Smart monitoring visitors National Parks

Martin Goossen, Wageningen University and Research, Netherlands,
martin.goossen@wur.nl

The Dutch government is reintroducing policy for the 20 National Parks. The aim is to develop the National Parks into a strong brand. The reason behind it is the claim that a National Park contributes to the regional economy. There is a clear need from the managers of National Parks to understand how that contribution works. Insights from the external factors, combined with information about its current users and stakeholders and market research data will help the manager, but also local enterprises to choose relevant target markets. There is therefore a need for the development of a tool that brings the benefits of a National Park in a simple, affordable and reliable manner. The tool consists of Key Performance Indicators (KPI). Key Performance Indicators will determine how well the National park is meeting its objectives (Wearing & Schweinsberg, 2016).

Key Performance Indicators

The tool should give answers to questions like the amount of visitors and where they come from, their characteristics, the spatial distributions of visitors in the National Park, their activities, their spending, their satisfaction and their preferences. Information about it is important for the manager to monitor the development of visitor rates and to adjust their policy, maintenance and management. The information can also be used to respond to changing demand and to promote more directly. The information is also important for stakeholders like regional enterprises and policy makers to give them insight in the economic impact. Finally, the information can be used to create a specific zoning between nature and recreation.

Together with the managers of two National Parks we set up five KPI's: A (Amount of visitors), S (Spatial distribution), E (Expenditure), S (Satisfaction) and P (Preferences). The characteristics and activities of the visitors are not defined as KPI's, because they differ strongly between National Parks. They are defined as Indicators and are strongly related to the land use and supply of the separate National Parks.

Limitation

The reality is that National Parks suffer from lack of funds to collect these data. There is no budget to buy counters or to do surveys. Also the managers suffer from lack of time to analyse and interpret the collected data. As extending traditional monitoring is too expensive, we have to find new ways to collect information about the visitors (Goossen & Kiers, 2015). In particular, the fast development of new emerging sensor technology and crowdsourcing contains a lot of potential. The idea is that a National Park is willing to invest a maximum budget of € 10.000 each year to collect data. We made a research proposal to collect data in a smart way to make these KPI's operational, analyse and interpret and to publish it with infographics.

Pilot

In a pilot study we investigate the possibilities of the sensor technology and crowdsourcing with the limitation in mind. The central question is how far can we go to connect available knowledge to information need and gather data in a simple, affordable and reliable manner? For the KPI Amount of visitors we will analyse TomTom data of car-users and smartphone data from Vodafone. The costs of these data are within budget but we have to test if the data are reliable. We will compare these data with data of actual car-users in some recreational areas where there is a barrier gate. For the KPI Spatial Distribution we will use Vodafone data and (probably) the Eddystone beacons from Google which you can use in an open source format. The beacons work without an app. Also we will test the usability of LoRa (Long Range Low Power Wide Area Network). LoRa is a type of wireless telecommunication energy-efficient network. It is designed to allow long range communications (almost 15 km) at a low bit rate among things, such as infrared sensors operated on a battery. These sensors can capture movements of visitors. If the tests are positive in the context of the limitations, we will develop a protocol to convert the purchased data into a usable format for analysis of participating National Parks.

The KPI Expenditure of the visitors consists of collecting existing national data and secondary analysis. Hopefully we can develop key figures with the existing data.

We will use crowdsourcing to collect data about the satisfaction with the National Park. Specific the reviews on websites as TripAdvisor and Zoover are of interests.

Finally, collecting data about the preferences as KPI are not yet developed, but maybe through short questionnaire or interviews.

Results

There are no results yet. There is one small result in the comparison of TomTom data and the actual use of a recreational area the Horst Beach by car-owners. In 2015 about 57.500 cars were counted. TomTom data shows 582 cars using the road to the beach in 2015. That is about 1% of the total. More comparisons have to be made to define this outcome as a key figure.

The authentic village Giethoorn (2620 inhabitants) located on the border of National Park Weerribben-Wieden received 590.000 tourists in 2015 according to Vodafone data (MarketingOost Kennis, Innovatie & Productontwikkeling, 2016).

Wearing, S.L. and Schweinsberg, S., 2016. Marketing National Parks for Sustainable Tourism (Vol. 72). Channel View Publications.

Goossen, C.M. & Kiers, M.A, 2015. Mass mapping; Current situation and new ideas to count visitors to natural areas. Statutory Research Tasks Unit for Nature and the Environment. WOt-technical report No. 29.

MarketingOost Kennis, Innovatie & Productontwikkeling, 2016. Bezoekers aan Steenwijkerland. Op basis van Vodafone-data / View.dat. Zwolle, 2016