



The Digital Transformation Centres (DTC) Initiative was introduced in September 2019 as a collaboration between the International Telecommunication Union (ITU) and Cisco. Its main purpose is to enhance the digital skills and capabilities of individuals, especially those in underserved communities, across various countries. The selected DTCs form a global network of institutions that aim to expedite the adoption of digital technologies among citizens. Additionally, the initiative strives to empower young entrepreneurs and small and medium-sized enterprises (SMEs) to thrive in the digital economy.

This Guide aims to provide an understanding of the key considerations and components for e-waste management in ITU's Digital Transformation Centers. The Guide provides a roadmap to build or fine-tune an organizational strategy to ensure the responsible usage of electronic and electrical equipment (EEE) and the correct channelling of the EEE at its end-of-life as e-waste, ultimately leading to a more sustainable future.

Global e-waste flows that are not documented

Global e-waste generated

Global e-waste documented to be collected and properly recycled



# Background

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Additionally, e-waste components offer a high potential for material recovery. Only 10-billion-dollar worth of the estimated USD 57 billion in raw minerals, such as silver, copper, and gold contained in e-waste was recovered in 2019 ([Forti et al., 2020](#)). This is especially relevant now as crucial material supply chains are becoming more and more vulnerable.

Fig 2: Mate 2:

Small and large consumers play a key role in e-waste management as they determine the use phase of EEE and if/how it is diverted into the proper end-of-life channels. The DTCs by their very nature are small to medium-sized consumers of EEE. Through training and engagements with communities across DTC countries, each DTC also has the opportunity to create awareness and action to help reduce this quickly growing waste stream.



It was estimated that there were around 10 million metric tons of hoarded electronics in the EU, with an estimated value of €42 billion ([European Parliament, 2017](#)). In Africa, the collection and recycling figure stands at 0.9% ([Forti et al., 2020](#)).

Governments play a key role in a circular electronics value chain by setting up regulations and monitoring the system to ensure that stakeholders such as producers and recyclers work together to ensure that e-waste is properly disposed of. However, it is crucial that e-waste management protocols are set up in-house in organizations such as DTCs to ensure that every consumer plays their part.

EEE is generally divided into 54 different product categories that are grouped into 6 general categories as seen above ([Forti et al., 2018](#)).

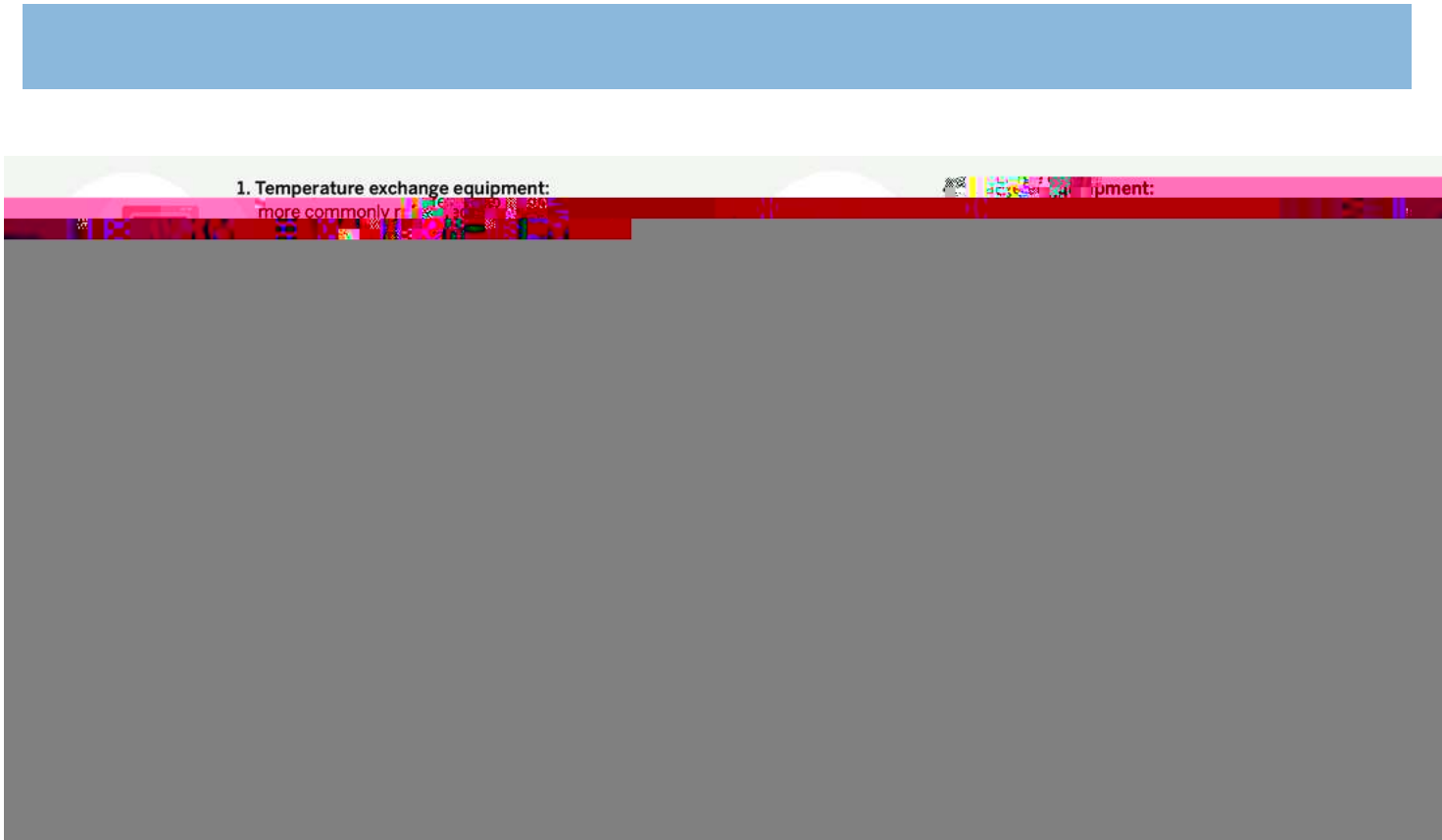


Fig 4: Six gener



In a circular econom



The following chapter lays out practical tips and guidelines for DTCs to adopt in their e-waste management strategies. Using the e-waste hierarchy as a starting point, the chapter identifies best practices to lower EEE consumption, extend EEE life and make sustainable decisions when the EEE reaches its end of life. Using examples from DTCs, the chapter also loofrt



Is your DTC affiliated with an  
organizational

In the waste hierarchy, the prevention of e-waste is the most effective and environmentally responsible approach. By implementing measures before acquiring more EEE, we can significantly reduce the generation of electronic waste, leading to a more sustainable future.

Before purchasing new electronic devices, conduct an audit of existing devices to determine which devices are still functional and meet your needs. This can help prevent the purchase of unnecessary new devices. If the DTC is affiliated with a large organization, check for usable devices currently in storage to avoid unnecessary purchases.

Several DTCs already share space and devices with computer labs in universities, or local community centres etc. rather than procuring their own EEE. This not only ensures that new devices are not procured, but DTCs can also plug into existing maintenance and repair facilities in these organizations or can introduce such facilities to extend the life of EEE.

According to the leasing model, instead of purchasing a device outright, a consumer can lease it for a set period, paying a fee to use the device during that time. Once the lease period^

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# Practical guidelines



When EEE reach their end-of-life and are <sup>de</sup>re <sup>de</sup>



# Practical guidelines

It is always a good choice to check whether the government registers official e-waste recyclers as these companies will have to pass sustainability azl

# Practical guidelines

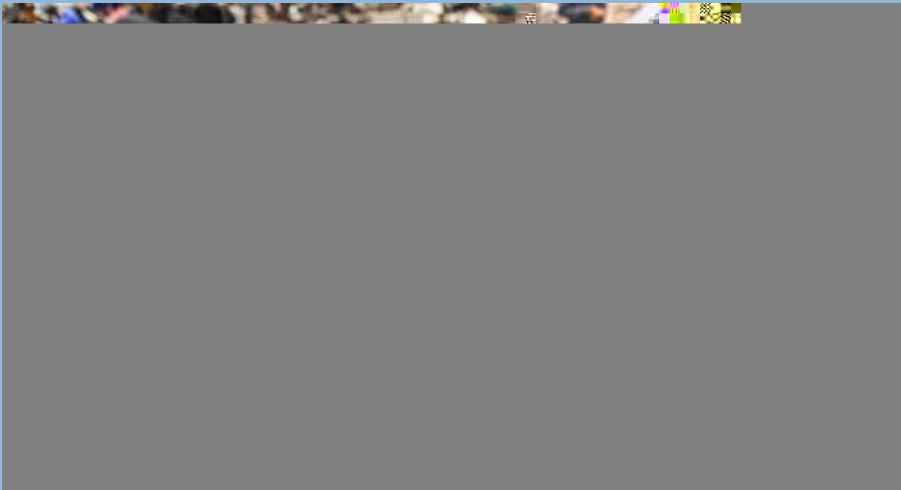


Fig 9: Informal sector in Ghana (ITU, 2020)

While procuring electronics for the DTCs, buyers should keep sustainability as a consideration. In the DTCs EEE are usually procured through government-regulated procurement procedures, donations or general procurement.

Circular and sustainable procurement is a key step in ensuring that the generation of e-waste is addressed during the purchase of ICTs. This entails considering the generation of positive environmental and societal impacts and stimulating the circular economy while



# Practical g

# Practical guidelines

for handling devices, troubleshooting common issues, and reporting malfunctioning devices.

With the objective of supporting countries to strengthen the digital capacities of citizens, DTCs should include a learning component on the awareness of the circular economy for electronics and the sustainable use of electronics as a priority in their programs. This could be programmed in conjunction with the training for the proper use of EEE.

This component should include information on:

- Definition and types of EEE.
- Environmental impact of improper disposal.
- Health risks and social implications of improper disposal.
- Consumer responsibility - include information on proper usage and life extension.
- Responsible disposal options for consumers - include the waste hierarchy as a learning material.

The MOOC includes online learning materials on the e-waste challenge featuring audio, video, and links to a range of online updated resources to explore the topic. All the materials have been endorsed by international e-waste specialists and experts.

Explore the MOOC [here!](#)

The course delves into the critical issue of e-waste on a global scale. It aims to provide a comprehensive overview of the issue, incorporating the latest statistics and legislative developments.

Register to the course [here!](#)

# Conclusion

Implementing an e-waste strategy in DTCs is an important step towards promoting environmental responsibility, reducing electronic waste, and demonstrating a commitment to sustainable practices. Establishing a strategy allows tracking of progress and accountability within those that are directly responsible for the EEE use.

By following the roadmap outlined in this Guide, DTCs can develop or fine-tune a comprehensive plan that addresses the challenges associated with e-waste management.



DTCs can prevent e-waste by conducting audits of existing devices before purchasing new ones and sharing resources with other organizations. They can also consider leasing devices, that can ensure proper sustainability measures for disposal.



Extending the life of electronics is crucial, and DTCs can achieve this by keeping devices clean and well-ventilated, protecting them from spills and power surges, updating software regularly, and scheduling maintenance checks.



DTCs should assess faulty devices for repair opportunities before disposing of them, and consider designated repair partners for more efficient diagnoses and repairs.



Before reselling devices, DTCs must ensure they are fully functional and securely erase all data.



Exploring educational and DIY projects or parts harvesting can repurpose old electronics, extending their useful life.



DTCs need to identify appropriate e-waste recycling channels based on government regulations and registered e-waste recyclers that comply with sustainability criteria.

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