BUSINESS ANALYST ONLINE AND ARCGIS ONLINE

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***Abstract**: In this paper we want to emphasize the use of an ESRI application, called Business Analyst Online. The application and the data are hosted and maintained by ESRI. The study has been developped in order to show the main facilities and integration with ArcGIS Online. It had been taken into account eight criteria, based which it was concluded the most appropriate county to work in cadastral domain.*

***Keywords:** GIS, ESRI Business Analyst Online, Business Analysis*

1. Introduction

A business analyst is someone who analyzes an organization or business domain (real or hypothetical) and documents its business or processes or systems, assessing the business model or its integration with technology. [7]

ESRI developped a strong software solution, called ESRI Business Analyst, in which can be loaded spatial data from ArcGIS Online as well as from other data sources.

The main areas for Business Analyst Online application are: identifying new locations or sites for business consolidation, providing information to business considering whether to locate in a specific community, refining marketing strategies, understanding the types of customers in a specific area. [2] In present there are content and reports are available for more than 135 countries across the world. [10]

2. ESRI Business Analyst Online

Business Analyst Online helps users evaluate potential sites for expansion, consolidation, or investment. Marketing consultants as well as valuators can use this application to gain information about market segments, real estate market predictions and their demographics in order to create strategic marketing and advertising plans. [2]

ESRI Business Analyst is providing valuable data especially for the US. In the other areas of the world the big problem is the lack of actual data. ESRI Business Analyst for Romania could be a performant tool with GIS functionality, user-friendly wizards, and full data complement, providing to business professionals a desktop solution for demographic, drive-time, and trade area analysis, site selection, customer prospecting, and target marketing. This software solution offers the ability to analyze and visualize the geographic component of business data reveals trends, patterns, and opportunities hidden in tabular data.

The information needs to be combined, the spatial one (demographics, territories, and business locations) as well as other very useful data like sales data, customer information, competitor locations. This tool improves better understanding of the market, customers, and competition.

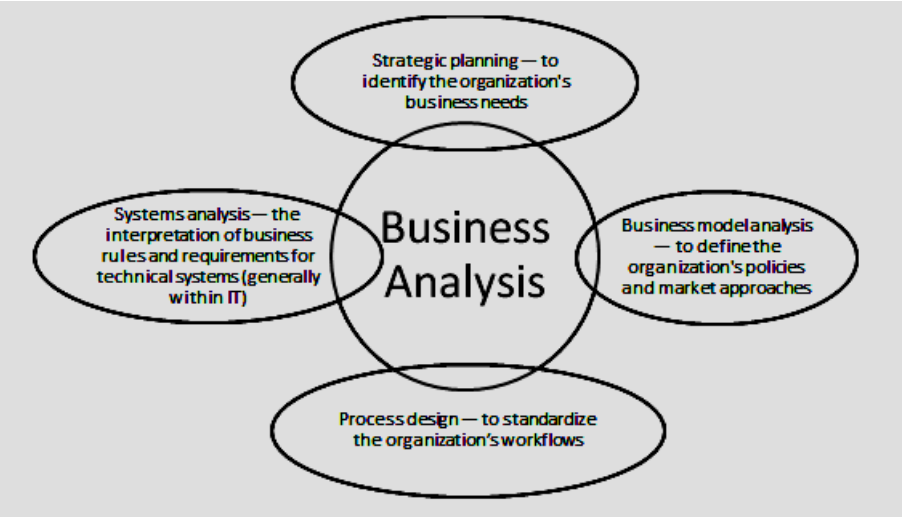


Fig. 1. Main Types of Business Analysis (according with [7])

3. Testing the ESRI Business Analyst

In Romania, one of the main issues about using Business Analyst is the lack of data. Many of data could be found and downloaded from the National Institute of Statistics website, but are not integrated yet in Business Analyst. The data regarding the authorized persons for the case study was taken from the NACLR (National Agency of Cadastre and Land Registration) website.

There are some kind of data managed by ESRI in the application, especially regarding population, life standard, through at municipality level, but there couldn't be found for example data on different types of businesses. In US for example, demographers, statisticians and economists at ESRI create updated current-year and five-year projections of demographic data [2], being released in Business Analyst Online as soon as it is available so that users have the fast access to critical information in a timely manner.

The workflow consists in the following stages: question, model, analyze and interpret. First step is to formulate the problem into a question. Analysis is useful for answering at business questions. In those specific answers is involved location information and this is the main advantage of ESRI Business Analyst. The modeling step is realised through identifying the appropriate geospatial techniques to answer the question, as well as the locational component and where could be found the useful data. According to[8], Data Modeling is used to describe entities (things, people, places etc) of which data is to be captured and attributes for each entity to record, being also visually illustrates how each entity relates to other entities by way of common attributes or combinations of attributes – a relationship modeling.

Some organizations store their data in RDBMS tables, such as Oracle or SQL Server. ArcSDE provides easy access to such tables, allowing ArcGIS products, such as Business Analyst Desktop and Business Analyst Server, to access the information indirectly. [9] An SDE repository accesses the data tables on one end and on the other end simulates workspaces for different users and multiple projects in a single ArcSDE workspace, and Business Analyst adds auxiliary system tables to an SDE repository.

Performing analysis is the third step, involving the right choice of variables (criteria) for retrieving an appropriate answer. The last step – interpret the findings – is based on this analysis. It could reach the conclusion that further analysis is needed, or maybe more data is needed.

Business Analyst Online (BAO) has been used for developping a study about the counties of Romania where could be more suitable to start a business in cadastral domain. According to [4], in cadastral business the project management is also very important.

There have been defined some specific criteria like those from figure 2: total population, purchasing power per capita, average household size, number of companies and sole traders who are acting already in this domain. For each criterion we established a range of values considered optimal, depending on how varies the distribution of values by counties. In the figure 2 is a scenario in which the investor agree to act in a more crowded place, where the population has higher incomes, but where the competition is high. In the figure 3 is a scenario in which the investor agree to act in a more crowded place, where the population has higher incomes, but where the competition is lower.

In figure 4 are emphasized the results obtained for the first case and in figure 5 generating the reports for the second case.

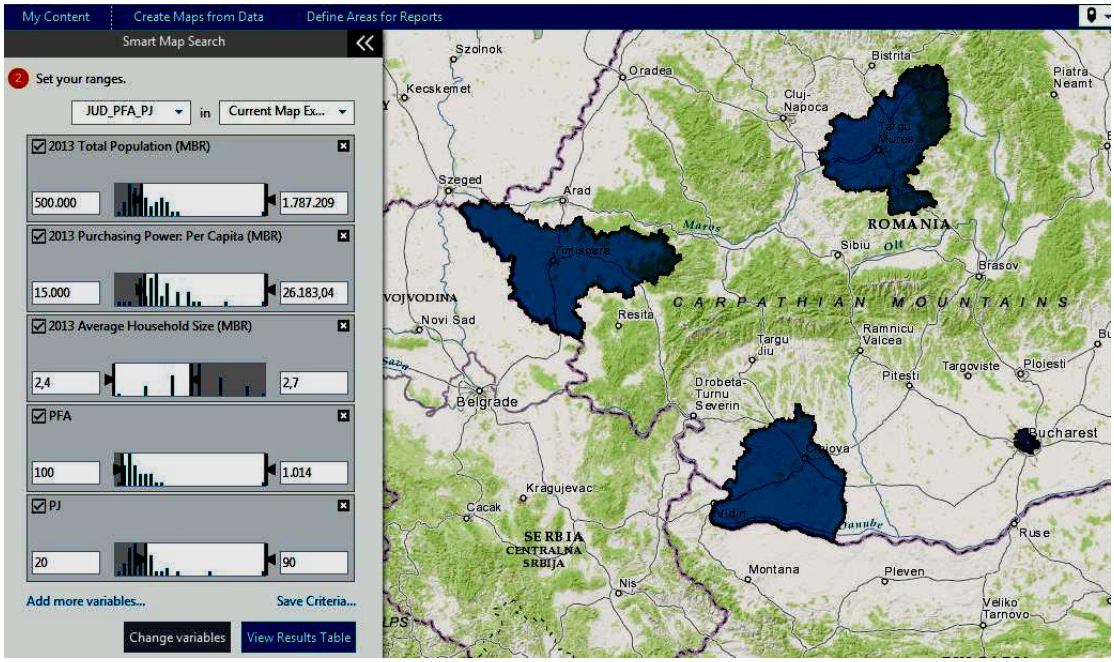


Fig. 2. Defining Criteria – first case

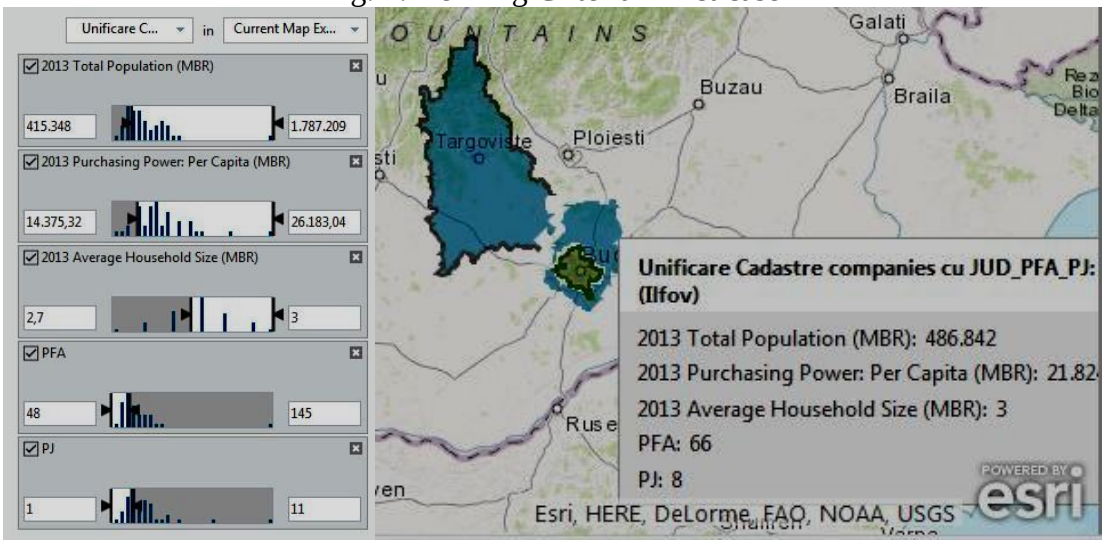
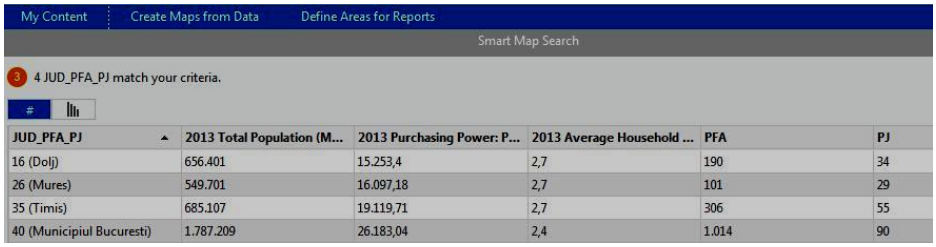


Fig. 3. Defining Criteria – second case



JUD_PFA_PJ	2013 Total Population (M...	2013 Purchasing Power: P...	2013 Average Household ...	PFA	PJ
16 (Dolj)	656.401	15.253,4	2,7	190	34
26 (Mures)	549.701	16.097,18	2,7	101	29
35 (Timis)	685.107	19.119,71	2,7	306	55
40 (Municipiul Bucuresti)	1.787.209	26.183,04	2,4	1.014	90

Figure 4 – Results Obtained for the first case

Figure 5 – Generating Reports for the second case

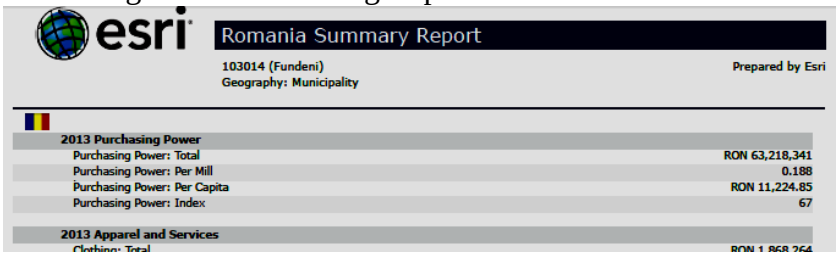


Figure 6 –Extract from the Report of Fundeni area

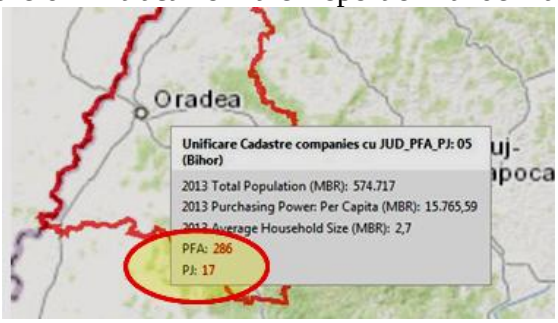


Figure 7 – Example of Unfulfilled Criteria - Bihor County

It had been considered that could be better to take into account two more criteria: number of mortgages and the number of applications registered and solved/rejected, according with NACLR data. These data had been uploaded in ArcGIS Online.

Another data source used for the study is [11], considering that the mortgages represent an important indicator for dynamic of the real estate market as well as a good premise for a business in cadastral domain. Queries are easily done considering the interoperability between ArcGIS Online and Business Analyst Online. In figure 8 are presented the results for Ilfov county already identified in BAO (in the second case) as having a small number of authorized persons – solo traders - and private companies, so where there exist a weak number of competitors.

Another indicators for dynamic of the real estate market is the number of applications registered and solved/rejected, as well as the number of sold real estates, according with NACLR data. In figure 9 is emphasized the situation for Ilfov county, through an analysis proving that is a region with a strong dynamic real estate market.

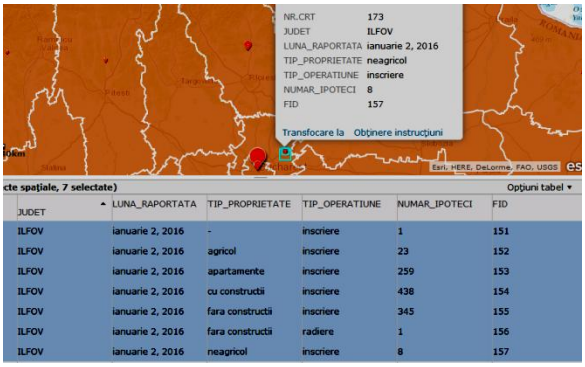


Figure 8 – Mortgages Situation for Ilfov County

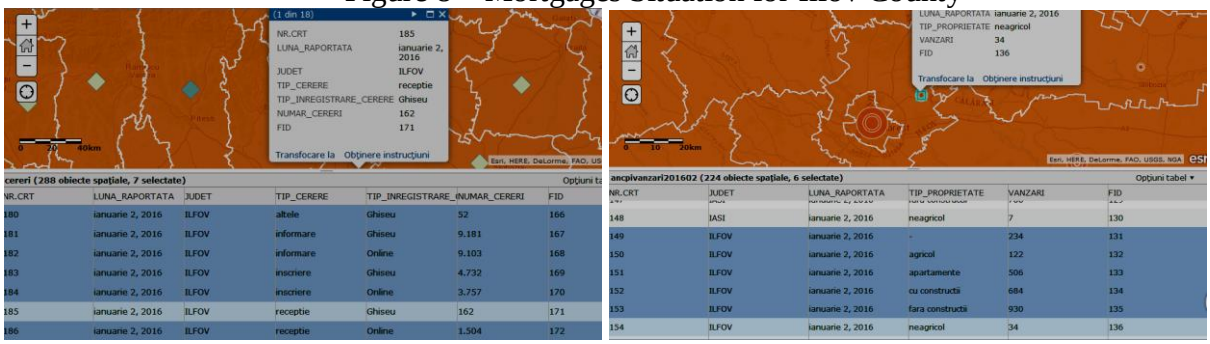


Figure 9 – Requests Situation and Number of Sold Real Estates in January, 2016 for Ilfov County

Based on these eight criteria (five defined in BAO and three in ArcGIS Online) could be concluded that Ilfov is the best place in Romania for starting a new business in cadastral domain.

4. Conclusions

ESRI Business Analyst proves that is a useful tool for finding an appropriate place according with some criteria, extracting the information linked to the purpose. Another advantage is the interoperability with ArcGIS Online, having the possibility to share information. Some analytical functions are automatized [3] and are not necessary a high level of spatial data knowledge, facilitating the business analysts' work.

We need to take into account that these results could be affected by the proximity – Bucharest town – in which are acting the biggest number of authorized persons, being a big density of them. All of these authorized persons could work in fact in Ilfov as well as in Bucharest. For this reason, as a future work, can be made a different analysis regarding Ilfov and Bucharest managed together.

Taking into account that a person could start a business in another country, having the knowledge about the workflow [5], [6], the study could be extended at European level, integrating data that could be downloaded from national cadastral sites.

It should be useful to have more economic and business data in the purpose of creating detailed trends and taking the right decisions. Knowing the economic profile of inhabitants can be made predictions on certain phenomena, especially in valuation works.

Users can generate a report for the specific area of interest and the informations are dynamically aggregated from the demographic and market data for the specified region using advanced GIS techniques that provide accurate estimates even for very small geographic areas.

5. References

1. *Badea, A. C., Badea, G., David, V., Aspects about Green Management of Urban Areas in Romania, DOI: 10.5593/SGEM2015/B22/S11.090, 15th International Multidisciplinary Scientific GeoConference SGEM 2015, www.sgem.org, SGEM2015 Conference Proceedings, ISBN 978-619-7105-35-3 / ISSN 1314-2704, June 18-24, 2015, Book2 Vol. 2, 721-728 pp.;*
2. *Gist, C., Esri Business Analyst, http://guides.lib.virginia.edu/businessAnalyst*
3. *Badea, A. C., Badea, G., The Advantages of Creating Compound GIS Functions for Automated Workflow, International Multidisciplinary Scientific GeoConference: SGEM: Surveying Geology & mining Ecology Management, Editor Surveying Geology & mining Ecology Management (SGEM);*
4. *Badea, A. C., Badea, G., Didulescu, C., Savu, A, Bădescu, G., Some Features of Project Management Using Dedicated Software in the Land Surveying Works, MATHEMATICS & COMPUTERS IN BIOLOGY, BUSINESS & ACOUSTICS Proceedings of the 12th WSEAS International Conference on Mathematics and Computers in Business and Economics (MCBE'11), Braşov, pp 76-81;*
5. *Badea, A.C., Badea, G., Comparative Study on How to Register Property in Other Countries, University "1 Decembrie 1918" Alba Iulia, RevCAD – Journal of Geodesy and Cadastre, no. 12/2012, Aeternitas Publishing House, pp. 7-14, http://journals.indexcopernicus.com/passport.php?id=5668*
6. *Herban, I. S., Research and studies of land information system in some European countries – Efficient tool to understand and manage urban development in Romania, 3rd WSEAS International Conference on URBAN PLANNING AND TRANSPORTATION (UPT '10), Corfu Island, Greece, July 22-24, 2010;*
7. *International Institute of Business Analysis (IIBA). A Guide to the Business Analysis Body of Knowledge®, 2.0 (BABOK® Guide 2)*
8. *http://business-analysis-excellence.com/business-analysis-techniques/*
9. *http://doc.arcgis.com/en/business-analyst/server/types-of-repositories.htm*
10. *http://help.arcgis.com/en/businessanalyst/online/newgen/faqs/index.html*
11. *https://data.gov.ro*