



Climate impact from digital reading on Readly

– a study by Ethos in January 2023

Introduction

Readly is a digital subscription service where readers across 50 markets have unlimited access to approximately 7,000 national and international magazines and newspapers – all in one app.

Our purpose is to bring inspiration and insight into people's daily lives and unlock meaningful moments of relaxation. Through our work we create value for all our stakeholders – subscribers, publishers, partners, shareholders, employees, the society and the environment. We have taken it upon us to lead the digital transformation of the magazine and newspaper industry, and we want to combine it with environmental and social responsibility.

This study outlines the climate impact of reading digital magazines and newspapers on Readly and what we as a business can do to lower the carbon footprint as digital reading on Readly increases.

Our recent user survey shows a substantial degree of climate consciousness and a high interest for the positive effect of digital reading among our subscribers. In our global survey nearly 8 out of 10 respondents across Europe said that it is important to them that their reading habits are as climate friendly as possible. The research conducted by Ethos on our behalf confirms that digital reading is a climate friendly alternative to the print equivalent.

Many industries are trying to reshape their business models, products and services as quickly as possible in order to lower their climate impact and contribute to a sustainable future. In many cases digitalisation is part of that process. With this calculation we can provide insights about sources of carbon emissions coming from digital reading and data to support the argument that digital reading is a climate-friendly way of consuming magazines and newspapers.

This study is also valuable for everyone working for Readly. Many colleagues have joined us because they want to make a positive impact through their work. We now use the insights from this study for future business decisions and reporting. Managing our environmental impact and fulfilling our responsibilities to the planet is important to us.

We look forward to receiving input from all of you who read this report and to discuss further measures to increase digital readership and thereby contribute to a more sustainable future, not only from a climate perspective, but also from a societal point of view.

During 2022 about 112 million magazines and 34 million newspapers were read on our platform – content that among many things enhances civil engagement, nourishes an open and critical mind, sparks creativity and is both educational and entertaining. We are very proud of these numbers and are strong believers that journalism makes a positive difference in the world.

/ Mats Brandt, CEO Readly

About the study

Readly, together with sustainability consultant Ethos, has explored the level of greenhouse gas emissions that are avoided by reading digitally on Readly's platform – from the publishers' production of magazines and newspapers, to Readly's digital distribution and subscribers' reading on their consumer

devices, compared to the result of a printed equivalent. During 2022, we've updated the methodology by including newspapers and updated emission factors for e.g., electricity. By including newspapers, the results are not completely comparable with last year's, as the study previously only analysed magazines.

Method

The methodology is based on the Greenhouse Gas Protocol Corporate Standard and the Greenhouse Gas Protocol Product Life Cycle Accounting and Reporting Standard.

- Environmental databases (such as DEFRA and Ecoinvent)
- Readly's internal data
- Data from suppliers
- Academic research

Ethos has not conducted a value chain analysis of printed magazines and newspapers. Instead, a previous academic study of the value chain of printed magazines and newspapers has been used as a reference¹. This study is a value chain analysis that includes all the main phases, from production to waste management.

Example of data used that is specific for Readly:

- User data (device used, info about reading session and user country)
- Energy consumption from our operations and data centres
- The number of computers used at our offices
- Business travel

The value chain analysis and the calculation of the levels of greenhouse gases emitted from reading a digital magazine was done in two steps. First, the average number of issues that were read during a session was calculated, and then the amount of greenhouse gases emitted during one session was calculated. From the results from these two steps, it was possible to calculate the greenhouse gas emissions generated from reading digitally on Readly's platform.

When the greenhouse gases emitted from one session were calculated, it had to consider that the device and internet infrastructure are also used for other activities. Therefore, the time the device and internet infrastructure was used for reading a digital issue on Readly's platform served as a basis for calculating the share of the total climate impact that is caused by reading a digital magazine or newspaper.

Furthermore, when calculating the emissions per session, it had to be considered that customers are using their devices, and hence electricity, in markets with an electricity mix that

emits different levels of greenhouse gas emissions. This was done by calculating the amount of energy used on each market and using emission data for the market-specific electricity mixes to derive the greenhouse gases emitted from each market.

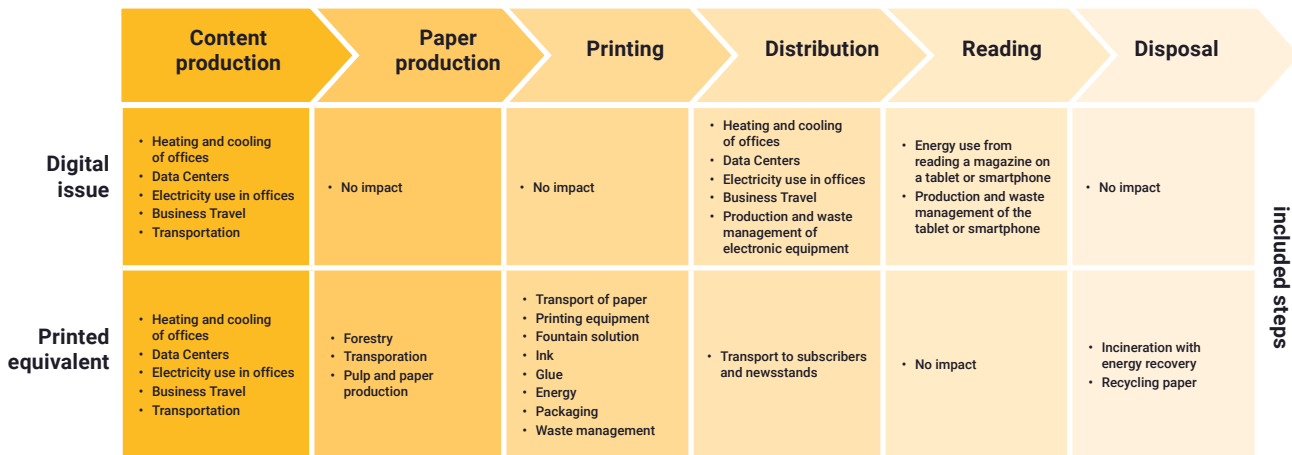
Apart from the different electricity mixes, we've also accounted for the difference in carbon footprints between smartphones and tablets by breaking down the number of sessions between the two formats.

Starting in 2022 and onwards, the study analyses both magazines and newspapers, as it's been added to Readly's content library. Compared to a magazine, a newspaper has a different carbon footprint as well as reading behaviour, which is taken into account in this updated version of the study.

The differences in electricity mixes and reading behaviours might lead to minor yearly differences in emissions avoided per read magazine. However, avoided emissions in total will continue to increase as we expand.

¹Reference: Achachlooei, M A. & Moberg, Å. 2015. Life Cycle Assessment of a Magazine Part II: A Comparison of Print and Tablet Editions. Journal of Industrial Ecology. Vol.19. No.5. pp 590-606.

Climate impact from magazines and newspapers | Method



Phases included in the calculation of carbon emission from reading a digital issue and printed equivalent.

The greenhouse gas emissions from the content production phase, before being printed or digitally available, are based on the same study for the printed and digital issue. All other phases in the value chain of digital magazines and newspapers are based on Ready's business and user activities.

Emissions from physical newspapers and magazines in the phases after content production, e.g. paper production, printing, distribution and disposal, are based on various studies made on the topic^{1 2 3 4}. The figures used in this report are conservative averages.

Data showing yearly emissions that is emitted from Ready's use of AWS is unavailable, so Ethos has made an estimation of 14 tonnes of greenhouse gas emissions based on the amount of data Ready stores.

Some parts of the above described phases are not included due to data unavailability. This estimate includes both energy consumption but also production and disposal of ICT-equipment needed.

The following have been excluded:

- Electronic waste generated from Amazon web services, such as obsolete data servers
- Waste generated at Ready's offices, such as food waste
- Paper used at Ready's offices
- Other kinds of office supplies and furniture used at Ready's offices
- Delivery, commuting and other kinds of travel associated with Ready's operations other than business travel.

1) Pikhola, H. et al. 2010. Carbon footprint and environmental impacts of print products from cradle to grave. Results from the LEADER project (Part 1).

2) Schmidt, J H. & Pizzol, M. 2014. Critical review of four comparative life cycle assessments of printed and electronic communication.

3) Konstantas, A. et al. 2018. Revision of European Ecolabel Criteria for printed paper products. Preliminary report

4) Moberg, Å. et al. 2007. Screening environmental life cycle assessment of printed, web based and tablet e-paper newspaper.

Assumptions

Ethos made these main assumptions due to the unavailability of data. All the assumptions are made based on current knowledge and best practices.

The amount of time an electronic device is used for reading a digital magazine compared to other activities conducted on that device: the average reading time per session on Readly is 18 minutes, but we had to use external research to calculate the relation to other activities that the device is used for.

The type of electronic devices that are used by the reader: Readly data shows that approximately 84 percent use a tablet vs 16 percent that use a smartphone. However, Ethos had to make an assumption around the type of models and brands.

A digital magazine is read once by a unique user, whilst one copy of a printed edition is read several times by different readers – aligned with previous studies: we have been conservative in this assumption in order to not risk overestimating the climate benefits of digital reading.

As our readers often read a combination of magazines and newspapers, we've decided to use an average combined emission for the two types when accounting for digital reading.

A specific Swedish case, based on previous academic research, is used for the content production phase for all markets.

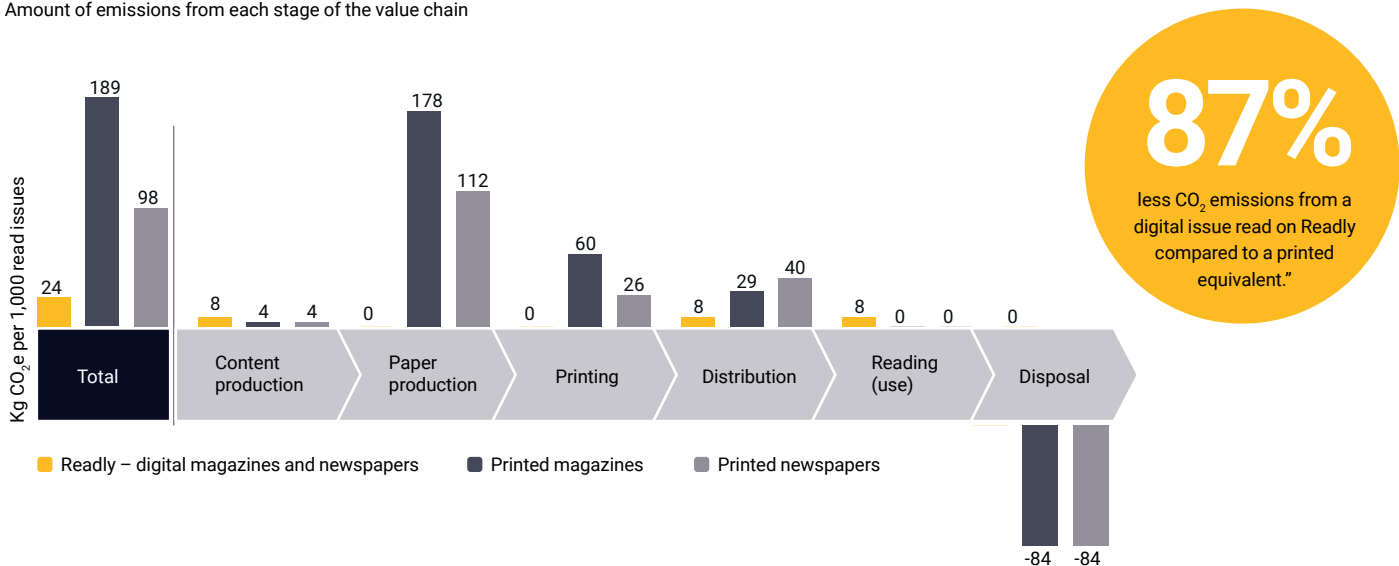


Results & Conclusions

One should always be careful when comparing the results from studies that have used different methods. The studies of printed issues are life cycle assessments while the analysis of the digital issues is a value chain analysis. The studies can be compared, according to Ethos, since the same phases are included.

Climate impact from magazines | Results – Digital vs a printed equivalent

Amount of emissions from each stage of the value chain



»» **The comparison indicates that reading a digital issue on the Readly platform has 87 percent less climate impact than reading a printed equivalent.**

A thousand digital issues read on Readly generates 24 kg carbon dioxide equivalents. The corresponding number for magazines and newspapers in printed format is 189 kg, respectively 98 kg.

Per issue, physical newspapers have a lower carbon footprint compared to physical magazines. There are a lot of factors affecting this, such as paper quality, amount of recycled paper contents and printing methods, where magazines tend to have a thicker paper quality, use of more ink and prints of higher detail.

Besides adding newspapers to the calculation, the climate impact from digital reading has also been adjusted based on a general larger share of renewable energy sources, such as wind and solar, which emit little to no greenhouse gas. The fact that reading on Readly increases in markets that are behind the switch from fossil fuels has on the other hand an opposite effect.

»» **Avoided paper production and printing are the main reasons why reading digitally is better for the climate.**

There are several energy consuming processes behind printing which can be avoided by digitalising magazines and newspapers. Paper production is one of these processes, including forestry, pulp- and paper production and transportation of wood and paper. Other processes are printing and distribution of the final product to subscribers and newsstands.

Paper from raw material is a renewable resource but it takes time to grow trees and the need for wood for other industries will most probably increase, hence why decreasing unnecessary use of wood is good. Many publishers have already committed to increasing the share of recycled and certified paper.

As shown in the chart (picture 2), the emissions differ depending on the type of print, down to the different parts of the value chain. A magazine usually uses more paper, ink and has more complex printing processes, hence the higher emissions in both printing and paper production. On the other hand, a newspaper is usually sent out daily as opposed to a magazine which is often released weekly, monthly or even less frequently, which explains the higher emissions from distribution for newspapers. This is all taken into account when aggregating the overall results of the study.

»» **Disposal of print cuts emissions.**

The waste management of printed issues is shown as a negative value of emissions since this phase has a positive environmental impact. This is because the paper is recycled, which avoids the extraction of virgin resources to produce paper, and therefore avoids some additional greenhouse gas emissions.

» **The production and waste management of the subscriber's device accounts for the most emissions from digital reading, followed by the subscriber's access to and use of the internet's infrastructure.**

Ethos has not included the whole climate impact from producing and disposal of a customer's devices since the proportion of time used for digital reading is low compared to other activities. 18 minutes is the average reading time per session on Readly, but external research had to be used to calculate the relation to other activities that the device is used for. This figure is an average of both newspapers and magazines.

The percentage of climate savings per digital issue is affected by whether the reader has used a tablet or mobile, where the latter has a higher climate impact than the former.

It is relevant to also highlight that producing electronics does not only cause carbon dioxide emissions but also has a large social and environmental impact. The latter is primarily from the mining and processing of virgin materials and from the assembling of the products. The process of extracting metals is polluting the local environment and some of the minerals needed are sourced in mines controlled by armed groups, financing conflict in several parts of the world (called conflict minerals). The production also has other challenges such as the use of hazardous substances such as flame retardants and softeners.

» **Business travel and selection of data centres is under Readly's own influence and material areas.**

Readly encourages video conference calls instead of travel, and any travel and transport should be as far as possible by environmentally friendly alternatives to minimise environmental impact.

Amazon Web Services (AWS) is used by Readly for storing data and has servers in Ireland. Readly's operations are fully powered by renewable power from AWS's wind power farms located in Donegal and Cork. There is also an ongoing discussion between Readly and Amazon about what measures can be done to further optimise energy efficiency related to data storage and distribution.

» **As digital reading has lower climate impact than printed equivalents a total of nearly 16,600 tonnes of greenhouse gas emissions have therefore potentially been avoided.**

This is equivalent to the emissions of producing and recycling over 270,000 iPhones⁵.

112 million magazines and 34 million newspapers were read digitally on Readly's platform during 2022.

Please visit <https://corporate.readly.com/about-us/sustainability/> to find out more about sustainability at Readly.

5) https://www.apple.com/environment/pdf/products/iphone/iPhone_14_PER_Sept2022.pdf

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About Readly

Readly is the European category leader for digital magazines. The company offers a digital subscription service where customers have unlimited access to 6,900 national and international magazines – all in one app and at a fixed monthly fee. Readly has subscribers in 50 countries and content available in 17 different languages. In collaboration with around 1,200 publishers worldwide, Readly is digitising the newspaper and magazine industry. In 2022, revenues amounted to SEK 592 million. The Readly share is listed on Nasdaq Stockholm. For more information, please visit <https://corporate.readly.com>



About Ethos

Ethos is a consultancy bureau founded in 2007 that specialises in sustainable business development. We offer expertise in the sustainability areas of human rights, labour rights, environmental impact and anti-corruption. We offer a wide range of services such as strategic advisory, sustainability reporting and data analysis, ESG due diligence, as well as supplier audits and training.

