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**Research on the use of administrative data for censuses****Administrative data and 2011 census data usage for  
determination of the housing and household data in the  
register-based population and housing census in Latvia****Note by the Central Statistical Bureau of Latvia\****Summary*

The population and housing census of 2021 (hereinafter referred to as the 2021 census) in Latvia will be carried out on the basis of information obtained from administrative data sources and from the population and housing census of 2011 (hereinafter referred to as the 2011 census), as well as from regular statistical sample surveys, if necessary. The Central Statistical Bureau of Latvia (CSB) continues research and analysis of the availability of administrative data to develop administrative data processing methodologies in the field of educational attainment of the population of Latvia. This paper describes the main results of the feasibility study of the usage of administrative data, 2011 census data and information from statistical sample surveys to obtain data for the population and housing census sections on housing characteristics and households.

Administrative data from the Real Estate State Cadastre (RESC) Information System (IS) and the State Address Register (SAR) Information System of the State Land Service (SLS) are studied to obtain housing characteristics. An algorithm is developed to prepare data on households based on registered address and family nucleus formation.

Results of the initial assessment of the availability and quality of administrative housing data are described, possible use of 2011 census data to fill gaps is evaluated, and the method of formation of households is described.

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## I. Introduction

1. Data on households, families and housing are the core topics of Population and Housing Censuses and represent important characteristics of society. The main sources for these data are the Population Register (PR) of the Office of Citizenship and Migration Affairs (OCMA), SAR of the SLS, RESC IS of the SLS and the 2011 census.
2. In June 2015 the Action Plan for preparing and carrying out the 2021 census was approved by the Cabinet of Ministers. It included several activities regarding housing data. For the CSB of Latvia it included addition of housing characteristics into the Social Statistics Data Warehouse (SSDW). SLS included several activities aimed at data availability, completeness and quality improvement in SAR and in RESC IS. Unfortunately, the planned activities of SLS did not get financing up to 2017 and amendments of the action plan were approved at the end of the 2017, deleting SLS activities from this plan. Nevertheless, SLS continued work on data availability and quality improvement within the framework of the budgetary resources. A feasibility study of the present situation as regards SAR and RESC IS data availability, quality, definitions and classifications was conducted within the Eurostat Grant Project to find gaps and to work out proposals for how to fill them.
3. Work on housing and household topics includes studies of administrative data availability, assessment of the usage of the incoming administrative data, development of administrative data processing methodologies and assessment of the quality of data processing.
4. The PR is evaluated in terms of its ability to provide information on declared address of registered residence, and for determining household formation on the basis of family nucleus formation, using a methodology which was developed in 2016 and which has improved annually.

## II. Results of research on administrative and other data sources

5. Considering the household and housing characteristics included in the 2021 census programme and the additional requirement to prepare data for 1 km<sup>2</sup> grid maps, appropriate administrative data sources should be found to ensure data availability, compatibility, completeness and quality.

### A. Feasibility study of RESC IS housing database

6. RESC IS data from 1 January are available annually on the basis of a bilateral agreement. Data processing is conducted in the CSB to withdraw data from appropriate tables of the RESC IS data base. SLS provided the necessary metadata and introduced database design schemes. It also helped to find additional possibilities to improve data availability and quality. Structured Query Language (SQL) is used to communicate with the database.
7. Nevertheless, additional controls should still be considered to ensure correspondence between the type of residential building and the number of dwellings in it, and owners should be associated with buildings/dwellings.

#### 1. Topic: Type of living quarters

8. According to census methodology, living quarters are housing which is the usual residence of one or more persons. The terms “Conventional dwellings”, “Other housing units” and “Collective living quarters” are defined as under the topic “Housing arrangements”. The breakdown “Type of living quarters” is designed to break down the total of “living quarters”, and any subtotals.
9. In the RESC IS there is a code indicating the type of main use of the building or group of premises. This classification is determined by the Regulations of the Cabinet of Ministers No. 263 as of 10 April 2012 on the Registration of Cadastre Object and Update of Cadastre Data (hereinafter Regulation No. 263), and both groups of buildings (residential and non-

residential) are included in it. The aim of these new Regulations is to avoid cross-contradictions in the classification, so that the same object is no longer classified by several codes, and the description of the objects would be unambiguous and complete according to the existing situation. The Regulations include a definition of the main use of the building and the use of the group of premises. The lack of definitions in the previous Regulation has led to different interpretations of the use of buildings by the municipality in assigning uses to buildings and groups of premises. The new Regulations clearly define what the main use of a building is and what the use of a group of premises is.

10. Further improvements are planned, since the Ministry of Justice, in co-operation with the Ministry of Economics, the Ministry of Environmental Protection and Regional Development and the Ministry of Agriculture, is in 2019 developing the new regulations for the classification of buildings and structures (unified spatial planning and structures), which are based on the classification of spatial planning, but at the same time ensure the use of the classification of buildings and structures in construction, economy and other industries.

11. The classification of buildings among “residential buildings” also includes “Residential homes of different social groups”, which could be the source for the indicator “common living quarters”, but the data on common living quarters is not derived from RESC IS. A list of collective housing is established in the CSB and this list of addresses is the primary source of collective housing and, accordingly, persons living in collective housing. This list is updated annually. It includes the dormitories of vocational schools and universities, social rehabilitation and medical institutions, social shelters, orphanages, night shelters, prisons and monasteries. The results of research conducted on data of 1 January 2018 are shown in Table 1.

Table 1  
**Division of living quarters by type, 2018**

<i>Type of living quarters</i>	<i>Number, thousands</i>	<i>%</i>
Occupied conventional dwellings	801.7	98.3
Other housing units	8.6	1.1
Collective living quarters	1.2	0.1
Not stated	4.0	0.5
<b>Total</b>	<b>815.5</b>	<b>100.0</b>

## 2. Topic: Useful floor space

12. According to the methodology, useful floor space is defined as the floor space measured inside the outer walls, excluding non-habitable cellars and attics and, in multi-dwelling buildings, all common spaces. The breakdown “Useful floor space” is designed to break down the total of “conventional dwellings”, and any subtotals.

13. Research was conducted on RESC IS data availability and quality. Types of premises were checked to decide which of them should be used for meeting census needs. It was recognized that data availability in the RESC IS has now improved and there is no longer a need to use the estimation method that was used for the 2011 census.

14. After checking premises with small floor spaces (10 m<sup>2</sup> and less) it was recognized that some auxiliary rooms were counted separately from dwellings and these cannot be recognized as separate dwellings. Minor problems were found as regards large useful floor space, as there are some rental apartment houses without official splitting into dwellings. Each owner of dwelling is officially recognized as the owner just of the part of building. Further research will be conducted. The result of research conducted on data of 1 January 2018 are shown in Table 2.

Table 2  
**Division of conventional dwellings by useful floor space, 2018**

<i>Useful floor space</i>	<i>Number of dwellings, thousands</i>	<i>%</i>
Under 30 square meters	89.3	8.2
30- less than 40 square metres	140.3	12.9
40- less than 50 square metres	202.5	18.6
50- less than 60 square metres	178.2	16.4
60- less than 80 square metres	207.6	19.1
80- less than 100 square metres	74.5	6.9
100- less than 120 square metres	86.5	7.9
120- less than 150 square metres	37.2	3.4
150 square metres and over	70.5	6.5
Not stated	0.8	0.1
<b>Total</b>	<b>1 087.5</b>	<b>100.0</b>

### 3. Dwellings by type of building

15. According to the methodology, the topic “Dwellings by type of building” refers to the number of dwellings in the building in which the dwelling is placed. The breakdown “Dwellings by type of building” is designed to break down the total of “conventional dwellings”, and any subtotals.

16. Research on RESC IS data showed that in general the main type of use can be used to split buildings into one, two, and three or more dwelling houses and collective dwelling houses. Some discrepancies have been identified, which will be addressed.

17. If a dwelling is situated in a building with another type of main use, it is recognized as a traditional dwelling in non-residential building. Dwellings in buildings with the type of main use “Collective dwelling houses of different social groups” have been checked and decisions were made. If the entire building is registered as collective dwelling house it will stay as such, but in cases when part of the building has conventional dwellings, groups of premises will be split. The results of research conducted on data of 1 January 2018 are shown in Table 3.

Table 3  
**Division of conventional dwellings by type of building, 2018**

<i>Type of building</i>	<i>Number of dwellings, thousands</i>	<i>%</i>
Conventional dwellings in residential buildings	1 080.4	99.3
<i>Conventional dwellings in one-dwelling buildings</i>	312.5	28.7
<i>Conventional dwellings in two- dwelling buildings</i>	27.3	2.5
<i>Conventional dwellings in three or more dwelling buildings</i>	740.6	68.1
Conventional dwellings in non-residential buildings	7.1	0.7
<b>Total</b>	<b>1 087.5</b>	<b>100.0</b>

### 4. Topic: Dwellings by period of construction

18. According to the methodology, the topic “Dwellings by period of construction” refers to the year when the building in which the dwelling is placed was completed. The breakdown “Dwellings by period of construction” is designed to break down the total of “conventional dwellings”, and any subtotals.

19. Research on RESC IS data showed that the year of start of exploitation has to be taken because there is more data available, especially because the construction of buildings could be commissioned without division into dwellings and without information about the facilities in them.

20. Taking into account that the initial idea to input missing data from paper versions of building commissioning acts kept by local governments did not receive financial support from the Government, an agreement was made between CSB and SLS to add missing data about the period of construction in the RESC IS from the 2011 census, when such data is available. In 2018 the period of construction data was missing for almost 71 thousand conventional dwellings (6.5 per cent of the total number). After inclusion of 2011 census data, this information still is missing for 11 thousand conventional dwellings (just 1 per cent of the total number). This number is smaller than during the 2011 census, when it was close to 14 thousand. The results of research conducted on data of 1 January 2018 are shown in Table 4.

Table 4

**Division of conventional dwellings by period of construction, 2018**

<i>Period of construction</i>	<i>Number of dwellings, thousands</i>	<i>%</i>
Before 1919	119.2	11.0
1919–1945	140.4	12.9
1946–1960	96.7	8.9
1961–1980	389.2	35.8
1981–2000	259.9	23.9
2001–2010	53.6	4.9
2011–2015	13.0	1.2
2016 and later	4.0	0.4
Not stated	11.5	1.0
<b>Total</b>	<b>1 087.5</b>	<b>100.0</b>

**5. Topic: Type of ownership**

21. According to the methodology, the topic “Type of ownership” refers to the ownership of the dwelling and not to that of the land on which the dwelling stands. It is intended to show the tenure arrangements under which the dwelling is occupied. The breakdown “Type of ownership” is designed to break down the total of “conventional dwellings”, and any subtotals.

22. Data about owners are included in the RESC IS.

23. Since municipalities apply additional real estate taxes in cases when somebody owns real estate but does not register the dwelling as his or her residency, people may register themselves in their properties even if they do not live there. This could apply in those cases when an owner rents out his or her dwelling and does not want to pay extra taxes: he or she registers him or herself in the property, even though it is rented. Therefore, it is believed that there are more rented dwellings and fewer owner-occupied dwellings than estimated so far.

24. Other administrative data are needed to increase the validity and reliability of the data on the ownership of dwellings. It is known that new indicators will be available from OCMA, which might be helpful to achieve these aims. The results of research conducted on data of 1 January 2018 are shown in Table 5

Table 5  
**Type of ownership of conventional dwellings, 2018**

<i>Type of ownership</i>	<i>Number of dwellings, thousands</i>	<i>%</i>
Owner-occupied dwellings	470.0	43.2
Rented dwellings	69.2	6.4
Dwellings in other types of ownership	262.5	24.1
Not stated	0	0
Not applicable	285.8	26.3
<b>Total</b>	<b>1 087.5</b>	<b>100</b>

## 6. Dwelling facilities

25. According to the methodology, the topic “Water supply system” refers to the availability of piped water in a dwelling; the topic “Toilet facilities” refers to the availability of a flush toilet in a dwelling; the topic “Bathing facilities” refers to the availability of a fixed bath or shower in the dwelling; and the topic “Type of heating” refers to the availability of central heating in dwelling. The breakdowns “Water supply system”, “Toilet facilities”, “Bathing facilities” and “Type of heating” are designed to break down the total of “conventional dwellings”, and any subtotals.

26. There are still some data shortages as regards building and dwelling facilities. However, the quality of data is increasing year by year. CSB is using 2011 census data to reduce these data shortages. However, CSB uses information from the 2011 census only in cases where there is no information in RESC IS.

27. New administrative data will be available for study in 2019. Therefore, it is expected that the quality and validity of data and data coverage for dwellings will increase. The results of research conducted on data of 1 January 2018 are shown in Table 6.

Table 6  
**Facilities of conventional dwellings, 2018**

	<i>Water supply system</i>		<i>Flush toilet</i>		<i>Bathing facilities</i>		<i>Central heating</i>	
	<i>Number of dwellings, thousands</i>	<i>%</i>	<i>Number of dwellings, thousands</i>	<i>%</i>	<i>Number of dwellings, thousands</i>	<i>%</i>	<i>Number of dwellings, thousands</i>	<i>%</i>
Facility is in conventional dwelling	927.1	85.2	845.6	77.7	810.9	74.6	1 045.4	96.1
No facility in conventional dwelling	104.4	9.6	169.2	15.6	198.3	18.2	2.0	0.2
Not stated	56.0	5.2	72.7	6.7	78.3	7.2	40.1	3.7
<b>Total</b>	<b>1 087.5</b>	<b>100.0</b>	<b>1 087.5</b>	<b>100.0</b>	<b>1 087.5</b>	<b>100.0</b>	<b>1 087.5</b>	<b>100.0</b>

28. Changes are occurring regarding heating systems in conventional dwellings (e.g. people are introducing gas central heating, floor heating or heat pump systems). Furthermore, in cases where 20 per cent or more of the dwellings in a building have central heating then all dwellings in this building likely have a similar heating system. With these factors in mind it was found that, irrespective of the type of fuel used for heating, 96.1 per cent of conventional dwellings have central heating.

## B. Address code and geographical coordinates

29. To meet the requirements of the Regulation (EU) 2018/1799, census data should be linked with geographical coordinates.

30. SAR has address codes and geographical coordinates for addresses. Address codes are used to link people from the PR with an address and with housing data from RESC IS.
31. Research was conducted, and the main conclusions are the following.
32. The existence of more than one residential building at the address is still a problem to be solved. However, some methodological solutions have been found. For instance, if there are several single-dwelling houses at the respective address, then it is decided that the one with the largest floor space will be considered to be occupied. If there is one single-dwelling house and the rest are two-or-more-dwelling houses, then only the single-dwelling house is considered to be occupied. Furthermore, SLS was informed about this situation and local administrations were contacted by the SLS to resolve such situations.
33. Some buildings/dwellings do not have an SAR code. Information about missing codes was transmitted to the SLS and they are clarifying the situation in cooperation with the local authorities. At the beginning of 2019 there were 2.4 thousand dwellings without an SAR code (0.6 per cent of the total number), but on the level of dwellings, there were 7.6 thousand. Further improvement is expected.
34. In checking geographical coordinates for the particular addresses, it was recognized that they are not always showing the precise location of the dwelling. Therefore, it was decided that more precise information about geographical coordinates should be taken from the RESC IS, since they are available on the level of building.
35. Another issue regarding the linkage between registered addresses and RESC IS is that some people are registered in multiple-dwelling buildings on the building level. In these cases, it is not possible to link a household with a specific dwelling. There were 2.9 thousand addresses of dwellings and 9.5 thousand persons registered on the level of a building containing multiple dwellings at the beginning of 2018. Taking into account the experience of other countries, information about empty dwellings will be checked and persons will be divided among the remaining dwellings.
36. Almost all groups of premises without an SAR code are in individual houses. In general, for individual houses the SAR code of the building should be considered for use, but other housing data (useful floor space, facilities) should be taken from the appropriate group of premises, if available. This is because there could be groups of premises with another main use: for example, small shops, hairdresser's, etc.
37. One more problem is that there are addresses in the PR, which do not exist in the SAR. The main reasons are old declared addresses that have changed name, but for which this information is not provided by the local administrations and therefore no changes have been made. There is a cooperation ongoing between SLS and OCMA to improve this situation. At the beginning of 2018 there were 7 thousand problematic addresses (14.7 thousand inhabitants in accordance with the PR). Further improvement is expected in the 2019 data.
38. A more serious problem appears when an address which is in SAR and PR registers is not found in RESC IS. In this case, it is also not possible to link the household with a specific dwelling. It is also concluded that buildings with no SAR code would not be a problem regarding data about dwelling characteristics: however, these buildings cannot be linked with other registers. There were 23.0 thousand dwellings with an SAR code, which were not linked to any object in the RESC IS at the beginning of 2019. This situation is mainly due to the requirement for enumerators during the 2011 census to visit all dwellings in which someone was living permanently, even if the house is not yet finished. For these addresses the 2011 census data will be checked and any available information will be added. At the same time SLS will clarify situation with local administrations.

### **C. EU-SILC housing data**

39. In checking EU-SILC housing data, it was recognized that it has a comparatively small sample size. The sample frame consists of addresses with address codes and usually problematic addresses are excluded from the frame.

40. In addition, RESC IS data are already widely used for EU-SILC in the survey's pre-print, which means that additional information on dwelling characteristics from EU-SILC is even smaller than the sample size.

41. The conclusion is that EU-SILC data do not offer much potential for improvement of housing data availability and quality.

#### **D. Topic: Housing arrangements**

42. According to the methodology, the topic "Housing arrangements" covers the whole population and refers to the type of housing in which a person usually resides at the time of the census. This covers all persons who are usual residents in different types of living quarters, or who do not have a usual residence and who are staying temporarily in some type of living quarters, or who are roofless, sleeping rough or in emergency shelters, when the census is taken.

43. People living in conventional dwellings and collective living quarters were checked. It was recognized that just a small number of people could not be attached to particular address.

44. Problems regarding conventional dwellings have been mentioned before: more than one dwelling at one address, people declared in multiple-dwelling buildings at the level of the building, etc. Partial solutions have been found, and further improvement of the situation is expected.

45. In cases when people were declared in addresses without a dwelling or without even any group of living premises, they were recognized as living in another housing unit.

46. Serious efforts were made during the project to update the list of collective living quarters which was initially prepared for the 2011 census and which afterwards was used, with some later updates, for exclusion of such quarters from the address frames of social statistics sample surveys.

47. An updated list of addresses of the dormitories of vocational schools and universities was prepared.

48. Updates of the 2011 census list as regards social rehabilitation and medical institutions were mainly based on information from the Ministry of Welfare (MoW) and Ministry of Health (MoH). In addition, some institutions were checked on the Internet. If an institution had a website or if it was mentioned on the website of the local authority then it was added to the list.

49. A similar procedure was used for social shelters and orphanages. In cases where they were not in the list of MoW, they were checked on the Internet.

50. This list of collective living quarters will be updated annually.

#### **E. Household formation**

51. According to the methodology, the household-dwelling concept that will be used in Latvia for the 2021 census considers all persons living in a housing unit to be members of the same household, such that there is one household per occupied housing unit. In the household dwelling concept, then, the number of occupied housing units and the number of households occupying them is equal, and the locations of the housing units and households are identical.

52. Research on how to construct a household division on the basis of results for family nucleus formation activity, which was started some years ago, was one of activities implemented during the second half of the grant project. The family nucleus is important for household formation because the classification of households includes division by the number of families and especially further division of one-family households into one-couple households with or without children, lone mothers' or lone fathers' family households, and non-family households.



53. There are three census topics covering households: type of household, size of household and household status. These household topics are based on the family nucleus, which, according to the methodology, is two or more persons who belong to the same household and who are related as husband and wife, as partners in a registered partnership, as partners in a consensual union or as parent and child. To obtain the required characteristics of households and the three family topics – family nucleus, size of family nucleus and family status, the types of family nucleus are obtained using a special algorithm.

54. Household formation activity within this project was derived on the basis of data on family nuclei, for which the methodology was developed in 2016 and which has been improved annually since then.

55. It must be admitted that for 2011 census the usual residence concept was used, while for 2017 registered residence was used. This is the main reason for differences.

56. Household topics are based on the family nucleus. Considering all the conditions, creating the necessary syntax and calculation did not cause any problems. The only problem was to compare the new data with the 2011 census data, because in 2011 the concept of “housekeeping” was used to determine households. This means that in the 2011 census, several households could be identified and counted in the same housing unit.

57. The results for calculation of type of household is shown in Table 7, but it should be noted that household data on 1 January 2017 and data of the 2021 census are based on different concept than that which was used for the 2011 Census. Therefore, some recalculations were made for the 2011 census data.

Table 7

**Division of number of households by type of household, 2017**

	01.01.2017		2011 Census data (recalculated)		Comparison 01.01.2017 vs 2011 Census data	
	Number, thousands	%	Number, thousands	%	Number, thousands	%
	<i>1. Non-family households</i>	332.9	40.9	267.5	33.1	65.4
1.1. One-person households	303.3	37.3	245.8	30.4	57.5	6.9
1.2. Multiperson households	29.6	3.6	21.7	2.7	7.9	0.9
<i>2. One-family households</i>	427.7	52.5	478.5	59.1	-50.8	-6.6
2.1. Couple households	232.6	28.6	327.0	40.4	-94.4	-11.8
2.1.1. Couples without resident children	93.0	11.5	125.4	15.5	-32.4	-4.0
2.1.2. Couples with at least one resident child under 25	97.0	11.9	164.5	20.3	-67.5	-8.4
2.1.3. Couples, youngest resident son/daughter 25 or older	42.6	5.2	37.1	4.6	5.5	0.6
2.2. Lone father households	40.2	4.9	18.9	2.3	21.3	2.6
2.2.1. Lone father households with at least one resident child under 25	28.1	3.4	12.3	1.5	15.8	1.9
2.2.2. Lone father households, youngest resident son/daughter 25 or older	12.1	1.5	6.6	0.8	5.5	0.7
2.3. Lone mother households	154.9	19.0	132.6	16.4	22.3	2.6
2.3.1. Lone mother households with at least one resident child under 25	92.7	11.4	81.1	10.0	11.6	1.4
2.3.2. Lone mother households, youngest resident son/daughter 25 or older	62.2	7.6	51.5	6.4	10.7	1.2
<i>3. Two-or-more-family households</i>	53.1	6.5	63.3	7.8	-10.2	-1.2
<b>Total</b>	<b>813.7</b>	<b>100.0</b>	<b>809.2</b>	<b>100.0</b>	<b>4.5</b>	<b>0.0</b>

58. Six of the census topics on data of 1 January 2017 about households and families have been added to the SSDW: type of household, size of household, household status, family nucleus, size of family nucleus and family status.

59. Further work on these topics will be continued on the basis of the algorithm that has been developed. Data from 1 January 2018 were completed in May 2019 and added to the SSDW, and data from 1 January 2019 were available in July 2019.

## F. Density standard

60. According to Regulation (EU) 2017/543 the topic “Density standard” relates the ratio of useful floor space in square metres to the number of occupants, as specified under the topic “Number of occupants”. Member States must report on the density standard measured by the “useful floor space”. The breakdown “Density standard (useful floor space)” is designed to break down the total of “occupied conventional dwellings”, and any subtotals.

61. Considering that the household dwelling concept is used: the number of occupied conventional dwellings and the number of households occupying them is equal; the locations of the occupied conventional dwellings and the locations of the households are identical; and the number of household members is identical to the number of occupants. Therefore, after calculation of household size it is easy to calculate the density standard for a particular occupied conventional dwelling since useful floor space is also known.

62. During the pilot project an algorithm was developed to link useful floor space with the number of occupants to obtain the necessary division of density standard categories. The results of research conducted on data of 1 January 2018 are shown in Table 8.

Table 8

### Division of number of households by type of household, 2017

<i>Density standard (floor space)</i>	<i>Number of dwellings, thousands</i>	<i>%</i>
Under 10 square metres per occupant	28.7	3.6
10- less than 15 square metres per occupant	75.8	9.5
15- less than 20 square metres per occupant	98.9	12.3
20- less than 30 square metres per occupant	179.3	22.4
30- less than 40 square metres per occupant	127.8	15.9
40- less than 60 square metres per occupant	164.6	20.5
60- less than 80 square metres per occupant	59.8	7.5
80 square metres and over per occupant	62.2	7.7
Not stated	4.6	0.6
<b>Total</b>	<b>801.7</b>	<b>100.0</b>

## III. Conclusion

63. The grant project showed that SLS housing and address data is a good basis for the housing census. SLS is improving data availability and quality in cooperation with OCMA and local governments annually.

64. Data from the 2011 census can be used to partially fill gaps that still exist in RESC IS.

65. Within the framework of the grant project, a detailed description of the methodology of the housing and household indicators was developed, including algorithms, a list of conditions to supplement the missing data for several indicators, and a schedule of future activities to be performed.

66. Geographical coordinates will be taken mainly from the RESC IS since they are available on the level of buildings and because the available data are in general sufficient for the 2021 census grid.
67. In late 2018, SLS senior experts responsible for RESC IS, and CSB experts, established direct communication which has made information exchange more direct and approachable and which has made the research progress much faster and more easily.
68. During this new-found communication, several new data linkages were discovered by CSB experts: for instance, now there is much more complete information about the floor space of individual houses than was known before. As result, available data are sufficient for use and there is no longer a need to use data imputation for one-dwelling house floor space.
69. This new stage of cooperation has increased data availability and quality significantly. RESC IS consists of approximately 50 tables, which interlink with one-another. However, not all tables interlink. Before late 2018 not all linkages were known to CSB experts. However, during the direct communication with RESC IS experts these linkages were discussed, and, because of this, more complete and higher quality data have become available.
70. SAR codes can be used to link housing data with persons. Minor problems can be solved before the 2021 census.
71. Work will continue on identifying other possible additional data sources from which information about the housing facilities could be obtained.
72. Housing and household data are added to the SSDW and this can be recognized as the next step to ensure successful organization of a register-based population and housing census in 2021. It is planned that data will be updated in SSDW annually.
73. Close co-operation between CSB and SLS at the expert level should be continued to ensure complete and high-quality data and metadata availability for the 2021 census.
74. Considering that administrative territorial reform is planned in Latvia for 2021, it is even more important to ensure availability and high quality of geographical coordinates in the RESC IS to link personal and housing data with new administrative or territorial units. Close cooperation among CSB, SLS and local governments will be continued.
75. The results of this grant project were presented during the 22nd Baltic Census Seminar on 16 May 2019 in Riga, Latvia.
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