

## Actions delivery operators can take to reduce environmental impacts of online shopping and last-mile deliveries

If carried out in an efficient manner with sustainability in mind, online shopping has the potential to reduce total shopping-related transport activity and its associated environmental impacts including greenhouse gas (GHG) emissions and local air pollution. Online shopping can also result in other environmental, social and health impacts related to packaging use and waste, international freight transport including air freight, computing and building energy use, and the behaviour and treatment of last-mile delivery personnel.

Improvements in existing online shopping and last-mile delivery strategies and operations require behaviour-change among the various stakeholders involved, including delivery operators, consumers, retailers, and policy makers. Delivery operators have an important role to play in reducing the environmental and other negative impacts of online shopping and deliveries, with many actions that can be taken to help achieve this which meet financial as well as environmental criteria. This set of actions for policy makers comes from 'Online Shopping and Last Mile Delivery' which is available at: <http://www.csrf.ac.uk/publication/future-mapping/>.

- Devise, implement and monitor the impacts of **sustainability and decarbonisation plans for last-mile delivery operations**
- Work with retailers to **reconsider whether same day and instant delivery services are appropriate.**
- **Provide consumers with real-time delivery information** to reduce failed deliveries/redeliveries.
- Offer and promote **agnostic collection point services and locker bank networks** located for ease of consumer use by non-car modes.
- **Use IT-based routeing and scheduling** to assist drivers in reducing distances driven.
- **Make use of grid coordinates of delivery locations** provided by customers in vehicle routeing tools (especially for the specific entrance point of commercial addresses).
- **Provide enhanced training to last-mile delivery workers** (including efficient and safe driving behaviours, avoiding resident disturbance) and for inexperienced multi-drop parcel drivers (e.g. for vehicle loading, kerbside stopping locations).
- **Use zero emissions vans and other clean delivery modes** where possible.
- **Use walking porters and electric cargo bikes in dense urban areas** to reduce environmental impacts of delivery; use of walking porters for parcel delivery may allow vehicle fleet savings.
- **Use bicycles rather than fossil-fuelled mopeds and cars for ready-to-eat meal deliveries.**
- **Establish and use micro logistics hubs** to facilitate use of clean vehicles and walking porters.
- Further **investigate the use of pavement drones and aerial droids** for future last-mile deliveries.
- **Work with other last-mile delivery operators to share loads and micro logistics hubs/depots.**
- **Pay self-employed workers and contractors by time period rather than per delivery** to ensure at least the minimum wage.
- **Improve working conditions for self-employed pickers/packers and drivers** (insurance, sick pay, holiday entitlement, protective clothing, vehicle arrangements).
- **Join and provide operational data to sustainable last-mile delivery**

**certification schemes** (if and when they exist).