Digital transformation and data-driven management in Polish cities' councils

The Institute of Urban and Regional Development carried out research to diagnose the level of progress of Polish cities' digitalization efforts. We were primarily interested in issues related to the provision of e-services, the implementation of new technologies and the introduction of integrated urban data management. A survey questionnaire was sent by e-mail to all cities with over 5,000 inhabitants (582), and the return of the completed form was received from less than 52% of them (301 cities). The questionnaire survey was supplemented by knowledge collected during working meetings and interviews with municipal officials. The product of the research is the report "Data-driven city management". The report was based on survey research, a literature search, as well as on the Institute of Urban and Regional Development's expert knowledge gained during cooperation with selected Polish cities. The aim of this report was to present the issue of urban data held by local governments and the practice of using it.

The main conclusions of the research are as follows.

As far as the obstacles preventing the effective use of data in management processes are concerned, local governments declared that they face mainly financial barriers. Among other things, employees' reluctance to change and insufficient digital competences were also pointed out. 60% of the cities surveyed have no data document. However, if the issue does appear, it is usually in the overall development strategies. Only a few cities have separate smart city strategies that pay attention to the use of data in the organization. If specific bodies dedicated to data management issues are created in cities, they are primarily concerned with "digital transformation" and the unit responsible for all digital challenges (including data use) is usually the IT department or the city IT officer. Another important ingredient for enabling city management using data is the condition of the data, assessed by the quality and timeliness of the data, as well as the presence and characteristics of standards for collection, sharing, exchange and integration. The results of the research clearly indicate that the procedures and standards mainly relate to data publication and data security. This is mainly due to obligations imposed by the legislator. Internal rules for data exchange or integration are rare and only found in large cities. In medium-sized cities, paper-based data sources are estimated to account for several to as much as 30% of the city's total information resources. In terms of the data formats used, the situation is much more complex. For new applications being implemented in larger cities, open software interfaces are emerging to allow the integration and exchange of data residing in databases, on servers or in the cloud. It is still common to export data to hard disks or other file media at only Level II openness according to the Berners-Lee scheme (5 star open data) - e.g. MS Excel spreadsheets. Only 30% of the cities surveyed had carried out a data inventory. The vast majority of this group are large cities, among which awareness of the relevance of data to the organization is much higher. The surveyed cities most often use tools supporting the current work of officials related to civil registration (98%), spatial planning (91.3%), as well as management of municipal property and public roads (83.2% and 80.1%). Software aimed at managing the wider development of the municipality is used least frequently (27.8%). The tools mentioned above most often allow for simple viewing and updating of data or visualization of indicators. Rare are the functionalities that allow for ongoing reactions or those that actually enhance the analytical potential of the data.