

Implications of Circular Economy on Users Data Privacy: A Case Study on Android Smartphones Second-Hand Market

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Abstract : Modern electronic devices, particularly smartphones, are characterised by extremely high environmental footprint and short product lifecycle. Every year manufacturers release new models with even more superior performance, which pushes the customers towards new purchases. As a result, millions of devices are being accumulated in the urban mine. To tackle these challenges the concept of circular economy has been introduced to promote repair, reuse and recycle of electronics. In this case, electronic devices, that previously ended up in landfills or households, are getting the second life, therefore, reducing the demand for new raw materials. Smartphone reuse is gradually gaining wider adoption partly due to the price increase of flagship models, consequently, boosting circular economy implementation. However, along with reuse of communication device, circular economy approach needs to ensure the data of the previous user have not been 'reused' together with a device. This is especially important since modern smartphones are comparable with computers in terms of performance and amount of data stored. These data vary from pictures, videos, call logs to social security numbers, passport and credit card details, from personal information to corporate confidential data. To assess how well the data privacy requirements are followed on smartphones second-hand market, a sample of 100 Android smartphones has been purchased from IT Asset Disposition (ITAD) facilities responsible for data erasure and resell. Although devices should not have stored any user data by the time they leave ITAD, it has been possible to retrieve the data from 19% of the sample. Applied techniques varied from manual device inspection to sophisticated equipment and tools. These findings indicate significant barrier in implementation of circular economy and a limitation of smartphone reuse. Therefore, in order to motivate the users to donate or sell their old devices and make electronic use more sustainable, data privacy on second-hand smartphone market should be significantly improved. Presented research has been carried out in the framework of sustainablySMART project, which is part of Horizon 2020 EU Framework Programme for Research and Innovation.

Keywords : android, circular economy, data privacy, second-hand phones

Conference Title : ICCEB 2018 : International Conference on Circular Economy and Bioeconomy

Conference Location : Paris, France

Conference Dates : March 15-16, 2018