The Waste Cascade in Dell Reconnect With a Focus on Plastic Packaging

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EXECUTIVE SUMMARY

The Dell Reconnect program is a clear example of a how the circular economy aims at social development and inclusion through a tripartite of strategies consisting of reuse, refurbish, and recycle. Hence, this chapter explores the peculiarities of the circular economy implemented by Dell Reconnect, as well as all unexploited areas, such as the adoption of public funds and the use of digital technologies for smart circular economy systems.

THE DELL RECONNECT PROGRAM

The Dell Reconnect project is a partnership between Dell and Goodwill agencies spread across the US, which target the recycling of electronics (Maranesi and De Giovanni, 2020). The US consumers can drop off all non-used electronics at Goodwill location. See Ramani and De Giovanni (2017), Jalali et al. (2022), and De Giovanni and Ramani (2017) for a full description of the Dell Reconnect case.

The workers analyze and evaluate the electronics and then decide what to do with it: resell it as is, refurbish, resell, or recycle. Consumers receive

a rebate proportional to the electronics' conditions (De Giovanni, 2022). Goodwill makes the environment cleaner and creates green jobs, which implies an overall analysis of the social and environmental implications of Dell Reconnect and all complementary aspects of the business model (Jalali et al., 2020).

Indeed, Dell and the Goodwill Agencies require to identify coordination mechanisms to reach common goals. Several mechanisms have been suggested in the literature to manage such types of relationships (Sacco and De Giovanni, 2019; De Giovanni, 2016). According to the territory to reach, the network of relationship to close the loop can be organized in several ways (for an overview, see De Giovanni and Zaccour, 2022). In fact, as demonstrate in Vishkaei et al. (2021), the optimization of a network that is supposed to manage both forward and reverse activities can be very difficult to optimize, especially when several types of performance indicators are involved (De Giovanni and Vinzi, 2014).

Dell Reconnect and the Waste Cascade

When each item arrives at a Goodwill location, it is checked and positioned inside the waste cascade. The returned items can either be reused, refurbished, or recycled. The items can be classified as *Reuse,* when the electronics are in good conditions and ready to be reused. Instead, the items can be classified as *Refurbish,* when they require an upgrade. If electronics belong to these clusters, they can be resold in a Goodwill location. Otherwise, they are classified for *recycling* activities. A summary of these options is displayed in Figure 1.

By implementing this circular economy strategy, Dell Reconnect enables avoided 1 billion pounds of e-waste every year from the landfill through 2019, which is equivalent to 2,000 jumbo jets, while fixing high-level targets from 2020 onward. Beside the environmental benefits, the circular economy system contributes to the purpose of Goodwill's agency goal, which is putting people back to work. Indeed, the quality of returns makes the difference since their classification is highly linked to the return's residual value and, furthermore, the possible connection with the brand value (De Giovanni, 2020). According to De Giovanni (2021), the return residual value can be checked and monitored using digital technologies, to ensure a systematic verification of the items' conditions (De Giovanni, 2021).