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The Potential for Cycling in Starter Cycling Cities

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1. Main text – Extended Abstract

There has been an increasing recognition of the potential of cycling for a more sustainable urban mobility. Following the example of more experienced cities in the change for cycling many cities worldwide have implemented numerous measures to improve conditions for cycling. Regardless, many Starter Cycling cities are still struggling with finding the right approach to the issue and even with finding the right political and social commitment to a real change.

This paper presents a decision support tool providing a spatial representation of the potential for cycling of an urban area and the results of its implementation to two case study cities. We put forward the concept of potential for cycling by exploring the spatial dimension of target population and of target areas for cycling. Building on the findings of recent research we develop a multicriteria analysis bringing together the main factors defining potential for cycling with a spatial dimension. These include issues such as, population density, student presence in the population, age, level of education and car ownership to define the spatial location of the target population with higher potential to cycle (Goldsmith SA., 1992; Baltes, 1996; Dill & Carr, 2003; Stinson & Bhat, 2004; Plaut, 2005; Gatersleben & Appleton, 2007; Parkin et al., 2007; Geus et al., 2008; Heinen et al., 2010; Titze et al., 2010; Transport for London, 2010; Buehler & Pucher, 2011; Handy & Xing, 2011; Dill & McNeil, 2013; Garcia et al., 2015; Litman et al., 2017), and issues such as, proximity to main centralities, to schools, to main public transport

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stations, diversity of urban activities, proximity to cycling infrastructure and topography to define the spatial location of the target areas offering higher potential for cycling (Goldsmith SA., 1992; Baltes, 1996; Dill & Carr, 2003; Stinson & Bhat, 2004; Parkin et al., 2007; Dill, 2009; Fraser and Lock, 2010; Heinen et al., 2010; Buehler & Pucher, 2011; Handy & Xing, 2011; Handy et al., 2014; Segadilha & Sanches, 2014; Heesch et al., 2015; Ma & Dill, 2015; Mertens et al., 2017; Litman et al., 2017). The tool also includes an assessment of the effectiveness of mobility management policies in place to incentive cycling. This is done by assessing the coverage (% of population) of cycling infrastructure (lanes and parking facilities), the ratio of cycling and road infrastructure, the rate of public transport stations served by cycling parking, the gained coverage of public transport stations by cycling when compared with walking, amount of population and area accessible by cycling, the ratio between accessible population by cycling and by car and finally the diversity and significance of complementary measures (such as bike-sharing schemes, school mobility plans, etc.).

Aggregate assessment of potential for cycling are produced bringing together the spatial representation of target areas and target population. A final aggregate value of cycling potential is calculated joining the effectiveness of mobility management measures to the first two analysis.

The development process of the tool involved eight municipalities of starter cycling cities in Portugal. Most of these municipalities took part in two workshops (for each municipality separately), the first of which aimed at presenting the tool and discussing possible improvements and the second of which aimed at the development of strategies for cycling based on the results of the tool. The aim of these series of workshops was threefold. First, to co-develop the Potential for Cycling in starter cycling cities, together with the input of municipalities during the development process, second, to teste the usefulness of the tool in the development of strategies for starter cycling cities and, third, to test the ability of the concept of potential for cycling to improve the attitudes towards cycling of local authorities in starter cycling cities.

The paper will report on the results of these workshops and on the main findings brought out from the co-development process.

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