The Sustainability of Electronic Textiles

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Textile waste
300 kilotones of clothing sent to landfill in 2016 (WRAP, 2017)

Electronic textiles:
applications in fashion, sport, medicine, defence, leisure

‘A hybrid product that will likely exacerbate sustainability issues and complicate end-of-life treatment before manufacturing technology, legislation and infrastructure are sufficiently able to handle even traditional electronic or textile products.’ (Köhler, 2013)

Electronics waste
The fastest growing waste stream (Robinson 2009)
UK 2015: 2,001 kilotones of electrical and electronic goods marketed (WRAP, 2016, p. 27)

How can design, use and disposal of electronic textiles waste be made sustainable?

Survey on disposal of electronics
Batteries are a source of hazardous substances

Do you recognise this symbol?

- Yes 27.6%
- No 65.5%
- Not sure

58 respondents
34.5% do not know or are unsure about the meaning of the crossed wheelie bin symbol. Initiatives are required to ensure that batteries are disposed of correctly. Further work required to ensure that electronic textiles are disposed of correctly.

Teardown of electronics from a Christmas jumper

A sealed circuit board to provide light and sound

Batteries not replaceable

‘Extant eco-design principles ... can be adopted from the electronics and the textiles sector but they must be further developed so as to fit with the specific properties of e-textiles.’ (Köhler, 2013)

Next steps
- Further teardowns, including the Levi’s® Commuter™ Trucker jacket
- Analysis of E-textile components
- Interviews with waste disposal experts
- Workshops on design and disposal
- Development of design and disposal guidelines for electronic textiles

Survey on disposal of electronics
More: a source of hazardous substances

References


Acknowledgement: Funding from the Nottingham Trent University Sustainable Futures Seedcorn Research Fund