**Selected Innovation Elements in Census**

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**Abstract**

*The next Population and Housing Census taking place in Slovakia in 2021 is, in a way, unique. The change of concept is its essential feature. It is a transition from traditional population and housing censuses to combined ones based on the integration of data from registers and administrative data sources and data obtained from population. The implementation of the new concept covers several elements of innovation, including full electronic data collection, systematic evaluation of quality of administrative data sources used for statistical purposes and coordination of the census preparation via the National Action Plan. The paper is focused on the presentation of those innovations that are specific to that change and are substantial to the preparation of the census, which is labelled, in conditions of Slovakia, by the term “integrated census”.*

**Keywords:** population census, innovation, integrated census, administrative data

**1. Population and Housing Census in Slovakia – new design**

In Slovakia, Population and Housing Census is exhausting survey with the longest history. It is an irreplaceable source of data on the development and current state of a society. Legislatively, its implementation is based on Regulation 763/2008 of the European Parliament and of the Council and on updated Implementing Regulations. At national level, the census is based on the Census Act and therefore it is the only statistical survey that is governed by a special law.

Until 2011, censuses were performed in Slovakia in the traditional way, i.e. the data were collected directly from the population by recording them on the paper form. Traditional censuses were brought to the end by the last census in 2011. The government of the Slovak Republic in its Government´s Statement for years 2016-2020 declared that they would support Population and Housing Census 2021 and "will take care to reduce the administrative burden on the population."

The decision on future census in Slovakia was preceded by discussions in external and internal environments. As an example can be given the conference "Does Slovakia still need census?" (in 2015) or making up a working group for the preparation of the next census in the same year. One of the outputs of the working group also was to specify the objective of the Population and Housing Census 2021 – to obtain interlinked, reliable, comparable, unique data and information on the state of society, its demographic, socio - economic and cultural characteristics and the living conditions of the population and their housing. It is necessary to emphasis, in particular, "interlinked, reliable, comparable, unique data", what has resulted in the future census design. The base of the new design is the integration of data from administrative data sources and registers (ADS&R) and field data.

While in the traditional census in 2011, most of the processes and activities were focused on the implementation, especially on the processing phase, in the integrated census in 2021, the preparatory phase is the key phase. This is mainly due to the new concept of census, the need for in-depth analysis of selected administrative data sources and registers (particularly in terms of assessing their usability for statistical purposes), the need to test new processes and activities, professional and permanently updated information (e. g. to select optimal technologies for fully electronic collection of population data) as well as ensuring the alignment of new practices with field activities.

The proposed design takes into account four basic requirements of the future census: (1) reduction of administrative burden for the population, (2) data quality, (3) statistical outputs at the lowest possible regional level, (4) comparability over time.

To achieve future census success, the following factors have been identified: (i) ensuring access to the administrative data sources and registers for statistical and census purposes; (ii) taking into account the increasing diversity of the population and migration (open movement of persons); iii) taking into account technological development; iv) partnership and cooperation with state and public authorities; (v) activation of urban population in participation in census. These factors are considered to be decisive in designing an integrated census and have been reflected in the plan of innovations for next census in 2021.

In general, innovation can be defined as a new idea or concept based on devising new and improved products, services, processes or technologies and putting it into practice; in other words, a comprehensive set of activities from the invention to its implementation. In the strict sense, it is just a creative process that combines existing things in a new way with the aim to produce/offer a unique thing and in the stricter sense, it is just a new idea or concept.

For Population and Housing Census 2021 in Slovakia, innovation is seen as a set of new or improved processes with the aim to implement a new census concept. In the contribution, we focus on a brief presentation of five innovations: using and quality assessment of the administrative data sources and registers, National Action Plan, territorial preparing for census, fully electronic collection, project management tools.

**2. Usage of Administrative Data Sources and Registers and their quality assessment for census purposes**

The reason for the use of other data sources rather than data collected directly from the population was given not only by the pressure of the statistical experts with the aim to take into consideration trends of the census methods development, but also by the pressure of non-expert public in the last census, emphasizing that the state collects the same data on the population several times. In spite of this fact, 10 years ago, there was not favourable situation for implementation of administrative data sources and registers into statistical production. Nowadays, existing administrative data sources and registers are mainly used in the area of business and partially social statistics, particularly in demography. Within census, these sources, for certain variables, will replace data collected directly from the population, however for the fully register census, the registers in Slovakia have not been still ready and by 2021 they will not have been ready yet (the absence of register of flats).

The use of administrative data sources and registers in the next census a) will contribute significantly to the reduction on respondent burden, b) reduce costs for field data collection and, from the long term view, the total costs as well, c) maximize the usability of existing sources, and d) built the potential to update data in accordance with outlined principles of the post-census 2021.

The decision to incorporate ADS&R into the design of the future census was preceded by the identification of potential data sources for Population and Housing Census 2021 in the form of a questionnaire distributed by the SOSR in May 2015. Its purpose was to find out the content of registers and administrative sources available in terms of their potential use for the census purposes. Central state administration bodies, selected institutions belonging to their competence and some private entities (insurance companies) were their addressees. The conclusions can be summarized in two facts. From the aspect of the content of ADS for the needs of Population and Housing Census 2021, the data on population are predominating, data concerning houses are only partial, and household data are not recorded in the registers and administrative data sources. The second conclusion was the list of sources which will be used as underlying data sources for next census: Register of Natural Persons, Register of Addresses, Central Public Health Insurance Register, Information System of the Ministry of Education, Science, Research and Sport of the SR, Social Insurance Information System, Information System of Geodesy, Cartography and Cadastre and Information System of the Office of Labour, Social Affairs and Family.

To ensure access to administrative data sources and registers, their use and processing, because of the fact that these sources are primarily collected for non-statistical purposes and also due to their current status (in comparison with existing legislation), nowadays requires working meetings with administrators, to secure data sharing agreements and protocols on providing data for verification purposes, their detailed analysis of administrative data sources and registers, in particular in terms of content, coverage, time, controls, used codes and definitions. In terms of innovation of processes, the protection of personal data, the methodology of integration of sources and the quality assessment of administrative data sources and registers at the level of their inputs and outputs, are considered to be the main challenges.

Assessment system of the input quality of registers and administrative data sources is based on the methodology developed by Infostat (Research and Development Organization of the SOSR). It grounds from experience of the Netherlands and the United Kingdom particularly. The methodology described in two studies[[1]](#footnote-1) [[2]](#footnote-2) is based on the evaluation of three hyperdimensions for each source separately: 1. evaluation of source of data, 2. evaluation of metadata, 3. evaluation of data. The source assessment is performed for each transfer on the basis of information that is pre-filled in the registration sheet based on the initial source analysis. The assessment also serves to determine whether a given source and its variables are usable for the purpose of census as a reference source, source for imputation or for coherence. Information on metadata is part of the transfer of each actual batch and is confirmed or updated by the source administrator. Work is currently under way to develop a scheme for assessing the quality of statistical outputs based on integrated data sources.

Integration methodology focuses on steps of the process, algorithms design, logical links, controls and verification of procedures. It includes the integration of administrative data sources and registers with each other, integration of administrative data sources and e-collection (field data from population), as well as integration of data on the population with data on flats and post-integration (people placement in households and families).

**3. National Action Plan for the preparation of Population and Housing Census 2021 for the years 2017-2020 (NAP)**

The document was approved by the Government of the Slovak Republic in August 2016. Its purpose was to ensure cooperation, partnership and support in the phase of designing and production of a new census design. Representatives of administrators of administrative data sources and registers, government departments, municipalities and scientific communities participated in the development of the document itself. The National Action Plan for the preparation of Population and Housing Census 2021 for the years 2017-2020 has 8 strategic objectives in total. Each objective has several specific measures, together 23 ones. Depending on the type of the measure, there is assigned responsibility to the respective government department. Specific objectives are evaluated through a set of indicators. The entities concerned carry out once a year an evaluation of measures for the needs of the SOSR. After the completion of the NAP, a report about achievement will be presented to the Government of the SR.

 The strategic objectives cover different areas. The first objective is focused on ensuring the maximum utilization of data from ADS&R for purposes of Population and Housing Census 2021. Thanks to it and specific measures, the Statistical Office of the SR has not had problems with the access to comprehensive databases from administrative data sources and registers for verification and testing purposes, with the exception of two sources that conditioned provision of data for verification purpose by the existence of a census act. The second objective concerns the national requirement to harmonize data on population in different sources, particularly in demographic statistics, municipal database and the register of natural persons. The third objective is aimed at ensuring spatial planning in line with the requirements of the integrated census. The fourth objective is to take into account the specificities arising from the character of the municipality in the preparation of next round of census, with particular emphasis on census in large cities. The fifth objective pays special attention to specific groups of populations (e.g. collective accommodation facilities) and population groups where census in the proposed design requires a specific approach (homeless people, marginalized Roma communities). By means of the sixth objective we would like to ensure full access to electronic census. The seventh objective focuses on census legislation that will take into account the requirements of the integrated census. The eighth objective is to present the census as a public matter with an emphasis on its society-wide benefits.

**4. Fully electronic collection**

Part of the data in Slovakia can be obtained exclusively from the population. The character of these data predestines them to be obtained via the exhausting survey. It concerns, for example, nationality and religion. The collection of these data will be ensured electronically. No paper questionnaires are expected. The form will have a significantly shortened form compared to the previous census. 12 questions are currently considered.

E-data collection on population will be based on multichannel access. Citizens should have the possibility fill in a form via an on-line form, an off-line form, a mobile application, either from home, work, or from public contact points at the post office or in municipal offices. The communication strategy is based on the idea that citizens fill in the electronic form by themselves and thus will be eliminated the necessity to enter their private zone. However, we must take into account the fact that a part of the population will not use this option because of their digital exclusion. The assistant for census will work for them by using tablet. He/she will work primarily with groups of people without access to the Internet, the elderly and the marginalized Roma communities. These are the segments we identified on the basis of analyses of the level of digitalisation in Slovakia as well as on the basis of the relation of the population to this form of IT tools, which we obtained by putting specific module on e - collection into the sample surveys in the households.

**5. Project management**

The Population and Housing Census 2021, its preparation and implementation is regarded as a specific project in the internal environment of the SOSR. Project management includes, alongside the project office, an operational plan that was developed and approved in March 2018, human resources management, financial management and risk management.

The management of the project runs at more levels and includes the Central Commission for Census, the Steering Committee of the President of the Statistical Office of the SR, the Census Working Group, the NAP Analytical Team. Under the Special Statute, the Steering Committee approves output documentation, monitors costs, key dates, identifies and monitors risks and approves measures to eliminate them, approves and evaluates the operational plan. The Central Commission for Census, composed of representatives of partners and co-operating entities, will be made up on the basis of a Census Act where its mission will be defined.

The abovementioned census concept also includes changes in territorial preparing of census based on the use of address points and the replacement of enumeration districts by assistance areas, and data collection on housing stock, where we would like to minimize citizen involvement and utilize existing administrative and other data sources. An essential prerequisite for successful census realization is the implementation of these changes into the newly-built architecture of information systems that are also applicable for undertaking tasks within the post census 2021.

1. Quality assessment of administrative data for statistical purposes, December 2016 [↑](#footnote-ref-1)
2. National Framework for Quality Assessment of Integrated Data Sources with focus on Population and Housing Census 2021, December 2017 [↑](#footnote-ref-2)