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Swiss Data Literacy Charter

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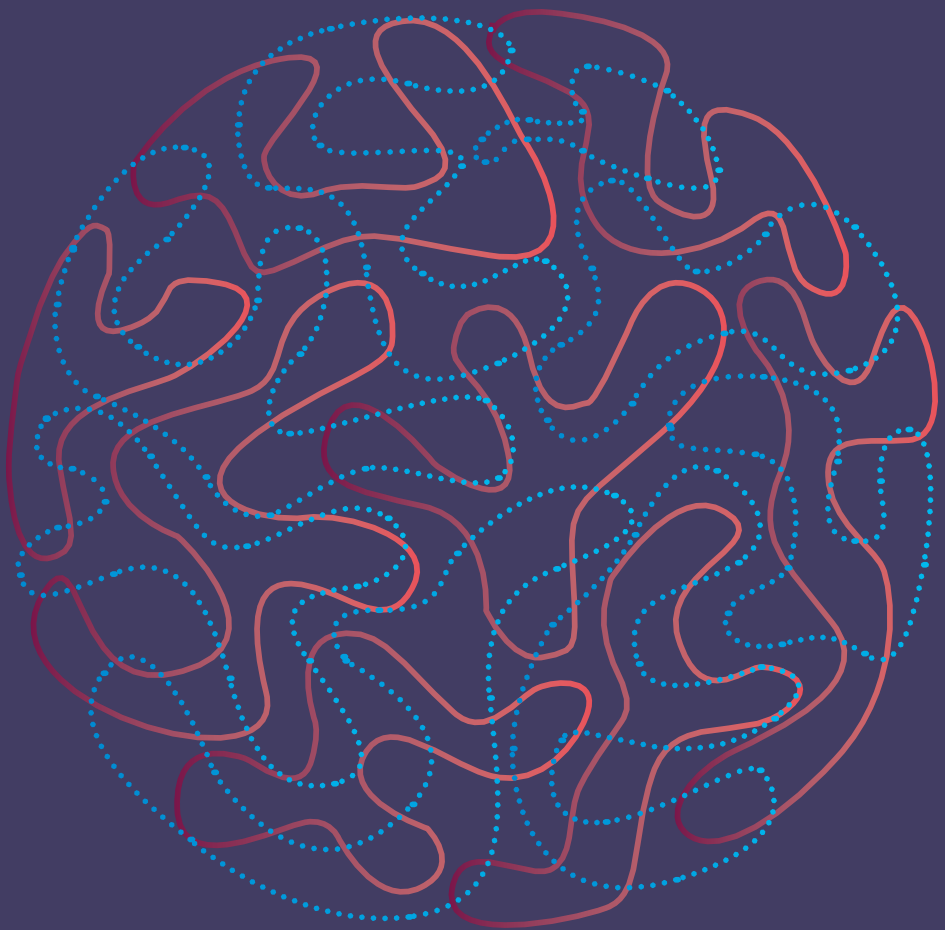

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With this publication, the Swiss Academies of Arts and Sciences contribute to SDGs 4, 5 and 10.

Initial situation

We live in an increasingly interconnected world. Technological change, the dynamics of knowledge dissemination and the need to filter and weight information are constantly demanding new competencies. Progressive digitalization and the implementation of artificial intelligence (AI), in particular, are making solid data literacy essential. It is a key competency of the 21st century.

The Swiss Academies of Arts and Sciences are calling for such data literacy to be promoted in society at large and made accessible to all. Responsible and informed handling of data should be appropriately taught and firmly established at all levels of education and in all relevant areas of society.

This charter serves as a guideline for such promotion of data literacy. The Swiss Academies of Arts and Sciences drafted it together with Prof. Dr. ès sc. Diego Kuonen, Professor of Data Science at the University of Geneva, and Dr. med. Monique Lehky Hagen, Specialist in Internal Medicine, taking into consideration the current state of research and international developments.[i] Kuonen and Lehky Hagen are the initiators of the "Data Literacy – Switzerland" appeal, which was published in July 2020.[ii]

Mission

The Swiss Data Literacy Charter serves as a guiding framework for the creation of a Swiss data literacy culture and for firmly establishing it as a central component of general education in a digitalized world. It involves all actors, from private individuals through researchers to media professionals and policymakers as well as administrative employees and economic operators.

Vision

The aim of the Swiss Data Literacy Charter is to provide the Swiss population with the essential foundations needed for digital self-determination and critical and reflective data use and thus to drive forward a fundamental cultural change in society when handling and using data.

[i] In particular, the German Charter initiated by the German Stifterverband in 2021 served as a basis: Schüller, K., Koch, H. & Rampelt F. (2021). Data-Literacy-Charta. Version 1.2. Berlin: Stifterverband. https://www.stifterverband.org/charta-data-literacy

[ii] https://www.data-literacy.ch/

I. Introduction

What are data?

Data are analogue and digital information units that exist in various formats as numbers, texts, images, videos or audios. People leave behind a diverse range of footprints in the analogue and digital worlds, and those footprints can be captured as data, evaluated and processed into information.

What is data literacy?

Data literacy encompasses the ability to collect, manage, evaluate and utilize data in a critical and reflective manner in their respective context. This is done in compliance with data ethics principles and data protection.

Furthermore, ethical handling of data takes into account economic, social and ecological aspects of data usage. Awareness of one's own digital footprint, which is generated when using IT services, is to be regarded as an equally essential element of data literacy.

Data literacy strengthens self-determination and a sense of responsibility and promotes respectful social and economic participation by everyone, in a world characterized by digitalization.

As data, methods, technologies and practices are constantly changing, data literacy requires a culture of lifelong learning and constant mutual dialogue. Taking a long-term perspective, this goes hand in hand with a continuous exchange between "data producers" and "data consumers".

Data literacy makes it possible to:

- actively participate as a data producer and data consumer in the opportunities afforded by using data;
- handle one's own and other people's data consciously and responsibly;
- critically assess the fundamentals of modern data-based technologies such as AI and utilize them appropriately.

II. Guiding principles

As a key 21st century competency, data literacy is based on five principles. These principles create a common guiding framework for designing forward-looking training and further-training courses and decision-making processes.

1. Data literacy as an asset that is accessible to all human beings

Data literacy serves to promote maturity in a modern, digitalized world and is therefore important for everyone. The aim of teaching data literacy is to ensure that every single individual, and society as a whole, handle data in a conscious, appropriate and ethically-sound manner.

2. Data literacy as a lifelong learning process

Data literacy is embedded in all formal and non-formal areas of education and training and as such is an established part of general education. It is necessary to learn systematically how to collect, evaluate, use and interpret data appropriately for the respective application.

Learners should be enabled to actively and (self-)critically shape data-based cognition and decision-making processes. In doing so, it is also key to develop an awareness of which footprints one leaves behind as a data producer and of what consequences result from this.

If lifelong learning is to become possible for everyone, data literacy programmes are also needed for extracurricular and vocational training and further training. The media also play an important role in lifelong learning: firstly, through best practice and secondly because they improve knowledge by reporting on the topic and help people to be able to form their own opinions.

3. Data literacy should be considered from different perspectives

Data literacy encompasses the following perspectives, which must always be taken into account:

- the socio-cultural perspective: what should I do with data? Data should be used in a way that creates a sustainable benefit for people, society and the environment;
- the legal perspective: what am I allowed to do with data? Data protection and other existing legal regulations on data use must always be taken into account;
- the application-related perspective: what do I want to do specifically with data? Data and data analyses are always collected and implemented for specific applications;
- the technical and methodological perspective: what can I do with data? The available technical and methodological options influence how data is collected and processed and how insights and decisions can be derived from it.

4. Data literacy as the basis for data-based cognition and decision-making

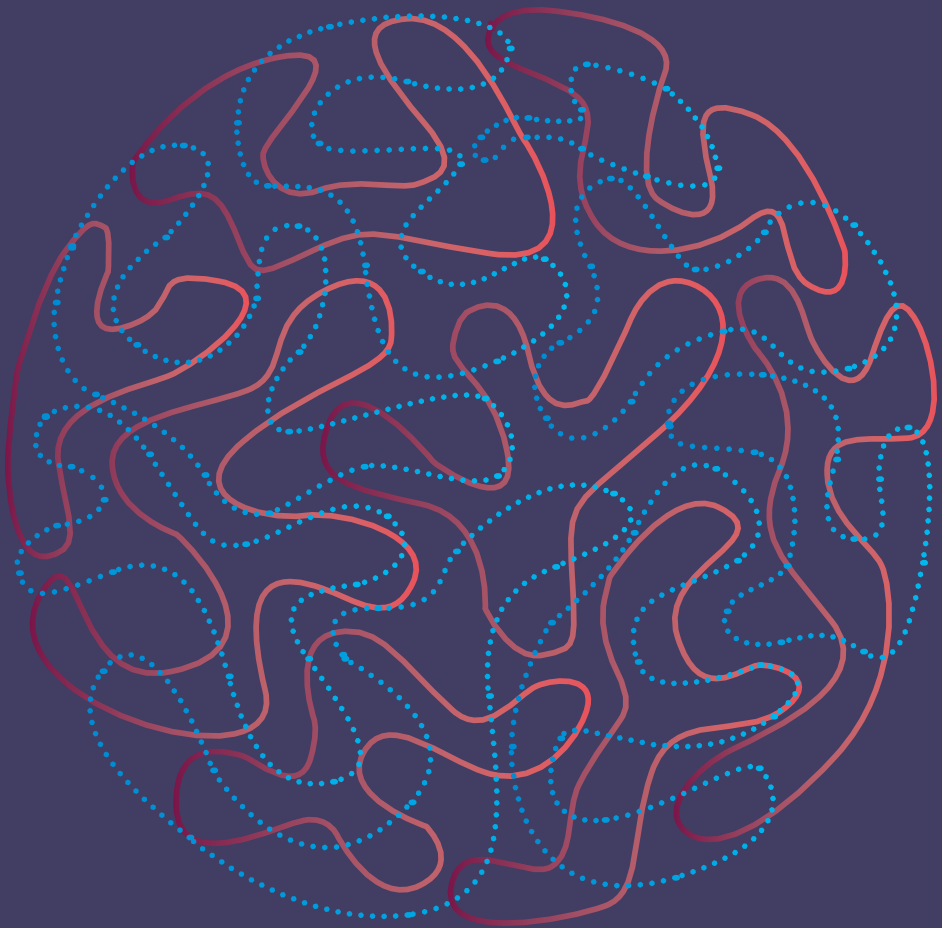
Data literacy encompasses the following aspects, among others, in order to find data-based solutions to real-world problems:

- appropriately collecting, using, disseminating, protecting and critically and reflectively questioning data and interpreting it in an interdisciplinary manner and in an adapted context;
- recognizing and understanding the importance of data quality, in particular evaluating data in terms of its suitability to fulfil a specific purpose;
- classifying data and information obtained from it and, for example, critically and reflectively evaluating AI applications;
- acting in a data-based manner, in the sense of being aware of the need to gain insights and enable decision-making by means of appropriate data.

5. Data literacy is embedded in data ethics

Data ethics is reflected throughout all areas of data literacy. This means that when data are collected, managed, evaluated and used, ethical aspects play an important role throughout and are essential.

Data ethics, together with individual and societal values, make a significant contribution to ensuring that the right goals are pursued and the appropriate technical and methodological means are used for data-based cognition and decision-making.

III. Appeal

The Swiss Academies of Arts and Sciences call on the general public, all relevant disciplines, the media and politicians to initiate, drive forward and implement this change in accordance with the principles laid down in this "Swiss Data Literacy Charter" in their respective contexts. With the "Swiss Data Literacy Charter", the Swiss Academies of Arts and Sciences are contributing to a broad-based, coordinated change in data literacy. This should enable all actors to exchange and use their data in confidence, methodologically, ethically and in compliance with data protection regulations in all areas, for the benefit of an inclusive, participatory and enlightened society.