Resource-efficient business models in times of pandemics

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Research in sustainable production and consumption focuses on sustainable business models, which describe how a firm provides value to customers, connects to suppliers and acquires resources in a profitable and environmentally sustainable manner. Business models configured for the circular economy receive particular attention, because of their potential to reduce resources consumption, generation of exhaust materials and plastic pollution. Examples of such business models are known as Product Service Systems (PSS), systems of products, services, networks of actors and supporting infrastructure developed to be more resource efficient that traditional business models. PSS types include car-sharing services such as car clubs and bicycle sharing offerings where customers use cars and bicycles sequentially. PSS feature tangible and intangible (service) elements, and often involve shared use of products by multiple users, who do not purchase them outright, which helps deliver resource efficiency.

However, nascent sustainable business models such as PSS, which help mitigate environmental problems that lead to pandemics, are vulnerable to shocks to social systems caused by the same environmental issues. Whist various stakeholders research and even advocate sharing business models, researchers and policy makers have begun to question the safety of these sustainable business models because of the coronavirus pandemic that broke out in 2020. The virus is highly infectious and Governments implemented large-scale measures such as social distancing and travel reduction. Importantly, COVID-19 may not be an isolated incident. The impact of human activities on the environment, through increased mobility, deforestation and climate change may ultimately lead to the emergence of more diseases. Pandemics may be an existential threat to PSS and other resource efficient sharing business models. First, examples of PSS such as car clubs present potential risks of infection, as an infected individual can have driven cars and this could facilitate contagion. This presents considerable risks of product liability, where providers can be held responsible for damages inflicted by products they own, including contagion. Additionally, consumers may distrust other consumers' and providers' hygiene practices to prevent infection or indeed good stewardship practices to leave products in good conditions after use. This may entrench consumer culture and practices of using products purchased outright to ensure safety. Indeed, UK based University of Hertfordshire (UH), which offered students a service of electric car share, discontinued it to avoid infections. E-carclub, the company that provided that service of electric cars for short term rent, saw a drop in demand for their vehicles caused by reduction in travel, due to Government policies linked to Coronavirus. E-carclub therefore reduced and retrenched their service provision to London's urban areas and introduced disinfection measures, with costs that affected their profitability.

This article outlines some issues and research questions that can be helpful to researchers and providers involved with PSS and similar business models as they approach these problematics. PSS can extend the lives of products and therefore reduce waste and support recovery, reuse and recycling of materials and resources, for greater productivity. Products that are accessed for use through PSS can be used by consumers and returned to the provider for refurbishing, a process of giving back a function or specific use to equipment in order to reuse it and then delivering it to other consumers for use.

A first consideration is the configuration of the PSS. Examples of PSS such as car clubs offer users the opportunity to access products (vehicles) for short periods – e.g. one hour – consecutively to other users. This configuration might be challenging, because of the practical needs to disinfect vehicles and the likely distrust of users. The difficulty is the cleaning, disinfection and possibly servicing between sessions of use. It would be very demanding for drivers to thoroughly clean cars after their drive and if providers were to perform that task, this would take the vehicle off the road with consequent financial loss. The reduction of activity by e-carclub and the cessation of the car sharing service by UH exemplify how difficult a problem this is.

Another configuration of PSS offers users access to products and the opportunity to keep possession of them for a longer period, similarly to a lease. Dr. Maurizio Catulli from University of Hertfordshire conducted research in the United Kingdom (UK) on a pilot infant mobility PSS, dubbed “Re-Engineering Business for Sustainability” (REBUS), where consumers were given access to products such as infant car seats and pushchairs for a fee. After use, consumers returned products to the provider, who refurbished them to rent the same products again to other customers afterwards.

In REBUS, the provider had designed a quality assurance system that certified the safety of the refurbishing process. In this case, users’ distrust of the PSS might be easier to address, because users retain the product, which comes to them in a new-like condition. Whilst a PSS that offers a longer-term access such as REBUS might make infection risks easier to manage than with a car club, consumer distrust created by the novel threat of pandemics may be difficult to overcome. An important objective for research, therefore, is to compare how differently configured PSS retain consumer trust despite threat of pandemics.

The quality assurance process implemented in REBUS contributed to reassuring users that the refurbishing process had included verification of possible damages in car seats derived from accidents involving vehicles in which the car seat was fastened. Authoritative sources such as the UK National Health Service and National Childbirth Trust discourage use of pre-used car seats. Despite this, REBUS achieved 1,048 rentals by users, who retained car seats and pushchairs for use. This provides evidence that a certified quality assurance process can successfully reassure consumers against these risks. It is possible that such a certification could be successful in reassuring users about risk of infection of highly visible pandemics such as the coronavirus from using pre-used, refurbished products. If a quality certification were effective in this, PSS providers would then be encouraged to design quality certification processes capable to guarantee protection from the risk of contagion from pandemics.

Despite any quality control, the Coronavirus pandemic has accelerated radical changes in consumer culture and practices. Evolved practices connected with self-isolation and reduced travel have been associated with the “isolation economy”, which caters for the needs of consumers that self-isolate themselves voluntarily or because in lockdown. Such a transition may indeed pose an existential threat to business models that involve reuse of refurbished products after use by other users and therefore risks forfeiting opportunities to consume in a resource productive way. A relevant research question therefore is to what extent any certified quality assurance process can encourage consumers to use PSS instead of products owned outright. A further relevant research objective is, to investigate the opportunities that the isolation economy can offer for business models that facilitate recycling and reusing products.

For a full report on REBUS:

http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=18198

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