

Designing for Velomobile Diversity: Alternative opportunities for sustainable personal mobility

Alexander Vittouris¹, Mark Richardson²

¹ Melbourne University, Melbourne School of Land and Environment

² Monash University, Department of Design

Email for correspondence: a.vittouris@student.unimelb.edu.au

Velomobiles currently appeal to niche, enthusiast markets through a range of both low scale production and D.I.Y processes. Human Powered Vehicles (HPV's) should appeal equally towards both the enthusiast and urban commuter by offering a diverse range of design, packaging and construction alternatives. Currently, the attractiveness of velomobiles lies primarily in their aerodynamic advantages, speed, weather protection and a focus on providing a sustainable form of personal mobility; however, for appealing to a broader consumer market for low speed urban use, vehicle ergonomics, comfort, additional load capacity and visibility (both to see and be seen) need further consideration.

This paper explores the current limitations in promoting velomobiles as a commuter alternative to the automobile in that it proposes that velomobile diversity be approached through the application of dynamic, emotive styling, vehicular packaging variations and functional storage; together with the use of sustainable construction materials with techniques that reduce assembly and fabrication costs.

To this end, the paper discusses two conceptual case studies that explore applied industrial design processes, diverse construction and alternative manufacturing techniques. Both are positioned outside current fabrication processes, where one explores 'natural' production – specifically, the pre-harvest deformation of bamboo with shape tessellation to reduce parts complexity whilst allowing natural processes to fulfil pre-determined forms – and the other reuses post-consumer waste in an interminably variable tensegrity frame construction designed for continued open-source development. It is postulated that by both applying industrial design techniques and exploring alternative processes that allow individuals to tailor a vehicle to their specific transport needs, greater product variance can be instigated.