ANALYSIS OF INFORMATION ON TOURISM IN THE EUROPEAN UNION USING THE POWER BI BUSINESS ANALYSIS SERVICE

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Abstract. This article provides information on the latest statistics on tourism in the European Union (EU). Tourism plays an important role in the EU due to its economic and employment potential and due to its social and environmental implications. Tourism statistics are used to monitor not only EU tourism policies but also EU regional policy and its sustainable development policy. The paper presents Power BI Desktop, a powerful, flexible and highly accessible tool for data connection and modeling, robust modeling, and well-structured reports.

Key words: tourism, tourism statistics, data analysis, Power BI

INTRODUCTION

Tourism statistics in the EU comprise two main components: on the one hand, statistics on the capacity and occupancy of collective tourist accommodation establishments; on the other hand, statistics on tourism demand. In most EU Member States, the statistics on the first component are collected through the data provided by the accommodation units during the surveys, while statistics on the second component are mainly collected through border surveys or polls in households.

One in ten enterprises in the non-financial sectors of the European economy belonged to the tourism sector. In these 2.3 million enterprises, approximately 12.3 million people were employed. Employees of businesses in tourism related sectors accounted for 9.1% of persons employed in the total non-financial sectors of the economy and 21.5% of persons employed in the services sector.

Power BI is a business analytics service by Microsoft. It aims to provide interactive visualizations and business intelligence capabilities with an interface simple enough for end users to create their own reports and dashboards [1].

Power BI provides cloud-based BI services, known as "Power BI Services", along with a desktop based interface, called "Power BI Desktop". It offers data warehouse capabilities including data preparation, data discovery and interactive dashboards [2]. In March 2016, Microsoft released an additional service called Power BI Embedded on its Azure cloud platform [3]. One main differentiator of the product is the ability to load custom visualizations.

This application was originally conceived by Thierry D'Hers and Amir Netz of the SQL Server Reporting Services Team at Microsoft [4]. It was originally designed by Ron George in the summer of 2010 and named Project Crescent [5]. Project Crescent was initially available for public download on July 11, 2011 bundled with SQL Server Codename Denali [6]. Later renamed to Power BI it was then unveiled by Microsoft in September 2013 as Power BI for Office 365 [7,15] The first release of Power BI was based on the Microsoft Excel-based add-ins: Power Query, Power Pivot and Power View. With time, Microsoft also added many additional features like Question and Answers, enterprise level data connectivity and security options via Power BI Gateways [2]. Power BI was first released to the general public on July 24, 2015 [8].

In February 2019, Gartner confirmed Microsoft as Leader in the "2019 Gartner Magic Quadrant for Analytics and Business Intelligence Platform" as result of the capabilities of Power BI platform [9,14]. This represented the 12th consecutive year of
recognition of Microsoft as Leading vendor in this Magic Quadrant category (beginning 3 years before this tool was even created) [10,11]

**MATERIALS AND METHODS**

To study tourism, it is possible to use data from a range of other official sources[12,13]. These statistics include:

- Business Structured Business Statistics (SBS) and Short-Term Business Statistics (STS) that can be used to provide additional information on tourism flows and the economic performance of certain sectors related to tourism;
- data on employment in the tourist accommodation sector of the Labor Force Survey (LFS), broken down by working time (full-time / part-time), professional status, age, level of education, gender, continuity and length of service at the same employer (annual and quarterly data);
- personal income and expenditure data generated by balance-of-payments travelers,
- transport statistics (e.g., passenger air transport).

The IT tool that helps us in tourism statistics and presentation is the Power BI desktop.

Power BI is a business analysis solution that allows us to view data and share information across the organization or embed them into the application or on the site.

Power BI Desktop provides graphical analysis tools. With this powerful tool we can create interactive data views and reports. We connect, add, model, and view data.

Charts can be placed exactly where we want, analyze and explore data, and share the content with any team.

Using Power BI Desktop, we can:

- securely connect to hundreds of cloud and local data sources;
- convert and add data from multiple sources;
- expand data models with DAX formulas;
- choose from over 100 state-of-the-art data charts or create your own charts;
- analyze the data in depth to find templates and find details;
- build our own design with themes and intuitive formatting tools;
- create mobile reports for moving users;
- sharing analytics based on graphs with everyone in the organization;
- securely publish content on the web or on a local reporting server, or incorporate charts into a website or app.

**RESEARCH RESULTS**

The paper presents an example of the analysis of the number of accommodation units, the number of beds, the nights spent by residents and non-residents in the EU countries, starting from the following situation:

We'll upload the above table into the powerful BI analysis and viewing tool.

The next step is to select the table with the source data, load or edit this table, as can be seen in the figure below:
After uploading or editing the source table, build the dashboard using the visualization features provided by the Power BI tool.

In the above figure, several viewing tools were used dynamically and correlated with each other, such as charts, maps, and filters.

CONCLUSIONS

Power BI Desktop is a graphical analysis tool that can create interactive data views and reports of various complexities.

A first benefit of this program is that users can connect, add, model and view data in tables or reports in a short time and on different devices.
Once graphs have been placed, we have the ability to analyze and explore the input data so we can then share it with other users.

In recent years, the number of nights spent in tourist accommodation establishments has generally tended to rise.

More than half (55.7%) of the total number of nights spent by non-residents in the EU-28 were spent in Spain, Italy, France and the United Kingdom.

In 2016, Spain was the main tourist destination in the EU for non-residents (people traveling outside their country), with 295 million nights spent in tourist accommodation establishments, accounting for 22.2% of the total for the EU.

At the EU level, the top four most popular destinations for non-residents were Spain, Italy (199 million nights), France (124 million nights) and the United Kingdom, which together accounted for more than half (55.7%) total nights spent by non-residents in the EU-28. The least sought-after destinations were Luxembourg and Latvia; for the interpretation of these figures, account should be taken of the size of those Member States.

The number of nights spent (for residents and non-residents) can be analyzed in perspective by reference to the demographic dimension of each country, thus achieving an indicator of tourism intensity.

REFERENCES

[6]. ***Microsoft BI Blog , 2017, "SQL Server codename "Denali" CTP3, including Project "Crescent" is now publicly available",Microsoft Retrieved 29 June 2017
[7]. ***PC Mag India, "Office 365 Gets Colorful 3D Charts, Natural Language Search", LLC PCMag India, Retrieved 4 May 2016
[12]. ***https://ec.europa.eu
[13]. ***www.inse.ro
[15]. ***www.microsoft.com