**37%**

REEF CORALS	SELECTED CRUSTACEANS	REPTILES		CYCADS
36%	**28%**	**21%**		**69%**

feedback

https://www.iucnredlist.org/

- Actions
- Digital transformation, examples
- SustainTech
- Citizen science
- Food production
- Habitat protection

Students

Sustainable goals: assignment 2
Topics selected

- Sustainable Practices by Implementing a Paperless Environment in a Research Lab

- The Implementation of Extended Reality (XR) and Artificial Intelligence (AI) to promote good health and well-being in Health Professions Education in South Africa

- Implementing digital healthcare project for sustainability of

Nigerian Healthcare sector.

- Implementing digital transformation for sustainable project management in the banking sector in Ethiopia using best practices

Sustainable goals: assignment 2
Topics selected

- Implementing Digital Transformation through Projects in Higher Education with a Sustainability Goal Perspective

- Rethinking the Higher Educational Sector in Kenya

- Digitalization of Higher Education in Ethiopia since the outbreak of the Pandemic (COVID-19)

- Digital transformation for youth employment creation in Zimbabwe: Opportunities and challenges

- Digitally transforming higher education processes: Assessing institutional readiness for learning analytics

Sustainable goals: assignment 2
Topics selected

- Implementing digital upskilling and reskilling of employees as a central approach to digital transformation in South Africa

- The use of big data technology for evidence based food safety

- Reimagining Education for a Sustainable Digital Age: A Speculative Fiction Journey for Swedish Higher Education

Final online seminar

Student presentations and discussions