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# CICLING AS A VECTOR OF A TERRITORIAL DEVELOPMENT

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The potential of cycling as a sport is addressed specifically from the territorial point of view, totally determined by geography, which should make it as an object of attention from this discipline, in order to assess its role in certain countries and the ability of these to use it as a vector of territorial development. A smart strategy is developed to define its expansion in a region and a methodology is showed to create a territorial machine tool called "Cyclist Ring" embodying the contribution of cycling to a development strategy and to give substance to a territorial brand, linking a particular territory, landscape, sport, industrial activity, tourism expertise, experience and controlled effort.

#### I. INTRODUCTION

Cycling is a popular sport. Throughout the world, millions of people use bicycles as an effective means of mobility, transport, leisure and sport. As the work has ceased to have a physical component, the bicycle has again been rediscovered by people with a physical exertion background, from where humans are programmed from its origins.

Cycling is a factor of personal well-being and quality of life, which has become an indicator of territorial excellence within its practice.

The bike has been with mankind for just over a century as a means of basic transport which is accessible for local areas.

In an attempt of create dense cities, to make them more austere and control their diffusion processes, the bicycle is essential in guaranteeing efficient mobility. In rural areas where traditional activity has broken down, there are still factors which make them attractive for new activities such as sports, that can add value to unused capacities from their previous system of production. Nowadays, these do not have the category of second products; in fact, they constitute an intangible capital on which to build a new functionality.

Today cycling suits surprising spaces in five continents and its importance is great in the European countries. The relevance and dimensions of the phenomenon are great. Some analysts speak of "cycling economy", which makes a significant contribution to the GDP of countries like the UK and conferring it with the prospect of strong and sustained long-term growth. In Spain there are few references regarding its statistical control and economic analysis. There are remarkable studies from the Geography area related to adventure sports and its territorial impact. There are regions, such as Asturias, which have tangible and intangible resources associated to cycling. These days we have an opportunity to take advantage of these factors in order to use cycling as part of a territorial brand. The aim is that millions of amateur cyclists all over the world can associate with the reference region, in this case Asturias, to a preferred destination for cycling with all its alternatives.

### II. OBJECTIVES

We propose the creation of a development project linked to cycling and, by extension, to adventure sports, with an important geographical determination, because cycling is aimed at an easily identifiable territorial objective in the general interest and it is hardly relocatable, so it can be a basic component of a landmark, as it is the case of Asturias proposed in this paper. Cycling paradise.

Here we are shaping up and completing the outline of an overall strategy applied to a particular territory, delving into the peculiarities of the physical phase of the Cycling Ring. An important issue: conceptual, methodological and operational, at a time.

# III. AREA OF STUDY

The features of the Central Mountain region of Asturias, both physical and social, are determined by its territorial capacities, and allowing it to be considered as a cyclist territory. In addition, those features support the proposal to design a strategy for the future, where cycling and the activity around it can become one of the pillars of its territorial development.

To determine the capacity of the territory to sustain a steady related to cycling, specific methodology has been required, as landscape, safety, the state of infrastructures and the availability of hospitality must be assessed. We propose an inventory of routes which are interesting for cycling and evaluate the user and the customer perception, in order to contribute to the dynamic occupation of the territory, in a region whose main structural feature is its alarming ageing; this implies the territorial vacuum and the lost of life force; so cycling could be considered as an element of added value within a territorial strategy aimed at restructuring the territorial excellence.

#### IV. METHODS

Based on the inventories mentioned, 59 road segments were selected and studied from the different categories of the road network, adding 376 km. To these, we may add the roads surround the ground perimeter cyclist ring, which adds 150 km. more.

For each segment, a file containing identification was prepared, along with some basic indicators from which information related to safety, landscape quality and difficulty of the

section will be obtained. Each record incorporates photographs which allow graphic data to be entered. Each segment is reflected in a map scale of 1:100,000.

Ring segments were joined in order to compose sections. For each section, the difference between dimensions was noted, so that the effort needed to cycle the stretch can be estimated. The unevenness by segment, expressed in percentages of altitude per kilometer, was calculated. Stretch slopes were weighted .The Difficulty Index Equivalent (IDE) was calculated, which gives information about the difficulty of the stretch and allows an overall assessment of the difficulty of each section, contrasting the difficulty between different cycling sections. The Coefficient of Effort (CE) is defined for each cyclist section, assigning values between 1 and 10. And finally, the Category Section is set within the five considered.

Synthetic indicators of each section offer simple information in three areas:

- The Difficulty of the section indicator calculates the effort and classifies stretches.
- The Landscape quality indicator is made from a subjective perception, expressed as a valuation performed by cyclists in the polls, seminars and interviews. Quantification is between value 1, corresponding to a lower quality, and value 3, which represents high quality.
- Security indicator expresses synthetically the adequacy of the cycling road for a safe practice. Low security is assigned value 1, and high security is represented by value 3.

In addition to an appropriate searching of the infrastructures, other factors like the views from people and corporate sectors related to cycling, tourism, administration of the road and traffic safety with in them ,are considered, in order to get an accurate view of the capabilities of the territory to realize this strategy and the willingness of participants to participate in it.

## V. RESULTS AND CONCLUSIONS

The three tables of participation resulted in the elaboration of specific proposals. One of them, general, that responds to recurrent problems in the sections that make up the Cycling Ring; others, specific, which, by correcting problems affecting specific sections, are complementary to the general and special needs.

General accessibility proposals facilitate the entry of cyclist users who do not reside in the district and use it with the aim of cycling. The internal mobility facilitates continuity between urban centers and the Cycling Ring, while acting on the organization of traffic in the most populated areas, according to criteria designed to facilitate the coexistence between the bicycle and the automobile and promote the use of bicycles in the city.

A general system of signs and regulations points out two types of signs: standard and indicative, that are not registered in any road rules, or any other rules to that effect: We have prepared a series of specific signals indicative of the Cycling Ring Central Mountain of Asturias meant to inform cyclists on different aspects of their sections, such as mountain passes, resting areas or entry and exit points.

Proposals for economic diversification, supported by evidence that the Central Mountain of Asturias has the capacity to launch a smart specialization strategy that uses cycling as a factor in endogenous development. The goal is to consolidate a world of cycling linked to the business sector, so we aim to act in four areas: hospitality, bicycle services, territorial brand and dissemination.

Finally the physical fence of the Cycling Ring is established, organized from a base point, which, for reasons of centrality and accessibility, is designated as kilometer 0 and which becomes the basic infrastructure for a cycle track or center of the "Basic Network" with an easy access from the main towns of the region and from major transport infrastructures.

The Cycling Ring Secondary network consists on regional routes with mountain passes in the Cantabrian mountain range, and hill ranges and other neighboring councils or other locations inside the Central Mountain of Asturias.

The two network roads are complemented by networks of tracks, suitable for the practice of mountain biking, cycling and both, due to their particular features.

The resulting system between the coordination of the infrastructure of the cycle track with the primary and secondary networks is the preliminary Cyclist Ring of the Central Mountain of Asturias. It emerges as a recognizable brand that ensures more quality, safety and a better landscape for the cyclists who enter it; also, the associated venues offer specialized facilities, giving everyone the chance to live an experience of intense feelings at various levels, starting with the sport, which engage positively with other complementary factors, allowing his companions to participate in different activities.