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EDITED AND REVIEWED BY
Sylvia Lorek,
Sustainable Europe Research
Institute, Germany

*CORRESPONDENCE
Myriam Ertz
✉ Myriam_Ertz@uqac.ca

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Editorial: Meeting of giants: How can technology and consumption team up for sustainability?

Myriam Ertz^{1*} and Leila Elgaaied-Gambier²

¹LaboNFC, Department of Economics and Administrative Sciences, Université du Québec à Chicoutimi, Saguenay, QC, Canada, ²Department of Marketing, Toulouse Business School (TBS), Toulouse, France

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Editorial on the Research Topic

[Meeting of giants: How can technology and consumption team up for sustainability?](#)

This Research Topic entitled “*Meeting of giants: How can technology and consumption team up for sustainability?*,” published in *Frontiers in Sustainability*, aims at underscoring the various contributions of technology to responsible consumption and sustainability. As such, a total of seven papers investigated the topic from a host of different angles, sectors, research paradigms, and methodologies. The published studies contribute to reshaping our views on how technology might (or might not) contribute to sustainable consumption.

First, [Sun et al.’s](#) study advances our knowledge of the gamification of sustainable consumption. They find that gamification apps use game elements and game mechanism frameworks to build a new sustainable consumption context for users, which breaks the boundary between reality and virtuality while enabling users to gain real-life value for their behavior in the virtual world (e.g., points, vouchers). Furthermore, trust and social interactions strengthen the sense of connectedness and interaction, which contribute to enhancing the user’s motivation for sustainable consumption.

In addition to gamifying the sustainable consumption process, technology might also infuse social norms among consumers. [Siepelmeier and Otterbring’s](#) field experiment shows that exposure to a social norm-based intervention delivered through a smartphone app enhances social identity and capital. Technology-enabled norms may not only create sustainable responses immediately but may also play a pivotal role in shaping more sustainable communities in the long run.

Related to the notion of social norms, it is also possible to use social propaganda and guidance policies through digital technology to nudge consumers into sustainable behavior. Using a regression-based analytical approach on survey data from China’s urban residents, [Yang and Sun](#) show that social propaganda and guidance policies influence public green travel willingness through public green travel attitude, subjective norm, and perceived behavior control, as well as travel willingness, although the mediation of subjective norm is weaker.

E-commerce platforms also contribute increasingly to the promotion of sustainable consumption by using sustainability labels (i.e., ecolabels) as nudging instruments. But these can be misleading when they are not credible third-party verified sustainability labels.

By reviewing sustainability information of nearly 17,000 fashion products of leading online fashion retailers in Germany (i.e., Zalando, Otto), [Gossen et al.](#) find that although a large number of products are tagged as “sustainable,” two-thirds carry a private label, one-third a third-party verified label, and only 14% of the tagged products present credible third-party verified sustainability labels. These partly explain consumers’ heightened skepticism toward ecolabeling and underscore the need to better regulate this practice for meaningfulness and accuracy for the consumer side.

Different types of home appliances are also increasingly geared toward sustainable objectives. For example, electric air heat pumps (ASHPs) appear to be a pivotal technology in decarbonizing space heating in residential buildings. Given the currently small market share of this type of appliance, [Pardy et al.](#) explore the potential future of this market in North America. Using a subset of the Canadian Home Heating Survey, they find that after respondents read technical information about home heating systems, about 10% of heat pump non-owners shift from being late entrants to being early mainstream buyers, but it is challenging to convince early adopters to be even more willing to adopt the ASHP.

On another note, as new trends are continuously emerging, [Lefèvre et al.’s](#) fine conceptualization results in a typology of trends characterizing technological innovation to constitute a coherent framework. Their work contributes to identifying and formalizing (1) the terminology regarding each trend, (2) related concepts that should be considered to theorize the relationship between technological innovation and (un)sustainable consumption patterns, (3) the main drivers that sustain these trends, (4) interactions between these trends, and (5) societal consequences on material and energy consumption and waste management.

Finally, despite the significant emissions of ports, this sector has stark resistance to creating greener and smarter ports. Hence, instead of a fundamental shift in operations, [Peoples et al.](#) suggest addressing different areas one-by-one to improve port operations’ efficiency overall. They suggest doing so by ensuring high employee morale and satisfaction through improved control over operations. This improved control can be made possible by rolling out sensors

supporting an Internet-of-Things (IoT) architecture across a port. In addition, this should facilitate the tracking of staff efficiency and satisfaction through a connected service made available using service level agreements (SLAs). This paper is important for the overall topic as it highlights how nurturing employee morale and satisfaction through improved control facilitates technology adoption for smarter and more efficient operations. This shows how cultivating high morale and satisfaction within consumers could also lead them to higher acceptance of novel processes and technology which could ultimately be beneficial for more sustainable consumption.

Leila Elgaaied-Gambier and Myriam Ertz, both the co-editors of this Research Topic, wish you an excellent and insightful reading of those interesting papers.

Author contributions

ME wrote the editorial. LE-G revised the editorial. ME and LE-G edited the papers published in the Research Topic. Both authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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