

THE DEVELOPMENT OF SMART MULTIFUNCTIONAL CYCLING COUNTER AS AN INNOVATIVE TOOL TO INCREASE SUSTAINABLE MOBILITY¹

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Abstract

The new multidisciplinary bicycle traffic development methodology, is based on strong holistic cooperation between different professional disciplines, i.e. traffic engineering, urban planning, and urban design, anthropology and sociology while the inclusion of new smart technology. The holistic integration of all disciplines is of vital importance for a bicycle traffic development. The new smart technology can connect physical and digital world and can improve traffic safety while contribute to user's satisfaction. Therefore, we developed the new smart multifunctional cycling counter as an innovative tool to stimulate cycling culture and to promote cycling traffic as healthy way of life. Using the information and communication technologies (ICT) to improve contact between physical and digital world is our distinct idea towards to promote sustainable mobility.

Keywords - Smart Cycling Counter; Multifunctional Communicator; Sustainable Design; Holistic Integration of Cycling Traffic

INTRODUCTION

The innovative tools can help in achieving better experience by riding a bike, as well as in improving of traffic safety while it consequently contributes in user's satisfaction. The tripartite approach dealing with traffic and urban planning as part of technical sciences, thus socio-psychological approach with emphasis on anthropology and inclusion of new smart

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innovative digital technology as to use information and communication technologies (ICT) to improve contact between physical and digital world, is the only effective approach to make »Cities of Tomorrow” [1].

The anthropological approach brings a completely different view on planning of cycling infrastructure, since rather than physical infrastructure characteristics, humans are placed at the forefront of the cycling infrastructure design as the most important measure of its quality. The coherence of cycling infrastructure within the space is an indicator of a public space attractiveness. Therefore, searching for an optimal balance between the space image and its form, to provide good conditions for cycling as one of the most important modes of sustainable mobility while consequently a factor of facilitating a healthy lifestyle, is in the forefront of the modern sustainable development process [2]. The multi-disciplinary oriented approach relating traffic and space planning thus improving communications in lines to promote bicycle culture is of vital importance for better sustainable mobility development. In lines with new movement in Europe “The European Innovation Partnership on Smart Cities and Communities” [Internet 1], we developed the innovative multi- functional cycling counter as the new smart Slovenian product, which is as a comparative novelty just coming out to the market. Our expectations are based on holistic networking of cycling counters while making smart cycling connections to enhance quality, performance, and interactivity of urban services and to reduce fuel consumption and impacts on pollution while travel costs on global level.

EU RECOMMENDATIONS ON COUNTING DATA SYSTEMATIC SELECTION

EU supports systematic selection of counting data, since cycling infrastructure planning and design, just on empirical assessment is long-term ineffective and inconsistently. To set ambitious goals of EU cycling policy and justify the investments in cycling infrastructure, a sound database as main tool of high quality mobility management is needed. Therefore, European Cycling Federation (ECF) supports standardization of collecting all kind of data [3], on a way that they will be mutually applicable and comparable in all kind of professional analysis. To these end, we developed the new methodology to set up the strategy for systematic installation of cycling counters in the urban landscape in Slovenia, which means in urban as well as in extra urban areas[4]. The new smart strategic tool will help cities to plan and design cycling infrastructure fight more holistic inclusive within their functional area, both in the context of the entire transport system while to make public space more users friendly. The

most important is that methodology is transferable to any other areas in Slovenia and around the Europe.

The main idea is in three basic types of counters installation (optional various combinations are possible):

- Inductive loop & totem installation to count thus to stimulate cycling culture.
- Installation of solo inductive loop to collect data on cyclists quantity in order to achieve more effective planning and design of cycling infrastructure (counting is possible periodically or all over the year).
- Combination of inductive loop & smart flashing signs at the intersection areas where cycling way is crossing the road towards to improve traffic safety for all road users (putting emphasis on cyclists). The importance of smart signs is to warn the motor drivers to put more attention on cyclists, which are passing the motor traffic road.

The development of the new cycling counter was approached from a scientific point of view. The idea for design of the totem was studied within the EU project “Under the Creativity Way to Practical Knowledge,” namely PKP²[5] in cooperation between CISUM Consultancy Ltd. Company and the Faculty for Architecture from Ljubljana. Based on preliminary studies the company CISUM Consultancy developed the final shape of the multifunctional product towards to meet the requirements of multifunctional abilities [6].

The new smart strategic tool can help the cities to plan and design cycling infrastructure fight more holistic inclusively within transport system while space development. In lines with EU policy trends to enable public involvement in the planning process all data which are important to user’s satisfaction, will be promptly online available on CISUM’s new cycling info web page. Therefore, we prepared the national cycling info web page, which we hope will gradually become international. Our main goal is to spread the network of cycling counters all over different cities (or in case of long distance cycling all over their entire functional region). However, instead of inefficient point located cycling counting, what is unfortunately the most

²In November 2014, the Human Resources and Scholarship Development Fund of the Republic of Slovenia announced on its website the second call for proposals under the ‘Creative Way to Practical Knowledge’. The purpose of the call is to establish indirect partnerships between institutions of higher education and businesses in order to stimulate the use of innovative team-problem approach to solve practical problems while at the same time include students in the projects. University of Ljubljana was the lead partner in the Study Case project for development of multifunctional cycling counter and its placement in Slovene coastal area. <http://www.sklad-kadri.si/si/razvoj-kadrov/po-kreativni-poti-do-prakticnegaznanja/>.

current practice, we would like to make network of smart cycling connections and enable management of cycling traffic on all levels, i.e. local, regional, national, or transnational. We believe that only on holistic way we can make a wide database and achieve the overall progress on quality of cycling conditions in any area in Slovenia and in any other EU county while worldwide enlarge. Therefore, we would like to invite all stakeholders to support our idea and help us to make the project globally important.

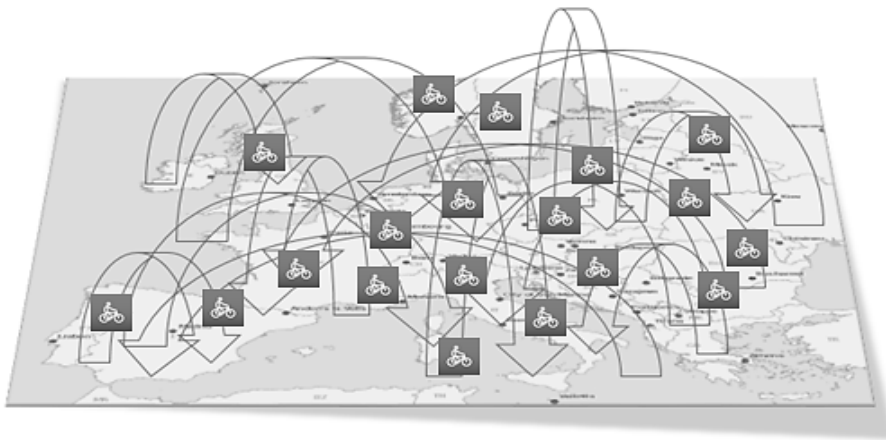


Fig.1. Connect the Europe by Smart Cycling Communicators, Source: Polonca Andrejčič Mušič, January 2016

NEW CYCLING COUNTER SUSTAINABLE INNOVATIVE DESIGN

New Innovative Multifunctional Cycling Counter as Slovenian innovative product



Features:

- Price Performance Open to Any Market
- Easy Portable and Installable & Simple and Inexpensive Maintenance
- High Quality Totem Design Adaptable to any Environment
- Decorative Street Furniture & Customizable Look within Protected Areas
- Database Networking & Operation Remote Control System

The performance and capabilities:

- Cycling Infrastructure Planning & Design Feasibility Instrument
- Sustainable Awareness & Cycling Culture Promotor
- Traffic Safety Rising Innovative Tool
- Physical & Digital World Smart Connector
- Multifunctional User-friendly Communicator boost cyclist's satisfaction
- Global Management Monitoring Tool

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Fig.2. New Cycling Counter Features, Performances and Capabilities, Source: Marin Mušič, September 2015

New cycling counters help in more cycling integrated traffic planning and better cycling infrastructure design thus is the new tool for more sustainable urban planning. The counter's high quality design is adaptable to any environment and it can have a decorative street furniture value. According to wide possible finish, each city can order custom-made unique look totem and chose any additional equipment tailored to particularly location. Our cycling counter totem is made from modern concrete and as unique idea, its

design® allow a very wide range of various ECO look (unique stone look). We believe that many other similar products are already on the market, but by respecting sustainability our counter completely follow the modern ECO trends as it perfectly fits in urban thus extra urban environment.

The additional advantage of the totem design is in easiness and transparency of the construction. Since our customers are mostly municipalities with limited budget, in order to reduce the costs for purchasing of the cycling counter, our totem additional advantage is the advertising ability i.e. it enables advertising of its potential sponsor while other forms of marketing. Different modern ideas about innovative social media advertising can make cycling more attractive thus can also serve to the promotion of cycling culture. We would like to make cycling more socially acceptable, to become fashionable and would like to promote cycling as healthy way of life for all gender, age, and social group of people.



Fig.3. Smart Design of New Cities around Cycling, Source: Polonca Andrejčič Mušič, January 2016

CONCLUSIONS

Cycling traffic development should be based on interdisciplinary holistic approach. We believe that we can improve conditions for cycling traffic through innovative integrated digital oriented urban landscape planning. With new digital multifunctional communicator we can improve conditions for cycling thus improve cycling culture via effective integration of bicycle traffic in our lives. Based on human needs, considering coherent cycling mobility development of urban and extra-urban areas, a new methodology was created. We would like to explore it on urban functional areas all across

the Europe. Since the CISUM Consultancy Ltd. is the research Company, please contact us to share the experience and help to the further development of knowledge.

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