

Climate change impact of electronic media solutions

Case study of the tablet edition of a magazine

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Interior design magazine in Sweden

14 issues / year

163 MB / copy

3 years, for life time of tablet

16 hours / week, for overall use of tablet

System boundary

Content production

district heating and cooling, electricity, office paper, production and transportation of electronic office equipment, business trips, transportation by delivery firms, and studio photo sessions

Electronic distribution

modem, router, access network, internet infrastructure, data centre, and operator activities

Reading on tablet

production, distribution and disposal of the tablet, and electricity use for reading the magazine on the tablet



Method

Life cycle assessment

ISO 14044

SimaPro

ReCiPe for impact assessment

Specific data from the product's supply chain

Generic data from Ecoinvent

Two versions of tablet edition

	Copies / issue	Reading time
Emerging version	158	9 (min / copy)
Mature version	46 679	41 (min / copy)

Two versions of tablet edition

	Copies / issue	Reading time
Emerging version	Few copies	Low
Mature version	= current print / 2	= print

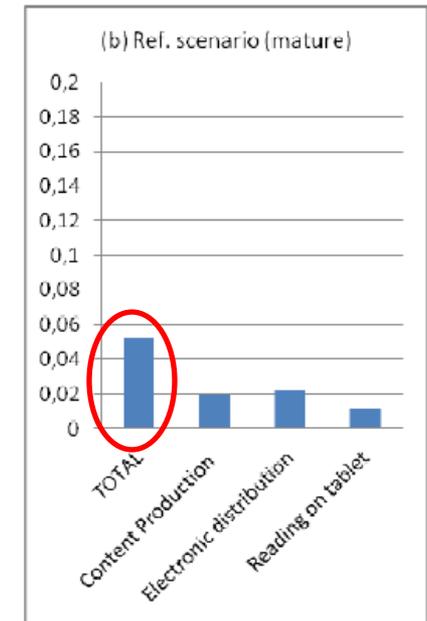
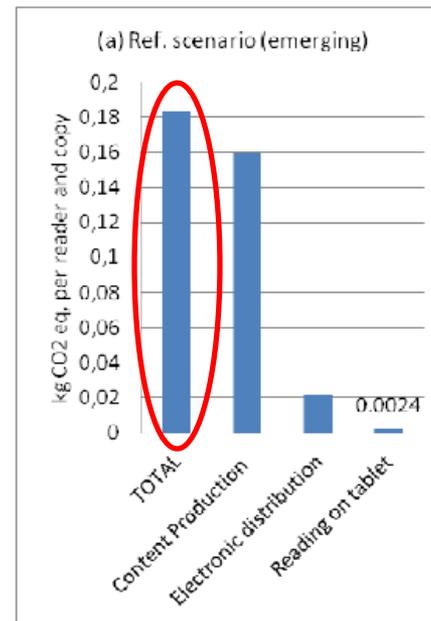
Allocation

Share of overall content production allocated to the tablet version

Emerging version	1.7 %
Mature version	50 %

Results

The overall impact (per reader and copy) of mature version was less than half that of the emerging version.

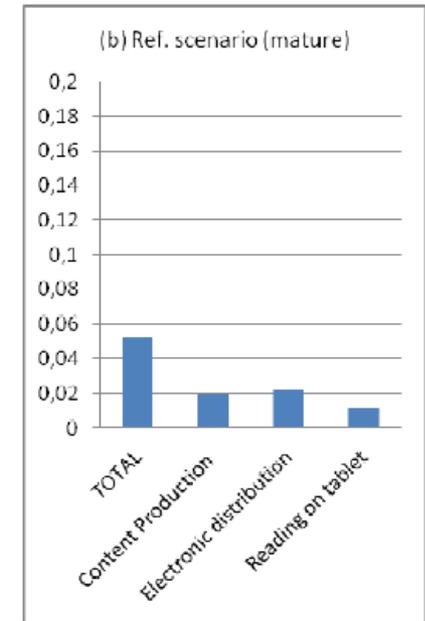
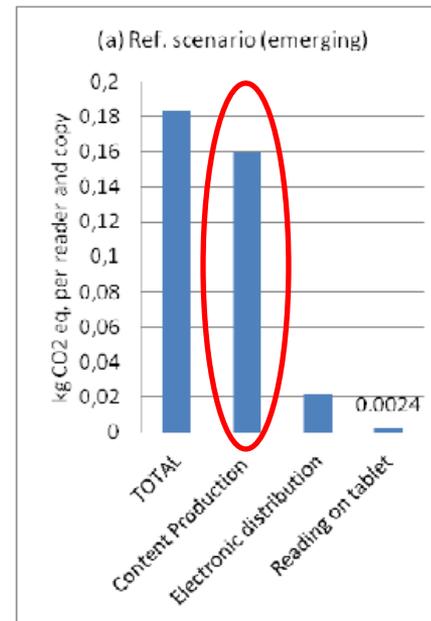


Results

Emerging version

The impact of content production, which is usually a smaller share for print media played a major role, making an approximately 85% contribution.

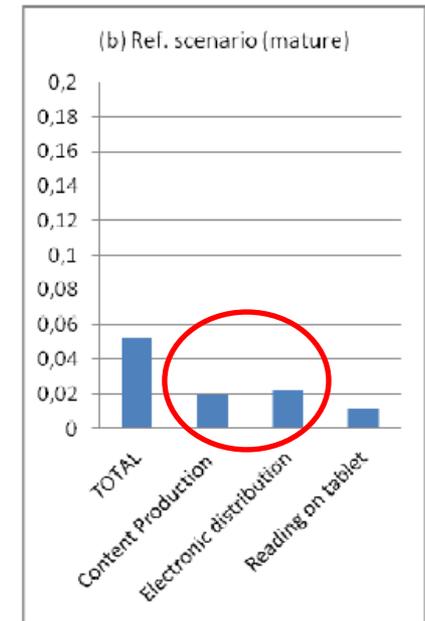
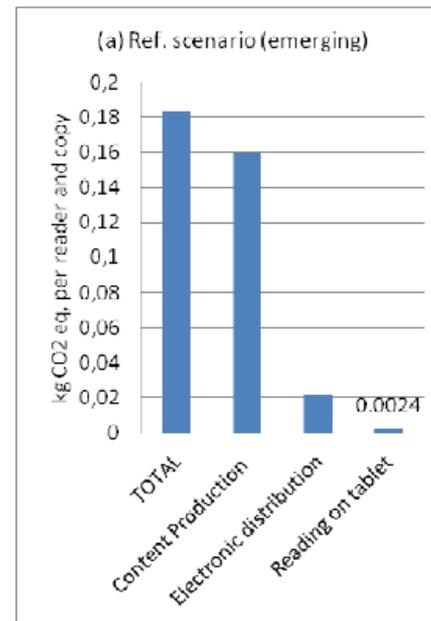
This was due to the impact related to content production activities specific for the tablet edition being split between few copies.



Results

Mature version

The electronic distribution and content production were the major contributors to the climate impact.

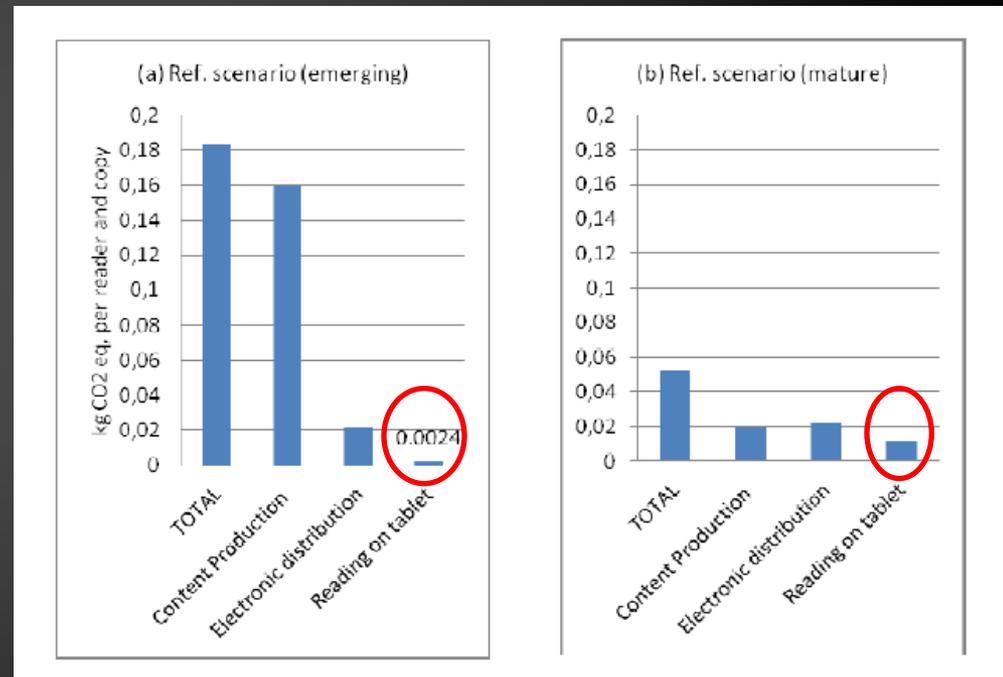


Discussion

Use of the device

was not the main contributor to potential impact in this assessment, unlike in previous studies where other electronic devices have been used for the electronic media.

The assumption on overall use of the tablet device was uncertain and will differ between users.

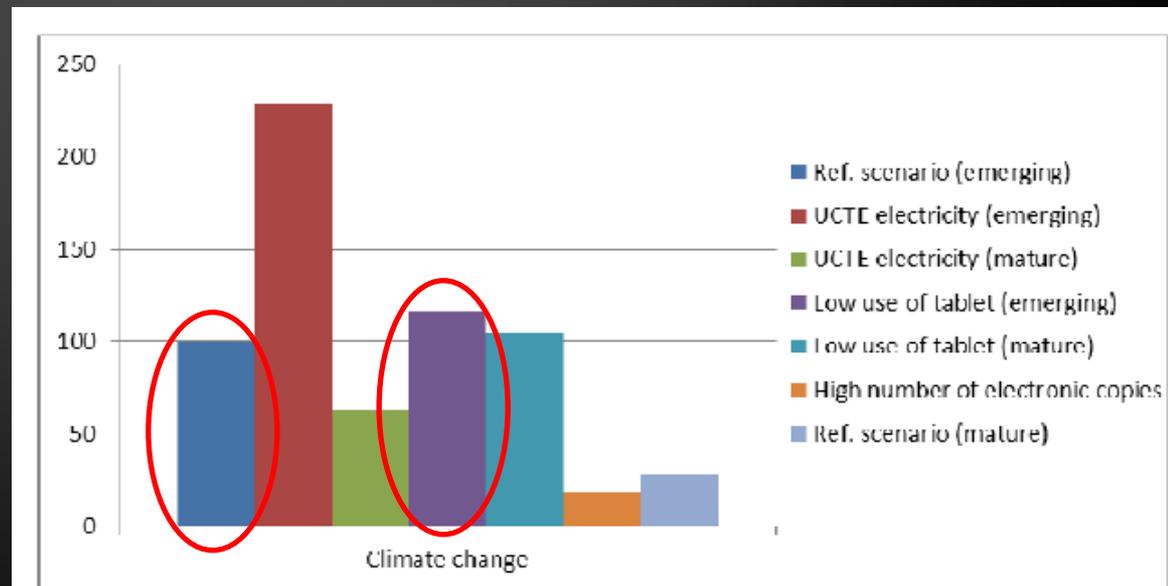


Sensitivity analysis

Low use of one hour per week use for three years

Emerging

The impact was not much changed.



Sensitivity analysis

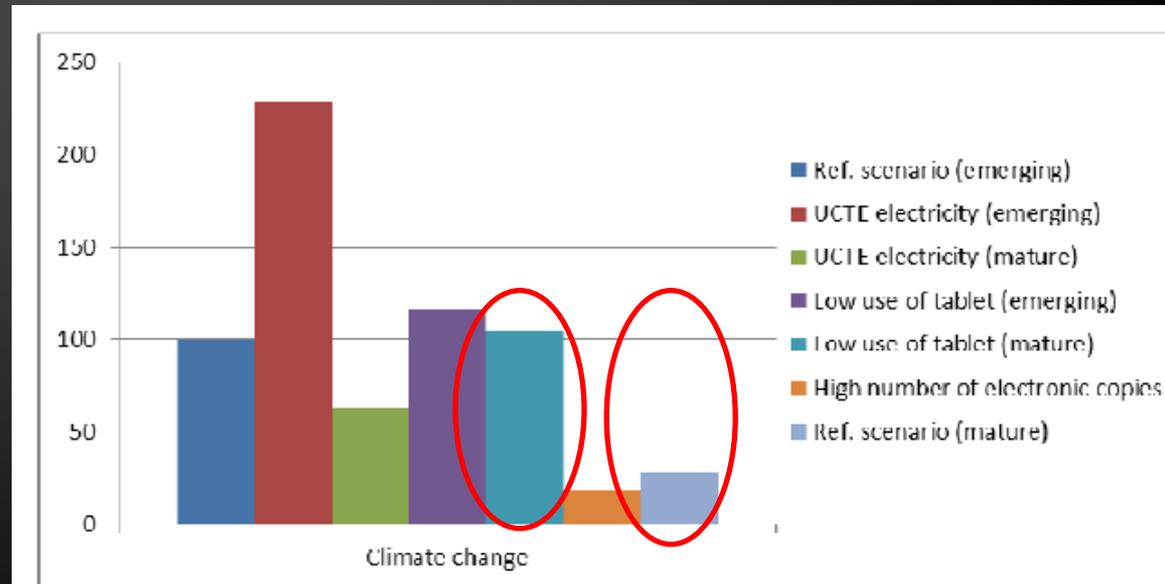
Low use of one hour per week use for three years

Mature

The increase was considerable (360%).

Use phase became the major contributor to the impact (nearly 80%).

This emphasises the need to use electronic devices efficiently and also to avoid upgrading to new versions too often.



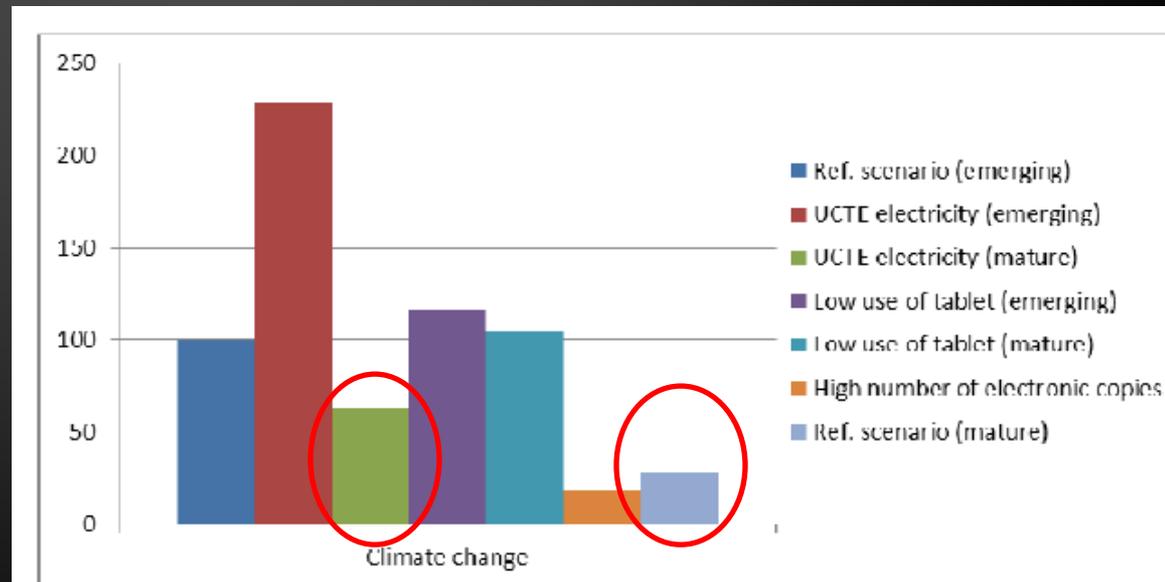
Sensitivity analysis

Changing from Swedish to a European average electricity mix (UCTE)

would increase the potential impact of tablet magazine.

For example, the impact of the mature version increased by more than 550%.

Electricity mix was an important factor that clearly influenced the overall results.



Conclusion

With few readers, the emerging tablet version had a higher potential climate change impact per reader than the mature tablet version, although the latter had a substantially longer reading time per copy.

Key factors influencing the overall results for the potential climate change impact of the tablet magazine proved to be number of readers, electricity mix used and overall use of tablet.

Questions?

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Sensitivity analysis

Changing from Swedish to a European average electricity mix (UCTE)

Table 2. Sources of electricity in Swedish and UCTE mix [11]

Electricity source in Swedish mix	Share (%)	Electricity source in UCTE mix	Share (%)
Nuclear, domestic	46	Fossil	51
Hydropower, domestic	36	Nuclear	32
Finnish mix, import	4.3	Hydropower	11
Natural wood chips, domestic	4	Pumping storage (“pumpspeicherung”)	1.3
Danish mix, import	1.5	Renewables	3.1
Norwegian mix, import	1.4	Waste	1.4
Polish mix, import	1.4		
Oil, domestic	1.2		