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Drone Food Delivery is Taking Off

Food delivery sales are expected to reach a remarkable US\$365 billion worldwide by 2030. The growth of food delivery services has been accelerated by technological advances, including the emergence of drone technology. A major potential advantage of drone-based food delivery is that drones are eco-friendly, in line with calls to promote sustainability in the food service industry. To commercialise drone food delivery, companies first need to know who is most likely to use these services, and why. Rising to this challenge, Professor Jin-Soo Lee of the School of Hotel and Tourism Management (SHTM) at The Hong Kong Polytechnic University and co-researchers investigated the influence of environmental responsibility and emotions on consumers' intention to use drone food delivery services. Their novel findings offer guidance for the design of drone delivery marketing strategies to target four major groups: green consumers, activists, advocates and recyclers.

As drone food delivery services have yet to be widely commercialised, strategies for marketing these services currently rely on what we already know about consumer preferences. For example, the business-to-business drone delivery company Manna emphasises zero carbon emissions, a well-established customer preference, as a selling point for its electrically powered drones. As well as reducing the time, effort and cost of food delivery (reportedly halving the unit cost of traditional food delivery services), drone food delivery is indeed eco-friendly. “Drones could play an initiating and central role in the advancement of sustainability in the context of food delivery services”, say the authors. Focusing on sustainability may help companies to target consumers who are most likely to use drone food delivery services.

A potential predictor of whether a consumer will use an eco-friendly service is the degree to which they believe that their individual behaviour directly affects the environment, or their perceived control over environmental outcomes. This is known as the “internal environmental locus of control” (INELOC). Research has shown that people with higher levels of INELOC tend to exhibit more environmentally responsible behaviour, making INELOC a salient indicator of customers' pro-environmental behavioural intentions. However, this relationship is underexplored – especially for emerging eco-friendly technologies such as drones. “Understanding how INELOC is linked to customer responses in an eco-friendly manner in drone food delivery services is a worthy undertaking”, say the researchers.

Emotions are a major driver of consumer behaviours. The intention to engage in eco-friendly behaviours, for instance, is shaped by one's emotional state. A key role is played by “anticipated emotions” – the emotions that we expect upcoming decisions to evoke. “People generally predict the emotional consequences of their future decisions prior to making decisions”, say the authors. In general, they make decisions that are likely to make them feel good and avoid decisions that will make them feel bad.

We already know that anticipated emotions influence eco-friendly behaviours and behavioural intentions, such as consumer adoption of pro-environmental products, technology adoption and

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the intention to work with robots. However, the factors driving anticipated emotions remain unclear. The researchers explored the possibility that consumers' perceived control over environmental outcomes, captured by INELOC, shapes their positive anticipated emotions (such as delight, happiness and pride) and negative anticipated emotions (such as disappointment, guilt and discomfort).

To more thoroughly explore the relationship between anticipated emotions and decision making, the researchers also examined the influence of anticipated emotions on "intention to use", which is a strong predictor of actual behaviour in the context of sustainability and technology adoption. They built on previous research demonstrating "that anticipated regret affected customer adoption of innovative technology" and that positive and negative anticipated emotions affected consumers' behavioural intention regarding green hotels. The researchers hypothesised that anticipated emotions influence consumers' intention to use eco-friendly drone food delivery services.

The researchers designed and administered an innovative survey to explore the relationships between INELOC, anticipated emotions and intention to use eco-friendly drone food delivery services. They collected survey data from 405 restaurant customers in South Korea who had used food delivery services within the last 6 months. Before completing the online survey, the participants read a short newspaper article explaining the environmental advantages of drone-based food delivery services compared with currently available services.

The survey was composed of three multiple-item scales. The first distinguished between four groups of consumers: green consumers, activists, advocates and recyclers. The second measured anticipated negative and positive emotions in relation to drone food delivery services. The third scale assessed intention to use drone food delivery services. The participants indicated the level of their agreement with each item on a sliding 7-point scale. After the survey had been completed, the authors conducted a series of rigorous statistical analyses to examine the relationships between the three constructs.

As predicted, both positive and negative anticipated emotions shaped the participants' intention to use drone food delivery services. When the participants expected to experience positive emotions, such as excitement and delight, when using drone food delivery services, they expressed a greater intention to use these services. Anticipated negative emotions, in contrast, reduced their intention to use these services. The authors suggest that drone food service companies could capitalise on these insights by developing strategies to promote customers' positive anticipated emotions in relation to drone delivery, such as "acquiring certifications to formalise the environmental roles of drones in food delivery services".

The effects of anticipated emotions on intention to use drone delivery services were also influenced by the INELOC profile of the participants. Among the participants classified as green consumers, the prospect of using drone-based food delivery services increased positive anticipated emotions and decreased negative anticipated emotions. "Using an eco-friendly delivery method, namely drone food delivery services, should be the norm among green consumers", say the researchers. This offers important insights for marketers. For instance,

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mobile applications could be designed with a default drone delivery option, with additional charges for using less eco-friendly delivery modes.

The same influence of anticipated emotions on intention to use was found for advocates. To cater to advocates' desire to inspire environmentally responsible behaviours in others, practitioners could implement "a reward program for advocates who post influential stories or videos on their social networking sites", propose the researchers.

Activist consumers reported only anticipated positive emotions regarding drone food delivery services; they did not anticipate experiencing negative emotions. This could be because activists are committed to influencing people at large, making them "insensitive to the direct negative consequences of relatively small actions", speculate the authors. Organising campaigns likely to appeal to activists, such as raising awareness of the environmental advantages of drones as a food delivery service, could be an effective way to increase activists' intention to use such services.

Similarly, recyclers reported only anticipated positive emotions regarding the use of drone food delivery services, perhaps because such services are not directly linked to recycling behaviours. Nonetheless, drone delivery companies could try to maximise recyclers' anticipated positive emotions regarding and thus intention to use drone services by informing them that their "routine participation in drone food delivery services is part of the effort to protect the environment", suggest the authors.

Food delivery services have already changed the landscape of food consumption, and drones may represent the future of food delivery, especially given their potential to reduce CO₂ emissions and ultimately alleviate global warming. Based on rigorous theoretical and empirical analysis, this forward-thinking study provides nuanced insights for drone delivery companies into creating strategies to engage consumers with different environment-related beliefs and values, especially by fostering their anticipated positive emotions. "Food service companies should understand the different propensities of consumers", say the authors, "and establish differentiated marketing strategies depending on various segments". These findings will help researchers and practitioners to take the next step towards a greener future through the widespread commercialisation of drone food delivery services.

Hwang, Jinsoo, Lee, Jin-Soo, Kim, Jinkyung Jenny, and Sial, Muhammad Safdar (2021). Application of Internal Environmental Locus of Control to the Context of Eco-Friendly Drone Food Delivery Services. *Journal of Sustainable Tourism*, Vol. 29, Issue 7, pp. 1098-1116.

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